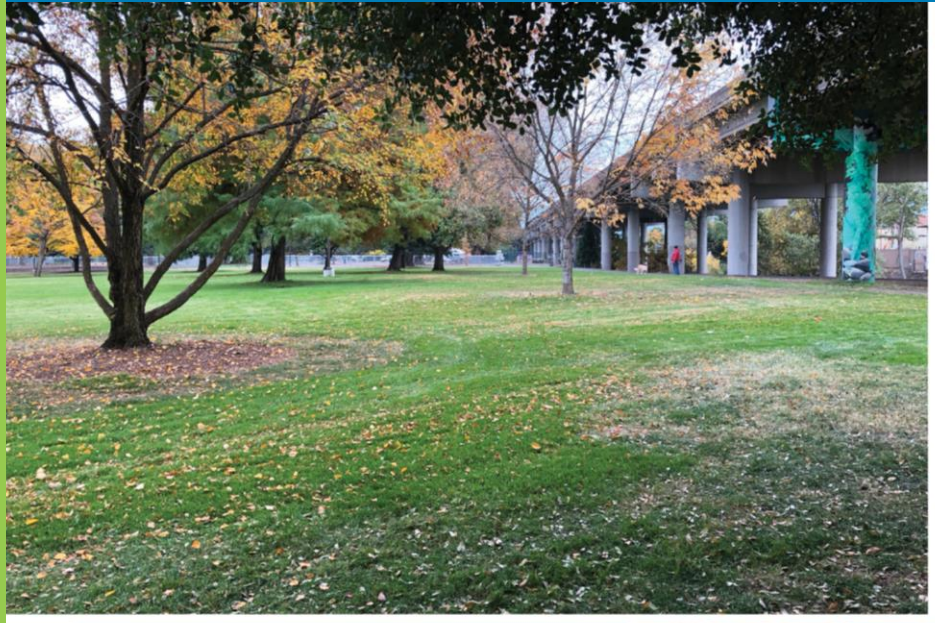

CITY OF MEDFORD
TRANSPORTATION SAFETY ACTION PLAN

A Vision for Zero Fatal and Serious Injury Crashes

Draft 2026

Acknowledgements

The City of Medford would like to thank the project's Advisory Committee, Medford Transportation Commission, Planning Commission, City Council, and all members of the public that participated in outreach events and surveys and provided insights and feedback. The City of Medford would also like to thank the Federal Highway Administration for providing grant funds to support the development of this TSAP.

City Team

- Karl MacNair, Medford Transportation Manager
- Carla Paladino, Principal Planner, Planning Department
- Tanner Fairrington, Battalion Chief - Fire Marshal, Medford Fire Department

Consultant Team

Kittelson & Associates, Inc.

- Matt Bell, Project Manager
- Amy Griffiths, PE, Deputy Project Manager
- Poppy Yang, PhD, Transportation Analyst
- Rosalie Zuckermann, Technical Writer
- Mikayla Montoya, Graphic Designer

Safe Streets Research & Consulting

- Rebecca L. Sanders, PhD, RSP_{2B}
- Brian Almdale
- Alma Fargason, AICP
- Jessica Shoner, PhD

3J Consulting

- Steve Faust, AICP
- Anaïs Mathez, AICP
- Jasmyne Schierbaum

Advisory Committee

- Aaron Ott, Medford Emergency Manager
- Alex Golden, Active Transportation Advisory Committee (ATAC)
- Ann Smith, Siskiyou Velo
- Ashley Bryers, Federal Highway Administration (FHWA)[1]
- Brandon Kynsi, Transportation Commission
- Chris Woods, FHWA[1]
- Edem Gomez, Rogue Valley Transit District
- Harlan Bittner, Siskiyou Velo
- Jamee Harrington, Rogue Community College
- James Philp, Jackson County Roads
- Jasmine Harris, FHWA
- Jeremiah Griffin, Oregon Department of Transportation (ODOT)
- John Lazur, ODOT
- Johnathan Jones, Providence
- Julie Rossi, American Association of Retired Persons
- Julie Van Horn, Medford School District[1]
- Kevin Harris, Emergency Communications of Southern Oregon (ECSO) 911
- Lara McCormick, Commute Options
- Lucas Shauffler, ODOT
- Mark Gibson, OR Trucking Association
- Mike Benson, Oregon State Police
- Patrick Rochon, Providence
- Sarah Steahly, Mercy Flights
- Sergeant Steve Furst, Medford Police Department[1]
- Sergeant Ernie L. Whiteman Jr., Medford Police Department
- Vickie Camarena, Cow Creek Tribal Government
- Yazeed Alrashdi, Rogue Valley Metropolitan Planning Organization

[1] Some members of the committee retired or changed job positions during the course of the project. This includes Ashley Bryers, Sergeant Steve Furst, and Julie Van Horn

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DEFINITIONS

Countermeasure: A project or action intended to reduce the frequency and/or severity of one or more crash types by addressing the underlying risk factors associated with specific crash patterns, roadway characteristics, and/or user behaviors.

Disparity: Inequity. People may experience disparities in transportation access because of age, ability, income, language, race/ethnicity, or access to vehicles.

Emphasis Areas: Emphasis Areas refer to roadway users, behaviors, and crash types associated with the most severe crash outcomes and have the greatest potential to benefit from targeted safety improvements. Emphasis areas interact with Risk Factors (below) to help identify and prioritize targeted safety countermeasures.

Equivalent Property Damage Only (EPDO): A type of analysis that follows a Highway Safety Manual methodology for developing a high injury network by identifying the number of crashes that occur and weighting them by the severity of the crash.

Fatal and Serious Injury Crash: Fatal and serious injury crashes are crashes that result in death or life-changing injuries. According to ODOT crash reporting instructions, serious injuries include severe lacerations, broken extremities, crush injuries, skull, chest, or abdominal injuries, significant burns, unconsciousness, and paralysis.

High Injury Network (HIN): The HIN is comprised of segments and intersections with relatively high Equivalent Property Damage Only (EPDO) scores. This network, in combination with risk factors for fatal and serious injury crashes, is used to help identify and prioritize locations for safety countermeasures.

Risk Factors: Risk Factors identify roadway, land use, and environmental characteristics that correlate with fatal and serious injury crashes. These factors generally relate to exposure and operating speeds, which have been identified by FHWA as key contributors to fatal and serious injury crashes.

Safe Streets and Roads for All (SS4A): The Infrastructure Investment and Jobs Act (IIJA) established the SS4A competitive grant program with $5 billion in appropriated funds over 5 years, 2022-2026. Since the U.S. Department of Transportation's page was last updated in January 2026, almost $1.1 billion is still available for future funding rounds.

Safe System Approach: An approach to road safety endorsed by the Federal Highway Administration (FHWA) that expects the road system to be planned, designed, and operated to be forgiving of inevitable human mistakes, so serious injury outcomes are unlikely to occur.

Social Equity Index: The ODOT Social Equity Index shows where vulnerability factors overlap, indicating potential levels of disparity. Transportation decisions have unequally impacted some communities and populations and contributed to reduced access, higher safety risks, and other disparities. Considering the Social Equity Index helps to make investments to address these disparities.

Strategy: A non-infrastructure countermeasure, such as a policy update or an educational program.

Systemic Safety Analysis: Systemic safety analysis is a proactive approach to evaluating a roadway network based on risk factors that correlate with crashes, regardless of whether crashes have occurred at the identified locations. This approach is intended to help address potential risks before they cause harm, rather than reacting to crashes after they occur.

Transportation Safety Action Plan: A comprehensive safety plan aimed at reducing and eliminating serious injury and fatal crashes affecting all roadway users.

Treatment: An infrastructure countermeasure, with systemic or location-specific applications.

Vision Zero: Vision Zero is the goal to eliminate roadway deaths and serious injuries. The Medford City Council adopted an ordinance declaring the goal of zero roadway deaths and serious injuries by the year 2035 as a policy-level commitment to support roadway safety.

Vulnerable Road User: A person who is unprotected by a car or truck when they are traveling on the roadway. For the purposes of this plan, “vulnerable road users” refers to pedestrians and bicyclists. Motorcycles are categorized separately in the plan.

EXECUTIVE SUMMARY

VISION ZERO:

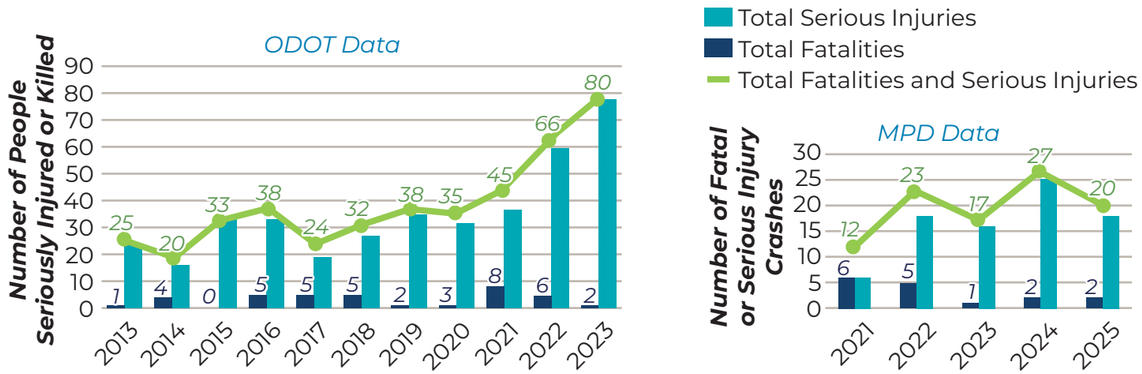
The Medford City Council adopted Resolution No. 2023-75 declaring a goal to achieve zero roadway deaths or serious injuries by the year 2035. This is an ambitious goal that shows the City's strong commitment to improving roadway safety.

WHY DO WE NEED A TSAP?

The number of people dying or experiencing life-altering injuries in Medford has been increasing over the past decade. This is consistent with trends seen at the state and federal level. It is critical to take action through a plan that helps our residents stay safe when driving, using transit, walking, biking, and otherwise getting around Medford.

TOTAL FATALITIES & SERIOUS INJURIES IN MEDFORD

Preliminary Medford Police Department (MPD) crash data indicates that the number of fatal and serious injuries in 2024 and 2025 are similar to recent years. Note that the crash totals are lower than shown in the ODOT data due to differences in reporting scope.



SAFETY ANALYSIS

EMPHASIS AREAS AND RISK FACTORS:

Risk factors identify the roadway, traffic, land use, and environmental characteristics that correlate with fatal and serious injury crashes.

Emphasis areas identify the roadway users, behaviors, and crash types associated with the most severe outcomes and have the greatest potential to benefit from targeted safety improvements. Together, these elements guide the prioritization and implementation of systemic safety strategies.

HIGH INJURY NETWORK:

The ***High Injury Network*** (HIN) identifies streets and intersections in Medford with a disproportionate concentration of fatal and serious injury crashes. Identifying locations on the HIN with overlapping risk factors helps focus safety investments where targeted treatments are likely to provide the greatest safety benefit.

EMPHASIS AREAS:

RISK FACTORS:

SAFETY STRATEGIES AND TREATMENTS:

While it is impossible to remove all risk from roadways, this plan follows the Safe System Approach and identifies strategies and treatments to build in layers of protection in the transportation system that can help save lives. These strategies and treatments focus on the emphasis areas and risk factors across Medford to have the greatest impact.

PRIORITIZATION AND IMPLEMENTATION:

The plan prioritizes countermeasures according to their alignment with plan objectives and their ease of implementation. This considers:

- Costs
- Support
- Emphasis Areas & Risk Factors
- HIN
- Magnitude of potential safety benefits

MONITORING AND REPORTING BACK:

This plan establishes a transparent process to monitor the success of its treatments and strategies, with checkpoints in place to adjust the plan, including implementation and outcome metrics, to better suit the City of Medford's goals as needed.

BASED ON THIS PRIORITIZATION, THERE ARE THREE STEPS MEDFORD CAN TAKE IN THE NEAR TERM TO IMPROVE SAFETY:

IMPLEMENTATION METRIC

- How many safety treatments and strategies have been implemented?

Council Feedback Highlights:

- *Improve transportation safety without creating unintended consequences.*
- *Keep traffic flowing and consider economic impacts.*
- *Use performance metrics to track success and move the needle.*

OUTCOME METRICS

- What changes have there been in the total number of fatal and serious injury crashes?
- What changes have there been to the number of fatal and serious injury crashes in each of the emphasis areas?
- What changes have there been to the percentage of crashes that result in fatal or serious injury outcomes?
- What changes have there been to emergency response and transport times citywide?
- What changes have there been for the rates of fatal and serious injury outcomes from all emergency types (traffic, fire, etc)?

PLAN

1. Introduction

1.1 Leadership Commitment and Goal Setting

Between 2018 and 2022, 24 people died and 192 people experienced life-altering injuries on Medford's roadways. That's an annual average of five fatalities and 38 life-altering injuries each year and it has been increasing over time. Medford needs a path to a safer tomorrow—and their commitment to Vision Zero is part of that path.

Vision Zero

The Medford City Council adopted Resolution No. 2023-75 declaring a goal to achieve zero roadway deaths or serious injuries by the year 2035. This is an ambitious goal that shows the City's strong commitment to supporting roadway safety.

Council Goals

The TSAP aligns with several of the City's Council Goals for 2025-2027. The goals that most closely align with the TSAP include:

Safe & Healthy Community

- Support long-term infrastructure planning that enhances emergency response and evacuation access across the city.
- Continue to prioritize emergency preparedness by strengthening operational readiness through planning, training, and outreach.

Community Planning & Neighborhood Identity

- Engage in the Transportation System Plan (TSP) update process to prioritize infrastructure improvements that enhance long-term connectivity and community development.
- Continue to support and modernize infrastructure throughout the City.

Community Engagement & Communication

- Continue sharing stories about how City investments improve quality of life and community vibrancy through ongoing campaigns.

1.2 What is a TSAP and Why Do We Need It?

A TSAP is a strategic plan that evaluates safety issues on Medford's roadways based on data and community input. It identifies and prioritizes solutions to guide future investment decisions. Having a TSAP in place positions the City for federal and state funding programs like Safe Streets and Roads for All (SS4A). This TSAP was created in alignment with the SS4A self-certification worksheet and positions the City to apply for grant funding through the program.

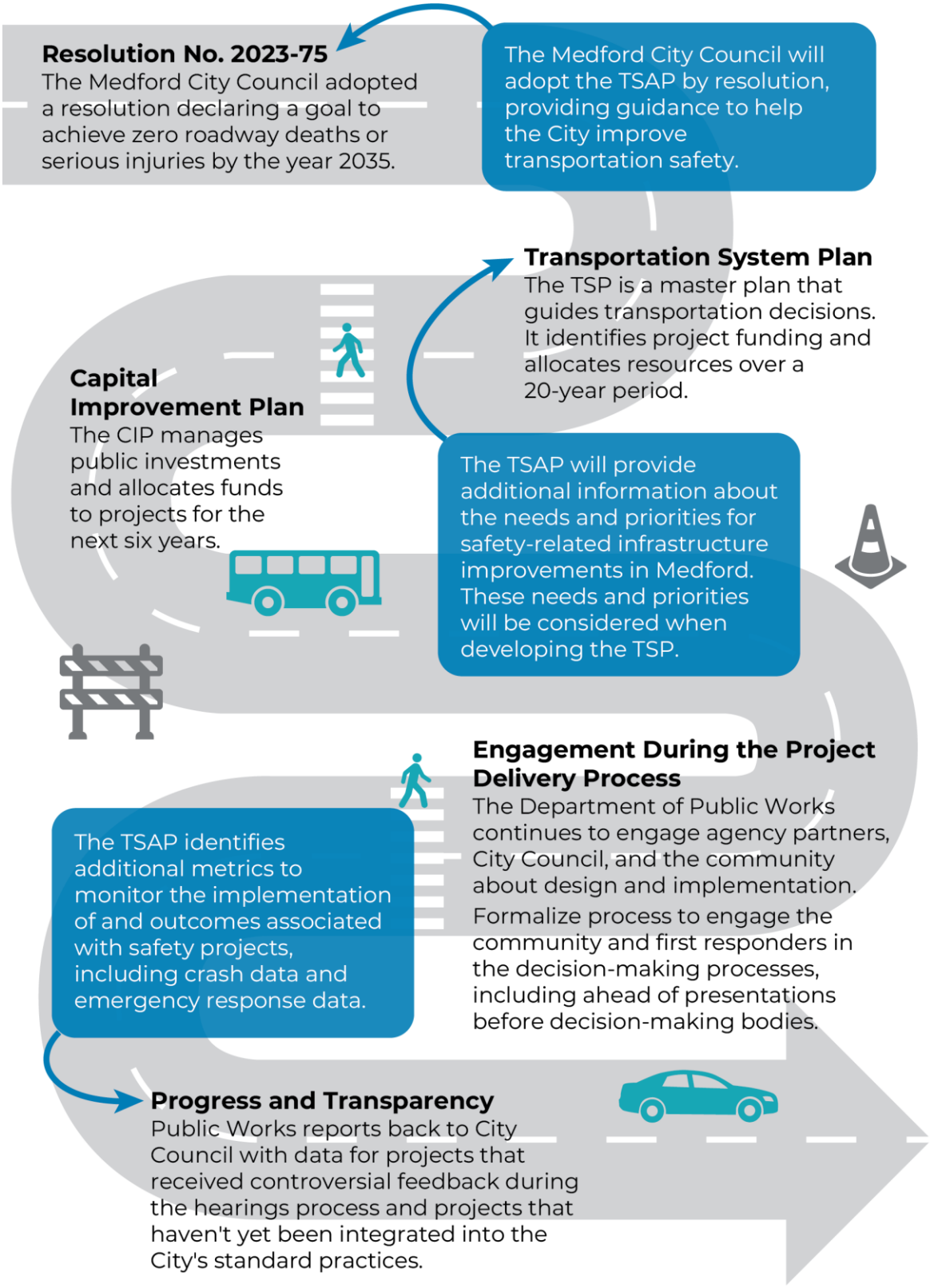
The City's goals for the TSAP are to document roadway safety data and to create and employ comprehensive safety strategies so that the City's adopted goal of zero roadway deaths or serious injuries is reflected in the City's code, design documents, infrastructure projects, programs, and policies.

1.3 How Does the TSAP Relate to the City's Other Plans and Goals?

The TSAP adds to the City of Medford's existing planning framework by aligning with the goals of the City Council (City Council Goals 2025-2027), the Transportation System Plan (TSP), the Comprehensive Plan, the Capital Improvement Plan (CIP), the Natural Hazards Mitigation Plan (NHMP), and the Public Facilities Element (PFE). Through a collaborative, interdisciplinary process, the project team worked diligently to develop balanced solutions and processes that enable multiple priorities to work together in support of the City's goals.

Figure 1 demonstrates how Medford's planning documents and resources work together to identify, prioritize, and fund infrastructure improvements.

Figure 1. The TSAP's Relationship with Other Plans



1.4 Safe System Approach

The Safe System Approach has been used for nearly two decades to help move countries around the world toward the goal of zero roadway deaths and serious injuries. It has proven to be effective, with countries from the Netherlands to New Zealand adopting the approach in a variety of contexts generally seeing decreases of 33% to nearly 70% of roadway fatalities from 2000 to 2019.

The Safe System Approach shifts the roadway safety mindset from simply preventing crashes to preventing injuries and fatalities. Instead of focusing on individual responsibility and improving behavior, the approach puts more emphasis on reinforcing safety through multiple layers and designing for human error so that those mistakes do not result in severe or fatal outcomes.

Figure 2 illustrates the six principles and six elements of the Safe System Approach.[2] The six principles encompass the fundamental beliefs upon which the Safe System Approach is built. A successful TSAP asserts the six principles shown around the outside ring of the graphic as it focuses implementation strategies on the six elements presented in the middle ring. This promotes a holistic approach to safety across the entire transportation system, involving multidisciplinary partners in project, program, and policy efforts

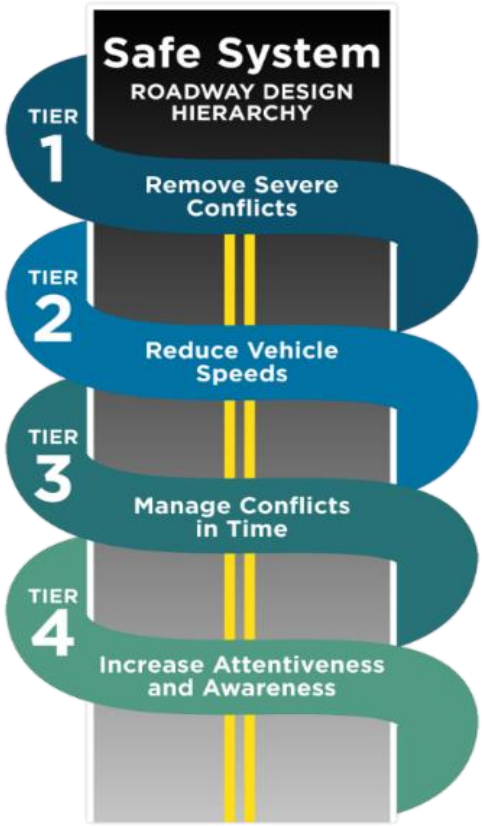
Figure 2. Safe System Approach Elements and Principles (FHWA)

[2] *The traditional Safe System Approach wheel includes Safer People, Safer Vehicles, Safer Speeds, Safer Roads, and Post-Crash Care. Like other communities, Medford has modified this wheel to incorporate Safer Land Use to address the role that land use plays in creating safe transportation systems, specifically, reducing crash exposure by shortening trip lengths, promoting compact, mixed-use development, developing connected street networks, and aligning land use decisions with transportation and safety goals.*

Figure 3 illustrates the FHWA Safe System Roadway Design Hierarchy.[3] This is a tool that characterizes engineering and infrastructure-based treatments relative to their alignment with the Safe System Approach. It helps agencies identify and prioritize strategies and treatments based on their corresponding tier.

Tier 1 primarily addresses design treatments that eliminate or reduce the potential for conflicts. Tier 2 focuses on roadway features and speed-management strategies that reduce crash energy and severity. Tier 3 targets operational and traffic control measures that reduce simultaneous interactions by separating users in time. Tier 4 includes treatments that alert or inform road users of conflicts or hazards, so they can respond safely.

Figure 3. Safe System Roadway Design Hierarchy (FHWA)



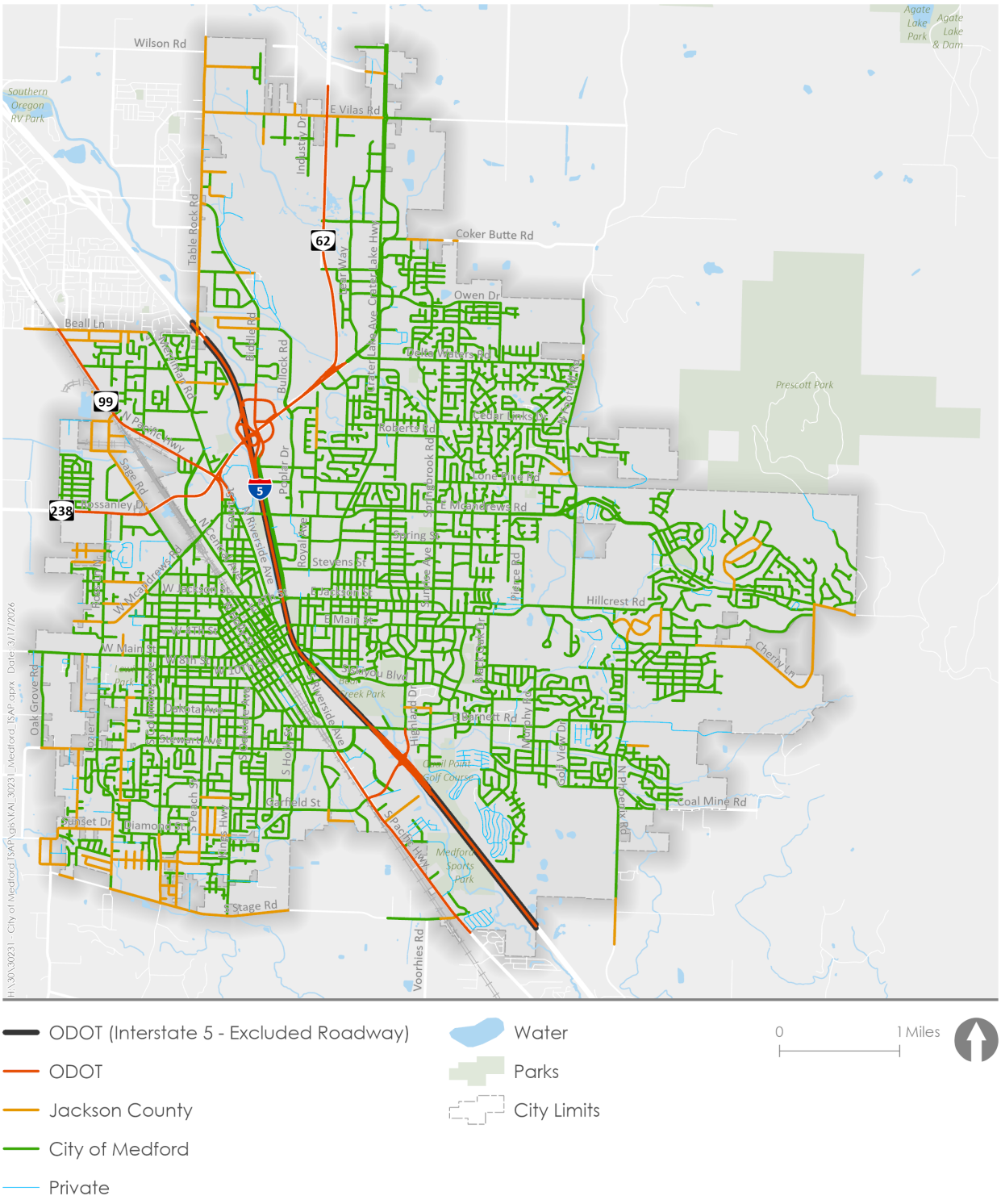
1.5 Study Area

The study area for the TSAP includes all public and private streets located within Medford city limits, except Interstate 5[4], based on the City's available data. The TSAP relies on collaboration with multiple roadway owners, including ODOT, Jackson County, City of Medford, and private entities.

[3] *Source: FHWA Safe System Roadway Design Hierarchy. https://highways.dot.gov/sites/fhwa.dot.gov/files/2024-01/Safe_System_Roadway_Design_Hierarchy.pdf*

[4] *Note that for certain metrics—such as data source comparisons and the 10-year crash trend review—Interstate 5 crashes were included. Most other analyses relied on a five-year dataset, which was fully processed to remove Interstate 5 crashes; the 10-year review was more cursory and did not undergo the same level of cleaning. As a result, Interstate 5 crashes were excluded from analyses such as risk factors, emphasis areas, and High Injury Network development to avoid skewing results toward ODOT-managed interstate priorities rather than improvements on other publicly owned roadways. Footnotes are used in this plan to indicate which charts include Interstate 5 crashes.*

Figure 4. Roadway Maintenance Jurisdiction



1.6 Project Development Process and Planning Structure

The project started with gathering and reviewing available safety data, along with relevant local and regional plans. Next, existing conditions were analyzed to understand where crashes occur most often, what risk factors are correlated with fatal and serious injury crashes, and what emphasis areas present opportunities for achieving the greatest safety benefit to inform countermeasure development and prioritization. This information guided the development of targeted, data-driven treatments and strategies intended to reduce the potential for severe crashes across Medford's transportation network.

To support the transition from planning to implementation, this TSAP outlines steps for putting these improvements into action. It guides the City in how to prepare for future funding opportunities and sets measures to track progress and adjust implementation over time.

A multidisciplinary advisory committee was assembled to support the plan's development, with partners from this group responsible for helping implement strategies and treatments and monitor safety outcomes. This committee included representatives from local community advocacy groups, partner agencies, emergency responders, and schools.

Figure 5. TSAP Development Process

2. Community Engagement

2.1 Goals and Strategies

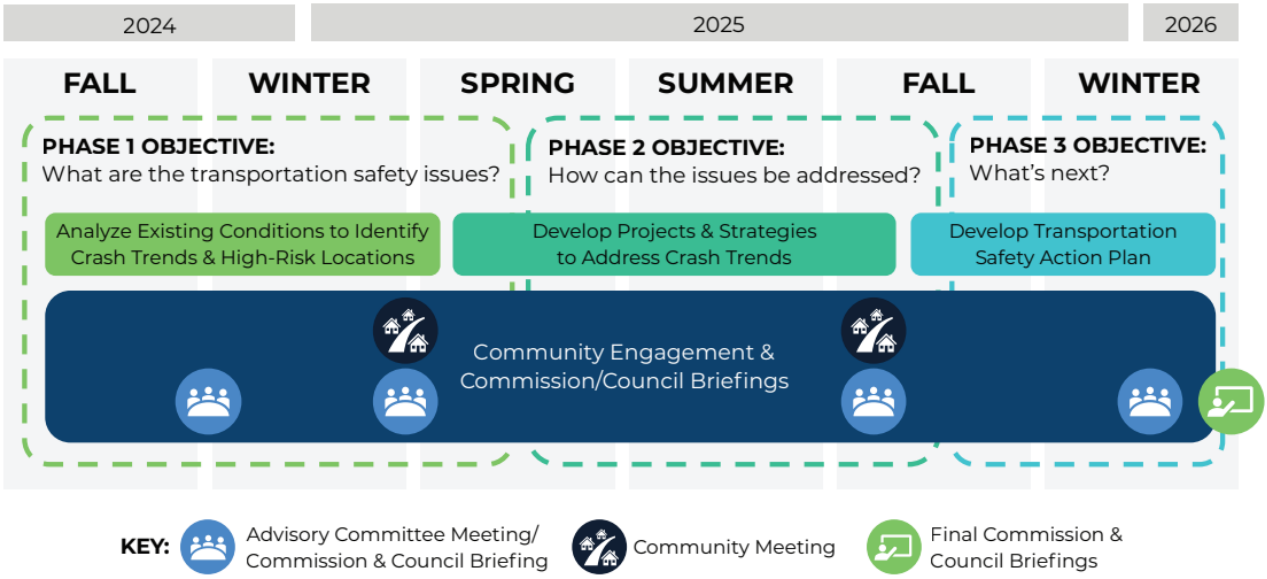
Input from local stakeholders and the public is an essential part of this TSAP, helping shape a plan tailored to Medford's local needs and priorities. Engagement activities complemented technical analyses by providing local context, identifying everyday safety concerns, and helping ensure that recommended strategies reflect how Medford's transportation system is experienced by people who use it.

Community engagement was structured in three phases designed to gather feedback at critical stages of the planning process. Together, these phases informed the identification of safety issues, the development and refinement of strategies, and the transition to implementation, consistent with the Safe System Approach's emphasis on shared responsibility and layered safety solutions. The engagement phases included:

- **Phase 1:** Focused on gathering input on existing conditions and transportation safety concerns. Community members helped identify specific locations where they experience safety challenges, as well as behaviors contributing to crash risk (e.g., inattention, disregarding traffic control, and speeding).
- **Phase 2:** Concentrated on collecting feedback on proposed countermeasures. Input during this phase helped test the feasibility of potential solutions, refine approaches to applying them in different contexts, and build consensus and community support.
- **Phase 3:** Identified and discussed next steps for implementation, including how strategies can be advanced over time and how progress can be communicated back to the community.

Additional information on the methods used to engage the community throughout the project, as well as summaries of feedback from the two community meetings, is available in ***Attachment A: Public Engagement Summary***

Figure 6. TSAP Project Timeline and Engagement Phases



2.2 Engagement Methods

The TSAP engagement strategy was designed to reach a broad cross-section of the Medford community and to capture technical and non-technical perspectives on transportation safety. Multiple engagement methods were used to provide opportunities for participation and ensure accessibility. Engagement methods include:

- **Advisory Committee:** A project advisory committee met regularly throughout the planning process to review and provide feedback on project materials. The committee helped ensure that proposed strategies were consistent with other local and state plans and policies and reflected the interests and perspectives of key stakeholder groups. This committee included representatives from schools, emergency services providers, industry and business, service nonprofits and advocacy groups, county and state agencies, and elected and appointed officials.
- **Engagement activities:** Activities focused on broader community participation beyond the advisory committee. These included conversations with community members at several local events, two online open houses (during Phase 1 and Phase 2) and one formal in-person open house.
- **Communication tools:** Engagement was supported through a project website, social media, media outreach, e-blasts, and public information materials.

2.3 Engagement Summary

2.3.1 How Community Input Was Used

Feedback from the community outreach events was used throughout the TSAP development process to inform technical analysis and support decision-making. Specifically, community input was used to:

Community Input Highlight:
The community provided strong support for improving pedestrian crossings. This increased its prioritization in this plan.

- Better understand the transportation safety needs across the community and at specific locations
- Validate and refine priority safety concerns identified through data analysis, including emphasis areas and risk factors associated with severe crashes
- Prioritize treatments and strategies with public support and identify opportunities to refine or adjust site-specific projects
- Understand how to focus future education, and how to report on progress back to the public to provide a transparent process

2.3.2 Phase 1 Engagement Summary

Community input during Phase 1 focused on where people experience safety concerns and what behaviors or conditions contribute to risk. Common themes included:

- Pedestrian and bicyclist safety concerns, particularly near schools, parks, downtown, and commercial areas, including missing or inadequate crossings, sidewalks, and bicycle facilities
- Speeding, inattention, and failure to obey traffic control as frequently cited contributors to unsafe conditions across all parts of the city
- Complex, congested, or oversized intersections that create confusion, delay, and increased crash risk for all users
- Insufficient lighting and visibility, especially at crossings and along high-traffic corridors

Phase 1 Engagement at a Glance:

- Engagement focused on identifying safety concerns, behaviors, and locations
- Community conversations with local community groups and advisory boards
- Online mapping survey with approximately 386 comments

- Stressful or uncomfortable conditions for vulnerable users, including children, older adults, and people with disabilities
- Location-specific safety issues concentrated along major corridors and at key intersections, reinforcing patterns identified through crash analysis. For example, many members of the public and the advisory committee highlighted the importance of increasing and improving connections across Bear Creek for people walking and biking.

2.3.3 Phase 2 Engagement Summary

Phase 2 engagement focused on community feedback regarding proposed treatments and strategies, including how and where they should be applied. Key themes included:

Phase 2 Engagement at a Glance:

- Engagement focused on treatment and strategy preferences and implementation considerations
- In-person community meeting with approximately 25 public agency/community member participants
- On-line open house with approximately 1,376 unique visitors

- Broad support for education, enforcement, and operational strategies to address unsafe behaviors such as speeding, distracted driving, and red-light running
- Mixed views on roadway reallocation and bicycle facilities on major roadways, highlighting the importance of context-sensitive solutions
- Strong emphasis on maintaining emergency response and evacuation capability when implementing roadway or operational changes
- Interest in safer street designs such as improved crossings, lighting, and intersection treatments, paired with concerns about congestion and access
- Preference for corridor-level consistency in speed management, design standards, and school zone treatments
- Recognition that safety strategies should balance multiple needs, including mobility, access to businesses, and neighborhood livability

2.3.4 Community Comment Spread

Community feedback during Phase 1 and Phase 2 engagement reflected a wide range of perspectives on transportation safety. In some cases, community members expressed opposing views on potential solutions, particularly where safety improvements could impact congestion, access, or emergency response. The City considered this range of input alongside data and engineering principles when developing recommendations.

The quotes below show excerpts of feedback received during the Phase 1 and Phase 2 outreach events. The City is committed to using the range of feedback to develop projects that support broad needs.

3. Safety Analysis

Understanding Medford's history of traffic crashes is critical to shaping a safer approach for the future. Historical crash data and existing conditions were analyzed to identify crash trends, emphasis areas, risk factors, and a high-injury network, discussed in the following sections. Together, these analyses provide the foundation for identifying and prioritizing safety countermeasures.

*Additional information on the safety analysis is available in **Attachment B: Existing Conditions***

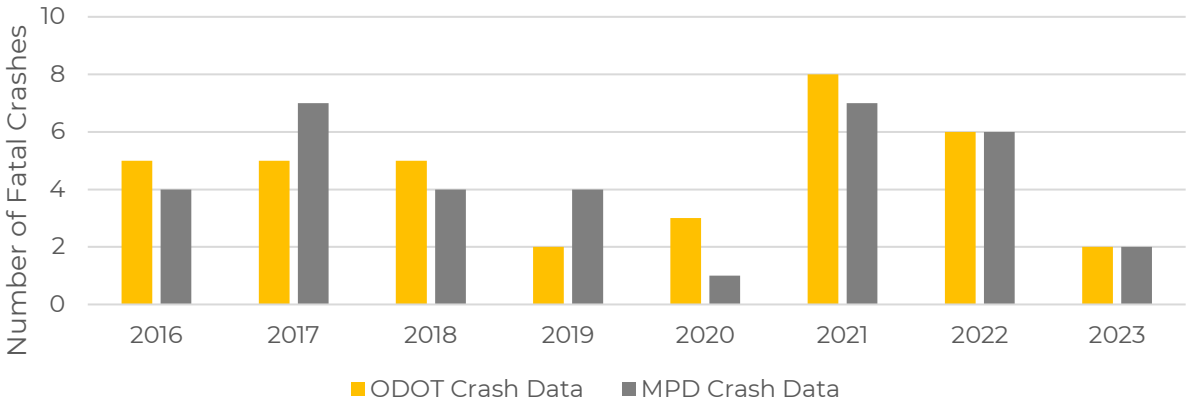
3.1 Crash Data

There are multiple sources available that collect crash data, each with its own advantages and limitations. Table 1 summarizes these advantages and limitations of using ODOT and Medford Police Department (MPD) crash data. Figure 7 visually compares the number of reported fatalities in ODOT data and MPD data between 2016 and 2023.

Table 1. Crash Data Sources

Source	ODOT Crash Data	MPD Crash Data
Advantages	– ODOT has a dedicated Crash Analysis & Reporting Unit that maintains ten years of historical crash data. – This dataset goes through quality assurance, compiles crash information from multiple sources to build a comprehensive set of information, and codes crash reports into a digestible format.	– MPD has access to crash records from official reports filed with MPD. – This data is able to be updated and available more quickly than ODOT data. As of January 2026, the publicly accessible portal data is available through 2024, and City staff have access to data through the current date. This makes the data valuable for comparing preliminary trends. – MPD may more easily modify crash data if crashes are later found to be more severe.
Limitations	– Reviewing and processing the data is time-intensive, making data delayed by multiple years. – As of January 2026, preliminary fatal and serious injury data is available for 2024. At the start of this TSAP project, complete data was available through 2022.	– Data is limited to crashes that are publicly filed with MPD. This excludes crashes on ODOT- or County-managed roadways, as well as crashes resolved civilly without a formal police report being completed. Therefore, crashes tend to be underreported. – Additional data, such as contributing factors and weather conditions, is not available in a readily digestible format and requires individual review of crash reports.

Figure 7. ODOT Crash Data Compared to MPD Crash Data for Fatal Crashes[5]



Data Differences at a Glance:

- In 2016 a fatal crash occurred at the intersection of Crater Lake Highway and I-5 under the jurisdiction of Oregon State Police. As a result, MPD does not have a record of this crash in its system.
- In 2017, a crash initially coded as a serious injury later resulted in a fatality; this update appears in ODOT records but not in MPD records. That same year, MPD recorded a different crash as fatal that did not result in a fatality, and also correctly identified a fatal crash that was not captured as fatal in ODOT's data.
- Similar discrepancies between MPD and ODOT records have been identified in each of the other years of data.

Recognizing the advantages and limitations of the available datasets, this TSAP used the most recent data from ODOT to conduct a detailed crash analysis and assess historical crash trends. Because this data is comprehensive and quality-checked—consistent with current engineering practice—it helps create the most accurate safety analysis. Complementing this, the more up-to-date MPD data was used to provide a current snapshot of preliminary trends from the past few years, focusing on overall numbers of fatal and serious-injury crashes.

3.2 Crash Trends

The number of people dying and experiencing life-altering injuries on Medford's roads has increased in recent years. This is consistent with trends seen at the State and federal level. Taking action to curb this pattern through a data-driven plan helps our residents stay safe. The following figures represent crash data severity and locations, which informs the analysis of trends that follows.

[5] *Note that Interstate 5 crashes were included in this data comparison, as it extends beyond the five-year study period used for the safety analysis in this memo.*

Figure 8 shows the number of crashes that occurred each year from 2013 to 2023 in Medford that resulted in deaths and serious injuries.

Figure 8. Total Fatalities and Serious Injuries in Medford (ODOT Data, 2013-2023)[6]

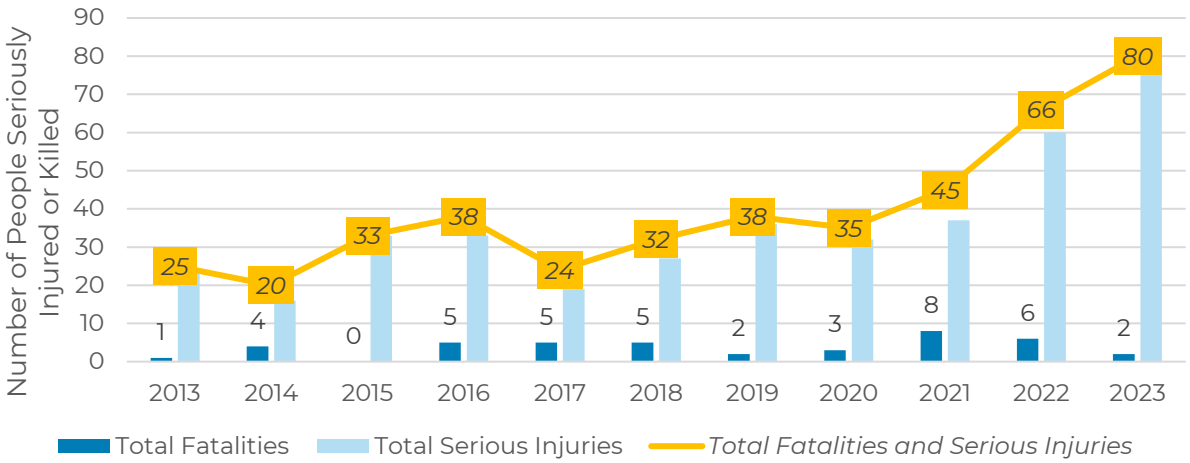


Figure 9 shows the number of crashes in Medford by crash severity over the past five years, using MPD data. This helps compare recent trends in 2024 and 2025 with historical trends identified in ODOT data. The number of fatal crashes from 2023 to 2025 is generally consistent with 2023 levels and may indicate a decrease in fatalities compared to the period of 2022 and earlier. However, the number of people experiencing life-altering injuries has trended upward in recent years.

Figure 9. Total Fatal and Serious Injury Crashes in Medford (MPD Data, 2021-2025)

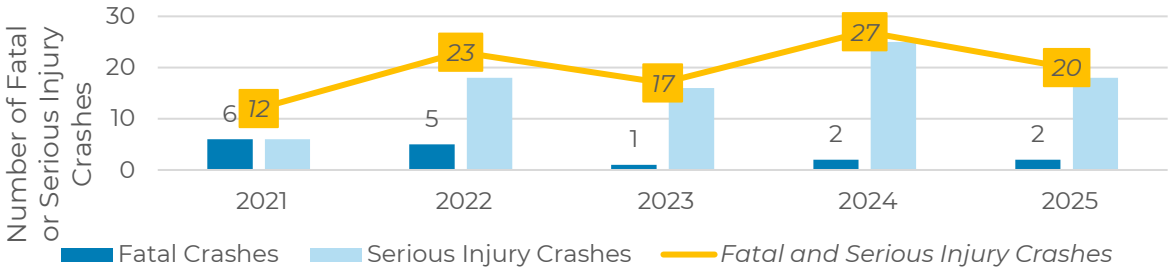
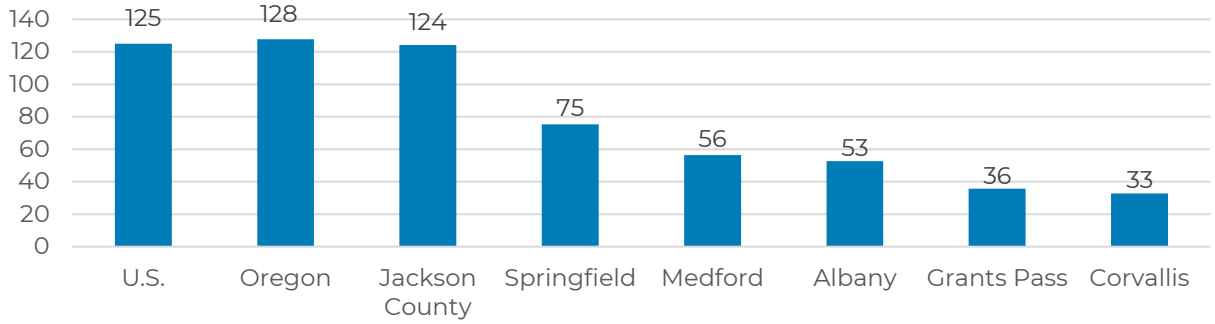


Figure 10 compares Medford's traffic fatality rate with other cities, Jackson County, the State of Oregon, and the country. The City of Medford experiences a similar number of traffic fatalities per million residents as other Oregon cities of comparable size and character. However, these rates are lower than those observed at the county and state levels. This pattern is typical for urban environments, as rural areas generally have smaller populations and higher-speed roadways, which contribute to higher traffic fatality rates.

[6] *Note that Interstate 5 crashes were included in this data comparison, as it extends beyond the five-year study period used for the safety analysis in this memo.*

Figure 10. National, State, County, and City Traffic Fatality Rates, Per Million Population (2018-2022)[7]



***Source**: US - Global status report on road safety 2018; Oregon/Cities (5-year average 2018 – 2022) – US Census 2023 Estimates, ODOT Crash Data Viewer*

Figure 11 compares fatal and serious injury trends in Medford with those observed statewide in Oregon. While the overall trends are aligned, the Medford data exhibits more fluctuation from year to year.

Figure 11. Statewide Trends in Fatal and Serious Injury Crashes (2013-2023)[7]

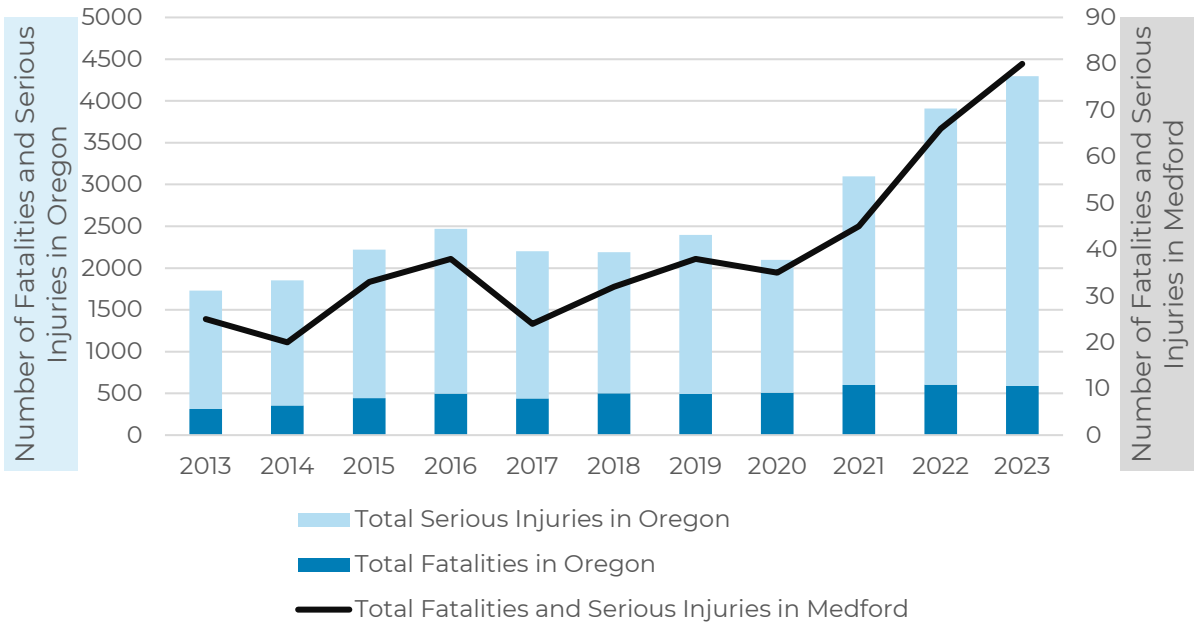
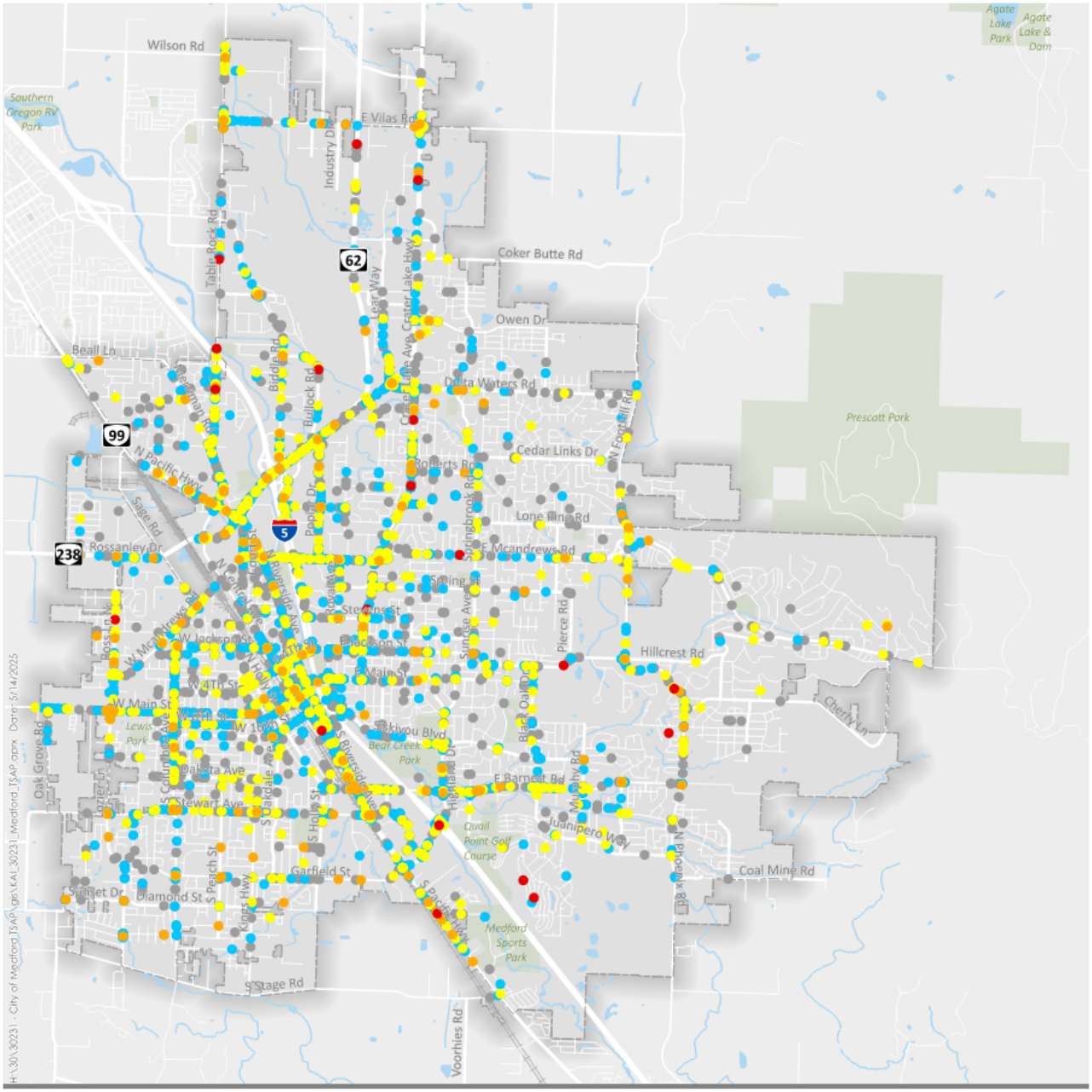


Figure 12 shows the locations of crashes across the study area, color coded by severity. The five-year crash history depicted—representing the most recent data available from ODOT at the time of analysis—was used to conduct a detailed crash analysis to better understand specific crash trends, identify emphasis areas and risk factors, and develop a High Injury Network (HIN).

[7] *Note that Interstate 5 crashes were included in this data comparison, as it extends beyond the five-year study period used for the safety analysis in this memo.*

Figure 12. Crashes by Severity (2018-2022)



Note: *Mainline interstates have been excluded to prioritize local roadway analysis over through and regional traffic. However, on- and off-ramps are included as they directly interface with local streets.*

When examining crash types, clear patterns emerged around crash types, locations, classification, number of lanes, and pre-crash movements.

- **Rear-end, turning movement, angle, and fixed-object or other object crashes** were the most common reported crash types in the study area.
    - While rear-end crashes are frequent, they are less likely to result in a fatal or serious injury relative to the other crash types, particularly other fixed-object and pedestrian crashes.
- **Intersections** were strongly represented in crash trends. When defined as any crash within 100 feet of an intersection, there was a total of 3,978 intersection-related crashes during the study period, 116 of which resulted in fatalities and serious injuries.
    - Of these intersection crashes, over half occurred at unsignalized intersections.
    - Turning movement crashes accounted for almost a third of all unsignalized intersection crashes and over 40% of fatal and serious injury crashes at unsignalized intersections.
- **Functional classification**—or the type of roadway considering its operational and geometric characteristics—was also analyzed. Despite only making up 19% of the city's roadway miles, arterial roads and intersections were where the most total crashes and the most fatal and serious injury crashes occurred.
    - This correlation between high-volume, high-speed roads and severe crashes is even more pronounced for vulnerable road users. Pedestrian and bicyclist fatal and serious injury crash rates per mile were over twice as high on major arterials than on minor arterials, three times higher than on collector roads, and 16 times higher than on local roads.
- **Number of lanes** on the road can influence crash trends. Two-lane and four-lane roadways experienced a similar number of crashes, but there are far fewer four-lane roads than two lane roads. This means that crashes occur at a higher per-mile rate on four-lane roads than on two-lane roads.
    - The proportion of fatal and serious injuries on four-lane roads is also 9% higher than the proportion of total crashes, indicating greater crash severity with more lanes.
- **Pedestrian and bicyclist** pre-crash characteristics were also analyzed to understand which kinds of movements are most commonly involved in crashes.
    - Almost two thirds of fatal and serious injury bicyclist crashes involved a motorist driving straight and perpendicular to the bicyclist's direction of travel. Over 60% of total and fatal and serious injury pedestrian crashes involved a pedestrian crossing the roadway.

3.3 Emphasis Areas and Risk Factors

Emphasis areas and risk factors were identified based on crash data and refined based on input from the advisory committee and public comments. They identify characteristics that contribute to fatal and serious injury crashes to guide the selection of safety strategies and treatments that target the inherent risk in the roadway network.

The emphasis areas identify roadway users, behaviors, and crash types that are associated with the most severe outcomes. Risk factors are roadway, land use, and environmental characteristics that correlate with fatal and serious injury crashes and interact with the emphasis areas.

Figure 13. Emphasis Areas

Vulnerable Road Users

Pedestrians and bicyclists are more at risk for fatal and serious injury crashes since they are not in a vehicle, especially in areas with higher exposure. Targeting midblock crashes between motorists traveling straight and pedestrians and bicyclists crossing the street is a high priority.

Motorcycle Crashes

Motorcyclists are also overrepresented in fatal and serious injury crashes, with vulnerability being particularly high on arterial roadways.

Road User Behaviors

Impaired driving, speeding, and distracted driving disproportionately result in more fatal and serious injury crash outcomes.

Intersection Crash Types with Severe Outcomes

Turning movement, fixed object, and angle crashes are the most common crash types for all modes and the most likely to result in fatalities and serious injuries. Angle crashes result in the most severe crashes for pedestrians and bicyclists.

Figure 14. Risk Factors

High-Volume and High-Speed Roadways

The majority of fatal and serious injury crashes disproportionatly occur on arterial roadways, 4-lane roadways, and roadways with speed limits of 35 mph or above.

Land Use with High Exposure

Commercial areas, transit stops, and areas experiencing high equity burdens are particularly vulnerable to fatal and serious injury crashes and crashes with pedestrians and bicyclists.

Midblock Locations

Midblock crashes are disproportionately severe and indicate a need for more safe midblock crossing opportunities.

Darkness

Crashes occurring in dark conditions are more likely to result in severe outcomes for all users. Over half of pedestrian and bicyclist fatal and serious injury crashes occurred in darkness, despite lower volumes of people.

3.4 High Injury Network with Risk Overlay

The crash data were reviewed to identify intersections and segments within Medford where the greatest number of fatal and serious injury crashes were reported over the study period. These locations may have the greatest potential to benefit from safety projects. The Equivalent Property Damage Only (EPDO) network screening method was used to identify these locations and define the HIN. The EPDO method weights crash impacts based on their societal cost relative to a crash that only results in property damage.

54% of the city's fatal and serious injury crashes happened on just 7% of Medford's streets and roads.

That's only 29 miles of roadway out of almost 389 miles.

Over half of driver, motorcyclist, bicyclist, and pedestrian overall crashes and over three-quarters of all fatal and serious injury crashes occurred on HIN segments shown in red in Figure 15. Locations with a history of severe injury crashes involving vulnerable road users are shown in dark blue, while locations with a history of severe injury crashes involving multiple motor vehicle users are shown in light blue. Multimodal safety improvements at the locations with overlapping dark blue and light blue segments would benefit all road users.

The HIN shows the predominance of crash history on arterials near the center of town, such as Riverside Avenue, Central Avenue, and Main Street, and those that provide connections to major commercial, medical, and residential areas, such as OR 99, OR 62, Crater Lake Avenue, McAndrews Road, and Barnett Road.

Figure 15. High Injury Network

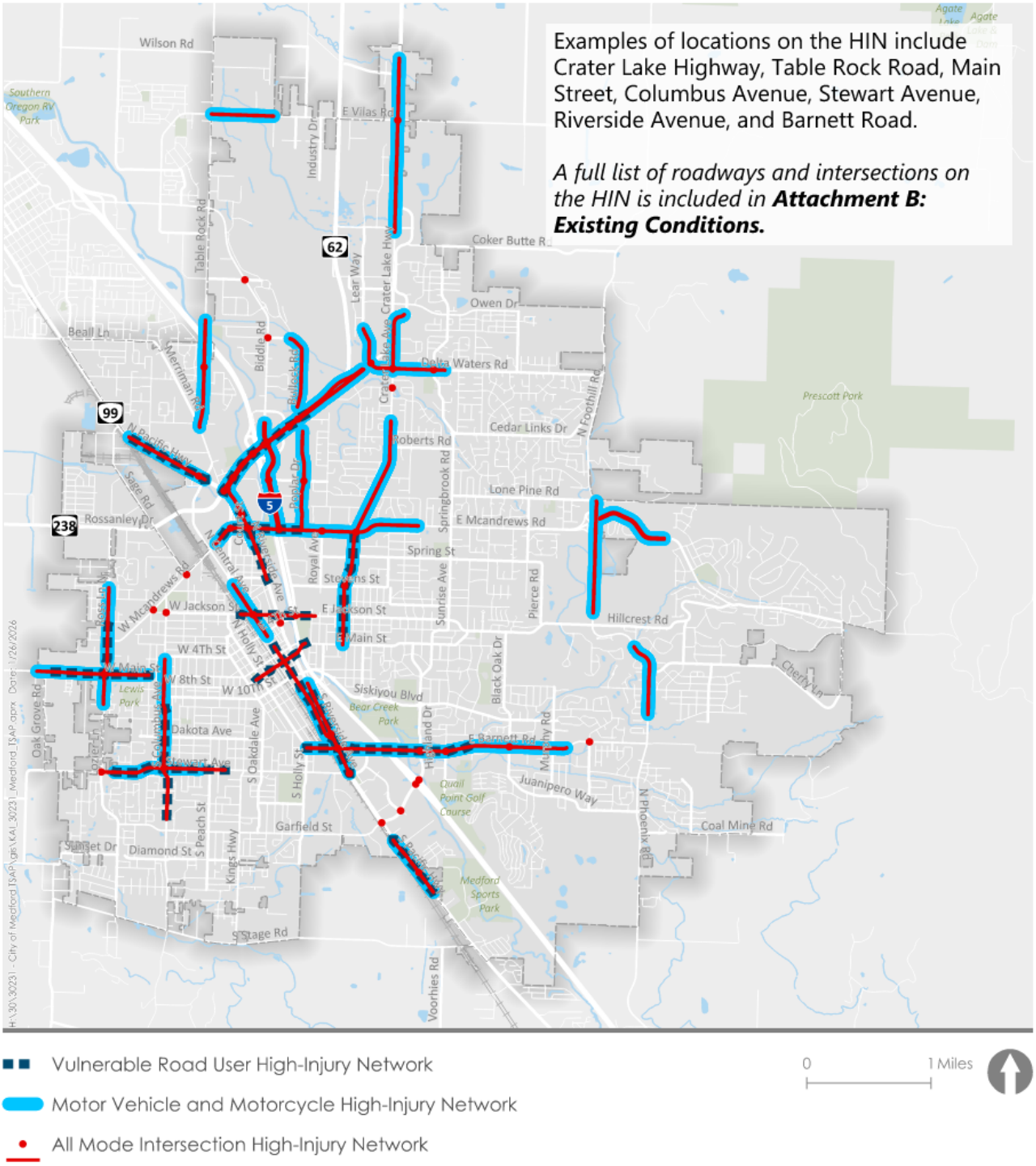


Figure 16 shows the relationship between crash severity, crash frequency, and crash risk in analyzing crash data. Together, they make up a network that considers both where crashes have occurred in the past and where there are risk factors or emphasis areas that correlate with severe crash outcomes. Locations where the HIN overlaps with multiple risk factors are priority candidates for safety projects.

Figure 16. What is a Composite Risk and Injury Network?

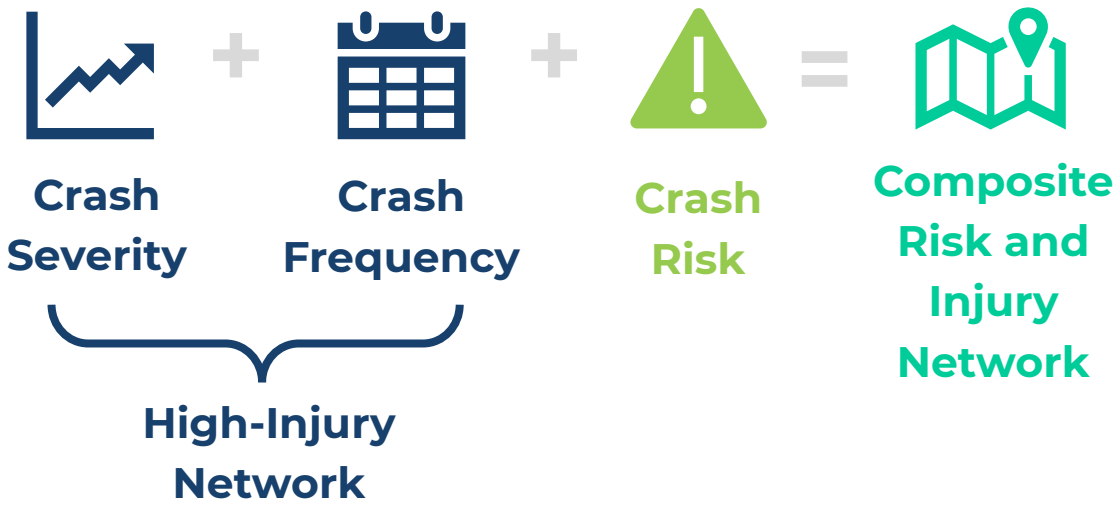


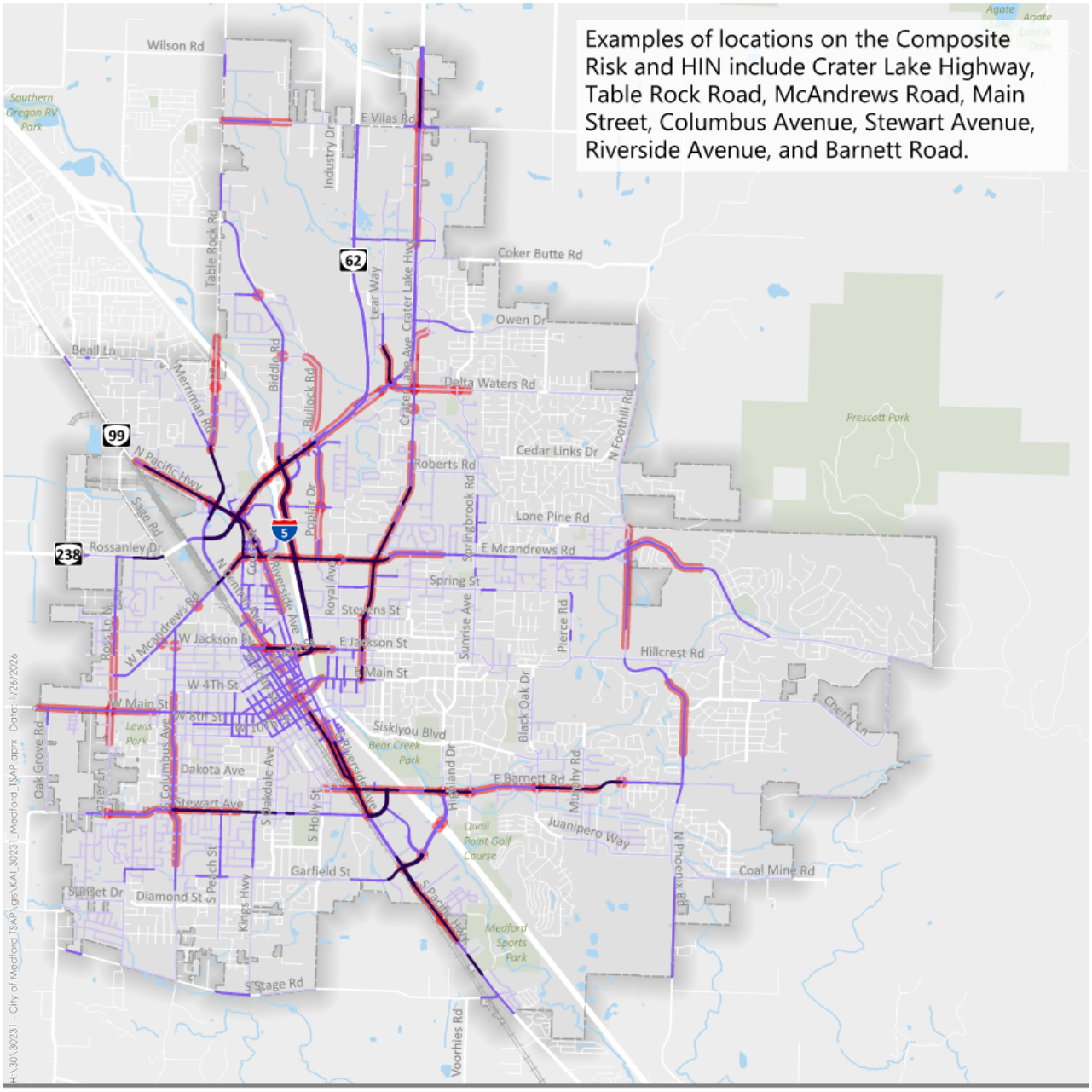
Figure 17 illustrates the HIN for all users overlayed with a risk score comprised of a sum of risk factors.

Risk factors in Figure 17 include:

- Arterial roadways
- Roadways with four or more lanes
- Roadways with posted speeds of 35 mph or above
- Areas zoned for commercial land use
- Areas identified as high disparity
- Areas within 500 feet of a transit stop

Other risk factors had insufficient data for mapping.

Figure 17. Composite Risk and Injury Network



4. Strategies and Treatments

Consistent with the Safe System Approach, the project team considered potential contributing factors that may result in fatal and serious injury crashes such as speeds, conflict points, and movement complexity and identified strategies and treatments to address these factors. This section summarizes the process used to develop strategies and treatments and key partners to support implementation.

*Additional information on the systemic and site-specific strategies developed in this plan are included in **Attachment C: Strategies and Recommendations.***

The countermeasures in this section aim to reduce the likelihood of crashes occurring and to reduce the severity of crashes that do occur. To make the greatest impact, there are two kinds of countermeasures: systemic and site-specific.

- **Systemic strategies** and treatments include countermeasures that have been proven to be successful and can be implemented across a transportation network where applicable. This helps create a wider reach for safety improvements and gives the City a toolbox of resources to continue drawing from when needed.
- **Site-specific** treatments target high priority locations where safety concerns are concentrated. These sites represent locations where both crash history and risk factors are prominent, and the treatments encompass multiple elements to transform intersections and roadway segments into safer areas to travel. Site-specific treatments can include systemic treatments.

4.1 Systemic Strategies and Treatments

This section documents the strategies and treatments that can be applied systemically, guided by a robust and inclusive decision-making process that engages key stakeholders, including community members, impacted neighborhoods, first responders, partner agencies, freight representatives, and others.

***Strategies** refer to non-infrastructure improvements, such as policy updates and educational programs. **Treatments** refer to infrastructure improvements at locations, with systemic or location-specific applications.*

Strategies and treatments are documented in the following sections and were identified based on a review of ODOT's Crash Reduction Factor Manual, U.S. Department of Transportation's Crash Modification Factor Clearinghouse, FHWA Proven Safety Countermeasures, the Safe System Roadway Design Hierarchy, and a review of ODOT's most recent Transportation Safety Action Plan. Countermeasures that are expected to be most relevant to Medford are included in this plan. As the city progresses in implementing the countermeasures outlined in the TSAP, these resources may be helpful to find additional treatments.

Strategies and treatments were identified to address the emphasis areas and associated risk factors. Treatments were identified to support each of the objectives of the Safe System Approach. They emphasize the Safe System principle of redundancy: if one layer of protection fails others remain in place to prevent severe outcomes. A complete list of strategies and treatments—including descriptions, their placement within the Safe System Roadway Design Hierarchy, prioritization scores, and the risk factors and emphasis areas they address—is provided in Appendix A: Strategies and Treatments.

- **Safer Roads** strategies focus on designing roadways to reduce both the likelihood of people making mistakes and the risk of injury when mistakes occur. These strategies tend to reduce conflicts, lessen the severity of conflicts, and encourage safer behaviors.
    - *Examples Include:* Pedestrian Crossing Improvements and Protected Left-Turn Signal Phasing

- **Safer Speeds** strategies focus on achieving operating speeds that are appropriate for the safety of all road users. The appropriate operating speed for a roadway depends on the surrounding land use context, function of the roadway, provided facilities, and expected users. These strategies are fundamental to achieving safety in multiple emphasis areas.
    - *Examples Include:* Speed Feedback Signs and Automated Safety Enforcement
- **Safer People** strategies encourage safe, responsible behavior by people who use the roadway and create conditions that prioritize people's ability to reach their destination unharmed. These strategies tend to focus on educational and enforcement programs and may also include city design policies that make safety the easy choice.
    - *Examples Include:* Public Education Campaigns and High-Visibility Enforcement/Education Events

- **Safer Land Use** strategies aim to make the daily necessities of life closer and easier to access, facilitating efficient transportation systems that prioritize safety and mobility. The land use context impacts the appropriate roadway environment: in downtown areas, strategies that lower the target speed of roadways should be encouraged, while in more dispersed areas with greater speeds, more physical separation between modes should be provided.
    - *Examples Include:* Building Connected Street Networks and Encouraging Mixed Use Development
- **Safer Vehicles** strategies aim to expand the availability of vehicle systems and features that help to prevent crashes and minimize the impact of crashes on both occupants and non-occupants.
    - *Examples Include:* Updating and Maintaining the City's Vehicle Fleet
- **Post-Crash Care** strategies enhance the survivability of crashes through expedient access to emergency medical care, while creating a safe working environment for vital first responders and preventing secondary crashes through robust traffic incident management practices.
    - *Examples Include:* EMS and Crash Data Integration

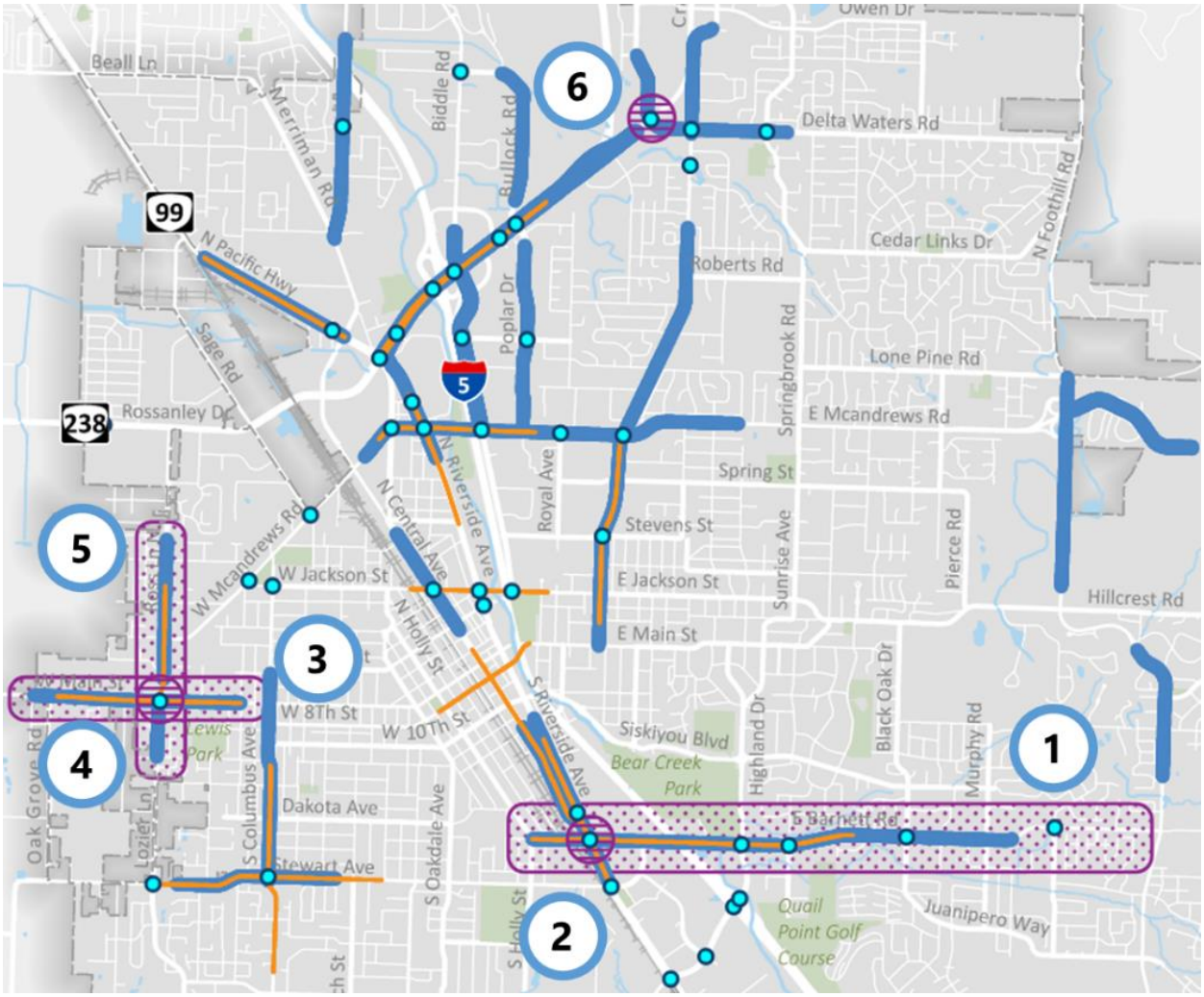
4.2 Example Site-Specific Treatments

Six locations within the HIN were selected to serve as examples of how the TSAP could be used to evaluate site-specific safety treatments. These locations are shown in Figure 18. The locations were selected because they had a relatively high history of injuries and fatalities, overlapping risk factors and emphasis areas, network importance in completing multimodal connections (such as safe east-west crossings for people walking and biking across Bear Creek), and the absence of planned or recently completed projects. The process of developing the site-specific treatments demonstrates how this plan can be put into practice and offer specific projects that the City could pursue through grant funding or advance in the near term.

In addition to these example sites, there are locations in the City's Capital Improvement Plan (CIP) that are ongoing safety priorities for the City. For example, Table Rock Road from Merriman Road to Interstate 5 is a priority location for safety improvements. This TSAP supports the continued prioritization of improvements at this location: this location is on the HIN and has risk factors present. Table Rock Road was not included in the example site-specific treatments as the City has already conducted conceptual engineering work to develop concepts for potential improvements. Table Rock Road is a strong candidate for a before-and-after study to evaluate post-implementation improvements and determine whether the new infrastructure meets TSAP goals or if additional treatments are needed.

The City intends to update the project plans to ensure that the treatments and strategies identified in the TSAP are incorporated appropriately following a collaborative decision-making process.

Figure 18. Locations for Site-Specific Treatments



Legend

- All Mode Intersection HIN
- Pedestrian and Bicycle HIN
- Motor Vehicle and Motorcycle HIN
- Intersections Identified for Location-Specific Treatments
- Segments Identified for Location-Specific Treatments

1. Barnett Road from Holly Street to Phoenix Road
2. Barnett Road/Riverside Avenue
3. Main Street from Renault Avenue to Columbus Avenue
4. Main Street/Ross Lane/Lozier Lane
5. Ross Lane/Lozier Lane from Stonefield Way to Meadows Lane
6. Crater Lake Highway/Delta Waters Road

Site diagnoses were conducted to determine appropriate countermeasures for each location, including:

- Risk factor(s) present
- Crash and volume data trends and patterns
- Pending or recently completed projects
- Field conditions using aerial imagery
- Public agency and community concerns

These draft concepts were refined based on input from the PMT, public, committee members, and partners. These potential treatments should be refined according to the additional considerations and next steps for implementation shown in Figure 19 to Figure 24.

Figure 19. Candidate Treatments/Strategies – Barnett Road from Holly Street to Phoenix Road

Key Challenges and Considerations

Risk Factors

High-Volume & High-Speed Roadway
- Posted Speed of 35 MPH & Drivers Speed along Corridor
- Major Arterial Roadway
- 4+ Lane Cross Section

Land Use with High Exposure
- Proximity to Transit
- Commercial Zoning
- High Social Equity Disparities

Midblock Locations
- Major Gaps in Comfortable Crossing Opportunities

Emphasis Areas & Crash Trends

Vulnerable Road Users

Motorcycle Crashes

Risky Road User Behaviors

Intersection Crash Types with Severe Outcomes

Most Common Crash Types Overall

Rear-End | Turning | Sideswipe

Most Common Crash Types Leading to Severe Outcomes

Rear-End | Turning | Bicycle | Angle

Other Identified Challenges

- Barnett Road is a primary east-west corridor and primary emergency response and evacuation route with access to I-5, Asante Medical Center and other medical facilities, the Manor, schools, and N Phoenix Road.
- Limited local street connectivity increases demand and vehicle turning movements at this location, it also increases the length of many trips.
- The mix of homes and stores leads many people to walk in this area and need to cross the street.
- There are lots of driveways, and because many cars turn in and out of driveways is higher crash exposure.
- Wider corners allow drivers to turn more quickly.
- Bus stops have limited facilities, which makes it less comfortable to wait and harder for buses to serve the area
- The public identified that there is existing congestion at this location, and that the signals need to be retimed.

Near-Term Treatments/Strategies

- **Build Connected Street Networks** – Conduct a Southeast Medford circulation study
- **Bicycle Facilities** – Install wayfinding signs to direct bicyclists to low-stress parallel facilities
- **Bus Stop Improvements** – Evaluate opportunities to improve bus stops and shelters along the corridor
- **Design Speed/Target Speed Adjustments** – Conduct a speed study to determine an appropriate target speed for the corridor
- **Hardened Centerlines and Turn Wedges** – Install treatments at target locations as feasible
- **Signal Operational Changes – Protected Left Turns** - Install protected left-turn phasing at signalized intersections as feasible
- **Speed Feedback Signs** – Install speed feedback signs at target locations as feasible
- **Implement Crossing Improvements** – Install midblock crossings at target locations as feasible
- **Red Light Cameras** – Install red light cameras at signalized intersections as feasible
- **Speed Camera Program** – Install speed cameras at key locations along the corridor on a temporary or permanent basis
- **Public Education** – Educate the public on key issues along the corridor (e.g., speeding)

Long-Term Treatments/ Strategies

- **Traffic Calming** – Install planter medians and adjust design elements to support target speed
- **Pedestrian Facilities** – Widen sidewalks to improve pedestrian comfort and safety
- **Access Management** – Explore opportunities to consolidate access or limit access movements with redevelopment

Additional Considerations & Next Steps for Implementation

- **Access Management**: Traffic operations and turning movement analyses typically occur with development or as part of a full roadway reconstruction project. Additional public outreach should be conducted when reducing access points. Any limitations on high-volume access points should be further evaluated for their potential impact on overall traffic circulation.
- **Crossing Enhancements:** Additional public outreach and pedestrian crossing volumes could be used to refine priority enhanced crossing locations and treatment levels along Barnett Road.
- **Traffic Calming:** Medians can only be installed where there are gaps between driveways or where turning movements can be restricted. AutoTurn movement analyses should accompany the design of any center medians. Coordinate with maintenance staff, emergency response services, and freight representatives on any traffic calming treatments.
- **Signal Modifications**: A traffic analysis should be conducted to evaluate the impacts of adjusting signal timing.

Figure 20. Candidate Treatments/Strategies – Barnett Road & Riverside Avenue Intersection

Key Challenges and Considerations

Risk Factors

High-Volume & High-Speed Roadway
- Posted Speed of 35 MPH
- Major Arterial Roadway
- 4+ Lane Cross Section

Land Use with High Exposure
- Proximity to Transit
- Commercial Zoning
- High Social Equity Disparities

Emphasis Areas & Crash Trends

Vulnerable Road Users

Risky Road User Behaviors

Intersection Crash Types with Severe Outcomes

Darkness

Most Common Crash Types Overall

Rear-End
Especially for drivers traveling northbound

Turning
Distributed across various directions

At this location, a **rear-end crash** and an **angle crash involving a driver impacting a cyclist** resulted in severe injuries.

Other Identified Challenges

Limited ROW availability and vehicular congestion constrain opportunities to improve facilities for vulnerable road users

Railroad crossing within 250 feet of the intersection

Wide curb radii support higher vehicle speeds

Near-Term Treatments/Strategies

- **Turn Wedges** – Install slow-turn wedges to encourage slower vehicle turning movements
- **Traffic Calming** – coordinate with signals along the adjacent corridors, evaluate signal timing for opportunities to address congestion
- **Signal Operational Changes** – Install Leading Pedestrian Intervals and part-time Right-Turn-on-Red Restrictions to improve pedestrian comfort
- **Increase Awareness –** Install reflectorized back plates on signal heads and advanced warning signs
- **Red Light Cameras** – Install red light cameras as feasible
- **Speed Camera Program** – Install speed cameras on a temporary or permanent basis
- **Lighting** - Improve pedestrian scale and/or overall lighting in the intersection vicinity.
- **Public Education** – Educate the public on key issues at the intersection (e.g., speeding, distracted driving)

Long-Term Treatments/Strategies

- **Roundabout** – Consider reconfiguring the intersection as a roundabout
- **Access Management** – Explore opportunities to consolidate access or limit access movements with redevelopment

Additional Considerations & Next Steps for Implementation

- **Access Management**: Traffic operations and turning movement analyses typically occurs with development or as part of a full roadway reconstruction project. Additional public outreach should be conducted when reducing access points. Any limitations on high-volume access points should be further evaluated for their potential impact on overall traffic circulation.
- **Roundabout:** AutoTurn movement analyses should accompany the design of any significant intersection reconfigurations.
- **Signal Modifications**: A traffic analysis should be conducted to evaluate the impacts of adjusting signal timing.

Figure 21. Candidate Treatments/Strategies – Main Street from Renault Avenue to Columbus Avenue

Key Challenges and Considerations

Risk Factors

High-Volume & High-Speed Roadway
- Posted Speed of 35 MPH
- Minor Arterial Roadway

Land Use with High Exposure
- Proximity to Transit
- Commercial Zoning

Midblock Locations
- Major Gaps in Comfortable Crossing Opportunities

Emphasis Areas & Crash Trends

Vulnerable Road Users

Motorcycle Crashes

Risky Road User Behaviors

Intersection Crash Types with Severe Outcomes

Most Common Crash Types Overall
Rear-End, Turning

Most Common Crash Types Leading to Severe Outcomes
Rear-End, Turning, Pedestrian

Other Identified Challenges

- The public identified existing congestion and need for signal retiming at this location.
- There are lots of driveways, and because many cars turn in and out of driveways, there are more chances for crashes.
- Wider corners allow drivers to turn more quickly.
- Bus stops have limited facilities, which makes it less comfortable to wait and harder for buses to serve the area.
- There is a mix of homes and stores that leads many people to walk in this area generates need to cross the street.
- Limited local street connectivity increases demand and vehicle turning movements at this location, it also increases the length of many trips.

Near-Term Treatments/Strategies

- **Build Connected Street Networks** – conduct a Main Street Corridor Refinement Plan
- **Design Speed/Target Speed Adjustments** – Conduct a speed study to determine an appropriate target speed for the corridor
- **Implement Crossing Improvements –** Install enhanced crossings, such as Rectangular Rapid Flashing Beacons (RRFBs), including pedestrian refuge islands as feasible
- **Bus Stop Improvements** – Evaluate opportunities to improve bus stops and shelters along the corridor
- **Signal Operational Changes – Protected Left Turns** - Install protected left-turn phasing at signalized intersections as feasible
- **Lighting** – Improve pedestrian scale and/or overall lighting along the corridor.
- **Public Education** – Educate the public on key issues along the corridor (e.g., speeding, distracted driving)

Long-Term Treatments/Strategies

- **Traffic Calming** – Install planter medians and adjust design elements to support lower speeds and promote access management; provide wide sidewalks with space for street trees, lighting, and utilities
- **Roundabouts** – Install roundabouts to promote slower vehicle speeds
- **Access Management** – Explore opportunities to consolidate access with redevelopment
- **Bicycle Facilities** - Install buffered bike lanes and conflict striping (pending outcome of Main Street Corridor Refinement Plan)

Additional Considerations & Next Steps for Implementation

- **Roundabout:** AutoTurn movement analyses should accompany the design of any significant intersection reconfigurations.
- **Access Management**: Traffic operations and turning movement analyses typically occur with development or as part of a full roadway reconstruction project. Additional public outreach should be conducted when reducing access points. Any limitations on high-volume access points should be further evaluated for their potential impact on overall traffic circulation.
- **Crossing Enhancements:** Additional public outreach and pedestrian crossing volumes could be used to refine priority enhanced crossing locations and treatment levels along Main Street.
- **Traffic Calming:** Providing landscaped buffers could occur as part of a utility undergrounding project, enhancing the streetscape for all road users.
- **Signal Modifications**: A traffic analysis should be conducted to evaluate the impacts of adjusting signal timing.

Figure 22. Candidate Treatments/Strategies – Ross Lane-Lozier Lane from Stonefield Way to Meadows Lane

Key Challenges and Considerations

Risk Factors

High-Volume & High-Speed Roadway
- Posted Speed of 35 MPH & Drivers Speed along Corridor

Land Use with High Exposure
- Proximity to Transit
- Commercial Zoning
- High Social Equity Disparities

Midblock Locations
- Major Gaps in Comfortable Crossing Opportunities

Emphasis Areas & Crash Trends

Vulnerable Road Users

Motorcycle Crashes

Risky Road User Behaviors

Intersection Crash Types with Severe Outcomes

Darkness

Most Common Crash Types Overall

Rear-End | Turning

Most Common Crash Types Leading to Severe Outcomes

Rear-End | Turning | Pedestrian | Fixed-Object

Other Identified Challenges

- Limited local street connectivity increases demand and vehicle turning movements at this location, it also increases the length of many trips.
- There is a mix of homes and stores and jobs that leads many people to walk in this area and need to cross the street.
- Wider corners allow drivers to turn more quickly.
- The public identified that there is existing congestion at this location.
- The posted speed limit along the corridor transitions to 35 MPH north of McAndrews Road.

Near-Term Treatments/Strategies

- **Design Speed/Target Speed Adjustments**– Reduce posted speed for the corridor
- **Implement Crossing Improvements** – Install enhanced crossings, such as Rectangular Rapid Flashing Beacons (RRFBs), including pedestrian refuge islands as feasible
- **Bus Stop Improvements** – Evaluate opportunities to improve bus stops and shelters along the corridor
- **Signal Operational Changes – Protected Left Turns** - Install protected left-turn phasing at signalized intersections as feasible
- **Increase Awareness –** Install reflectorized back plates on signal heads and advanced warning signs
- **Hardened Centerlines and Turn Wedges** – Install treatments at target locations as feasible
- **Speed Feedback Signs** – Install speed feedback signs at target locations as feasible
- **Lighting** - Conduct a lighting study to verify need for increased pedestrian scale and/or overall intersection lighting
- **Speed Camera Program** – Install speed cameras at key locations along the corridor on a temporary or permanent basis
- **Public Education** – Educate the public on key issues along the corridor (e.g., speeding, distracted driving)
- **Lighting** –Improve pedestrian scale and/or overall lighting along the corridor.

Long-Term Treatments/ Strategies

- **Roundabout** – Install roundabouts at Main Street & Ross Lane-Lozier Lane, Ross Lane & Newbridge Way, and Ross Lane & McAndrews Road
- **Access Management** – Explore opportunities to consolidate access or limit access movements with redevelopment – consider right-in/right-out restriction at Ross Lane & Newbridge Way
- **Bicycle Facilities** - Install enhanced bicycle facilities, which might include buffered bike lanes or a multi-use path
- **Traffic Calming** – Install planter medians and adjust design elements to support target speed

Additional Considerations & Next Steps for Implementation

- **Roundabout:** AutoTurn movement analyses should accompany the design of any significant intersection reconfigurations.
- **Access Management**: Traffic operations and turning movement analyses typically occur with development or as part of a full roadway reconstruction project. Additional public outreach should be conducted when reducing access points. Any limitations on high-volume access points should be further evaluated for their potential impact on overall traffic circulation.
- **Crossing Enhancements:** Additional public outreach and pedestrian crossing volumes could be used to refine priority enhanced crossing locations and treatment levels along Ross Lane – Lozier Lane.
- **Traffic Calming:** Medians can only be installed where there are gaps between driveways or where turning movements can be restricted. AutoTurn movement analyses should accompany the design of any center medians. Coordinate with maintenance staff, emergency response services, and freight representatives on any traffic calming treatments.
- **Signal Modifications**: A traffic analysis should be conducted to evaluate the impacts of adjusting signal operations.

Figure 23. Candidate Treatments/Strategies – Main Street & Ross Lane-Lozier Lane Intersection

Key Challenges and Considerations

Risk Factors

High-Volume & High-Speed Roadway
- Posted Speed of 35 MPH
- Minor Arterial Roadway

Land Use with High Exposure
- Proximity to Transit
- Commercial Zoning

Emphasis Areas & Crash Trends

Vulnerable Road Users

Motorcycle Crashes

Risky Road User Behaviors

Intersection Crash Types with Severe Outcomes

Darkness

Most Common Crash Types Overall

Rear-End — *Especially for drivers traveling westbound*

Turning — *Especially for drivers making southbound, eastbound, and westbound lefts*

At this location, both serious injury crashes involved **drivers making eastbound lefts**. One crash involved two drivers, and the other involved **someone crossing the street in a crosswalk**.

Other Identified Challenges

There are lots of driveways, and because many cars turn in and out of driveways there are more chances for crashes

Wide curb radii support higher vehicle speeds

Transit stops are located 200-500 feet from the intersection

Near-Term Treatments/Strategies

- **Increase Awareness –** Install reflectorized back plates on signal heads and advanced warning signs
- **Lighting** - Improve pedestrian scale and/or overall lighting along the corridor
- **Signal Operational Changes – Leading Pedestrian Interval** – install leading pedestrian interval at each approach as feasible
- **Signal Operational Changes – Protected Left Turns** - Install protected left-turn phasing as feasible, adjust signal timing as needed
- **Implement Crossing Improvements** – Install enhanced crossing treatments, such as pedestrian hybrid beacons (PHBs) coordinates with the signal at Main Street & Ross Lane-Lozier Lane, at transit stops
- **Bus Stop Improvements** – Evaluate opportunities to improve bus stops and shelters along the corridor
- **Public Education** – Educate the public on key issues at the intersection (e.g., speeding, distracted driving)

Long-Term Treatments/Strategies

- **Roundabout** – Consider reconfiguring the intersection as a roundabout
- **Access Management** – Explore opportunities to consolidate access or limit access movements with redevelopment
- **Enhance Detection** – Install red light extension at each approach as feasible

Additional Considerations & Next Steps for Implementation

- **Roundabout:** AutoTurn movement analyses should accompany the design of any significant intersection reconfigurations.
- **Access Management**: Traffic operations and turning movement analyses typically occur with development or as part of a full roadway reconstruction project. Additional public outreach should be conducted when reducing access points. Any limitations on high-volume access points should be further evaluated for their potential impact on overall traffic circulation.
- **Bicycle Facilities:** A protected intersection design could be a beneficial treatment at this location, however the complexities at this intersection increase the assumed costs associated with this treatment. Therefore, a roundabout is identified as the preferred long-term treatment at this location. However, if a roundabout is not deemed feasible, then a protected intersection design could be considered.
- **Signal Modifications**: A traffic analysis should be conducted to evaluate the impacts of adjusting signal timing.
- **Crossing Enhancements:** Additional public outreach and pedestrian crossing volumes could be used to refine priority enhanced crossing locations and treatment levels.

Figure 24. Candidate Treatments/Strategies – Crater Lake Highway & Delta Waters Road Intersection

Key Challenges and Considerations

Risk Factors

High-Volume & High-Speed Roadway
- Posted Speed of 35 to 45 MPH
- Major Arterial Roadway
- 5+ Lane Cross Section

Land Use with High Exposure
- Proximity to Transit
- Commercial Zoning

Emphasis Areas & Crash Trends

Risky Road User Behaviors

Intersection Crash Types with Severe Outcomes

At this location, the severe injury crashes included a **rear-end crash** and an **angle crash**.

Most Common Crash Types Overall

Rear-End

Especially for drivers traveling northbound on Crater Lake Highway

Turning

Especially between drivers making northbound lefts from Crater Lake Highway and drivers making eastbound rights from Delta Waters Road

Other Identified Challenges

Span wire signal, no reflective back plating on signal.

The public suggests prohibiting left turn movements from driveways along Delta Waters Road south of the intersection.

Long pedestrian crossings and wait times.

Long vehicle queues, roadway curvature impacts sight visibility of the intersection.

Near-Term Treatments/Strategies

- **Intersection Control Evaluation –** Conduct a study to determine the most appropriate configuration for the intersection
- **Access Management** – Explore opportunities to consolidate access or limit turning movements on Delta Waters Road, such as a median along Delta Waters Road south of the intersection limiting left turns from driveways
- **Speed Camera Program** – Monitor benefits from existing speed cameras on a temporary or permanent basis
- **Red Light Cameras** – Monitor benefits from existing red light cameras
- **Implement Crossing Improvements** – Raise the pedestrian crossing at the channelized right turn to sidewalk level
- **Turn Wedges** – Install slow-turn wedges to encourage slower vehicle turning movements
- **Signal Operational Changes –** Install leading pedestrian intervals and protected left-turn phasing at each approach as feasible, adjust signal timing as needed
- **Increase Awareness –** Install reflectorized back plates on signal heads
- **Lighting** - Improve pedestrian scale and/or overall lighting in the intersection vicinity
- **Public Education** – Educate the public on key issues at the intersection (e.g., speeding, distracted driving)
- **Other** – Improve skip striping for dual left and right turn movements

Long-Term Treatments/ Strategies

- **Roundabout** – Consider reconfiguring the intersection as a multi-lane roundabout

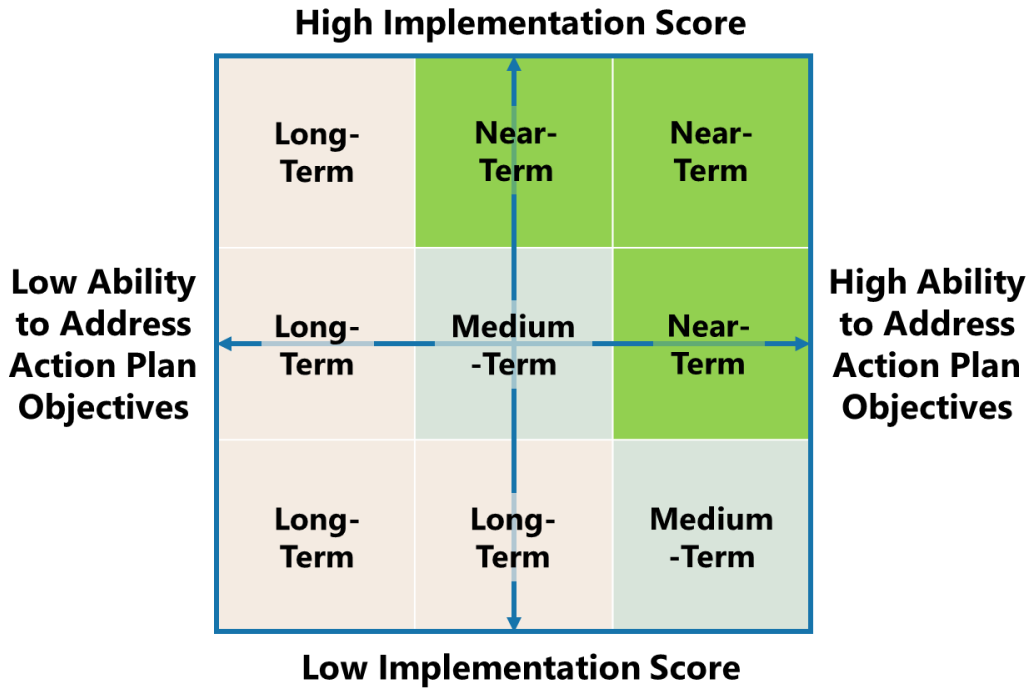
Additional Considerations & Next Steps for Implementation

- **Roundabout:** AutoTurn movement analyses should accompany the design of any significant intersection reconfigurations.
- **Access Management**: Traffic operations and turning movement analyses typically occur with development or as part of a full roadway reconstruction project. Additional public outreach should be conducted when reducing access points. Any limitations on high-volume access points should be further evaluated for their potential impact on overall traffic circulation.
- **Signal Modifications**: A traffic analysis should be conducted to evaluate the impacts of adjusting signal timing.

4.3 Prioritization

These site-specific treatments were prioritized into near-, medium-, and long-term implementation based on their ability to meet plan objectives, their feasibility of implementation, and their alignment with public priorities. Figure 25 illustrates this prioritization framework.

Figure 25. Prioritization Framework



5. Implementation

5.1 Near-Term Actions

Implementing the TSAP's strategies and treatments involves securing funding, selecting treatments and locations, and engaging partners in education and enforcement. Figure 26 summarizes next steps. Table 2 includes additional detail on the actions involved and the parties responsible for implementation support.

A complete list of strategies and treatments—including descriptions, their placement within the Safe System Roadway Design Hierarchy, prioritization scores, and the risk factors and emphasis areas they address—is provided in ***Appendix A: Strategies and Treatments.***

Figure 26. Near-Term Implementation Actions

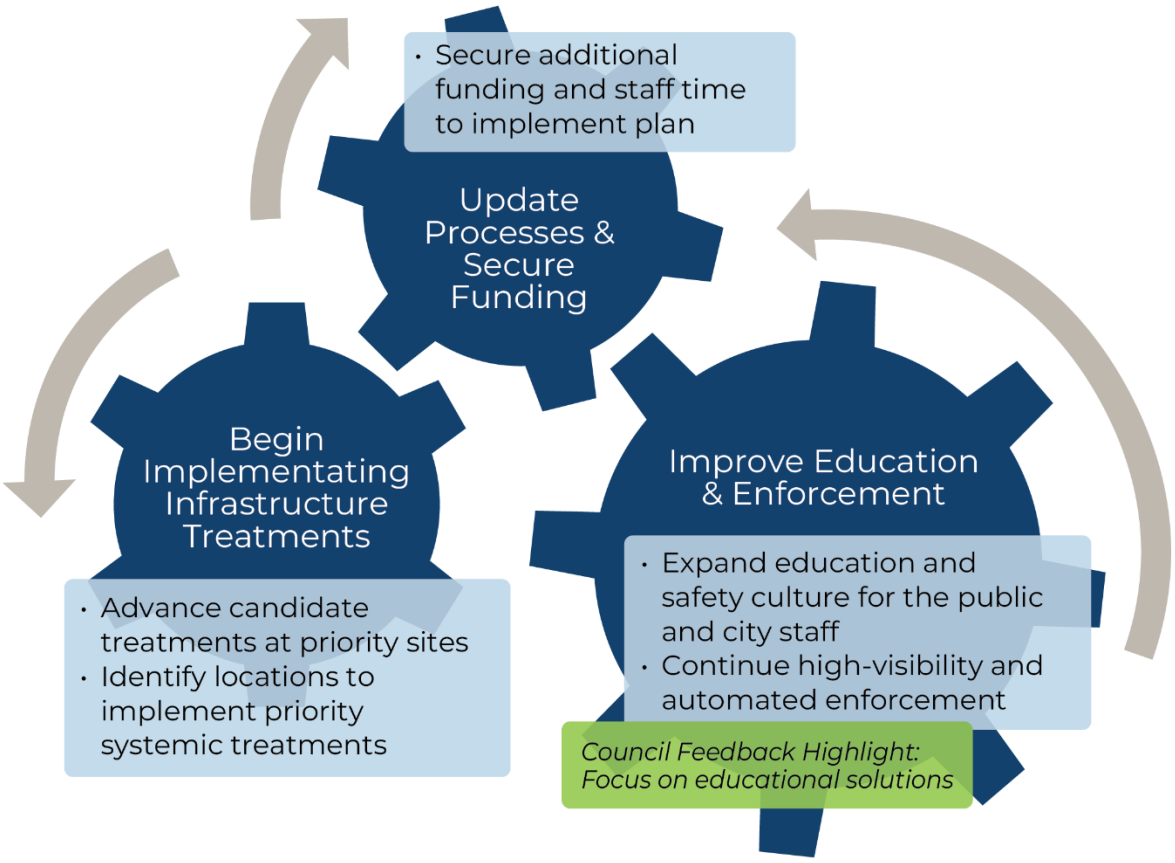


Table 2. Next Steps for Implementation

Action	Implementation Steps	Details	Partners
Update Processes and Secure Funding	Secure Additional Funding and Staff Time to Implement Plan	– Implementing the TSAP will require additional funding and staff support. ○ This plan recommends hiring a TSAP Implementation Coordinator responsible for monitoring performance metrics, tracking progress toward implementation, and reporting findings to the public. This position would also oversee and support the implementation of strategies and treatments, particularly those related to education and outreach. Additionally, the Coordinator could be responsible for before and after studies and preparing grant applications and pursuing funding opportunities to support implementation efforts. This position could be a part-time position or a portion of a full-time staff member's responsibilities. – Pursue grants, including SS4A grants, for project implementation.	
	Develop Process for Evaluating and Implementing Strategies and Treatments	– Develop formalized collaboration and decision-making processes based on best practices. Engage the Traffic Coordinating Committee. – Conduct before-after studies to evaluate tradeoffs in outcomes between reduced speeds, emergency response, and evacuation outcomes. Improving EMS and crash data integration can help facilitate plan implementation and performance tracking. – Consider piloting various traffic calming treatments. – Formalize process to engage first responders and the community in the decision-making process, including ahead of presentations before decision-making bodies. Prior to implementation, review potential for downstream impacts to emergency response and evacuation readiness. – The Transportation Commission could engage in this review. Engage a representative from Medford Fire directly on the Transportation Commission.	*Medford Police, Medford Fire, Transportation Commission, Traffic Coordinating Committee*
Begin Implementing Infrastructure Treatments	Advance Candidate Treatments at Example/Priority Sites	– Pursue grant funding to design and construct site-specific treatments for the example sites. – Advance safety priorities from the City's Capital Improvements Plan, including Table Rock Road from Merriman Road to Interstate 5 and Stewart and OR 99. The City has secured initial funding for preliminary engineering and design of Table Rock Road, but needs additional near-term funding for construction. Following implementation, a before-and-after study is recommended at this location to evaluate improvements and verify need for additional treatments.	*Varies by Site*
	Implement Crossing Improvements	– Engage the community and stakeholders to confirm priority locations, considering project locations identified in the TSP that overlap with the composite risk and injury networks. Focus on areas with high exposure. – Target school areas and three-lane roadways with opportunities to implement medians. – Conduct crossing evaluation to confirm appropriate crossing treatments. – Develop concept designs and cost estimates. – Complete design, implement, and monitor usage.	*Private Development, Medford School District*
	Implement Bicycle Facilities	– Engage the community and stakeholders to confirm priority locations, considering project locations identified in the TSP that overlap with the composite risk and injury networks (shown in Figure 17). – Develop concept designs and cost estimates. – Complete design, implement, and monitor usage.	*Private Development, ATAC*
	Enhance Signals and Add Protected Phasing	– Explore opportunities to provide protected intersection phasing, such as leading pedestrian intervals and protected left turns at existing signalized intersections. – Consider locations on the composite risk and injury networks and evaluate feasibility based on potential operational impacts.	
	Increase Visibility and Awareness	– As signals are replaced, continue utilizing enhanced signal hardware. – Explore opportunities to improve sight distance alongside other projects. – Implement speed feedback signs at priority locations based on speed data.	*Property Owners, Private Development*
Improve Education and Enforcement	Advance High-Visibility and Automated Enforcement	– Conduct high-visibility enforcement and education events, considering locations on the composite risk and injury network. Caution should be applied to avoid selecting locations that may disproportionally impact certain communities. – Consider changes to the automated enforcement program to align with best practices. – Consider adding automated speed-only enforcement locations. – Monitor performance through before-and after studies and adjust program as needed. Share results of enforcement with the public.	*Medford Police, Medford Fire, Medford School District*

	Expand Education and Safety Culture for the Public and City Staff	– Public education campaigns, staff education programs, high-visibility enforcement and education events to encourage a public sense of responsibility and support safe driving behaviors and public education around reactions during crash events.
		– Identify key topics and target audiences. Topics suggested by the advisory committee include:
		  ○ Driver/Bicyclist education, especially on newer rules like "Stop as Yield" for bicyclists. Take advantage of ODOT materials when possible.
		  ○ Education for drivers on how to interact with trucks, particularly in roundabouts, including a reminder that drivers should yield to trucks.
		  ○ Information on traffic control changes or how to navigate innovative treatments before they are implemented.
		  ○ Education on dangers of disregarding traffic signals.
		  ○ Education on moving over for emergency vehicles. (e.g., speeding, distraction).
		  ○ Riding with traffic in a bike lane.
		– Develop messages and materials using national resources.
		– Partner with schools, employers, and advocacy groups to launch education campaigns and host outreach events.
		– Refine the process for reviewing and tracking safety concerns and regularly communicate how community feedback informs actions.
		– Share progress towards TSAP goals and findings from before-after studies associated with safety treatments and strategies.
		– Evaluate outreach and update materials as needed annually.
			RVTD, RVMPO, AARP, Siskiyou Velo, RCC, United Way, Asante, La Clinica, HASL, ATAC, Medford Fire, Medford Police, Medford School District, Traffic Coordinating Committee

6. Progress and Transparency

6.1 Ensuring Continued Progress

Putting the TSAP into action will involve continuing conversations with City agencies, stakeholders, and the public, as well as securing funding for selected projects. Strategies are designed to be implemented in partnership between a range of agencies, including multiple departments within the City of Medford. Public agency partners in implementing projects include:

- City of Medford Public Works Department
- City of Medford Planning Department
- City of Medford Emergency Management
- Medford Fire Department
- Medford Police Department
- Jackson County
- Oregon Department of Transportation
- Oregon Trucking Association
- Rogue Valley Transit District
- Mercy Flights Ambulance Services

Every five years, the City will update the TSAP so that it reflects the changing needs and context of Medford's roadways and residents, helping the TSAP be a plan that grows and changes with the city. These updates will be guided by the performance metrics outlined in the following section.

6.2 Performance Measures

Performance measures are outlined below to provide a framework for measuring safety progress. They encompass two categories:

- **Implementation metrics** evaluate progress towards implementing the strategies and treatments within the plan.
- **Outcome metrics** evaluate the effectiveness of the implemented projects and policies in reducing fatal and serious injury crashes.

Tracking each of these areas helps maximize safety outcomes and plan effectiveness, clarifies communication with the public and stakeholders, and boosts accountability for the City as it works toward its goals. Table 3 provides examples of data that will be collected for implementation and outcome metrics. This data helps the City understand what is working best and what may need adjustments to have greater impact. It is recommended that the City track and report on these performance metrics annually[8].

Council Feedback Highlight: *Council supported use of performance measures to track success of the TSAP. Additional outcome metrics were added to identify when potential unintended consequences may be occurring so that the City can adjust approach as needed.*

Table 3. TSAP Performance Measures

Type	Performance Measure
Implementation Metrics	Number of systemic treatments and strategies implemented
	Number of site-specific treatments implemented at example/priority sites
Outcome Metrics – Project and Program Tracking	Before-and-after evaluation for a specific location or set of systemic treatments to assess post-implementation improvements, determine whether TSAP goals are met, identify the need for additional treatments, and address any unintended impacts
Outcome Metrics – Citywide Transportation Focused	Number of total crashes
	Number of fatal and serious injury crashes
	Percentage of all crashes that result in fatal or serious injury outcomes
	Number of fatal and serious injury crashes by emphasis area (e.g. at intersections [turning movement, fixed object, and angle crashes], involving a vulnerable road user, involving a motorcyclist, or involving risky road user behavior)
Outcome Metrics – Citywide Emergency Response Focused	Emergency response times and transport times, as available
	Overall number of injuries and fatalities of all types for all emergency types (traffic, fire, medical, etc.), as available

[8] *Because there are delays in the availability of ODOT crash data, the City may use MPD data as a preliminary source for outcome metrics such as the number of fatal and serious injury crashes. As noted in the Safety Analysis section, the MPD data may not capture all crashes on City roadways and are currently limited to certain emphasis areas. Therefore, this data should be interpreted with caution, and compared to previous years of MPD data (rather than previous years of ODOT data), to ensure a consistent comparison.*

6.3 Moving Forward Together

This Transportation Safety Action Plan provides a clear, data-driven roadmap for reducing fatal and severe crashes across Medford's transportation network. By prioritizing the identified locations and applying proven strategies, the City can focus resources where they are expected to have the greatest impact while minimizing business disruption and maintaining a safe and effective emergency response system. These actions support a system that is adaptable, resilient, and equitable for all users—whether walking, biking, driving, or riding transit. As Medford grows, this plan will help City staff and decision-makers keep safety central to policies, projects, and investments that save lives and prevent injuries.

Safety is a shared responsibility between those who own and operate the system, and all road users—drivers, walkers, and riders alike. Every trip is a chance to make Medford safer. Together, we can ensure that everyone reaches their destination safely and help keep Medford a great place to live, work, and play.

Appendix A – Strategies Prioritization

The tables below provide an overview of the strategies and treatments, which risk factors and emphasis areas they address[1], and their prioritized starting timeframe. Table A-1 provides definitions and notes. Table A-2 organizes strategies and treatments first by starting timeframe, then by category, then by tier of the roadway design hierarchy.

Strategies and treatments were identified based on a review of ODOT's Crash Reduction Factor Manual, U.S. Department of Transportation's Crash Modification Factor Clearinghouse, FHWA Proven Safety Countermeasures[1], the Safe System Roadway Design Hierarchy, and a review of ODOT's most recent Transportation Safety Action Plan.

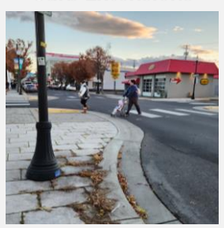
These strategies and treatments that can be applied systemically, guided by a robust and inclusive decision-making process that engages key stakeholders, including community members, impacted neighborhoods, first responders, partner agencies, freight representatives, and others. The strategies and treatments were identified to address the emphasis areas and associated risk factors, and provide a starting place for the City to identify treatments at specific locations.

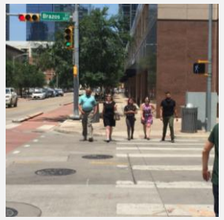
Table A-1. Definitions and Notes

Safe System Category	Type	Risk Factors				Emphasis Area				Safe System Roadway Design Hierarchy Tier	Starting Timeframe
		High-Volume and/or High-Speed Roadways	Land Use with High Exposure	Midblock Locations	Darkness	VRU	Motorcycle	Risky Road User Behaviors	Intersection Crash Types		
Which principle of the Safe System Approach the strategy or treatment is categorized in.	Strategies refer to non-infrastructure improvements, such as policy updates and educational programs. Treatments refer to infrastructure improvements at locations, with systemic or location-specific applications.	Arterial roadways, 4-lane roadways, and roadways with speeds 35 mph or above.	Areas with high equity burden, commercial areas, and transit stops.	Areas where there are gaps in more-midblock crossing opportunities or unenhanced intersection crossings.	Crashes occurring in dark conditions are more likely to result in severe outcomes, especially for VRUs.	Environments with higher risks for pedestrians and bicyclists especially at areas with high exposure (noted in risk factors below). Midblock crashes between motorists traveling straight and pedestrians crossing the street.	Environments and behaviors contributing to F/SI motorcyclist crashes. About 36% of motorcyclist crashes are single vehicle crashes, and 69% of motorcyclist crashes occur at intersections. About 75% of all motorcyclist crashes, including F/SI crashes, occur on arterial roadways.	Road behaviors including speeding, impairment, distracted driving, and seatbelt noncompliance.	Turning movement, fixed object, and angle crashes occurring at intersections for all modes. For vulnerable road users, angle crashes involving motorists traveling straight with bicyclists and turning movement crashes involving motorists making a left turn with pedestrians crossing.	Which tier of the Safe System Approach the strategy or treatment is categorized in.	Refines draft starting timeframe based on feedback, preceding nature of some strategies, and opportunities to complete some strategies in conjunction.

[1] The box includes an image representing that emphasis area or risk factor if it is addressed by that strategy or treatment.

Table A-2. Prioritized Strategies

Safe System Category (Strategy/ Treatment)	Treatment/ Strategy	Description	Expected Outcome	Implementation Considerations / Potential Challenges	Risk Factors				Emphasis Area				Safe System Roadway Design Hierarchy Tier	Starting Timeframe
					High-Volume and/or High-Speed Roadways	Land Use with High Exposure	Midblock Locations	Darkness	VRU	Motorcycle	Risky Road User Behaviors	Intersection Crash Types		
Safer Roads (Treatment)	**Pedestrian Facilities** 	Fill sidewalk gaps and improve existing pedestrian facilities.	Creates continuous routes, reduces pedestrian exposure, and improves accessibility and safety.	– Potential right-of-way acquisition challenges – Utility conflicts can add complexity	SPEED LIMIT 35								Tier 1: Remove Severe Conflicts	Near-Term
Safer Roads (Treatment)	**Pedestrian Refuge Island** 	Install raised medians with refuge islands at unsignalized intersections or midblock crossings.	Provides a safe waiting area, reduces pedestrian exposure, and allows two-stage crossings.	– Needs adequate roadway width; may require removal of vehicle lanes or turn pockets – Drainage and maintenance challenges at raised islands – Reduces total space for freight or emergency vehicles – The ODOT Highway Design Manual provides target pedestrian crossing spacing based on urban context.	SPEED LIMIT 35								Tier 1: Remove Severe Conflicts	Near-Term
Safer Roads (Treatment)	**Bicycle Facilities** 	Install low-stress bicycle facilities that connect to key destinations across the city.	Provides designated space for bicycles, reduces conflicts with vehicles, and supports safe multimodal travel.	– In constrained environments it may require tradeoffs with parking or vehicle lanes – Needs a connected network to achieve meaningful safety outcomes – Maintenance and separation treatments can increase ongoing costs	SPEED LIMIT 35								Tier 1: Remove Severe Conflicts	Near-Term
Safer Roads (Treatment)	**Curb Extensions** 	Install curb extensions with ADA-compliant ramps at intersections or crossings.	Shortens crossing distances, slows turning vehicles, and improves pedestrian visibility.	– May interfere with drainage, snow removal, or bike lanes – Generally limited to locations with parking and may functionally reduce number of parking spaces – Needs careful design to accommodate freight and emergency vehicles	SPEED LIMIT 35								Tier 2: Reduce Vehicle Speeds	Near-Term

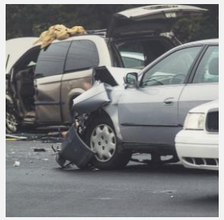
Safe System Category (Strategy/ Treatment)	Treatment/ Strategy	Description	Expected Outcome	Implementation Considerations / Potential Challenges	Risk Factors				Emphasis Area				Safe System Roadway Design Hierarchy Tier	Starting Timeframe
					High-Volume and/or High-Speed Roadways	Land Use with High Exposure	Midblock Locations	Darkness	VRU	Motorcycle	Risky Road User Behaviors	Intersection Crash Types		
Safer Roads (Treatment)	**Signal Operational Changes - Protected Left Turns** 	Replace permissive or protected/ permissive left turns with protected-only phasing.	Reduces conflicts with opposing traffic, lowering the risk of angle and turning crashes.	– May increase delay for some movements – May increase cycle length and impact progression – May require reprogramming the controller and new signal heads	SPEED LIMIT 35								Tier 3: Manage Conflicts In Time	Near-Term
Safer Roads (Treatment)	**Signal Operational Changes - Leading Pedestrian Interval** 	Update signal timing to enable a Leading Pedestrian Interval (LPI).	Gives pedestrians a head start before vehicles get a green light, improving visibility, increasing yielding, and reducing turning conflicts.	– May reduce green time for vehicles – Requires recalibration of signal coordination along corridors – Some drivers may not expect pedestrians to step into the crosswalk before the green – The ODOT Highway Design Manual provides target pedestrian crossing spacing based on urban context	SPEED LIMIT 35								Tier 3: Manage Conflicts In Time	Near-Term
Safer Roads (Treatment)	**Rectangular Rapid Flashing Beacon (RRFB)** 	Install Rectangular Rapid Flashing Beacon (RRFB).	Alerts drivers to pedestrian activity, improves compliance, and enhances safety at unsignalized crossings. When paired with a pedestrian refuge island, this expected safety benefits increase.	– Less effective on wide or high-speed roadways without pedestrian refuge – Requires power source and ongoing maintenance – Effectiveness depends on driver yielding behavior – The ODOT Highway Design Manual provides target pedestrian crossing spacing based on urban context.	SPEED LIMIT 35								Tier 4: Increase Attentiveness and Awareness	Near-Term

Safe System Category (Strategy/ Treatment)	Treatment/ Strategy	Description	Expected Outcome	Implementation Considerations / Potential Challenges	Risk Factors				Emphasis Area				Safe System Roadway Design Hierarchy Tier	Starting Timeframe
					High-Volume and/or High-Speed Roadways	Land Use with High Exposure	Midblock Locations	Darkness	VRU	Motorcycle	Risky Road User Behaviors	Intersection Crash Types		
Safer Roads (Treatment)	**Increase Awareness - Sight Distance** 	Remove or relocate vegetation, parked vehicles, or objects that limit sight distance	Improves visibility, reduces conflicts, and enhances safety at intersections and driveways.	– Requires coordination with adjacent property owners and enforcement of ordinances – May result in loss of parking supply or landscaping valued by community – Ongoing maintenance is necessary to preserve sight lines	SPEED LIMIT 35								Tier 4: Increase Attentiveness and Awareness	Near-Term
Safer Roads (Treatment)	**Increase Awareness - Enhanced Signal Hardware** 	Improve signal hardware with larger lenses, reflectorized back plates, and additional signal heads.	Enhances visibility, improves driver compliance, and reduces the likelihood of missed-signal crashes.	– Incremental safety benefits may be less visible to the public compared to larger projects	SPEED LIMIT 35								Tier 4: Increase Attentiveness and Awareness	Near-Term
Safer Roads (Strategy)	**Funding for Safety Enhancements** 	Establish dedicated funding sources for safety projects, including quick-build and long-term capital projects.	Provides sustainable resources for implementation and accelerates delivery of safety improvements.	– Dedicated funding streams may be difficult to establish or sustain – Competition with other citywide priorities	SPEED LIMIT 35								Not Applicable or Varies	Near-Term
Safer Speeds (Strategy)	**Design Speed and Target Speed Policy** 	Adopt roadway design and speed-setting policies based on surrounding land use and roadway context.	Aligns vehicle speeds with roadway environment, reducing crash severity, and improving predictability.	– Requires changes to design manuals, municipal code, or ordinances – Public resistance possible to lower posted limits without visible justification	SPEED LIMIT 35								Not Applicable or Varies	Near-Term

Safe System Category (Strategy/ Treatment)	Treatment/ Strategy	Description	Expected Outcome	Implementation Considerations / Potential Challenges	Risk Factors				Emphasis Area				Safe System Roadway Design Hierarchy Tier	Starting Timeframe
					High-Volume and/or High-Speed Roadways	Land Use with High Exposure	Midblock Locations	Darkness	VRU	Motorcycle	Risky Road User Behaviors	Intersection Crash Types		
Safer Speeds (Strategy)	**Program for Evaluating and Implementing Traffic Calming** 	Establish a formal review process and dedicated funding to support traffic calming implementation. Develop and apply those traffic calming measures in coordination with emergency service providers.	Expands use of calming strategies, reduces speeding, and improves neighborhood livability and safety, while maintaining reliable emergency response access.	– Requires coordination with emergency responders to balance access and speed management – Some treatments reduce parking or increase travel time	SPEED LIMIT 35								Not Applicable or Varies	Near-Term
Safer Speeds (Strategy)	**Automated Safety Enforcement Program** 	Refine automated enforcement programs with transparent reporting and reinvestment of funds into safety improvements. This includes automatic speed and red light cameras.	Enhances compliance with traffic laws, reduces violations, and builds public trust in enforcement.	– Requires clear communication to avoid perception of “revenue generation” – Higher support may be achieved by demonstrating crash reduction benefits and transparent use of fine revenues to maintain support	SPEED LIMIT 35								Tier 2: Reduce Vehicle Speeds	Near-Term
Safer Speeds (Treatment)	**Speed Feedback Signs** 	Install speed feedback signs that display a driver’s current speed alongside the posted limit.	Raises driver awareness, encourages safer speeds, and improves compliance.	– Effectiveness may diminish over time as drivers habituate – Requires power source and regular maintenance – Best applied selectively at problem locations rather than broadly	SPEED LIMIT 35								Tier 2: Reduce Vehicle Speeds	Near-Term
Safer People (Strategy)	**Staff Education Programs** 	Implement professional training for City staff and law enforcement on speed management and safe operations.	Builds institutional expertise, leading to more consistent, effective, and equitable implementation of safety programs.	– Requires staff time commitment and leadership support to prioritize training – Enforcement-focused training must balance safety goals with equitable practices	SPEED LIMIT 35								Not Applicable or Varies	Near-Term

Safe System Category (Strategy/ Treatment)	Treatment/ Strategy	Description	Expected Outcome	Implementation Considerations / Potential Challenges	Risk Factors				Emphasis Area				Safe System Roadway Design Hierarchy Tier	Starting Timeframe
					High-Volume and/or High-Speed Roadways	Land Use with High Exposure	Midblock Locations	Darkness	VRU	Motorcycle	Risky Road User Behaviors	Intersection Crash Types		
Safer People (Strategy)	**Public Education Campaign** 	Conduct public outreach campaigns on issues such as speeding, distracted driving, aging road users, and school-age safety.	Increases awareness, encourages safer behavior, and strengthens support for safety initiatives.	– Effectiveness can be difficult to measure – Requires ongoing funding to maintain visibility and impact – Programs should be tailored to different audiences (youth, aging, drivers)	SPEED LIMIT 35								Not Applicable or Varies	Near-Term
Safer People (Strategy)	**Encourage Public Sense of Responsibility** 	Establish forums for community feedback, provide updates on safety treatments, and share progress toward Vision Zero.	Builds accountability, engages the community, and fosters a shared culture of safety.	– Effectiveness can be difficult to measure – Sustaining long-term community engagement can be difficult	SPEED LIMIT 35								Not Applicable or Varies	Near-Term
Safer People (Strategy)	**Collaborate With Employers** 	Encourage employers to adopt distracted driving policies and provide transportation safety education.	Reduces distracted driving crashes, promotes safe commuting, and extends safety awareness into the workplace.	– Participation depends on voluntary employer buy-in – Programs compete with other employer training requirements – Enforcement of distracted driving policies is difficult	SPEED LIMIT 35								Not Applicable or Varies	Near-Term
Safer People (Strategy)	**Safe Routes to School Programs** 	Implement education and infrastructure improvements to support safe walking, biking, and rolling to school.	Reduces crash risk for children, promotes safe travel habits, and increases parent and community confidence.	– Requires strong coordination with schools and parents – Infrastructure improvements can be costly – Education programs must be sustained across grades and years	SPEED LIMIT 35								Not Applicable or Varies	Near-Term

Safe System Category (Strategy/ Treatment)	Treatment/ Strategy	Description	Expected Outcome	Implementation Considerations / Potential Challenges	Risk Factors				Emphasis Area				Safe System Roadway Design Hierarchy Tier	Starting Timeframe
					High-Volume and/or High-Speed Roadways	Land Use with High Exposure	Midblock Locations	Darkness	VRU	Motorcycle	Risky Road User Behaviors	Intersection Crash Types		
Safer People (Strategy)	**High-Visibility Enforcement/ Education Events** 	Implement high-visibility enforcement campaigns in high-risk areas, paired with public education.	Deters unsafe driving behaviors, reduces violations such as speeding and impairment, and improves compliance.	– Requires staff resources and coordination with law enforcement – May be seen as temporary rather than systemic solution – Enforcement-focused must balance safety goals with equitable practices	SPEED LIMIT 35								Not Applicable or Varies	Near-Term
Safer People (Strategy)	**Community-Led Safety Audits or Walk/Bike Assessments** 	Support community-led audits and assessments of local streets and crossings.	Builds public engagement, identifies hazards, and helps prioritize safety improvements using local input.	– Volunteer capacity and participation may vary – The ODOT Highway Design Manual provides target pedestrian crossing spacing based on urban context	SPEED LIMIT 35								Not Applicable or Varies	Near-Term
Safer People (Strategy)	**TSAP Implementation Coordinator** 	TSAP implementation and monitoring. Responsible for education initiatives, planning, and monitoring performance measures. This could be a part-time position or a portion of a full-time staff member's responsibilities.	Increases accountability, ensures timely delivery, and strengthens performance tracking for safety initiatives.	– Requires ongoing funding – Clear roles and responsibilities must be defined	SPEED LIMIT 35								Not Applicable or Varies	Near-Term

Safe System Category (Strategy/ Treatment)	Treatment/ Strategy	Description	Expected Outcome	Implementation Considerations / Potential Challenges	Risk Factors				Emphasis Area				Safe System Roadway Design Hierarchy Tier	Starting Timeframe
					High-Volume and/or High-Speed Roadways	Land Use with High Exposure	Midblock Locations	Darkness	VRU	Motorcycle	Risky Road User Behaviors	Intersection Crash Types		
Post-Crash Care (Strategy)	**EMS and Crash Data Integration** 	Integrate police and EMS crash data for mapping, analysis, and resource allocation.	Identifies hotspots, improves response allocation, and enables proactive treatment of high-risk locations.	– Requires compatible data systems across agencies – Concerns about data privacy and sharing agreements – Significant staff time needed for analysis and reporting	SPEED LIMIT 35								Not Applicable or Varies	Near-Term
Post-Crash Care (Strategy)	**Public Awareness Campaigns for Incident Response** 	Conduct public campaigns on crash response, including bystander CPR training and pedestrian/bicyclist safety.	Improves public readiness, increases survival rates, and raises awareness of safety responsibilities.	– Requires ongoing funding to sustain training programs	SPEED LIMIT 35								Not Applicable or Varies	Near-Term
Safer Roads (Treatment)	**Access Management** 	Consolidate access or limit turning movements at driveway access	Reduces the number or type of driveway movements to minimize conflict points and improve safety.	– Requires coordination with property owners; may face business resistance – May impact freight and emergency response access	SPEED LIMIT 35								Tier 1: Remove Severe Conflicts	Medium-Term
Safer Roads (Treatment)	**Roadway Reallocation** 	Reconfigure four-lane roads into three lanes with a center turn lane and added space for other uses (e.g., bike lanes).	Improves safety by lowering speeds, reducing conflict points, and providing space for people walking and biking.	– May be controversial due to concerns balancing safety and congestion – Design and enforcement can be resource intensive	SPEED LIMIT 35								Tier 1: Remove Severe Conflicts	Medium-Term

Safe System Category (Strategy/ Treatment)	Treatment/ Strategy	Description	Expected Outcome	Implementation Considerations / Potential Challenges	Risk Factors				Emphasis Area				Safe System Roadway Design Hierarchy Tier	Starting Timeframe
					High-Volume and/or High-Speed Roadways	Land Use with High Exposure	Midblock Locations	Darkness	VRU	Motorcycle	Risky Road User Behaviors	Intersection Crash Types		
Safer Roads (Treatment)	**Install Lighting - Intersection Lighting** 	Install overhead lighting at intersections.	Improves nighttime visibility, improves drive awareness, and enhances safety for all users.	– Potential light pollution or neighborhood opposition – Requires coordination with utility providers for installation	SPEED LIMIT 35								Tier 4: Increase Attentiveness and Awareness	Medium-Term
Safer Roads (Treatment)	**Install Lighting - Pedestrian Scale Lighting** 	Install pedestrian-scale lighting along sidewalks and at crossings.	Improves pedestrian visibility and comfort and reduces likelihood of nighttime crossing crashes.	– Potential light pollution or neighborhood opposition – Requires coordination with utility providers for installation	SPEED LIMIT 35								Tier 4: Increase Attentiveness and Awareness	Medium-Term
Safer Roads (Strategy)	**Bus Stop Design** 	Update design standards and guidelines to support safe access at transit stops.	Improves visibility and access at bus stops, reducing conflicts and enhancing safety on higher-speed streets.	– May require roadway reconfiguration or crossing treatments to provide sufficient space to meet accessibility standards – Potential tradeoffs with parking, bike lanes, or vehicle throughput – Coordination with transit agency and utility providers is essential	SPEED LIMIT 35								Not Applicable or Varies	Medium-Term
Safer Roads (Strategy)	**Micromobility Safety Innovations** 	Adopt best practices and tools, such as the E-scooter Safety Toolbox, to improve micromobility safety.	Reduces crashes involving e-scooters and other micromobility devices, improves rider safety, and promotes safer integration with traffic.	– Rapidly evolving technology makes standards difficult to set – Enforcement of safety policies for private operators can be challenging – Requires coordination with vendors and the public	SPEED LIMIT 35								Not Applicable or Varies	Medium-Term

Safe System Category (Strategy/ Treatment)	Treatment/ Strategy	Description	Expected Outcome	Implementation Considerations / Potential Challenges	Risk Factors				Emphasis Area				Safe System Roadway Design Hierarchy Tier	Starting Timeframe
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Safer Speeds (Treatment)	**Traffic Calming** 	Install roadway treatments such as narrowing, markings, vertical elements, or reconfiguration.	Lowers speeds, discourages cut-through traffic, and reduces crash severity.	– Some treatments may conflict with freight, transit, and emergency response operations	SPEED LIMIT 35*								Tier 2: Reduce Vehicle Speeds	Medium-Term
Safer Land Use (Strategy)	**Develop and Implement Safe, Flexible Roadway Design Scheme** 	Develop roadway designs using flexible markings and materials that support daily use and emergency evacuations.	Slows traffic during normal conditions, supports safe travel, and allows rapid conversion for evacuation routes.	– Requires new design standards and staff training – Materials must balance flexibility with durability – Implementation may raise cost compared to traditional design	SPEED LIMIT 35								Not Applicable or Varies	Medium-Term
Post-Crash Care (Strategy)	**Enhanced Emergency Vehicle Preemption** 	Expand signal preemption systems to all emergency responders, beyond current limited use.	Improves emergency response times, reduces delays, and increases safety for responders and roadway users.	– Technology requires upgrades across signals and vehicles – Must coordinate with multiple emergency service providers – Funding and maintenance responsibilities must be clear	SPEED LIMIT 35								Not Applicable or Varies	Medium-Term
Post-Crash Care (Strategy)	**Enhanced EMS Systems** 	Adopt new technologies to improve crash response, including upgraded 911 dispatch, geolocation, routing, and triage tools.	Speeds up emergency response, improves crash site accuracy, and enhances patient outcomes.	– Requires investment in new dispatch and communication technologies – Must coordinate with multiple emergency service providers	SPEED LIMIT 35								Not Applicable or Varies	Medium-Term

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					High-Volume and/or High-Speed Roadways	Land Use with High Exposure	Midblock Locations	Darkness	VRU	Motorcycle	Risky Road User Behaviors	Intersection Crash Types		
Post-Crash Care (Strategy)	**Traffic Incident Management** 	Implement best practices for managing traffic incidents and investigations.	Reduces clearance times, minimizes secondary crashes, and improves safety for responders and drivers.	– Requires training and coordination among multiple jurisdictions and emergency service providers	SPEED LIMIT 35								Not Applicable or Varies	Medium-Term
Safer Roads (Treatment)	**Roundabout** 	Convert signalized or stop-controlled intersections to modern roundabouts	Replaces stop or signal control with a circular intersection, reducing conflict points, lowering speeds, and enhancing intersection operations.	– May requires more space at intersections; land acquisition may be costly or controversial – High upfront construction cost; lower maintenance costs – Must accommodate freight, emergency vehicles, pedestrians, and bicyclists	SPEED LIMIT 35								Tier 1: Remove Severe Conflicts	Long-Term
Safer Roads (Treatment)	**Remove Fixed Objects** 	Delineate, remove, or relocate fixed objects outside of the roadside clear zone.	Reduces crash severity by lowering the likelihood of serious fixed-object collisions.	– Some objects (eg, utility poles) may be difficult or expensive to relocate	SPEED LIMIT 35								Tier 1: Remove Severe Conflicts	Long-Term
Safer Roads (Treatment)	**Hardened Centerlines and Turn Wedges** 	Install raised elements such as bollards or rubber curbs on intersection centerlines.	Slows turning speeds, reduces conflicts at intersections, and improves safety for all users.	– May create challenges for freight, large vehicles, and emergency response – Requires durable materials and ongoing maintenance to remain effective – Risk of driver non-compliance or vehicles striking devices	SPEED LIMIT 35								Tier 2: Reduce Vehicle Speeds	Long-Term

Safe System Category (Strategy/ Treatment)	Treatment/ Strategy	Description	Expected Outcome	Implementation Considerations / Potential Challenges	Risk Factors				Emphasis Area				Safe System Roadway Design Hierarchy Tier	Starting Timeframe
					High-Volume and/or High-Speed Roadways	Land Use with High Exposure	Midblock Locations	Darkness	VRU	Motorcycle	Risky Road User Behaviors	Intersection Crash Types		
Safer Roads (Treatment)	**Signal Operational Changes - Right Turn on Red Restrictions** 	Restrict right turns on red at signalized intersections.	Reduces conflicts with cross traffic and improves intersection predictability and safety.	– May increase delay, particularly during off-peak times – Some drivers may disregard restrictions without signage/ enforcement	SPEED LIMIT 35								Tier 3: Manage Conflicts In Time	Long-Term
Safer Roads (Treatment)	**Enhance Detection** 	Implement red light extension (RLE) systems that extend the all-red phase when vehicles are detected entering late.	Reduces the likelihood of red-light running crashes and improves clearance safety.	– Requires regular upkeep of detection equipment and integration with signal controllers	SPEED LIMIT 35								Tier 3: Manage Conflicts In Time	Long-Term
Safer Roads (Treatment)	**All-Way Stop Control** 	Install stop signs on all approaches at two-way stop-controlled intersections.	Requires all approaches to stop, reducing the likelihood of angle crashes, improving safety for all users, and balancing intersection priority.	– Must meet MUTCD criteria – Can increase delay on higher-volume approaches – May require driver education during transition	SPEED LIMIT 35								Tier 3: Manage Conflicts In Time	Long-Term
Safer Roads (Treatment)	**Pedestrian Hybrid Beacon** 	Install pedestrian-activated hybrid beacons at unsignalized multilane crossings.	Provides a red-light indication to drivers when activated, improving yielding behavior and pedestrian safety.	– Installation and maintenance costs higher than basic crossing treatments – Works best at locations with consistent pedestrian demand	SPEED LIMIT 35								Tier 3: Manage Conflicts In Time	Long-Term

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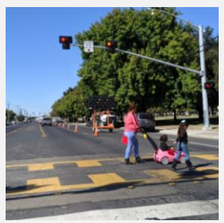
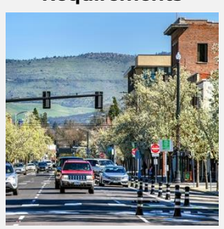
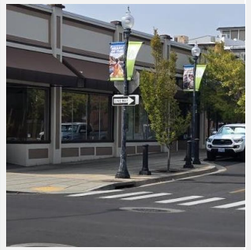
					High-Volume and/or High-Speed Roadways	Land Use with High Exposure	Midblock Locations	Darkness	VRU	Motorcycle	Risky Road User Behaviors	Intersection Crash Types		
Safer Roads (Treatment)	**Increase Awareness - Flashing Beacons** 	Provide flashing beacons at all-way or minor-road stop-controlled intersections. These beacons can be actuated so that they activate when vehicles approach unsignalized intersections.	Alerts drivers to upcoming intersections, improves compliance, and reduces the likelihood of missed-stop crashes.	– Requires installation and ongoing maintenance of electrical/solar equipment	SPEED LIMIT 35								Tier 4: Increase Attentiveness and Awareness	Long-Term
Safer Roads (Strategy)	**Traffic Impact Analysis Requirements** 	Incorporate Safe System principles into development review requirements.	Ensures safety and operational impacts are evaluated, supporting safer design and development approvals.	– Requires updates to local code and development review processes – May increase applicant costs and time to complete studies – Needs clear guidance to ensure consistent and defensible application	SPEED LIMIT 35								Not Applicable or Varies	Long-Term
Safer Roads (Strategy)	**Multimodal & Geometric Design** 	Update design standards for complete streets, multimodal performance measures, and automated vehicle operations.	Improves roadway safety for all users, supports safe intersection geometry, and prepares for emerging technologies.	– Requires significant updates to design standards, which can be time- and resource-intensive – Balancing the needs of all modes can create tradeoffs (eg, freight vs pedestrian space) – Automated vehicle design assumptions are still evolving, creating uncertainty	SPEED LIMIT 35								Not Applicable or Varies	Long-Term

Safe System Category (Strategy/ Treatment)	Treatment/ Strategy	Description	Expected Outcome	Implementation Considerations / Potential Challenges	Risk Factors				Emphasis Area				Safe System Roadway Design Hierarchy Tier	Starting Timeframe
					High-Volume and/or High-Speed Roadways	Land Use with High Exposure	Midblock Locations	Darkness	VRU	Motorcycle	Risky Road User Behaviors	Intersection Crash Types		
Safer Roads (Strategy)	**Conduct an Evacuation Study** 	Conduct studies to identify bottlenecks and evaluate evacuation routes.	Provides strategies and treatments to improve emergency preparedness, reduce delays, and enhance safety during evacuations. These studies can provide context to help evaluate impacts and benefits associated with other strategies and treatments.	– Data-intensive and may require specialized modeling tools – Coordination with multiple agencies and jurisdictions is essential – Results may highlight costly improvements or politically sensitive issues	SPEED LIMIT 35								Not Applicable or Varies	Long-Term
Safer Roads (Strategy)	**Infrastructure and Policy Changes to Support Automated Vehicles** 	Update roadway design standards and policy guidance to support automated vehicle operations.	Ensures safe integration of new technology, maintains safety for all roadway users, and supports consistent operations.	– Standards and requirements for AVs remain uncertain – Upgrades may conflict with current design priorities – High cost for uncertain long-term benefit	SPEED LIMIT 35								Not Applicable or Varies	Long-Term
Safer People (Strategy)	**Conduct Evacuation Readiness Education and Testing** 	Conduct community drills and provide outreach on evacuation routes and emergency procedures.	Improves public preparedness, reduces confusion during emergencies, and supports faster, safer evacuations.	– Public participation may be low without strong outreach – Requires coordination across multiple agencies and schools – Logistical challenges of simulating real emergencies	SPEED LIMIT 35								Not Applicable or Varies	Long-Term

Safe System Category (Strategy/ Treatment)	Treatment/ Strategy	Description	Expected Outcome	Implementation Considerations / Potential Challenges	Risk Factors				Emphasis Area				Safe System Roadway Design Hierarchy Tier	Starting Timeframe
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Safer Land Use (Strategy)	**Develop a Building Setback Policy** 	Develop building setback policies that reduce minimum distances from the street.	Creates a more pedestrian-oriented environment, improves visibility between users, and supports context-appropriate travel speeds.	– May conflict with existing zoning or development expectations – Resistance from developers due to reduced buildable area – Requires strong design guidelines to avoid unintended outcomes	SPEED LIMIT 35								Not Applicable or Varies	Long-Term
Safer Land Use (Strategy)	**Build Connected Street Networks** 	Develop well-connected local street networks.	Provides multiple route options, disperses traffic, lowers vehicle speeds, and reduces reliance on arterials.	– Costly and long-term to implement in built-out areas – May require property acquisition or redevelopment – Community opposition possible due to perceived traffic impacts	SPEED LIMIT 35								Not Applicable or Varies	Long-Term
Safer Land Use (Strategy)	**Encourage Mixed Used Land Development** 	Encourage mixed-use development that combines housing, jobs, and services. Encourage higher densities around potential high-capacity transit stations.	Promotes shorter trips, reduces vehicle dependence, and supports slower speeds and safer streets.	– Requires zoning and code changes, often controversial – Benefits accrue over long timeframes – Market demand may not align with policy goals	SPEED LIMIT 35								Not Applicable or Varies	Long-Term
Safer Vehicles (Strategy)	**Advocate for Increased Vehicle Safety Requirements** 	Advocate for stronger state and national regulations and enforce requirements for securing cargo in transport.	Reduces cargo-related crashes, improves vehicle safety, and protects roadway users.	– Requires action at state/ national levels outside local control – Enforcement of load security and standards requires resources – Local influence may be limited without regional/ state partnerships	SPEED LIMIT 35								Not Applicable or Varies	Long-Term

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Safer Vehicles (Strategy)	**Update and Maintain Vehicle Fleet** 	Adopt emerging fleet technologies for the City's vehicles, such as speed limiters, automated emergency braking, vulnerable road user detection, and side guards on trucks.	Reduces crash risks, improves driver awareness, and lessens the severity of collisions with all road users, and particularly vulnerable road users.	– Upfront costs for vehicle replacement or retrofits – Technology adoption requires staff training and maintenance – Must coordinate with procurement cycles and budget constraints	SPEED LIMIT 35								Not Applicable or Varies	Long-Term
Safer Vehicles (Strategy)	**Update Vehicle Procurement Policy** 	Update vehicle procurement policies to prioritize pedestrian-friendly designs and advanced safety systems (e.g., lower hood heights, direct-vision cabs, driver assistance).	Improves visibility, reduces the likelihood of severe collisions, and enhances overall fleet safety performance.	– May increase vehicle costs compared to conventional fleet – Availability of models with safety features may be limited – Requires consistent application across all departments	SPEED LIMIT 35								Not Applicable or Varies	Long-Term