

UMATILLA COUNTY COMPREHENSIVE SAFETY ACTION PLAN 2025

Acknowledgments

This Comprehensive Safety Action Plan was developed as Umatilla County's Safe Streets Action Plan. The content herein was prepared in coordination with State, regional, and local partners, including the participating general public. This document was made possible due to the time, effort, and insight provided by the various groups and individuals listed below:

Umatilla County Project Team

Megan Davchevski
Charlet Hotchkiss
Robert Waldher

Project Advisory Committee

Dawn Hert – Dept of Land Conservation and Development
Dani Schulte – CTUIR
Eric Smith – CTUIR
Shawn Brown – CTUIR
Bryan Medelez – Medelez Inc
Ryan DeGrofft – Business Oregon
Cheryl Jarvis-Smith – ODOT
Kenneth Patterson – ODOT
Richard Lani – ODOT
Tom Fellows – Umatilla County
McKenzie Bowey – Umatilla County

Umatilla County Board of Commissioners

John Shafer
Daniel Dorran
Celinda Timmons

Consultant Team

STV INCORPORATED

Adrian Pearmine
Chris Svolopoulos
Johnny McGlone
Bilal Assad
Nick Adams

KITTELSON & ASSOCIATES

Chris Bame
Morgan Dean
Matt Hughart
Nicholas Foster

DKS

Joel McCarroll
Lacy Brown

ZAN & ASSOCIATES

Tom Holmes
Summer Cook

Agency Stakeholders

- Richard Lani* – ODOT
- Kenneth Patterson* – ODOT
- Cheryl Jarvis-Smith* – ODOT
- Marlow Stanton – ODOT
- Brian Johnson – Umatilla County
- Karie Walchli – Umatilla County
- Sage DeLong – Umatilla County
- Tom Fellows* – Umatilla County

Members of the PAC

RESOLUTION Umatilla County is dedicated to developing and maintaining a transportation system that is safe, accessible, and resilient for all persons traveling throughout the county. Through the lens of the Safe Systems Approach, the County reaffirms its continued investment in the reduction of severe injury and fatal crashes on County-maintained roads.

By adopting this Safety Action Plan, Umatilla County, through its Board of Commissioners, commits to support and promote any and all feasible findings within this plan. Whether through County implementation or partnership with other local agencies, Umatilla County acknowledges that the policy, process, and countermeasure recommendations found herein directly contribute to **an interim goal of a 50 percent reduction in fatal and serious injury crashes by 2045.**

TABLE OF CONTENTS

02 ACKNOWLEDGEMENTS

04 EXECUTIVE SUMMARY
- Collision trends
- Study area
- Other reference docs

28 COMMUNITY OUTREACH

45 SAFETY ANALYSIS

73 DISADVANTAGED COMMUNITY ANALYSIS

79 PRIORITIZATION
- Methodology
- Results
- Selection

88 COUNTERMEASURES
- Toolbox
- Application
- Selection

92 WORK EXHIBITS/SAFETY RECOMMENDATIONS

112 POLICY AND PROCESS
- Existing Conditions, Policies
- Proposed Policy and Process Change

115 PERFORMANCE METRICS

120 ADDITIONAL STRATEGIES

122 OUTRO

Executive Summary

Umatilla County is in the process of developing a Safe Streets and Roads for All (SS4A) Safety Action Plan. The Safety Action Plan (SAP) analyzes recent crash data on all major County roads and State Highways in Umatilla County for the purpose of identifying crash patterns and prioritizing safety countermeasures. This memorandum summarizes the existing conditions analysis, which evaluates the five most recent years of crash data and roadway characteristics to identify broad emphasis areas and locations to focus countermeasures on.

SAFETY CHALLENGES



39 PEOPLE WERE KILLED



111 PEOPLE WERE SEVERELY INJURED



125 FATAL AND SEVERE INJURY CRASHES



3,257 PEOPLE WERE INVOLVED IN 1,536 CRASHES

EMPHASIS AREAS FOR TRANSPORTATION SAFETY IN UMATILLA COUNTY INCLUDE ↓



ROADWAY DEPARTURE

CRASHES

672

FSI CRASHES

56



IMPAIRMENT

CRASHES

120

FSI CRASHES

44



URBAN AREA TRANSITIONS

CRASHES

783

FSI CRASHES

56



SEATBELT USAGE

CRASHES

76

FSI CRASHES

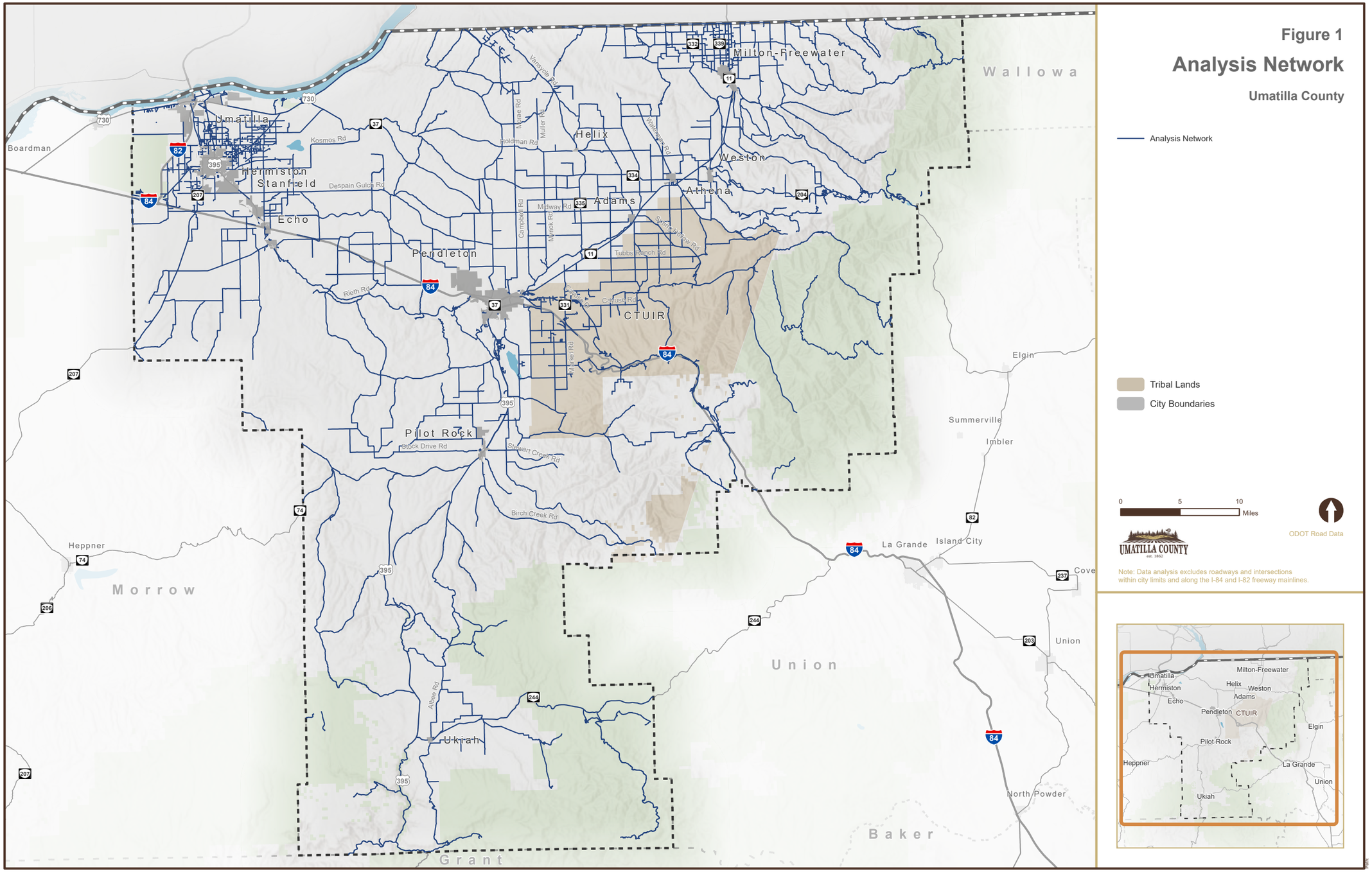
36

STUDY AREA

Umatilla County is in northeast Oregon and includes several urban population centers including the cities of Umatilla, Hermiston, Stanfield, Echo, Pendleton, Milton-Freewater, Athena, Weston, Adams, Pilot Rock, and Ukiah. While these urban areas are important economic and traffic-generating centers in Umatilla County, their roadway networks are typically locally-owned and maintained. As such, the study roadways for the Safety Action Plan (SAP) focus on all major County-owned roadways and State-owned highways except I-84 and I-82 that are outside of city limits. In addition, the SAP includes all County-owned roadways located within the Confederated Tribes of the Umatilla Indian Reservation. The analyzed roadway network is shown in Figure 1.



FIGURE 1. ANALYZED ROAD NETWORK



Existing Plans and Policies Review

In alignment with the SS4A Self-Certification Eligibility Requirements, the Safety Action Plan includes an assessment of current policies, plans, guidelines, and/or standards that influence how the County prioritizes safety on the roadway network.

The project team reviewed plans from Umatilla County and ODOT to identify safety related policies, goals, objectives, and other elements. In addition, the project team reviewed best practices from research and national sources to inform the safety analyses in this technical memo and the strategy development that will be conducted through this Safety Action Plan. The project team interviewed Umatilla County staff and the Umatilla County Sheriff's Department to inform how current processes incorporate safety analyses.

ODOT TRANSPORTATION SAFETY ACTION PLAN (2021)

The ODOT Transportation Safety Action Plan (Reference 2) (TSAP) sets a target of zero deaths and life-changing injuries on Oregon's transportation system by 2035. The TSAP includes goals, policies, and strategies to work towards the target. The TSAP uses a data-driven approach, considering crash type, frequency, and severity, to identify near-term Emphasis Areas and actions to organize safety treatments and maximize safety benefits of investments. Underlying the near-term priorities is the focus on "equitable and unbiased solutions for all transportation system users and all modes of travel." The identified Emphasis Areas are:

INFRASTRUCTURE

- Implement treatments at intersections and along roadways to minimize intersection and roadway departure crashes.

RISKY BEHAVIOR

- Minimize impaired driving, unbelted, speeding, and distracted driving crashes.

VULNERABLE USERS

- Minimize pedestrian, bicycle, motorcycle, and aging road user crashes with a focus on low-income or historically excluded communities.

IMPROVED SYSTEMS

- Minimize commercial vehicle crashes, Improve data collection and analysis, and improve training for transportation staff, law enforcement, and emergency responders.

"Oregon envisions no deaths or life-changing injuries on Oregon's transportation system by 2035." – ODOT 2021 TSAP

To identify region-specific safety concerns, the plan assesses several crash attributes on a regional level for comparison with state-wide data. ODOT's Region 5 includes Umatilla County and the rest of eastern Oregon. Trends that differ in Region 5 compared to the rest of Oregon include:

- Higher proportion of roadway or lane departure fatal and serious injury (FSI) crashes
- Higher proportion of speeding related FSI crashes
- Higher proportion of FSI crashes with unrestrained occupants
- Lower proportion of intersection-related and pedestrian-involved FSI crashes

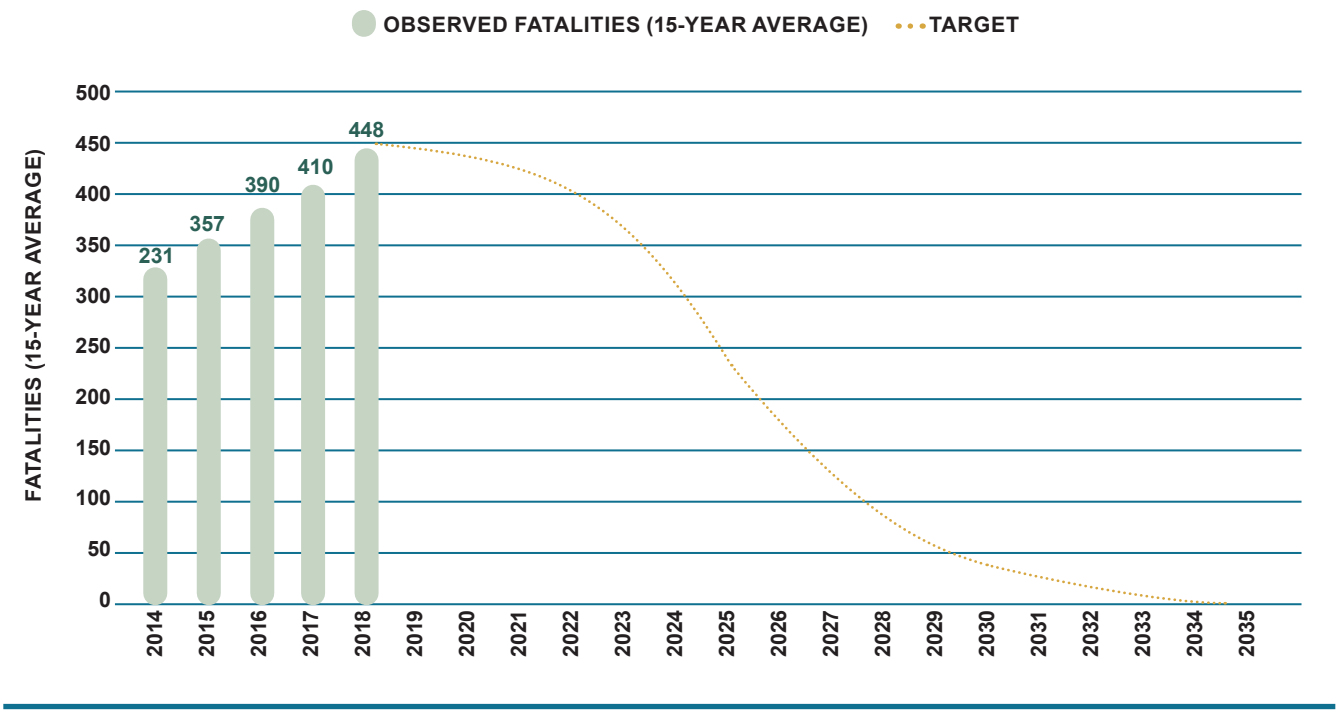
In addition to near-term priorities, the Plan establishes six long-term goals: safety culture, infrastructure, healthy and livable communities, technology, collaborate and communicate, and strategic investments. To measure progress toward the zero deaths and life-changing injuries target set by the Oregon Traffic Safety Performance Plan, five performance measures were identified in the TSAP:

- Number of fatalities
- Fatalities per 100 million VMT
- Number of serious injuries
- Serious injuries per 100 million VMT
- Number of nonmotorized fatalities or serious injuries

Targets are set for each of these performance measures. The annual target through 2035 for the number of fatalities is shown in Figure 2.

The TSAP identifies example activities and roles various agencies can adopt to better align with the goals and objectives of the TSAP. These example activities and roles provide guidance on collaborations, additional plan development, safety evaluations, and educational efforts.

FIGURE 2: FATALITY TARGETS (ODOT 2021 TSAP)



ODOT INTERSECTION SAFETY IMPLEMENTATION PLAN (2023)

The ODOT Intersection Safety Implementation Plan (Reference 3) presents a framework for systemic safety analysis at signalized and stop-controlled intersections to reduce fatal and serious injury crashes. The framework is developed for use by local agencies and ODOT and is intended to be integrated with the All Roads Transportation Safety (ARTS) program. The framework aids in identifying patterns in contributing factors to crashes. The five steps of the framework are:

1. **Confirm** study network and compile available data.
2. **Screen** network and identify potential sites for improvement. There are 2 screening options:

Option 1: Characteristics-Based Screening. This option is recommended for local agencies. Intersections are scored based on the presence of characteristics that increase fatal and serious injury crash risk. This option allows for identification of higher-risk sites both with and without crash history.

Option 2: Safety Performance Functions. This option projects long-term crash frequency by intersection type. This option is limited due to rigid data requirements and a less diverse range of inputs.

3. **Select** potential countermeasures.
4. **Prioritize** and implement projects.
5. **Evaluate** program and project impacts.

ODOT BICYCLE AND PEDESTRIAN SAFETY IMPLEMENTATION PLAN (2020)

The ODOT Bicycle and Pedestrian Plan (Reference 4) implements a statewide bicycle and pedestrian plan using the first five steps of the seven-step systemic analysis method outlined in NCHRP Research Report 893 (Systemic Pedestrian Safety Analysis):

1. Define the study scope.
2. Compile available data.
3. Determine risk factors.
4. Identify potential treatment sites.
5. Select potential countermeasures.
6. Refine and implement treatments.
7. Evaluate program and project impacts.

The analysis considers crash, land use, demographic, and exposure data. Risk factors are identified using equivalent property damage only (EPDO). Treatment sites are identified by analyzing pedestrian and bicycle crashes by urbanicity (whether the location is urban or rural), junction relationship (intersection, driveway, segment), and severity (KABCO). Oregon's Highway Safety Improvement Program (HSIP) can use the results to select and develop projects to reduce pedestrian and bicyclist crash frequency and severity. The identified countermeasures were not implemented but serve as an illustration of how to use this process to identify future safety projects.

ODOT STATEWIDE TRANSPORTATION IMPROVEMENT PROGRAM (STIP) 2024 – 2027 (2023)

The ODOT STIP (Reference 5) documents a list of state and federally funded projects that are approved and expected to become active projects within the four year period of 2024 through 2027. The STIP is developed through coordination of Tribal, MPO, state, and federal organizations, including the Area Commissions on Transportation (ACT). The types of projects included in the STIP are as follows:

- State and federally funded highway and bridge construction or repairs
- Project development activities (e.g., environmental review)
- Non-construction projects (transit planning, operations, and capital purchases)
- Federal transportation projects in national parks and forests
- Projects on federal lands and Indian reservation (road systems, interstate, regional highways, and bridges)
- Locally funded projects of statewide or regional significance

For each project, the STIP provides the following:

- Project scope description
- Estimated total project cost
- Federal funds by fiscal year
- Proposed source(s) of funding
- Responsible agency

Each project in the STIP is assigned one or several “work types.” Several of the work types, including “safety,” “bicycle/pedestrian,” and “ADA” indicate immediate safety benefits. These work types, among other key words, were used to identify projects listed in the STIP that would result in safety improvement in the County. These safety improvement projects are listed Table 1 below. Several projects identified within these work types are located on the interstate or within city limits, which is outside of the study area for this project, and are separately identified in the table.

TABLE 1: STIP PROJECTS WITH RELEVANT WORK TYPES FOR THE SAFETY ACTION PLAN

PROJECT	PROJECT DESCRIPTION
I-84 from Boardman to I-82 Interchange[1]	Install guardrail/barrier upgrades, rumble strips, and bring gravel shoulder up to the new grade along I-84 between Boardman and the I-82 interchange.
Umatilla County Enhanced Mobility Program	Improve transit services to special needs, seniors, and other transit-dependent populations in rural areas.
US395: Baggett Lane Safety and Sidewalk Improvements	Improve intersection traffic control to reduce crashes. Construct continuous sidewalk from Punkin Center Road to Joy Lane on the west side of U.S. 95 and install pedestrian crossings with rapid flashing beacons.
Umatilla County Curb Ramps Phase 2	Design for future construction of curb ramps to meet compliance with the Americans with Disabilities Act (ADA) standards.
Pendleton Signal Upgrade[1]	Upgrade ADA ramps for pedestrian safety.
OR11: Milton-Freewater Safety and Sidewalk Improvements	Convert 5 lanes to 3 lanes and include bike and right turn lanes to reduce crashes and improve safety and construct sidewalks to provide safe pedestrian access to transit.
I-84 Roadway Illumination Project[1]	Install light poles, lighting, and wiring to improve truck and passenger safety during inclement weather.
Echo Pedestrian Railroad Crossing	Design and ROW activities for future construction of a pedestrian path to encourage safe rail crossing on a route to school for an underserved community.
US 730/US 395 Umatilla County Signal Safety Improvements	Install truck priority radar detection system at multiple intersections to reduce crashes and improve safety

1 Project is outside of the study limits, either on the interstate or within city limits.

UMATILLA COUNTY TRANSPORTATION SYSTEM PLAN (2002)

The Umatilla County TSP (Reference 6) was adopted in 2002 and is now being updated in coordination with this Umatilla County Safety Action Plan.

The vision of the TSP is to "establish and maintain a functional, efficient and effective system for the coordinated transport of people, goods, services, information and data appropriate for current and future needs" and is supported by a list of guiding principles. The goal of the plan is to "provide and encourage a safe, convenient, and economic transportation system" which is further supported by eight goals, each with a list of sub-objectives. Two goals directly mention safety :

GOAL 1:	GOAL 4:
Preserve the function, capacity, level of service, and safety of the local streets, county roads, and state highways.	Increase the use of alternative modes of transportation (walking, bicycling, and public transportation) through improved access, safety, and service.

The plan is formatted to conduct an analysis of the transportation system inventory, existing conditions, travel forecasts, improvement options, operational plans for the TSP, funding options, and recommended policies and ordinances. The recommended policies and ordinances relate to the following topics:

- Approval process for transportation facilities. To clarify the approval process for transportation-related projects, the Transportation Planning Rule requires cities and counties to amend their land use regulations to conform to the jurisdiction's adopted TSP.
- Protecting existing and future operation of facilities.
- Protecting public use airports.
- Coordinating review of land use decisions.
- Safe and convenient pedestrian and bicyclist circulation.

The pedestrian and bicyclist recommendations relate to bicycle parking, pedestrian access, connectivity, development, and design.

CONFEDERATED TRIBES OF THE UMATILLA INDIAN RESERVATION (CTUIR) LOCAL ROAD SAFETY PLAN (2016)

The CTUIR Local Road Safety Plan (LRSP) (Reference 7) summarizes the existing safety concerns on the reservation and identifies strategies to improve safety on the reservation for all road users. In identifying the existing safety conditions, the LRSP also discusses the disproportionate increase in roadway fatalities for Native Americans as compared to nation-wide trends, highlighting a significant need for roadway safety improvements on the reservation. To best address the reservation's needs, the LRSP was developed based on the 2012 FHWA Guide Developing Safety Plans, A Guide for Local Rural Road Owners which presents a six-step approach to local road safety planning:

1. Establish leadership
2. Analyze safety data
3. Determine emphasis areas
4. Identify strategies
5. Prioritize and incorporate strategies
6. Evaluate and update the LRSP

Five years of crash data (2009 to 2013) from ODOT and Umatilla Tribal Police Department were analyzed to determine statewide and Umatilla Indian Reservation crash rates and trends. Based on the results of this analysis, in conjunction with empirical data collected during field reviews and results from stakeholder engagement sessions, the following emphasis areas were identified:

- Education and enforcement
- Access
- Intersection safety
- Traffic control
- Pedestrian and bicyclist facilities

Recommendations for implementing countermeasures to address these five emphasis areas are provided in the LRSP. These recommendations present a combination of engineering, education, and coordination-based strategies.

CONFEDERATED TRIBES OF THE UMATILLA INDIAN RESERVATION (CTUIR) TRANSPORTATION SAFETY PLAN (2024)

The CTUIR Transportation Safety Plan is an updated version of the 2016 Local Road Safety Plan (LRSP). The mission statement for this document, established by the Tribe and Working Group (developed through the 2016 LRSP), is to "identify and prioritize safety concerns and develop strategies to improve pedestrian, bicycle, and vehicular safety on the reservation." To achieve this mission, the CTUIR Transportation Safety Plan identifies three goals:

1. Implement an ongoing safety education program, coordinating efforts across Planning, Public Works, Tribal Police, Education Departments, and the Yellowhawk Tribal Health Center.
2. Establish a list of safety priority locations and types of road hazards.
3. Apply education, enforcement, and infrastructure improvements with the goal to achieve zero deaths and serious injuries by 2040.

The CTUIR Transportation Safety Plan builds off the previous LRSP by providing updated crash statistics for both ODOT and the Reservation. Additionally, a heat map identifies locations on the Reservation with a higher frequency of crashes from 2013 to 2022. This map also identifies specific locations of crashes involving animals over the same period.

To track progress, the CTUIR Transportation Safety Plan identifies which of the 2016 LRSP projects/strategies have been completed and which are still outstanding. From 2016 to 2024, progress was made in four of the five 2016 emphasis areas: education and enforcement, access, intersection safety, and pedestrian safety. Traffic control was the only emphasis area not identified as having seen improvement since 2016. Projects/strategies not yet completed are listed in the 2024 CTUIR Transportation Safety Plan under the appropriate emphasis area. The five 2016 emphasis areas are reorganized into six emphasis areas:

- Education and outreach
- Enforcement
- Access
- Traffic control and intersection safety
- Pedestrian and bicyclist safety

The full list of safety strategies, sourced from either the 2016 LRSP or the 2024 update, are categorized by emphasis area, and the lead and supporting entities for each strategy are identified.

HERMISTON SS4A SAFETY ACTION PLAN (2024)

The Hermiston Safety Action Plan (Reference 8) (SAP) sets an interim target of a 50 percent reduction in fatal and serious injury crashes by 2045. To achieve this goal, the SAP uses a data driven approach to identify five emphasis areas. Focusing treatments on these five areas is likely to have the greatest effect on reducing high severity crashes and achieving the 2045 goal. The emphasis areas are the following:

- Intersection crashes
- Turning movement, angle, and rear-end crashes
- Crashes involving pedestrians and/or bicyclists
- Crashes involving unrestrained occupants
- Crashes involving impaired road users

In addition to the emphasis areas, the plan provides a detailed historical crash analysis, feedback from two phases of public engagement, and results from location-specific and systemic safety analyses to identify where safety countermeasures would be most appropriate. The location-specific analyses identify the nine roadway segments and 11 intersections with the highest historical crash severity scores. These results were a combination of roadways and intersections owned and operated by ODOT, Umatilla County, and the City of Hermiston. The systemic analyses identify the roadway attributes most strongly correlated with intersection, pedestrian and bicyclist, and roadway segment crashes. The identified roadway attributes for crashes in each of these categories are listed below.



INTERSECTION CRASHES

- Posted speed of 35 mph or greater
- Traffic volume of 10,000 or greater per day
- Presence of turn lanes or more than three through lanes on the approaches
- ODOT's Social Equity Index



PEDESTRIAN AND BICYCLIST CRASHES

- Functionally classified as an arterial
- Four or more lanes
- High-access density
- Posted speed of 35 mph or greater
- Within 1 mile of a school
- High population over Age 64
- Lack of bike lane



ROADWAY SEGMENT CRASHES

- Posted speed of 30 mph or greater
- Two-way left-turn lane
- Surrounding commercial land uses

Further, the plan provides six project concept designs which incorporate safety countermeasures for six priority locations: four intersections and two roadway segments. These project concept designs include total project cost estimates and are intended to be used by Hermiston to apply for implementation funding through the SS4A program.

In addition to applying for implementation funding to support engineering safety countermeasures, the SAP provides several policy, education, and other non-infrastructure strategies that can be used to work toward the City's safety goal. Progress toward the City's goal can be measured by the following action-based, outcome-based, and site-based measures.



INTERSECTION CRASHES

- Number of safety projects implemented.
- Actions from this plan that have been completed (and level of progress made on those that are in-process)



PEDESTRIAN AND BICYCLIST CRASHES

- Number of fatalities
- Number of serious injuries
- Number of fatal and serious Number of injury crashes by each emphasis area
- Number of all injury crashes by each emphasis area



ROADWAY SEGMENT CRASHES

These should be responsive to project goals. For example, a project intending to manage operating speeds should include performance measures related to operating speed, like the 85th or 50th percentile speeds.

INTERCHANGE ACCESS MANAGEMENT PLANS (IAMP) AND CORRIDOR PLANS

Interchange Access Management Plans (IAMPs) and Corridor Plans have been conducted in Umatilla County and are summarized in Technical Memorandum #1 of the Umatilla County Transportation Plan Update. The IAMPs and Corridor Plans were reviewed to identify transportation safety countermeasures that were recommended. Recommendations that overlap with identified crash patterns during the next step of the Safety Action Plan may be included in the recommended strategies developed through the Safety Action Plan.

TABLE 2: SUMMARY OF IAMPS AND CORRIDOR PLANS

PLAN	SAFETY COUNTERMEASURES
Umatilla County Westland Road/I-84/I-82 Interchange Area Transportation Plan, 2004	Development of four-foot paved shoulders on Westland Road.
Stanfield IAMP, 2006	Near-term traffic control improvements at the EB and WB I-84 ramp terminals. Long-term reconstruction of the interchange to provide enhanced long-term capacity improvements and improved access management between the interchange and local street network.
Umatilla County I-84 Barnhart Broad IAMP, Volumes 1 and 2, 2007	Construct exclusive left turn lanes at Barnhart Road & Woodpecker property access. Reconstruct the eastbound I-84 ramps & Barnhart Road intersection to remove the skew from the intersection.
City of Pendleton I-84/US 395 IAMP, 2010	IAMP is within the Pendleton City Limits, so the IAMP is not relevant to the County Safety Action Plan.
City of Umatilla & Umatilla County I-82/US 730 IAMP, 2011	Close several driveways, realign Brownell Boulevard, realign Scaplehorn Road, and develop new roadway connections along US 730 in the I-82 interchange area.
Umatilla County I-84/Army Depot Access Road IAMP, 2014	Reconstruct the intersection of Army Depot Access Road & Gun Club Lane. Lengthen and realign I-84 ramps.
Umatilla County I-82/Lamb Road IAMP, 2014	Reconstruct the interchange ramps to improve vehicle/truck queuing and meet current design standards.

PLAN	SAFETY COUNTERMEASURES
Umatilla County US 395 North Corridor Plan, 2000	A key theme to provide direction for management of the corridor is enhancing travel safety. Extend the multi-use path along the west side of US 395 from Rosalynn Drive to Fourth Street. On Fourth Street in Hermiston, stripe bicycle lanes and install directional signs for bicyclists. Provide bicycle access and pedestrian access south to Echo and north to US 730, including access across the I-84 interchange. Work with affected business owners to consolidate, relocate, or alter existing private driveway access in the corridor where modifications would affect safety or travel efficiency.
Umatilla County US 730 Corridor Refinement Plan, 2007	Widen US 730 to three-lanes including shoulder widening from Fox Lane to just west of Powerline Road. Include raised medians along the three-lane section. Construct u-turn / jughandle lanes on US 730 at Fox Lane, Moorlando Lane/South Shore Drive (west), South Shore Drive (east), and Oxbow Lane. Develop a supporting local circulation network and implement access management.

ARTIS PROGRAM

The Umatilla County ARTIS Proof of Concept (POC) demonstrates the ability of off-the-shelf technology products to address specific operational and safety needs identified by users of the transportation system.

RELEVANCE:

- The POC identifies specific operational user needs such as automating information flows, collaboration between agencies, and the challenges in sharing traveler information.
- The POC identifies the potential level of cost to implement the technology products
- The user needs assessment identifies operational and safety needs such as emergency and event management, freight conflicts, road and weather management that could also be addressed by other means in the TSP.

RECOMMENDATIONS:

- The POC makes the following recommendations: 1) continuing the POC into the County's Safe Streets for All Plan, 2) define involvement of the technology partners, 3) review lessons learned, 4) establish a partnership with ODOT on data sharing, and 5) set outcomes, goals, metrics and data collection.
- The POC recommends that the TSP ensure safety and operational projects and programs that could be outcomes of the ARTIS are identified in the TSP.
- Similarly, goals and metrics from the ARTIS program should be included or supported by the TSP.

PLAN SUMMARY

Table 3 summarizes the elements provided in each of the reviewed plans.

- **Safety Analysis:** Does the plan analyze historical crash data?
- **Public Input:** Does the plan refer to public input as a source supporting the plan's development?
- **Project List:** Does the plan provide a list of projects?
- **Prioritize Needs**: Does the plan prioritize the agency's needs? Prioritization may be in the form of a method for prioritizing projects, a prioritized list of projects, or list of issues, locations, and/or crash types/factors that are of particular concern.
- **Performance Measures**: Does the plan identify performance measures? Measures may be metrics for achieving safety outcomes (e.g., number or percent reduction of fatal and serious injuries) or for project progress (e.g., number of quick-build projects implemented).
- **Performance Targets:** Does the plan provide performance targets? These targets may relate to Vision Zero or to other performance measures identified in the plan. The plan may also state support for statewide goals adopted in other planning documentation.

TABLE 3. SUMMARY OF PLAN ELEMENTS

PLAN	SAFETY ANALYSIS	PUBLIC INPUT	PROJECT LIST	PRIORITIZE NEEDS	PERFORMANCE MEASURES	PERFORMANCE TARGETS
ODOT TSAP (2021)	☑	☑		☑	☑	☑
ODOT Intersection Safety Plan (2023)	☑	☑		☑		☑
ODOT Bicycle and Pedestrian Safety Plan (2020)	☑			☑		
ODOT 2024 – 2027 STIP		☑	☑	☑	☑	☑
Umatilla County TSP (2002)	☑	☑	☑	☑		
CTUIR Local Road Safety Plan (2016)	☑	☑	☑	☑	☑	
CTUIR Transportation Safety Plan (2024)	☑	☑	☑	☑	☑	
Hermiston Safety Action Plan (2024)	☑	☑	☑	☑	☑	☑
IAMPs and Corridor Plans			☑			
ARTIS Program	☑					

REVIEW OF BEST PRACTICES FOR LOCAL RURAL ROADS

Rural and urban areas have fundamentally different characteristics, which has led to the development of different characteristics across the transportation networks that serve these two types of areas. As a result of these differences, rural roadways face a disproportionate number of traffic fatalities and serious injuries. **In 2022, 41% of roadway fatalities occurred on rural roads, despite only 20% of people in the US living in these areas and only 32% of the vehicle miles traveled occurring in these areas.** Historically, the percentage of roadway fatalities on rural roadways has been as high as 61%.

Rural communities face a unique set of challenges compared to urban environments when it comes to transportation safety. First, higher posted speed limits and travel speeds can result in higher severity interactions between road users and roadside hazards, such as trees and steep ditches, or features, such as roadside barriers. Second, the more remote locations of rural communities can increase emergency response times and travel times to comprehensive healthcare facilities. In cases of extreme remoteness, there may not be a Level 1 trauma center within driving distance of the community. In the case of Umatilla County, the nearest Level 1 care for adults and children is in Portland. These combined challenges can significantly reduce crash survivability if they are not complemented by implementing safety strategies with the rural context in mind.

In a **2008 USDOT Rural Safety Initiative** report, several rural crash characteristics and trends were identified. Compared to urban areas, rural areas have…

- A higher fatality rate
- Less seatbelt usage
- More speeding-related fatalities
- More impaired driving-related fatalities
- More fatalities at the crash scene

This combination of characteristics and trends contributes to the disproportionate number of fatalities in rural areas. This section reviews several national resources that review these same rural road challenges and provide guidance to local practitioners to address safety concerns in the rural context. Among these documents are four FHWA sister documents subtitled “A Manual for Local Rural Road Owners:”

1. Developing Safety Plans: A Manual for Local Rural Road Owners
2. Road Safety Information Analysis: A Manual for Local Rural Road Owners
3. Roadway Departure Safety: A Manual for Local Rural Road Owners
4. Intersection Safety: A Manual for Local Rural Road Owners

Various other resources are covered in addition to these documents.

FHWA IMPROVING SAFETY ON RURAL LOCAL AND TRIBAL ROADS SAFETY TOOLKIT (2014)

FHWA’s Improving Safety on Rural Local and Tribal Roads Safety Toolkit (Reference 9) provides a step-by-step process to assist local agency and Tribal practitioners in completing traffic safety analyses,

identifying safety issues and needs, and identifying and implementing appropriate countermeasures to address safety issues. The overarching goal of the Toolkit is to help agencies and Tribes reduce serious injury and fatal crashes on their roadways. The seven-step process presented in the document is the following:

1. Compile data
2. Conduct network screening
3. Select sites for investigation
4. Diagnose site conditions and identify countermeasures
5. Prioritize countermeasures for implementation
6. Implement countermeasures
7. Evaluate effectiveness

The following two complementary User Guides provide specifics on how to conduct the network screening (Step 2):

- **User Guide #1:** Improving Safety on Rural Local and Tribal Roads – Site Safety Analysis. This User Guide describes the process for conducting a site-specific safety analysis.
- **User Guide #2:** Improving Safety on Rural Local and Tribal Roads – Network Safety Analysis. This User Guide describes the process for conducting a proactive analysis for a specific type of roadway or intersection on the transportation network.

FHWA DEVELOPING SAFETY PLANS: A MANUAL FOR LOCAL RURAL ROAD OWNERS (2012)

The purpose of FHWA's Developing Safety Plans: A Manual for Local Rural Road Owners (Reference 10) is to guide local rural road owners in developing a Local Road Safety Plan (LRSP) that addresses the safety challenges that plague rural roadways. The document states that the "expected result of a successful LRSP is to save lives and prevent injuries resulting from motor vehicle crashes." This statement and the date of publication imply there may be less focus on pedestrian and bicyclist safety in this document, which is likely the result of the reduced pedestrian and bicyclist population on rural roadways, as well as an antiquated approach to transportation safety across modes.

The document presents a six-step approach to developing the LRSP:

1. Establish leadership
2. Analyze safety data
3. Determine emphasis areas
4. Identify strategies
5. Prioritize and incorporate strategies
6. Evaluate and update the LRSP

The document also includes five case studies from agencies that have used context-based approaches to improve transportation safety on rural roadways. The agencies are:

- Champaign County, Illinois
- Lafayette MPO, Lafayette Parish, Louisiana
- Olmsted County, Minnesota
- Sokaogon Chippewa Band of Mole Lake, Forest County, Wisconsin
- Wyoming Rural Road Safety Program

Templates are also provided for a kick-off meeting agenda, emphasis area identification, and the LRSP document.

FHWA ROAD SAFETY INFORMATION ANALYSIS: A MANUAL FOR LOCAL RURAL ROAD OWNERS (2011)

The purpose of FHWA's Road Safety Information Analysis: A Manual for Local Rural Road Owners (Reference 11) is to provide data collection and analysis techniques for local agencies to use to inform how to improve local rural road safety. The document includes a detailed review of existing data sources and considerations associated with implementing the data. The document also provides guidance on how to calculate various performance measures, such as road segment crash rate and intersection crash rate.

1. Collect safety, roadway, and exposure information
2. Record information for safety analysis
3. Analyze data
4. Select countermeasures

Several rural road safety case studies are reviewed in the document, including examples from the following agencies:

- Oregon DOT
- Mid-Ohio Regional Planning Commission
- New Jersey
- Missoula, Montana

The Oregon DOT case study covers a 2010 project conducted by ODOT and FHWA to analyze road departure crashes on state and local roads. The results of the analysis were the identification of systematic treatments for local roads, including curve signing and delineation, rumble strips, and tree removal, and cost estimates for the identified treatments.

FHWA ROADWAY DEPARTURE SAFETY: A MANUAL FOR LOCAL RURAL ROAD OWNERS (2011)

FHWA's Roadway Departure Safety: A Manual for Local Rural Road Owners (reference 12) is written to provide information to local road managers and practitioners on how to identify roadway departure safety issues in local areas, choose the appropriate countermeasures to address the issues, and evaluate the benefits of those treatments. To do this, the document presents a five-step process:

1. Identify roadway departure safety issues
2. Record information for safety analysis
3. Data analysis and countermeasures selection
4. Countermeasure installation
5. Assessment and follow-up

The subsequent chapters then describe each step and the resources to support each step in detail. The countermeasures chapter provides one-page descriptions of various countermeasures, equipped with time and cost estimates and guidance on when and where it is appropriate to use the countermeasure. Where signing is concerned, the document relies heavily on guidance from the MUTCD to ensure signage countermeasures are compliant with other national documents.

Following the detailed description of the process and how to implement it, four case studies are presented which cover a variety of safety improvements in rural communities.

FHWA INTERSECTION SAFETY: A MANUAL FOR LOCAL RURAL ROAD OWNERS (2011)

FHWA's Intersection Safety: A Manual for Local Rural Road Owners (reference 13) is written to provide information to local road managers and practitioners on how to identify intersection safety issues in local areas, choose the appropriate countermeasures to address the issues, and evaluate the benefits of those treatments. To do this, the document presents a five-step process nearly identical to the process described in FHWA's Roadway Departure Safety report. Only the first step differs:

1. Identify intersection safety issues
2. Record information for safety analysis
3. Data analysis and countermeasures selection
4. Countermeasure installation
5. Assessment and follow-up

As with the Roadway Departure Safety report, the subsequent chapters detail these steps and relevant resources. Since intersection geometry differs largely from roadway segment geometry, this document goes into more detail discussing geometric issues such as sight distance and skewed intersection geometry. Like the Roadway Departure Safety report, this report also presents countermeasures as one-page summaries, including cost and timeline estimates. Unlike the Roadway Departure Safety report, this report does not provide case studies.

FHWA PROVEN SAFETY COUNTERMEASURES IN RURAL COMMUNITIES

FHWA identified 28 Proven Safety Countermeasures (Reference 14) to reduce fatal and serious injury crashes. These countermeasures are applicable across a range of contexts, including rural roadways. Several of the countermeasures are highlighted by FHWA for dirt application in rural areas:

- Roadway Departure
  - *Wider edge lines of 6 inches compared to traditional edge lines of 4 inches increase visibility of travel lane boundaries. Wider edge lines are commonly installed on rural two-lane highways with a history of single-vehicle roadway departure crashes.*
  - *Rumble strips are corrugations in the pavement to alert inattentive drivers that they are leaving their lane. Center line rumble strips can be used wherever risk factors such as lane width, curvature, or crash history indicate a higher probability of head-on crashes. Shoulder or edge line rumble strips can be used wherever risk factors indicate a higher probability of run-off-road crashes. Rumble stripes are pavement markings placed over the rumble strips.*
  - *Enhanced delineation for horizontal curves promotes proper vehicle alignment through a curve. Delineation may be enhanced with in-lane pavement markings, delineators, retroreflective strips on signposts, chevrons, more conspicuous signs, and dynamic warning signs.*
  - *Roadside design improvements at curves can give vehicles space to recover after leaving the roadway. Improvements include vegetation management, removal of roadside objects, adding or widening shoulders, and installing roadside barriers.*

- Intersections
  - *Roundabouts reduce operating speeds both on approach and within the intersection and reduce the crash severity at intersections.*
  - *Systemic application of multiple low-cost countermeasures at stop-controlled intersections can maximize resources. Common treatments include adding pavement markings, advance warning signs, more conspicuous signs, and increasing sight distance at intersections.*

- Pedestrian/Bicyclist
  - *Road diets/reconfiguration reallocate roadway space to other uses including bicycle lanes, sidewalks, or parking.*
  - *Crosswalk visibility enhancements can increase driver awareness of crosswalks and help channelize crossing movements to consistent locations. Multiple treatments are encourage to maximize benefits.*

- Speed Management
  - *When setting appropriate speed limits for all road users, agencies should consider the road users present, crash history, land use context, and observed speeds. Traffic calming features, design features, and enforcement should be considered in addition to speed limit setting.*
- Crosscutting
  - *Pavement friction can be increased using High Friction Surface Treatment (HFST). Maintaining pavement friction can reduce roadway departure, intersection-related, wet-road, and pedestrian crashes.*
  - *Road Safety Audits (RSA) are an evaluation of the safety performance of a road segment or intersection and can result in a variety of safety recommendations for the specific location.*
  - *Local Road Safety Plan (LRSP) provides a framework for identifying, analyzing, and prioritizing roadway safety improvements.*

FHWA ROADWAY DEPARTURE SAFETY PROGRAM

FHWA's Roadway Departure Safety Program (Reference 15) includes specific countermeasures to address roadway departure crashes. Countermeasures are grouped into three categories: Keep Vehicles on Roadway, Provide for Safe Recovery, and Reduce Crash Severity. Countermeasures to Keep Vehicles on Roadway include pavement friction, rumble strips, treatments along horizontal curves, and increasing nighttime visibility. Countermeasures for Providing Safe Recovery include SafetyEdge and Clear Zones. Countermeasures for Reduce Crash Severity include installing crash worthy barriers, sign supports, and work zone devices.

The Roadway Departure Safety Program is supported by four pillars, one of which is Systemic Approach. Under the Systemic Approach, countermeasures are implemented based on high-risk roadway features, rather than crash frequency.

DELTA REGION TRANSPORTATION DEVELOPMENT PROGRAM: RURAL SAFETY INNOVATION PROGRAM EVALUATION

The Rural Safety Innovation Program Evaluation assesses the effectiveness of the implemented countermeasures toward reducing fatalities and injuries on rural roads. Several projects are evaluated for effectiveness including:

- Installation of centerline rumble strips on rural two-lane roads, where shoulder rumble strips were already present.
- Improved signing and pavement markings at rural stop-controlled intersections.
- Installation of cable median barrier on rural interstates.
- Development of a sign inventory system and installing dynamic message signs and closed-circuit video.

SAFE ROUTES TO SCHOOL IN RURAL COMMUNITIES

Safe Routes to School (Reference 16) initiatives can address challenges that face rural communities including higher rates of obesity and lower levels of physical activity, lack of safe walking conditions, higher rates of injuries and fatalities from traffic collisions, higher speed roads that may divide communities, and households without access to cars.

Some challenges are more pronounced in rural communities including towns bisected by county highways that may have higher operating speeds. Other conditions, for example compact communities make rural communities more ideal for walking and bicycling. In rural communities nearly 40 percent of trips are less than three miles and 20 percent of trips are less than one mile. The Safe Routes to School brochure includes examples of activities communities can consider to increase the safety of walking and biking to school.

NATIONAL CENTER FOR RURAL ROADWAY SAFETY

The **National Center for Rural Roadway Safety** (NCRRS) (Reference 17) provides resources and training opportunities for those looking to achieve Vision Zero on rural roadways. The materials provided are geared toward state, local, and tribal agencies, and aim to provide tools for multi-disciplinary approaches to improving rural roadway safety. The NCRRS team is comprised of representatives from academia, research centers, and private industry. Resources provided on the NCRRS site include:

- A webinar archive with free, publicly accessible webinars on various aspects of rural roadway safety dating back to 2016.
- An intelligent transportation system (ITS) toolkit with strategies ranging in their application from emergency services to crash countermeasures to operations and maintenance to tourism and travel information.
- Resources organized by topic (example topics include funding, safety data analysis, rural travel modes, and safety culture).

EXISTING PROCESSES IN UMATILLA COUNTY

Umatilla County Future Rural Road Design Standards

The road design standards are included in the Umatilla County Transportation System Plan (2002).

- Rural county roads are classified as either rural major collectors, rural minor collectors, or rural local roads. All arterials in Umatilla County are interstate, national, or state highways.
- Road design standards are documented in Table 7-3 of the Umatilla County TSP (2002). Major and minor collectors have a design standard of 32-40 feet surface width, 60 feet right-of-way width, and a minimum posted speed of 25-35 mph. In urban contexts, the standard for surface width is 40 feet and the minimum posted speed is 35-55 mph.
- Recommended shoulder widths on rural roads vary based upon the expected design hour volume and the functional classification. Recommended shoulder width ranges between two feet and eight feet.
- In most instances, rural collectors will not include sidewalks. Pedestrians and bicyclists are generally accommodated on the shoulder of the road. In areas with high pedestrian or bicycle use, a pathway should be considered, preferably located on both sides of the roadway, separated from the roadway by at least five feet of greenbelt or drainage ditch.
- In urban contexts, curbing and five foot wide sidewalks should be provided on both sides of the roadway.
- Bikeways should be considered when new roads are built or road improvements are made. Where a bikeway is proposed within the road right of way, bike lanes should be five to six feet wide.
- Intersections must be designed to provide safe and comfortable crossing opportunities. This includes crosswalks, signal timing if the intersection is signalized, and curb extensions.
- Access management standards are included in Table 7-5 of the Umatilla County TSP (2002). Access management standards are based on the functional classification of the roadway and whether the intersecting facility is a public road or private drive.

Law Enforcement Practices

In Umatilla County, law enforcement is carried out by the Umatilla County Sheriff's Office, overlapping with other agencies including local police departments and the Oregon State Police. Several practices followed by the Sheriff's Office and observations related to transportation safety include:

- Traffic enforcement has been emphasized in recent years.
- The Sheriff's Office has received grants from the State to administer enforcement programs focused on distracted driving, driving under the influence of intoxicants, and speeding.
- The Sheriff's Office deploys a speed trailer in response to public requests.

Community Outreach

Umatilla County wants to make transportation safer and better for everyone. From March through May 2025, the County asked residents what they thought about getting around and what roads or intersections need improvement. This feedback is being used to create two plans: the Transportation System Plan (TSP) and the Safe Streets and Roads For All Plan (SS4A).

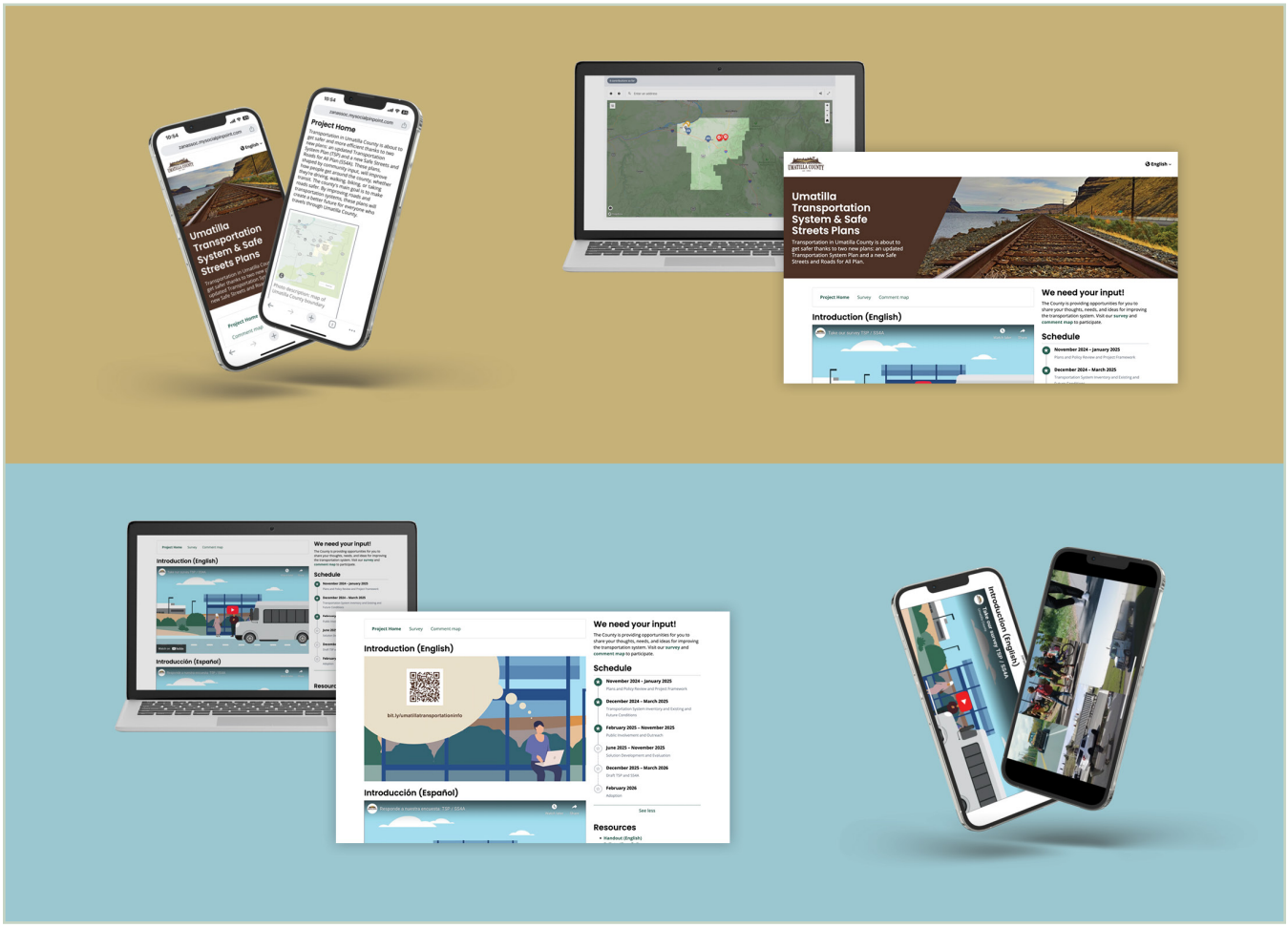


FIGURE 1: EXAMPLE IMAGES OF DIGITAL ENGAGEMENT STRATEGIES

Made up of staff from the County and Zan Associates, the engagement team used different methods to hear from people across Umatilla County. The engagement team set up information tables at community events, visited local businesses, created an online engagement site, and used social media and radio ads to spread the word. County staff also gave presentations and talked directly with community leaders. All of these efforts helped collect ideas and concerns from residents about transportation in their area. Table 1 shows the different ways the County reached out to people during this first phase of planning.

TABLE 1 - COMMUNITY OUTREACH EFFORTS

STRATEGY	DESCRIPTION	TIMING (2025)
Online Engagement Site	Website to gather community input on the TSP and SS4A through interactive activities—a survey and comment map—that received participation from 283 unique contributors	March 7 – May 11
Tabling Events	Tabling at the Farm City Ag & Home Expo, Cinco De Mayo event, and at the Pilot Rock Saturday Market	March 7 – May 10
Door-to-Door Business Flyering	Flyering to freight businesses in Umatilla County	April
Presentation	Presentation to the Proud River Leadership Group	March 18
Stakeholder Interview	Interview with the Umatilla County Sherriff's office	March 7
Handout	One-page document available in English and Spanish used to inform people about the TSP and SS4A through concise project information; distributed via email, at the tabling events, during business flyering, and at the Proud River Leadership Group presentation	March -May
Social Media	Social media posts and Facebook advertisements targeting people in Umatilla County	March-April
Project Video	Animated video in English and Spanish with project information posted on the project website and linked in social media advertisements	April-May
Radio Advertisements	Radio advertisements in English and Spanish requesting participation in the online engagement site and in-person events	April
Emails	Emails to community leaders and local organizations requesting participation in the online engagement site and asking them to share on their social media channels and with the communities they represent	March-May

ENGAGEMENT KEY FINDINGS

Participants shared their transportation experiences and needs through the project website and conversations with County staff. Several important locations and themes came up often. These common concerns should guide the TSP and SS4A plans. The main takeaways include:

- Twelve priority locations were identified as areas of high concern:
  1. US 395 through Hermiston is considered unsafe due to heavy traffic, dangerous intersections, and aggressive driving.
  2. Umatilla River Road between Hermiston and Umatilla is considered unsafe due to narrow lanes, poor lighting, and dangerous conditions for all users.
  3. OR 11 between Pendleton and the Washington State line is considered unsafe, with many respondents avoiding this route entirely.
  4. Highway 207 has multiple problematic intersections described as unsafe by some participants.
  5. Punkin Center Road is considered to have unsafe intersections, especially at the intersection of US 395.

6. Westland Road / Highland Avenue in Hermiston is considered unsafe due to dangerous intersections, poor road surfaces, and missing sidewalks.
7. The Thorn Hollow Road Bridge has been closed for over five years, forcing residents to take long detours on poorly maintained unpaved roads.
8. Rieth Road between Echo and Rieth has potholes, poor road surfaces, and safety hazards like falling rocks.
9. US 30 through Pendleton needs intersection improvements and pedestrian safety measures due to poor visibility and dangerous walking conditions.
10. US 395 in Pendleton is unsafe due to dangerous intersections with frequent crashes, poor roads, and missing sidewalks.
11. S 1st Street in Hermiston is unsafe due to multiple dangerous intersections with poor visibility and confusing intersections.
12. Feedville Road in Hermiston is problematic due to ongoing construction, poor road surfaces after work is completed, and a dangerous intersection with Highway 395.

People from Umatilla County had concerns that were not specific to a location.

- Poor road conditions are a primary transportation concern in Umatilla County.
- Respondents want more bus routes and better schedules on the Kayak system, especially to reach rural areas and match traveler work hours.
- Heavy truck traffic is habitually moving through neighborhoods with "No Thru Trucks" signs, creating safety concerns on residential streets.
- Respondents want intersections with better safety features like traffic signals, flashing crosswalk signals, or roundabouts to prevent crashes.
- Speeding and aggressive driving are major safety concerns throughout the County, especially near important destinations like schools.
- Respondents want more sidewalks, bike lanes/trails, and walking paths to make it safer to get around without driving.
- Weather hazards like black ice, flooding, and rockfall create safety concerns that are perceived to be inadequately addressed on county roads.
- In-person events reached more people with transportation barriers than online engagement, showing the County should continue to use mixed engagement strategies in the future.

PARTICIPANTS

In order to maximize participation and feedback, the County focused its outreach efforts on both online and in-person events (Table 2). In-person conversations were held at times and locations tailored to reach people who face transportation challenges.

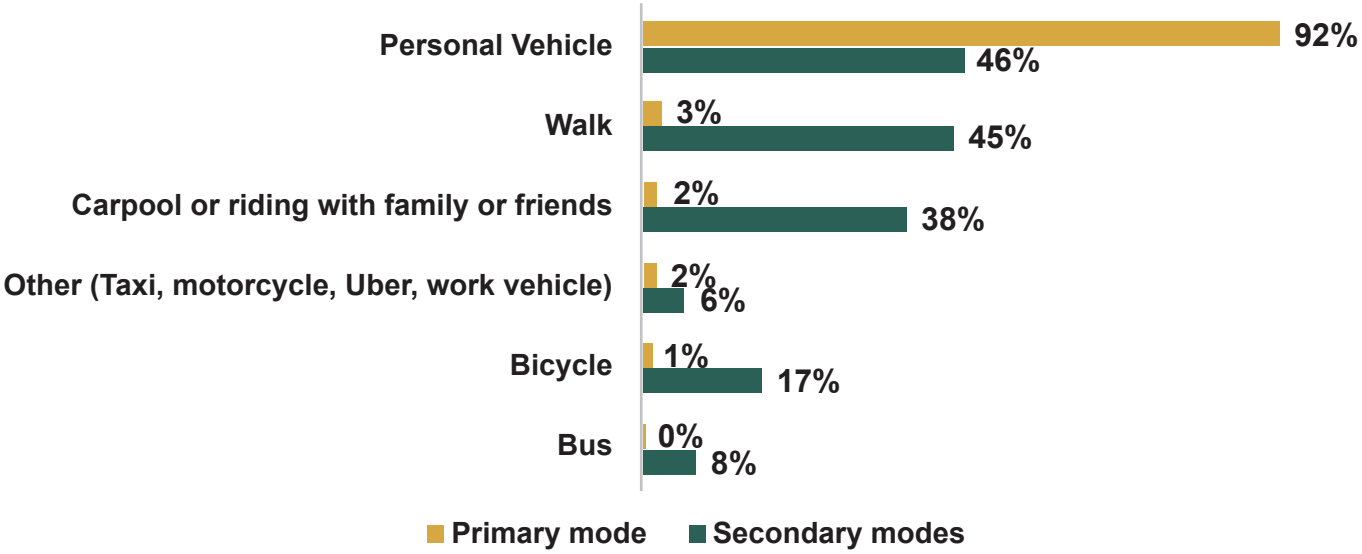
TABLE 2: PARTICIPATION IN ONLINE AND IN-PERSON ENGAGEMENT

STRATEGY	DESCRIPTION	COUNT
Online Survey	Online survey to gather information about current travel habits, assessments of the transportation system, and barriers to different travel modes	283 responses
Online Comment Map	Interactive map to identify specific locations where transportation improvements are needed or where existing infrastructure works well	8 comments
Farm City Ag & Home Expo	Tabling during the Expo on March 7-8 to reach residents of Umatilla County	100 interactions
Proud River Leadership Group	Presentation to the Group on March 18 to reach workers	15 interactions
Cinco de Mayo Celebration	Tabling at the Celebration on May 4 to reach Latinos and families	50 interactions
Pilot Rock Saturday Market	Tabling at the Market on May 10 to reach rural communities	40 interactions

ONLINE PARTICIPANTS

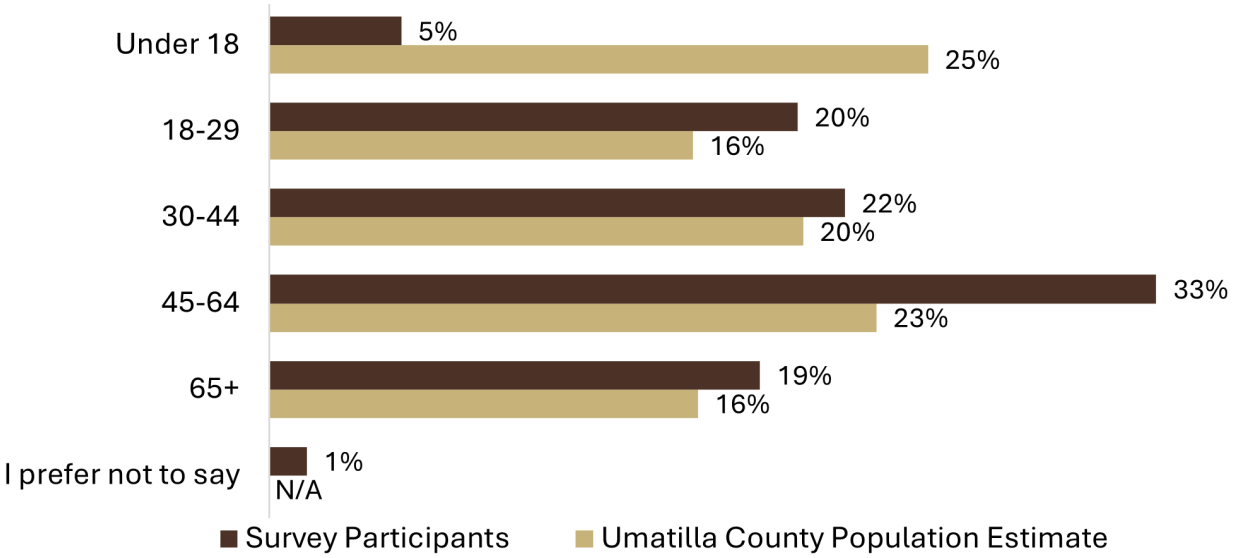
Almost all online survey participants (99%) lived in Umatilla County. Most survey participants (92%) said a personal vehicle was their primary mode of transportation in the County which is consistent with the County population overall considering 92% of people drive to work (Figure 2). Many survey participants also said they walk, carpool, bike, or bus as a secondary mode of transportation.

FIGURE 2 - PREFERRED MODE OF TRANSPORTATION FOR SURVEY PARTICIPANTS



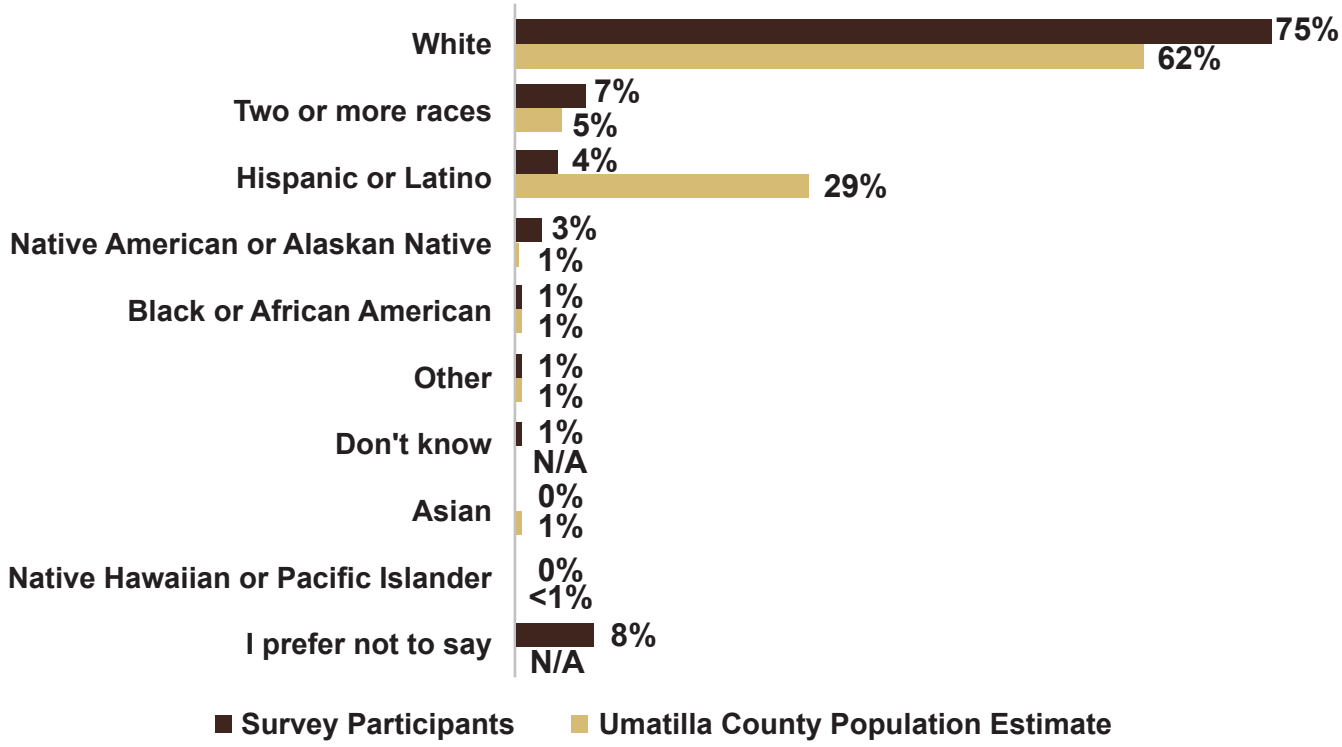
The people who took the online survey were different from the County's overall population in several ways. Survey participants were older than the average county resident (Figure 3). Only 5% were under 18, but young people make up 25% of the County's population. The most common age bracket among participants was 45-64 years old (33%), while the other age groups of 18-29, 30-44, and 65+ made up about 20% of survey participants each. The survey had an equal mix of women (48%) and men (48%), with one person identifying as non-binary, and a few others choosing not to answer.

FIGURE 3: AGE OF SURVEY PARTICIPANTS COMPARED TO UMATILLA COUNTY (2022 AMERICAN COMMUNITY SURVEY 5-YEAR ESTIMATES)



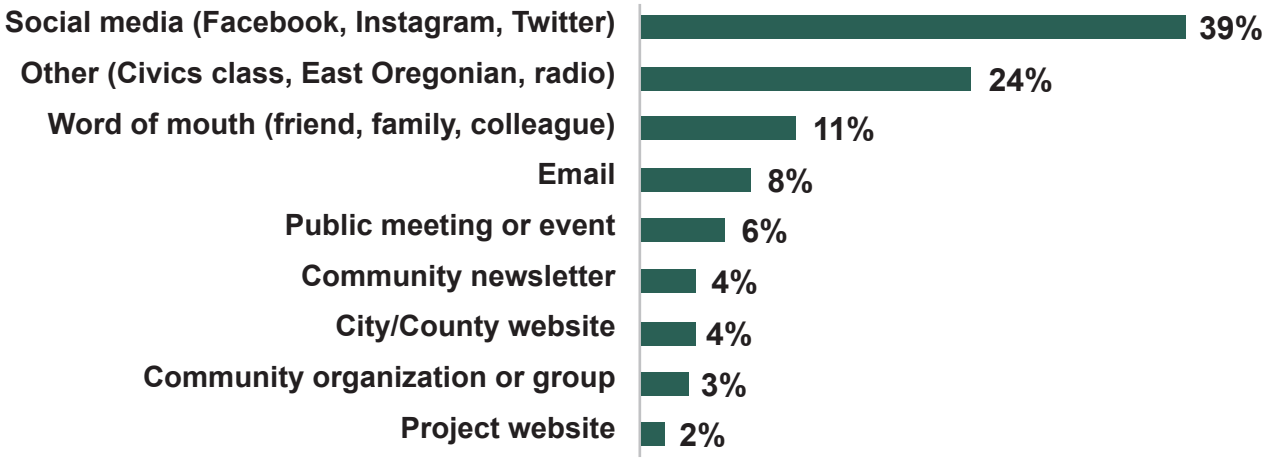
Three out of four survey participants were white (75%) (Figure 4). Much fewer were Hispanic or Latino (4%), even though Hispanic and Latino people make up 29% of Umatilla County's population (see In-Person Participants section for methods to reach these and other populations missed by online outreach). Other participant groups included people of two or more races (7%) and Native American people (3%). Seven percent of participants reported having a disability.

FIGURE 4: RACE AND ETHNICITY OF SURVEY PARTICIPANTS COMPARED TO UMATILLA COUNTY (2022 AMERICAN COMMUNITY SURVEY 5-YEAR ESTIMATES)



Many people learned about the project through social media (39%) (Figure 5). People who answered "other" ways of learning about the online engagement site said they found out through school, the East Oregonian newspaper, or radio ads (24%).

FIGURE 5: HOW PARTICIPANTS LEARNED ABOUT THE ONLINE ENGAGEMENT SITE



IN-PERSON PARTICIPANTS

The County hosted pop-up tables at various community events to reach people who might not be able or inclined to fill out online surveys. Events were chosen with a focus on reaching communities that face transportation challenges, like non-English speakers, Hispanic and Latino communities, and rural communities.

FIGURE 6: STAFF TABLE AT THE PILOT ROCK SATURDAY MARKET



While demographic information wasn't collected at these events, the pop-ups were designed to include voices from communities that experience the most transportation barriers and might not participate in the online engagement site. At the Farm City Ag & Home Expo, staff connected with residents from around the County. The Cinco De Mayo celebration helped them reach Hispanic and Latino families and young people. At the Pilot Rock Saturday Market, they focused on talking with rural residents.

ENGAGEMENT RESULTS

Community members shared detailed feedback about transportation challenges throughout Umatilla County. The results are organized into two main areas: the most frequently mentioned locations that need attention and the common themes people discussed about transportation safety and accessibility.

There were 466 unique comments collected through online and in-person engagement. Table 3 shows the codes used to organize participant comments and the number of times each code occurred in responses. Only codes that appeared three or more times are included. Each code is grouped into one of three thematic groups:

- **Issues:** Concerns that influence travel choices in Umatilla County.
- **Modes:** Methods of travel discussed by participants.
- **Locations**: Corridors, intersections, or other specific locations of travel in Umatilla County.

TABLE 3 - INCIDENCES OF SURVEY COMPLAINT CATEGORIES

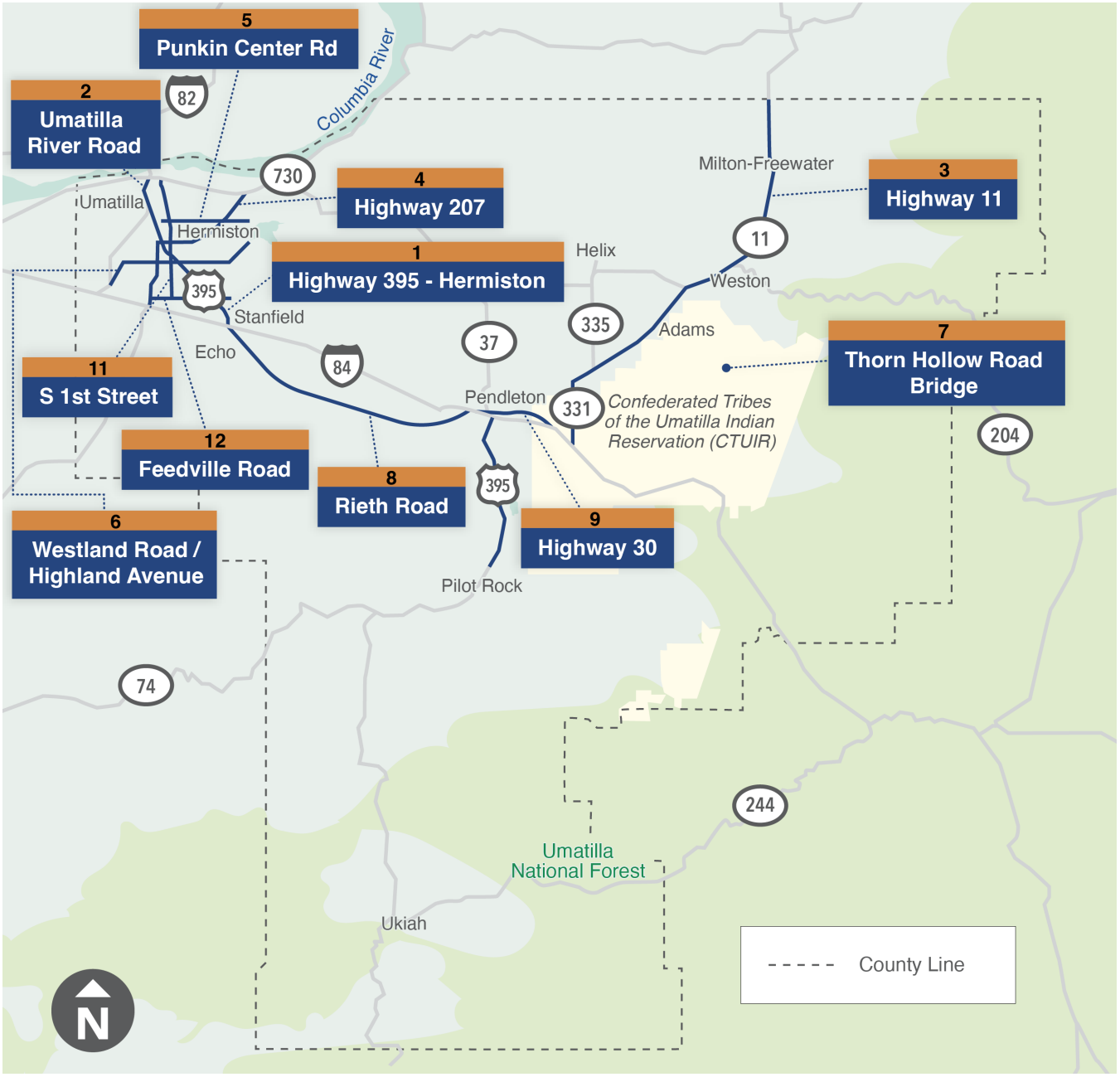
CODE GROUP	CODE	DESCRIPTION OF CODE	# OF MENTIONS	% OF MENTIONS
ISSUES	Maintenance	Quality of infrastructure or construction	82	18%
	Road Crossings	Safety and accessibility of street crossings	38	8%
	Traffic Control	Stop signs, traffic signals, and intersection management	27	6%
	Behavior	Driver conduct and road etiquette issues	23	5%
	Speed	Vehicle speeds and speed limit concerns	19	4%
	Potholes	Road surface damage and deterioration	17	4%
	Bridge	Bridge conditions and accessibility	15	3%
	Identity	Identities of traveling individuals	14	3%
	Natural	Environmental factors affecting travel	12	3%
	School	Safety around schools and student transportation	10	2%
	Congestion	Traffic volume and traffic flow problems	9	2%
	Sight	Visibility and sightline issues	7	2%
	Narrow	Insufficient road or lane width	6	1%
	Shoulder	Road shoulder conditions and availability	5	1%
	Curb	Curb presence and condition	4	1%
	Parking	Parking availability and management	4	1%
MODES	Walk	Pedestrian infrastructure and safety	52	11%
	Transit	Public transportation services	37	8%
	Drive	General driving comments and conditions	26	6%
	Bike	Bicycle infrastructure and safety	25	5%
	Freight	Commercial vehicle and truck traffic	17	4%
	Rail	Railroad crossings and train-related issues	4	1%

CODE GROUP	CODE	DESCRIPTION OF CODE	# OF MENTIONS	% OF MENTIONS
LOCATIONS	US 395 - Hermiston	US 395 and North 1st Street in the Hermiston area	35	8%
	Umatilla River Road	Umatilla River Road, Old River Road, and County Road 1275 between Umatilla and Hermiston	31	7%
	OR 11	OR 11 (including Main Street in Milton-Freewater) between Pendleton and the Washington State line	26	6%
	OR 207	OR 207, 11th Street, Elm Avenue, and Diagonal Boulevard in and around Hermiston	24	5%
	Punkin Center Road	Punkin Center Road and County Road 1250 north of Hermiston	16	3%
	Westland Road / Highland Avenue	Westland Road, Highland Avenue, Bridge Road, and County Road 1200 in Hermiston	12	3%
	Thorn Hollow Road Bridge	The Thorn Hollow Road Bridge	11	2%
	Rieth Road	Rieth Road, the old Pendleton River Road that runs between Echo and Rieth	10	2%
	US 30	US 30, Westgate, Dorion Avenue, and Court Avenue through Pendleton	10	2%
	US 395 - Pendleton	US 395 and Southgate in the Pendleton area	9	2%
	S 1st Street	S 1st Street, S 1st Place, and County Road 1275 in and around Hermiston	9	2%
	Feedville Road	Feedville Road and County Road 1000 south of Hermiston	9	2%
	Powerline Road	Powerline Road and County Road 1225 south of Umatilla	8	2%
	US 730	Highway 730 between Clarke and the Washington State line	6	1%
	Edwards Road	Edwards Road east of Hermiston	5	1%
	Emigrant Road	Emigrant Road, Old Emigrant Hill Road, County Road931, and County Road 937 east of Mission	4	1%
	I-84	Interstate 84 corridor	4	1%
	Birch Creek Road	Birch Creek Road east of Milton-Freewater	3	1%
	Blue Mountain Station Road Bridge	Blue Mountain Station Road bridge south of Milton-Freewater	3	1%
	Ott Road	North Ott Road and County Road 1261 north of Hermiston	3	1%

Key Location Findings

The following section focuses on the twelve most frequently mentioned roads and bridges from community feedback, each of which received at least nine mentions during engagement (Table 3). Most of these locations were described as unsafe roads in populated areas of Umatilla County. This feedback is particularly valuable for the SS4A program, as it helps identify which transportation improvements the County should prioritize. These key locations are mapped in Figure 7 and discussed in detail on the following pages, organized from most to least mentioned.

FIGURE 7: TOP LOCATIONS MENTIONED DURING ENGAGEMENT



1. US 395 - HERMISTON

The section of US 395 in the Hermiston area was the most frequently mentioned roadway corridor. Respondents reported congestion, unsafe intersections, and reckless driving concerns. Problem areas include the intersection at OR 207 and Feedville Road. Respondents noted speeding and aggressive driving are common occurrences. Many respondents feel that recent improvements along US 395 have been inadequate. They point to temporary repairs, poor traffic signal timing, and narrow lanes that do not meet the area's needs. The overall feeling is that the road infrastructure has not kept up with increasing traffic, creating dangerous conditions throughout the corridor.

> "395 Through Hermiston. Respondents felt that traffic is becoming overwhelming for our infrastructure, leading to road rage and poor driving decisions with other drivers as well as congestion that sometimes pours into intersections."

2. UMATILLA RIVER ROAD

Umatilla River Road, particularly between Hermiston and Umatilla, was cited as an unsafe route that many respondents tend to avoid when possible. The road is described as narrow with insufficient space for drivers, pedestrians, and bicyclists. Respondents noted that poor lighting makes the road especially unsafe at night and during winter. Many commented on the lack of shoulders and legal passing zones.

Suggested improvements include adding a walking and biking path, making the road wider with shoulders, and increasing police patrols. Some mentioned that road repairs have been poor, resulting in surfaces that damage vehicles.

> "Many exceed speed limit. Few places to pull off the road. No places to legally pass. Not safe for biking or pedestrian use. Often congested."

3. OR 11

OR 11, from Pendleton through Milton-Freewater to the Washington state line, was frequently cited as having safety-related challenges. The stretch between Milton-Freewater and the state line was described as having high speeds and multiple driveways and side roads. Respondents reported poor patch repairs that make it hard to stay in the proper lane. Illegal passing was mentioned as a major safety concern, with suggestions to only allow passing in marked lanes. Some suggested expanding the highway to four lanes with a raised center median. Others noted the shoulder is too narrow for cycling between Pendleton and Athena. Recent safety improvements include upgraded crosswalks in Milton-Freewater and increased Oregon State Police patrols.

> "Highway 11 from Milton-Freewater to Stateline is considered unsafe, especially with the speed and multiple vehicle access points."

4. OR 207

OR 207 (known locally as Elm Avenue in Hermiston), Diagonal Boulevard, and the 11th Street corridors were noted as having several problematic intersections. The junction where OR 207 meets Highland Avenue and turns into 11th Street was described as unsafe. The intersection of 11th Street & Elm Street near Good Shepherd was mentioned multiple times as needing a traffic signal for pedestrian safety.

Other challenging areas include the intersection where OR 207 (Diagonal Boulevard) meets Edwards Road and Walls Road, and the five-way intersection at OR 207 (Diagonal Road) and Punkin Center

Road. Some suggested installing roundabouts to improve safety while keeping traffic moving. Concerns were also raised about commercial vehicles parking on 11th Street and blocking busy side streets.

> "The 5 way intersection [at Diagonal Rd and Punkin Center Rd] is very dangerous. Can be difficult to cross during peak trucking hours. Diagonal has a flashing yellow while the other County roads have stop signs. Often people travelling down Diagonal are going too fast."

5. PUNKIN CENTER ROAD

Punkin Center Road was frequently mentioned as having challenges at intersections with other major roads. The junction with US 395 was described as unsafe, with multiple respondents suggesting a roundabout would improve safety. The five-way intersection with OR 207 (Diagonal Road) was also highlighted as unsafe, especially during peak trucking hours. Several respondents commented on the poor condition of the road itself, noting crumbling shoulders. Others mentioned the need for a bridge across the Umatilla River. There was also a suggestion to make Punkin Center Road an official truck route to move commercial traffic away from Diagonal Boulevard and Elm Street, where new housing and school developments have made truck traffic a safety concern.

> "Punkin Center Road needs to be repaved.
> The edges of the road are deteriorating creating unsafe edge of road."

6. WESTLAND ROAD / HIGHLAND AVENUE

Survey respondents reported numerous concerns with travel conditions along the Westland Road and Highland Avenue corridors. Conditions considered unsafe were noted at the 11th Street, Bridge Road, and OR 207 intersections. Furthermore, said corridors were noted to be unsafe for both drivers (due to poor surface condition) and pedestrians (due to lack of sidewalks).

> "Around Hermiston High School, some respondents felt a traffic signal (or luminaire) was needed at signal on the corner of highland and [South] 1st street."

7. THORN HOLLOW ROAD BRIDGE

The Thorn Hollow Road Bridge has been closed for over five years. Respondents expressed frustration about how the closure affects travel time, especially for Athena-Weston students. The detour requires using a unpaved dirt road that stays in poor condition despite regular grading. Respondents emphasized that the bridge closure adds significant travel distance, increases costs for fuel and vehicle maintenance.

> "Fix the bridge at Thorn Hollow! It has been years and it is costing the school and the public thousands in extra and fuel vehicle damage due to the detour being a dirt road that no matter how many times it is graded it is still washboard."

8. RIETH ROAD

Respondents noted that Rieth Road, which connects Echo and Rieth along the river, has serious road condition problems that need major repairs. Many respondents complained about potholes that get only temporary fixes with cold mix several times a year, so the problems keep getting worse. The road surface is so bad in some areas that drivers must turn around and find another route. There are also safety concerns about falling rocks in the roadway. Some sections of the road have been reduced from pavement to gravel, making it much less enjoyable and safe to drive on.Reith Road needs improvement, one person said the road condition was so bad they had to turn around in their vehicle and go another way.

"Reith Road needs improvement, one person said the road condition was so bad they had to turn around in their vehicle and go another way."

9. US 30

US 30, which goes by different names like Westgate, Dorion Avenue, and Court Avenue through Pendleton, has several intersection and pedestrian safety problems. Many drivers reported trouble seeing oncoming traffic at key intersections, especially at SW 1st & Court Avenue where stop signs create congestion. Pedestrians face challenges getting around downtown Pendleton safely, with recent changes making walking "inconvenient at best and downright dangerous at worst." Several intersections need traffic signals, including SE 1st & Dorion and SE Court & 17th Street, where heavy traffic and poor visibility create safety concerns.

"The stop signs at SW First and Court AVE are difficult for drivers causing congestion. Drivers cannot see cars coming from their right."

10. US 395 – PENDLETON

Respondents highlighted safety problems along US 395, known locally as Southgate, in the Pendleton area. The stretch from the base of the hill to the hospital was flagged as particularly dangerous. Multiple people pointed to intersection problems, especially near Burger King and the freeway exit where rear-end crashes happen often. Respondents also noted poor road surfaces throughout the area and incomplete sidewalks that force pedestrians to walk in the roadway.

"Use extreme caution on Southgate by Burger king and freeway exit/entrance. Many rear endings in that short space."

11. S 1ST STREET

Respondents reported safety concerns along S 1st Street (also known as S 1st Place and County Road 1275) in Hermiston. Problems were noted at several intersections, including near Hermiston High School where people want a traffic signal. The intersection at 1st Place, NW Geer, and Harper Road where called especially dangerous due to three stop signs within 20 feet near railroad tracks. Other problem areas include intersections at Orchard Avenue and Main Street, where poor visibility and confusing traffic controls create safety issues.

"Intersection of [South] 1st Pl (co. Rd 1275), NW Geer and Harper Rd. There are 3 stop signs within 20 feet of each other because of the railroad tracks. Scary as heck trying to turn onto Geer or onto Harper."

12. FEEDVILLE ROAD

Respondents expressed frustration with ongoing construction and poor conditions on Feedville Road (County Road 1000). Multiple people complained about continuous construction that creates delays, detours, and road closures instead of completing work all at once. After construction, the road surface remains in poor condition with potholes, patches, drop-offs, and gravel areas. The intersection with US 395 was noted as particularly dangerous due to poor visibility that causes crashes.

"Feedville road seems to be under continuous construction instead of doing it all at once."

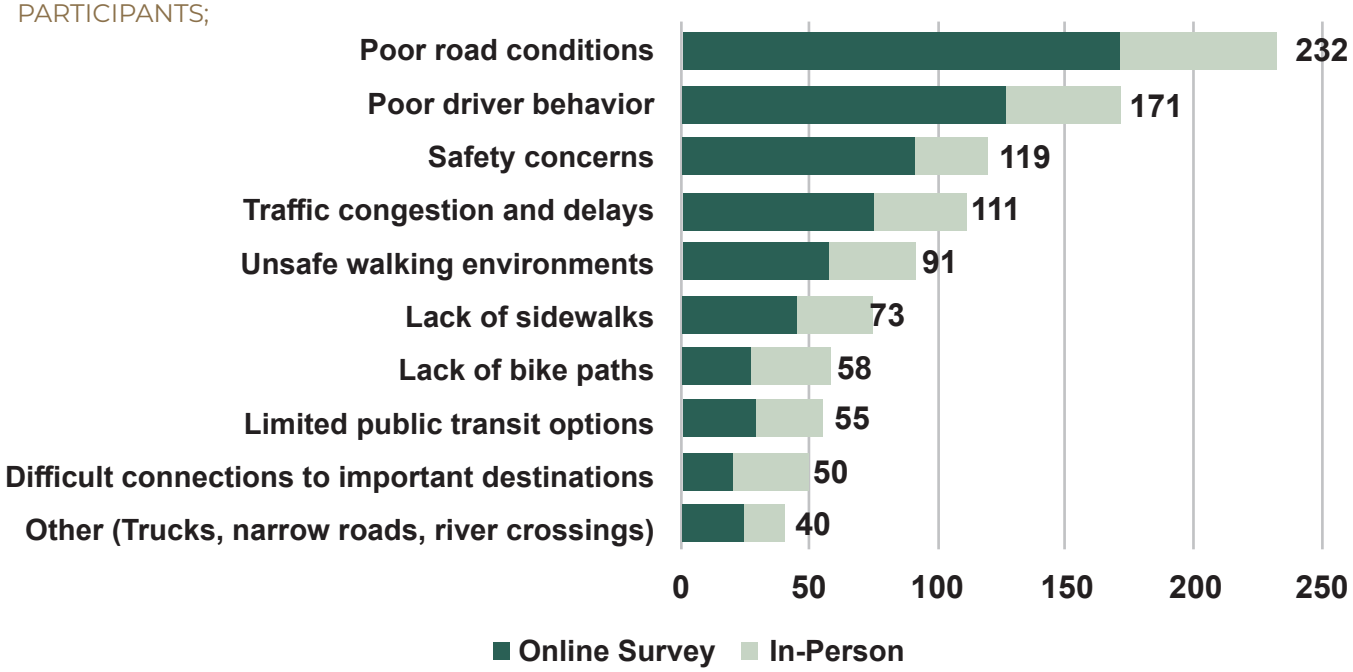
THEMES

Respondents shared their thoughts on transportation issues and modes throughout Umatilla County. The feedback covered many different themes, from road conditions and safety concerns to public transit needs and truck traffic problems. People want higher-quality roads, safer intersections, more bus service, and solutions to keep heavy trucks out of neighborhoods. This section groups the public comments by theme, organized roughly from most to least common based on how often each issue came up in the feedback. Specific location concerns are covered separately.

MAINTENANCE

Community members across Umatilla County have raised concerns about the poor condition of local roads and the quality of maintenance work. Poor road conditions were most selected travel challenge for online and in-person participants (Figure 8). Many respondents report that roads have many potholes, are rutted, and repairs don't last long. People are frustrated with "quick fixes" that create more problems; for instance, patched areas that eventually sink and cause bumps, or road work that leaves surfaces rougher than before. According to some travelers, the chip sealing and paving work often appears to be done poorly, leading to solutions that wear out quicker than they should.

FIGURE 8: MOST SIGNIFICANT TRAVEL CHALLENGES ACCORDING TO ONLINE AND IN-PERSON PARTICIPANTS;



Rural unpaved roads need much more attention, especially in areas with heavy truck traffic from farming and wind turbine maintenance. Respondents want the County to focus on properly fixing roads instead of making temporary patches that fail within a year. Many feel that road maintenance should be the top priority for county spending, since poor roads damage people's vehicles and create safety hazards. There's also concern that maintenance crews are overwhelmed by the amount of work needed across such a large county.

"Road maintenance needs to be top priority for Umatilla County. There seems to be a lack of interest in maintaining the existing infrastructure. Invest more resources in the maintenance of the roads that we have already paid for."

WALKING SAFETY

Respondents appreciate recent sidewalk improvements and ADA-compliant upgrades but want much more pedestrian infrastructure throughout Umatilla County. Many people are asking for dedicated walking paths and wider sidewalks to make it safer and more convenient to walk around their communities. Unfortunately, many areas of the County still lack basic sidewalks, forcing pedestrians to walk in the roadway, which is especially challenging on high-speed roads like Townsend Road. Children in Hermiston and Stanfield areas told County officials their neighborhoods don't have adequate sidewalks for walking and riding scooters.

The popularity of projects like the Oxbow Trail and Pendleton River Parkway (River Walk) also demonstrate a strong demand for dedicated recreational, non-motorized vehicle trails. People want better connections between communities, with suggestions for trails linking Umatilla to Echo and Athena to Weston. While some respondents question spending money on pedestrian improvements in rural areas where few people walk, others believe these investments are important for transportation options and healthy living.

> "Please prioritize new walking paths and new bike paths. I realize that most people think of transportation needs as streets and roads, but many of us believe it's important to not use the car all the time."

ROAD CROSSINGS

Respondents across Umatilla County are asking for better traffic safety features at intersections and crosswalks. Many people want more flashing crosswalk warning beacons or signals, traffic signals instead of stop signs at busy intersections, and better traffic control during construction projects. Several specific intersections were mentioned as being unsafe: the Punkin Center Road & Highway 395 intersection, various spots along Highway 11, and multiple other intersections in Hermiston and Pendleton. People are especially concerned about areas where trucks and farm equipment create visibility problems for smaller vehicles or where high-speed traffic makes crossing difficult.

There's significant debate in the community about roundabouts, with some respondents strongly supporting them as safer and more efficient solutions, while others are completely against them. Supporters say roundabouts improve traffic flow and reduce accidents, especially at busy intersections that currently back up during peak hours. However, opponents worry that roundabouts don't work well for heavy commercial and farm traffic and local drivers aren't used to navigating them safely.

> "5 way intersection [at Diagonal Rd and Punkin Center Rd] is very dangerous. Can be difficult to cross during peak trucking hours. Diagonal has a flashing yellow while the other County roads have stop signs. Often people travelling down Diagonal are going too fast."

TRANSIT NEEDS

Community members strongly support the Kayak bus system and want to see it grow. Many people rely on buses to get to work, medical appointments, and grocery stores—especially those who cannot drive or don't have cars. Thus, people want more bus routes, schedules that more closely match work hours, and service to rural areas. Several residents mentioned they would use public transit every day if it ran more often and reached more places.

Safety and cleanliness concerns were common themes in the feedback. Some riders feel unsafe due to other passengers' behavior and others mentioned problems with homeless individuals using bus stops as shelter. People with disabilities face extra challenges, with some unable to use buses because they need door-to-door service. Despite these issues, residents see public transit as essential for the

community and want county leaders to expand services, especially for seniors and people who need to travel to medical appointments in other cities.

"We desperately need more public transportation options. There are several community members who are unable to reach necessary services, such as healthcare, due to lack of transportation."

TRAFFIC CONTROL

Respondents noted mixed feelings about traffic signals and stop signs throughout Umatilla County. While some people appreciate recent improvements like reinstated traffic signals at busy intersections and new flashing crosswalk signals, others are frustrated with percieved poor traffic signal timing and positioning, which creates congestion and visibility problems. There are also concerns about stop signs being placed too far back from intersections, making it hard for drivers to see traffic when they stop at the painted stop bar.

People are asking for better signage throughout the County, including solar-powered flashing stop signs to make intersections more visible and bilingual (English-Spanish) road signs. School zones see specific concerns in traffic control too, with requests for flashing lights near school speed limit signs to remind drivers to slow down. Some respondents also mentioned problems with commercial truck signage, especially at the Pilot Truck Stop area where poor signage has contributed to crashes.

"Pilot Truck Stop on I-84/Hwy 395 has horrible signage for trucks headed south. Another fatal accident happened at that intersection last week. Trucks coming out of the Pilot often miss the on ramp going west."

BEHAVIOR

Respondents across Umatilla County reported concerns with dangerous driving behaviors that make roads unsafe for everyone. Speeding is a major issue, with drivers going too fast through towns and on rural highways like OR 11, US 395, and US 730. Many people are frustrated with aggressive driving, including illegal passing in no-passing zones, cars running red lights, and road rage incidents. People feel that drivers act like they own the road and don't pay attention to pedestrians or other vehicles.

The community is asking for more police patrols and traffic enforcement, especially during rush hours and in areas around schools. Many residents want flashing speed limit signs, particularly near schools where drivers habitually cruise through at non-school-zone speeds. There are also concerns about commercial vehicles parking illegally and blocking traffic, distracted driving from phone use, and drivers not yielding to pedestrians at crosswalks.

"Almost everywhere. It is scary to be out there on the roads with people driving way too fast, passing when they are not supposed too, no regard to anyone or anything else."

BIKING SAFETY

Respondents are asking for better and safer ways to bike around their communities. Many people want more bike lanes, wider shoulders on roads, and separate paths for biking that don't share space with cars. They're especially concerned about safety on busy roads like OR 11 and US 395, where the shoulders are too narrow for bikes. People mentioned specific areas like Theater Street in Pendleton and Old River Road between Umatilla and Hermiston. Several respondents suggested connecting towns with trails, particularly between Umatilla and Echo.

"I would like to see wider shoulders to improve bike safety. Having some dedicated bike lanes would also improve bike safety."

FREIGHT TRAFFIC

Respondents noted frustrations with heavy truck traffic going through neighborhoods where "No Thru Trucks" signs are posted. Many people report frequent truck traffic on roads like South Edwards Road east of Hermiston. The problem gets worse when farmers are allowed to use these roads as shortcuts, which then encourages other trucking companies to use the same routes. People want better truck routes built and properly paved so trucks will want to use more appropriate roadways, highways instead of residential streets.

"There are freight traffic violations in residential areas where No Thru Trucks signs are posted."

ENVIRONMENTAL HAZARDS

Weather conditions and natural hazards create significant safety challenges on Umatilla County roads. For example, black ice is a major winter concern. Deep ruts in the road become especially dangerous during rain and snow when water collects and creates hazardous driving conditions. Flooding affects some county roads—making them impassable—while gravel roads are particularly vulnerable to storm damage and need more frequent maintenance after heavy rains. Rockfall is a serious issue along US 730 between McNary and the Washington state line, where drivers regularly dodge rocks that have fallen onto the roadway. The problem is so common that road crews use snowplows to push rocks into ditches, yet the ditches eventually fill up and become hazards themselves, forcing residents to avoid driving certain routes altogether at night.

"The stretch of highway 730 from McNary to the Washington State line has continuous rockfall problems. Most mornings I have to dodge rocks in the roadway."

CONCLUSION

During the part of community engagement efforts from March through May 2025, the County collected valuable feedback from Umatilla County residents about transportation challenges and needs. Through information tables at community events, visits to local businesses, an online survey, social media outreach, radio ads, and direct conversations with community leaders, the County was able to hear from a wide range of people across the area. This comprehensive approach proved largely effective, with in-person events particularly successful in reaching residents who face transportation barriers.

Recorded feedback clearly shows that poor road conditions are the community's top priority, with specific locations like US 395 through Hermiston, the Umatilla River Road, and stretches of OR 11 needing attention. Residents also emphasized the need for expanded public transit, better truck traffic management, safer intersections, and more walking and biking infrastructure. These findings provide a strong foundation for developing the Transportation System Plan and Safe Streets and Roads for All Plan by ensuring that both plans address the real concerns and priorities of the people who live, work, and travel throughout Umatilla County.

Safety Analysis

ANALYSIS DATASET

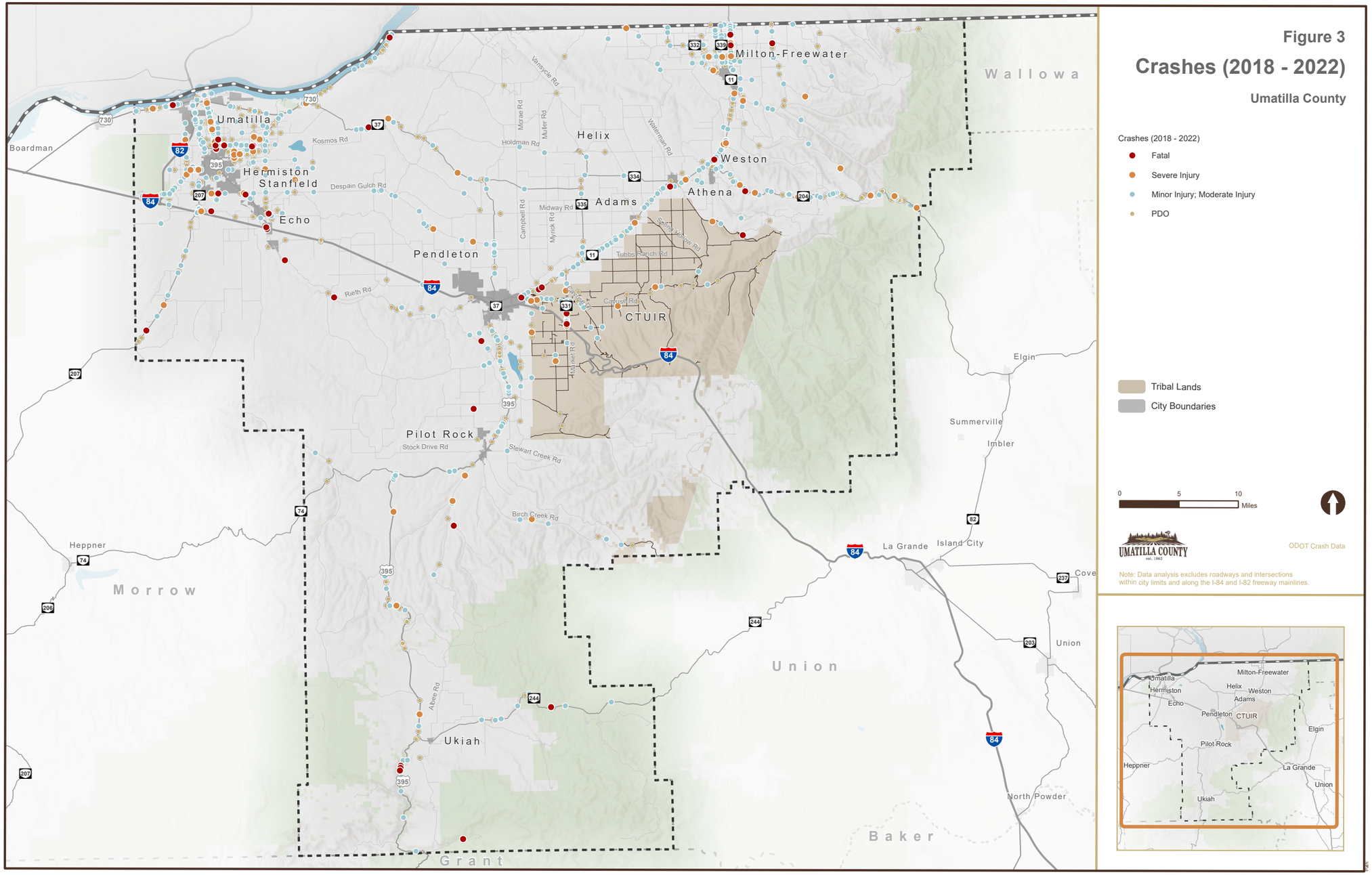
Historical crash data, collected and supplied by ODOT, including crash years 2018 through 2022 was assessed on all study area roadways and intersections. The analysis considers roadways in the County or ODOT jurisdiction that are outside of City Limits. The analysis does not include ramps or freeways (I-84 and I-82). Crashes that are classified by ODOT as intersection related and within 250 feet of an intersection on a study area roadway are included in the analysis.

Figure 3 shows the location of all crashes in the study area during these five years. A summation of trends related to time, location, and contributing circumstances is presented in the following sections.

When looking at safety data, it is possible to talk about the data in terms of crashes or in terms of people. This Umatilla County SAP crash analysis looks at the data in terms of the number of crashes, unless otherwise stated. The data includes 1,536 crashes; however, this analysis largely focuses on the 125 crashes that resulted in at least one fatal or severe injury. These crashes will often be referred to as FSI (Fatal and Severe Injury) crashes



FIGURE 3. STUDY AREA CRASHES



CRASH TYPE, FREQUENCY, AND SEVERITY

The number of annual crashes is shown in Figure 4. The number of annual crashes have increased from 288 in 2018 to 340 in 2022. Similarly, the annual total of Fatal, Serious, or Injury (FSI) crashes peaked in 2022 at 32 crashes (Figure 5). The significant increase in the number of FSI crashes from 2021 to 2022 is not observed in any other set of two consecutive years.

FIGURE 4. TOTAL CRASHES BY YEAR AND SEVERITY

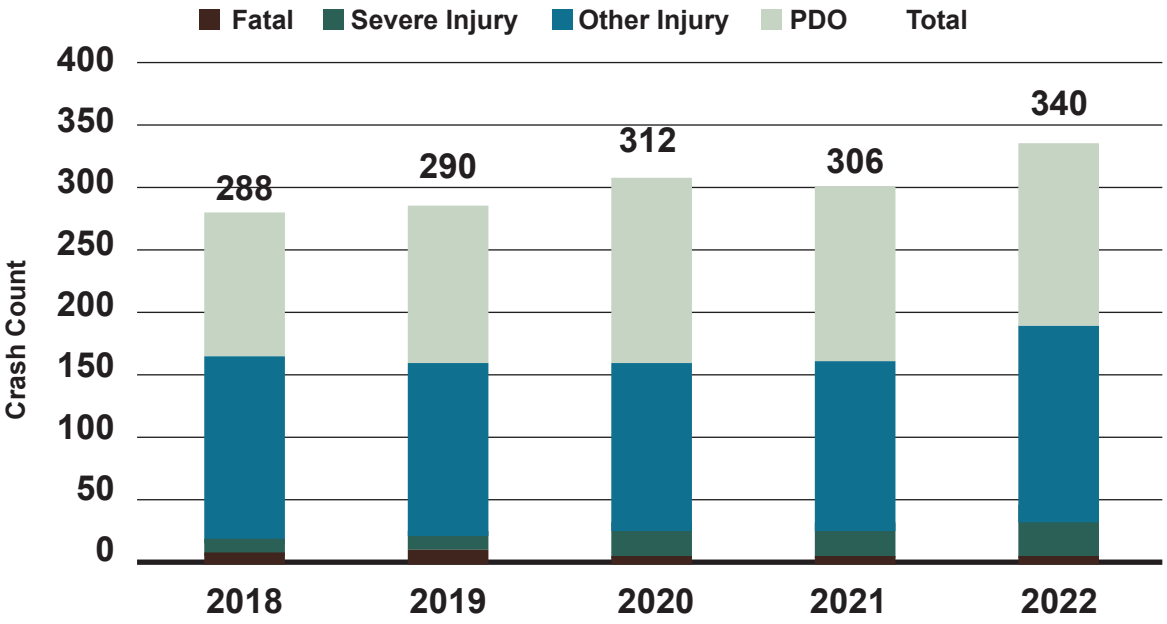
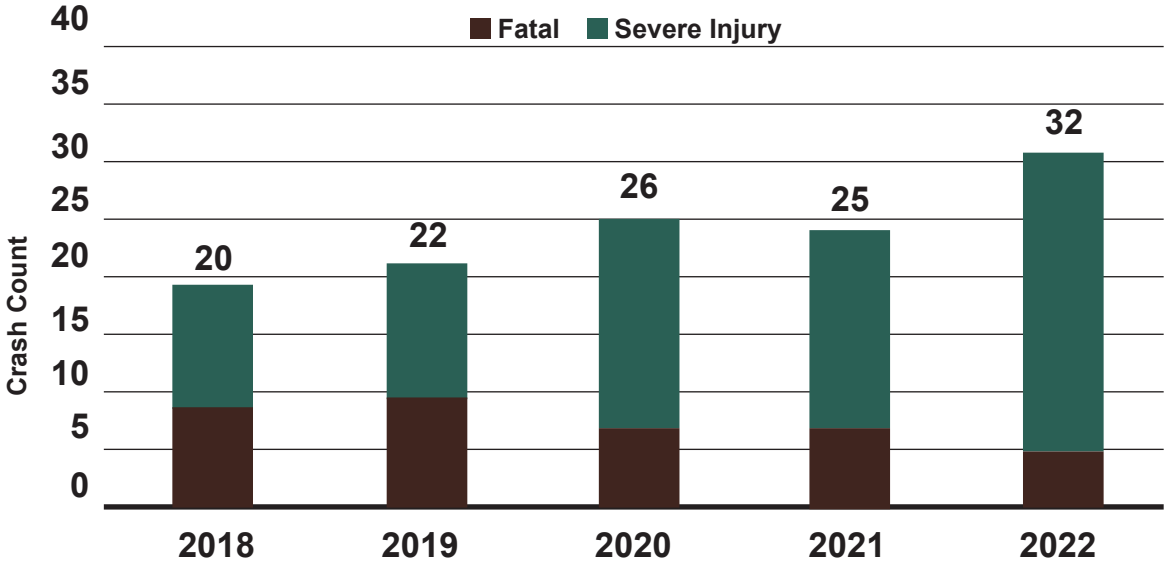


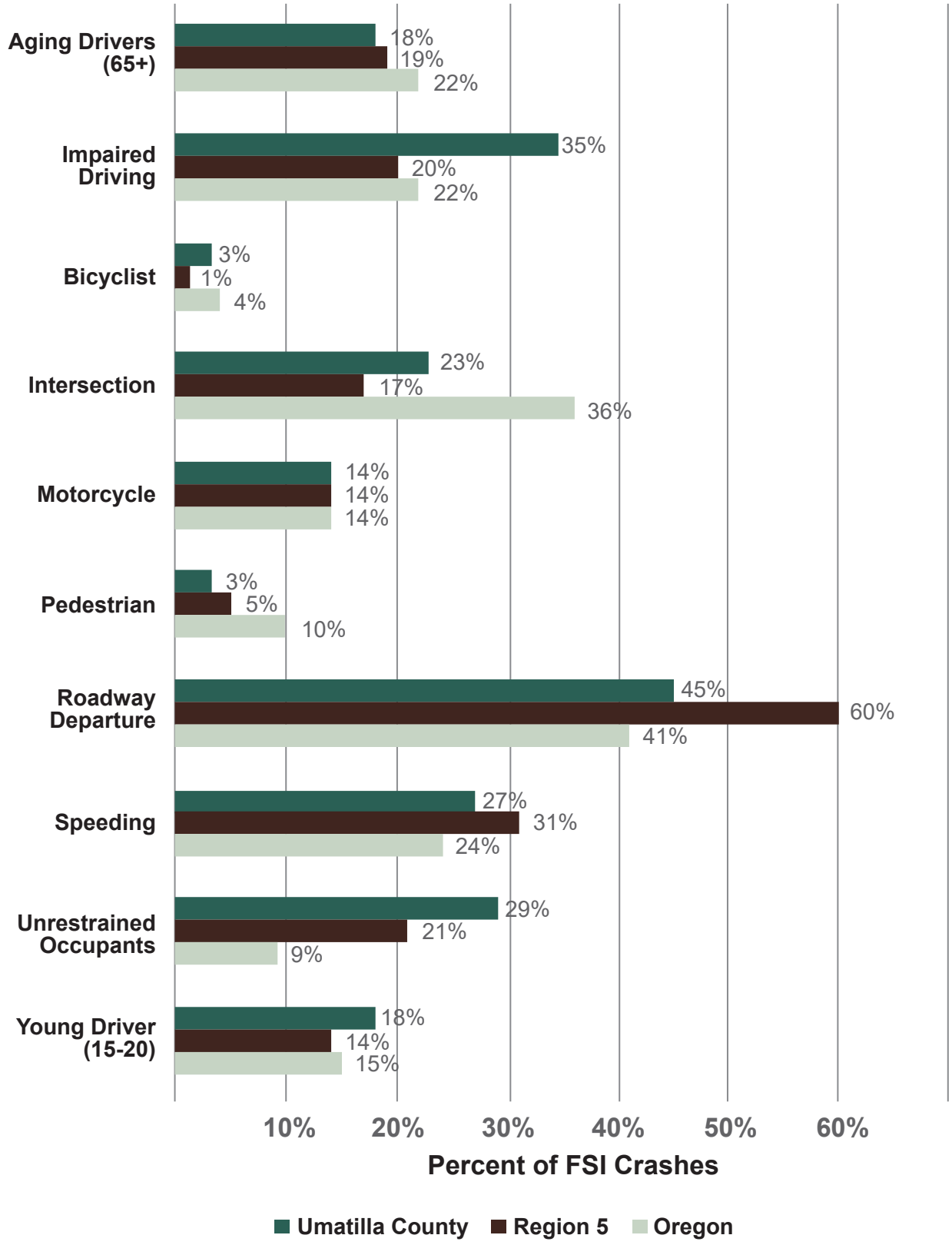
FIGURE 5. TOTAL FATAL AND SEVERE INJURY CRASHES BY YEAR AND SEVERITY



The Oregon Transportation TSAP reports the prevalence of several contributing crash factors to FSI crashes across Oregon and ODOT Region 5 (Morrow, Umatilla, Union, Wallowa, Baker, Grant, Harney and Malheur Counties). The contributing factors are reported for Oregon, ODOT Region 5, and Umatilla County in Figure 6.

- **Impaired driving** is a more common contributing factor in FSI crashes in Umatilla County compared to Oregon and ODOT Region 5. Impaired driving is a contributing factor in about 35% of FSI crashes in Umatilla County.
- **Roadway departure crashe**s is a more common contributing factor in FSI crashes in Umatilla County compared to Oregon. Roadway departure crashes account for about 45% of FSI crashes in Umatilla County.
- **Unrestrained occupants** is a more common contributing factor in FSI crashes in Umatilla County compared to Oregon and ODOT Region 5. Unrestrained occupants is a contributing factor in about 29% of FSI crashes in Umatilla County.
- **Speeding** is a contributing factor in FSI crashes in Umatilla County with a similar prevalence compared to Oregon and ODOT Region 5. Speeding is a contributing factor in about 27% of FSI crashes in Umatilla County. Speeding is considered a contributing factor if the crash cause is recorded as either “speed too fast for conditions” or “driving in excess of posted speed”.
- **Intersection crashes** is a more common contributing factor in FSI crashes in Umatilla County compared to ODOT Region 5. Intersection crashes account for about 23% of FSI crashes in Umatilla County.

FIGURE 6. FACTORS CONTRIBUTING TO FSI CRASHES IN UMATILLA COUNTY, REGION 5, AND OREGON STATEWIDE



While Figure 6 identifies some specific crash types, Figure 7 presents a more detailed summary of the distribution of all crash types. As noted above, roadway departure crashes are prevalent within the County and were the most common crash type. There were more than twice as many road departure crashes as any other crash type. Figure 8 shows the locations of the road departure crashes. There are several locations where there is a cluster of fatal and severe road departure crashes:

- Northeast of City of Hermiston along OR 207
- US 395 south of Ukiah
- At the northeastern boundary of CTUIR along Wildhorse Road
- OR 204 east of Weston

Road departure crashes are identified in the crash data as crashes with a crash type of 'Fixed-Object or Other-Object' or 'Non-Collision'.

FIGURE 7. REPORTED INJURY SEVERITY BY CONTRIBUTING FACTOR

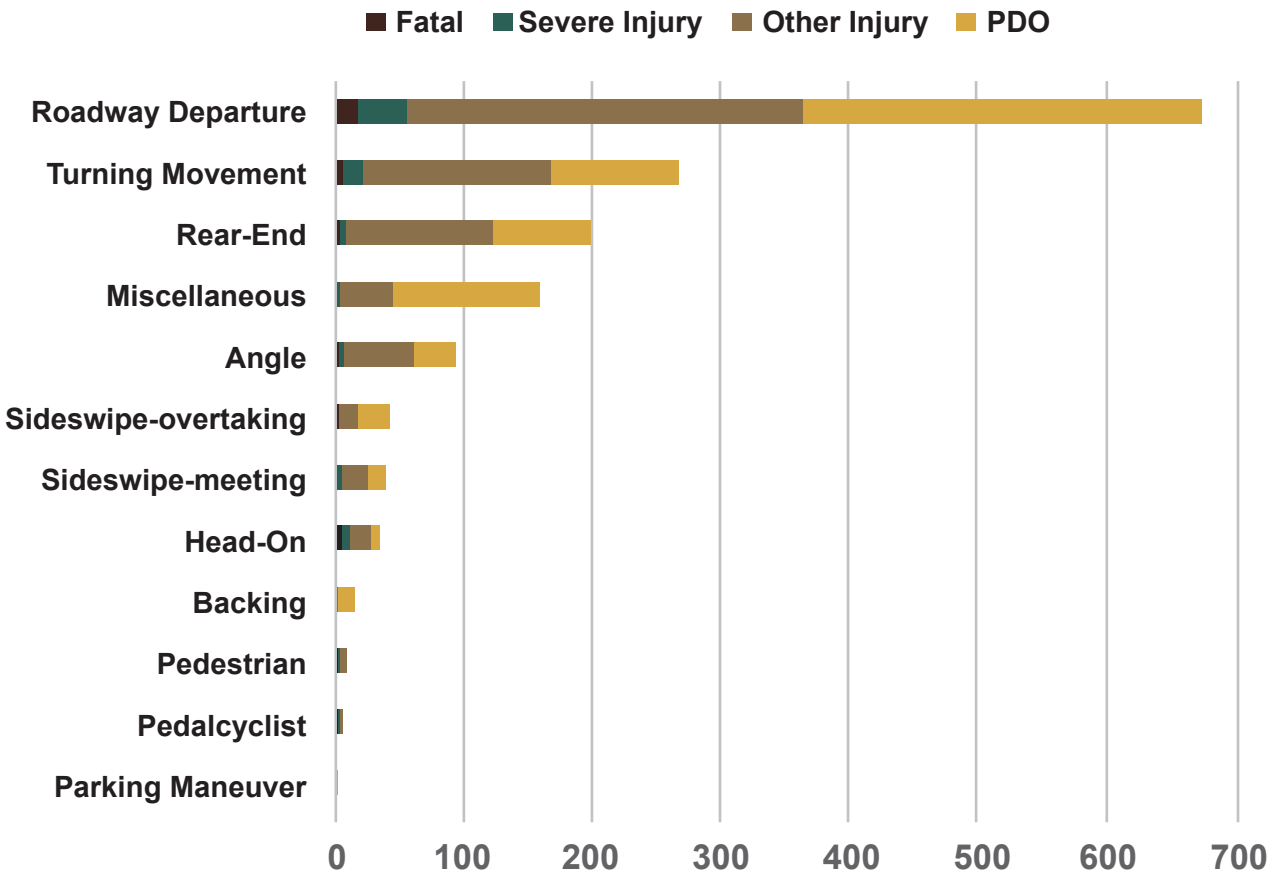
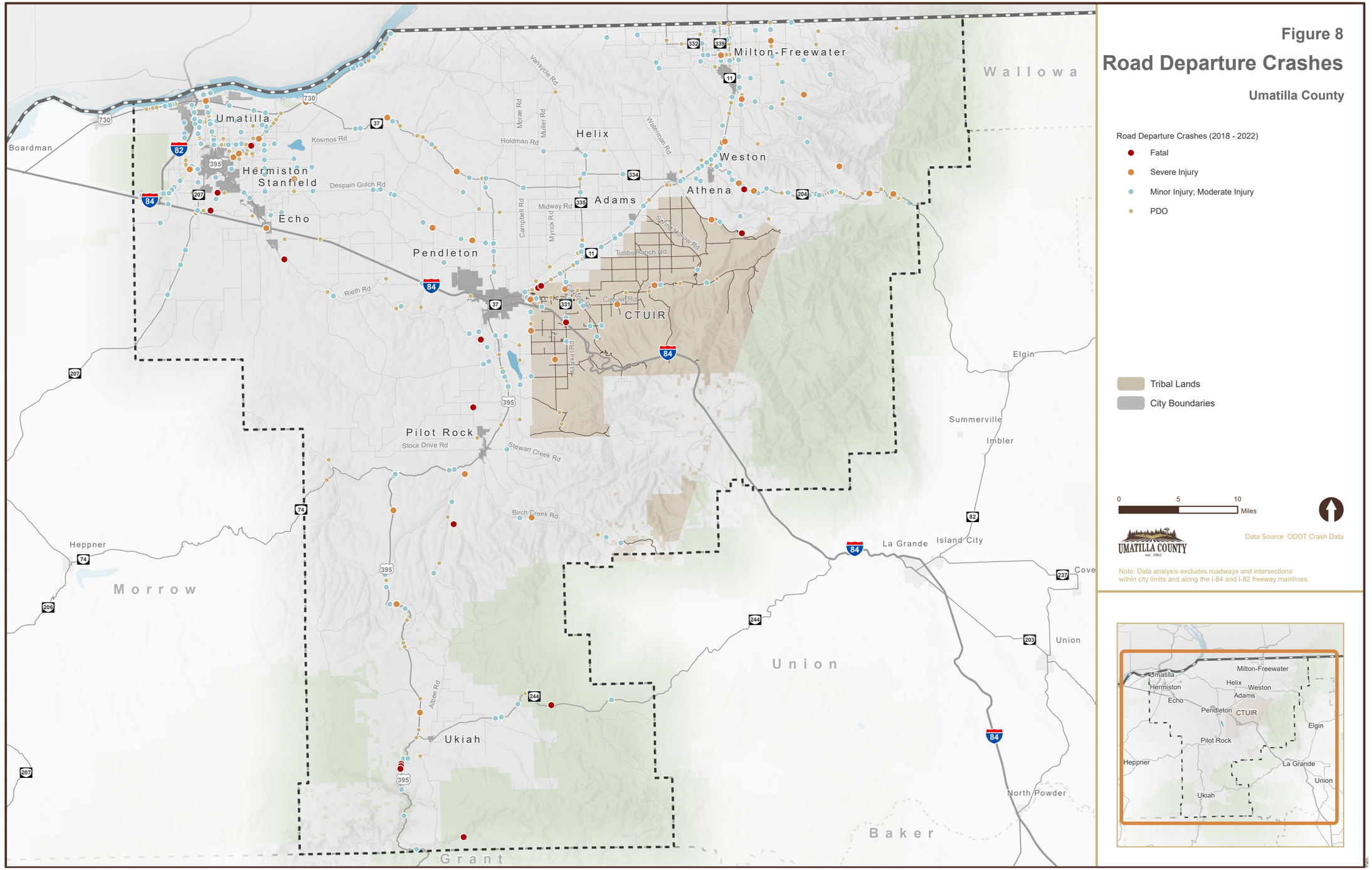


FIGURE 8. STUDY AREA LANE DEPARTURE / ROAD DEPARTURE CRASHES



While it is important to consider crash type frequency, it is critical to also consider the relative severity of different crash types. For example, of the 672 road departure crashes, 17 were fatal and 39 resulted in severe injury. This means 8% of the roadway departure crashes resulted in a fatality or severe injury. As shown in Table 4, the percentage of FSI crashes for each crash type vary from 0% to 80%.

Table 4 also shows that bicyclist and pedestrian crashes have the highest rates of fatal and severe injury. While there have been fewer crashes involving these modes in the County, the lack of protection and difference in mass between a person and a vehicle increases the likelihood of injury. Similarly, head-on crashes are a less frequent crash type but more commonly result in a severe injury.

TABLE 4. TOTAL CRASHES AND TOTAL FSI CRASHES BY CRASH TYPE

CRASH TYPE	TOTAL CRASHES	FSI CRASHES	% FSI CRASHES
Bicyclist	5	4	**80%**
Pedestrian	9	4	**44%**
Head-on	35	12	**33%**
Sideswipe – meeting	39	5	**13%**
Roadway Departure	672	56	**8%**
Turning Movement	267	21	**8%**
Angle	94	7	**7%**
Rear-End	198	10	**5%**
Miscellaneous	159	4	**3%**
Sideswipe – overtaking	42	2	**5%**
Backing	15	0	**0%**
Parking Maneuver	1	0	**0%**

Figure 9 combines the information from Figure 7 and Table 4 into a single graphic. This graphic plots each crash type by frequency and severity. The x axis shows the frequency of FSI crashes, and they axis shows the percentage of that crash type that resulted in a fatal or severe injury.

The high frequency of FSI road departure crashes relative to other crash types places the road departure dot far to the right on the graphic. Head-on crashes are much less frequent and so are much further left on the graphic. However, they are historically more likely to result in a fatal or severe injury in the County, so the point is located higher up than the road departure crashes dot.

This graphic is helpful in identifying where to focus safety efforts to make the biggest difference. For example, turning movement crashes and road departure crashes have equal likelihoods of resulting in a fatal or severe injury. However, since road departure crashes are more common, more lives could be saved by focusing safety efforts on road departure crash countermeasures. Considering the figure, if countermeasures are implemented to reduce the frequency of the crash type, the dot would shift to the left. If countermeasures are implemented to reduce the severity of the crash type, the dot would shift down.

While there have been relatively very few pedestrian and bicyclist crashes, nearly 50% of the pedestrian crashes and more than 75% of the bicyclist crashes resulted in a fatal or serious injury. Figure 10 shows the locations of the pedestrian, bicyclist, and head-on crashes, three crash types lower in frequency but higher in severity. Two key trends observed are: 1) OR 11 has a large number of these crashes, particularly head-on crashes and 2) the pedestrian and bicyclist crashes are typically located near city limits.

EXAMPLE OF HOW TO READ THIS GRAPHIC:

Crash Type: Road departure crashes | Total FSI Crashes (x axis): 56 | Percent FSI Crashes (y axis): 8%

Explanation: Of the total 1,536 crashes in the dataset, 672 were road departure crashes. Of these 672 road departure crashes, 56 resulted in a fatal or severe injury. These 56 road departure crashes represent 8% of the 672.

FIGURE 9. COLLISION TYPE BY INCIDENCE AND FSI RATE

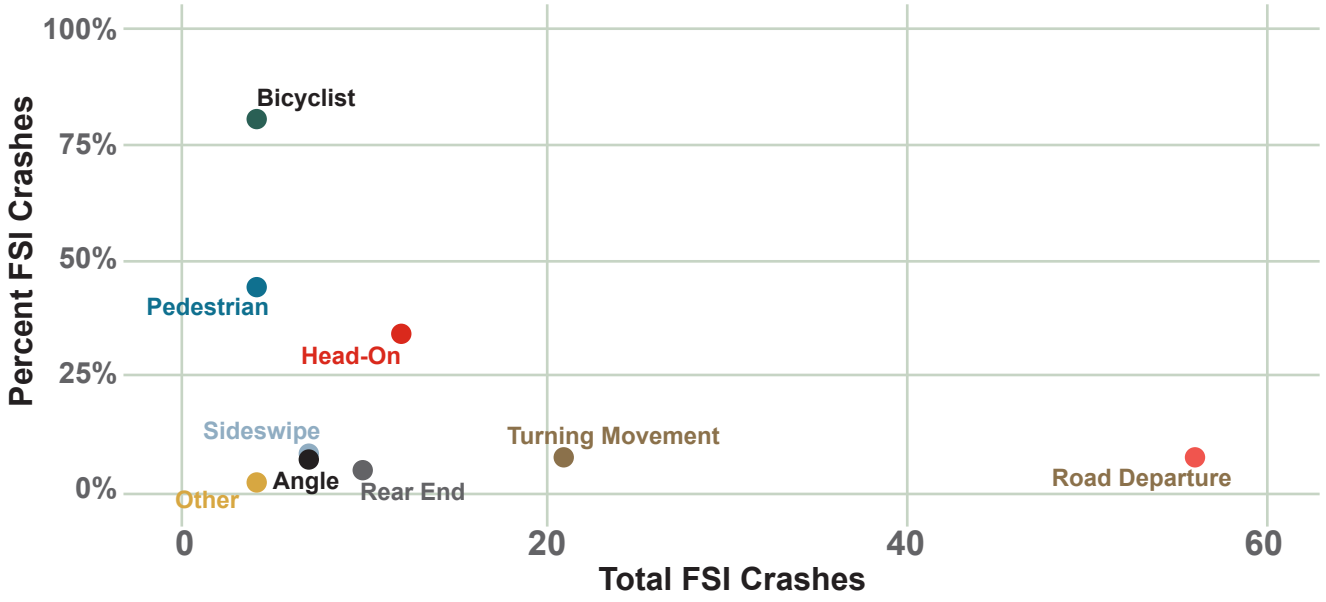
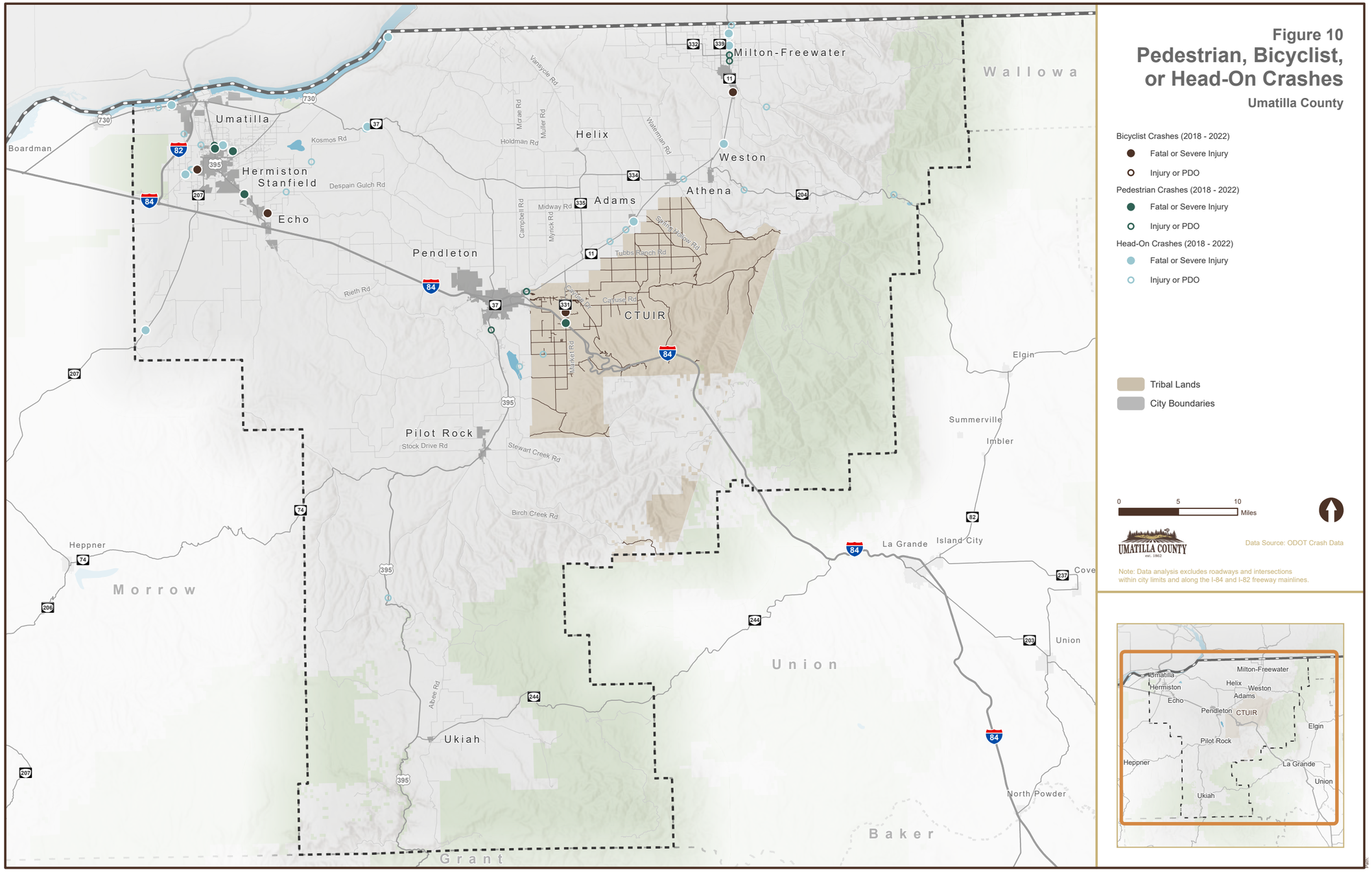


FIGURE 10. STUDY AREA PEDESTRIAN, BICYCLIST, AND HEAD-ON CRASHES



Contributing Factors

It is helpful to look at the distribution of certain characteristics across the FSI crash population and across all crashes. This comparison can be used to identify conditions that are more likely to contribute to fatal and severe injury crashes.

Figure 11 shows the distribution of lighting conditions for both crash populations. The high percentage of crashes in daylight reflects the trend that most road users are using the roadway network during the daytime. One noticeable trend is that there is a slight increase in the percentage of FSI crashes compared to all crashes when looking at dark conditions, with or without streetlights. This indicates dark lighting conditions may be more likely to contribute to high severity crashes, which echoes nation-wide trends.

FIGURE 11. DISTRIBUTION OF LIGHTING CONDITION FOR ALL AND FSI CRASHES

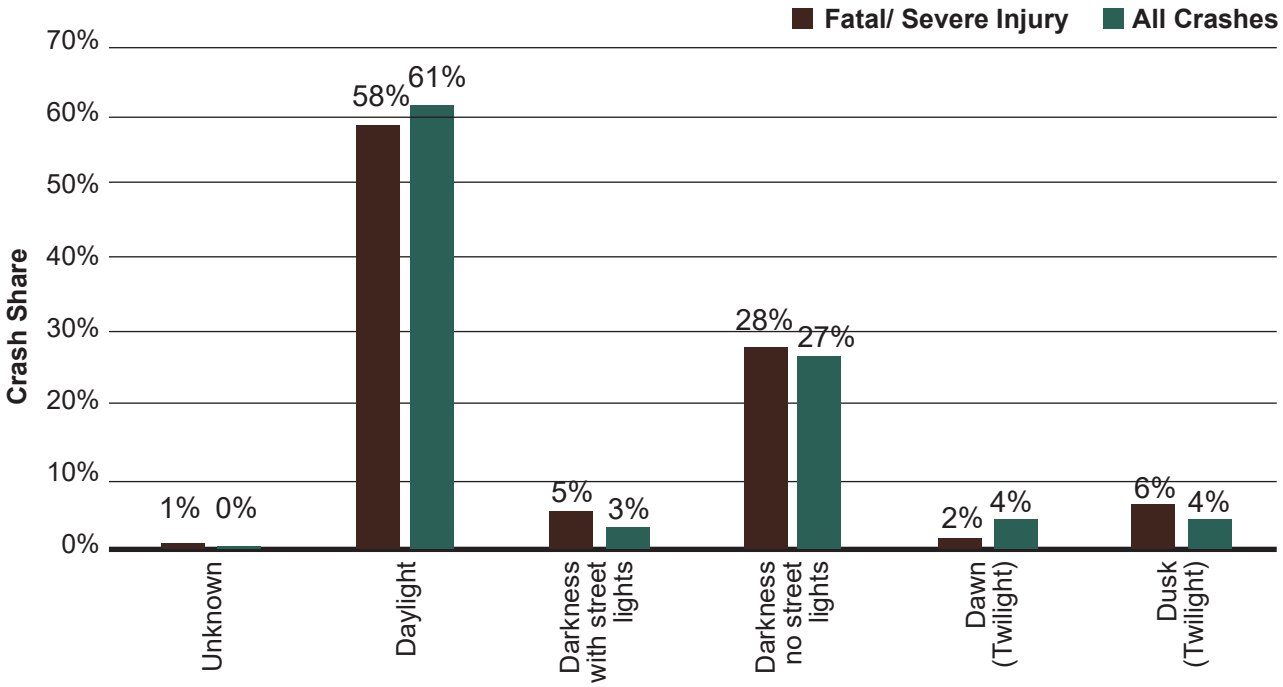


Figure 12 shows the distribution of residency status among the drivers involved in FSI crashes. Drivers with an "unknown" residency status in the crash data were not included in this analysis to avoid skewing the results. This factor was investigated under the hypothesis that drivers that are not OR residents may be driving in unfamiliar territory and therefore more likely to be involved in a higher severity crash.

Note: Since driver residency status can change from driver to driver, this is an instance where the analysis was done at the driver level, as opposed to at the crash level.

There were 188 drivers involved in the 125 FSI crashes. All 188 had a recorded residency status; 80% of them were Oregon residents while 20% were not. There were 2,263 drivers involved in the 1,536 crashes. 1,300 of them had a recorded residency status; 79% of them were Oregon residents while 21% were not. The small difference in residency distribution between FSI crash drivers and drivers involved in all crashes indicates that there is likely no increase in FSI crash risk associated with drivers who are not OR residents.

FIGURE 12. DISTRIBUTION OF DRIVER RESIDENCY FOR ALL AND FSI CRASHES

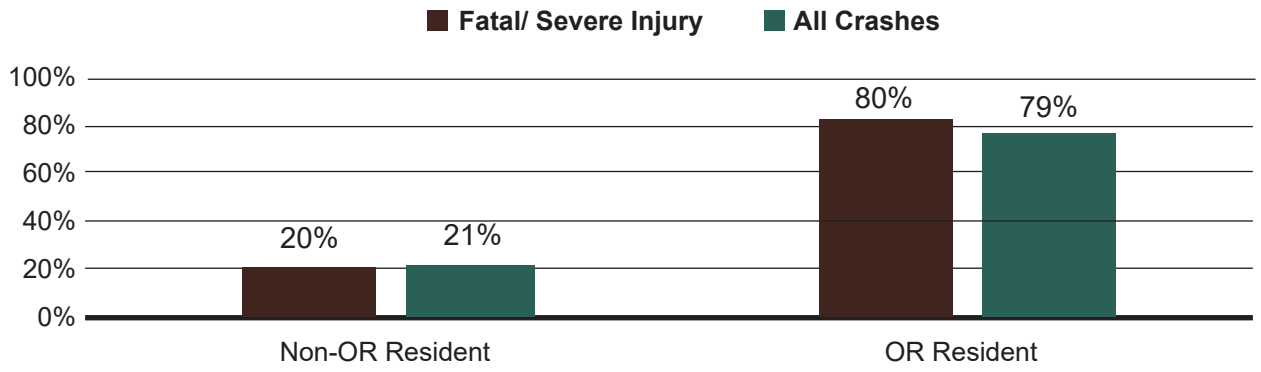


Figure 13 shows the distribution of surface conditions for both crash populations. While it is sometimes observed that FSI crash risk increases in adverse roadway surface conditions, that trend is not observed in Umatilla County. This can be the result of several factors including the frequency of adverse roadway surface conditions and human behaviors in response to adverse roadway surface conditions.

FIGURE 13. DISTRIBUTION OF SURFACE CONDITION FOR ALL AND FSI CRASHES

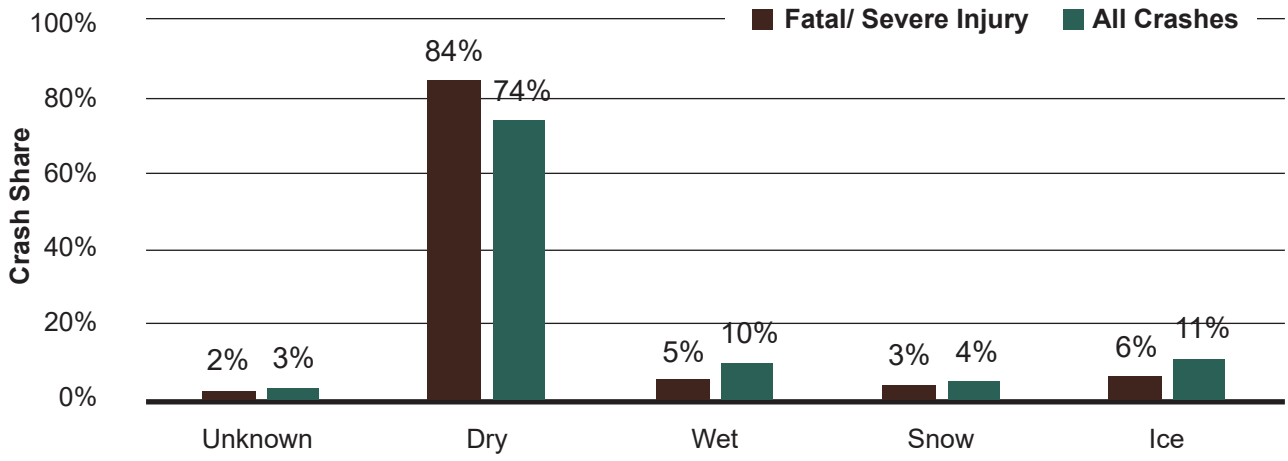
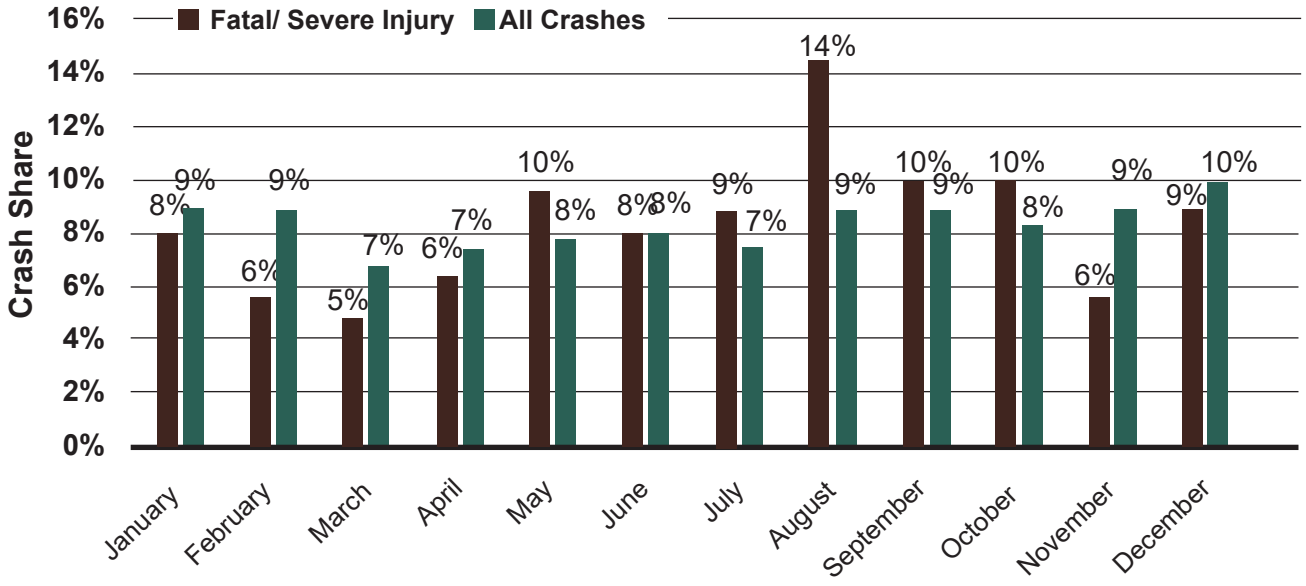


Figure 14 shows the distribution of crashes by month for both crash populations. As shown, there is a higher percentage of FSI crashes in August and other months when there is less chance of adverse weather conditions.

FIGURE 14. DISTRIBUTION OF TIME OF YEAR (MONTH) FOR ALL AND FSI CRASHES



ROAD USER BEHAVIOR

The crash data includes information related to behavioral factors, specifically impaired driving, seatbelt noncompliance, and distracted driving. Two of these factors, impaired driving and seatbelt noncompliance, were previously identified as being highly prevalent within the County. Table 5 summarizes the prevalence of these factors in more detail.

- Impaired driving (alcohol or drugs) was the most common behavior, factoring into 35% of the fatal and serious injury crashes. It contributed to a much lower percentage of all crashes (8%), indicating an overrepresentation in the FSI crash population.
- Unrestrained occupants was a factor in 29% of the FSI crashes yet only 5% of all crashes, again indication of an overrepresentation in FSI crashes.
- Distracted driving factored into 19% of the FSI crashes and 59% of all crashes. The real-world frequency of this behavior in both crash populations is likely higher than what is seen in the crash data since distracted driving is significantly underreported (Reference 18).

TABLE 5. FREQUENCY OF CONTRIBUTING FACTORS TO INJURY CRASHES

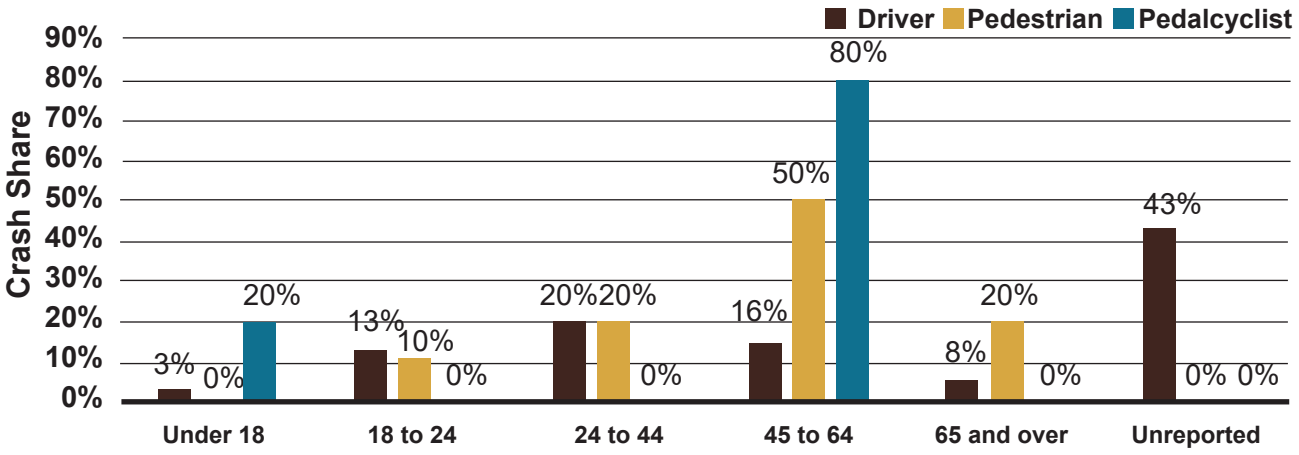
CONTRIBUTING FACTOR	TOTAL FSI (% OF FSI CRASHES)	ALL CRASHES (% OF ALL CRASHES)	% OF CRASHES RESULTING IN FSI
Impairment	44 (35%)	120 (8%)	37%
Unrestrained Vehicle Occupant	36 (29%)	76 (5%)	47%
Distracted Driving	24 (19%)	913 (59%)	3%
Total (FSI or All) Crashes	**125**	**1,536**	**8%**

Figure 15 shows the distribution of driver, pedestrian, and bicyclist ages. Based on the comparative figure with ODOT and Region 5 data, younger and aging drivers were not identified as an emphasis area. However, it can still be helpful to investigate age distribution to identify any significant patterns. The following bullets summarize the observed trends.

Note: This graphic includes road users involved in crashes of all severities, not just involved in FSI crashes.

- Bicyclists involved in crashes were either younger than 18 years old (20%) or 45 to 64 years old (80%). It is noted that there were only 5 bicyclists in the dataset.
- Pedestrians involved in crashes were most commonly between 45 and 64 years old. Like bicyclists, this is based on a limited dataset of 8 pedestrians.
- Driver age was often not reported. When reported, it was more evenly distributed than pedestrian and bicyclist ages. Most commonly, drivers were between 25 and 44 years of age.

FIGURE 15. DISTRIBUTION OF ROAD USER AGE



Location Specific Crash Analysis

Location specific analysis identifies intersections and segments within the study area where the greatest number of crashes resulting in an injury or fatality occurred between 2018 and 2022. These segments and intersections may have the greatest potential to benefit from safety projects. The crash severity score is used to define these locations in the network. The crash severity score is calculated in alignment with the Equivalent Property Damage Only performance measure from the Highway Safety Manual. The location specific analysis is conducted for intersections and segments separately. The crash data was divided into intersection related crashes and segment related crashes using the ODOT assigned fields in the crash data.

METHOD

A crash severity score was calculated for each segment and intersection by assigning a weighted score to each crash and summing the scores for the crashes that occur at each intersection or segment. The weighted score by crash severity is from the ODOT Safety Priority Index System (SPIS), summarized in Table 6. For example, the crash severity score for a segment that had 1 crash resulting in a fatality and 4 crashes resulting in minor injuries would be 140 (100*1 fatal crash + 10*4 minor injury crashes).

An annualized crash severity score was calculated for each segment and intersection by dividing the crash severity score by the number of years of crash data (five). For example, the previously referenced segment would be 28 (140 / 5 years).

TABLE 6: CRASH SEVERITY SCORE WEIGHTING

CRASH SEVERITY	CRASH SEVERITY SCORE WEIGHT
Fatal	**100**
Suspected Serious Injury	**100**
Suspected Minor Injury	**10**
Possible Injury	**10**
No Apparent Injury (PDO)	1*

Source: ODOT Safety Priority Index System (SPIS)

**PDO not included in SPIS methodology*

INTERSECTIONS

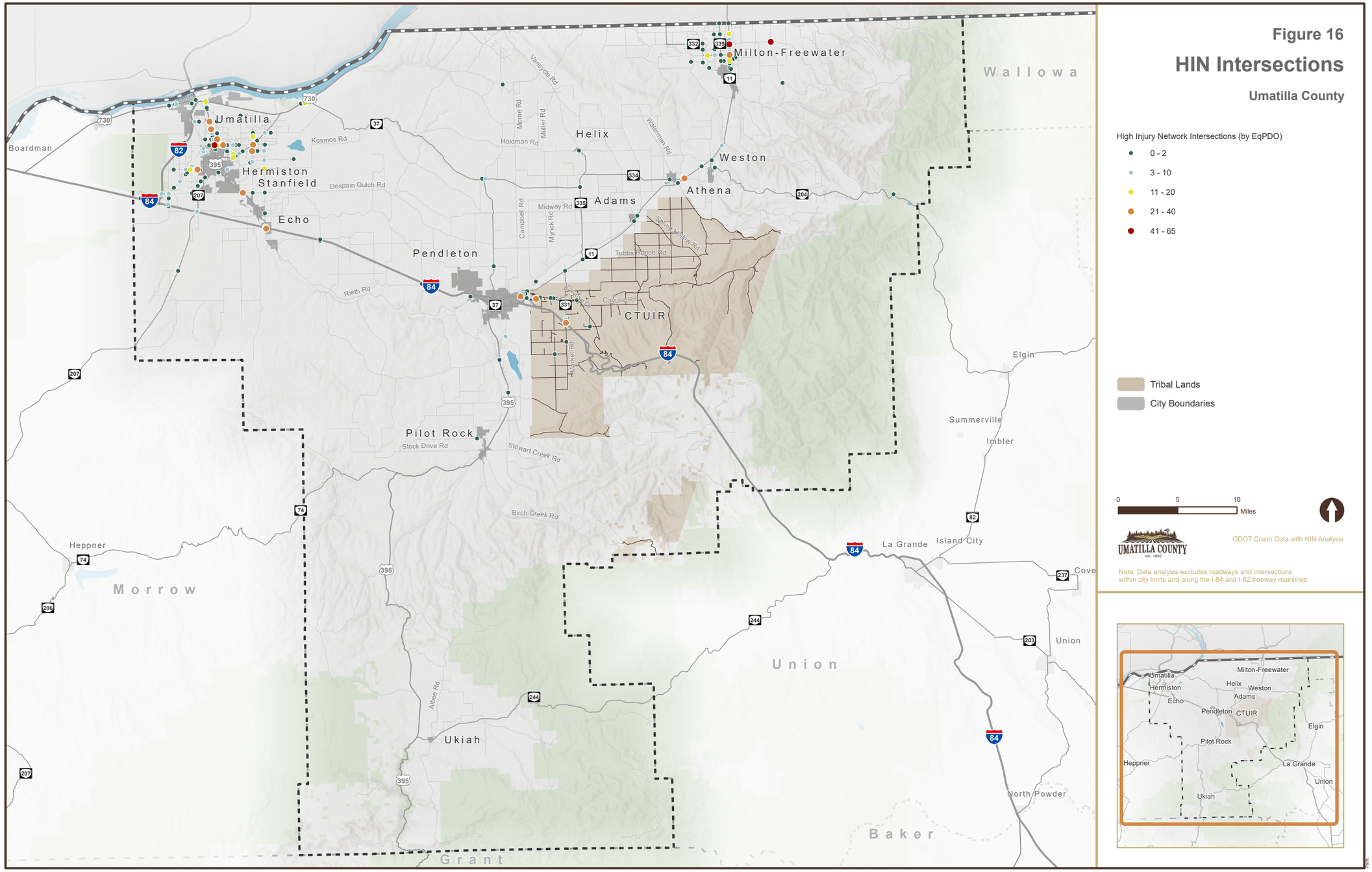
Intersection crashes were matched to the nearest intersection within 250 feet of the crash. The annual crash severity score was calculated for each intersection. The number of FSI crashes and other injury crashes that occurred at the intersections with the highest number of crashes are summarized in Table 7. Intersections are ordered by the annual crash severity score.

Intersections where there was at least one crash resulting in an injury between 2018 and 2022 are shown in Figure 16 by the annual crash severity score. There were either more injury crashes or more crashes resulting in a fatality or serious injury, between 2018 and 2022 at intersections with a higher annual crash severity score. At four study intersections, there was more than one crash between 2018 and 2022 that resulted in a fatality or serious injury. At 21 additional intersections, there was one crash between 2018 and 2022 that resulted in a fatality or serious injury. The 10 intersections with the highest crash severity score are included in Table 7.

TABLE 7: INTERSECTIONS WITH HIGHEST CRASH SEVERITY SCORES

RANK	INTERSECTION	TRAFFIC CONTROL	JURISDICTION	ANNUAL CRASH SEVERITY SCORE	FSI CRASHES	OTHER INJURY CRASHES	PDO CRASHES
1	**US 395 & Punkin Center Road**	Signal	ODOT	65	2	12	5
2	**OR 11 & Crockett Road**	Two Way Stop Control	ODOT	46.4	2	3	2
3	**Powerline Road & Birch Creek Road**	Two Way Stop Control	Umatilla County	42	2	1	0
4	**US 395 & Lauback Street / Klaus Road**	Two Way Stop Control	ODOT	40	2	0	0
5	**OR 11 & OR 332**	Two Way Stop Control (3 leg)	ODOT	32.8	1	6	4
6	**OR 207 & Punkin Center Road**	Two Way Stop Control (5 leg)	ODOT	31.6	1	5	8
7	**Highland Avenue & SW 17th Street**	Two Way Stop Control (3 leg)	Umatilla County	28.8	1	4	4
8	**US 305 South of Ukiah (MP 51.8 to MP 54.7)**	Two Way Stop Control	ODOT	28.4	1	4	2
9	**OR 331 & I-84 Ramps / Kash Kash Road**	Two Way Stop Control	ODOT	24.4	1	2	2
10	**Sagebrush Road & Joy Lane**	Two Way Stop Control (Gravel)	Umatilla County	24.2	1	2	1

FIGURE 16: HIGHIJURY NETWORK INTERSECTIONS



Segments

Roadways were divided into overlapping 1-mile-long segments. A sliding window approach was used to create the segments, using a 0.5-mile overlap between the segments. Segment crashes were matched to the nearest segment.

One-mile segments where there was at least one crash between 2018 and 2022 are shown in Figure 17 by the annual crash severity score. There were more injury crashes between 2018 and 2022 along segments with a higher annual crash severity score.

The project team reviewed the segments with a high number of crashes and manually combined adjacent segments to create the list of highest-scoring corridors shown in Table 8. The highest-scoring corridors, considering segment and intersection crashes, are mapped in Figure 18. The annual crash severity score was adjusted to account for varying corridor lengths, by dividing the annual crash severity score by the corridor length. Corridors with a higher annual crash severity score per mile had a greater density of crashes resulting in an injury or fatality occurred in the last five years. Corridors are ordered by the annual crash severity score per mile.



TABLE 8: CORRIDORS WITH HIGHEST CRASH SEVERITY SCORES

RANK	ROADWAY AND LIMITS	JURISDICTION	LENGTH (MI)	ANNUAL CRASH SEVERITY SCORE PER MILE	ANNUAL CRASH SEVERITY SCORE	FSI CRASHES	OTHER INJURY CRASHES	PDO CRASHES
1	**US 395 from Hermiston City Limits to US 730**	ODOT	4.2	92	387	9	97	64
2	**OR 11 from Milton-Freewater City Limits to WA State Line**	ODOT	3.7	82	300	9	57	31
3	**Westland Road / Highland Avenue from Agnew Road to Hermiston City Limits**	Umatilla County	2.1	69	142	4	29	22
4	**OR 207 from Townsend Road to Columbia Lane**	ODOT	2.7	63	171	6	23	25
5	**US 395 from Hermiston City Limits to Stanfield City Limits**	ODOT	1.2	58	69	3	4	3
6	**OR 11 from OR 204 to north of CR 643 / Winn Road**	ODOT	2.2	37	81	3	10	5
7	**Stanfield Meadows Road from OR 207 to east of OR 207**	Umatilla County	1.5	33	48	2	3	9
8	**US 395 from South of Ukiah (MP 51.8 to MP 54.7)**	ODOT	2.9	33	93	4	6	7
9	**OR 204 from East of Weston**	ODOT	3.1	25	80	3	9	8
10	**US 730 from Umatilla County Line to Umatilla City Limits**	ODOT	3.9	23	91	3	14	14
11	**OR 204 from Lincton Mountain Road to Umatilla County Line**	ODOT	5.7	21	120	5	9	10

FIGURE 17: HIGH INJURY NETWORK SEGMENTS

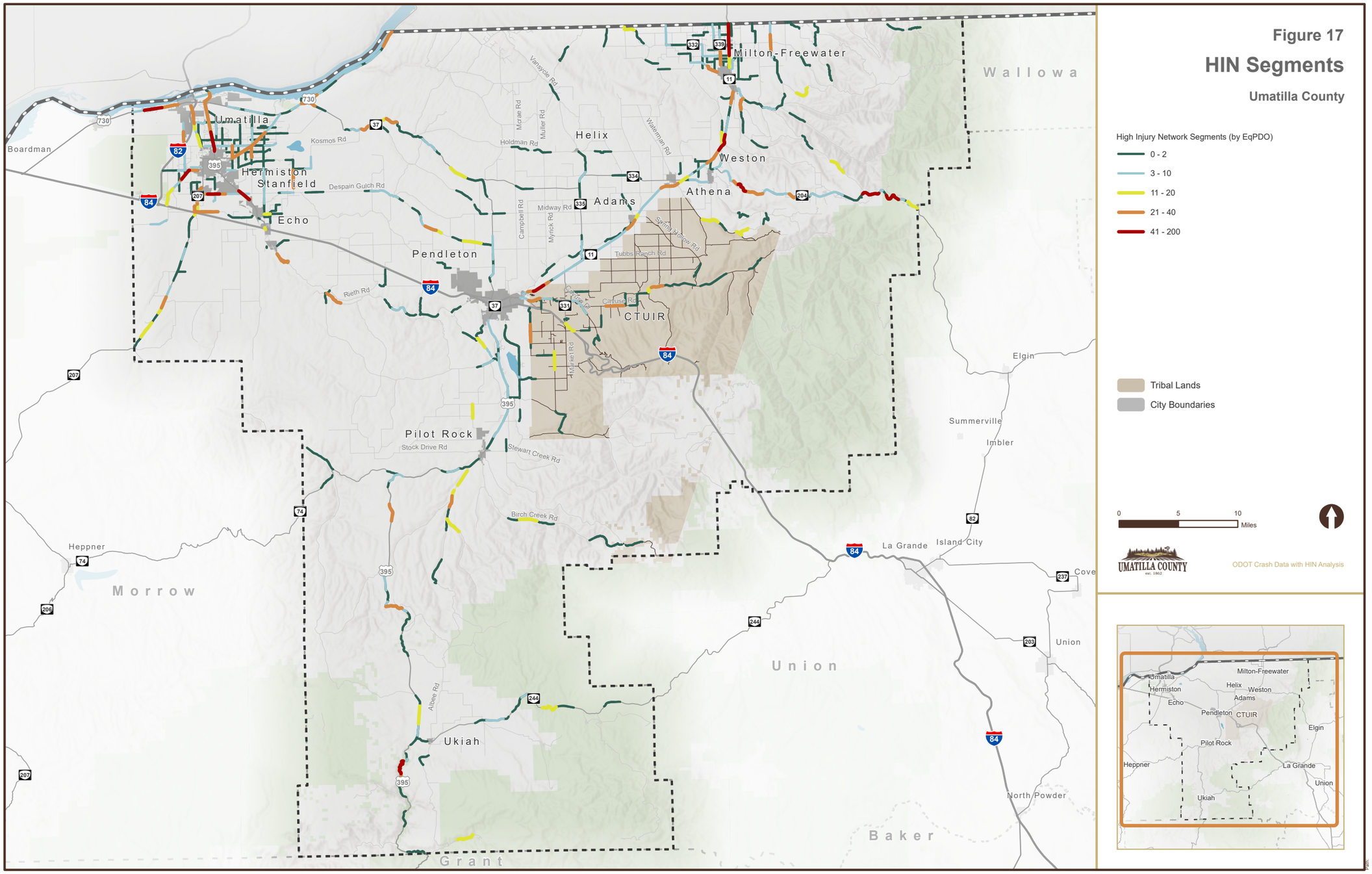


FIGURE 18: HIGH-SCORING CORRIDORS

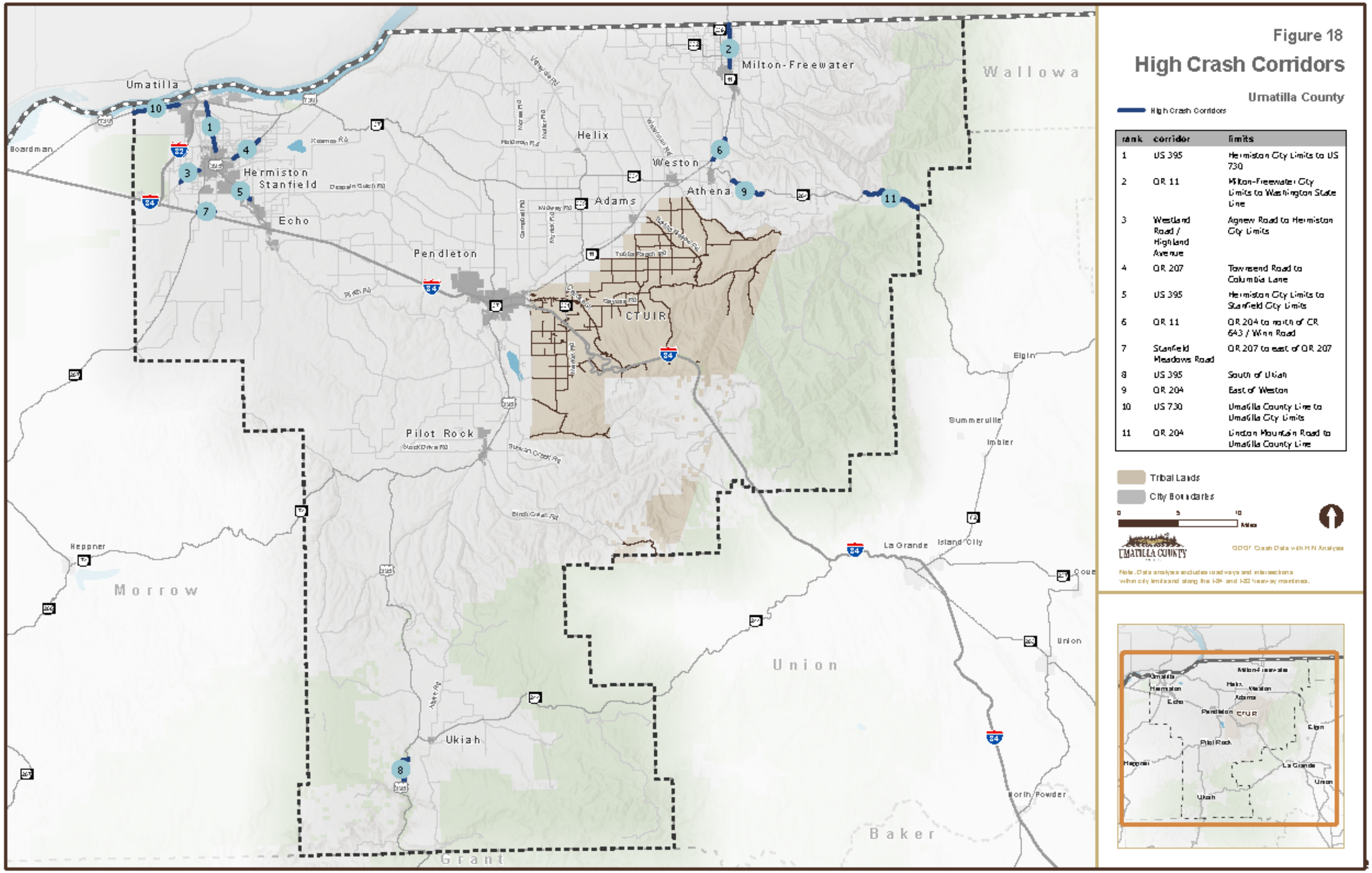


Figure 18

High Crash Corridors

Umatilla County

High Crash Corridors

rank	corridor	limits
1	US 395	Hermiston City Limits to US 730
2	OR 11	Milton-Freewater City Limits to Washington State Line
3	Westland Road / Highland Avenue	Agnew Road to Hermiston City Limits
4	OR 207	Townsend Road to Columbia Lane
5	US 395	Hermiston City Limits to Stanfield City Limits
6	OR 11	OR 204 to north of CR 643 / Winn Road
7	Stanfield Meadows Road	OR 207 to east of OR 207
8	US 395	South of Ukiah
9	OR 204	East of Weston
10	US 730	Umatilla County Line to Umatilla City Limits
11	OR 204	Lindsay Mountain Road to Umatilla County Line

Tribal Lands

City Boundaries

0 5 10 Miles

UMATILLA COUNTY

ODOT Crash Data with HIN Analysis

Note: Data analysis excludes roadways and intersections within city limits and along the I-84 and I-82 freeway mainlines.

Safety Priority Index System

The ODOT Safety Priority Index System (SPIS) identifies locations along state highways and local roads that may warrant further investigation. It identifies locations by considering crash frequency, crash rate, and crash severity. Sites identified within the top 5% are investigated by ODOT staff and reported to the Federal Highway Administration (FHWA).

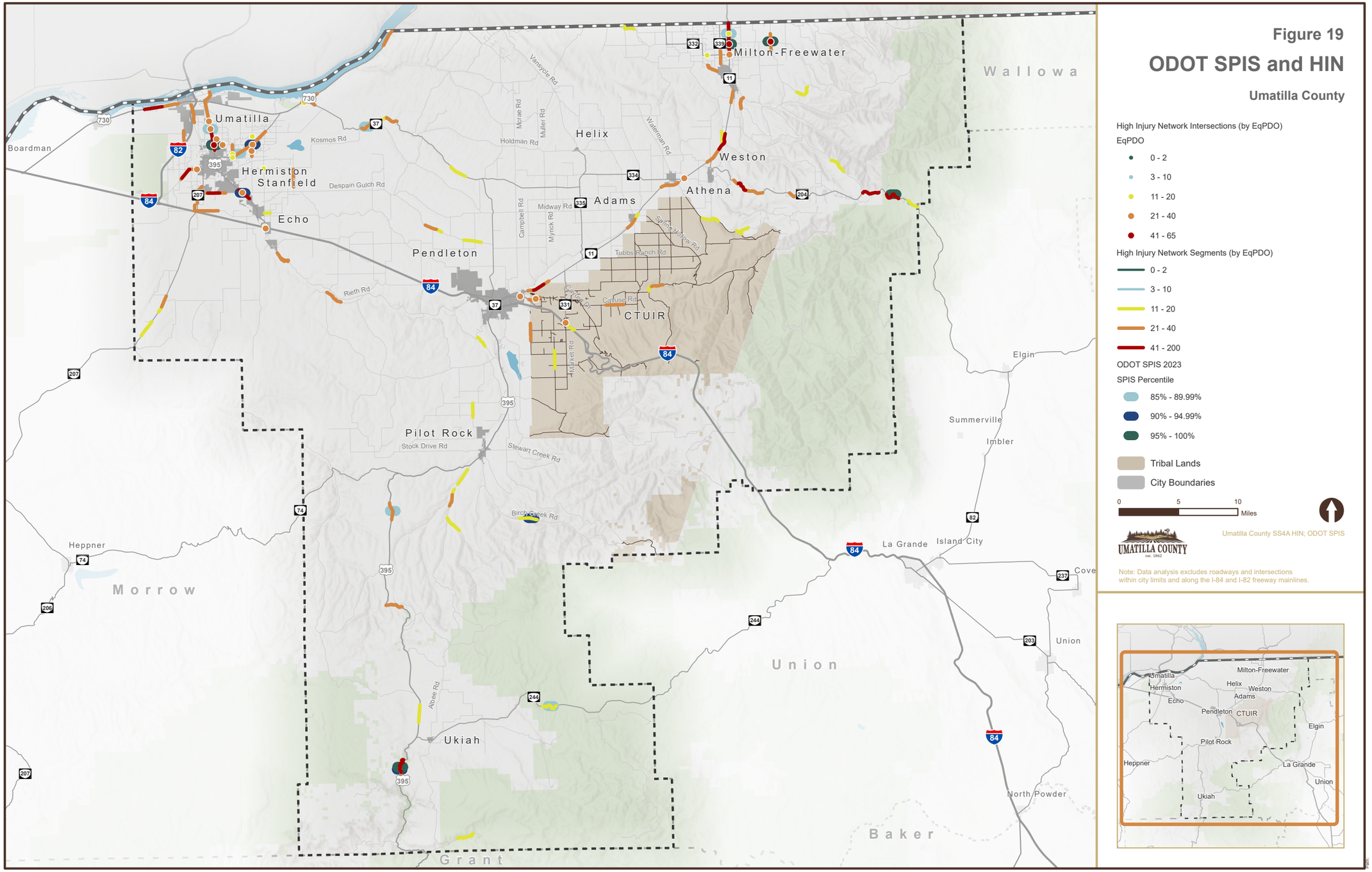
The SPIS for 2023 is shown in Figure 16 and is available through ODOT TransGIS. Locations identified by the 2023 SPIS in Umatilla County in the top 15% of sites in ODOT Region 5 include:

TABLE 9: TOP 15% OF SITES IN ODOT REGION 5 FROM 2023 SPIS

	SITES
TOP **5%** OF SITES IN ODOT REGION 5 (MOST CRASHES)	• Birch Creek Road & Powerline Road • US 395 at Punkin Center Road • US 395 south of Ukiah • OR 11 at Crockett Road • OR 204 at McIntyre Road
5-10% OF SITES IN ODOT REGION 5	• Birch Creek Road west of Pearson Creek Road • OR 207 at Punkin Center Road • US 395 at Feedville Road
10-15% OF SITES IN ODOT REGION 5	• US 395 at Klaus Road / Lauback Street • OR 207 at Ott Road • US 395 south of OR 74 • OR 11 at Ballou Road • OR 37 east of CR 1172

The SPIS 2023 locations align with the high injury network as shown in Figure 19.

FIGURE 19: ODOT SPIS 2023 AND HIGH INJURY NETWORK



Systemic Safety Analysis

Systemic safety analysis identifies characteristics that are correlated with greater crash severity and density. Locations with these characteristics can have strategies implemented to reduce the occurrence of crashes in the future, rather than focusing solely on where crashes have occurred historically. Systemic analyses were conducted to address two of the identified emphasis areas:

- Roadway departure crashes
- Urban transition area crashes

ROADWAY DEPARTURE CRASHES

The roadway segments that are considered to have a greater risk for roadway departure crashes are shown in Figure 20. Roadway characteristics that may be correlated with greater numbers of roadway departure crashes include:

- **Arterials and Collectors:** Evaluated for roadways with a FHWA functional classification, as reported by ODOT.
- **High speed roadways**: Evaluated for roadways with ODOT reported posted speed. If the roadway does not have a reported posted speed, it is not excluded from the analysis.
- **Curvy roadways:** Evaluated using the sinuosity of the roadway. The sinuosity is calculated as the shortest possible path along the line divided by the total length of the line. A straight line would have a sinuosity of 1 and a curvier road would have a sinuosity closer to 0. Roads with a sinuosity less than 0.9 are considered curvy for this analysis.

The portion of roadway departure crashes that occur on the focus area segments is compared to the portion of segments in the study area that are like the focus area in Table 10.

TABLE 10: EVALUATION OF ROADWAY DEPARTURE FOCUS AREA

	FOCUS AREA SEGMENTS	STUDY AREA SEGMENTS	PORTION COMPARED TO ALL STUDY ROADS
Identified Portion of Network (miles)	151	2,324	6%
Total Roadway Departure Crashes	133	596	22%
FSI Roadway Departure Crashes	17	54	31%

URBAN TRANSITION AREAS

As observed in the High Injury Network, high crash segments often occur adjacent to city limits. Urban transition areas occur where highways enter more urban areas that may have increased potential conflicts at driveways and intersections, greater activity levels, and greater concentration of vulnerable users. The roadway segments that are considered to be in the urban transition area are shown in

Figure 20. This analysis considers urban transition areas to occur when:

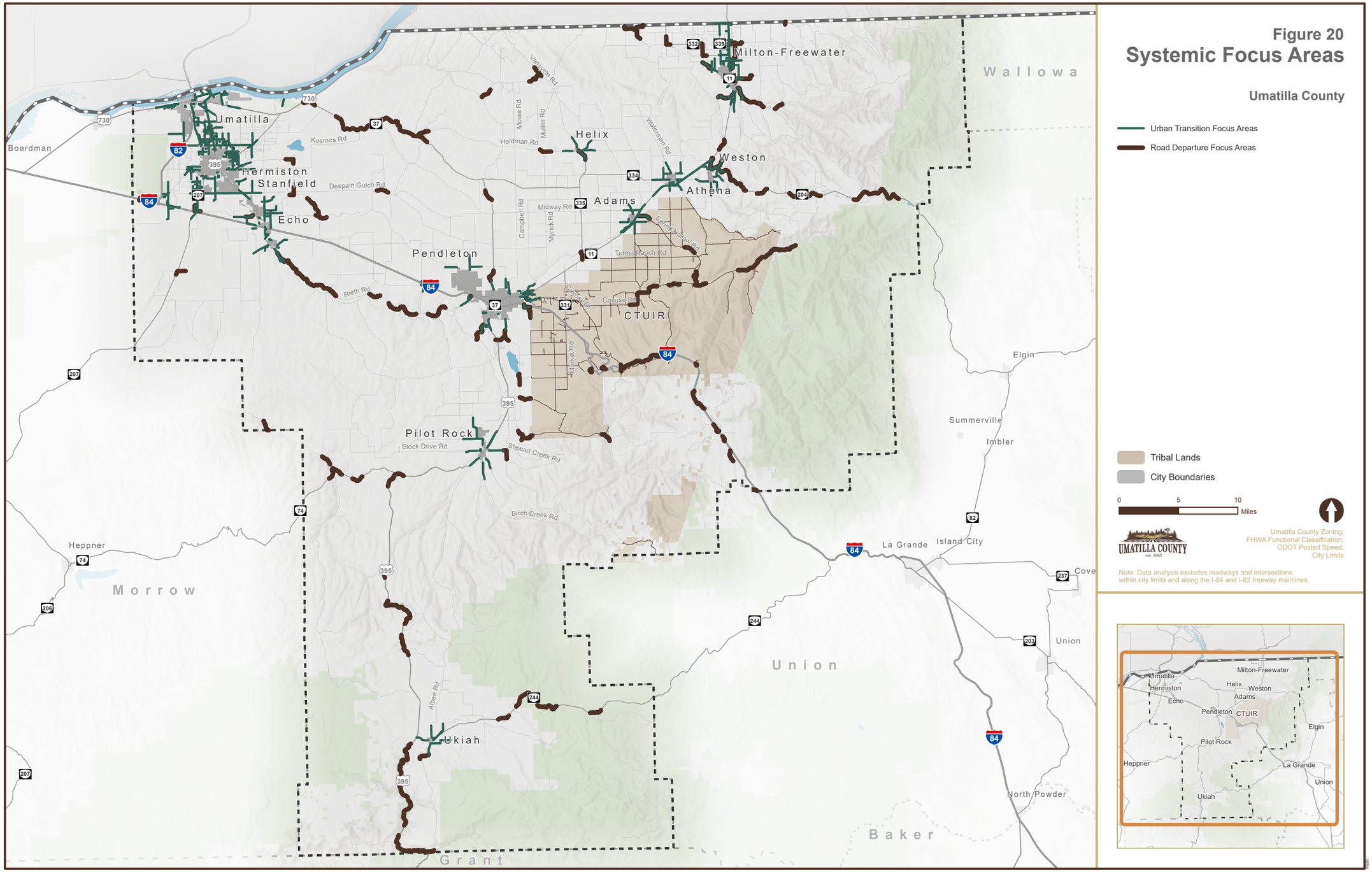
- **City limits:** The segment is within 0.5 miles of a city boundary.
- **Commercial zoning**: The segment is within 250 feet of a commercial land use, as defined by the Umatilla County zoning.

The portion of crashes that occur on the focus area segments is compared to the portion of segments in the study area that are like the focus area in Table 10. The total crashes include both crashes on segments and crashes at intersections that are within 250 feet of the segments identified within the focus area.

TABLE 11: EVALUATION OF URBAN TRANSITION AREA FOCUS AREA

	FOCUS AREA SEGMENTS	STUDY AREA SEGMENTS	PORTION COMPARED TO ALL STUDY ROADS
Identified Portion of Network	234	2,324	10%
Total Crashes	783	1,536	51%
FSI Roadway Departure Crashes	56	125	45%

FIGURE 20: URBAN AREA TRANSITION FOCUS AREA

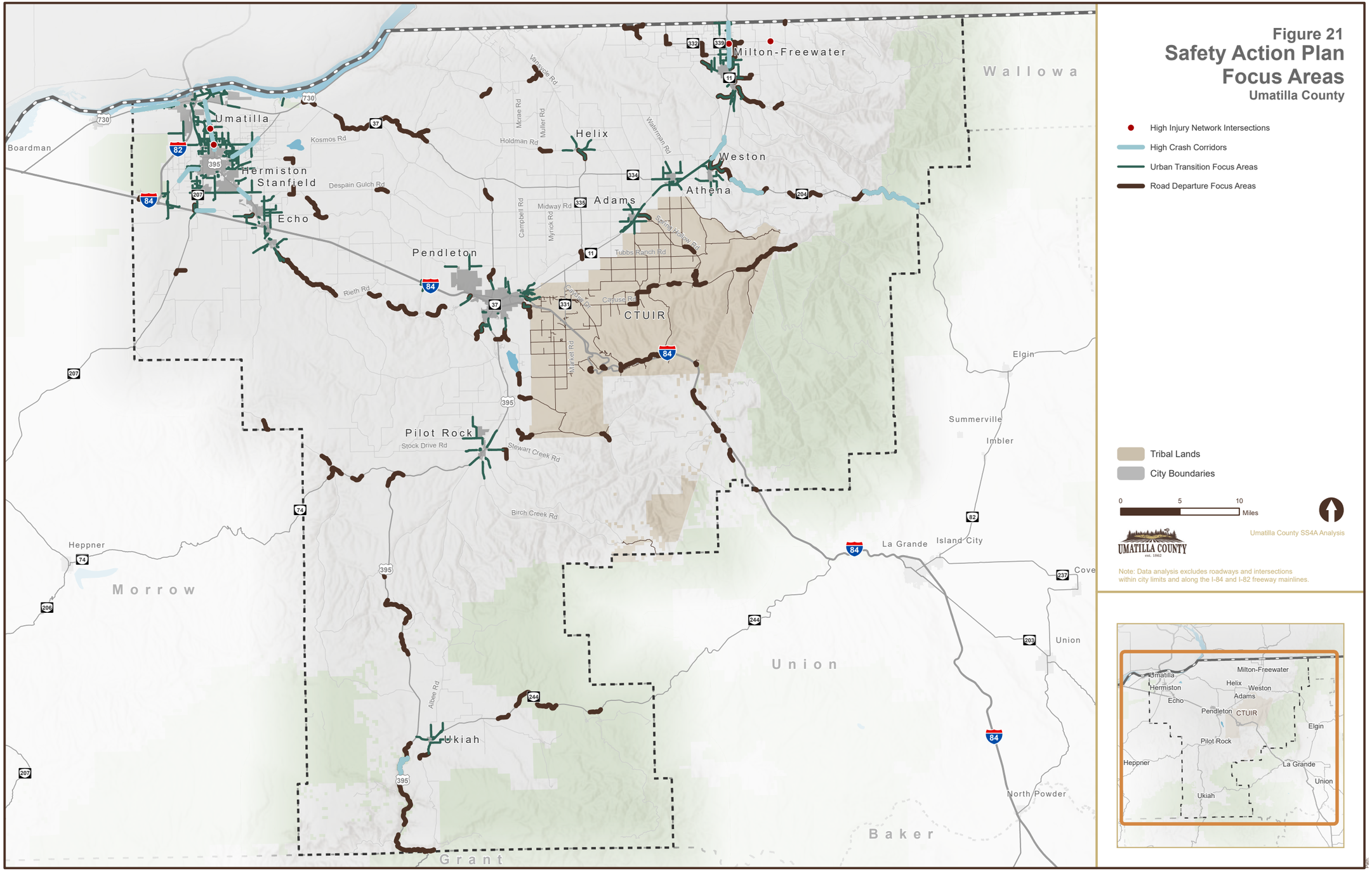


Key Findings

Based on the existing conditions analysis, the following key findings are identified and are shown in Figure 21. The emphasis areas for the Safety Action Plan are based on these findings.

- Crash Characteristics
  - *The total number of crashes and number of severe crashes has increased from 2018 to 2022, with the biggest jump in crashes occuring between 2021 and 2022.*
  - *Impaired driving was involved in 35% of crashes that resulted in fatal or serious injuries, which is higher than Oregon overall and ODOT Region 5.*
  - *Road departure crashes make up 45% of crashes that resulted in a fatal or serious injury.*
  - *Speeding was a contributing factor in 27% of crashes that resulted in a fatal or serious injury.*
  - *Although not frequent in Umatilla County, crashes involving a pedestrian or a bicyclist are more likely to result in a fatal or serious injury.*
  - *Crashes involving a pedestrian or bicyclist are mostly located around areas transitioning to urban, near city limits or commercial land uses.*
- Crash Locations
  - *Intersections and roadways with the highest crash rates are predominantly located around urban areas, near city limits or commercial land uses.*
  - *High crash corridors also include winding sections of OR 11, OR 204, and US 395 in more rural parts of Umatilla County.*
  - *The identified high crash corridors and intersections align with analysis from the ODOT Safety Priority Index System (SPIS).*
- Emphasis Areas
  - *Roadway Departure Crashes: 672 road departure crashes occurred in Umatilla County. Focusing on arterials / collectors, roadways with posted speeds of 45 mph or greater, and curvy roads can help prioritize the implementation of countermeasures.*
  - *Impaired Drivers: 120 crashes involved an impaired driver, with 44 crashes resulting in a fatality or serious injury. 35% of crashes that resulted in a fatality or serious injury involved an impaired driver.*
  - *Crashes in Urban Transition Areas: 783 crashes occurred at intersections and segments in urban transition areas. Focusing on these transition areas reduces the scope of projects to consider.*
  - *Seatbelt Usage: 76 crashes involved an unrestrained vehicle occupant, with 47% of crashes involving an unrestrained vehicle occupant resulting in a fatality or serious injury.*

FIGURE 21: UMATILLA COUNTY SAFETY ACTION PLAN FOCUS AREAS



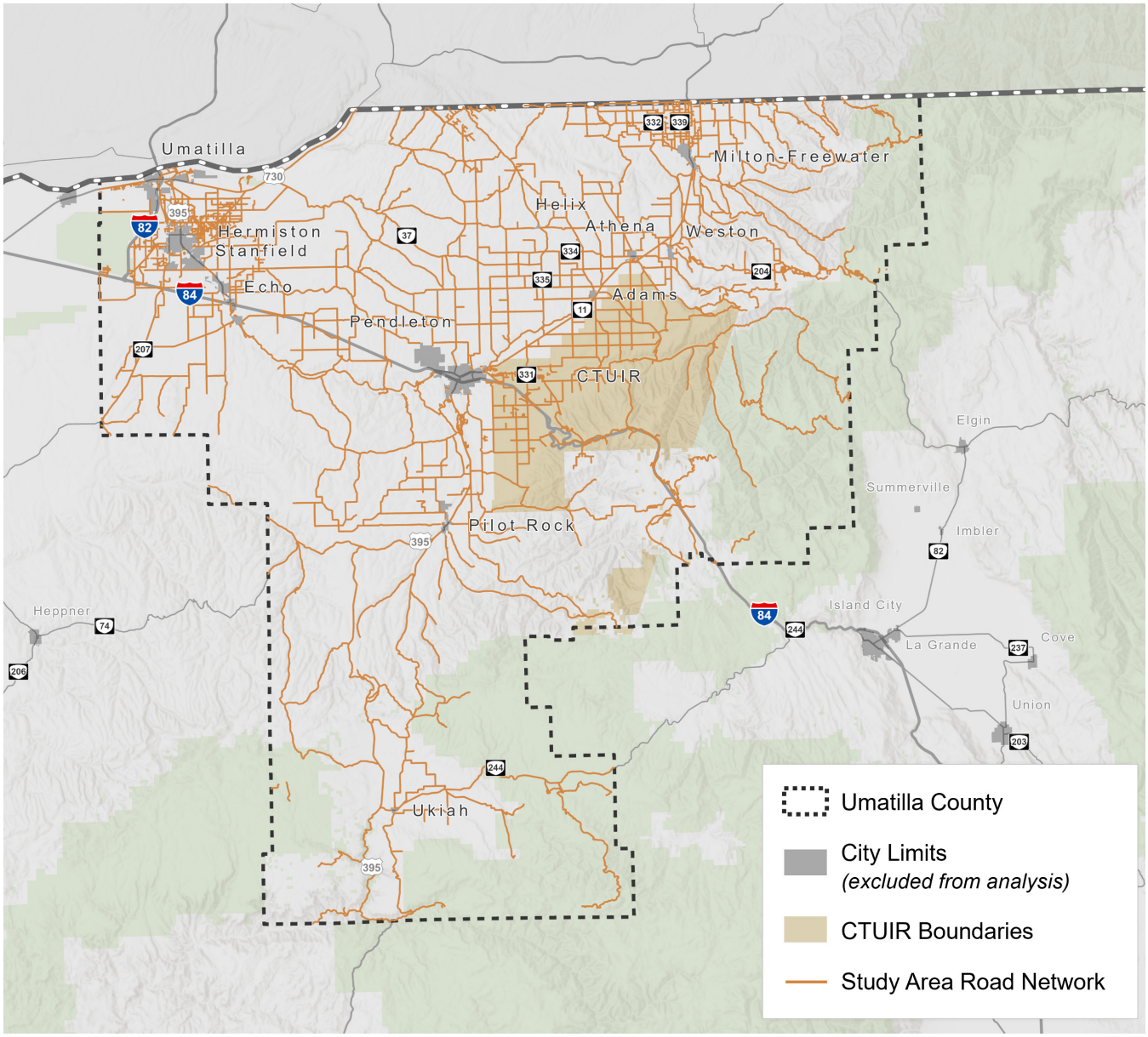
Disadvantaged Community Analysis

The Umatilla County Transportation Safety Action Plan (TSAP) will serve as a guide for investing in transportation safety on state and county-owned roadways in rural Umatilla County. The goal of the TSAP is to eliminate fatalities and serious injuries that result from traffic crashes. There is a relationship between the demographic characteristics of the residents within a study area and how the transportation system is used. Common demographic characteristics include age, ability, income, language, race and ethnicity. Historically, disadvantaged populations have more mobility challenges because they are unable to drive or are less likely to have access to a vehicle or public transportation. Therefore, federal and state transportation policies encourage investment in facilities and services to help disadvantaged populations overcome these barriers.

Additionally, it is likely that many disadvantaged communities have limited or substandard infrastructure. This memorandum describes the project efforts to ensure disadvantaged communities are considered in the proposed safety strategies of the TSAP. The purpose of this memorandum is to highlight key demographic characteristics of residents in Umatilla County, describe the methodology to analyze the impact on disadvantaged communities, and suggest a measure of impacts to disadvantaged communities to guide the prioritization of safety projects.

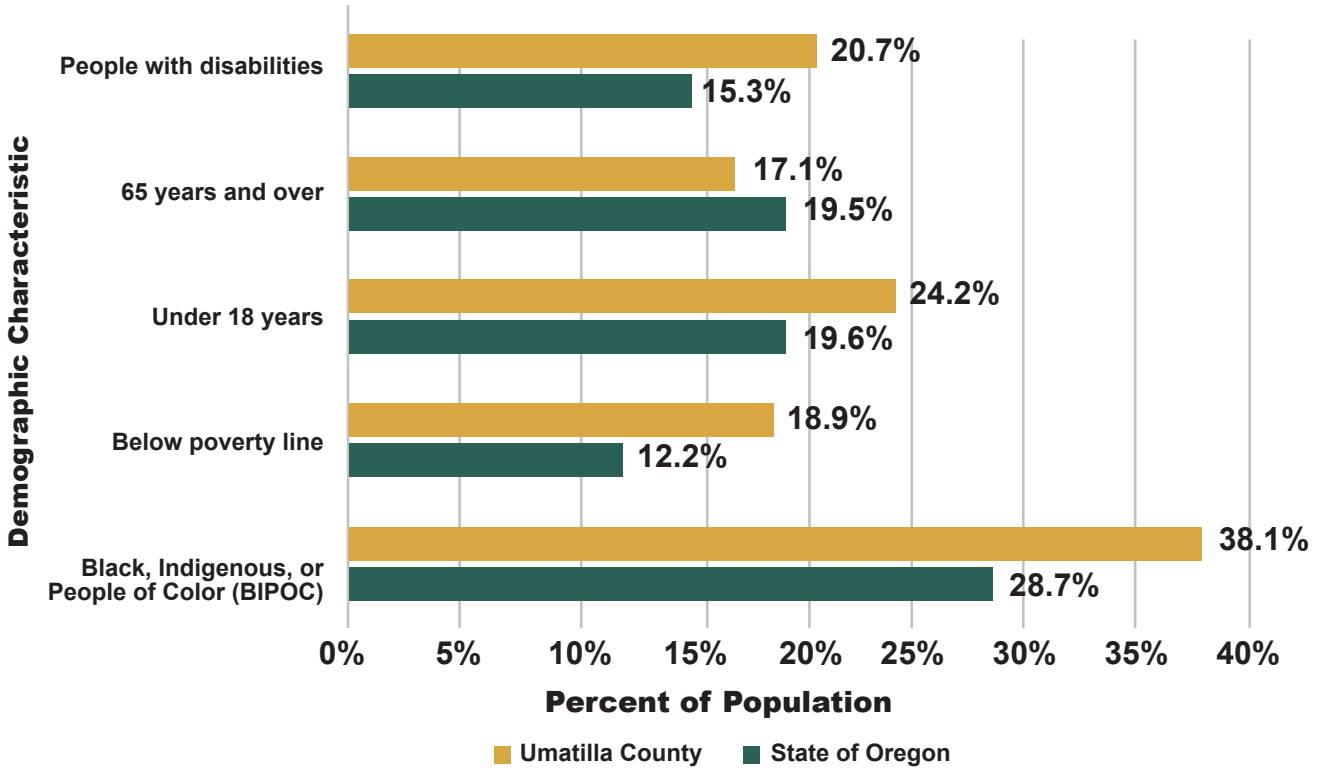
The TSAP study area is shown in Figure 22. The study area road network includes state or county-owned roadways outside of city limits. Boundaries of the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) are also shown.

FIGURE 22 – STUDY AREA



Umatilla County is home to over 80,000 people, many of whom are part of historically disadvantaged communities. Notable demographic characteristics of Umatilla County's populationare shown in Figure 23, along with statewide characteristics.

FIGURE 23: UMATILLA COUNTY DEMOGRAPHIC CHARACTERISTICS



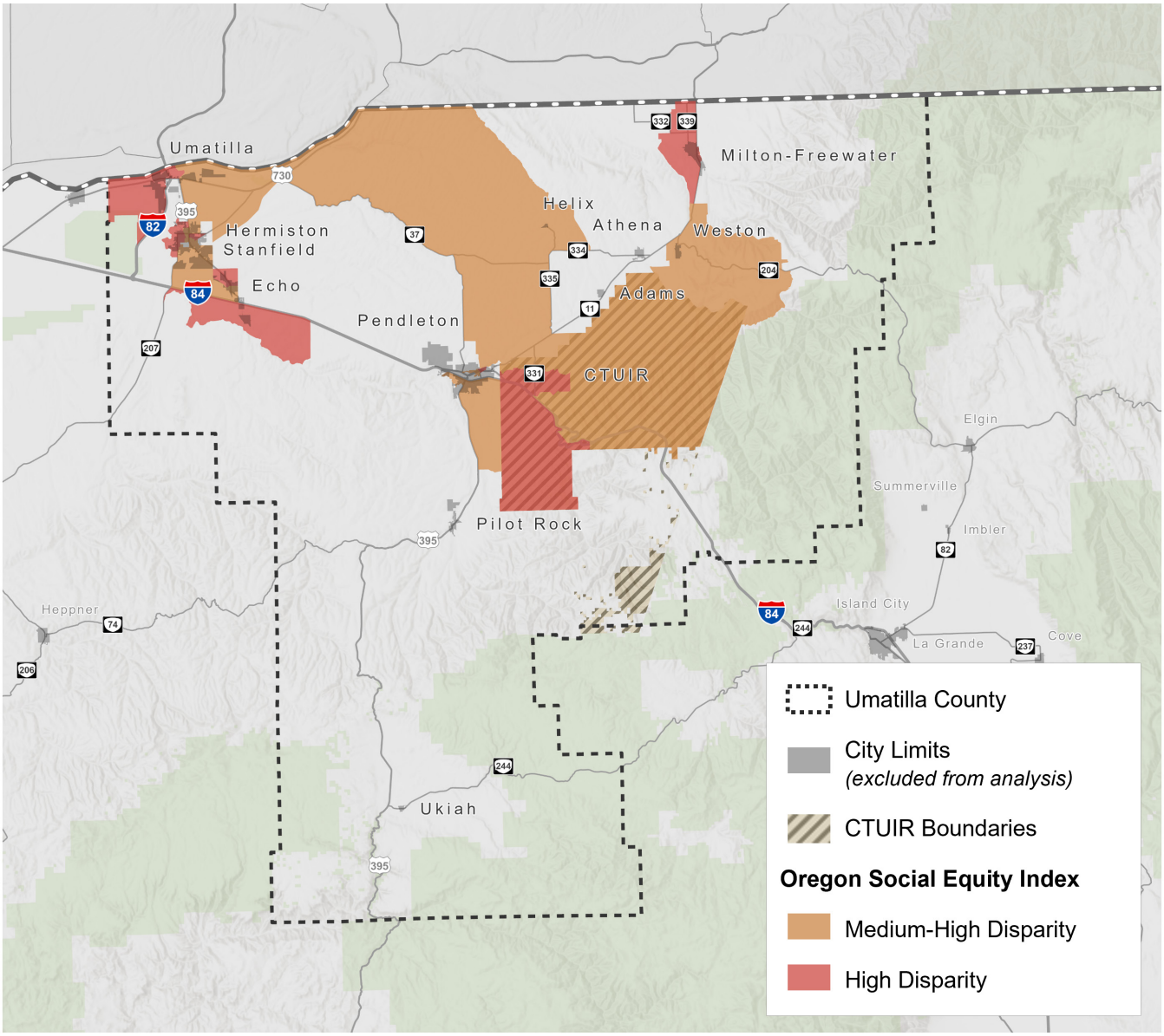
Relative to the state of Oregon, Umatilla County is home to a higher percentage of people with disabilities, people under 18, people below the poverty line, and people in the BIPOC community. The transportation-related needs of these populations should be considered when planning a transportation system that best serves all members of the community.

IMPACT ANALYSIS OF DISADVANTAGED COMMUNTIES

The Oregon Social Equity Index (SEI) web map tool, developed by the Oregon Department of Transportation (ODOT), uses data from the American Community Survey to identify areas with concentrations of disadvantaged populations according to age, ability, income, language, and race and ethnicity to help target investment. Social equity areas are categorized as low, low-medium, medium-high, or high disparity. Areas with higher disparity have a higher percentage of disadvantaged populations.

Census tracts in Umatilla County identified as medium-high disparity or high disparity on the Oregon SEI tool are shown in Figure 24.

FIGURE 24 – OSEI SCORE BY CENSUS TRACT



For the purposes of this study, Medium-High Disparity and High Disparity tracts are considered disadvantaged per the SEI tool.

FIGURE 25: ROAD MILES BY SEI DISPARITY GROUP

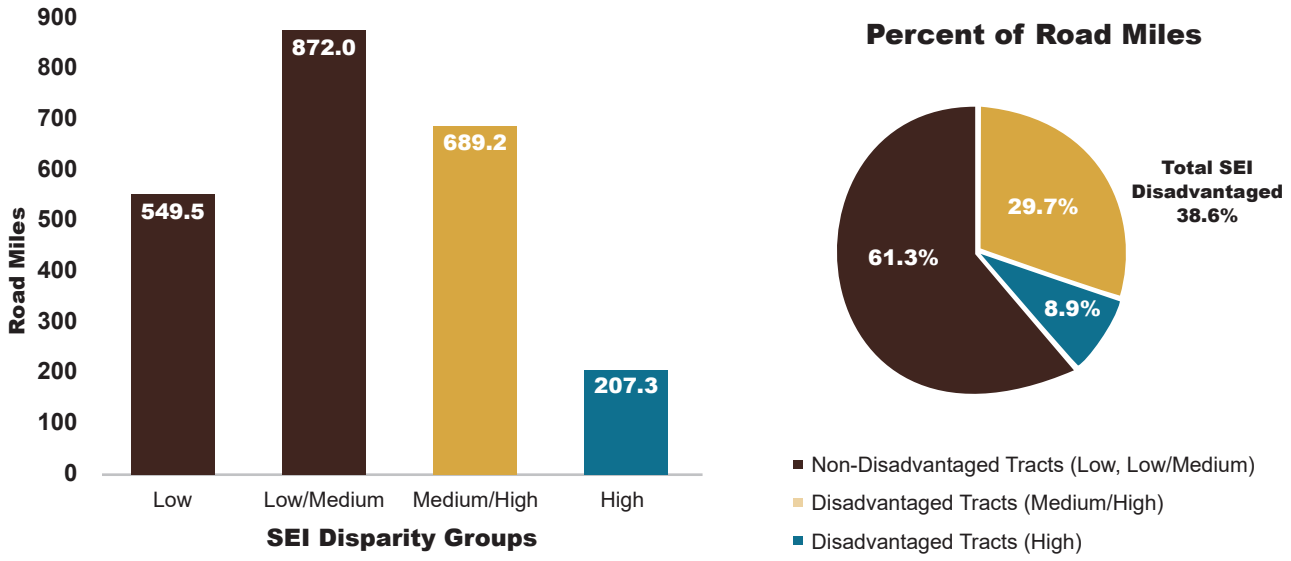
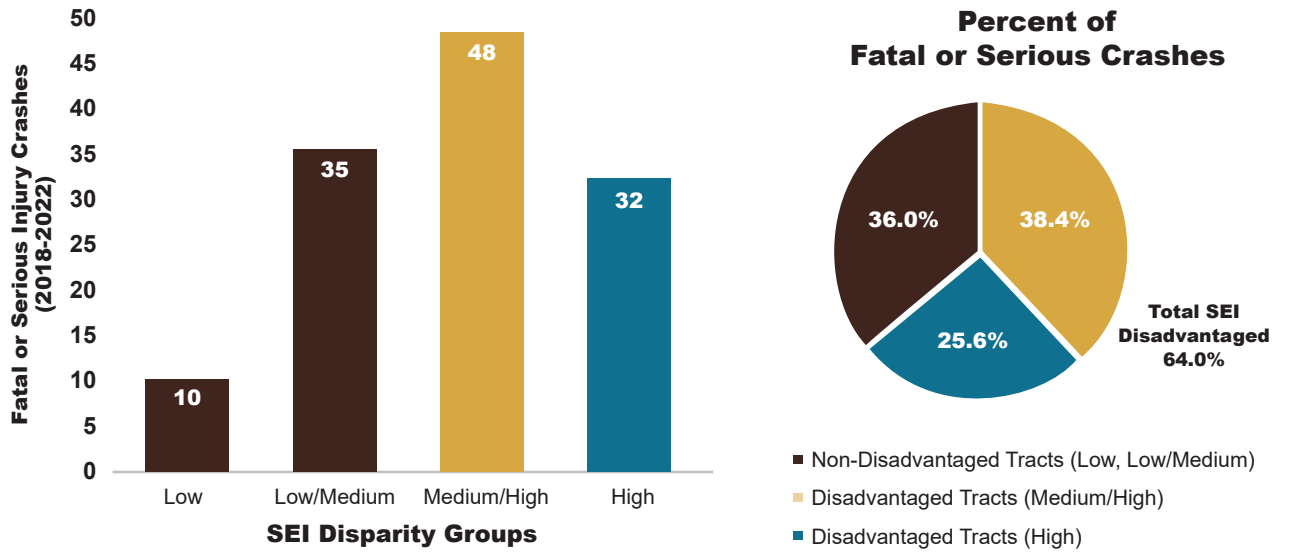


Figure 5 shows the portion of fatal or serious injury crashes in each SEI disparity group.

FIGURE 26: FATAL OR SERIOUS INJURY CRASHES BY SEI DISPARITY GROUP



Approximately 38.6% of study network road miles are in disadvantaged tracts, while 64.0% of fatal or serious injury crashes took place in disadvantaged tracts.

The data shows that fatal and serious injury crashes occur disproportionately in disadvantaged tracts

based on road miles. This highlights a critical safety issue in Umatilla County's transportation system: there appears to be a misalignment in locations where safety risks are the most severe and where the County and the State have previously chosen to implement transportation safety improvements. Additionally, disadvantaged communities may have received less overall infrastructure investment which would have had an ancillary effect on transportation safety. To better support communities facing the greatest barriers to safe transportation, it is essential to prioritize safety improvements in these high-risk areas.

CONSIDERATION OF DISADVANTAGED COMMUNITIES IN THE TSAP

The next steps of TSAP development are to identify safety needs on Umatilla County's road network and select countermeasures to implement in future projects. After projects are selected, projects will be prioritized for implementation and funding.

To ensure that investments in transportation projects will decrease barriers to transportation access for disadvantaged communities, equity impacts should be considered when creating the high-injury network or when prioritizing safety projects.

Examples of prioritization schemes may include proactively ensuring a proportionate amount of safety investment is made in disadvantaged areas relative to the safety risk. In this case, 64% of fatal and serious injury crashes occur in disadvantaged areas, the County could set a goal to ensure that more than 50% of safety investment is made in those communities.

Another example is to use scoring criteria that explicitly accounts for disadvantaged communities. Other agencies have used scoring criteria as shown below:

- Projects that are not located in priority tracts shown in Figure 24 will receive **zero points.**
- Projects that are located in tracts considered SEI Medium-High disadvantaged (shown in orange on Figure 24) will receive **one point.**
- Projects that are located in tracts considered SEI High disadvantaged (shown in red on Figure 24) will receive **two points.**

The scoring criteria could be set such that score for disadvantaged communities compromises a targeted percentage of overall total score, for instance 10%.

Prioritization

Umatilla County is in the process of developing a Safe Streets and Roads for All (SS4A) Safety Action Plan. As part of the planning effort, the project team developed project fact sheets and conceptual safety improvement plans for 10 high-priority locations. The methodology outlined in this memo has been prepared to identify and help prioritize these locations.

The following corridors and intersections are recommended for inclusion on the fact sheet/conceptual improvement plan evaluation list. These project locations are visualized in Figure 18.

1. Westland Road / Highland Ave corridor from Agnew Rd to west Hermiston City Limits
2. OR 207 from Townsend Rd to Columbia Ln
3. US 395 from north Hermiston City Limits to US 730
4. Stanfield Meadows Road from OR 207 for approximately 1.5 miles
5. OR 11 from OR 204 to just north of Winn Road/Steen Road
6. OR 204 East of Weston (approximately milepoints 2.2 to 5.4)
7. US 395 South of Ukiah (approximately milepoints 51.8 to 54.7)
8. OR 204 from Lincton Mountain Road to Eastern Umatilla County Line (approximately milepoints 15.4 to 21.2)
9. OR 11 from north Milton-Freewater City Limits to WA State Line
10. Umatilla River Road from Cooney Lane to Umatilla City Limits

METHODOLOGY

The Existing Conditions memo summarizes the location specific crash analysis, which included calculating an equivalent property damage only (EPDO) score for each intersection and 1-mile segment in Umatilla County. The prioritization methodology is applied to the segments and intersections with an annualized EPDO of at least 40, considering crash data from 2018-2022. This equates to an intersection or segment with at least two FSI crashes or at least 20 injury crashes between 2018-2022.

Several criteria were used to prioritize the top 10 high priority projects.

- **Historic crash rates** were normalized for corridor length and annualized. Corridor crash rates include the segment crashes and the intersection crashes along the corridor. Corridors or intersections with an EPDO of at least 80 were given the highest possible score of 3 points, locations with an EPDO of at least 40 were given 2 points, and if the EPDO was greater than 20, 1 point was given.

- Corridors or intersections in **disadvantaged communities** were prioritized. Disadvantaged communities are defined using ODOT's Social Equity Index and were outlined in the Disadvantaged Community Impact Analysis memo. Corridors or intersections overlapping a census tract with high disadvantage were given the highest possible score of 3 points, medium-high disadvantage levels were given 2.5 points, medium disadvantage levels were given 2 points, low-medium disadvantage levels were given 1.5 points, and low disadvantage levels were given 1 point.
- Corridors that are solely **within Umatilla County jurisdiction** were prioritized, and given an additional point. Projects on these corridors may be easier to implement, due to reduced interjurisdictional coordination.
- Corridors and intersections **without planned projects to address crash patterns** were prioritized over those locations that have a planned project to address the identified crash patterns, and given an additional point.
- Corridors that are mentioned **frequently in the public engagement feedback** are prioritized, and given an additional point.

A comprehensive list of high priority locations is intended to address crash concerns across the County, rather than being constrained to a particular area of the County. Additionally, this prioritization covers a wide array of crash patterns to ensure that site-specific trends are highlighted along with overall crash trends in Umatilla County, for example including corridors where road departure crashes are prevalent. Corridor characteristics, including crash patterns and potential projects to coordinate with, are shown on Table 12.

The Existing Conditions memo identified Roadway Departure crashes as the most common crash type in Umatilla County. However, rural corridors in Umatilla County, some of which have a large portion of crashes related to roadway departure, tend to score lower under the applied method. This is because rural corridors tend to be State Roads, resulting in a lower 'jurisdiction' score. Additionally, although some segments have a high number of crashes compared to other rural segments, but rural corridors tend to have a lower historic crash rate than roads with higher traffic volumes, and therefore have a lower 'historic crash severity' score. To account for these effects of the scoring method and address the Roadway Departure crash type, several rural corridors are included in the recommended prioritized projects, despite having a lower score than other evaluated corridors.

The prioritization of several corridors is adjusted based upon information specific to each location. For example:

- Umatilla River Road was one of the most mentioned corridors during public engagement. Additionally, although there were no crashes resulting in a death or serious injury between 2018 and 2022, there were two crashes that each resulted in a death between 2023 and 2024. Therefore, the corridor is included in developing additional countermeasures.

- Feedville Road between OR 207 to US 395 scores highly (total score of 6.5) but is not included in the prioritized 10 projects, due to the potential inclusion of Feedville Road within the Hermiston Urban Growth Boundary and a likely jurisdictional transfer to the City of Hermiston. Instead, these findings can be used to coordinate with the City of Hermiston to help ensure that this section of Feedville Road is prioritized in future efforts.

- Powerline Road & Birch Creek Road scores highly but is not included in the prioritized 10 projects, due to the recent completion of a project to address the historical crash pattern, by Umatilla

County.

- US 395 north of Hermiston and OR 11 north of Milton-Freewater have upcoming planned ODOT projects, however both of these planned projects could be augmented with additional funding to include additional countermeasures to address historic crash patterns. Therefore, the locations are maintained in the prioritized list of locations.

- OR 204 from Lincton Mountain Road to Eastern Umatilla County Line has a planned ODOT project to address two of the curves at which four of the five FSI crashes on the corridor occurred between 2018 and 2022. Therefore, the corridor is excluded from developing additional countermeasures.

- US 395 from Hermiston City Limits to Stanfield City Limits has a planned ODOT project to implement intersection safety improvements from MP 6.93 to MP 9. Between 2018 and 2022 3 of the 7 injury crashes along the corridor occurred at the intersection of US 395 & Feedville Road, which is included in the planned ODOT project. Therefore, the corridor is excluded from developing additional countermeasures.

TABLE 12: EVALUATION OF PRIORITY LOCATIONS IN UMATILLA COUNTY

RANK	LOCATION	LENGTH (MI) OR TRAFFIC CONTROL	CRASH SCORE	INJURY CRASHES	FSI CRASHES	CRASH PATTERN NOTES	PLANNED PROJECTS	JURISDICTION	DISADVANTAGED COMMUNITIES	TOTAL	CRASH	DAC	JURIS.	PROJECT	PUBLIC INPUT
1	Westland Road / Highland Ave corridor from Agnew Rd to west Hermiston City Limits	2.1	69	29	4	Compromised lighting	None	None	High	8	2	3	1	1	1
2	OR 11 from MiltonFreewater City Limits to WA State Line	3.7	82	57	9	Turning movement crashes Head-on crashes	OR11: Milton-Freewater Safety and Sidewalk Improvements	ODOT	High	7	3	3	0	0	1
	OR 11 & Crockett Road	TWSC	46	5	2	Turning movement crashes	OR11: Milton-Freewater Safety and Sidewalk Improvements	ODOT	High	6	2	3	0	0	1
3	OR 207 from Townsend Rd to Columbia Ln	2.7	63	23	6	Inattention/careless, failure to yield, road departure crashes	None	ODOT	Med-High	6.5	2	2.5	0	1	1
4	US 395 from north Hermiston City Limits to US 730	4.2	92	97	9	Turning movement crashes; reckless/careless/speeding	US395: Punkin Center Safety Improvements	ODOT	Med-High	6.5	3	2.5	0	0	1
	US 395 & Lauback St / Klaus Rd	TWSC	40	2	2	Turning movement crashes	Umatilla/Morrow County curb ramps phase 2 and phase 2A	ODOT	Med-High	6.5	2	2.5	0	1	1
5	Stanfield Meadows Road from OR 207 to east of OR 207	1.5	33	3	2	Compromised lighting	None	None	Med-High	5.5	1	2.5	1	1	0
6	OR 11 from OR 204 to north of CR 643	2.2	37	10	3	Road departure crashes; speeding	Material source development (21682 & 23041)	ODOT	Med-High	5.5	1	2.5	0	1	1
7	US 730 from Western Umatilla County Line to Western Umatilla City Limits	3.9	23	14	3		None	ODOT	High	5	1	3	0	1	0
8	OR 204 East of Weston (MP 2.2 to 5.4)	3.1	25	9	3	Road departure crashes	Maintenance signing project at MP 3.7 and avalanche awareness and education	ODOT	Med-High	4.5	1	2.5	0	1	0
9	US 395 South of Ukiah (MP 51.8 to 54.7)	2.9	33	6	4	Road departure crashes; speeding	None	ODOT	Low-Med	3.5	1	1.5	0	1	0
10	Umatilla River Road from Cooney Lane to Umatilla City Limits	3.6	17	31	0		None	None	Low	4	9	1	1	1	1
11	Feedville Road from OR 207 to US 395	3.7	21	9	3	Turning movement and angle (intersection) crashes	None	ODOT (intersections)	Med-High	6.5	1	2.5	1	1	1
12	OR 11 from CR 973/Adams Road to Cross L Fabrication Access	1.3	32	1	2	Compromised lighting; road departure crashes	None	CTUIR, ODOT	Low-Med-High	5	1	2	0	1	1
13	OR 37 near CR 1172 / west of Holdman Cemetery	3	17	6	2	Lane (and road) departure crashes	None	ODOT	Med-High	3.5	0	2.5	0	1	0
14*	US 395 from Hermiston City Limits to Stanfield City Limits	1.2	58	4	3	Compromised lighting	Intersection safety improvements between Feedville Rd and Airport Wy	ODOT	High	7	2	3	0	1	1

RANK	LOCATION	LENGTH (MI) OR TRAFFIC CONTROL	CRASH SCORE	INJURY CRASHES	FSI CRASHES	CRASH PATTERN NOTES	PLANNED PROJECTS	JURISDICTION	DISADVANTAGED COMMUNITIES	TOTAL	CRASH	DAC	JURIS.	PROJECT	PUBLIC INPUT
15*	US 395 & Punkin Center Road	Signal	65	14	2	Turning movement and angle (intersection) crashes	US395: Punkin Center Safety Improvements	Hermiston	Med-High	5.5	2	2.5	0	0	1
16*	Powerline Rd & Birch Creek Rd	TWSC	42	3	2	Angle crashes	Increase Setback for Embankment and Utility Pole	None	Low-Med	5.5	2	1.5	1	0	1
17*	OR 204 from Lincton Mountain Road to Eastern Umatilla County Line (MP 15.4-21.2)	5.7	21	9	5	Road departure crashes; speeding	Curve Safety Improvements at (MP 15.89 and MP 18.78) Avalanche awareness and education	ODOT	Low-Med	3.5	1	1.5	0	1	0

Notes

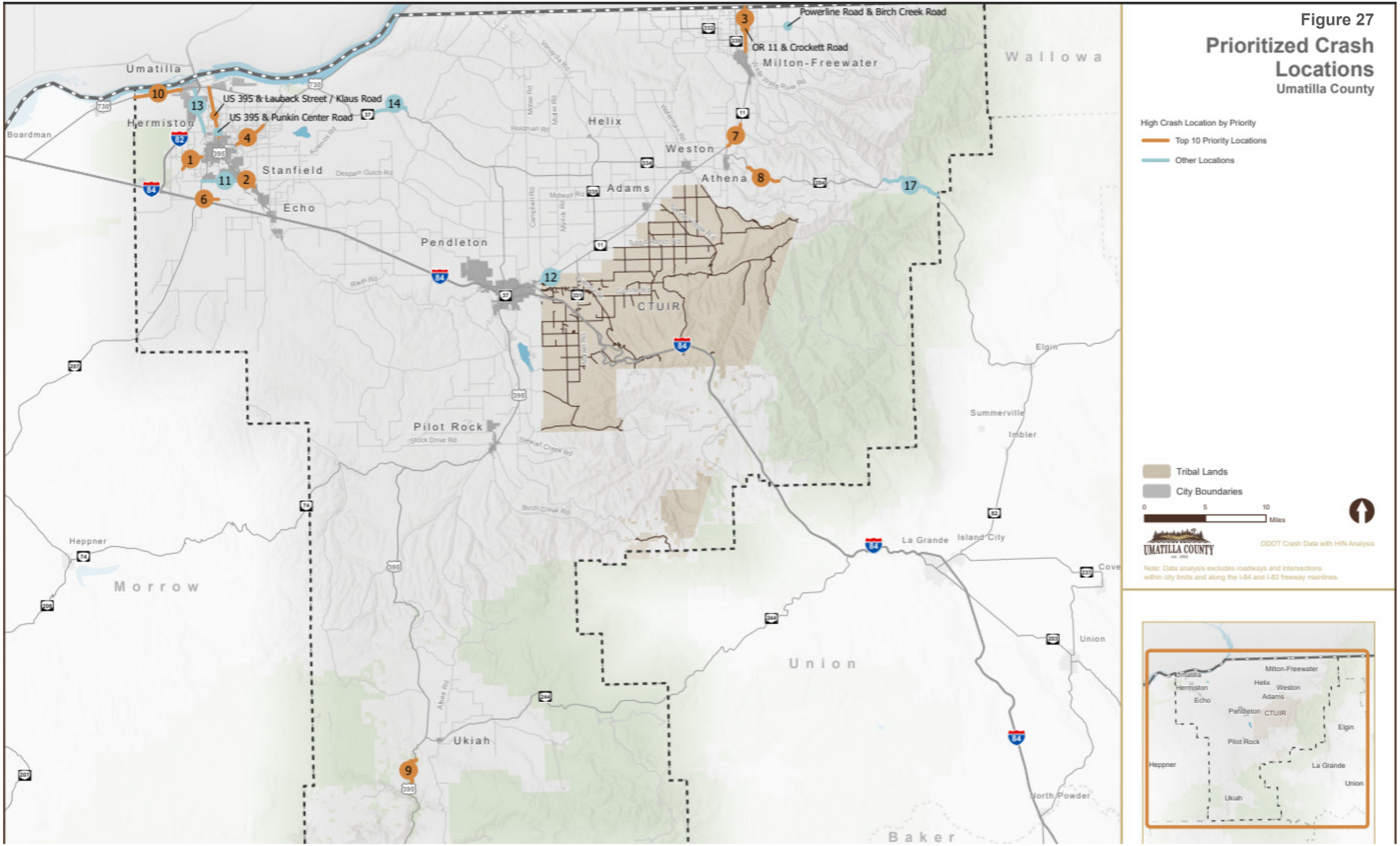
Proposed locations are primarily ranked by the Total Score, with some projects shifted in the ranking, based upon the notes included within the Prioritization memo.

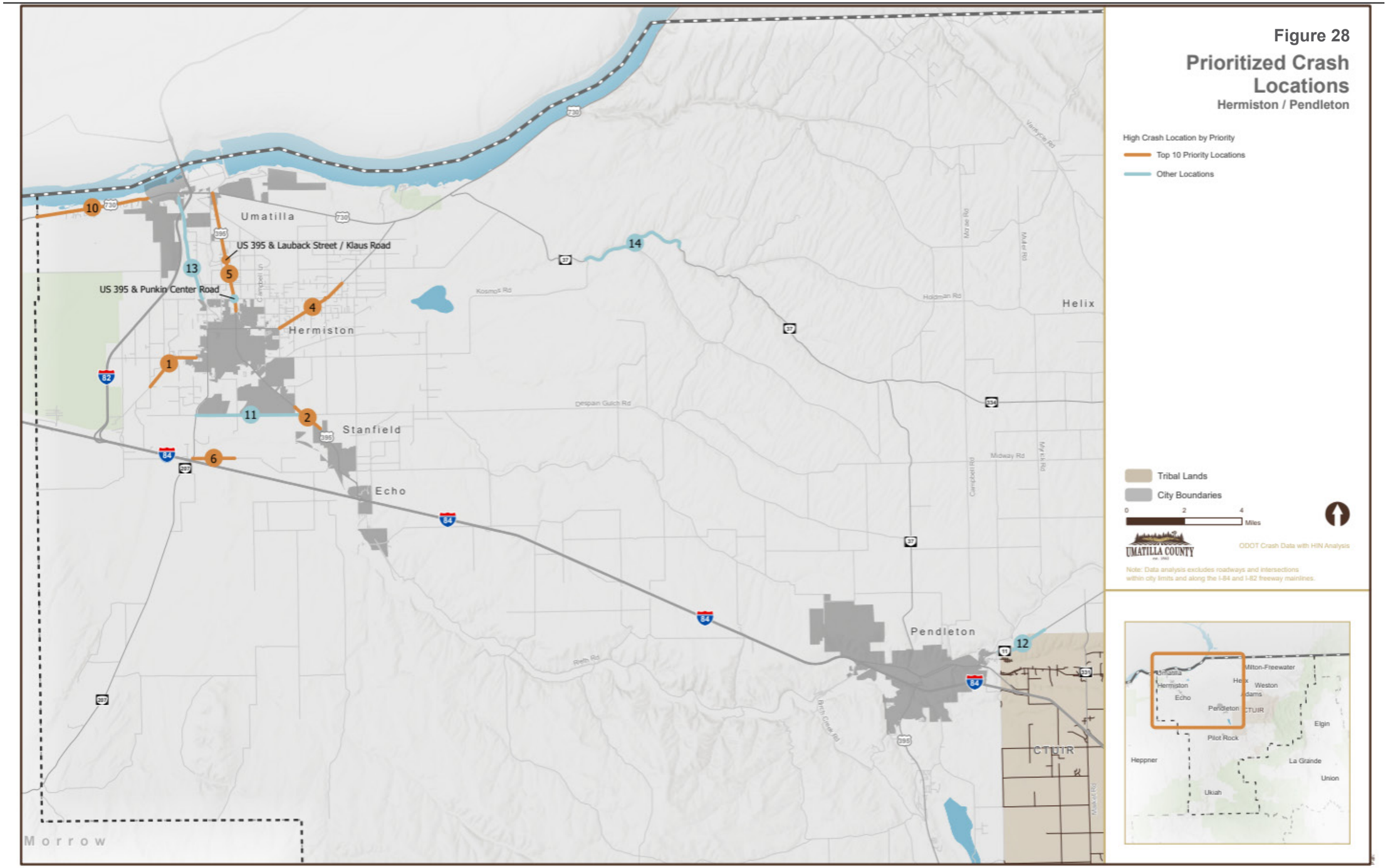
Crash Score: The methodology for calculating crash score is further explained in the Existing Conditions memo. Crash score is calculated by weighting the crashes between 2018 and 2022 that occurred along the segment or at the intersection by the crash severity, in alignment with the ODOT Safety Priority Index System (SPIS). Crash score is annualized (divided by 5 years of crash data) and normalized by the corridor length (divided by the corridor length in miles).

Disadvantaged Communities (DAC): Disadvantaged communities are defined according to ODOT's Social Equity Index.

Total Score and Score Components: The scoring for each criteria is explained in the preceding section. The total score aggregates the score for each component and is used to prioritize corridors, in coordination with corridor specific considerations.

*Planned and Completed Projects: ODOT has planned projects at US 395 & Punkin Center Road and OR 204 in eastern Umatilla County that are anticipated to address the existing crash patterns. Umatilla County recently completed a project at Powerline Road & Birch Creek Road that is anticipated to address the historical crash pattern. Therefore, these locations are deprioritized.


Figure 27
Prioritized Crash Locations
Umatilla County
High Crash Location by Priority
Top 10 Priority Locations
Other Locations
Tribal Lands
City Boundaries
0 5 10
Miles
UMATILLA COUNTY
ODOT Crash Data with HIN Analysis
Note: Data analysis excludes roadways and intersections within city limits and along the I-84 and I-82 freeway mainlines.
Powerline Road & Birch Creek Road
OR 11 & Crockett Road
US 395 & Lauback Street / Klaus Road
US 395 & Punkin Center Road
Umatilla
Hermiston
Boardman
Stanfield
Echo
Pendleton
Helix
Weston
Athena
Adams
Milton-Freewater
Wallowa
CTUIR
Pilot Rock
Heppner
Morrow
Ukiah
La Grande
Island City
Union
Baker
Elgin
Summerville
Imbler
North Powder
Cove


Umatilla
US 395 & Lauback Street / Klaus Road
US 395 & Punkin Center Road
Hermiston
Stanfield
Echo
Pendleton
Helix
CTUIR
Morrow
10
13
5
4
1
11
2
6
14
12
Figure 28
Prioritized Crash Locations
Hermiston / Pendleton
High Crash Location by Priority
Top 10 Priority Locations
Other Locations
Tribal Lands
City Boundaries
0 2 4
Miles
UMATILLA COUNTY
ODOT Crash Data with HIN Analysis
Note: Data analysis excludes roadways and intersections within city limits and along the I-84 and I-82 freeway mainlines.
Milton-Freewater
Weston
Elgin
Pilot Rock
Heppner
La Grande
Union
Ukiah

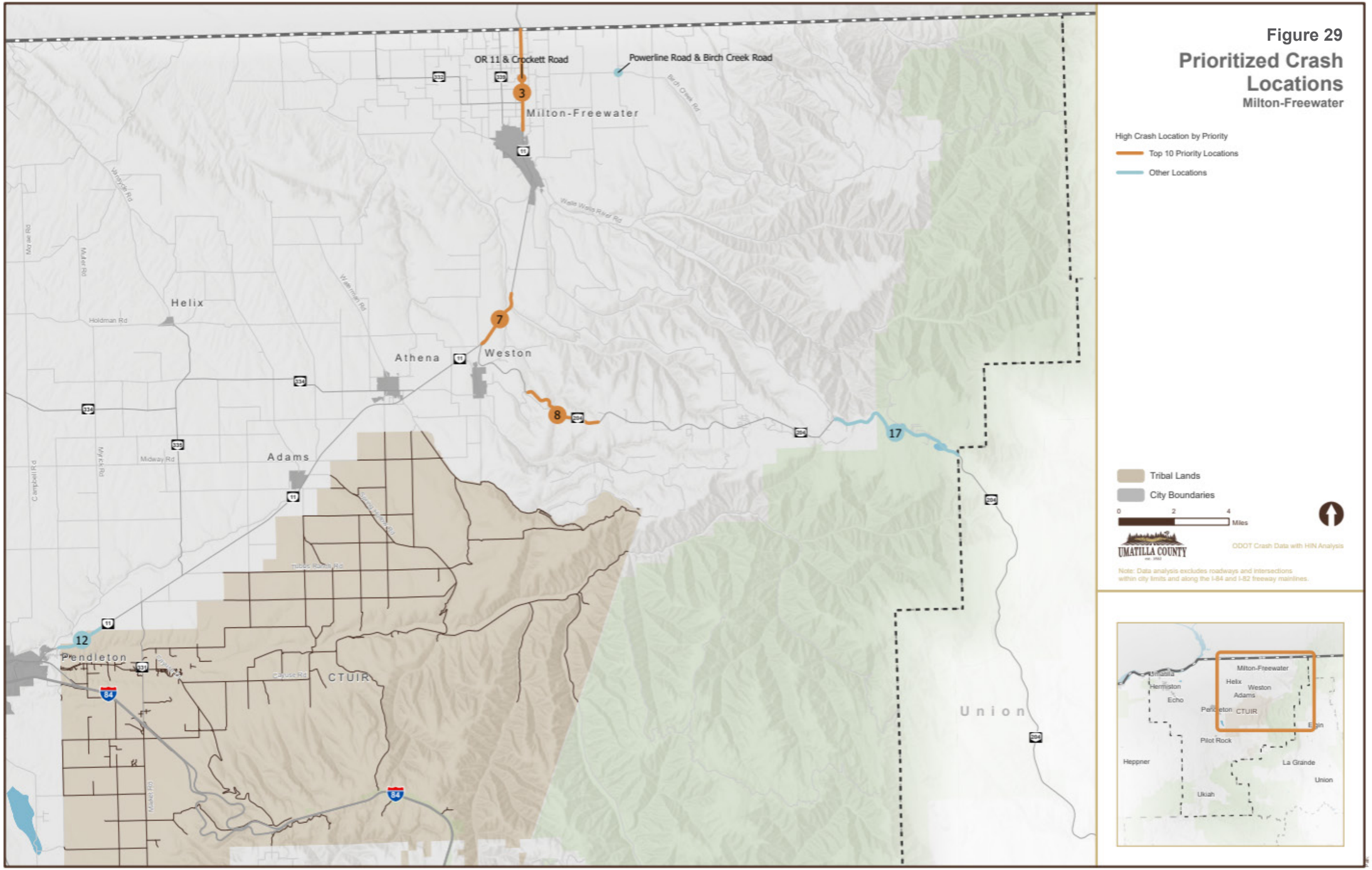
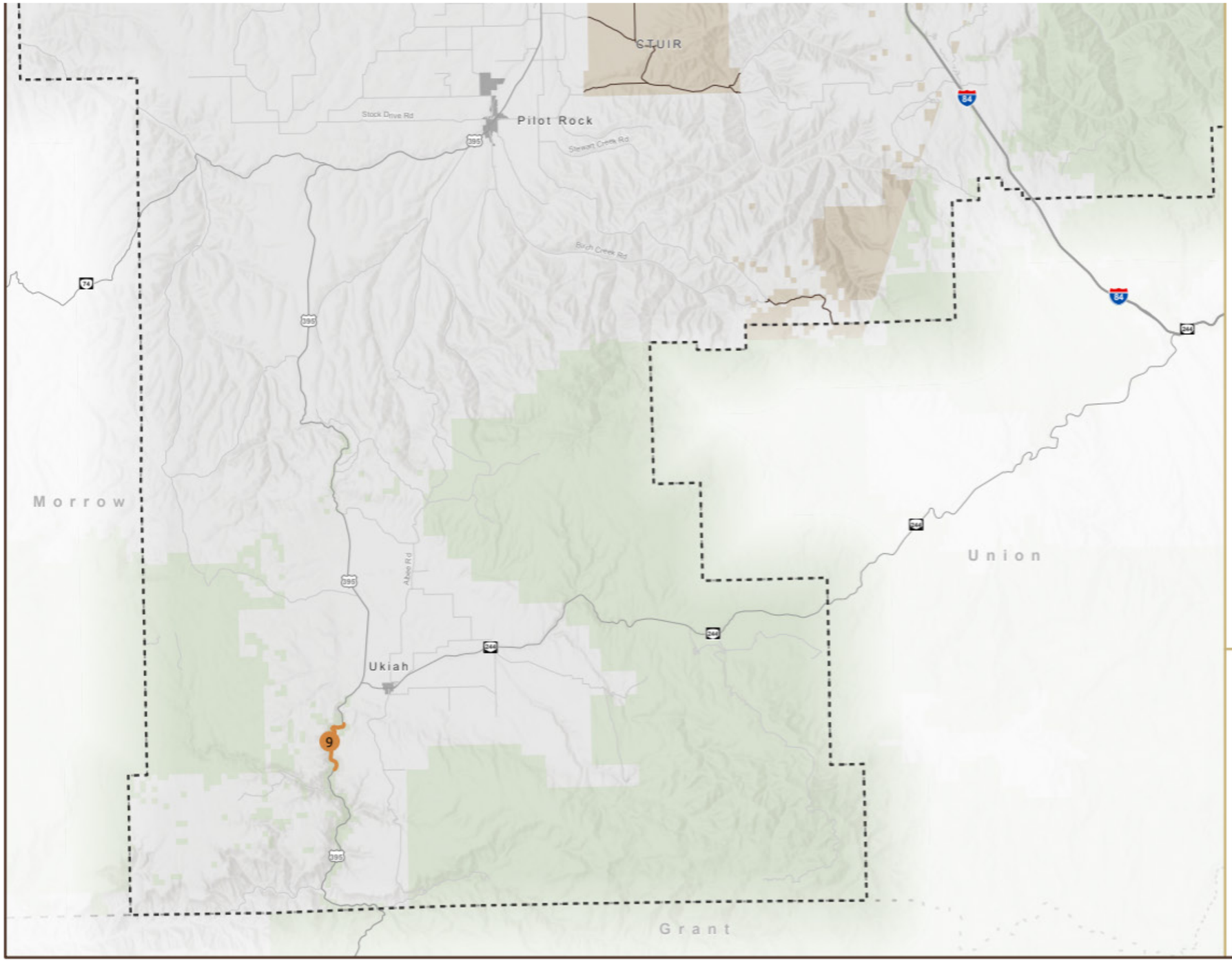

OR 11 & Crockett Road
Powerline Road & Birch Creek Road
Milton-Freewater
Helix
Athena
Weston
Adams
Pendleton
CTUIR
Union
3
7
8
12
17
Figure 29
Prioritized Crash Locations
Milton-Freewater
High Crash Location by Priority
Top 10 Priority Locations
Other Locations
Tribal Lands
City Boundaries
0 2 4
Miles
UMATILLA COUNTY
ODOT Crash Data with HIN Analysis
Note: Data analysis excludes roadways and intersections within city limits and along the I-84 and I-82 freeway mainlines.
Umatilla
Hermiston
Echo
Pilot Rock
Heppner
Ukiah
La Grande
Elgin

Figure 30

Prioritized Crash Locations

Ukiah / Pilot Rock



High Crash Location by Priority

- Top 10 Priority Locations
- Other Locations

- Tribal Lands
- City Boundaries

0 2.75 5.5 Miles

UMATILLA COUNTY

ODOT Crash Data with HIN Analysis

Note: Data analysis excludes roadways and intersections within city limits and along the I-84 and I-82 freeway mainlines.



Countermeasure Toolbox

As part of Umatilla County's Safe Streets and Roads for All (SS4A) efforts, a countermeasure toolbox has been developed to assist in identifying and evaluating all potential treatments for identified traffic safety contributors. For documentation purposes, this memorandum summarized the safety countermeasures that were considered to address existing safety concerns at various intersections and roadway corridors throughout the county.

SAFETY COUNTERMEASURE SOURCES

The following documents were reviewed to identify safety countermeasures applicable to Umatilla County:

- **Federal Highway Administration (FHWA) Proven Safety Countermeasures.** This collection of countermeasures is organized into the following categories: speed management, pedestrian/bicyclist, roadway departure, intersections, and crosscutting (countermeasures that address multiple areas of transportation safety).
- **National Highway Traffic Safety Administration (NHTSA) Countermeasures that Work**. This collection of countermeasures is organized into the following categories: alcohol-impaired driving, drug-impaired driving, seatbelts and child restraints, speeding and speed management, distracted driving, motorcycle safety, young drivers, older drivers, pedestrian safety, bicyclist safety, and drowsy driving.
- **Oregon Department of Transportation (ODOT) All Roads Transportation Safety (ARTS) Program Crash Reduction Factor Manual.** This manual, updated in 2023, provides a comprehensive list of the safety countermeasures that are appropriate to address many common safety issues in the state of Oregon.
- **Hermiston Safety Action Plan Countermeasures.** The City of Hermiston, which is in Umatilla County, published its own Safety Action Plan in 2024. The plan includes a countermeasure toolbox with countermeasures organized by engineering and non-engineering countermeasures for the Safe System Approach principles.

SAFETY COUNTERMEASURE FRAMEWORKS

Multiple frameworks are considered to identify the broadest range of safety countermeasures for consideration in Umatilla County including:

- **Purpose of implementing the countermeasure:** Safety countermeasures are grouped together that address a similar contributing factor to crashes. To address crash patterns, there are often a set of countermeasures that can be implemented comprehensively or iteratively. The project location and benefit-cost analysis may indicate which countermeasures are most effective for a particular project.
- **Type of intervention:** Safety countermeasures are broadly grouped as engineering/infrastructure, education, or policy. Generally, engineering/infrastructure countermeasures are implemented to address crash patterns at distinct or systemic locations. Education and policy countermeasures are generally implemented to address patterns in behavior.

- **Applicable focus area:** During the Existing Conditions assessment, focus areas were identified based on historic crashes. The Countermeasure Toolbox includes countermeasures that address each of the focus areas.

- **Safe System Approach objectives:** The Safe System Approach has been adopted by the United States Department of Transportation (USDOT) as a proactive way to address and mitigate the risks in our transportation system. The Safe System Approach shifts the transportation safety perspective to focus on crashes resulting in a death or serious injury and to understand that humans make mistakes. The objectives form a multi-layered approach to transportation safetythat seeks to minimize the severity of crashes by implementing different types of safety countermeasures. For example, the Safe System Approach can address roadway characteristics and driver behavior in tandem for added effect.
- **Safe System Roadway Design Hierarchy**: The Roadway Design Hierarchy supports the Safe System Approach by prioritizing countermeasures that directly address or focus on the specific safety issues or hazards. When identifying potential safety countermeasures, practitioners are encouraged to start with countermeasures that address Tier 1.

SAFETY COUNTERMEASURES

The following Table 13 identifies the resulting toolbox of safety countermeasures that will be considered for inclusion in the Umatilla County SS4A plan. Countermeasures to address crash patterns systemically or at specific locations will be drawn from this toolbox.

TABLE 13 - COUNTERMEASURES AND APPLICATION CONDITIONS

Category	Countermeasure	Goal / Narrative / Effectiveness	Engineering/Infrastructure	Education	Policy	Lane & Road Departure Crashes	Speed	Intersection Crashes	Urban Transition Areas Crashes	Unbelted Occupants	Impaired Driving	Pedestrian	Bicyclist	ITS	Safe Speeds	Safe Roads	Safe People	Safe Vehicles	Post Crash Care	Tier 1: Remove Severe Conflicts	Tier 2: Reduce Vehicle Speeds	Tier 3: Manage Conflicts in Time	Tier 4: Increase Attentiveness and Awareness
Address Roadway Departure	Lighting	Increase road user visiblity and reaction time	✓									✓	✓			✓	✓						✓
	Clear zone and lateral offset	Provides for a safe recovery / reduces severity	✓			✓										✓				✓			
	Roadside barrier (add, upgrade, maintain)	Prevent or reduce severity of road departures	✓			✓										✓				✓			
	Median barrier	Prevent cross-centerline crashes	✓			✓										✓				✓			
	Enhanced curve delineation + warning	Increases awareness and visibility of lane bounds	✓			✓										✓				✓			✓
	Longitudinal rumble stripes	Prevent or reduce severity of road departures	✓			✓										✓							✓
	Centerline rumble strips	Prevent or reduce severity of lane departures	✓			✓										✓							✓
	Centerline striping	Can be paired with centerline rumble strips	✓			✓	✓								✓	✓							✓
Aid in Speed Management	Transverse rumble strips	Increase driver attention and reduce speeds	✓				✓								✓	✓					✓		✓
	Dynamic speed display/feedback sign	Communicates gap between operating and posted speed	✓				✓							✓	✓		✓				✓		✓
	(Wide) edge line striping to narrow lanes	Can manage vehicle speeds and locations	✓				✓								✓	✓					✓		✓
	Speed zone setting	Selecting an appropriate posted speed based on context, factors, etc.			✓		✓								✓						✓		
	Gateway features (for entering urban context, including curb extensions and raised medians)	Provide infrastructural cues that an urban area has been entered	✓				✓		✓						✓	✓					✓		✓
	Speed safety cameras	Automated enforcement methods to address behavioral factors	✓				✓	✓						✓	✓	✓					✓		
Address Intersection Crashes	Roundabout/traffic circle	Reduce turning conflicts	✓				✓	✓							✓	✓				✓	✓		
	Dedicated left- and/or right-turn lanes at intersections	Reduce turning conflicts (CRF between 4-19% according to ODOT ARTs)																					
	Provide adequate sight distance	Remove vegetation and infrastructure obstructions	✓					✓								✓							✓
	Advance warning markings and signs	Warn drivers of upcoming traffic control or geometry changes	✓					✓								✓							✓
	Enlarged or doubled stop signs	Increase visibility of stop-controlled intersection legs	✓					✓								✓							✓
	Stop bar	Place appropriately to indicate where vehicles should stop	✓					✓								✓							✓
	Sign and post reflectivity - **systemic**	Draw attention to signage	✓					✓								✓							✓
	Restrict movements (signage or raised median)	Eliminate turning movement conflicts	✓					✓								✓				✓			
	Convert TWSC to AWSC	Reduces speeds near/in intersection	✓					✓								✓				✓			
	Convert stop control to signal	Dictates maneuvers through phasing	✓					✓								✓						✓	
	Signal head visibility - **systemic**	Backplates, enlarged signal balls, and signal heads on posts	✓					✓								✓							✓
	Protected-only left-turn phasing	Eliminate need for drivers to find a gap in oncoming vehicles	✓					✓								✓						✓	
	No right turn on red	Avoid conflicts between right turning vehicles and 1) opposing vehicles and 2) pedestrians and bicyclists	✓					✓								✓						✓	
	Rest in red timing	Manage speeds near/in intersections	✓					✓								✓				✓			
	Adjust signal timing (yellow change intervals)	Change length of YCI to reduce RLR, rear-end crashes, etc.	✓					✓								✓						✓	
	Red light running safety cameras	Automated enforcement methods to address behavioral factors	✓					✓						✓	✓	✓					✓		
Educate in Safe Beahviors	Safety belt usage	Campaign to highlight relationship b/w belt usage and injury risk		✓					✓								✓			-	-	-	-
	Impaired driving	Campaign to highlight risks of driving under the influence		✓						✓							✓			-	-	-	-
	Distracted driving	Campaign to highlight risks of engaging in secondary tasks		✓													✓			-	-	-	-

Category	Countermeasure	Goal / Narrative / Effectiveness	Type			Focus Area(s)									SSA Element(s)					Design Hierarchy			
			Engineering/Infrastructure	Education	Policy	Lane & Road Departure Crashes	Speed	Intersection Crashes	Urban Transition Areas Crashes	Unbelted Occupants	Impaired Driving	Pedestrian	Bicyclist	ITS	Safe Speeds	Safe Roads	Safe People	Safe Vehicles	Post Crash Care	Tier 1: Remove Severe Conflicts	Tier 2: Reduce Vehicle Speeds	Tier 3: Manage Conflicts in Time	Tier 4: Increase Attentiveness and Awareness
Enforcement and Response	Drug Recognition Expert training	Train to ID individuals under the influence (& what drug(s)) vs. injured		✓	✓														✓	-	-	-	-
	Traffic incident management (TIM)	Training to detect, respond to, and clear traffic incidents		✓	✓														✓	-	-	-	-
Provide Facilities for All Users	Roadway reallocation	Reduce the number of lanes to accommodate other ROW needs	✓				✓								✓	✓					✓		
	Pedestrian facilities (sidewalk, shared use path)	Provide separate spaces for pedestrians to travel	✓									✓				✓				✓			
	Bicyclist facilities (bike lanes [separated, buffered], shared use path)	Provide separate spaces for bicyclists to travel	✓										✓			✓				✓			
	Sharrows	Indicate roadways where bicyclists can use the roadway with vehicles	✓										✓			✓							✓
	Advanced warning signs	Warn drivers of upcoming pedestrian and/or bicyclist activity	✓									✓	✓			✓							✓
	Roadway striping to unmarked roadways	Encourage drivers to stay within designated lane bounds	✓			✓										✓							✓
	Updating roadway cross sections in Transportation System Plan update	Provides a documented, updated standard practice for designers			✓											✓				-	-	-	-
Safe Crossings	Pedestrian refuges	Can be used at intersections or along segments	✓					✓				✓	✓			✓				✓			
	Curb extensions	Can be used at intersections or along segments	✓					✓				✓	✓			✓							✓
	High visibility crosswalk treatments (reflective paint, high visibility markings, rectangular rapid flashing beacon, pedestrian hybrid beacon)	Improve driver visibility of crossing facilities where pedestrians might be present	✓									✓	✓			✓							✓
	Pedestrian countdown timer	Alert pedestrians and drivers how much longer the crossing phase is	✓					✓				✓	✓			✓						✓	✓
	Raised crosswalk	Use vertical deflection to elevate crossing pedestrians and slow vehicles	✓				✓					✓	✓		✓	✓					✓		
	Leading pedestrian interval	Improve driver visibility of pedestrians by allowing them to begin crossing before conflicting vehicle movements begin	✓									✓	✓			✓						✓	✓

Notes

Abbreviations - AWSC: All Way Stop Control, ITS: Intelligent Transportation Systems, SSA: Safe System Approach, TWSC: Two Way Stop Control

Work Exhibits/Safety Recommendations

CORRIDOR INFORMATION

2 fatal crashes
7 serious injury crashes
57 other injury crashes (2018-2022)

Disadvantaged communities with **high** disparity

JURISDICTION

- Umatilla County
- Milton-Freewater
- ODOT

CRASH HISTORY (2018-2022)

TURNING MOVEMENT

Of the nine fatal and serious injury crashes, Four were turning movement crashes. Thirty-five of the crashes were related to turning movements or angle crash types.

OR 11 & CROCKETT ROAD

Ten injury crashes, including three FSI crashes occurred at this intersection. Three of the crashes at this intersection, including both serious injury crashes, involved a westbound left turning vehicle.

HEAD-ON CRASHES

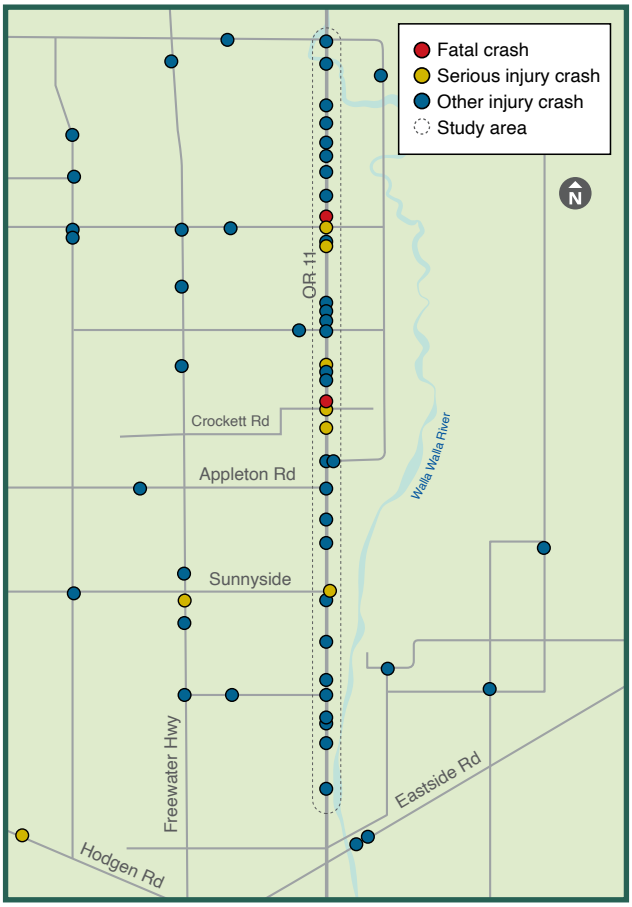
Of the nine fatal and serious injury crashes, three were head-on crashes. There was one additional head-on crash that resulted in injury.

DRIVER BEHAVIOR

Fifteen crashes included a driver marked as making an improper turn as the primary or secondary cause of the crash. Eleven crashes were caused by inattention and thirteen involved a driver not yielding to right of way.

DARKNESS

Fourteen crashes occurred during dark conditions, without streetlights. Six of these crashes occurred between Ballou Rd and Stateline Rd.



COMMUNITY OUTREACH

Concerns from the public along this corridor include...

1. Avoiding the corridor due to lack of comfort
2. High operating speeds
3. Road surface conditions
4. Lack of bicycling infrastructure

COST ESTIMATE

PROPOSED COUNTERMEASURE	COST
Rumble strips	$3k/linear mile
Speed limit radar	$5-10k + $5k labor/location
Enhanced stop control	$300 + $200 labor/intersection
Raised medians	$125k + $25k design+labor

See full countermeasure details on next page

PROPOSED COUNTERMEASURES

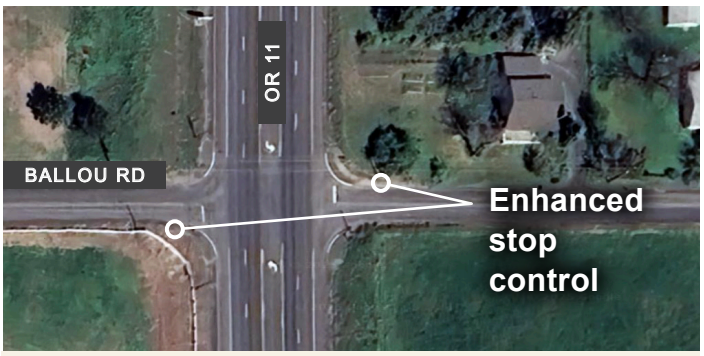
CORRIDOR-WIDE:

- Replace the two-way left-turn lane with a **raised median** with openings to manage left- and U-turn movements. This will address turning movement and head-on crashes.
- Add **roadside rumble strips** to alert drivers when they are encroaching the lane boundary.
- Install **street lighting**, especially focused on the OR 11 between Ballou Road and Stateline Road.

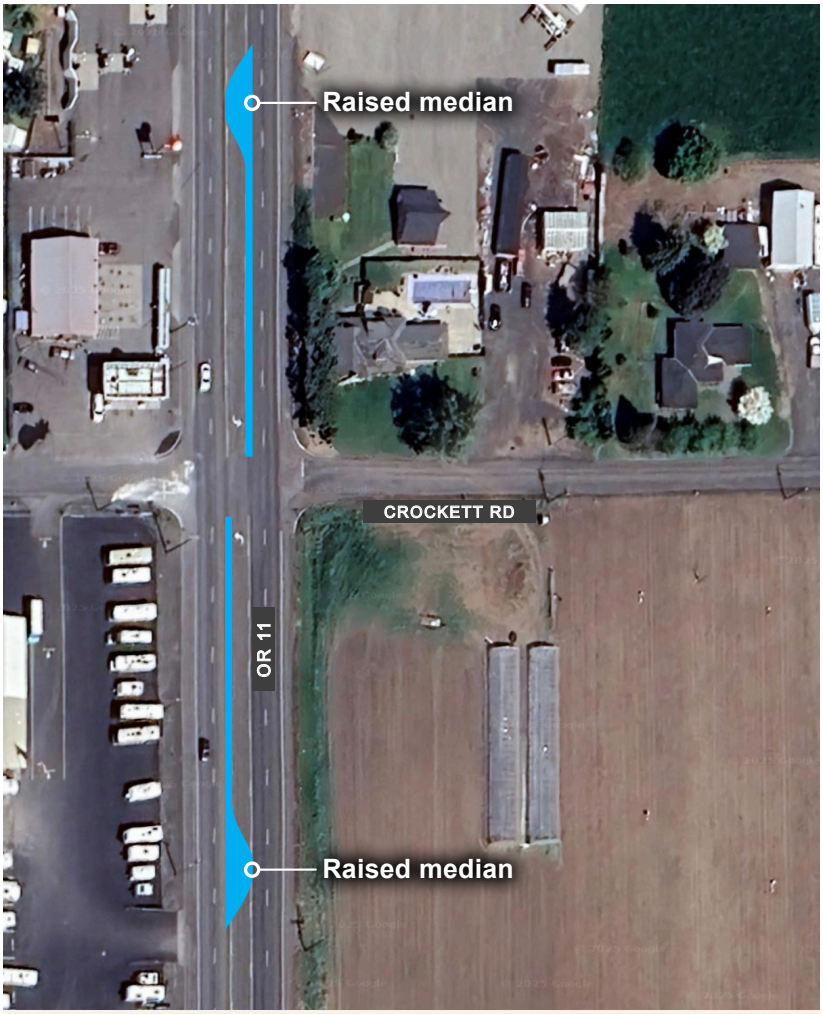
LOCATION-SPECIFIC:



- Add speed limit radar sign to alert drivers of their speed relative to the posted speed.



- **Relocate and enhance stop control** on minor approaches to draw driver attention to traffic control devices.



Manage turning movement conflicts with a combination of the following considerations:

- Consolidate or close driveways to minimize conflict points.
- Install raised medians to manage turning movements and reduce the opportunity for head on crashes.
- Install roundabouts along the corridor to manage speed and facilitate turning movements. Ensure that roundabouts can accommodate freight movements.

OR 204

East of Weston (MP 2.2 to 5.4)

CORRIDOR INFORMATION

1 fatal crash
2 serious injury crashes
9 other injury crashes (2018-2022)

Disadvantaged communities with **moderate** disparity

JURISDICTION

- Umatilla County
- ODOT

CRASH HISTORY

(2018-2022)

CURVES

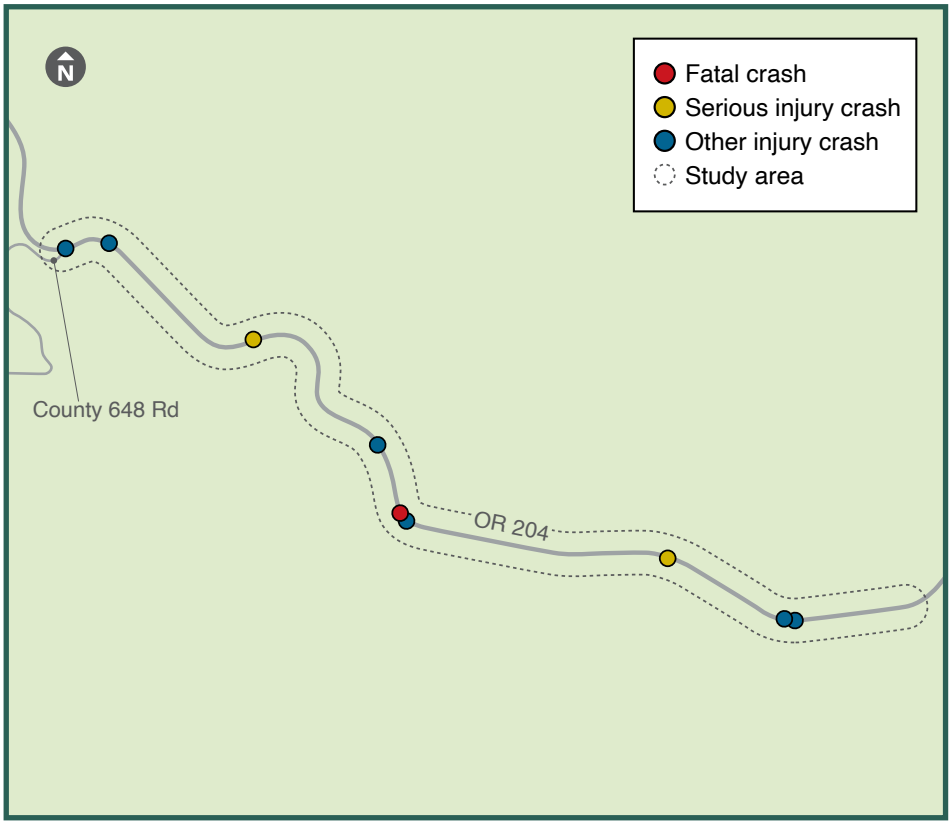
All 12 crashes occurred at a location with a horizontal and/or vertical curve.

LANE DEPARTURE

10 of the 12 crashes, including all three fatal and serious injury crashes, were fixed-object crashes. One crash was a head-on crash and one crash was a rollover crash. Eight of twelve crashes occurred in dark lighting.

LANE DEPARTURE

Four crashes, including the fatal crash, involved speeding. Both serious injury crashes involved a drowsy driver. Two crashes involved inattention.



COMMUNITY OUTREACH

During community outreach, this corridor was not specifically mentioned.

COST ESTIMATE

PROPOSED COUNTERMEASURE + COST

Rumble strips..... $500/set + $250 labor
Guardrail..... $100/ft. + $25k labor/curve

See full countermeasure details on next page

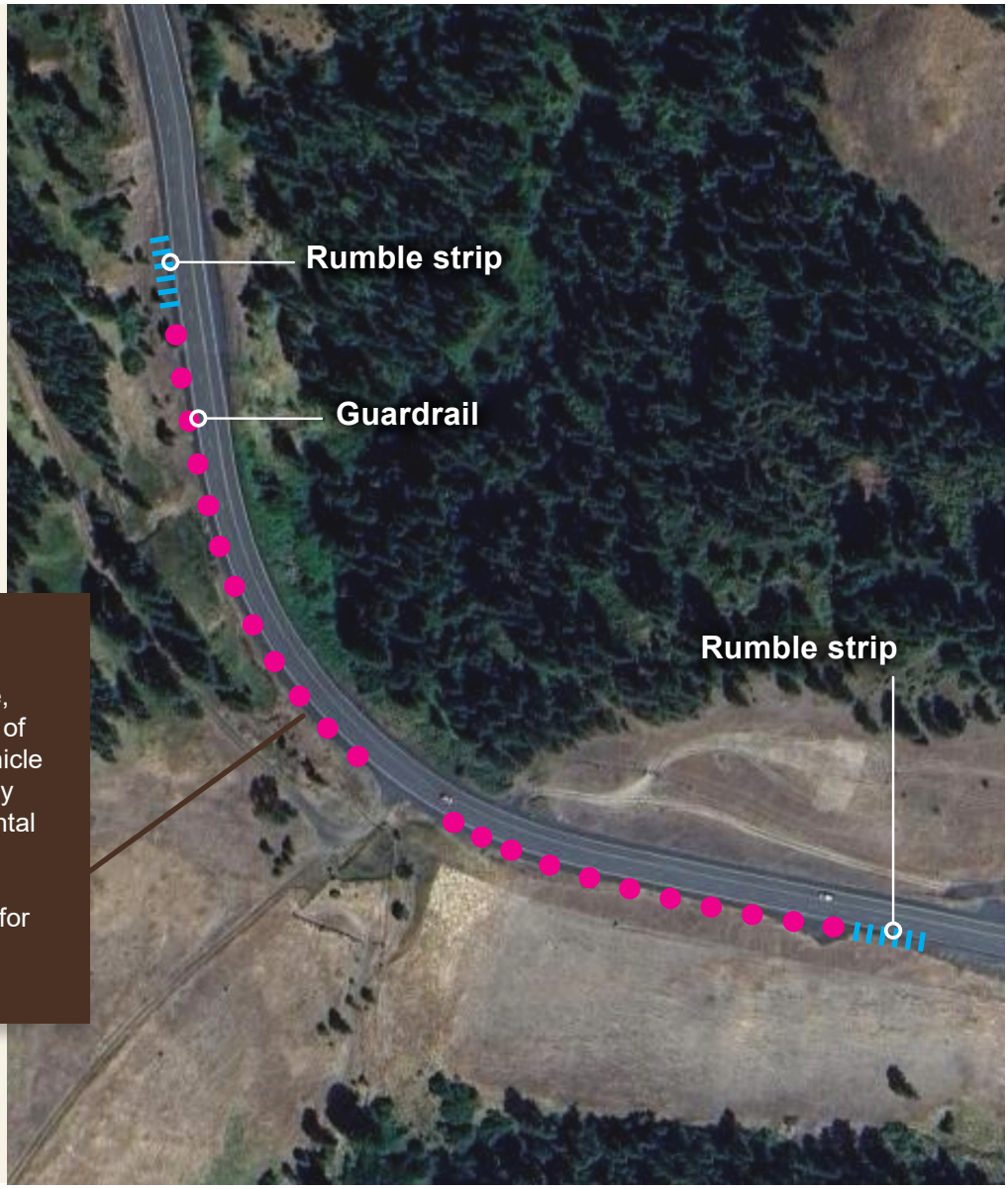
PROPOSED COUNTERMEASURES

CORRIDOR-WIDE:

- Add **centerline and edge line rumble strip** to alert drivers they are encroaching on the lane boundary.
- **Maintain signage**, like ODOT's upcoming sign maintenance project at MP 3.7.
- Add **chevrons** approaching all horizontal curves from both directions.
- Install **lighting** to improve visibility, especially along curves.

LOCATION-SPECIFIC:

- Add **metal guardrail** on the roadside to shield hazards and mitigate crash severity when drivers leave the roadway.
- Review the existing roadside barrier infrastructure along the corridor and refer to AASHTO RDG and ODOT guidance to provide **roadside barriers at cut slopes and foreslope** in the clear zone when appropriate.



Between 2018 and 2023, five crashes occurred on this curve, including one fatal crash. Four of the five crashes involved a vehicle going westbound. Between July 2023 and August 2025, horizontal curve warning signs, a speed feedback sign, and chevrons were installed along the curve for westbound traffic.

Westland Road / Highland Avenue

from Agnew Rd to Herminston City Limits

CORRIDOR INFORMATION

4 serious injury crashes
29 other injury crashes (2018-2022)

Disadvantaged communities with **high** disparity

JURISDICTION

– Umatilla County

CRASH HISTORY

(2018-2022)

WESTLAND RD & BRIDGE RD

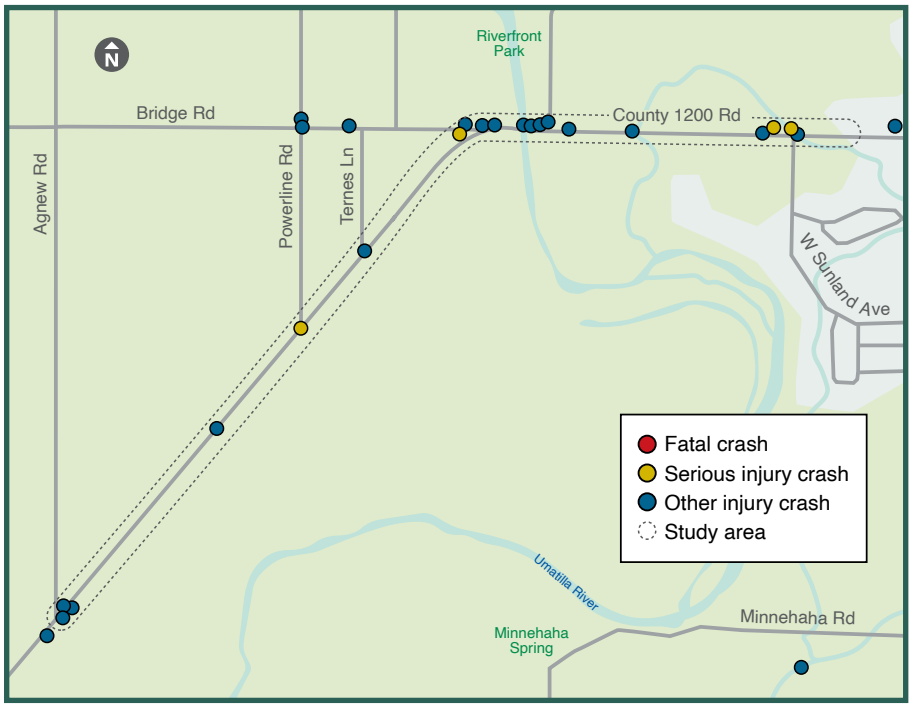
Six injury crashes around the intersection. Four of the crashes in dark lighting. Three crashes occurred with vehicles turning left from Bridge Rd.

LANE DEPARTURE

Five injury crashes were fixed-object and six injury crashes were head-on. Crashes were commonly in times of dark lighting, ice, or fog.

DRIVER BEHAVIOR

14 injury crashes were related to reck-- less/careless driving. Crash types include head-on, fixed object, and rear-end.



COMMUNITY OUTREACH

Concerns from the public along this corridor include...

1. Lack of sidewalks and other pedestrian facilities
2. Poor surface conditions
3. Improvements desired at Westland Road and Bridge Road

COST ESTIMATE

PROPOSED COUNTERMEASURE + COST	
SW 17th paved median	$55k
SW 17th crosswalk	$12k
Bridge Rd t-up paving	$60k
Bridge Rd t-up paving + *hardscape*	$125k
Bridge Rd restriping	$12k
Bridge Rd street lights (2)	$40k

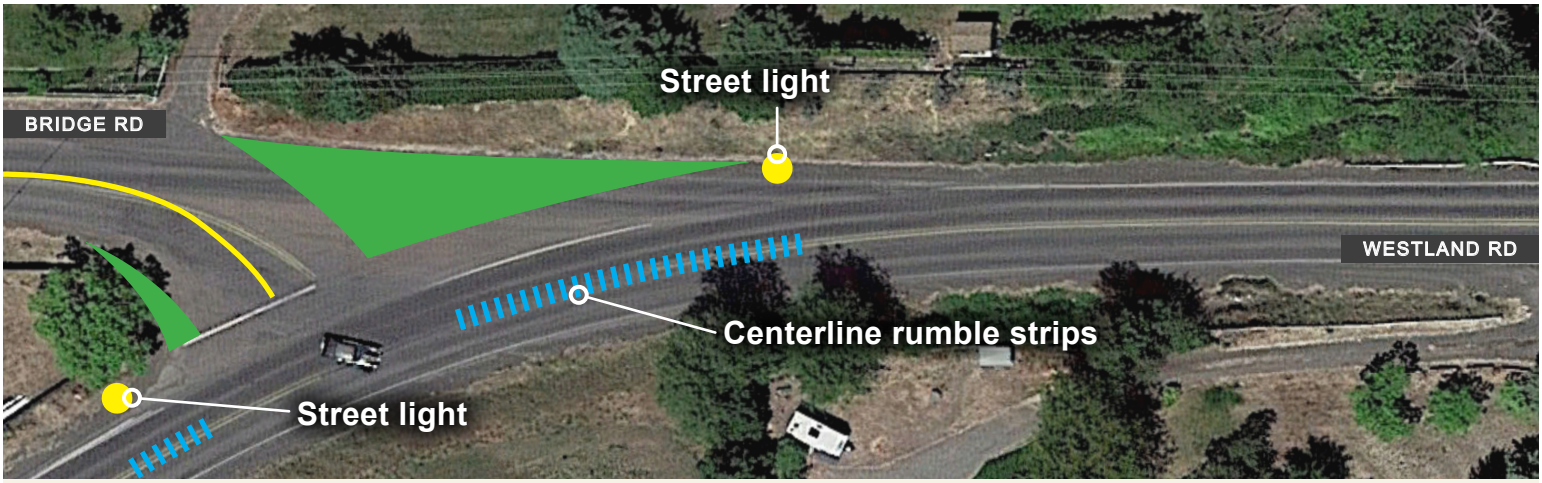
See full countermeasure details on next page

PROPOSED COUNTERMEASURES

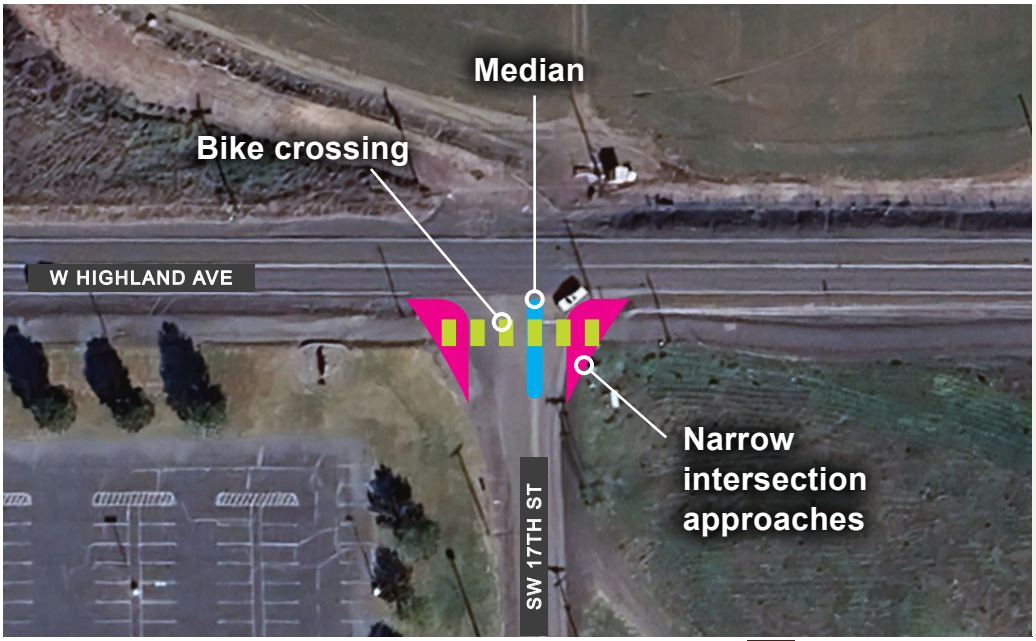
CORRIDOR-WIDE:

- Add centerline rumble strip to alert drivers who cross the centerline.
- Maintain fog lines to draw attention to the roadway edge and reduce road departure crashes.
- Stripe the travel lane and shoulder width in alignment with the TSP guidance, to reduce run off the road crashes.

LOCATION-SPECIFIC:



- Make it easier to see oncoming vehicles by adjusting intersection skew to be more perpendicular and clearing vegetation, making it easier to see oncoming vehicles.
- Add intersection lighting to address nighttime visibility at the intersection.
- Remove pavement and landscape the green hatch area to narrow the roadway and address intersection skew. Alternatively, consider installing delineators or other vertical elements in the short term in addition to signing and striping.



- Narrowing the intersection approach width on SW 17th Street, and reducing the curb radii, can reduce turning speeds across the path crossing.
- Including a median nose on SW 17th Street can emphasize the path crossing and reduce turning speeds.

Umatilla River Road

Cooney Lane to Umatilla City Limits

CORRIDOR INFORMATION

32
injury crashes (2018-2022)

Disadvantaged communities with **low** disparity

JURISDICTION
– Umatilla County

CRASH HISTORY (2018-2022)

REAR-END CRASHES

There were 10 rear-end crashes on the corridor. These crashes occurred due to excessive speeding, following too closely, and driver inattention.

CRASHES IN SNOW AND ICE

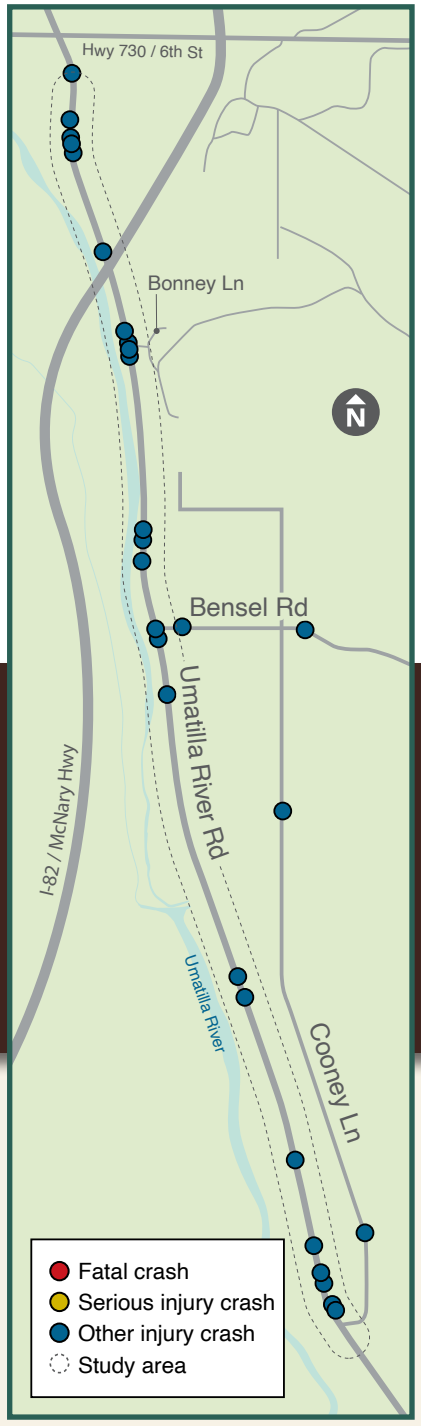
Nine crashes occurred in snow or ice. Seven of these crashes occurred north of Bensel Road.

NORTH OF BENSEL ROAD

Twenty-one of 32 crashes occurred north of Bensel Road, including eight crashes around Bonney Lane.

LANE DEPARTURE

Seventeen crashes involved lane departure, including 11 crashes that occurred north of Bensel Road.



COMMUNITY OUTREACH

Concerns from the public along this corridor include...

1. Narrow roadway limits driver visibility of vehicles and people
2. Lack of lighting makes it difficult to see (driving) in adverse weather
3. Limited places to pull over or to pass other road users

COST ESTIMATE

PROPOSED COUNTERMEASURE + COST	
Radar speed limit sign	$10-15k
Restripe cross section	$10k/mile + $2k mobilization + $10k labor
Street light	$15k/light + $10k design+labor

See full countermeasure details on next page

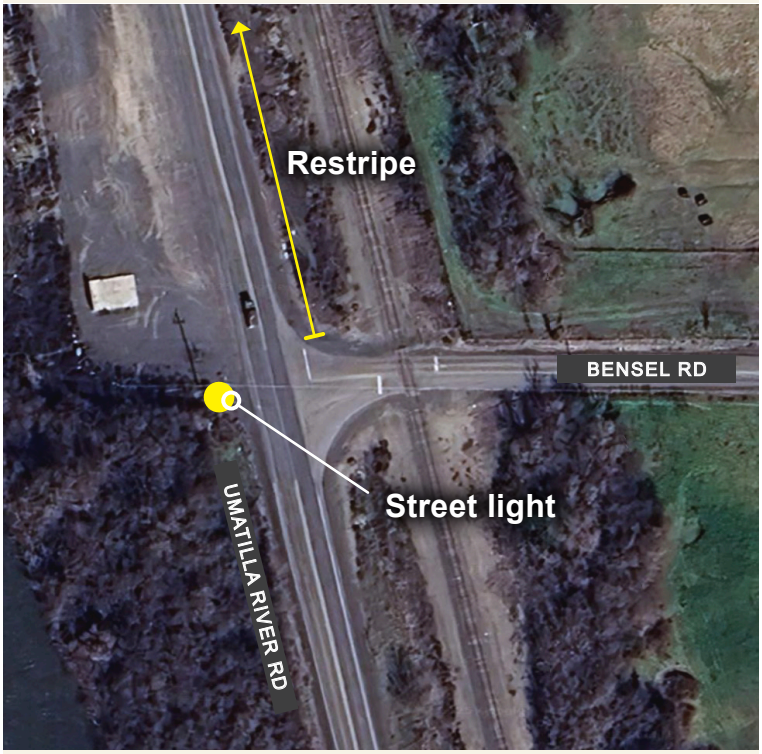
PROPOSED COUNTERMEASURES

CORRIDOR-WIDE:

- **Widen clear width** along the corridor to improve sightlines of oncoming roadway conditions and increase space for drivers to correct off-road lane departures.
- Install **center line rumble strips** to reduce cross centerline crashes. Note, ODOT typically does not install rumble strips near residences. FHWA cites a commonly used minimum distance of 650 feet from residences. Umatilla River Road south of Bensel Road commonly has residences within 650 feet of the road. Active engagement of residents is needed to mitigate potential noise complaints from residents.

LOCATION-SPECIFIC:

- Restripe roadway cross section north of Bensel Road to match the cross section south of Bensel Road, including fog lines and a narrow shoulder.



- **Ice detection sensors** paired with dynamic warning signs may be an effective application of ITS on segments with historic patterns of crashes during snowy or icy conditions, including Umatilla River Road, north of Bensel Road.

- Add speed feedback signage with the posted speed sign north of Cooney Lane where the posted speed reduces from 50 to 45 mph for southbound vehicles.



OR 207 (Diagonal Blvd)

Townsend Road to Columbia Lane

CORRIDOR INFORMATION

3 fatal crashes
3 serious injury crashes
23 other injury crashes (2018-2022)

Disadvantaged communities with **moderate** disparity

JURISDICTION

- ODOT
- Umatilla County
- Hermiston

CRASH HISTORY (2018-2022)

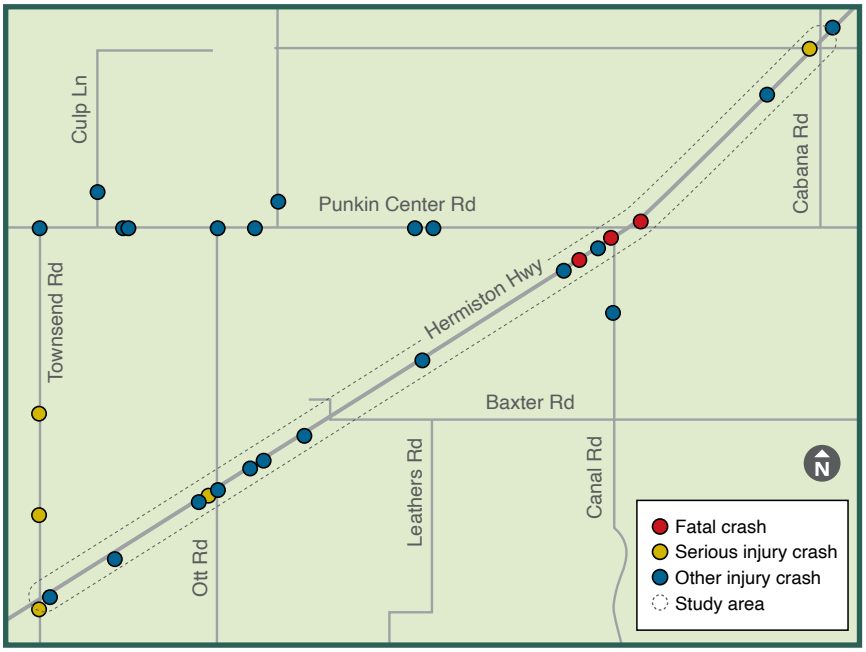
ROAD DEPARTURE CRASHES

Eight crashes, including four FSI crashes, involved a collision with a fixed object and/or a rollover.

INTERSECTION CRASHES

Fourteen crashes, including two FSI crashes were either angle or turning. These locations have the highest concentration of crashes. These trends are confirmed in the 2023 and 2024 data.

- OR207 & Punkin Center Rd: 6 crashes
- OR207 & Canal Rd: 4 crashes
- OR207 & Ott Rd: 3 crashes



DARK CONDITIONS

Three of the five FSI crashes occurred in dark lighting conditions. Three crashes involved lane departure. Three crashes occurred at OR207 & Punkin Center Rd.

COMMUNITY OUTREACH

Concerns from the public along this corridor include...

1. The five-way intersection at Punkin Center Road feels unsafe

COST ESTIMATE

PROPOSED COUNTERMEASURE + COST

Punkin Center Rd traffic signal..... $550k-$800k
Route and turn restrict. signage..... $800/sign
Townsend Rd roundabout *(small)*..... $200k
Townsend Rd roundabout *(large)* $2,100,000
Street light..... $15k/light +$10k design+labor

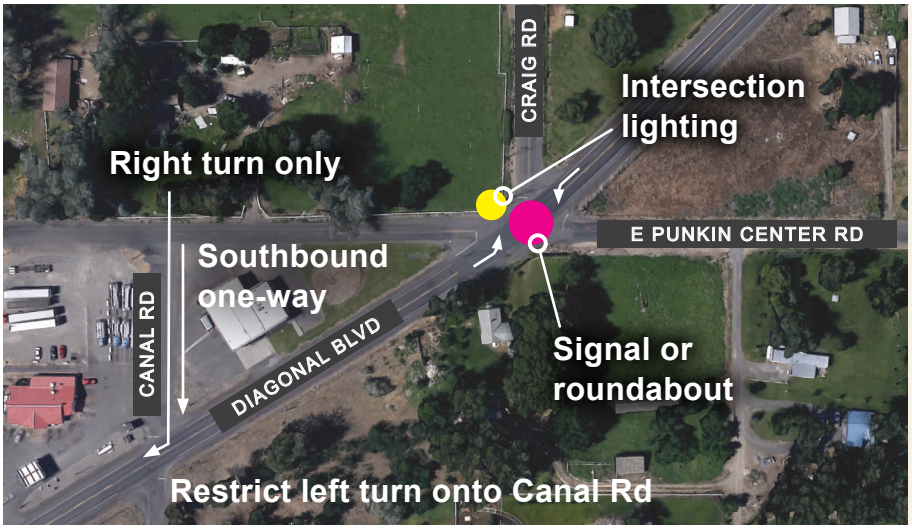
See full countermeasure details on next page

PROPOSED COUNTERMEASURES

CORRIDOR-WIDE:

- Install **lighting**, especially at intersections with historic crashes and geometric challenges, notably Punkin Center Road.
- Add **edge line rumble strips** to supplement existing centerline rumble strips and address road departure crashes along the corridor. Note residences are along the roadway, which may preclude the installation of additional rumble strips or restrict them fewer locations to avoid noise complaints.

LOCATION-SPECIFIC:



- Install a roundabout at OR 207 (Diagonal Blvd) & Punkin Center Rd. Ensure that the installed roundabout can accommodate freight movements.
- A **traffic signal** could also be explored.
- Add **signage** to restrict drivers from turning left from Canal Rd. This will prevent drivers trying to skip the light and will remove a hard left turn movement.



- A **roundabout** could serve as a City gateway design. Adding an additional "Welcome to Hermiston" sign helps differentiate the city limits.



- Add **wayfinding signage** to get vehicles to turn earlier rather than crowding the busier turning locations.

US 395
from Hermiston City Limits to US 730

CORRIDOR INFORMATION

2 fatal crashes
8 serious injury crashes
98 other injury crashes (2018-2022)

Disadvantaged communities with **moderate** disparity

JURISDICTION
– ODOT

CRASH HISTORY (2018-2022)

PUNKIN CENTER RD TO JOY LN

Thirty-one injury crashes. Thirteen of the crashes occurred due to turning movements, including one fatal and two serious injury crashes.

US395 & US730

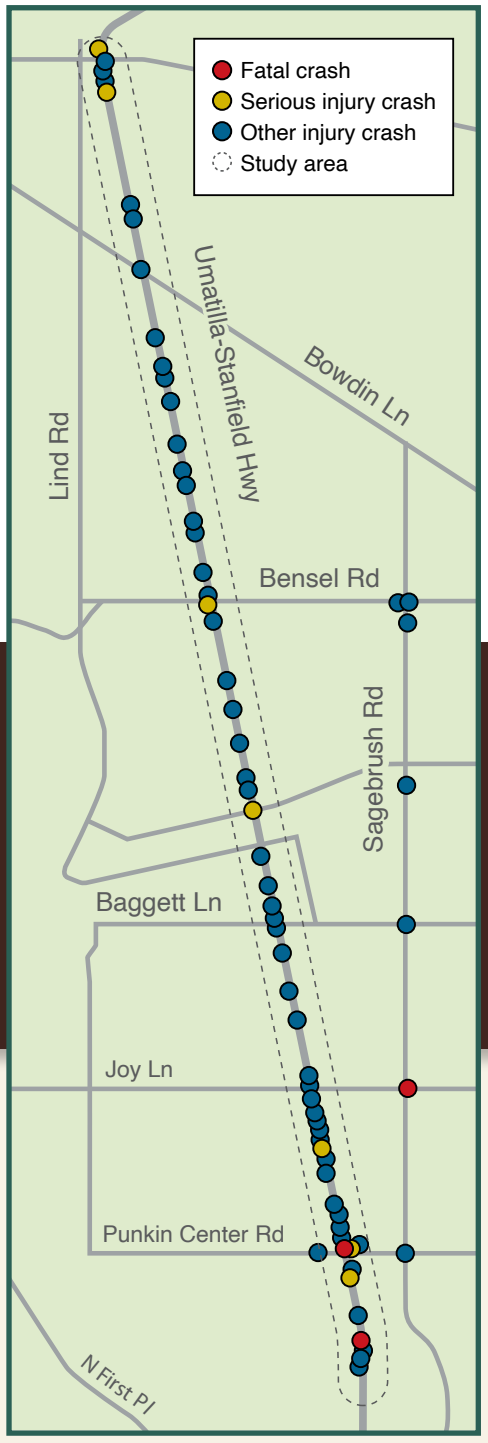
Fourteen injury crashes at intersection, including two serious injury crashes. Nine of the crashes were rear end involving northbound vehicles.

TURNING MOVEMENT

65% of all injury crashes on the corridor were the result of turning movements, including 70% of fatalities and serious injury crashes.

STREET LIGHTING

Two fatal crashes, including one pedestrian, and 11 injury crashes occurred in darkness in areas with no streetlights.



COMMUNITY OUTREACH

Concerns from the public along this corridor include...

1. Traffic volumes and signal timing lead to congestion
2. Prevalence of aggressive driving
3. Poor lighting conditions and minimal pedestrian facilities

COST ESTIMATE

PROPOSED COUNTERMEASURE + COST PER APPROACH	
Raised median	$300k
Pedestrian crossing beacon	$45k
Pedestrian crosswalk markings + tactile pads	$15k

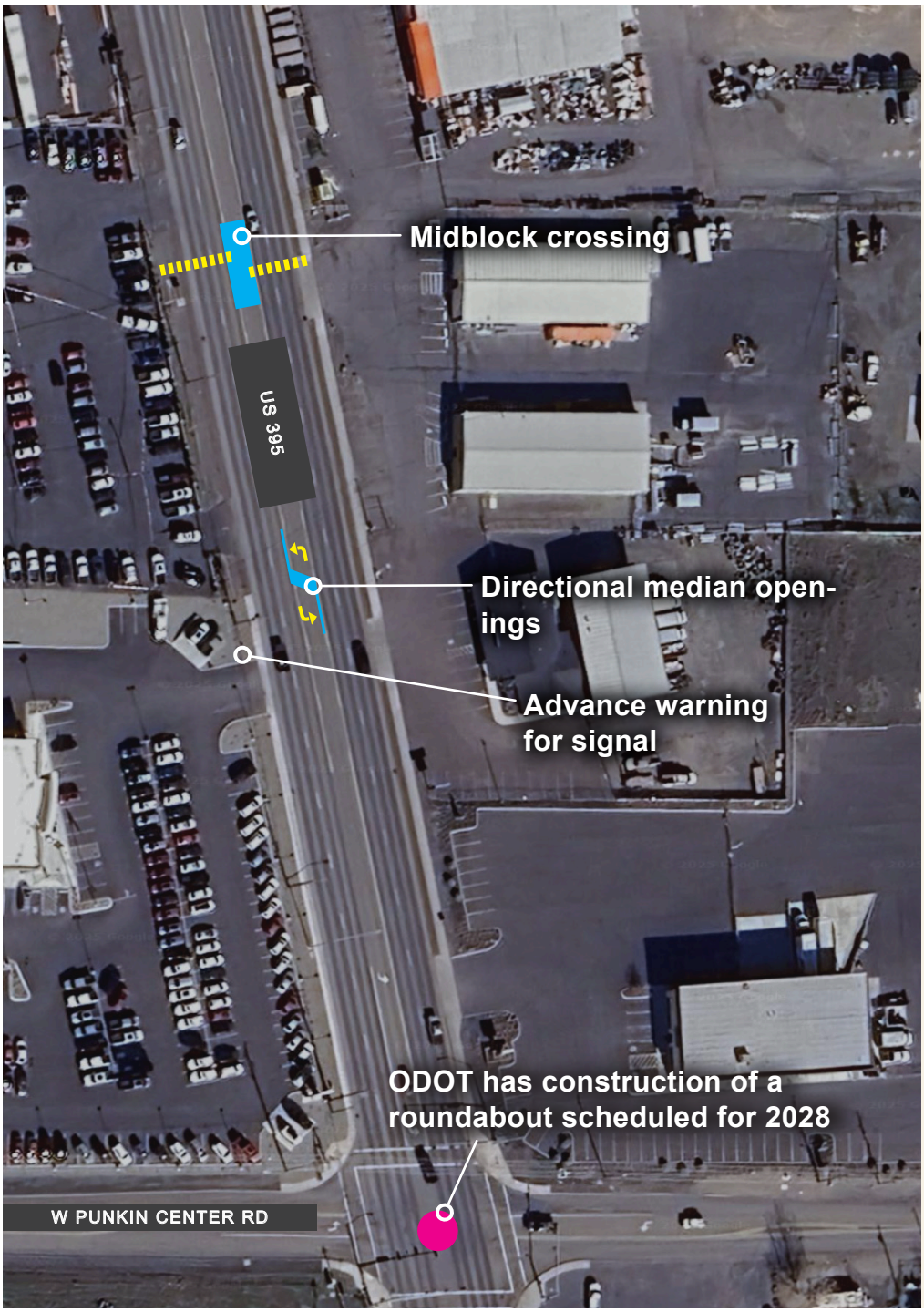
See full countermeasure details on next page

PROPOSED COUNTERMEASURES

CORRIDOR-WIDE:

- Replace the two-way left-turn lane with a **raised median** with openings to manage left-turn movements.
- **Install enhanced midblock crossings** to improve pedestrian mobility along the corridor. Include Rectangular Rapid Flashing Beacons (RRFBs) or Pedestrian Hybrid Beacons (PHBs) as appropriate.

LOCATION-SPECIFIC:



- Add **midblock crossing** with pedestrian refuge island to increase crossing opportunities on commercial corridor.
- Address turning movement crashes by **constructing median and channelizing left turns.**
- **Install advance warning** for southbound approach to US395 & Punkin Center Rd and the northbound approach to US395 & US730 to mitigate rear end crashes. Options include installing actuated flashing beacons or signage.

Stanfield Meadows Road

OR 207 to 1.5 miles east of OR 207

CORRIDOR INFORMATION

1 fatality
1 serious injury
1 other injury crash (2018-2022)

Disadvantaged communities with **moderate** disparity

JURISDICTION

- Umatilla County

CRASH HISTORY (2018-2022)

SINGLE VEHICLE NIGHTTIME CRASHES

All three crashes on the corridor were the result of single vehicles crashing at night, in areas without lighting. Crashes were spread across the corridor.

STRUCK ANIMAL

The serious injury crash was the result of a vehicle striking a wild animal.

SPEEDING AND RECKLESS DRIVING

The fatal and minor injury crashes both involved reckless driving and speeding. These resulted in an overturned vehicle and ejected driver in the case of the fatal crash and in a struck fence in the minor injury crash.



COMMUNITY OUTREACH

During community outreach, this corridor was not specifically mentioned.

COST ESTIMATE

PROPOSED COUNTERMEASURE + COST

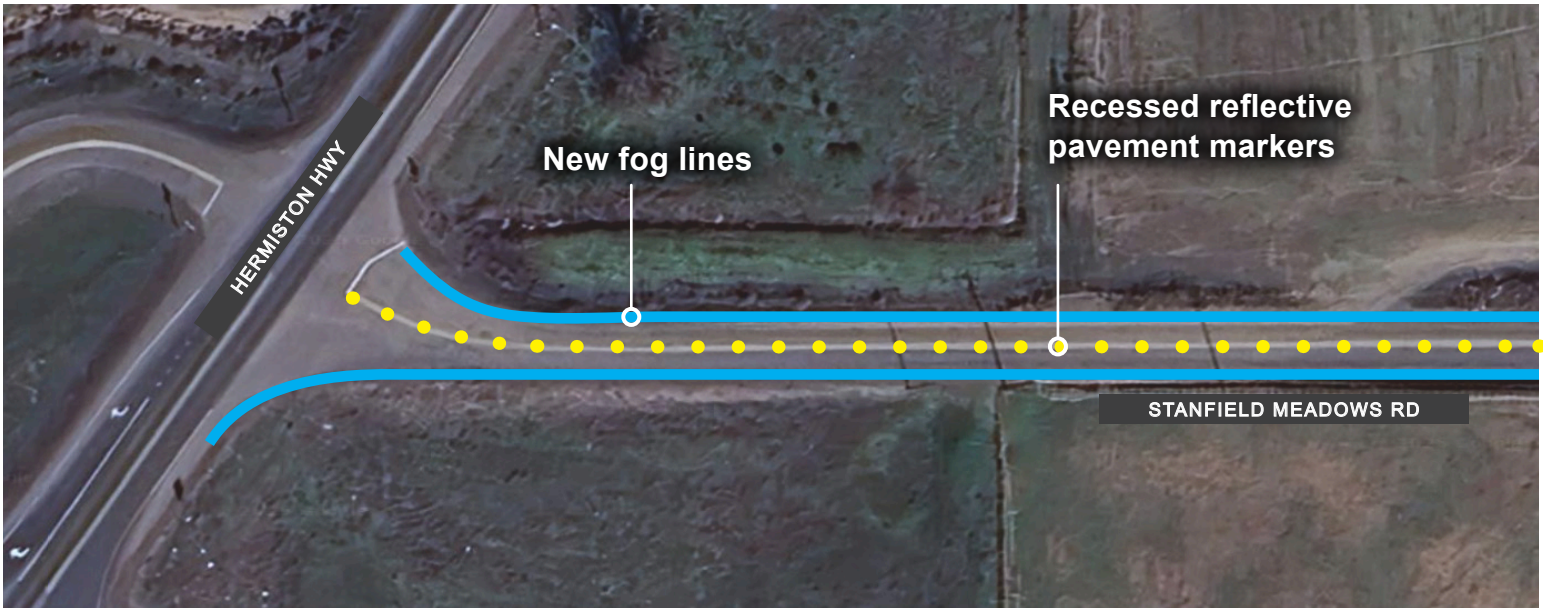
Recessed reflective pavement markers ..... $2,000-$2,500/lane mile

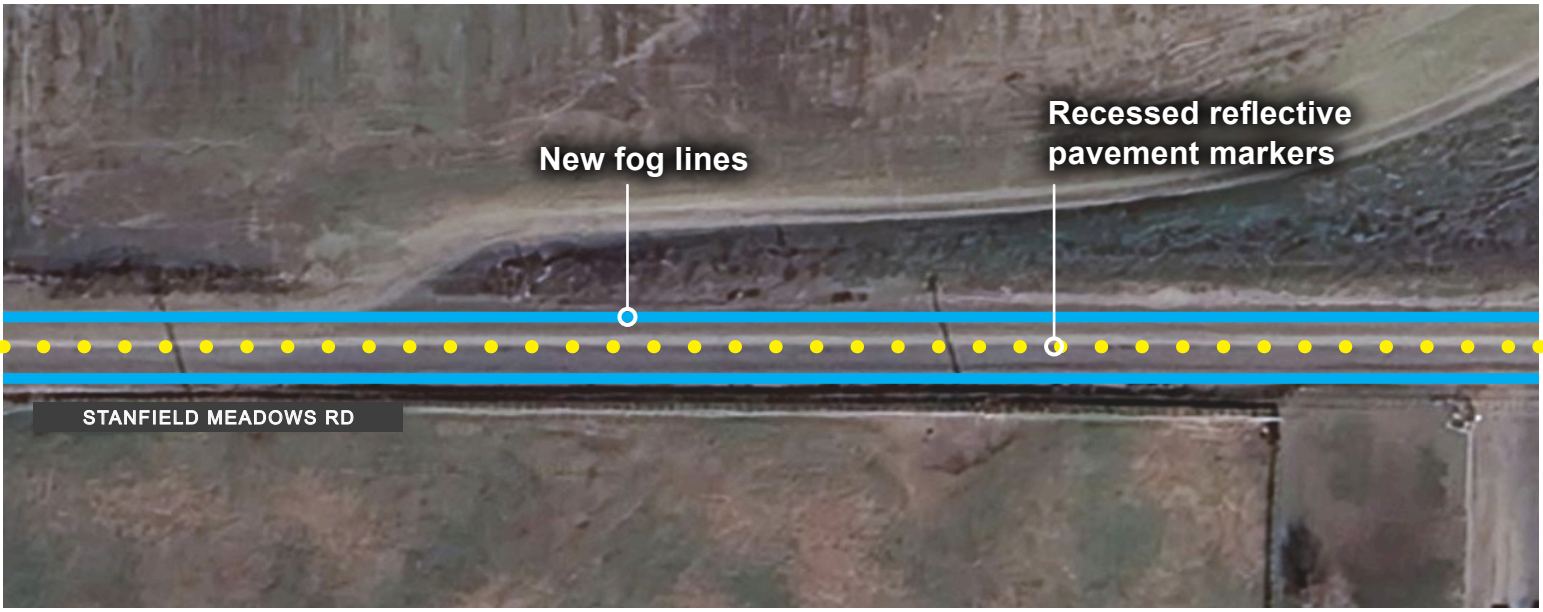
See full countermeasure details on next page

PROPOSED COUNTERMEASURES

CORRIDOR-WIDE:

- Install **centerline pavement markers** that are snowplowable
- Paint **fog lines** along the corridor to improve visibility of lane width.
- Install **speed feedback signs** and **lighting** in locations with speeding related crash history.





US 395

South of Ukiah (MP 51.8 to 54.7)

CORRIDOR INFORMATION

3 fatal crashes
1 serious injury crash
6 other injury crashes (2018-2022)

Disadvantaged communities with **low** disparity

JURISDICTION

– ODOT

CRASH HISTORY (2018-2022)

ROAD DEPARTURE CRASHES

All 10 crashes were road departure crashes. Six involved a collision with a roadside hazard, two involved vehicle rollover, and two involved both.

CURVES

Eight of the 10 crashes occurred on horizontal curves. The remaining two crashes occurred on vertical curves.

SPEEDING

Three of the 4 FSI crashes involved speeding. A fourth speed-related crash resulted in a non-FSI injury.

DARK LIGHTING

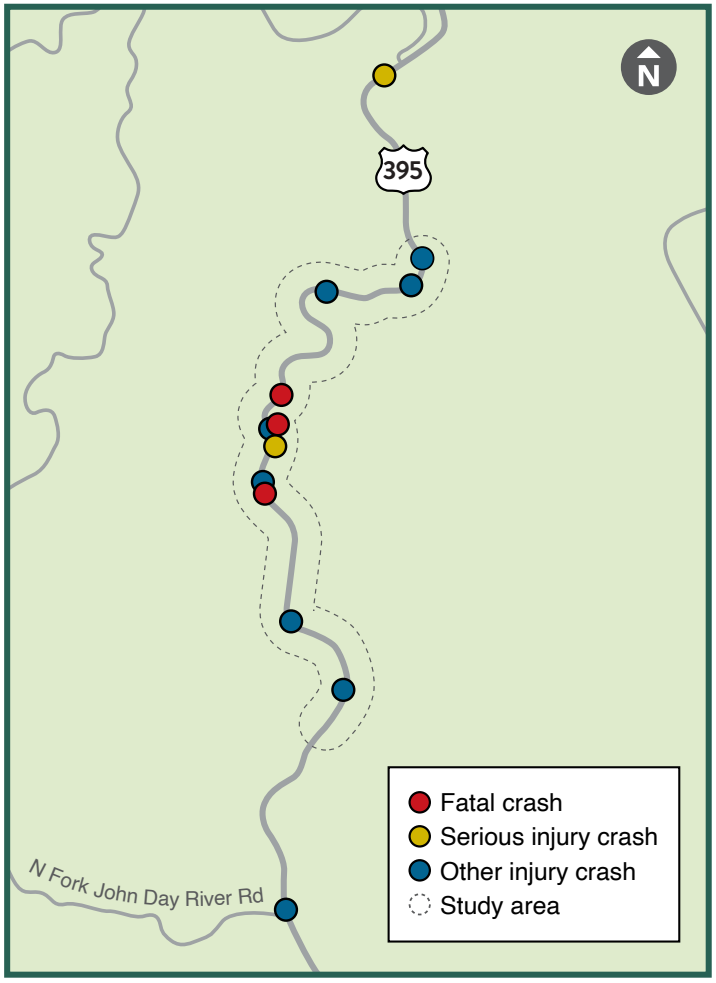
There were two crashes that occurred in darkness. Due to the lack of lighting infrastructure, no street lighting was present at the crash locations.

MOTORCYCLE CRASHES

Three of the crashes involved motorcyclists, who are more vulnerable than vehicle occupants.

DIRECTION OF TRAVEL

Eight of the 10 crashes involved southbound vehicles.



COMMUNITY OUTREACH

During community outreach, this corridor was not specifically mentioned.

COST ESTIMATE

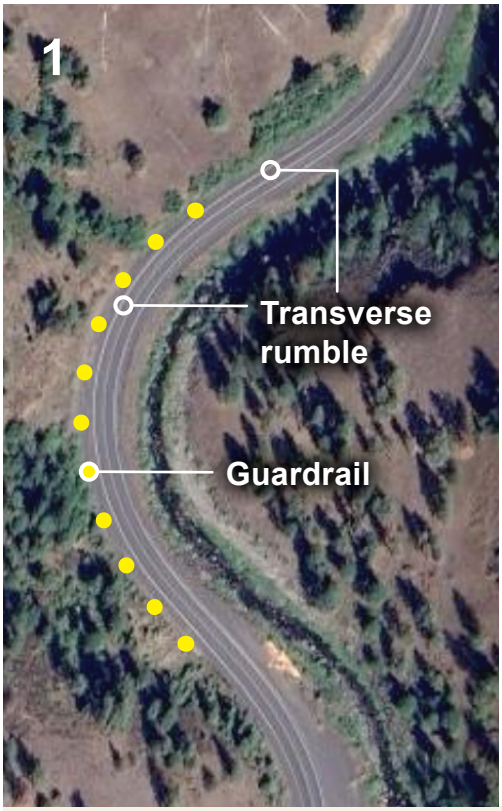
PROPOSED COUNTERMEASURE	COST
Rumble strips	$3k/lane mile
Guardrail	$100/ft. + $25k labor/curve
Chevron signs	$500/sign
Transverse rumble strips	$1,500/set + $500 labor

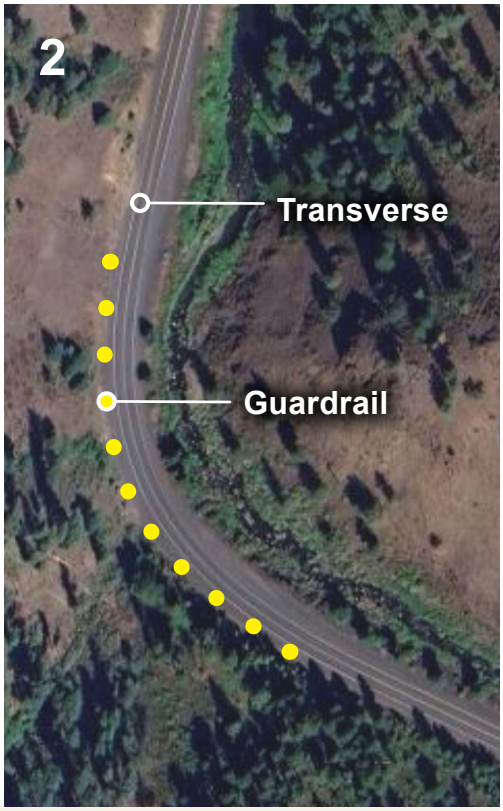
See full countermeasure details on next page

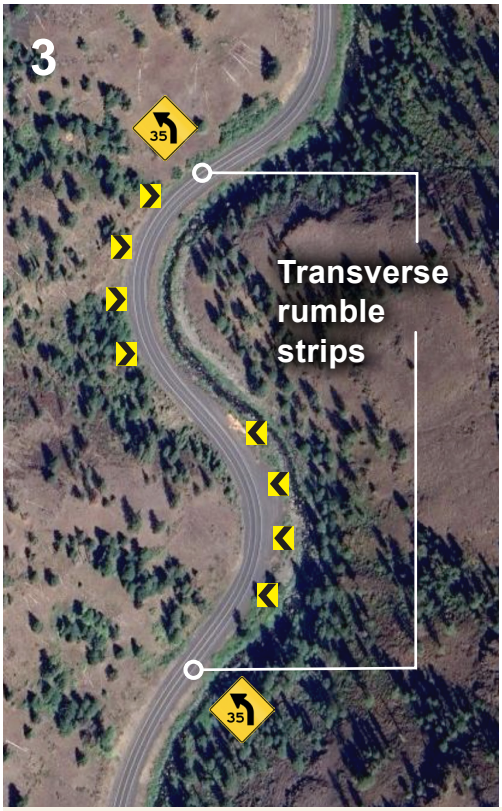
PROPOSED COUNTERMEASURES

CORRIDOR-WIDE:

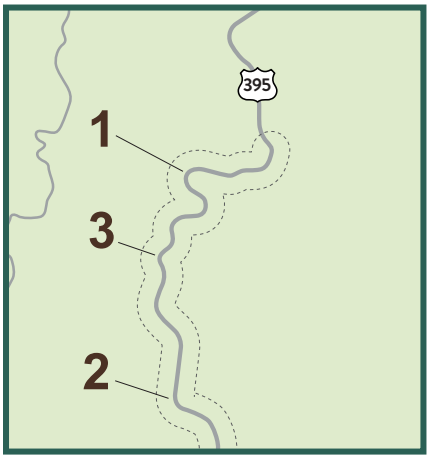
- Add **roadside and centerline rumble strips** to alert drivers when they are encroaching the lane boundary to address road departure crashes along the corridor.
- Review clear zone criteria and **shield roadside hazards** (e.g., slopes and water bodies) when appropriate.
- Add guardrails and/or chevron signs to all major curves where they are not currently present, when applicable.







- **Extend metal guardrail** to reduce risk of rollover.
- **Retrofit rubrail and post caps** on existing guardrail and include on new guardrail installations to increase protection for motorcyclists.



Example of traverse rumble strips



Source: mntransportationresearch.org

- **Transverse rumble strips** (with warning signs and speed feedback signs) manage speeds and increase driver attentiveness by signifying an upcoming change in the roadway geometry. This application of transverse rumble strips requires approval from the ODOT State Traffic Engineer. Transverse rumble strips have been installed on eastbound Westland Road approaching the intersection with Bridge Road.

US 730

Umatilla County line to Umatilla City Limits

CORRIDOR INFORMATION

1 fatality
2 serious injury crashes
14 other injury crashes (2018-2022)

Disadvantaged communities with **high** disparity

JURISDICTION

– ODOT

CRASH HISTORY (2018-2022)

TURNING CRASHES

Seven crashes involving a turning movement, with four of these crashes occurring east of Apricot Ln. Three of the Four crashes involve a vehicle turning left onto US 730 conflicting with a vehicle traveling along US 730.

ANIMAL CRASHES

There were three crashes where drivers struck wild animals or livestock at night in areas with no lighting.

ROAD DEPARTURE

Two crashes involved fixed-objects when the road surface was icy.



COMMUNITY OUTREACH

Concerns from the public along this corridor include...

1. Frequent speeding, especially through towns
2. Unsafe passing; cars often passing in center turn lanes

COST ESTIMATE

PROPOSED COUNTERMEASURE + COST	
Animal crossing signs	$500/sign
Paved median	$125k + $25k design and labor
Street lighting	$25k per light

See full countermeasure details on next page

PROPOSED COUNTERMEASURES

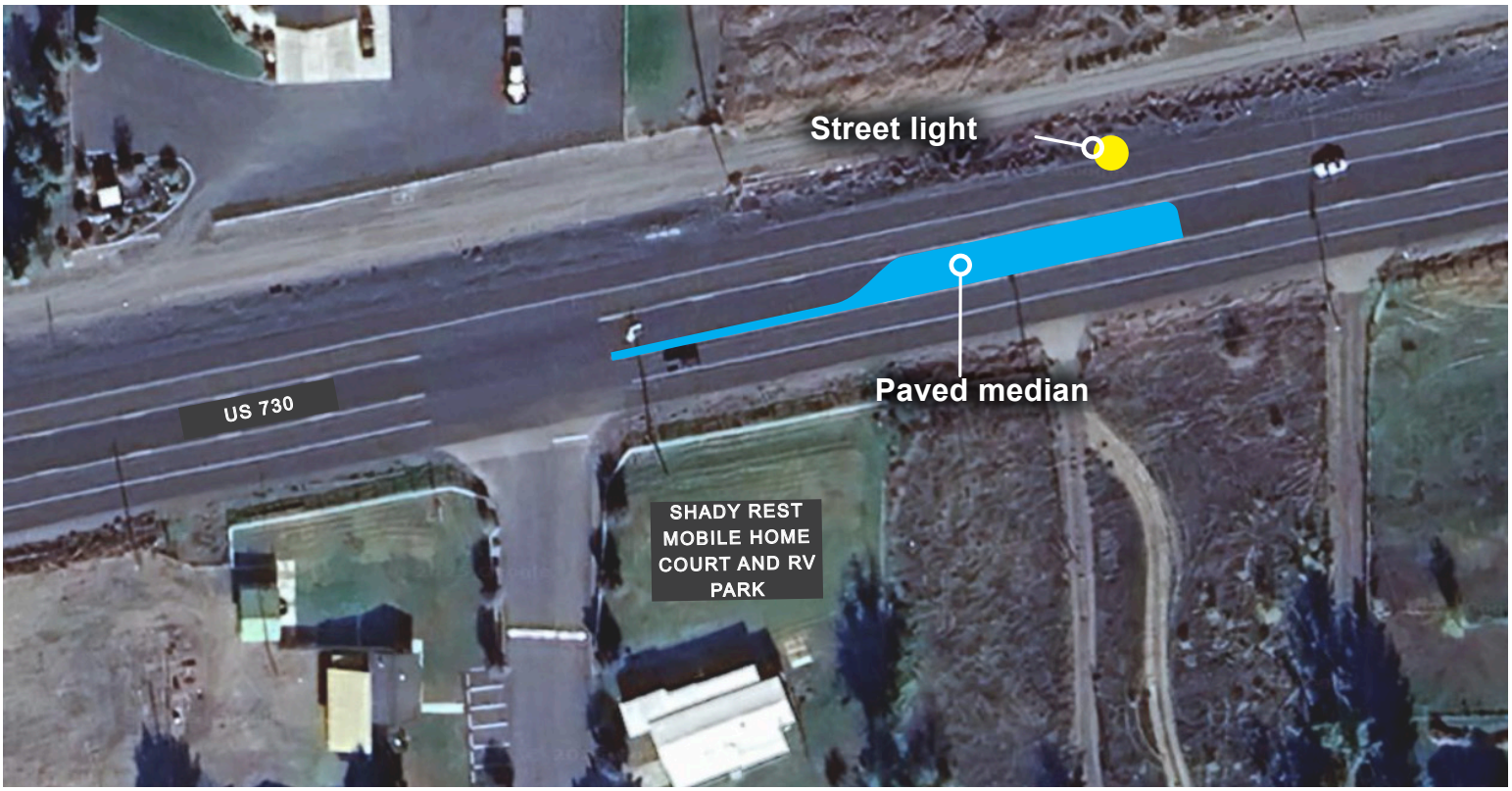
CORRIDOR-WIDE:

- Replace the two-way left-turn lane with a raised median with openings to manage left- and U-turn movements. This will mitigate turning movement and head-on crashes.
- **Add signage** to warn of animals along the length of the roadway.
- Add street lighting along the corridor.



Example of crossing animal sign





OR 11

OR 204 to north of CR 643 / Winn Road

CORRIDOR INFORMATION

1 fatal crash
2 serious injury crash
10 other injury crashes (2018-2022)

Disadvantaged communities with **moderate** disparity

JURISDICTION
– ODOT

CRASH HISTORY

(2018-2022)

LANE DEPARTURE

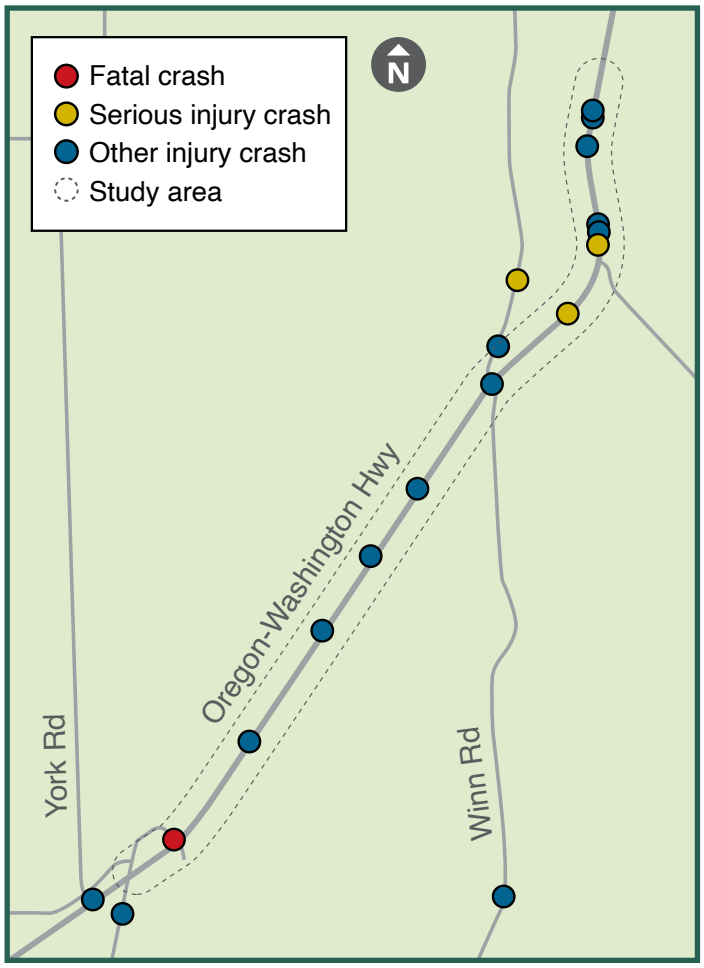
Eleven crashes involved lane departure, including eight crashes involving a fixed-object. These crashes are concentrated on the curve north of Winn Road.

SNOW AND ICE

Seven crashes occurred when ice or snow was on the road surface. These crashes were spread along the corridor.

DRIVER BEHAVIOR

Seven crashes were caused by speed too fast for conditions. An additional 4 crashes were caused by driver inattention or improper driving.



COMMUNITY OUTREACH

Concerns from the public along this corridor include...

1. Avoiding the corridor due to lack of comfort
2. High operating speeds
3. Road surface conditions
4. Lack of bicycling infrastructure

COST ESTIMATE

PROPOSED COUNTERMEASURE + COST	
Rumble strips	$3k/lane mile
Guardrail reflectors	$250 each
Ice alert signs	$1,150 each
Fog line	$2k/mile + $500 labor
Chevron signs	$500-$800/sign

See full countermeasure details on next page

PROPOSED COUNTERMEASURES

COUNTY-WIDE:

- Targeted de-icing operations can be implemented by the County along sections of road that historically have had higher numbers of crashes with icy road conditions
- Road weather information systems alert drivers in the county to inclement conditions

CORRIDOR-WIDE:

- Add northbound edgeline rumble strips to alert drivers when they are encroaching the lane boundary. Centerline rumble strips and southbound edgeline rumble strips are already installed along the corridor.
- Install centerline snow-plowable reflectors or recessed pavement markers.



- **Chevrons** and **guardrail reflectors** also provide delineation and alert drivers of barrier location.
- **Ice detection sensors** paired with dynamic warning signs may be an effective application of ITS on segments with historic patterns of crashes during snowy or icy conditions.



Source: TAPCO

Policy and Process Recommendations

The Umatilla County Safe Streets for All (SS4A) Action Plan provides long-term goals, policies, and near-term strategies to enhance safety for all Umatilla County roadway users. County policies, processes and guidelines set intentions and shape daily actions. To advance a culture of safety and a Safe System Approach, it is important that transportation safety is embedded and integrated into policies, processes, and guidelines.

This memorandum is based on a review of key County documents including those currently in development to support the update of the County's Transportation System Plan (TSP) such as Technical Memorandum #1. As the SS4A Action Plan and the TSP are being developed and updated concurrently, the timing provides a unique opportunity to ensure safety policies and procedures are included in the updated TSP where appropriate.

In preparing these recommendations, the team coordinated with different County departments and the Project Advisory Committee to solicit feedback and understand what can feasibly be implemented based on the County's resources. The team considered this feedback to develop the policy and process recommendations with an understanding of the rural nature of the County's road network, small staff size, and limited resources to manage, operate, and maintain the County's road network.

The following sections summarize the recommended changes to policies, plans, guidelines and\or standards to better prioritize safety in the future.

POLICY AND PLANS

The Umatilla County TSP identifies the County's long-term vision of the transportation system in the County. The TSP has policy guidance as well as a list of priority projects in the County. As noted, the TSP is being updated concurrently with the SS4A Action Plan. The TSP supports the Community Development Code which informs how land is developed in the County.

There are several guiding documents that impact transportation safety in Umatilla County. Complying with updates to those documents are effectively changes in policy, but it would be impractical to create a comprehensive list. An example of this is the Manual on Uniform Traffic Control Devices (MUTCD), which is the federal document that prescribes standards for traffic control devices. When the State of Oregon adopts the MUTCD, then it becomes the standard for traffic control devices in Umatilla County.

MODIFY TRAFFIC IMPACT STUDY GUIDELINES

Ensure the County's Development Code, and the TSP have language that ensures that private developers complete a safety evaluation as part of their Traffic Impact Analysis. Currently developers are required to mitigate impacts related mobility such as not meeting level of service targets. Developers would mitigate for safety deficiencies in addition to capacity/mobility deficiencies.

ESTABLISH A POLICY TO CONSIDER ROUNDABOUTS

Ensure the TSP and the County's project development process includes a policy to consider roundabouts as a method of intersection traffic control when an improvement to an intersection is being contemplated. Roundabouts have been found to reduce fatal and serious injury crashes and total

crashes when compared to minor approach stop controlled intersections and traffic signals. Any evaluation would consider costs and right-of-way impacts.

Roundabouts are identified by the Federal Highway Administration as one of its Proven Safety Countermeasures.

ESTABLISH AN ACCESS MANAGEMENT POLICY

Include an access management policy that aligns with national guidelines and best practices, for access control, spacing, and design. Appropriate access spacing and design based on the facility type and speed can reduce crashes for all modes and improve mobility. The policy would be developed as part of the TSP and incorporated into the County's Development Code.

Corridor Access Management is identified by the Federal Highway Administration as one of its Proven Safety Countermeasures.

SUPPORT BICYCLE AND PEDESTRIAN FACILITIES

Ensure the TSP, Community Development Code, and the County's project development process supports the implementation of bicycle and pedestrian facilities where appropriate. The TSP will identify roadway standards that will identify where bicycle and pedestrian facilities are appropriate, and the type of facilities that are appropriate for various classifications of roadways. The TSP will also include the location and priority of separated trails and multi-use paths.

In addition to supporting the implementation of planned bicycle and pedestrian facilities, the County should review other capital projects to ensure that appropriate bicycle and pedestrian infrastructure is added where feasible. This aligns with ODOT's Great Streets Program.

GUIDELINES, PROCEDURES, AND STANDARDS

Guidelines and procedures are used to inform the day-to-day actions of County staff. By incorporating guidelines and procedures into its work processes, the County has the ability to make advancements in transportation safety. The following are recommendations to the County.

CONDUCT AN ANNUAL DATA REVIEW OF VEHICLE SPEEDS

The County will conduct an annual review of speed data on its key corridors to identify the top 10 key corridors where speeding is most prevalent. This could be defined by the number of high-end speeders, or where the 85th percentile or 50th percentile speeds significantly exceed the posted speed limit (e.g., by 11 mph or more).

There are a variety of data sources that could be used to identify these corridors. The data sources include manual spot speed studies by radar or laser, data gathered remotely by speed collection devices such as those attached to a speed radar trailer, or third-party speed data.

The data would be used to inform law enforcement priorities for the Umatilla County Sherrif's Department, prioritize the deployment of the County's speed radar trailer, support the inclusion of speed management elements such as driver feedback signs, transverse rumble strips and or enhanced signing, in project selected for implementation.

MEASURE THE EFFECTIVENESS OF THE SPEED RADAR TRAILER

The County has a speed radar trailer that is regularly deployed on key corridors based on public input and complaints. It is recommended that the County apply a more data-driven approach in the future based on the collected speed data mentioned above. In addition, it is recommended that County staff monitor the effectiveness of the speed radar trailer. This can be completed by completing upstream and downtown speed measurements or before and after speed measurements. Before and after speed measurements may be completed via spot speed analysis or using 3rd party speed data.

Studies have shown that dynamic speed feedback signs like the County's radar trailer are effective at reducing the mean speed, 85th percentile speeds, and the number of people speeding.

ACCESS MANAGEMENT STANDARDS

To compliment the access management policy described previously, it is recommended that the County develop a set of design standards that would apply to County projects as well as improvements in the right-of-way by developers mitigating their impacts.

DEVELOP PROCESS FOR ESTABLISHING SAFETY CORRIDORS

Oregon House Bill 21545, passed in 2025, allows counties to designate road segments as Safety Corridors allowing for increased traffic fines (amount varies depending on the type of violation). In addition to specific roadway signing identifying the corridor and increased fines, Safety Corridors are often paired with increased enforcement activities, public education campaigns, and low-cost safety improvements. Prior to designating a Safety Corridor, the County is required to develop a set of objective criteria for designating a corridor as well as establishing requirements for community engagement, public outreach, enforcement, investments, and engineering improvements.

Performance Metrics

The Umatilla County Safe Streets for All (SS4A) Action Plan includes an evaluation of potential performance measures regarding transportation safety. Performance measures are used to evaluate progress towards completing actions identified in the Action Plan, reducing or eliminating fatal and serious injury crashes on Umatilla County-owned roadways, and evaluating the success of the County and its partners in implementing this plan.

SS4A Plans that are compliant with Federal Highway Administration standards need to include performance measures. Targets for the measures may be identified but are not required.

The performance measures should address emphasis areas and the elements of a safe system. As a reminder, emphasis areas and the Safe System Approach (SSA) elements are listed in Table 1.

TABLE 1: UMATILLA COUNTY EMPHASIS AREAS & SSA ELEMENTS

EMPHASIS AREAS

- IMPAIRMENT
- ROADWAY / LANE DEPARTURE
- URBAN TRANSITION AREAS
- SEATBELT USAGE
- INTERSECTIONS, PARTICULARLY NEAR URBAN AREAS

SAFE SYSTEM APPROACH ELEMENTS

- SAFE ROAD USERS
- SAFE SPEEDS
- SAFE ROADS
- SAFE VEHICLES
- POST-CRASH CARE

Measuring performance is typically categorized by two types of metrics – outputs and outcomes. This technical memorandum describes the potential performance measures the County will use to judge the success of TSAP. The memo will also discuss performance measures that will be supported by technology and may be evaluated in the demonstration phase of the plan.

OUTPUT MEASURES

Output measures are focused on effort and often include the number of installations or activities completed. Typical traffic safety output measures include installation of infrastructure treatments and enforcement or education-related activities. These measures are often easy to quantify through data collection, however the result is not measured directly.

Examples of output measures are:

- Number of roundabouts installed
- Number of intersections receiving safety treatments
- Number of dynamic speed feedback signs installed
- Number of automated speed enforcement cameras/automated enforcement of school zone speed limits
- Miles of new bicycle and pedestrian infrastructure

- Miles of rumble strips/high visibility pavement markings installed
- Number of curve warning signs installed
- Miles of clear zones and recoverable roadside environments constructed
- Number of road safety projects programmed or constructed
- Number of pedestrian crossing improvements installed
- Dollars invested in safety projects and programs
- Percent of safety funding allocated to areas with high or medium-high disadvantaged community designations
- Number of outreach and education efforts to encourage safe road user behaviors

OUTCOME MEASURES

Outcome measures can quantify the effect of safety activities; however, the data for these measures is often lagging and it is not always possible to make a one-to-one comparison between an activity and output. However, it is important to measure and monitor outcomes to confirm the effectiveness of outputs and the County's overall progress in reaching a goal of zero fatalities and serious injuries.

Example outcome metrices include:

- Number of fatal and serious injury crashes (total)
- Number of fatal and serious injury crashes (by crash type or emphasis area)
- Number of fatal and serious injury crashes (by mode)
- Proportion of fatal and serious injury crashes involving risky behaviors
- Average emergency response time
- Before and after crash experience at locations where treatments are installed

SELECTING PERFORMANCE MEASURES

The SS4A program requires that the TSAP include performance measures including, at a minimum, outcome data (e.g., number of fatal and serious injury crashes) that will be tracked and shared publicly each year. However, there is no minimum or maximum number of performance measures required by SS4A, nor is there a requirement for short term or long-term targets to be established for each measure.

Each agency should choose the number and complexity of performance measures that best match their available resources and desired level of implementation. Selecting a single measure may result in an inaccurate assessment of the County's overall efforts. Selecting a mix of output and outcome measures can help capture short-term progress since outcomes (crash data) are a lagging metric. However, each measure requires underlying data as well as staff resources to monitor and report on progress, which may limit what is feasible and practical to track over time.

PROPOSED OUTPUT MEASURES

While there are many performance measures to choose from, it is important to focus on a few measures that the County can track and make progress on, and that reflect the County's highest safety priorities. It is recommended that the County select up to five of the following measures.

OUTPUT MEASURES

OP1: NUMBER OF INTERSECTIONS RECEIVING SAFETY TREATMENTS

This measure is a count of intersections receiving safety treatments annually. Safety treatments could include the Systemic Safety Treatments such as sign upgrades or capital improvement such as installing a roundabout. The measure would included County Road intersections and County Road intersections with state highways. This would support the emphasis area of Intersections, and the safe system approach element of Safe Roads.

OP2: NUMBER (MILES) OF ROAD DEPARTURE TREATMENTS

This measure would be a count of the number of lane miles of treatments for road departure. This would include the number of miles of treatments such as rumble strips (both center line and shoulder), high-performance pavement markings and raised recessed pavement markers. This measure would be conducted annually. This measure would support the emphasis area of Roadway/Lane Departure and the safe system approach element of Safe Roads.

OP3: NUMBER OF CURVES WITH SIGNING IMPROVEMENTS

This measure is a count of curves treated with signing improvements. The improvements could include new advance curve warning signs, updated or new speed riders, new chevrons, new large arrows or enhancing existing signing. This measure would support the emphasis area of Roadway/Lane Departure and the safe system approach element of Safe Roads.

OP4: NUMBER OF DYNAMIC FEEDBACK SIGNS INSTALLED

This measure is a count of the number of permanent dynamic speed signs installed annually. This would support the emphasis area of Urban Transition Area, and the safe system approach element of Safe Speeds and Safe Road Users.

OP5: PERCENT OF SAFETY FUNDING ALLOCATED TO DESIGNATED DISADVANTAGED COMMUNITIES

This measure tracks the percentage of safety funding allocated to areas with high or medium-high disadvantaged community designations. The measure would help ensure the County was making safety investments in communities with historic disadvantage.

OUTCOME MEASURES

OC1: NUMBER OF FATAL AND SERIOUS INJURY CRASHES (REQUIRED)

This measure is a count of number of fatal and serious injury crashes annually and is a required performance measure by SS4A. The measure will help identify the effectiveness of safety treatments in the County, but may also be influenced by confounding factors like vehicle miles traveled and societal trends. For example, increasing safety technology in vehicles can reduce the likelihood and severity of a crash, but associated increases in distraction may contribute to an increase in crashes.

OC2: NUMBER OF FATAL AND SERIOUS INJURY CRASHES BY EMPHASIS AREAS

This measure is a count of number of fatal and serious injury crashes annually by the emphasis areas.

- Impairment
- Roadway/Lane Departure
- Urban Transition Areas
- Seatbelt Usage
- Intersections, Particularly Near Urban Areas

The measure will help identify the impacts of specific safety treatments on the emphasis areas. For Impairment and Seatbelt Usage a decrease in crashes could suggest a positive impact from safety messaging and enforcement efforts.

OC3: NUMBER OF BEFORE AND AFTER STUDIES OF SAFETY TREATMENTS

This would involve a before and after evaluation of a specific safety treatment or project using three to five years of before and after crash data, or using more timely surrogate datasets described.

OC4: NUMBER OF BEFORE AND AFTER STUDIES OF DRIVER SPEED FEEDBACK SIGNS

This measure would assess the effect of trailer mounted and permanent driver feedback signs. Before and after speeds assessment could be conducted by spot speed measurements with a laser or radar or could be conducted using third-party speed data.

SUPPORTING TECHNOLOGY AND DATA

Use of technology and innovative datasets can allow for much more efficient, effective, and timely evaluation of safety enhancements. Traditional crash data is not available for years after a treatment is implemented. Surrogate datasets, such as those described below, can sometimes be studied within just a few days or weeks of installation.

3RD PARTY SPEED DATA

3rd Party Speed Data can be used to evaluate the effectiveness of specific speed management techniques such as the deployment of temporary and permanent driver feedback signs, transverse rumble strips and changes in the speed limit. Typically, the data is acquired through a subscription-based service. The user can identify roadway segments and times to evaluate speeds. Data is derived from a subset of travelers using navigation systems and applications.

HARD BRAKING DATA

Hard Braking Data is proved by on-board Original Equipment Manufacturers (OEM) through a third party. The data can be used to evaluate curve, road departure, and intersection treatments. Ideally, effective treatments would provide warnings to motorists so they could adjust their speed before having to harshly brake to avoid a crash. This measure is a surrogate for crash data.

VIDEO ANALYTICS

Video Analytics use cameras supplemented by Artificial Intelligence (AI) and Machine Learning (ML) to identify events that may lead to crashes such as near misses between vehicles, near misses between vehicles and pedestrians or bicyclists or red-light running at traffic signals Video analytics may be used to help prioritize locations for treatment or test the effectiveness of treatments.

This measure is a before and after evaluation of safety treatments using three to five years of before and after data. The data requirements of the measure mean that a full assessment of the impact of a safety treatment will not be known for several years.

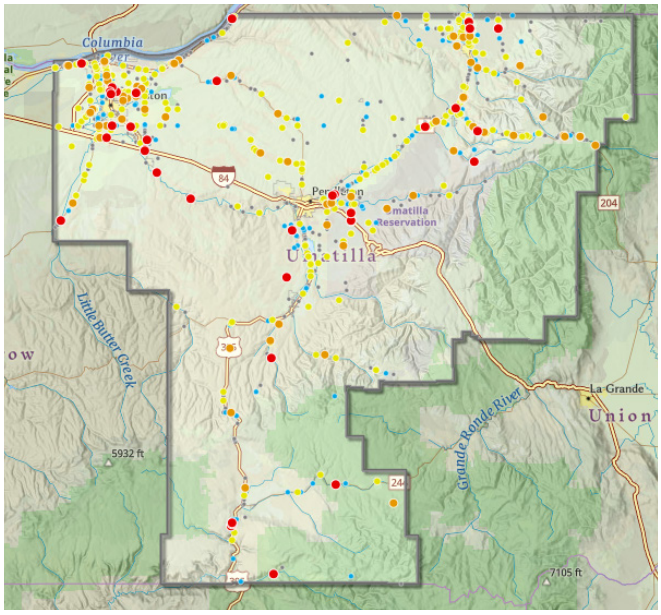
OEM COLLISION AVOIDANCE DATA

OEMs can provide data via a third-party that would provide data when collision avoidance systems on vehicles was activated. This could be used to evaluate the effectiveness of lane departure treatments. Before and after data of lane departure warnings would be helpful for this type of evaluation. This measure would assess the effect of trailer mounted and permanent driver feedback signs. Before and after speed assessments could be conducted using third-party speed data.

OEM COLLISION AVOIDANCE DATA

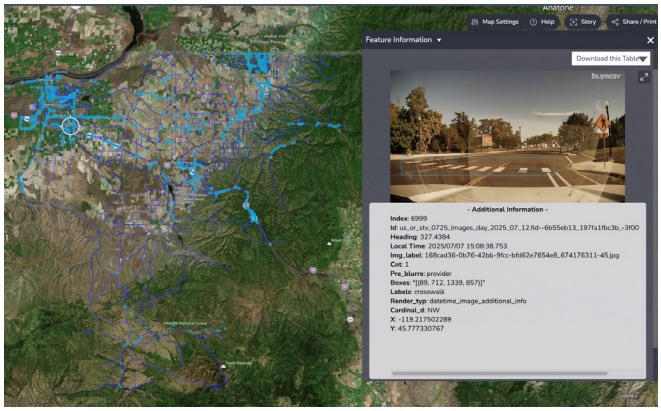
OEMs can provide data via a third-party that would provide data when collision avoidance systems on vehicles was activated. This could be used to evaluate the effectiveness of lane departure treatments. Before and after data of lane departure warnings would be helpful for this type of evaluation.

Additional Strategies



1 GEOSPATIAL INFORMATION SHARING

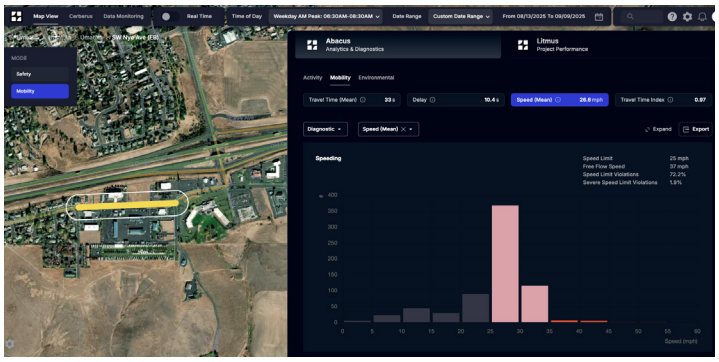
In addition to implementing new policies and constructing new transportation safety-focused projects, Umatilla County can help bolster the safety of roadway users by helping communicate existing and developing conditions. As such, the project team is currently developing a dynamic and interactive web-based mapping application to help illustrate the findings of the SAP and help enable future efforts in sharing vital information to traveler safety. This can include, but is not limited to, identifying High Injury locations and corridors, communicating dynamic road closures and evacuation routes, and tracking the County's progress in reaching our stated crash frequency and severity data.



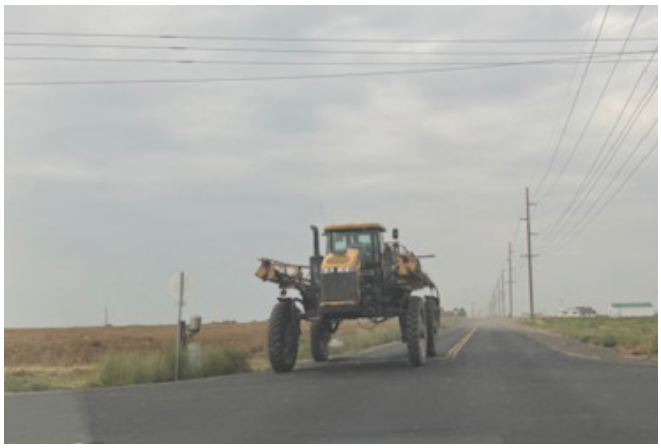
2 INVENTORY MANAGEMENT

Umatilla County's ability to respond to existing and developing crash risks is limited by its ability to accurately assess existing conditions throughout the county. Regulatory road signage and traffic control devices are integral assets in helping passively moderate traffic conditions and mitigate crash risk. The County is currently evaluating partnerships with third party vendors to constantly track and update the status of road signs, traffic signals, street lights, crosswalks, and other roadways assets through dashboard cameras installed on municipal vehicles. Pending the results of this evaluation, the County can save substantial time and money in addressing missing or damaged assets and in restoring roads and highways to proper conditions in response to inclement weather or severe crashes.

3 DYNAMIC TRAFFIC MONITORING



Crash risk is dependent on the in-the-moment operating conditions of a given location or corridor. When vehicle volumes or speeds spike to levels above design conditions, crash frequency and severity trend upwards. Tracking the current operating conditions of the entire County is a tremendous endeavor that would traditionally require substantial installation, operations, and maintenance costs in order to accurately report burgeoning safety concerns. Instead, the County is partnering with data analysis companies to help communicate traffic conditions related to average vehicle speeds, total vehicle volumes, and incidence of freight vehicles on non-freight streets to help identify where and when interventions or improvements are required. This data is provided by opt-in, vehicle-based information systems that are depersonalized and treated in aggregate to ensure that road users' information is not being collected or shared in any way. Based on these findings, the SAP may later develop strategies to rapidly respond to leading indicators in operating conditions prior to the develop of potentially unsafe driver behavior.



4 EXPANSION OF MODAL PLANS

Historically, comprehensive safety action plans such as this rely on traditional roadway user mode categories such as pedestrians, bicyclists, general purpose vehicles, freight, and transit. With the development of a multitude of new modal options and the development of existing modal options to meet road operating standards, the County must develop new strategies to be mor effective at providing appropriate designs and operating conditions for all roadway users. In 2025, the Umatilla County Board of Commissioners is in the process of evaluating the permissibility of All Terrain Vehicles and Utility Terrain Vehicles (ATVs and UTVs, respectively) operating on the existing road network. Though these vehicle types account for less than half of one percent of all reported crashes in all of Umatilla County, they also demonstrate a near 50% incidence of injury or severe injury when reported. As this is a developing policy, this document does not currently take this mode type into consideration. However, the SAP does promote the expansion of all modal types into future evaluations by Umatilla County and the upcoming Transportation Systems Action Plan to ensure that all persons can safely use County roads with any County approved mode of transportation.

UMATILLA COUNTY

est. 1862

Board of Commissioners