



**RESOLUTION NO. 25-036
ADOPTING THE STAYTON SAFETY ACTION PLAN**

WHEREAS, the City of Stayton received funding through the U.S. Department of Transportation's Safe Streets and Roads for All (SS4A) grant program to prepare a Stayton Safety Action Plan (SSAP);

WHEREAS, the Stayton Safety Action Plan was developed with support from Technical and Public Advisory Committees, public engagement efforts, crash data analysis, and technical expertise from professional transportation engineering consultants;

WHEREAS, the Stayton Safety Action Plan identifies strategies and projects to eliminate roadway fatalities and serious injuries and improve transportation safety for all road users; and

WHEREAS, adoption of the Stayton Safety Action Plan allows the city to apply for future federal funding for implementation and helps prioritize transportation safety in Stayton's planning and infrastructure investments.

NOW THEREFORE, THE CITY OF STAYTON RESOLVES:

SECTION 1. The City of Stayton hereby adopts the Stayton Safety Action Plan, attached as Exhibit A, as the official transportation safety action plan for the City of Stayton.

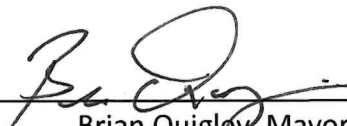
This Resolution shall become effective upon its adoption by the Stayton City Council.

ADOPTED BY THE STAYTON CITY COUNCIL THIS 3RD DAY OF NOVEMBER 2025.

CITY OF STAYTON

Signed: 11-3, 2025

BY:



Brian Quigley, Mayor

Signed: 11-4, 2025

ATTEST:



Julia Hajduk, City Manager

CITY OF STAYTON SAFETY ACTION PLAN

BUILDING A SAFER FUTURE FOR ALL

October 2025



Stayton Safety Action Plan

Acknowledgements

The City of Stayton Safety Action Plan (SAP) was prepared by the City of Stayton in coordination with regional and local partners.

The City of Stayton would like to thank the Technical Advisory Committee, Public Advisory Committee, and all members of the public that participated in outreach events and surveys and provided insights and feedback.

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Glossary

Access Management: The planning and regulation of vehicle access points to land adjacent to roadways, like driveways in and out of shopping centers.

Countermeasure: A project or action intended to reduce potential of a specific type of crash.

Composite Risk and Injury Network (CRIN): An overlay of the High-Injury Network (HIN, below) and the risk factors (below).

Emphasis Areas: Emphasis Areas interact with Risk Factors (below), and indicate crash types and contributing factors that can be addressed with targeted safety countermeasures.

Equivalent Property Damage Only (EPDO): A type of analysis that follows 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 or Serious Injury Crash: Fatal and serious injury crashes are crashes that result in death or life-changing injuries. According to Oregon Department of Transportation (ODOT) crash reporting instructions, this includes 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 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.

Protected Turn Phasing: The separation of light cycles into different phases for turning movements, like separate green arrows for left turns instead of left turns yielding to through traffic.

Risk Factors: Risk Factors are roadway and land use characteristics that correlate to fatal and serious injury crashes. These factors generally relate to exposure and high speeds, which are two critical elements contributing to fatal and serious injury crashes.

Rapid Rectangular Flashing Beacon: A device that flashes yellow lights to alert drivers of pedestrians crossing the road.

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

Strategy: Non-infrastructure improvements, such as policy updates and educational programs.



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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 this location. This is intended to help address potential risks before they cause harm, rather than reacting to incidents 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: Infrastructure improvements at locations, with systemic or location-specific applications

Vision Zero: Vision Zero is the goal to eliminate roadway deaths and serious injuries.

Vulnerable Road User: A person who is unprotected by an outside shield, like in a car or truck, when they are traveling. For the purposes of this study, VRUs refer to pedestrians and bicyclists.



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The City of Stayton is committed to Vision Zero and will strive to achieve the goal of zero traffic deaths and serious injuries by 2045.



Executive Summary

This Safety Action Plan (SAP) evaluates safety concerns and crash history in Stayton to create a toolkit of recommendations for safety improvements. The SAP is primarily data-driven, with public involvement playing a key role in supplementing data. The community of Stayton helped identify safety gaps, shape solutions that align with local needs, and ensure that solutions fit local context.

Guiding Principles

The SAP is built around the foundational framework of the Safe System Approach, the Roadway Safety Design Hierarchy, and Vision Zero. Each of these philosophies reorient traditional traffic safety beliefs toward the idea that humans make mistakes, traffic deaths and serious injuries are **preventable**, and a safe transportation system requires collaboration and shared responsibility from all stakeholders.

Safety Challenges

Like many communities of similar size, Stayton's roadway network faces challenges such as gaps in the sidewalk system, aging infrastructure, and limited funding for improvements. The city has experienced an increase in crash severity and frequency as part of a broader national trend, highlighting the importance of addressing safety concerns proactively. This SAP reinforces the community's commitment to its Vision Zero goal and the need for strategic, data-informed investments in its transportation system. Comprehensive infrastructural, educational, and enforcement-based change builds a safer future of connection and mobility for all.

Emphasis Areas

The City distilled three core emphasis areas from their data analysis: **vulnerable road users** (people like pedestrians who are more affected by severe crashes), **risky driver behavior** (behaviors like speeding that can increase crash likelihood and severity), and **intersections**. These are people, patterns, and places that face or contribute to the highest traffic safety risks. Targeting their treatments and countermeasures toward them ensures that the City allocates safety resources where they are needed most and where they will have the greatest impact.

Solutions and Implementation

The City created two types of solutions to address safety issues in Stayton: systemic countermeasures that can be applied across the city, and location-specific treatments that address priority locations. Each solution is aimed at one or more emphasis areas.

CHAPTER 1: INTRODUCTION



1. Planning Structure

A Safety Action Plan (SAP) is a strategic plan that evaluates a city's traffic safety conditions and provides data-driven recommendations to guide safety improvements. Stayton's SAP focuses on filling infrastructure gaps, redesigning roadway configurations, and enhancing existing multimodal facilities to improve safety and mobility for all road users. The plan is shaped by the voices of Stayton's community through multiple rounds of public involvement and needs assessments. This SAP will prioritize safety investments where they are needed most and where they will have the greatest impact.

The project management team led this project. Two groups were essential collaborators: the Technical Advisory Committee (TAC) and the Public Advisory Committee (PAC). The TAC was made up of city management and consultant staff. They reviewed study recommendations and provided technical reports throughout the plan process at scheduled milestones. The PAC was made up of elected and appointed officials and citizens to provide direction for plan recommendations.

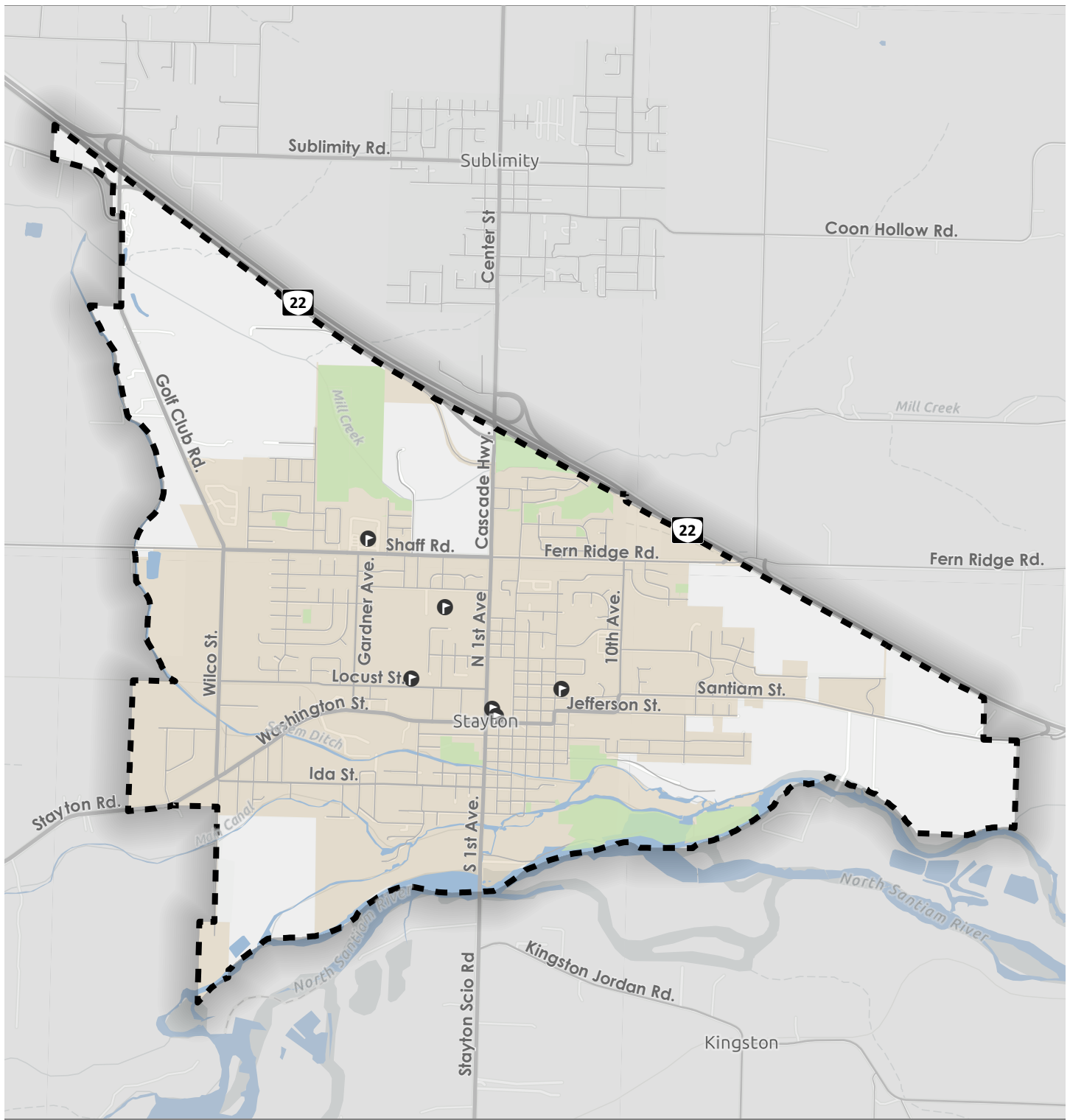
With input from these groups, the SAP was developed according to the following timeline:

Figure 1-1 SAP timeline



1.1 What Area Does This Plan Cover?

To comprehensively address safety risks not just within the city limits of Stayton but also in the surrounding area, the City analyzed crash data and locations for improvements within the Stayton Urban Growth Boundary (UGB). Setting the study area as the UGB sets Stayton up for prolonged safety benefits even as the city continues to grow and expand—ensuring that infrastructure is built for the city of today *and* tomorrow. The study area is mapped in the figure below.



UGB



School



City Limits



Water



Parks

0 0.5 Miles



Figure 1-2



1.2 What is the Safe System Approach?

The Safe System Approach builds multiple layers of protection into their transportation network to mitigate inherent risks, prevent crashes, and minimize harm when crashes occur. This framework shifts from the conventional, reactive safety approach to a proactive system that addresses high-risk locations to eliminate fatal and serious injury crashes on their roads. It achieves this through five complementary objectives: safer people, safer vehicles, safer speeds, safer roads, and post-crash care.

The strategies that are developed in this SAP use the Safe System Approach as a guiding framework. In addition, countermeasures will be implemented according to the Roadway Design Hierarchy, which considers which treatments have the highest population health impact and the least individual effort, so that physical changes to the system (like removing the severe conflict altogether) are more effective than changes that rely on road users to make safe decisions (like increasing awareness).

The Safe System Approach is also a critical component of achieving Vision Zero—a roadway safety philosophy built on the principle that any traffic-related death or serious injury is unacceptable and preventable. The Safe System Approach asserts that individual and communal responsibility in preventing crashes is shared and that redundancy is critical—so that if one safety mechanism fails, there are others in place to rely on. Stayton has made a commitment to achieving zero deaths and serious injuries, and this SAP brings the city a step closer to realizing this reality.

Figure 1-3 Safe System Approach

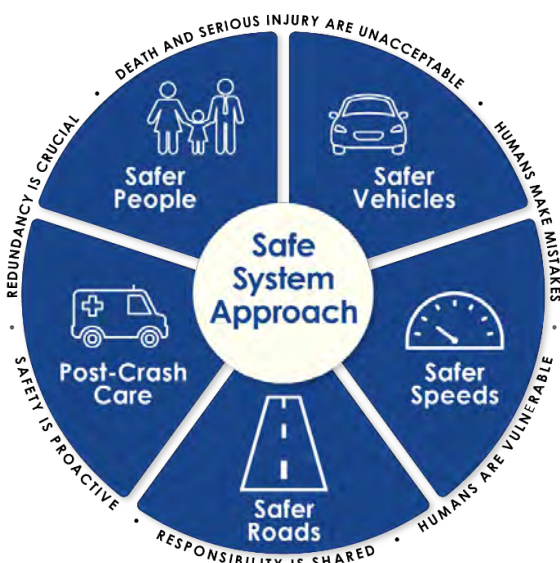
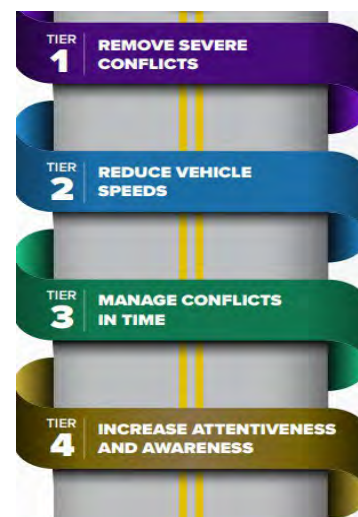


Figure 1-4 Roadway Safety Design Hierarchy



CHAPTER 2: ENGAGEMENT AND COLLABORATION



2. Public Involvement

A SAP is about making safety improvements on every level, from user behavior to roadway design to education and enforcement. Such comprehensive changes need to be based on a thorough understanding of the city from the perspectives of all stakeholders. That's why the City created opportunities for community members to share their experiences and voice their concerns—so that the SAP the City builds is not just for Stayton, but by its people too.

FOR MORE DETAILED INFORMATION ON HOW THE COMMUNITY WAS INVOLVED, REFER TO THE PUBLIC INVOLVEMENT SUMMARY IN APPENDIX B.

2.1 Round One: Understanding Existing Conditions and Your Priorities

The first round of public involvement focused on spreading awareness of safety views in Stayton. The City held their first open house on April 3, 2025, which focused on educating the public on the goals of an SAP and gathering opinions on safety concerns and desired improvements. There were 15-20 participants, some local residents and others business owners and city employees. The City used boards that presented:

- Background on the project
- An introduction to the Safe System Approach
- A high-level overview of crash history within the study area
- Additional opportunities for community members to get involved
- A QR code to the project website

We also set up displays where community members could add comments to a map of Stayton to describe their location-specific concerns and priorities.

Participants identified the following safety concerns:

- Poor crosswalk and pedestrian visibility at crossings
- Poor motorist yield rates to pedestrians at crossings
- Excessive accesses/driveways along arterial roadways (especially along First Avenue)
- Drivers running stop signs, often due to poor visibility of the sign
- School zone flashing beacons do not align with school arrival/release periods
- Turning conflicts with pedestrians and vehicles, particularly in two-way left-turn lanes and at driveways
- Parked cars reduce the visibility of pedestrians at crossings and block sidewalks

Participants expressed desire for the following safety improvements:



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- Curb extensions at pedestrian crossings
- Enhanced pedestrian crossing signage (e.g. rectangular rapid flashing beacons) especially at City Hall and the library
- Improved sidewalk connectivity, filling gaps in the network (especially at the Cannery)
- Reduced speed limits, especially on Fern Ridge Road and Santiam Street
- Access management to driveways and businesses on busy roads
- Improve pavement conditions (e.g. fill potholes)
- Transverse stripes to increase awareness of stop-controlled intersections
- Ensure manhole grates do not pose hazards to cyclists
- Enforcement of Right Turn on Red restriction at Fern Ridge Road & Shaff Road
- Leading pedestrian intervals
- Ensure school zone signage and flashing beacons are functioning and visible
- Street lighting, especially at First Avenue & Washington Street
- Adequate sight distance (especially at West Town Drive and Shaff Road)

Figure 2-1 Community members reading boards





Figure 2-2 Community members discussing the SAP



2.2 Round Two: Shaping Solutions

We returned to the community with a second open house on July 23, 2025 to present their proposed systemic and location-specific treatments and gather feedback to further tailor the treatments to the local context and create an implementation plan that reflects community priorities them. Around 20 participants came to the open house, and provided dozens of comments on the projects The City had boards:

- Presenting on Vision Zero and the Safe System Approach
- Summarizing the existing conditions analyses and presenting the SAP Emphasis Areas
- Where community members could add comments to a list of draft systemic strategies and recommendations
- Where community members could add comments to vicinity maps of the five location-specific treatments
- A board summarizing next steps with a QR code for the project website

Attendees ranked proposed strategies as urgent, less urgent, or not urgent and identified locations where they thought each strategy was most needed. Their comments are discussed in more detail in the Systemic Countermeasures section of this plan.



Stayton Safety Action Plan

Figure 2-3 Community members discussing safety strategies

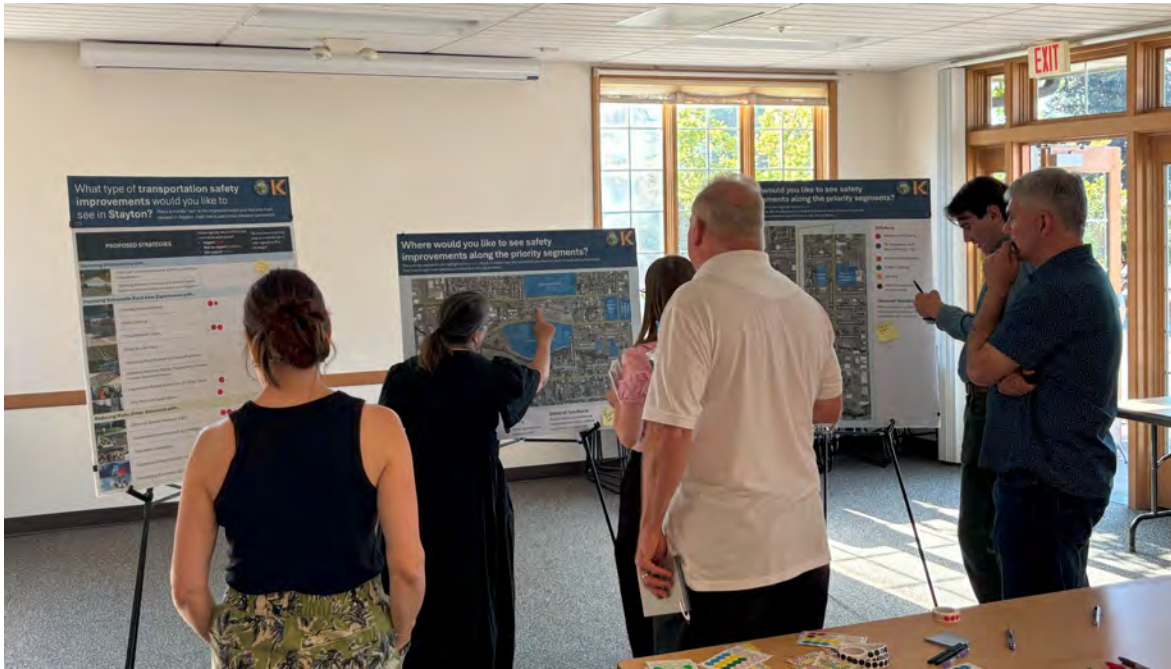
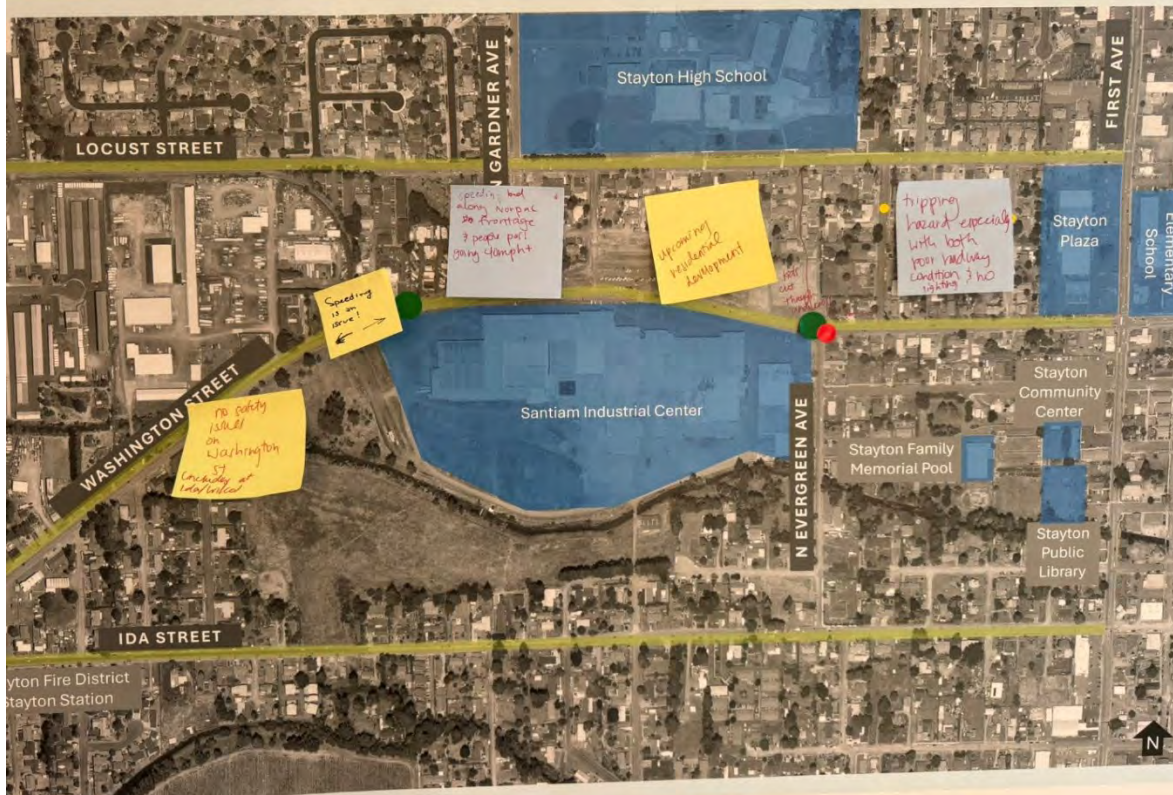


Figure 2-4 Board with locations of requested safety improvements

Locations highlighted in green. Place a marker near the location(s) you feel are most in need of improvements. Add detailed comments in the sticky notes.





Stayton Safety Action Plan

We also held a public advisory committee meeting with Kittelson and City staff. The City provided:

- Background on the project
- A summary of the existing conditions analysis
- An overview of the systemic strategies and high-priority location treatments
- Committee members with opportunities to express feedback and ask questions

The feedback from the open houses and committee meeting guided their development of the countermeasures discussed in the Treatments and Strategies section of this plan.

Figure 2-5 PAC meeting presentation



CHAPTER 3: TODAY'S SAFETY CONDITIONS



3. Safety Analysis

We utilized a variety of methods to analyze Stayton's historic and current safety conditions, including an Equivalent Property Damage Only (EPDO) method, a High Injury Network (HIN), and a risk network, all contributing to a Composite Risk and Injury Network (CRIN). The City used the trends from this analysis to create three emphasis areas that prioritize the most pervasive safety issues. All of these then informed solutions. The diagram below illustrates the process of creating the SAP.

FOR MORE DETAILED INFORMATION ON CRASH DATA AND THE EMPHASIS AREAS, REFER TO THE EXISTING CONDITIONS MEMO IN APPENDIX A.

1. GATHER INFORMATION

CRASH
DATA

ROADWAY
DATA

PUBLIC
INPUT

2. IDENTIFY CRASH PATTERNS AND TRENDS

SYSTEMIC ANALYSIS



EMPHASIS AREAS

Crash types, weather conditions, age, road user type



RISK FACTORS

Roadway and land use characteristics

LOCATION SPECIFIC ANALYSIS



HIGH INJURY NETWORK

Locations with higher severity and/or volume of crashes

COMPOSITE
RISK & INJURY
NETWORK



3. DEVELOP SOLUTIONS

SYSTEMIC TREATMENTS

Strategies, treatments, programs, and policies citywide



LOCATION SPECIFIC TREATMENTS



Treatments tailored to specific locations on the Composite Risk & Injury Network

4. REFINE AND IMPLEMENT SOLUTIONS

ELECTED
OFFICIALS'
INPUT

ENGINEERING
& DESIGN

PUBLIC
INPUT



Stayton Safety Action Plan

To best align with the goals and objectives of the Safe System Approach and Vision Zero, this SAP uses FHWA's KABCO severity scale, listed below, for categorizing crashes.

- K – Fatal Injury Crash
- A – Suspected¹ Serious Injury Crash
- B – Suspected² Minor Injury Crash
- C – Possible Injury Crash
- O – Property Damage Only Crash

However, due to the limited number of fatal and suspected serious injury crashes within the Stayton UGB during the study period, the City adapted the scale to group suspected minor injury crashes with fatal and suspected serious injury crashes. This grouping is identified as "KAB" severity crashes and allows the City to focus on preventing the kinds of crashes that result in the most life-altering outcomes.

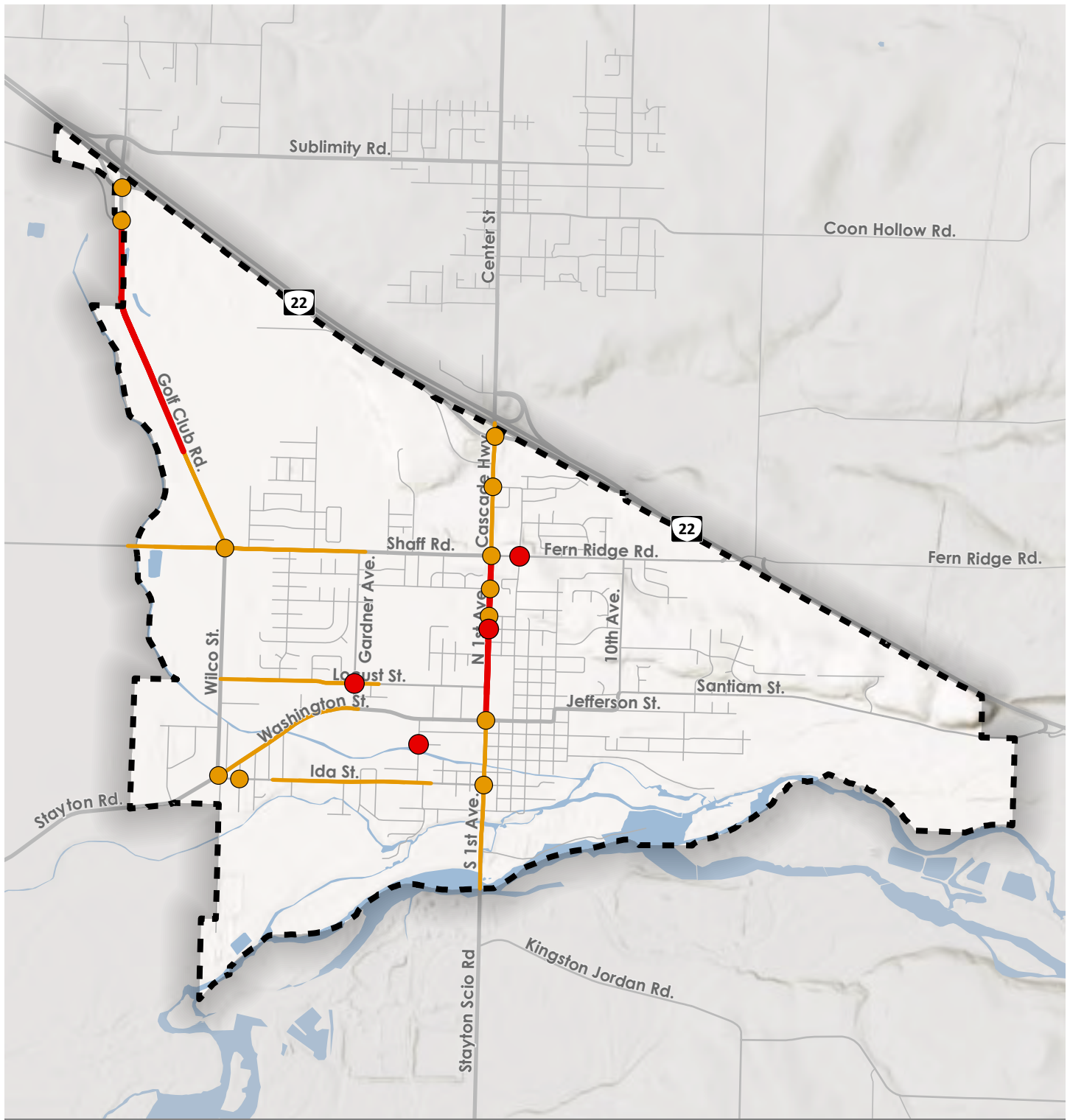
3.1 The Composite Risk and Injury Network

To focus their safety improvements on the areas where they will have the greatest impact, the City created a CRIN. This combines two metrics of crash analysis: the High Injury Network (HIN), which identifies intersections and roadway segments that have had high frequencies or high severities of crashes, and the risk network, which identifies locations where multiple conditions that can contribute to crash risks are present. Overlaying these two maps, each discussed below, reveals both crash history and crash potential, giving the City a more thorough knowledge base to guide countermeasures.

3.1.1 HIN Development

We developed Stayton's HIN using the EPDO, one of the safety network analysis tools recommended in the Oregon Highway Safety Manual (HSM). EPDO allows the City to measure the severity of crashes in addition to frequency by assigning weighted "costs" to each crash. The lowest cost would be a crash that results in property damage only (PDO); crashes that result in minor injuries, serious injuries, or fatalities are then scored by their relative magnitude to PDO. Locations with the highest EPDO scores indicate that many high severity crashes have occurred there. This web of crash histories makes up the HIN.

¹ Crash severity is commonly reported by the responding law enforcement officer. These first responders may not be able to perform a complete medical diagnosis on-site. To account for this uncertainty, crash severity is often reported as "suspected."



Intersection EPDO

- ≥ 20
- 4 - 20

Segment EPDO

- ≥ 20
- 4 - 20

UGB

0 0.5 Miles



Figure 3-2



3.1.2 Risk Network and the Resulting Composite Risk and Injury Network

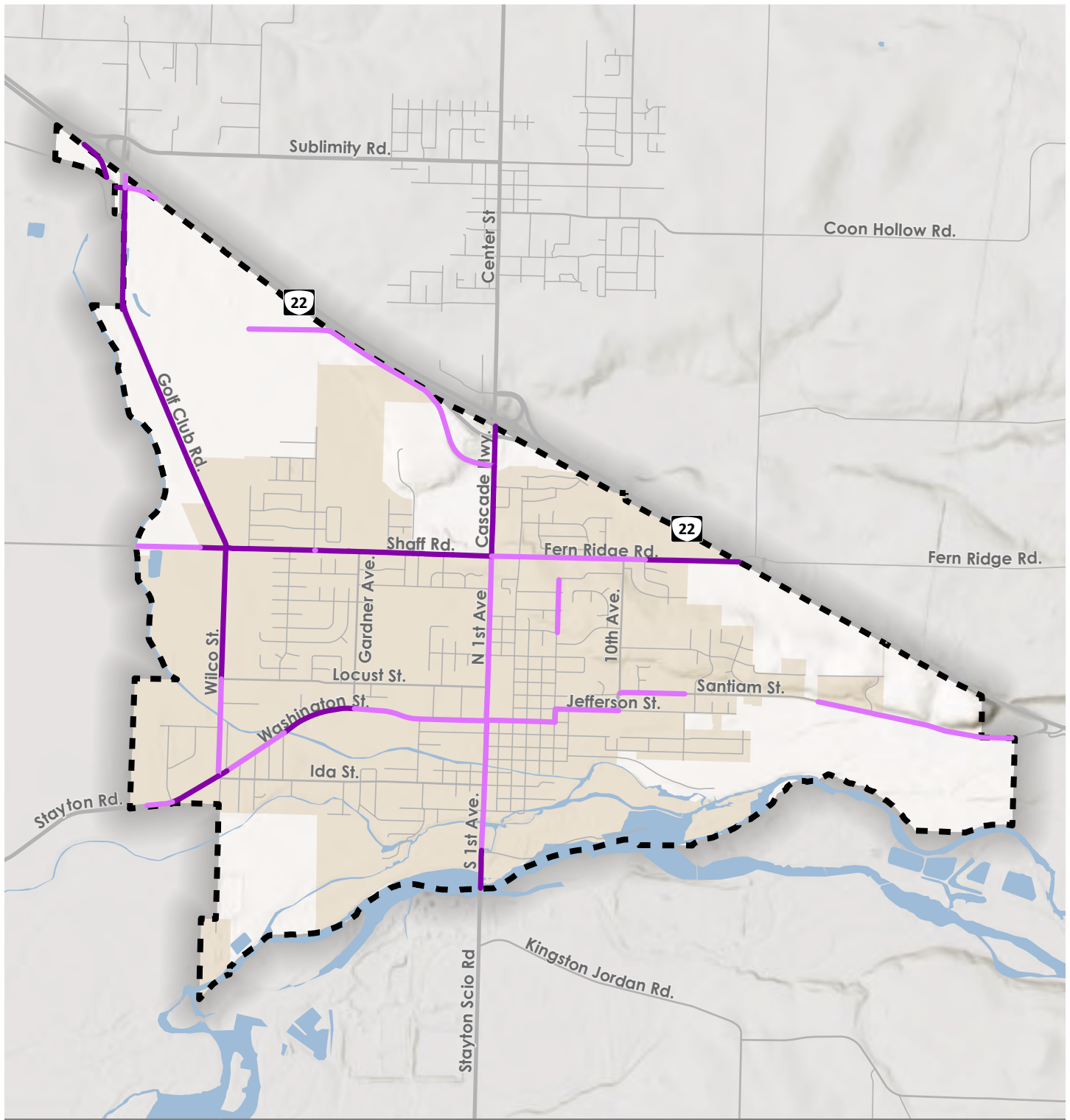
Crash history is an essential part of safety analysis, but it's still only a piece of the puzzle. The Safe System Approach is about **proactivity**—not only learning from the past but preventing future accidents before they occur. Just because a crash hasn't happened somewhere, doesn't mean it won't. Crashes occur due to a variety of factors, such as human behavior, weather, infrastructure design, or a combination of these factors. The City identified locations where multiple of the following high-risk conditions were present:

- **Higher speeds:** Posted speed of 35 mph or higher
- **Activity generators:** Within 0.25 miles of a school, park, or senior living facility
- **Pedestrian and bicycle facility gaps:** Lack of dedicated facilities for people walking, biking, and using mobility devices
- **Higher volumes:** Roadways with over 5,000 vehicles traveling per day

These conditions contribute to increased speeds, meaning there will be a higher kinetic energy transfer, and/or increased exposure, meaning there will be more opportunities for a crash to occur. Both characteristics are major factors that create severe crashes.

Locations with one or more of these risk factors may not have a history of fatal or serious injury crashes during the study period, but they share characteristics with locations that have experienced such crashes.

Understanding how infrastructure characteristics correlate with observed crash patterns allows the City to address systemic risk factors and prevent crashes before they happen.



Roadway Risk Score

- ≥ 3 Risk Factors
- ≥ 2 Risk Factors



UGB

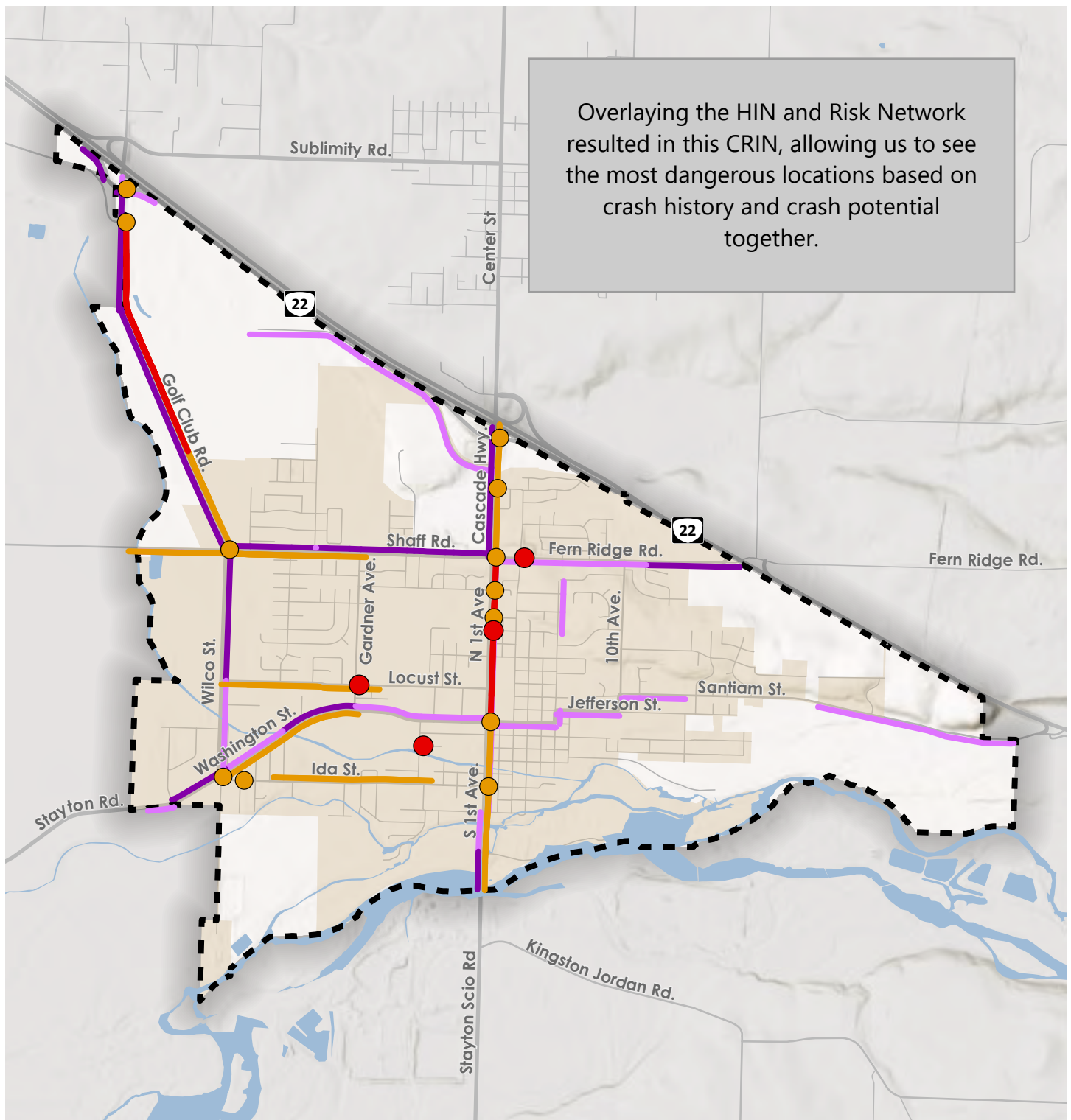


City Limits

0 0.5 Miles



Figure 3-3



Intersection HIN

- High
- Medium

Segment HIN

- High
- Medium

Roadway Risk Score

- ≥ 3 Risk Factors
- ≥ 2 Risk Factors



UGB



City Limits

0 0.5 Miles



Figure 3-4



3.2 Crash Trends

We reviewed the most recent crash data available from ODOT, from 2018 to 2022, to trace the patterns in Stayton's crash history. During this five year period, 300 crashes occurred within the Stayton UGB. Of these, 245 were reported within the city limits and 55 were reported within the UGB but outside city limits. Of all crashes, 3% resulted in a serious injury or fatality—that's nine lives lost or forever altered.

In 2020, the start of the COVID-19 pandemic with many sheltering in place affected traffic patterns nationwide. However, the number of crashes in Stayton markedly decreased in 2019—before the pandemic started. In the years since 2019, both total crashes and fatal and serious injury severity crashes have increased. Worsening crash statistics during a time of reduced traffic is a startling trend observed across the country, reminding many communities like Stayton that now is the time to act.

Not all road users were equally affected by these crashes. Crashes involving a pedestrian or bicyclist are more likely to have a severe outcome, as 55% of crashes with these vulnerable road users resulted in an injury or fatality.

Two types of motor vehicle-only crashes resulted in fatalities or injuries more than 50% of the time: head-on collisions and non-collision crashes (e.g. overturned vehicles). Out of all crashes, rear-end and turning movement crashes were the most common collision type. Single vehicle crashes, often classified as fixed object crashes, accounted for 10% of all crashes, but only 6% of fatal and injury crash outcomes.

All crashes reported in the Stayton UGB during the study period are broken down by severity and year and then by severity and type in the figures below.



Stayton Safety Action Plan

Figure 3-5 Crashes by year and severity

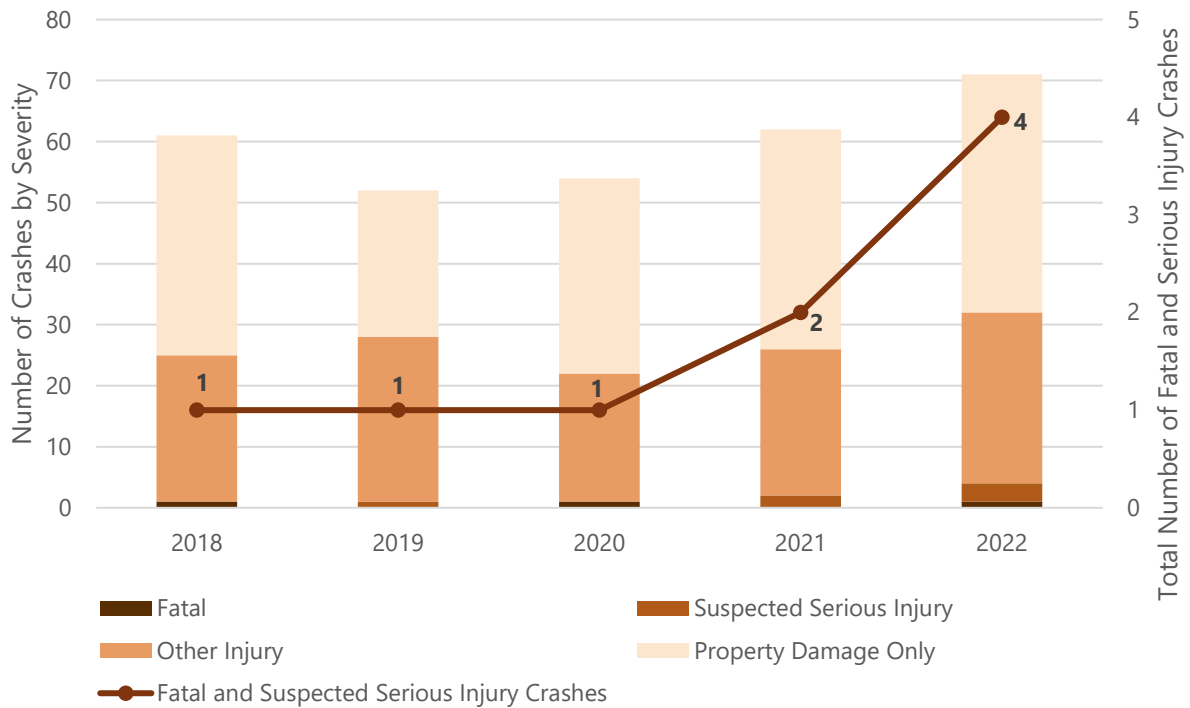
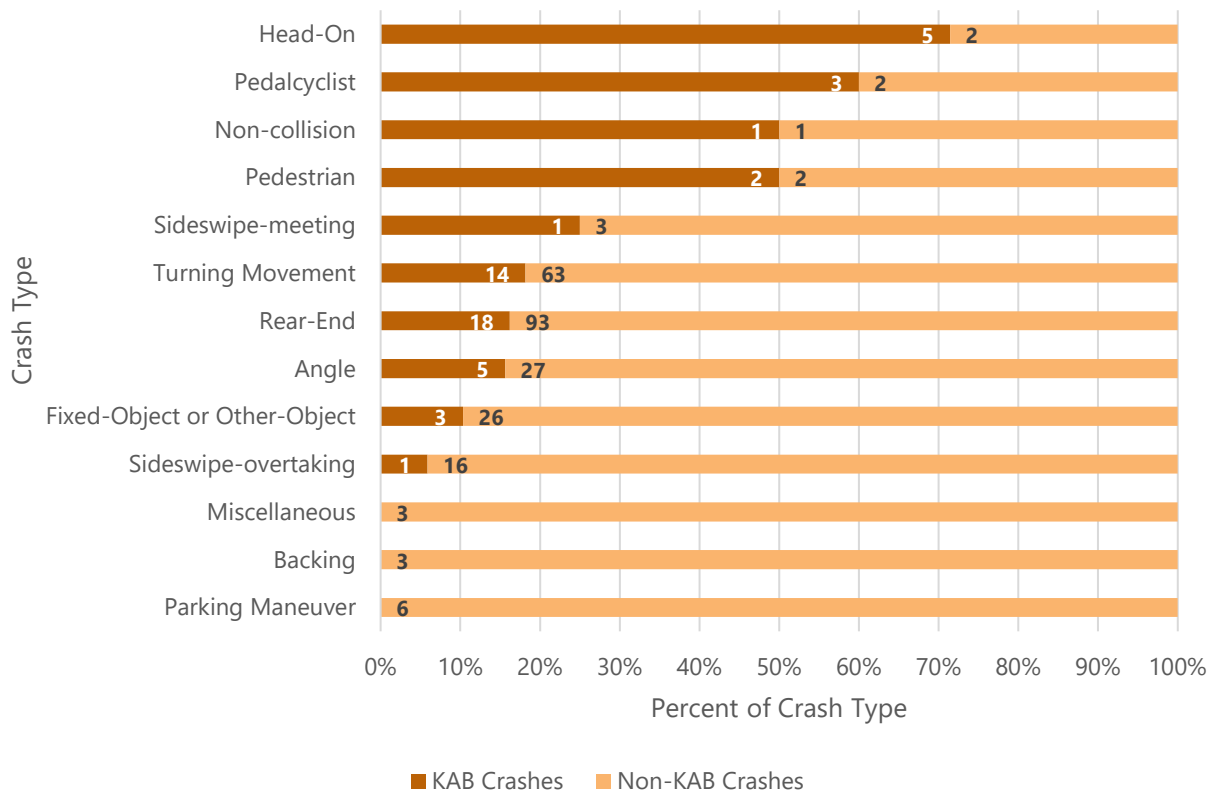


Figure 3-6 Crashes by type and severity





3.2.1 Crash Locations

To create a more precise analysis of Stayton's crash history, the City separated crashes occurring within intersections from those along roadway segments outside of the influences of an intersection. This allows the City to better understand the contributing factors of crashes and employ more targeted countermeasures. Crashes occurring within 100 feet of an intersection or flagged as "intersection-related" in ODOT crash data were considered intersection crashes.² Based on this definition, approximately 60% of the crashes within the Stayton UGB were intersection crashes. Of these, one fifth resulted in an injury or fatality, compared to 14% of roadway segment crashes that were of KAB severity.

3.3 Emphasis Areas

We distilled the most important recurring themes from their crash analysis into three emphasis areas: vulnerable road users, risky driver behaviors, and intersections. These emphasis areas, discussed below, span engineering, behavioral, and environmental factors that contribute to the existing roadway safety patterns and trends. They guide countermeasure development to ensure prioritization of those who are most in danger, in the areas that pose the greatest risks.



Vulnerable road users include pedestrians, bicyclists, and motorcyclists.

Vulnerable road users experienced significantly higher rates of KAB crash severity outcomes compared to road users in a car or truck, with over half of crashes involving a pedestrian or bicyclist resulting in fatalities or injuries.



Risky driver behaviors include impaired, distracted, and reckless driving, along with failure to use safety equipment and speeding. These behaviors increase the likelihood of a crash and increase the probability of a fatal or serious crash outcome if a crash does occur.



Intersections: Not only did the majority of total crashes within the study area occur within an intersection, but crashes occurring within an intersection are also 6% more likely to result in a KAB severity outcome than segment crashes. Stop-controlled intersections, in particular, should be focused on, as 13 intersections out of the 16 intersections identified on the HIN are stop-controlled.

² A sensitivity analysis was performed to ensure that 100 feet was an appropriate buffer for buffer for classification of "intersection-related" crashes in Stayton.

CHAPTER 4: BUILDING FOR TOMORROW



4. Strategy and Project Selections

Using what they learned from the public and from the CRIN analysis, the City developed recommendations for proven treatments and strategies that Stayton can deploy throughout the UGB and in specific locations. The City also utilized the following the resources because they're proven, researched, current, and aligned with local context:

- The Federal Highway Administration list of Proven Safety Countermeasures³
- The Oregon Department of Transportation (ODOT) All Roads Transportation Safety (ARTS) program Crash Reduction Factor Manual⁴
- The National Highway Transportation Safety Administration's Countermeasures That Work Manual⁵
- Marion County and City of Stayton policy and design standards

4.1 Systemic Countermeasures

We developed a toolbox of countermeasures that can be applied at high-risk locations across the city, each targeting one or more of the emphasis areas. It helps focus the city on treatments with broad applicability to address the inherent risks in the roadway network, but the City can continue to use guidelines like the ones above to identify specific treatments for individual locations. The tables below summarize these countermeasures, which all support ways to reduce crash severity or reduce the likelihood of a crash happening at all.

³ Kirley, B. B., Robison, K. L., Goodwin, A. H., Harmon, K. J. O'Brien, N. P., West, A., Harrell, S. S., Thomas, L., & Brookshire, K. (2023, November). Countermeasures that work: A highway safety countermeasure guide for State Highway Safety Offices, 11th edition, 2023 (Report No. DOT HS 813 490). National Highway Traffic Safety Administration. https://www.nhtsa.gov/sites/nhtsa.gov/files/2023-12/countermeasures-that-work-11th-2023-tag_0.pdf

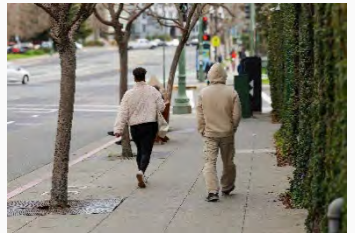
⁴ Federal Highway Administration. (n.d.). *Proven safety countermeasures*. U.S. Department of Transportation, <https://highways.dot.gov/safety/proven-safety-countermeasures>

⁵ Oregon Department of Transportation. (2024, November). Crash reduction factor manual (2024 ed.). Engineering & Technical Service Branch, Traffic-Roadway Section. <https://www.oregon.gov/odot/Engineering/ARTS/CRF-Manual.pdf>



Stayton Safety Action Plan

Table 4-1 Vulnerable Road User Systemic Countermeasures

Countermeasure	Description	SSA element	Photo
Crossing enhancements	Makes roadway crossings more visible and encourages cars to stop for pedestrians Examples: rectangular rapid flashing beacons that alert drivers to the presence of a pedestrian, high-visibility crosswalk markings, signage	Safer roads	 <i>Source: Google Maps</i>
Traffic calming	Encourages lower traveling and turning speeds Examples: Speed humps, curb extensions that narrow the roadway and make it harder to turn corners quickly	Safer roads	 <i>Source: Kittelson</i>
Filling sidewalk gaps	Allows for safer pedestrian access and separation from vehicles Examples: Sidewalks, curb ramps, paved and widened shoulders of roads for pedestrians to use if needed	Safer roads	 <i>Source: Kittelson</i>
Filling bicycle gaps	Allows for safer bicyclist access and separation from vehicles Examples: Bike lanes, shared-use paths for bicyclists and pedestrians	Safer roads	 <i>Source: Google Maps</i>
Context-sensitive design	Ensures that roadways are designed be compatible with the surrounding land use context Example: Adjusting speed limits based on the roadway context (lower speeds in dense urban areas, etc)	Safer roads	 <i>Source: Kittelson</i>



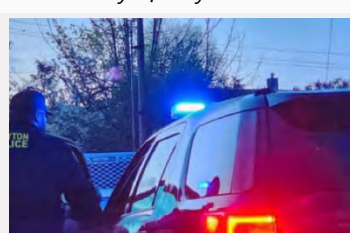
Stayton Safety Action Plan

Appropriate posted speeds	Balances speed with the land use context and reduces speed when appropriate Example: Considering additional factors when determining speeds, such as average vehicle speeds and 50th percentile speeds (the speed that half of vehicles drive at or under)	Safer speeds	 Source: Kittelson
20 is Plenty on local streets	Encourages 20 mph speeds on local roads Example: Promoting education on how faster speeds create more severe crashes (according to USDOT, there is a 10% risk of a fatality or serious injury for crash with a 20 mph vehicle but a 40% risk for a 30 mph vehicle)	Safer speeds	 Source: Bike Portland



Stayton Safety Action Plan

Table 4-2 Risky Driver Behavior Systemic Countermeasures

Countermeasure	Description	SSA Element	Photo
Dynamic speed feedback signs	Gives drivers real-time speed feedback to encourage slowing down	Safer speeds	 Source: Kittelson
Hardened centerlines and turn wedges	Calms traffic and encourages slower turning speeds	Safer people	 Source: ODOT
Education campaigns	Spreads safety awareness to all road users	Safer people	 Source: City of Stayton
Targeted and high-viz enforcement	Boosts compliance with traffic safety laws	Safer people	 Source: City of Stayton
Automatic traffic enforcement policy	Utilizes adaptive technology to ensure accountability and reduce traffic violations	Safer people	 Source: PBOT



Stayton Safety Action Plan

Table 4-3 Intersection Systemic Countermeasures

Countermeasure	Description	SSA element	Photo
Low-cost countermeasures at stop controlled intersections	Makes intersections more navigable	Safer roads	 Source: FHWA
Updating Stayton land use and development code to increase safety analysis and mitigation	Coordinates safety considerations with city planning efforts	Safer roads	 Source: Google Maps



4.2 Location-specific Treatments

To complement the widely applicable systemic treatments, the City also identified five high priority sites for location-specific safety treatments. Our identification of these priority locations was guided by the existing conditions analysis and an analysis of the factors below:

- Equivalent Property Damage Only (EPDO)
- Presence of risk factors
- Community concerns
- Roadway jurisdiction

For each site, the City developed conceptual figures illustrating the treatment and guiding implementation. All five sites are located along or west of First Avenue, where a high percentage of connecting roadways are highlighted in the CRIN. The limited connectivity west of First Avenue makes it challenging for road users to access parallel routes. These corridors should be improved to increase connectivity of the multimodal network.

The following images detail potential treatments that could be installed at each location. Many of these treatments draw on multiple systemic countermeasures, creating a roadway that is strategically layered with protections that work in harmony.

FOR MORE DETAILED INFORMATION ON SITE REVIEW AND DESIGN CONSIDERATIONS REFER TO THE STRATEGIES AND PERFORMANCE MEASURES MEMO IN APPENDIX C.

The conceptual treatments illustrated in the following images will require additional engineering and design detail. Some considerations are listed below:

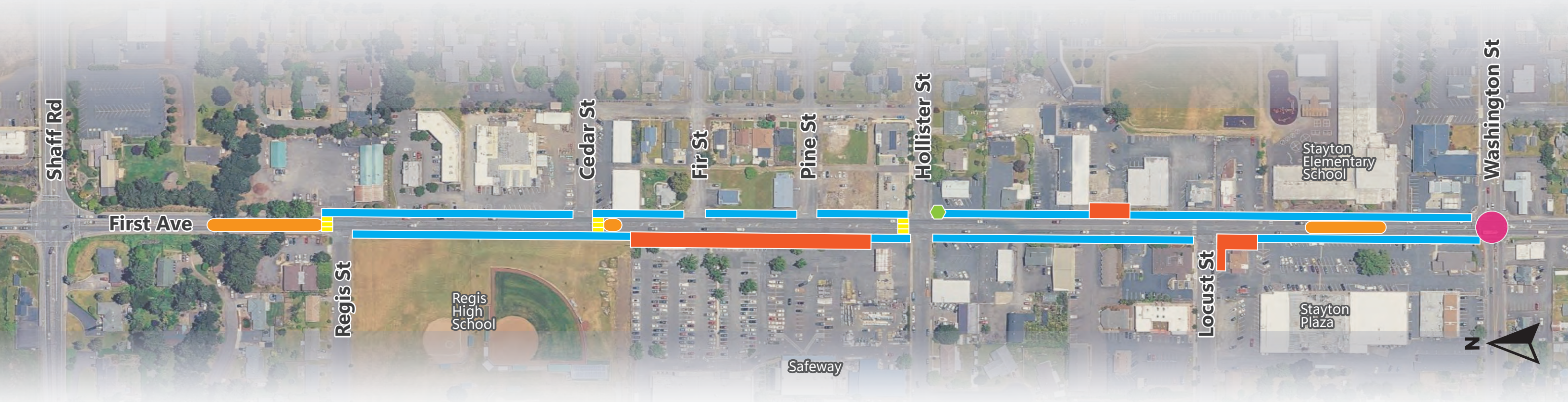
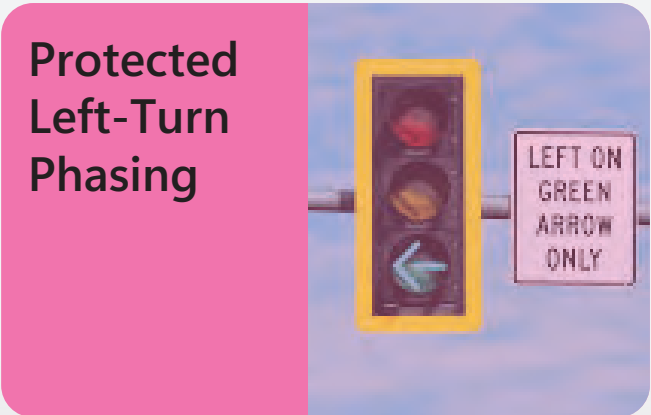
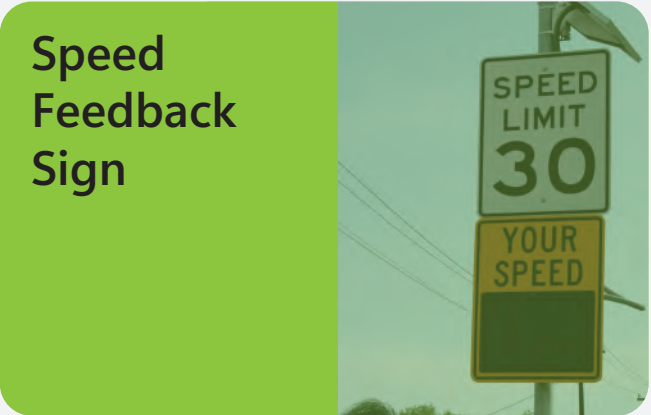
- **Intersection Modifications and Access Management:** Operational analysis should accompany changes in lane configuration and large vehicle turning templates should be used to ensure emergency, freight, and school bus vehicles can adequately traverse intersections with proposed curb extensions or medians. 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 treatment selection and location.
- **Sight Distance:** Consider parking limitations or other visibility improvements at locations where sight distance appears to be more limited.
- **Fill Gaps in the Sidewalk and Bicycle Network:** Addition of bike lanes or widened sidewalks may require removal of on-street parking or purchase of right-of-way.

Potential Corridor Layout

Colored treatments on the right correspond with symbols on map below

Candidate Locations: Treatment locations and roadway design subject to change based on further engineering analysis and public engagement.

Note: Proposed treatments complement the Marion County Safe Routes to School Plan; coordination with the County will be necessary.



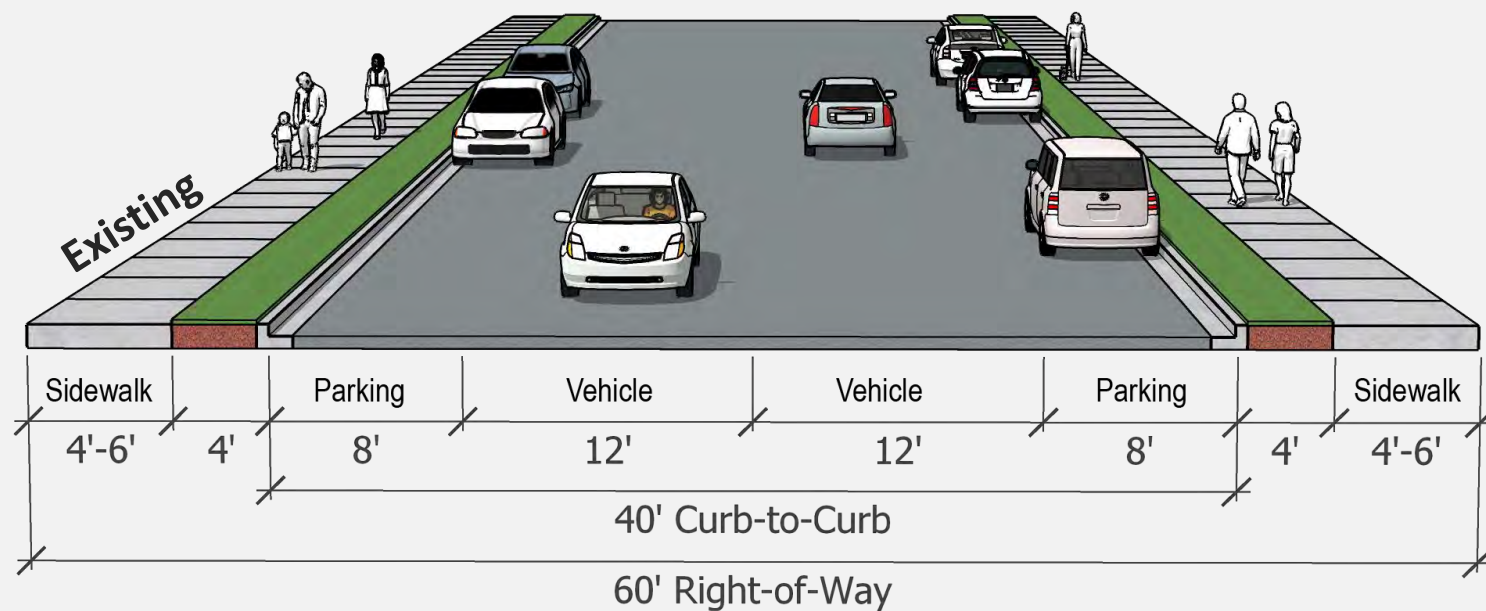
First Avenue (Shaff Road/Fern Ridge Road to Washington Street)
Proposed Corridor Layout and Treatments
Stayton, Oregon



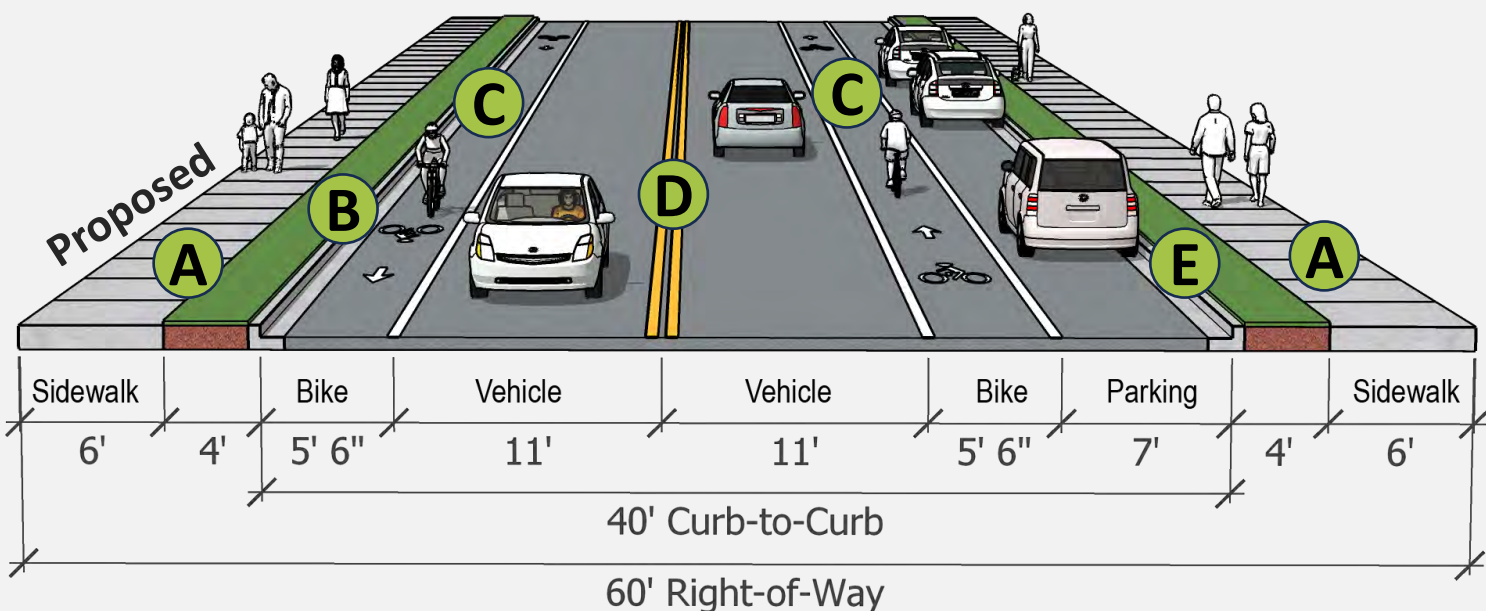
First Avenue / Marion Street Proposed Recommendations
Stayton, Oregon

Figure
4-2

Potential Cross Section and Safety Treatments



- A – Install new or widened sidewalk
- B – Remove parking on north or south side of street
- C – Install striped bike lanes
- D -- Repaved roadway with narrowed travel lanes
- E – Ensure fixed objects are clear of roadway



Speed Cushions



Raised Intersections



Chicanes



Access Management



Curb Extensions

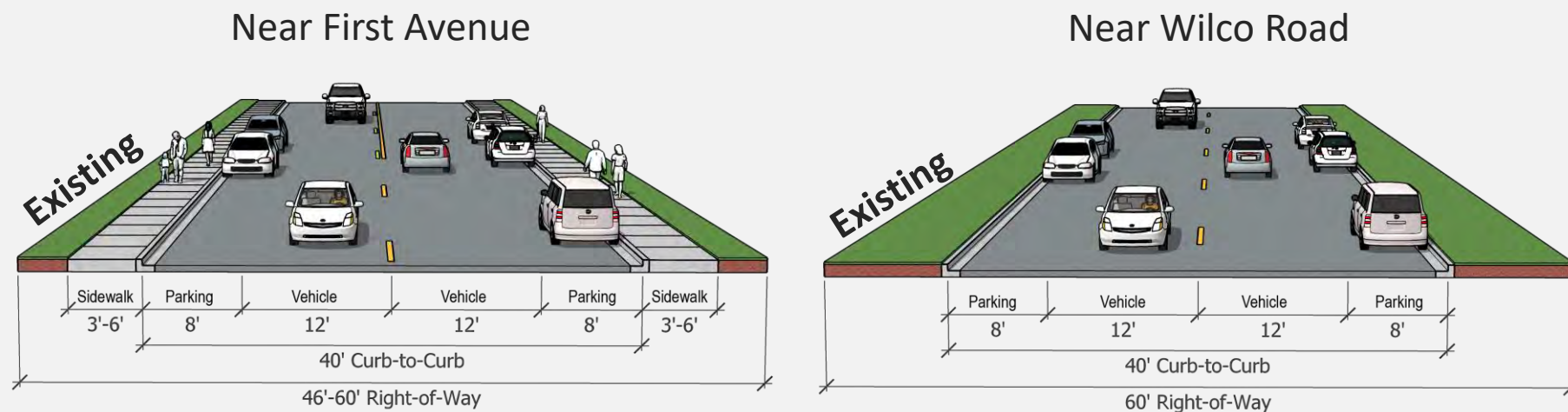


Painted Intersections

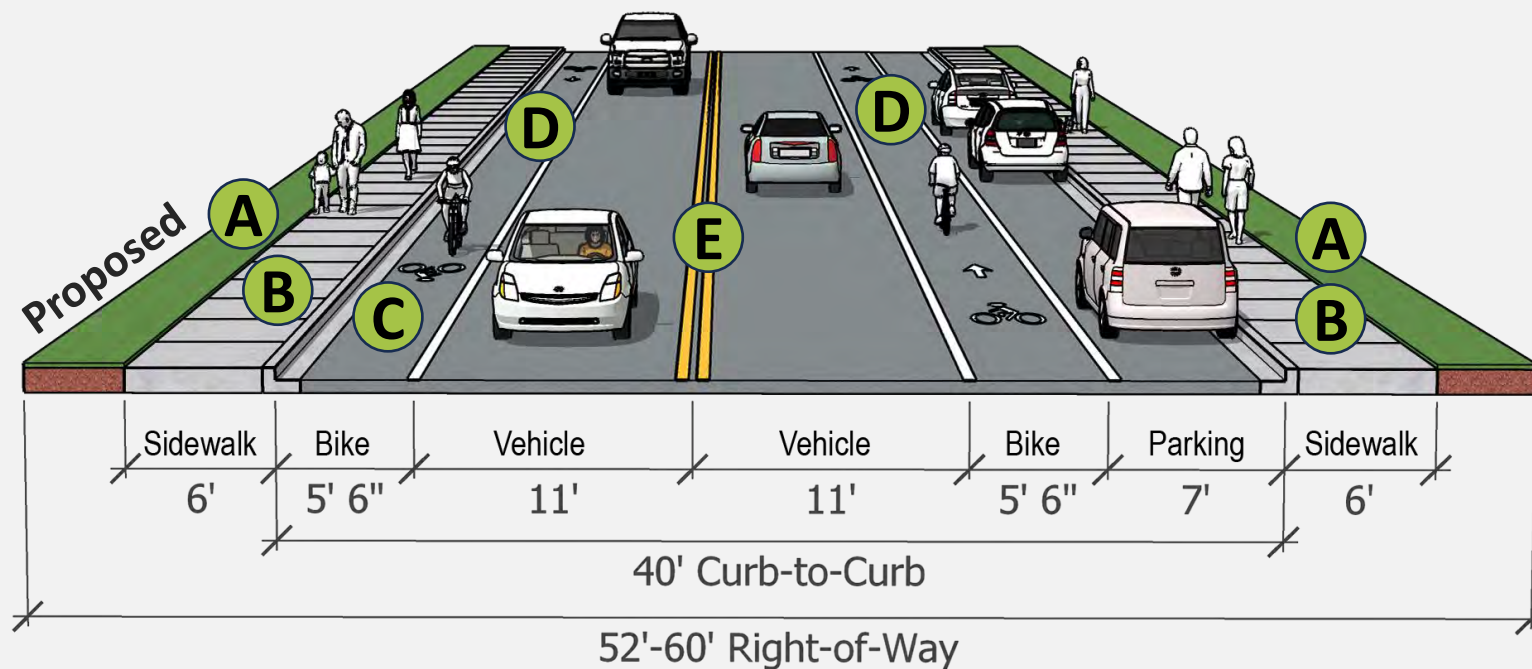


Conceptual Design Only: Consider further corridor study to determine specific cross section treatment to align with adjacent and surrounding land use contexts. Proposed cross section is consistent with the Stayton Transportation System Plan.

Potential Cross Section and Safety Treatments



- A – Ensure fixed objects are clear of roadway
- B – Install new or widened sidewalk; purchase ROW
- C – Remove parking on north or south side of street
- D – Install striped bike lanes
- E -- Repaved roadway with narrowed travel lanes



Crossing Enhancements



Raised Intersections



Painted Intersections



Access Management



Trim Vegetation

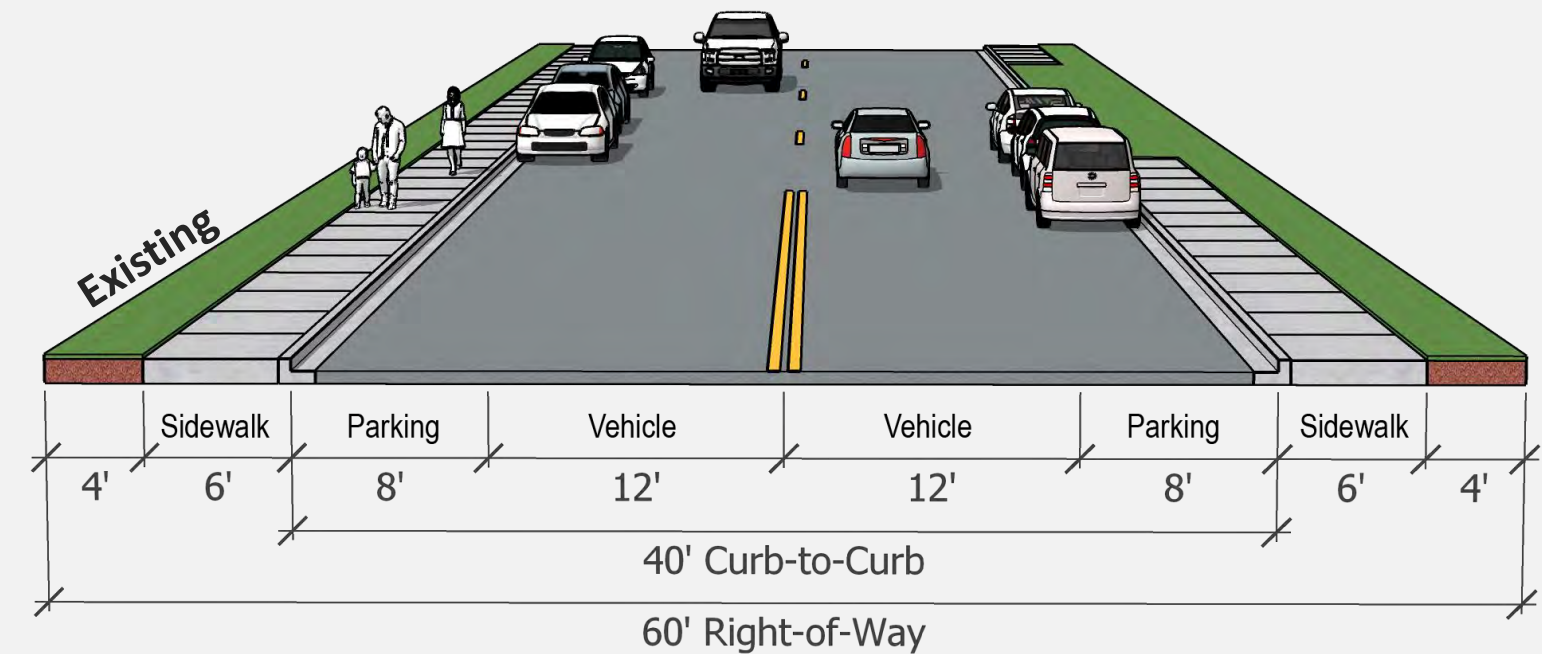


Roundabout

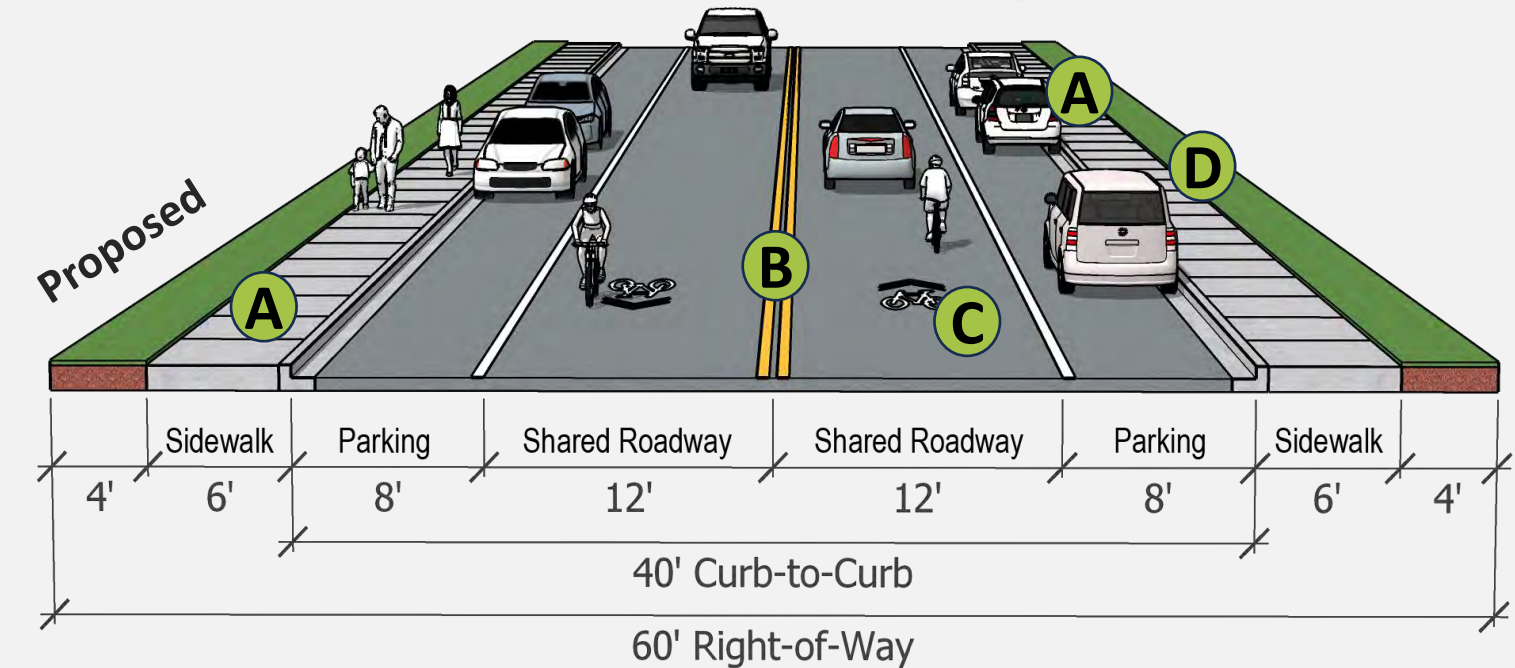


Conceptual Design Only: Consider further corridor study to determine specific cross section treatment to align with adjacent and surrounding land use contexts. Proposed cross section is consistent with the Stayton Transportation System Plan.

Potential Cross Section and Safety Treatments



- A – Install new or widened sidewalk
- B – Repave and restripe roadway with solid centerline
- C – Install sharrows
- D – Ensure fixed objects are clear of roadway



Speed Cushions



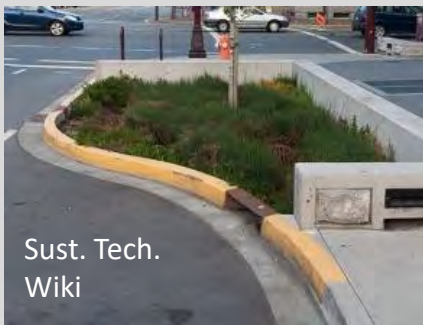
Raised Intersections



Crossing Enhancements



Curb Extensions



Painted Intersections



Roundabout



Conceptual Design Only: Consider further corridor study to determine specific cross section treatment to align with adjacent and surrounding land use contexts. Proposed cross section is consistent with the Stayton Transportation System Plan.

CHAPTER 5: IMPLEMENTING THE PLAN



5. Progress and Transparency

Treatments and strategies are to be prioritized for implementation based on the following factors:

- Expected safety performance
- The amount of time, energy, or cost required for implementation
- Ability to implement interim or quick-build project phases
- Support from partners (businesses, agencies, nonprofits, etc.) that are interested in assisting implementation
- Near-term public support or need for education/marketing campaigns for the treatments

FOR MORE DETAILED INFORMATION ON IMPLEMENTATION AND PROGRESS MONITORING, REFER TO THE STRATEGIES AND PERFORMANCE MEASURES MEMO IN APPENDIX C.

Opportunities to implement safety improvements may also arise based on existing operation and maintenance planning. The City should explore opportunities to leverage pavement resurfacing and restriping projects to implement low-cost safety improvements.

Strategies and recommendations can be implemented in different orders as needs shift within the City, as funding becomes available, and as partner agencies have capacity to support implementation. When there are comparable opportunities, equity considerations should be evaluated.

The following partners have important roles in implementing the treatments and strategies documented in this plan:

- Stayton Public Works
- Marion County Public Works
- Stayton City Council
- Stayton Police Department
- Marion County Sheriff's Office
- Oregon State Police
- Local Schools, Businesses, and Advocacy Groups

The following table shows each treatment or strategy with its expected timeframe for implementation actions.



Table 5-1 Implementation Timelines

Treatment or Strategy	Emphasis Area ¹	Near Term Action (<2 years)	Medium Term Action (2-5 years)	Long Term Action (>5 years)	Lead Agency/Partners
First Avenue Safety Treatments	All	●			Marion County Public Works Stayton Public Works
First Avenue/Marion Street Safety Treatments	All	●	●		Marion County Public Works Stayton Public Works
Locust Street Safety Treatments	All	●	●		Stayton Public Works
Washington Street Safety Treatments	All		●		Stayton Public Works
Ida Street Safety Treatments	All	●		●	Stayton Public Works
Crossing enhancements	🚶		●	●	Stayton Public Works Marion County Public Works
Traffic calming	🚶	●	●	●	Stayton Public Works
Filling sidewalk gaps	🚶	●	●	●	Stayton Public Works Marion County Public Works
Filling bicycle gaps	🚶	●	●	●	Stayton Public Works
Context-sensitive design	🚶		●		Stayton Public Works
Appropriate posted speeds	🚶		●		Stayton Public Works Marion County Public Works
20 is Plenty on local streets	🚶	●			Stayton Public Works
Dynamic speed feedback signs	📱		●	●	Stayton Public Works Stayton Police Department
Hardened centerlines and turn wedges	📱	●	●		Stayton Public Works
Education campaigns	📱	●	●	●	Stayton Schools Stayton Police Department Community Based Organizations
Targeted and high-viz enforcement	📱		●	●	Stayton Police Department Marion County Sheriff's Office Oregon State Police
Automatic traffic enforcement policy	📱		●	●	Stayton City Council Stayton Police Department
Low-cost countermeasures at stop controlled intersections	✖	●	●		Stayton Public Works
Updating Stayton land use and development code to increase safety analysis and mitigation	✖		●		Stayton Community & Economic Development
¹ 🚶 = Vulnerable Road User 📱 = Risky Driver Behaviors ✖ = Intersection ● = Action in Identified Timeframe					



5.1 Tracking Progress

So that progress can be monitored and strategies adjusted as needed, the City set up performance measures in this SAP. Performance measures are important for many reasons: they help develop a better understanding of and linkage between the SAP and safety outcomes, they can help improve safety communication with the public and other project partners, and they create greater accountability for achieving the plan's safety goals.

We divided performance measures into "implementation metrics" and "outcome metrics" to ensure consistent efforts and measure safety outcomes over time. Implementation metrics evaluate progress towards implementing the strategies and treatments within the plan, whereas outcome metrics evaluate the effectiveness of the implemented projects and policies in reducing fatal and serious injury crashes.

Implementation metrics:

- Number of systemic intersection strategies and treatments implemented
- Number of systemic vulnerable road user strategies and treatments implemented
- Number of risky driver behavior strategies and treatments implemented
- Number of location-specific treatments implemented

Outcome metrics:

- Number of total crashes
- Number of fatal and serious injury crashes
- Number of fatal and serious injury crashes at intersections
- Number of fatal and serious injury crashes involving a vulnerable road user
- Number of fatal and serious injury crashes involving risky driver behavior

5.2 Funding

This SAP sets Stayton up to pursue a Safe Streets for All (SS4A) Implementation Program Grant—a vital resource for bringing the recommendations of an SAP onto the roadway. Without adoption of their SAP, Stayton cannot access SS4A funds, leaving safety improvements out of reach and making this plan a pivotal part of an achievable future.

The strategies and treatments within this plan cost money, and to achieve the goals of this SAP, Stayton must prioritize safety with the funding it requires. In addition to funding from an SS4A grant, this might include reallocating existing city funds or seeking additional funding sources. Other grant opportunities exist at the federal and state levels. Stayton's SAP may be eligible for transportation alternatives grants, transportation and growth management grants, pedestrian



and bicycle grants, and many others. At the local level, Stayton can explore tax increment financing and bonds.

5.3 Carrying the Vision Forward

Stayton is committed to ending deaths and serious injuries on its streets. This SAP is an essential push forward into a safer future for all, where no one has to worry about getting home safely. From lowering speeds to enhancing crosswalks, Stayton is making its transportation network safer, more connected, and more livable for generations to come.



APPENDIX A: EXISTING CONDITIONS MEMO

TECHNICAL MEMORANDUM

May 22, 2025

Project # 31028

To: City of Stayton

From: Nick Gross, Max Heller, Amy Griffiths, PE, Susan Wright, PE; Kittelson & Associates, Inc.

RE: Stayton Safety Action Plan Existing Conditions Analysis

Executive Summary

The Existing Conditions analysis uses existing crash data, roadway characteristics, and public feedback to describe the current transportation safety environment within the Stayton Urban Growth Boundary (UGB). The analysis is broken into three phases: Systemic Analysis, Location Screening, and Emphasis Areas.

SYSTEMIC ANALYSIS

The Systemic Analysis reviews key crash attributes such as crash type, driver characteristics and behavior, and environmental conditions. While this analysis considers all crashes, to best align with the goals and objectives of the Safe System Approach and Vision Zero, this plan focuses on fatal and serious injury crashes. This analysis highlights that the rates of total and fatal/serious injury crashes have been increasing within the last three years of available data. Several crash types were identified as significantly contributing to fatal or serious injury crash outcomes, including head-on collisions, crashes involving bicyclists and pedestrians, and non-collision crashes (crashes involving only one vehicle that cannot be classified as a collision, such as overturned vehicles). Risky driver behaviors such as impaired, distracted, and reckless driving or failure to use a seatbelt also increase the likelihood of serious crash outcomes.

LOCATION SCREENING

The Location Screening section reviews the crash data spatially and identifies road segments with characteristics that are correlated with increased risk of crashes. A High Injury Network (HIN) was developed to identify locations that are high frequency and high severity crash locations. The HIN and the roadway risk assessment results were combined into a Composite Risk and Injury Network (CRIN).

EMPHASIS AREAS

The results of the Systemic Analysis and Location Screening were used in conjunction with key takeaways from public engagement events to-date to identify three Emphasis Areas that describe factors which significantly contribute to the existing roadway safety patterns and trends. The Emphasis Areas are vulnerable road users, risky driver behaviors, and intersections. The City of Stayton and its partner agencies can use these Emphasis Areas to target specific factors which contribute to high proportions of fatal and suspected serious injury crash outcomes.

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Existing Conditions

SYSTEMIC ANALYSIS

Kittelson reviewed crash data made available by the Oregon Department of Transportation (between January 1, 2018 and December 31, 2022)¹ to identify any trends. In total, between 2018-2022, 300 crashes occurred within the Stayton UGB. Of these, 245 were reported within the city limits and 55 crashes were reported within the UGB but outside the city limits. The crash pattern analysis evaluated crash severity, location, and type, contributing factors, weather and lighting, behavioral characteristics, and vulnerable road users.

Crash Severity

Crash severity is reported using the KABCO severity scale, which is as follows:

- K – Fatal Injury Crash
- A – Suspected² Serious Injury Crash
- B – Suspected² Minor Injury Crash
- C – Possible Injury Crash
- O – Property Damage Only Crash

To best align with the goals and objectives of the Safe System Approach and Vision Zero, this plan focuses on fatal and suspected serious injury crashes. Due to the limited number of fatal and suspected serious injury crashes within this study area and analysis period, suspected minor injury crashes are grouped with fatal and suspected serious injury crashes in many of the crash trend and pattern figures. This grouping is identified as “KAB” severity crashes. For all analytics that follow, it is important to interpret the data carefully with consideration of how the limited sample size can influence crash trends – just a few crashes can cause substantial percent variations in crash trends. For this reason, both percent values and total crash counts are included (when appropriate) in the charts in this section.

Figure 1 presents reported crashes by severity and year within the Stayton UGB. Notably, 2020 was the start of the COVID-19 pandemic; however, the number of crashes in Stayton markedly decreased in 2019, even before the pandemic started. In the years since 2019, total crashes and fatal/suspected serious injury (KA) severity crashes have increased. Between 2018-2022, three fatal crashes and six suspected serious injury crashes occurred within the study area, composing three percent of all crashes.

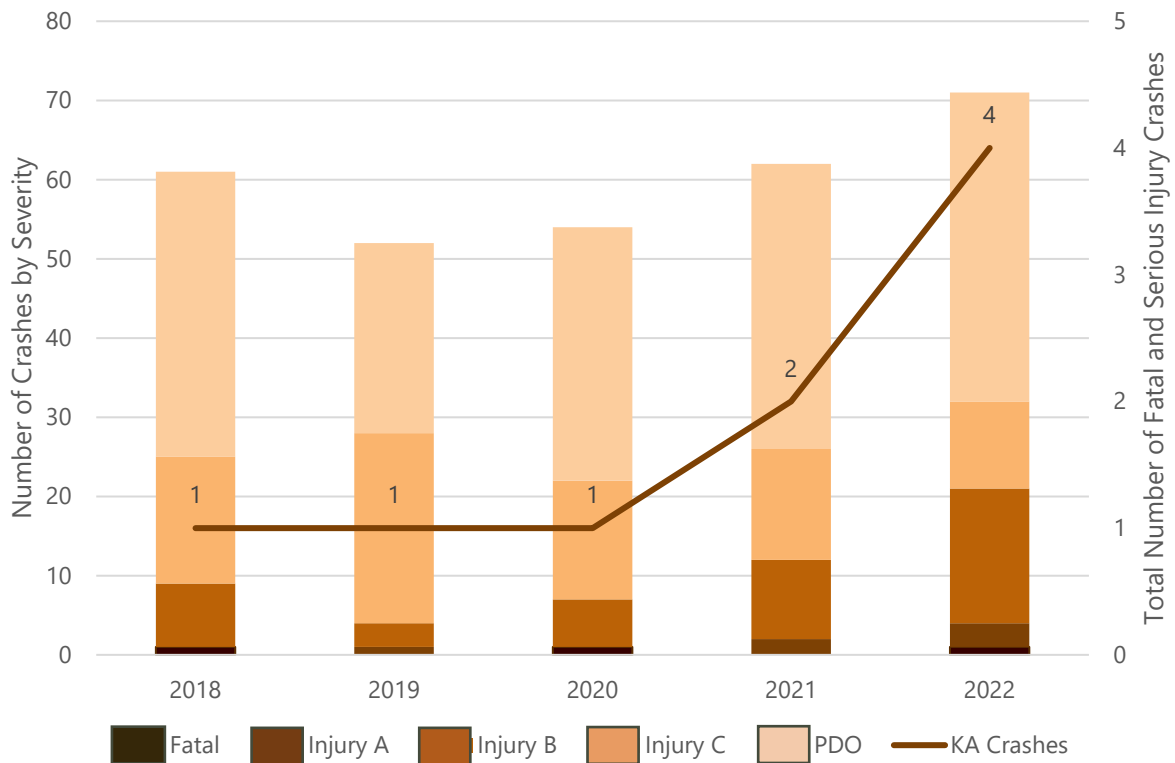
The distribution of the reported crash history is presented in Figure 2 by severity, along with the social equity index of the surrounding area. Social equity data comes from ODOT’s Social Equity Web App, which maps the degree to which Oregonians are likely experiencing disparities in state services, access,

¹ ODOT crash data undergoes extensive quality control prior its release to ensure locations and crash attributes are accurate for all crashes throughout the state; this process often delays the release of crash data. 2018-2022 comprised the last five years of available data within the UGB at the time of the project analysis.

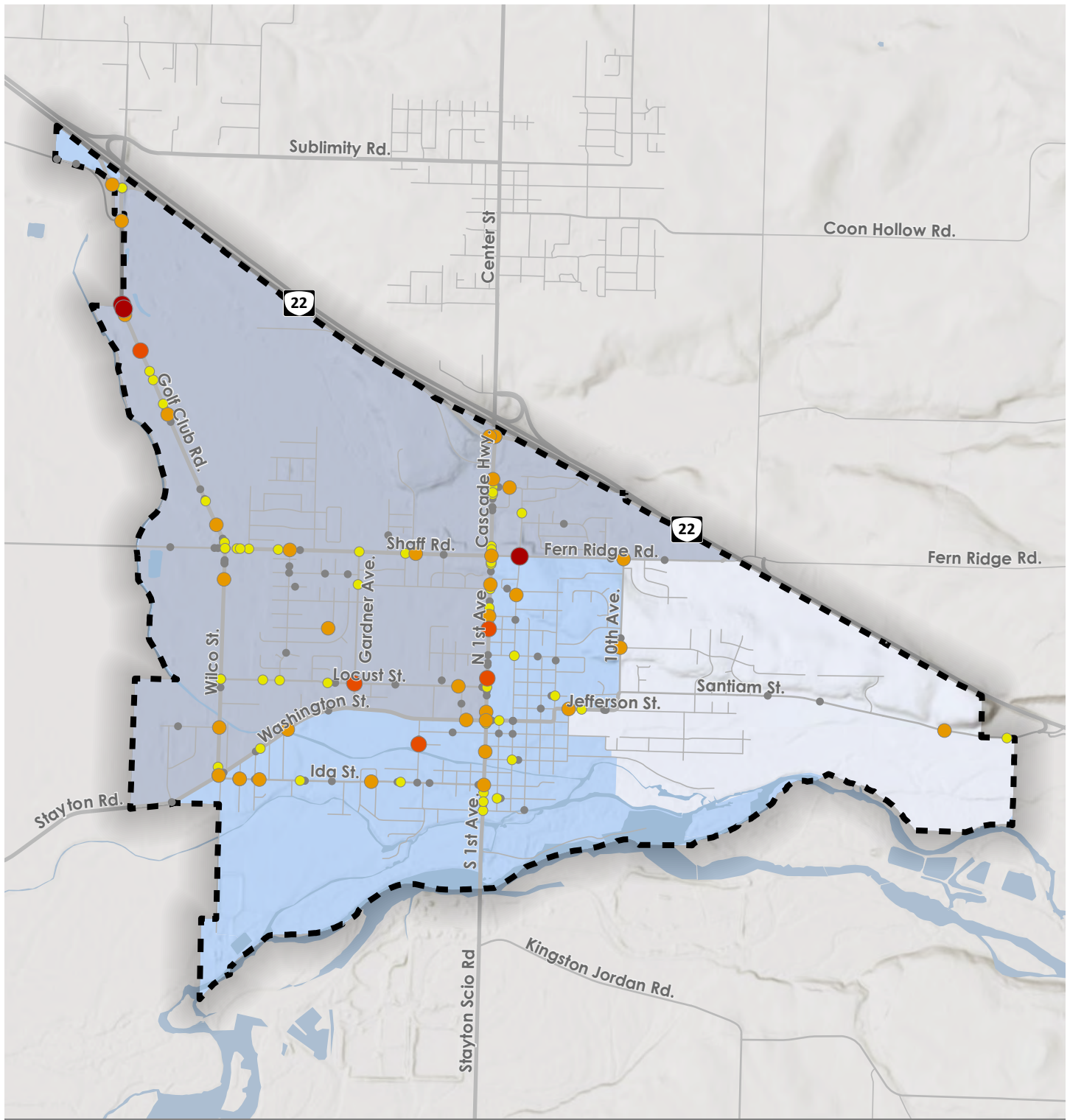
² Crash severity is commonly reported by the responding law enforcement officer. These first responders may not be able to perform a complete medical diagnosis on-site. To account for this uncertainty, crash severity is often reported as “suspected.”

and investments.³ This index considers populations of individuals living at or below the poverty level, aged 65 and older, with a disability, or with limited English proficiency.

Figure 1. Crashes by Severity and Year (2018-2022)



³ Oregon Social Equity Web App. Oregon Department of Transportation, 2025. <https://arcg.is/00qvmX>



ODOT Social Equity

- High Disparity
- Medium Disparity
- Low Disparity

UGB

Crash Severity

- Fatal Injury (K)
- Suspected Serious Injury (A)
- Suspected Minor Injury Crash (B)
- Possible Injury Crash (C)
- No Apparent Injury/PDO Crash (O)

0 0.5 Miles



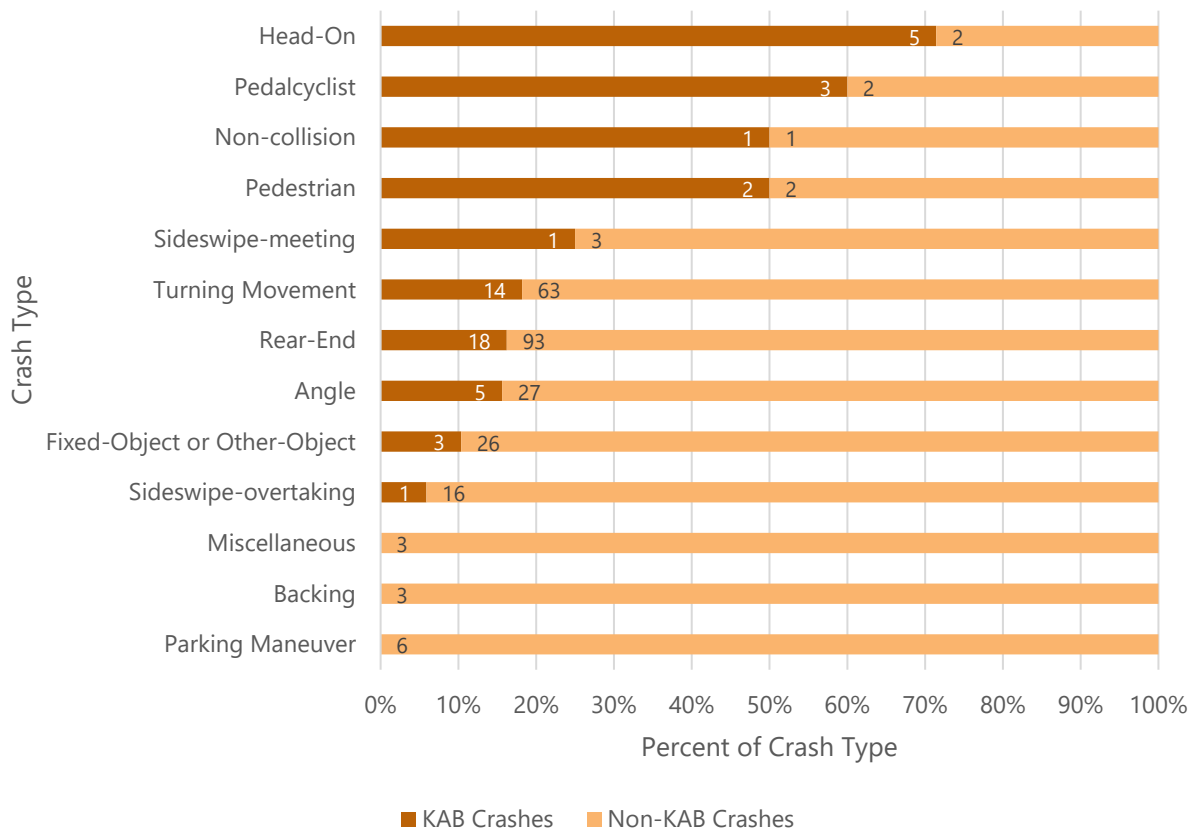
Figure 2

Crash Type

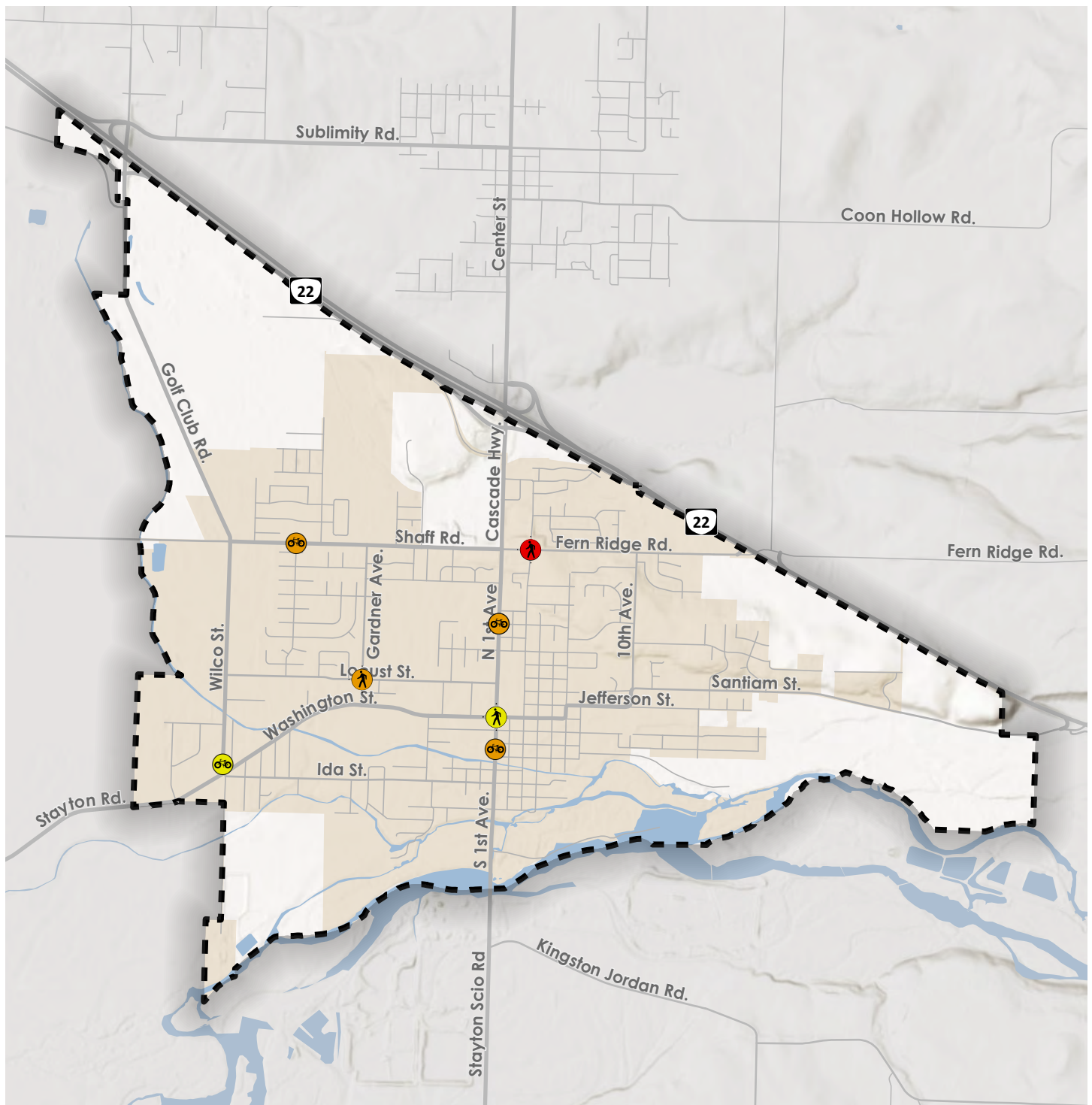
Crash type is another important consideration when assessing crash patterns. Figure 3 shows which crash types are more likely to result in a KAB severity outcome. Four crash types resulted in KAB severity outcomes greater than 50 percent of the time: head-on collisions, crashes involving bicyclists⁴ and pedestrians, and non-collision crashes (e.g. overturned vehicles). Single vehicle crashes, often classified as fixed object crashes, accounted for 10 percent of all crashes, but only 6 percent of KAB crash outcomes.

To align with the Safe System Approach's emphasis on vulnerable road users, crashes involving bicyclists or pedestrians were examined in greater detail. Figure 4 shows the location and severity of fatal, suspected serious injury, and suspected minor injury crashes involving bicyclists or pedestrians within the Stayton UGB.

Figure 3. Crashes by Type and Severity (2018-2022)



⁴ ODOT uses the term "pedalcyclist" as it is inclusive of tricycles or recumbent bikes. In the memo the term bicyclist is used generally.



Pedestrian Crashes

-  Fatal Injury (K)
-  Suspected Minor Injury Crash (B)
-  Possible Injury Crash (C)

Bicyclist Crashes

-  Suspected Minor Injury Crash (B)
-  Possible Injury Crash (C)
-  UGB
-  City Limits



Figure 4

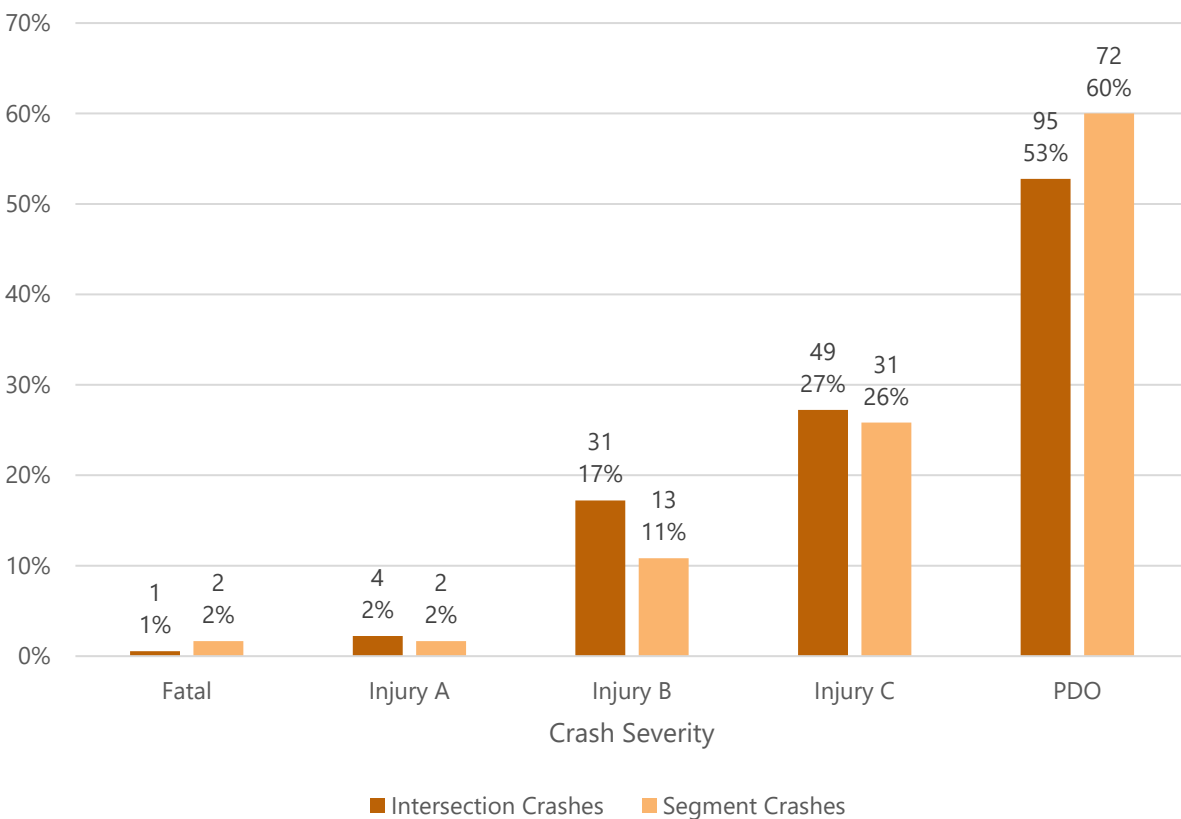
**Fatal or Injury Crashes Involving a Bicyclist or Pedestrian
2018-2022
Stayton, OR**

Crash Location

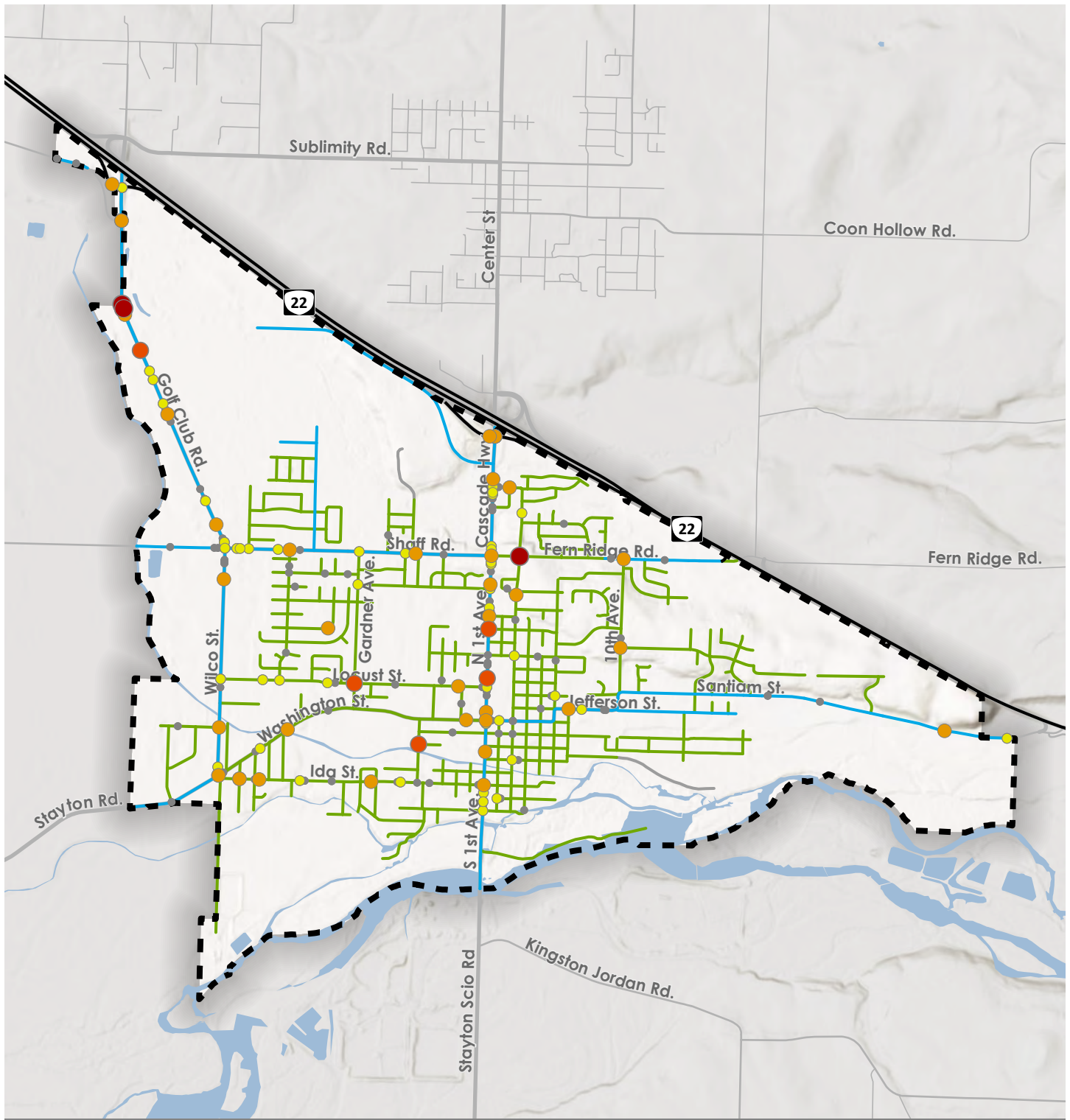
As part of this crash analysis, crashes occurring within intersections were separated from crashes occurring along roadway segments outside of the influences of an intersection. This led to more precise assessment of crash causes and contributing factors and will enable more targeted countermeasure development. Crashes occurring within 100 feet of an intersection or flagged as “Intersection-related” within the ODOT crash data were considered intersection crashes.⁵ Based on this definition, approximately 180 of the 300 crashes (60 percent) within the Stayton UGB were classified as intersection crashes; remaining crashes are classified as segment crashes. Of the crashes classified as intersection crashes, 20 percent (36 crashes) were KAB severity crashes, whereas only 14 percent (17 crashes) of segment crashes were classified as KAB severity crashes. This variation in crash severity between intersection and segment crashes is shown in Figure 5. Further comparison between severity of crashes along segments or within intersections is presented in the Location Screening section of this memorandum.

The roadway jurisdiction where crashes occur was also mapped, as shown in Figure 6, to determine what proportion of crashes in Stayton occur on Marion County facilities versus City facilities. The majority of KAB crashes occurred on County facilities within the Stayton UGB.

Figure 5. Intersection and Segment Crash Severity (2018-2022)



⁵ A sensitivity analysis was performed to ensure that 100 feet was an appropriate buffer for buffer for classification of “intersection-related” crashes in Stayton.



Roadway Jurisdiction

- ODOT
- Marion County
- City of Stayton
- Private

Crashes

- Fatal Injury (K)
- Suspected Serious Injury (A)
- Suspected Minor Injury Crash (B)
- Possible Injury Crash (C)
- No Apparent Injury/PDO Crash (O)

0 0.5 Miles



Figure 6

Driver Age and Behavior

The crash patterns and trends analysis also involved an assessment of driver characteristics and behaviors. These factors were assessed for trends that are out of alignment with known crash statistics, Stayton population demographics, and expected crash patterns.

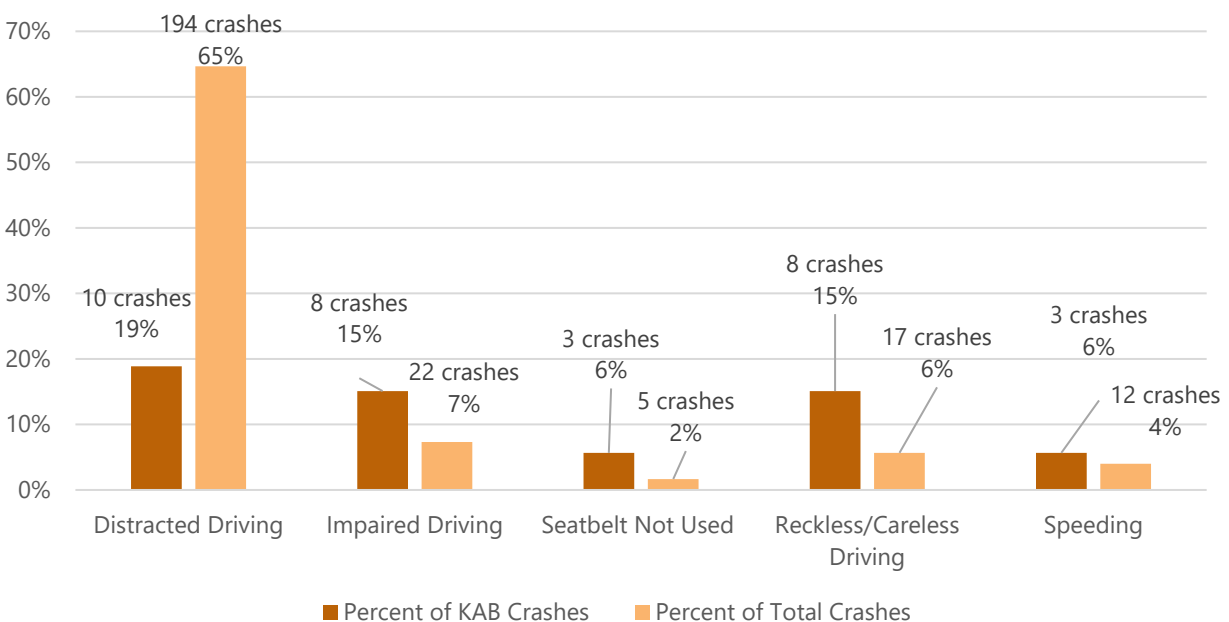
DRIVER AGE

Driver age was examined as part of this analysis. Over half (55%) of crashes did not include reported age information. Of the remaining crashes, the percentage of KAB severity crashes and percentage of total crashes generally align, which indicates that there is not a specific group overrepresented in more severe outcomes. Data regarding driver age and crash severity can be found in Appendix A.

DRIVER BEHAVIOR

Driver behavior is an important factor in crash outcome. Figure 7 shows how crash outcome is correlated with common risky driver behaviors such as distracted, impaired, and reckless driving, speeding, and failure to use safety equipment (e.g. seatbelts). Distracted driving was a factor in 65 percent of crashes within the study period. Distracted driving includes behaviors that can decrease driver attention such as cell phone usage and eating. Despite the large number of crashes involving a distracted driver, only 19 percent of those crashes resulted in a KAB severity outcome. This could be attributable to the fact that pre-crash distractions often leave no evidence for law enforcement officers or crash investigators to observe, and drivers are often reluctant to admit to having been distracted prior to a crash where there are severe outcomes.⁶

Figure 7. Risky Driver Behavior and Crash Severity (2018-2022)



⁶ Countermeasures That Work: Distracted Driving. "Understanding the Problem" NHTSA.
<https://www.nhtsa.gov/book/countermeasures-that-work/distracted-driving/understanding-problem>

Impaired and reckless driving, speeding, and failure to use safety equipment contributed to fewer crashes but resulted in a greater likelihood of serious crash outcomes. Notably, when KAB crash outcomes occurred, approximately 30 percent were at least in part attributable to impaired or reckless driving.

Roadway Conditions and Temporal Effects

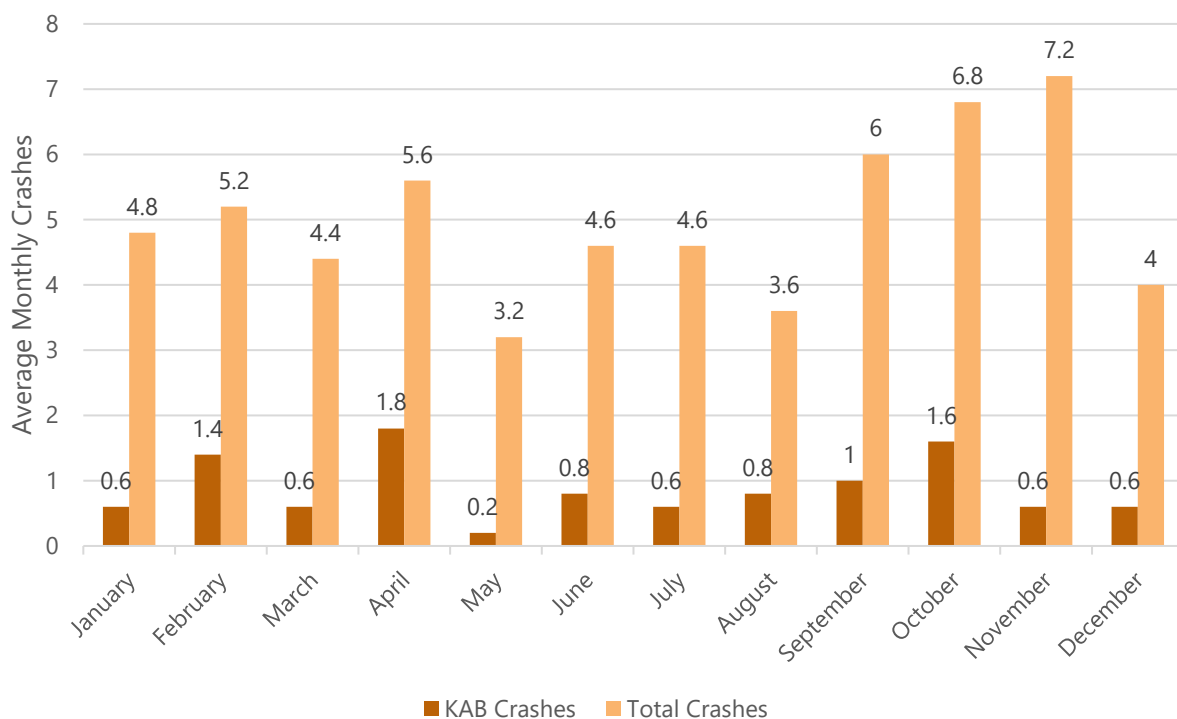
A variety of environmental conditions can affect crash outcomes. Lighting conditions, roadway surface conditions, and monthly variation in crashes were considered to determine their effects on crash trends within the study area.

Most crashes occurred during the daytime. For crashes occurring at nighttime in unlighted conditions, the likelihood of a KAB severity outcome was slightly elevated but not to a significant degree. Roadway surface conditions also did not have significant effects on crash severity, with wet road conditions being associated with marginally higher likelihoods of KAB crash outcomes.

Data showing the effects of lighting and roadway surface conditions on crash severity are included in Appendix A.

Lastly, the distribution of crashes throughout the year was examined over the five-year study period. Figure 8 shows the average monthly crash rate for each month of the year between 2018 and 2022. Notably, there is an increase in crashes during the autumn months. This may be attributable to decreased daylight hours, commencement of the academic year for K-12 students, or more variability in roadway conditions.

Figure 8. Average Monthly Crash Rate (2018-2022)



LOCATION SCREENING

The Location Screening safety analyses examined specific intersections and corridors within the Stayton roadway network. Locations with a recorded history of frequent and severe crashes or with characteristics of roadways that often experience frequent and severe crashes are identified. This analysis is used in tandem with the Systemic Analysis in the previous section to guide the development of targeted safety countermeasures.

High Injury Network

The High Injury Network (HIN) for Stayton was developed using the Equivalent Property Damage Only (EPDO) method, one of the safety network screening performance measures included in the Oregon Highway Safety Manual (HSM). The HIN is composed of intersections and roadway segments that experience both a high frequency and high severity crashes, as identified using an EPDO analysis methodology. This method places greater emphasis on crash severity compared to other common methods that only consider crash frequency, providing insight into locations that have low total crash frequency but have experienced one or more fatal or suspected serious injury crashes. The EPDO method assigns societal (weighted) costs to each crash by severity level to develop an equivalent property damage only value (i.e. each crash is scored based on their relative magnitude to a property damage only (PDO) crash.

Table 1 displays the EPDO values utilized for each severity type.

Table 1. EPDO Scaled Value⁷

Severity (KABCO)	EPDO Value
K – Fatal Crash	100
A – Suspected Serious Injury Crash	100
B – Suspected Minor Injury Crash	10
C – Possible Injury Crash	10
O – Property Damage Only Crash (No Apparent Injury)	1

Source: ODOT SPIS⁸

These values are used to evaluate and compare intersections and roadway segments by both the number of crashes and crash severity, with higher scores indicating there are greater frequencies of high severity crashes at those locations.

The total EPDO value for an intersection or roadway segment is calculated as the sum of the EPDO values of all crashes that occurred within that intersection or along that roadway segment. This value is then

⁷ Note: For this analysis, fatal and suspected serious injury crashes are weighted the same based on best practices to reduce the weight of fatal crashes and better identify high crash locations, in alignment with Safe System Approach's focus on preventing fatal and serious injury crashes. It is important to note that the values for K, A, B, and C crashes align with those from SPIS, while adjustments were made to the values for O crashes, assigning a value of 1 to them.

⁸ Safety Priority Index System (SPIS). Oregon Department of Transportation, 2009.
https://www.oregon.gov/ODOT/Engineering/Docs_TrafficEng/SPIS-Brochure.pdf

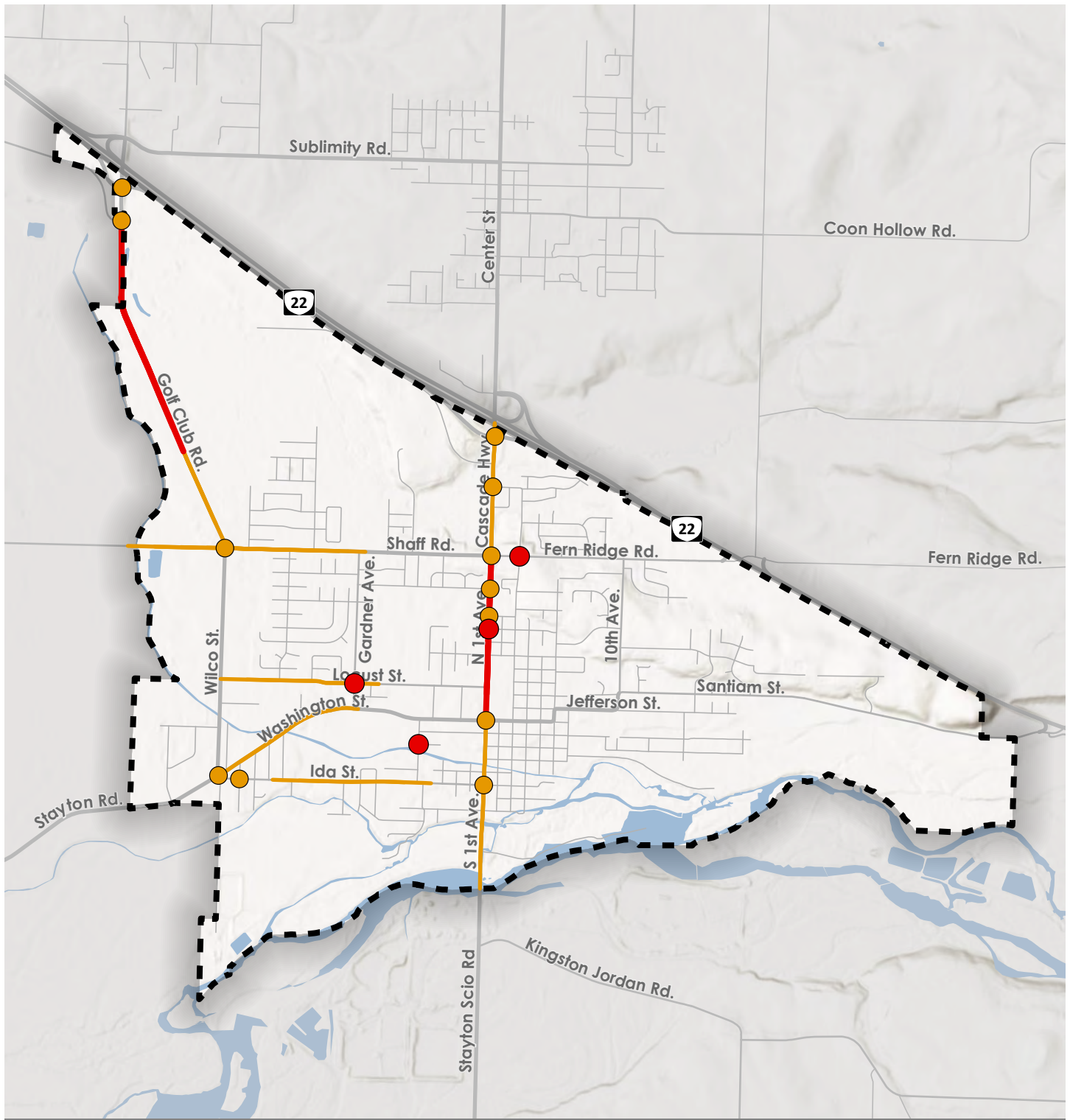
divided by the number of years that crash data is available, producing a PDO equivalence value that can be compared to locations outside of Stayton that use the same crash weighting scheme. Annualized EPDO values can be interpreted by assuming fatal and suspected serious injury (level A) crashes are assigned 20 points, injury level B and C crashes are assigned 2 points, and PDO crashes are assigned 0.2 points.

High crash severity and high crash frequency intersections and segments were examined and combined to create a HIN for Stayton. This HIN provides insights into locations that crash data indicates are hotspots for harm on the roadway network. The top tier in the HIN includes intersections and segments with EPDO values of at least 20, indicating that there was at least one fatal or suspected serious injury crashes over the crash period. The second tier includes intersections and segments with EPDO values of at least 4, indicating that there was at least 2 injury crashes over the crash period.

Figure 9 includes a map of the HIN in Stayton. Table 1 and Table 2 list the intersections and roadway segments, respectively, along with information about their location and key characteristics, including social disparity of the surrounding vicinity. Appendix B includes the full results of the EPDO screening.

Several locations on the HIN are also on the ODOT Safety Priority Index System (SPIS) list of highest priority sites statewide. SPIS scores use crash frequency and crash severity data, similar to the EPDO analysis performed within this plan, to identify potential safety problems on state roadways. The roadway segment along Fern Ridge Road near North 3rd Avenue was within the top 15 percent of SPIS sites and the roadway segment along North 1st Avenue between East Pine Street and East Cedar Street was within the top 10 percent of SPIS sites.⁹

⁹ Oregon TransGIS. Oregon Department of Transportation, 2025. <https://gis.odot.state.or.us/transgis/>



Intersection EPDO

- ≥ 20
- 4 - 20

Segment EPDO

- ≥ 20
- 4 - 20

UGB

0 0.5 Miles



Figure 9

Table 2. Intersections on the High Injury Network

Rank	Intersection	Jurisdiction	Traffic Control ¹⁰	Annualized EPDO Value	Social Disparity
1	Fern Ridge Rd / N. 3rd Ave	Marion County, City of Stayton	TWSC ¹¹	40.6	High/ Medium
2	E. Fir St / N. 1st St	Marion County, City of Stayton	TWSC	28.4	High/ Medium
3	W. Locust St / N. Gardner Ave	City of Stayton	AWSC	24.2	High
4	N. Evergreen Ave / W. Burnett St	City of Stayton	TWSC	20.2	Medium
5	OR 22 Eastbound ramps / Cascade Hwy	ODOT, Marion County	Signal Control	18.8	High
6	Washington St / N. 1st Ave	Marion County, City of Stayton	Signal Control	14.8	High/ Medium
7	Washington St / W. Ida St / Wilco Rd	Marion County, City of Stayton	TWSC	10.4	High/ Medium
8	W. Ida St / S. 1st Ave	Marion County, City of Stayton	AWSC	9.0	Medium
9	Shaff Rd / Golf Club Rd / Wilco Rd	Marion County	AWSC	8.6	High
10	Mill Creek Rd / Golf Club Rd	Marion County	TWSC	8.4	High
11	OR 22 Eastbound ramps / Golf Club Rd	ODOT, Marion County	TWSC	8.2	High
12	Shaff Rd / Fern Ridge Rd / N. 1st Ave	Marion County, City of Stayton	Signal Control	7.6	High/ Medium
13	Whitney St / Cascade Hwy	Marion County, City of Stayton	TWSC ¹²	4.6	High
14	W. Regis St / N. 1st Ave	Marion County, City of Stayton	TWSC ¹²	4.4	High/ Medium
15	E. Cedar St / N. 1st Ave	Marion County, City of Stayton	TWSC ¹²	4.2	High/ Medium
16	W. Ida St / N. Oak Ave	City of Stayton	TWSC	4.2	Medium

¹⁰ AWSC = All Way Stop Control; TWSC = Two Way Stop Control

¹¹ While a pedestrian hybrid beacon (PHB) is planned for this intersection, the current intersection traffic control devices are side street stop signs.

¹² This intersection is three-legged and has stop control on the minor approach.

Table 3. Roadway Segments on the High Injury Network

Rank	Segment	Endpoint 1	Endpoint 2	Jurisdiction	Segment Length (miles)	Highest Annualized Half-Mile Segment EPDO Value ¹³	Total Annualized Segment EPDO	Annualized EPDO per Mile	Social Disparity Score
1	Golf Club Rd	SE Mill Creek Road	Shaff Road	Marion County	1.0	66.4	79.6	79.6	High
2	N. 1st Ave	Fern Ridge Road	Washington Street	Marion County	0.6	31.4	31.8	53.0	High/ Medium
3	Cascade Hwy	OR 22	Fern Ridge Road	Marion County	0.5	12.8	12.8	25.6	High
4	Shaff Rd	Stayton UGB Boundary	N Gardner Avenue	Marion County	0.8	6.8	6.8	8.5	High
5	S. 1st Ave	Washington Street	Santiam River	Marion County	0.5	6.4	6.4	12.8	Medium
6	Ida St	N Myrtle Ave	N Evergreen Ave	City of Stayton	0.6	5.2	5.2	8.7	Medium
7	Locust St	Wilco St	N Fern Ave	City of Stayton	0.6	4.4	4.4	7.3	High
8	Washington St	Wilco St	N Gardiner Ave	City of Stayton	0.6	4.2	4.2	7	High/ Medium

¹³ For roads greater than one half mile in length, EPDO values are calculated in half-mile segments, starting every 0.1 miles along the corridor. If the EPDO value for multiple half-mile segments along a given roadway are similar in value, these segments are grouped to create one larger, combined segment.

High Risk Roadway Segments

Crashes occur due to a variety of factors, such as human behavior, weather, infrastructure design, or a combination of these factors. Infrastructure characteristics that correlate with observed crash patterns may indicate the need to address a systemic safety issue. An analysis of all public roadways within Stayton was completed to identify where multiple risk factors are present at one location. The roadway characteristics were mapped to understand where multiple characteristics overlap. The roadway risk factors analyzed included:

- **Speed:** Posted speed greater than or equal to 35 mph
- **Functional Classification:** Roadways with AADT in excess of 5,000 vehicles/day¹⁴
- **Bicycle/Pedestrian Facilities:** Lack of designated facilities for bicyclists or pedestrians¹⁵
- **Activity Generators:** Within 0.25 miles of a school, park, or senior living facility

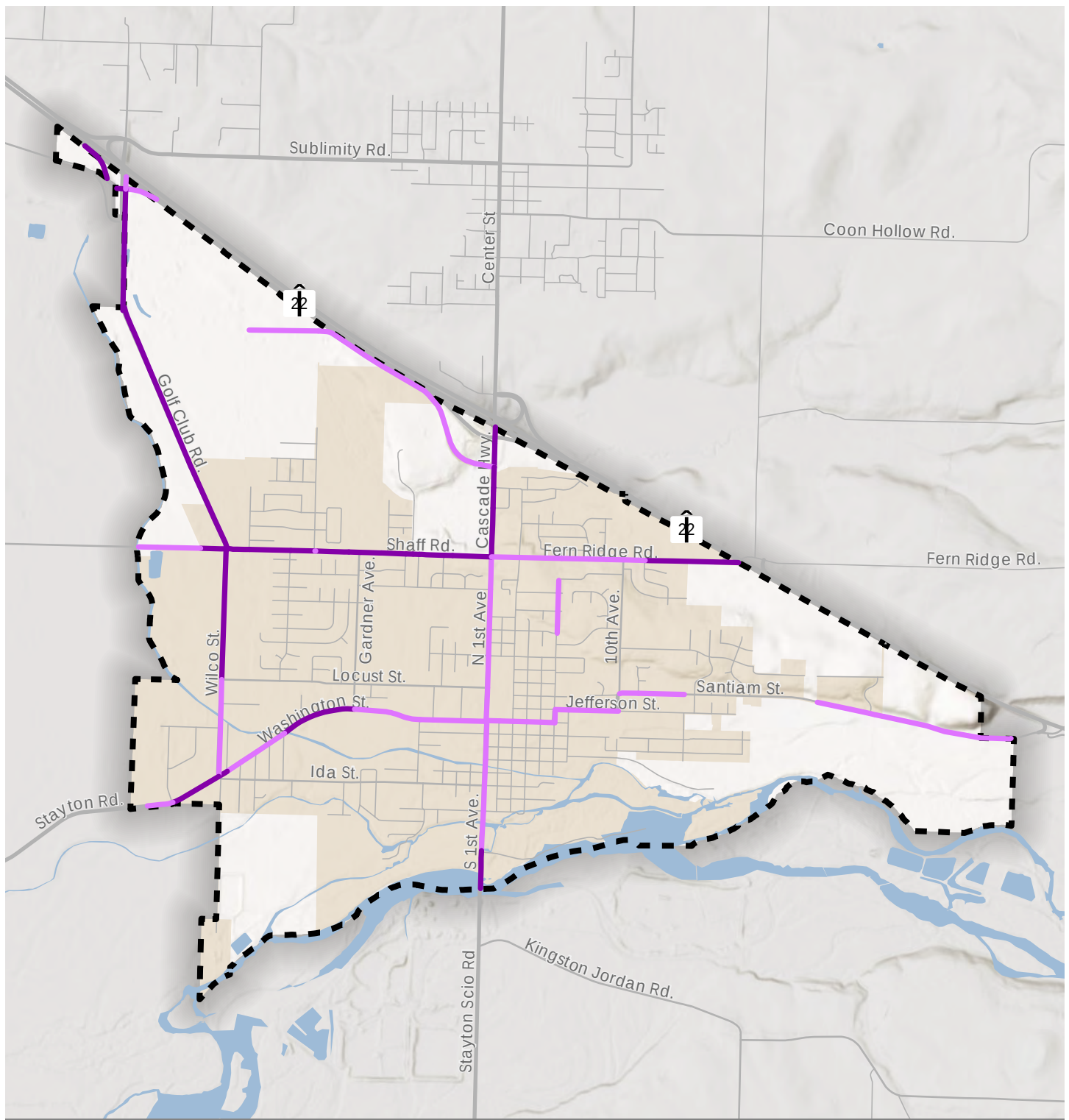
The factors listed above are generally associated with higher roadway risk; however, this is not an exhaustive list. For example, driveway/access density correlates with risk but was not included due to limited data. The risk factors listed above were selected based on data availability and applicability to the context of the Stayton SAP.

While the locations identified by this analysis may or may not have experienced a fatal or suspected serious injury crash within the 5-year study period, they share characteristics that are observed at locations that have experienced these types of crashes. These factors were used to conduct characteristic-based screening of all roadways in Stayton. A characteristic-based score was calculated based on the presence of these characteristics along segments of a roadway. The more characteristics a roadway includes, the higher the score. Each characteristic is weighted the same, with one point per roadway characteristic. The maximum risk score for a single roadway is 4 points.

Figure 10 shows the roadways in Stayton that have two or more risk factors. Appendix B includes the data used to calculate the risk scores along with the risk scores for all roadway segments in Stayton.

¹⁴ Due to limited geospatial data availability regarding roadway volumes, functional classification is used as a proxy. Per ODOT Analysis Procedures Manual, arterials will be assumed to have volumes in excess of 5,000 vehicles per day.

¹⁵ A gap in the bicycle network or pedestrian network for a given roadway each contributed 0.5 points towards the total risk score.



Roadway Risk Score

— ≥ 3 Risk Factors

— ≥ 2 Risk Factors



UGB



City Limits

0 0.5 Miles



Figure 10

Composite Risk and Injury Network

The Composite Risk and Injury Network (CRIN) combines the HIN with the results of the high risk roadway network analysis, as shown in Figure 11. To create the CRIN, the HIN and the high risk roadway analysis layers were overlaid on a single map. Figure 12 shows the resulting CRIN where red and orange road segments indicate that a road was on the HIN and purple roadway segments indicate that a road was on the high risk roadway analysis layer. A CRIN figure containing only locations under the City of Stayton's jurisdiction is included in Appendix B.

Figure 11. Components of the Composite Risk & Injury Network



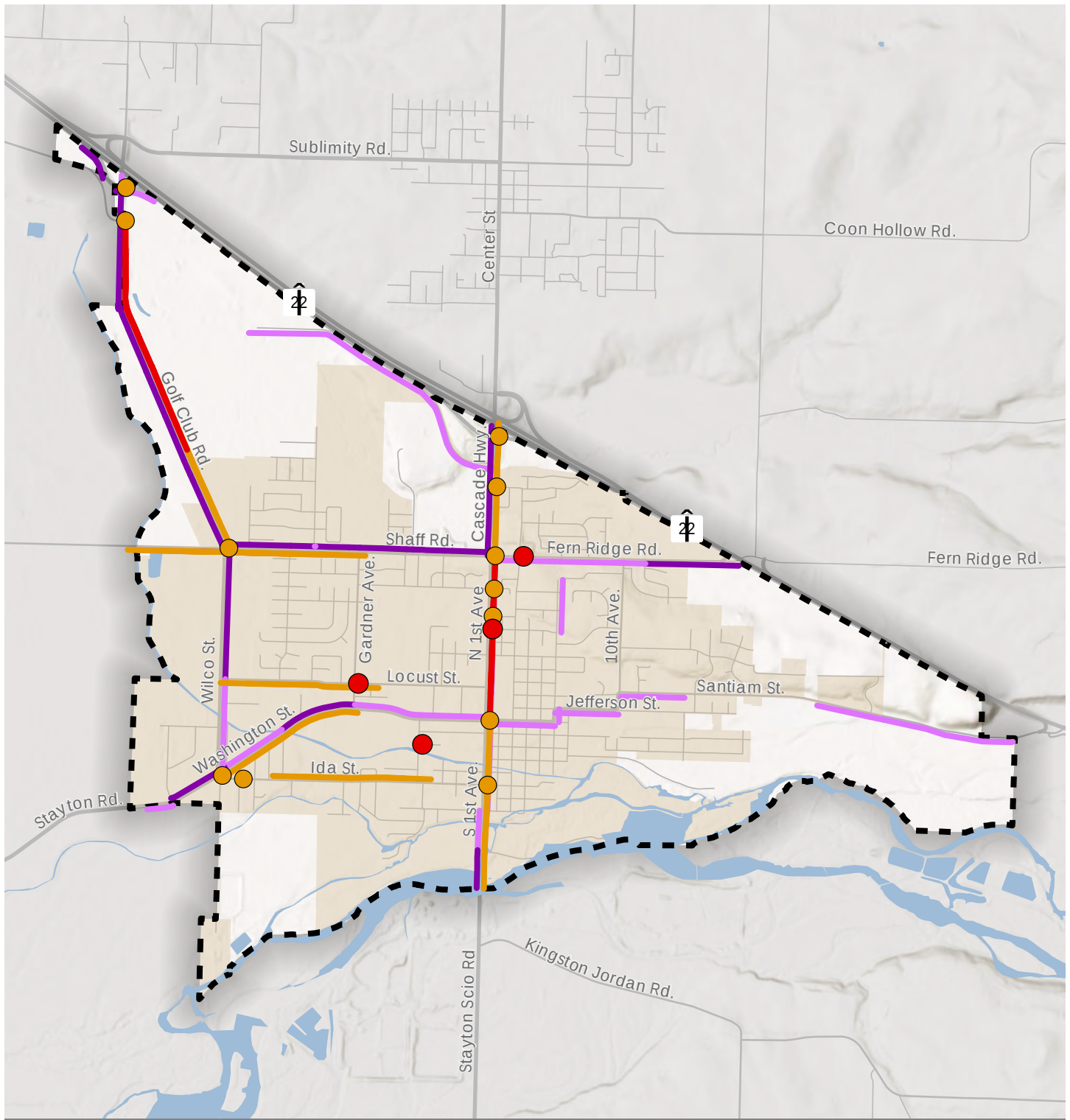
The Stayton SAP Open House #1 provided an opportunity for Stayton residents to express their opinions on transportation safety in Stayton. Comparing the locations where Stayton residents identify transportation safety related issues to the locations identified on the CRIN can deepen understanding of how historic crash data and roadway risk information align and support the lived experience of Stayton residents. While Open House participants gave feedback spanning a large number of city intersections and roadway segments, several key overlaps were identified. Notable segments and intersections which appear on the CRIN and were brought up in the Open House include:

- Segment along North 1st Avenue from Washington Street to Shaff Road
- Segment along South 1st Avenue from the Stayton UGB boundary to Washington Street
- Segment along Shaff Road from Golf Club Road to North 1st Avenue
- Segment along Fern Ridge Road from North 1st Avenue to the Stayton UGB boundary
- Intersection of Golf Club Road, Wilco Street, and Shaff Road
- Intersection of South 1st Avenue and Ida Street
- Intersection of North 1st Avenue and Washington Street
- Intersection of Cascade Highway and Whitney Street

Open House attendees also identified other locations not captured by the CRIN. Locations with multiple (2+) comments that were not captured by the CRIN include:

- Segment along East Santiam Street from North 10th Avenue to the Stayton UGB boundary
- Intersection of North 10th Avenue and East Santiam Street

The complete Open House #1 summary document is included in Appendix C.



Intersection HIN

- High
- Medium

Segment HIN

- High
- Medium

Roadway Risk Score

- ≥ 3 Risk Factors
- ≥ 2 Risk Factors

UGB

City Limits

0 0.5 Miles

Figure 12

EMPHASIS AREAS

The purpose of this section is to distill the findings from the safety evaluation section into key safety Emphasis Areas that will enable more targeted countermeasure development. These Emphasis Areas include engineering, behavioral, and environmental factors that significantly contribute to the existing roadway safety patterns and trends. The following Emphasis Areas are elements that the City of Stayton and its partner agencies could focus on through the Safety Action Plan: vulnerable road users, risky driver behaviors, and intersections. Alignment between the Stayton Transportation System Plan (TSP), Marion County Transportation Safety Action Plan (TSAP), and Oregon TSAP is summarized in Table 4 and discussed in greater detail below.

Table 4. Alignment between Stayton SAP Emphasis Areas and Other Relevant Plans

Emphasis Area	Stayton TSP	Marion County TSAP	Oregon TSAP
Vulnerable Road Users	✓	✓	✓
Risky Driver Behaviors	✗	✓	✓
Intersections	Included within plan objectives focusing on crossings and high crash locations	✓	Included within the plan's Infrastructure Emphasis Area

Vulnerable Road Users



Vulnerable road users is a term used to describe a variety of users of the Stayton roadway system who are more likely to be injured should they be involved in a crash. These users include pedestrians, bicyclists, and motorcyclists. Vulnerable road users experienced significantly higher rates of KAB crash severity outcomes compared to road users in a car or truck, with over half of crashes involving a pedestrian or bicyclist resulting in a KAB severity outcome.

This Emphasis Area aligns with the Marion County TSAP and the Oregon TSAP. Ensuring synergy between transportation safety efforts at the county and state level can improve funding opportunities and lead to more effective transportation safety improvement efforts. The Stayton TSP includes the goal of improving safety for all modes, including pedestrians and bicyclists. Furthermore, improving safety for vulnerable road users was a key priority area for attendees at the Open House #1.

Risky Driver Behaviors



Risky driver behaviors include a variety of driver actions which significantly contribute to KAB severity outcomes. These behaviors include impaired, distracted, and reckless driving, along with failure to use safety equipment and speeding. These behaviors increase the likelihood of a crash occurring and increase the probability of a fatal or serious crash outcome when a crash does occur.

The Marion County TSAP and the Oregon TSAP identify impairment and risky behaviors as Emphasis Areas.

Intersections



Not only did the majority of total crashes within the study area occur within an intersection, but crashes occurring within an intersection are also 6 percentage points more likely to result in a KAB severity outcome than segment crashes.

Stop-controlled intersections should be locations of particular emphasis within Stayton. Of the 16 intersections identified on the HIN, 13 intersections are stop-controlled. The top four intersections on the HIN are stop-controlled and all have been the location of a traffic-related fatality or suspected serious injury; no fatal or suspected serious injuries occurred at signal-controlled intersections on the HIN. Additionally, safety concerns related to stop-controlled intersections were highlighted at the Open House, with numerous attendees describing motorists hitting stop signs with their vehicle or failing to stop or slow down at stop signs. Appendix D contains a map of signal locations in Stayton.

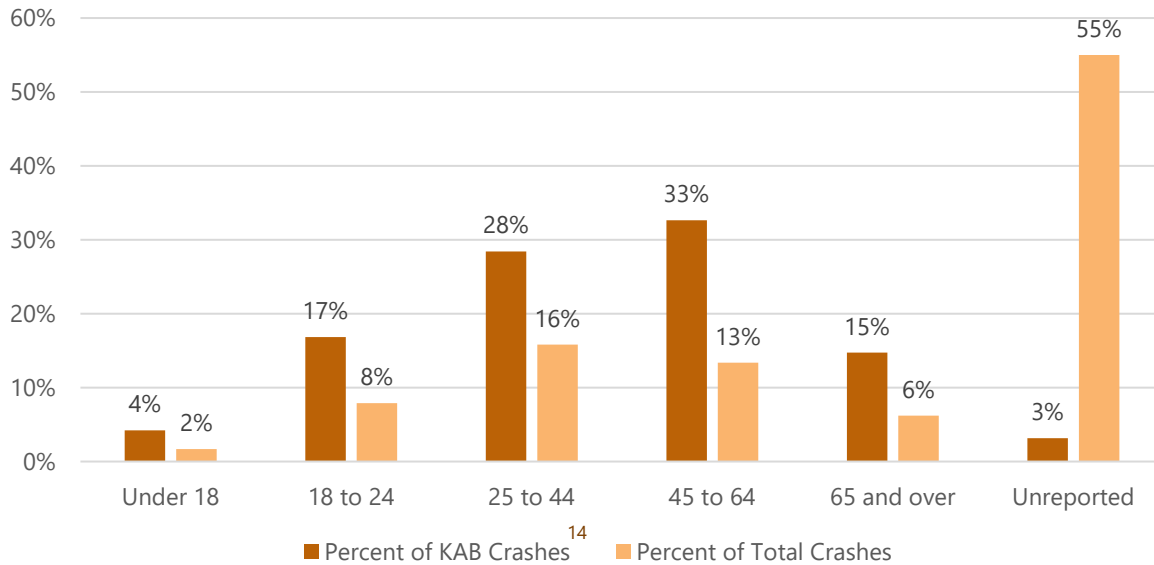
The Marion County TSAP includes intersections as an Emphasis Area and the Oregon TSAP includes intersection considerations within its infrastructure Emphasis Area. Stayton's TSP contains objectives to address existing safety issues at high collision intersections and crossings.

Next Steps

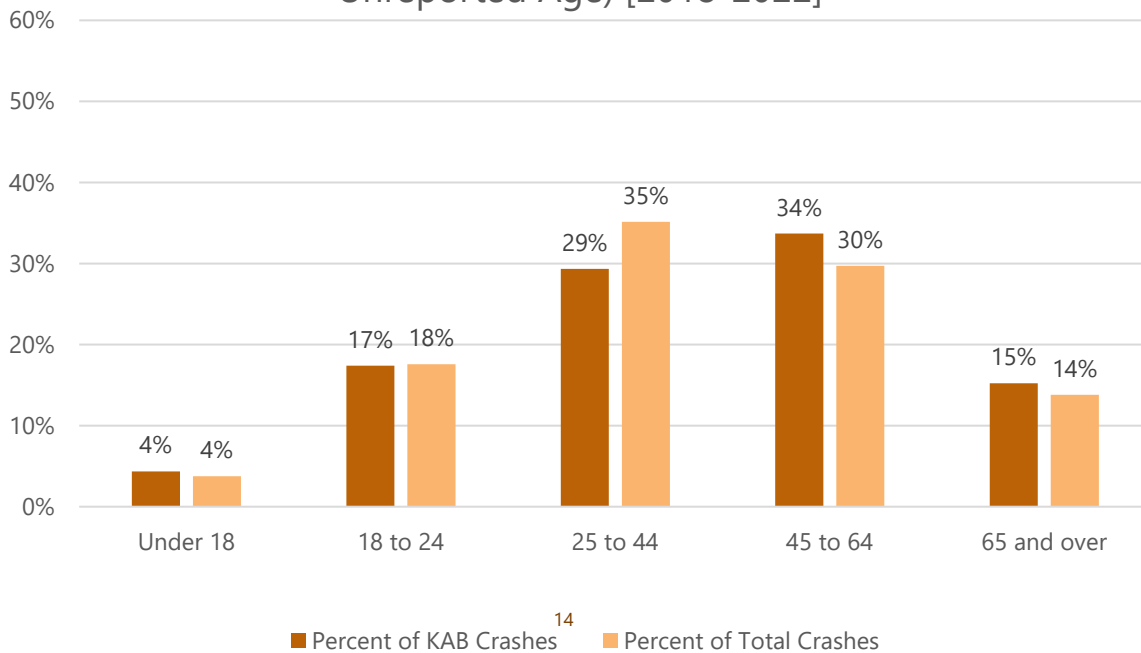
Building upon the findings from the Existing Conditions analysis, the next steps involve using targeted approaches to address the Emphasis Areas identified in the previous section. Additional analyses will move to identify appropriate transportation safety countermeasures and priority locations within the Stayton UGB for countermeasure implementation.

Appendix A. Further Crash Patterns and Trends

Crash Severity by Driver Age (Including Crashes with Unreported Age) [2018-2022]

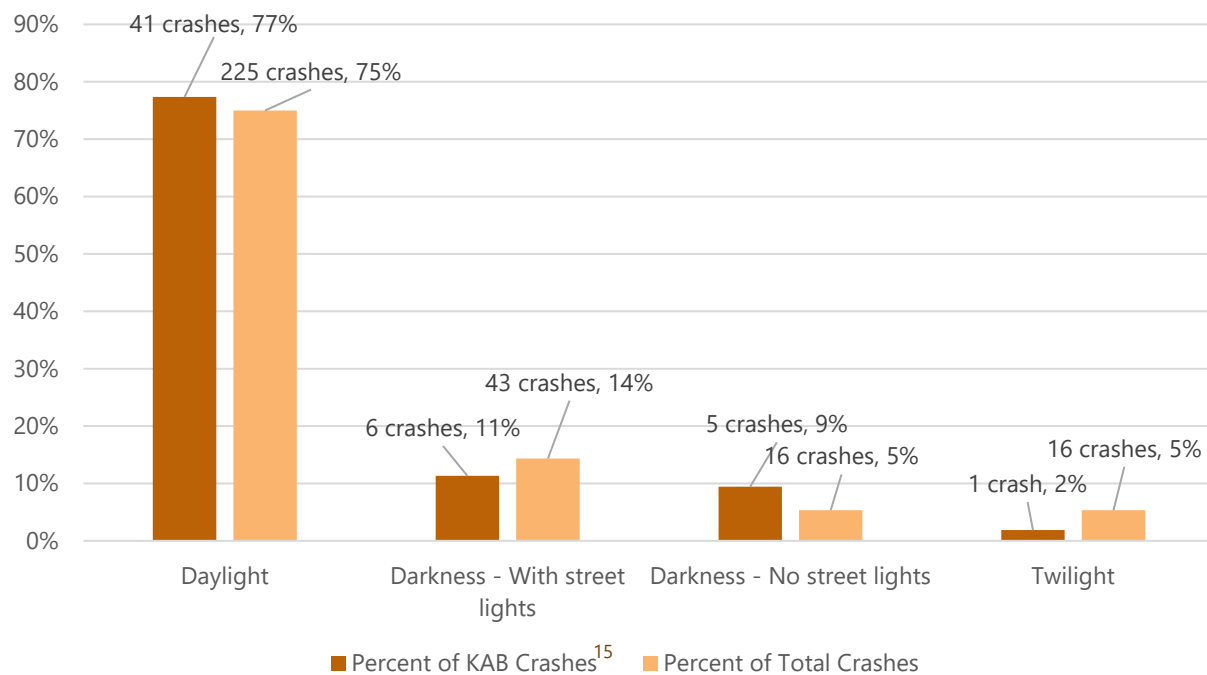


Crash Severity by Driver Age (Excluding Crashes with Unreported Age) [2018-2022]

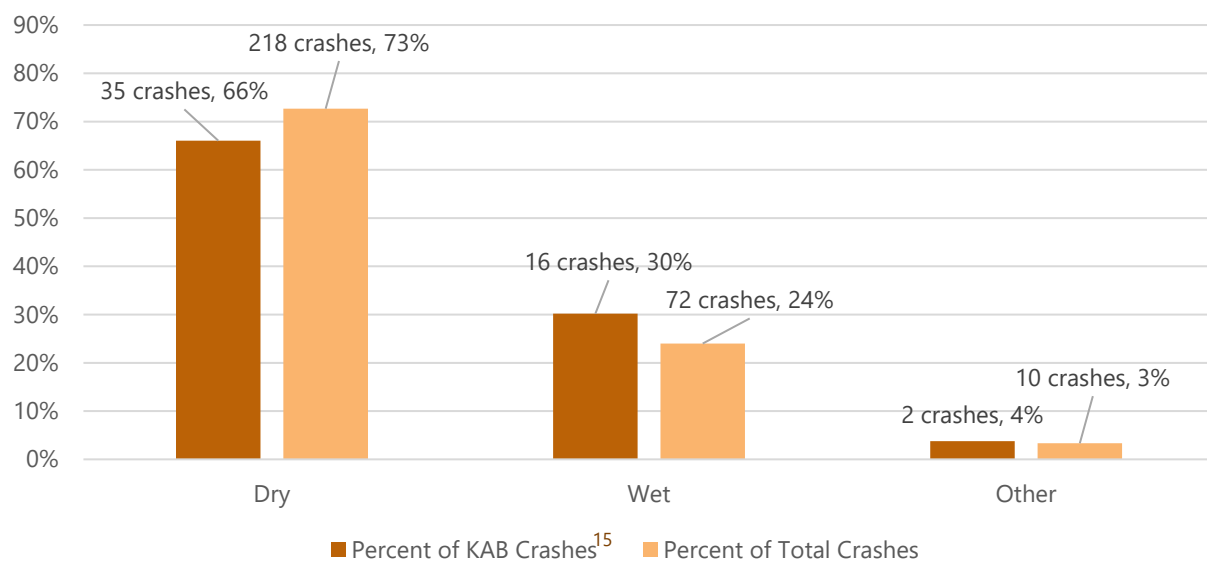


¹⁶ KAB crashes include fatal, suspected serious injury, and suspected minor injury outcomes.

Lighting Conditions and Crash Severity (2018-2022)

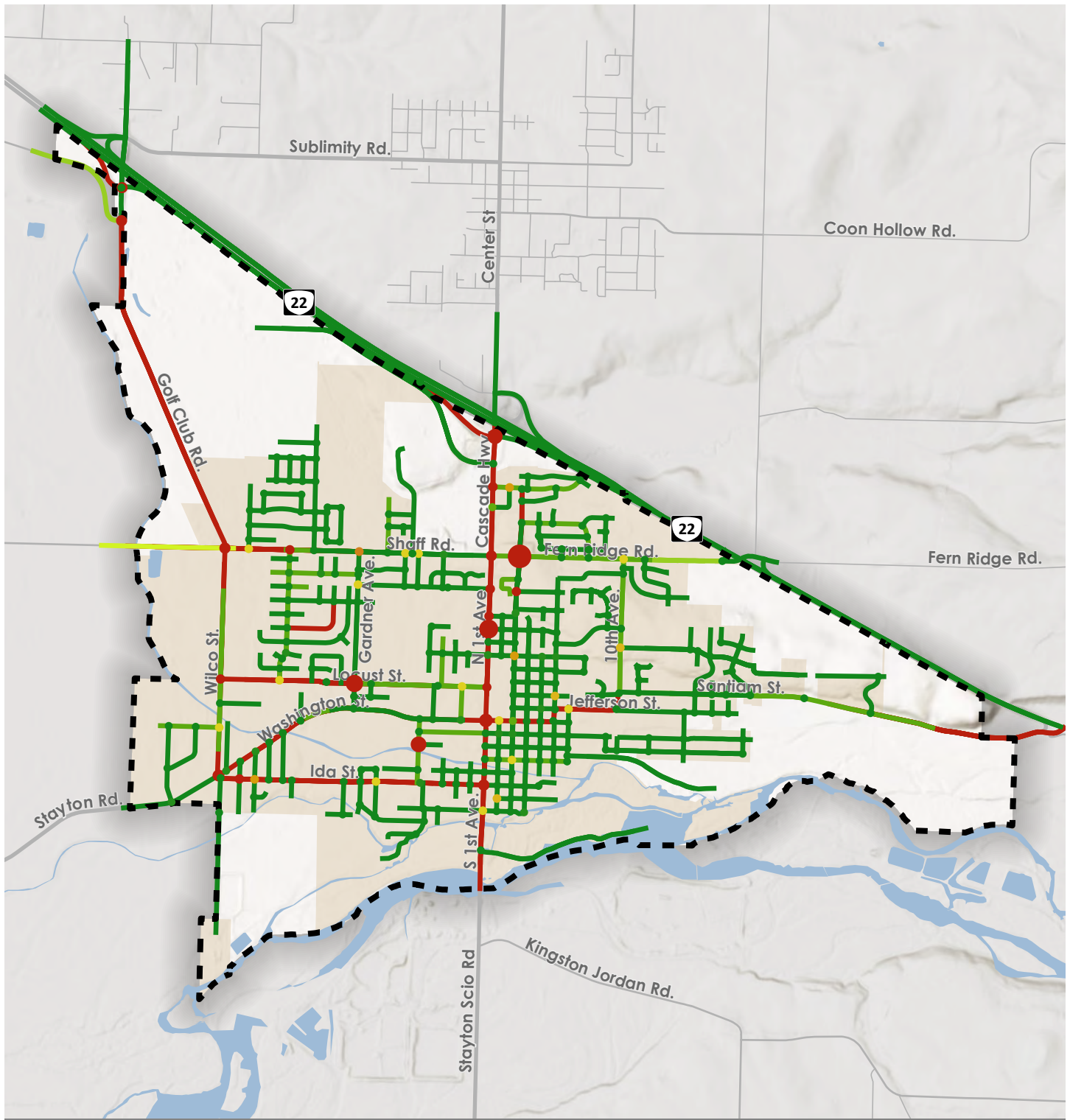


Roadway Surface Conditions and Crash Severity (2018-2022)

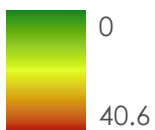


¹⁷ KAB crashes include fatal, suspected serious injury, and suspected minor injury outcomes.

Appendix B. Location Screening Maps



Intersection EPDO



Segment EPDO



UGB



City Limits

0 0.5 Miles



Figure B-1

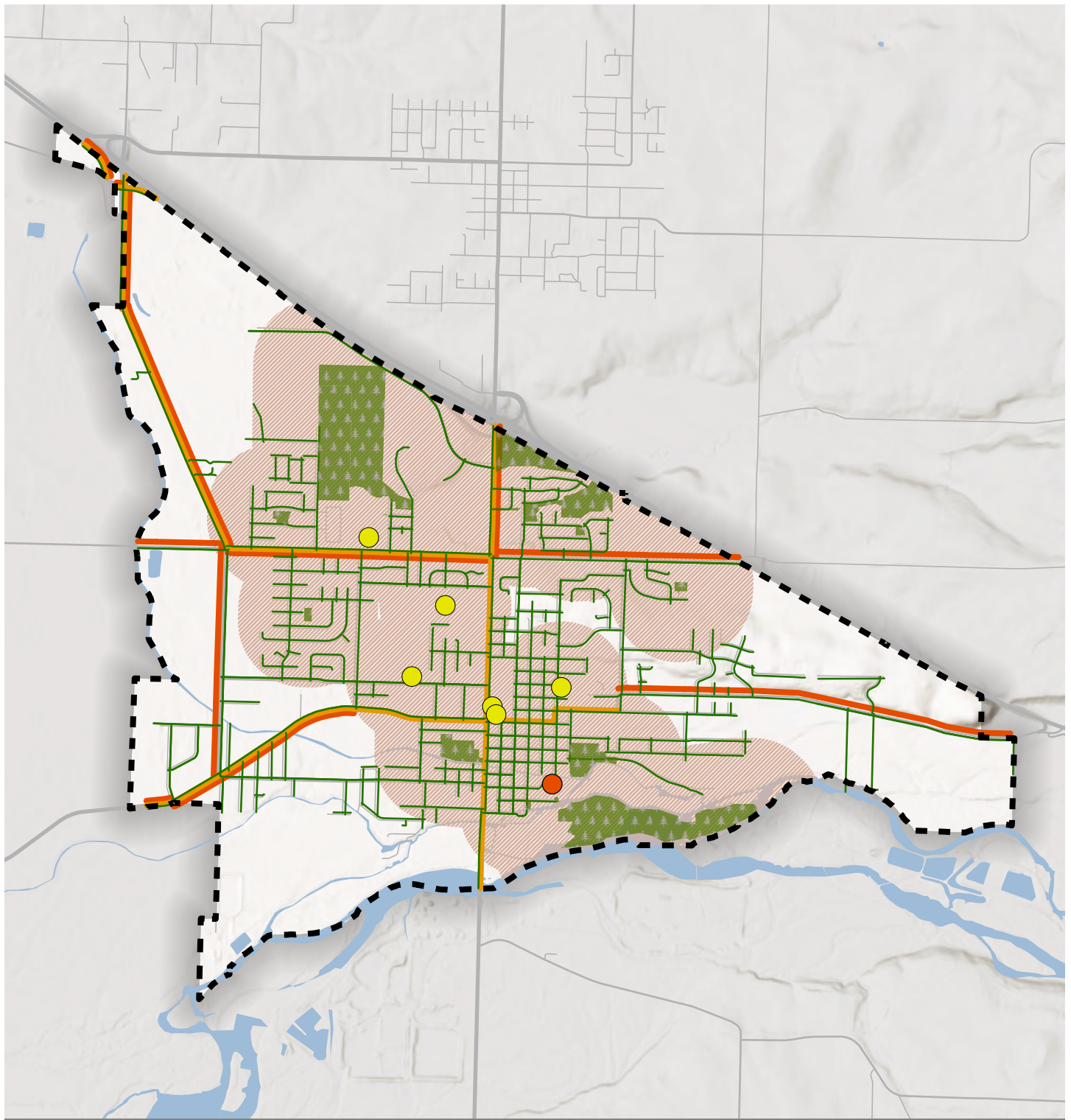
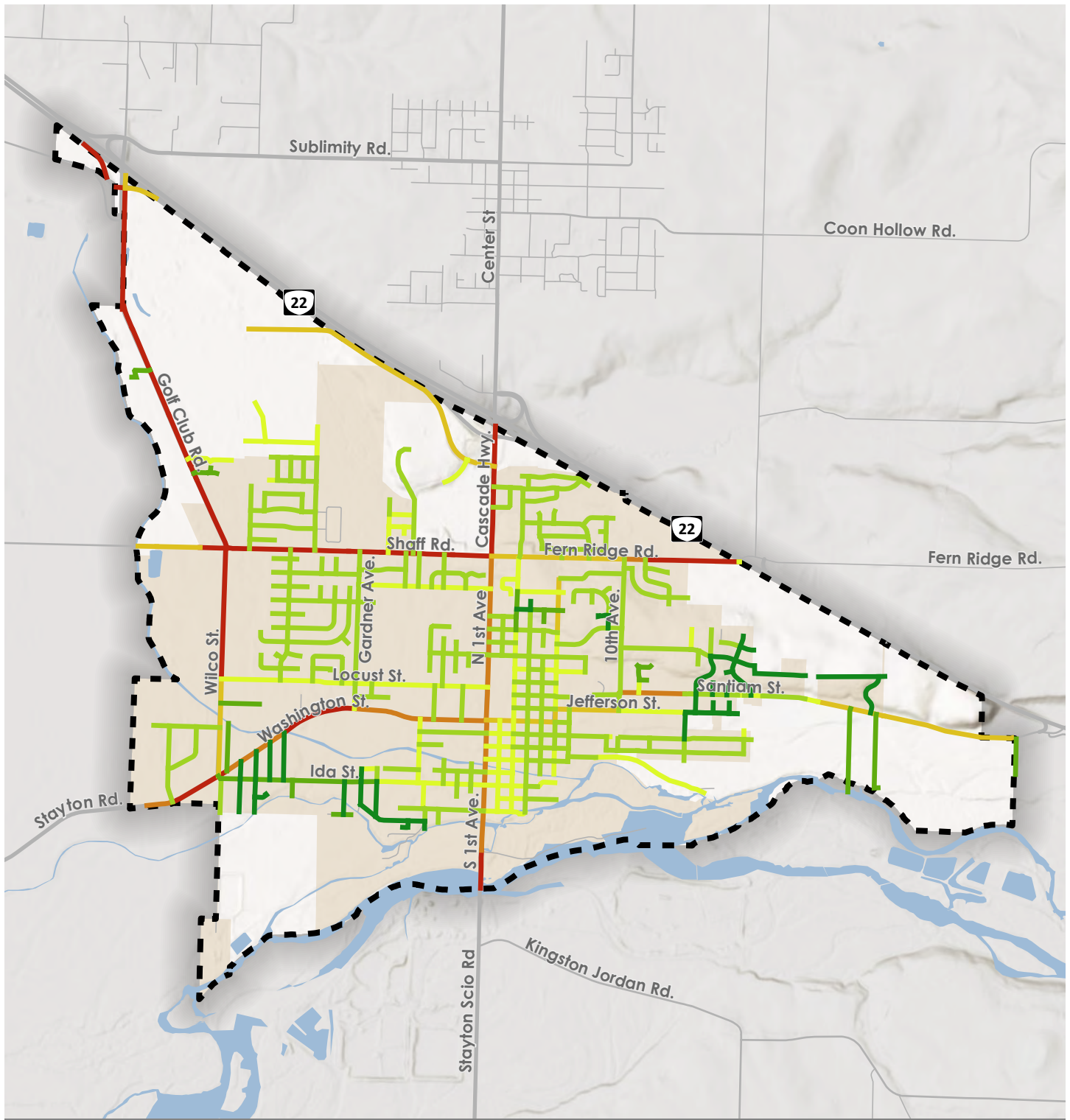
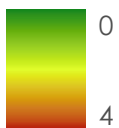


Figure B-2



High Roadway Risk
Risk



City Limits
UGB

0 0.5 Miles



Figure B-3

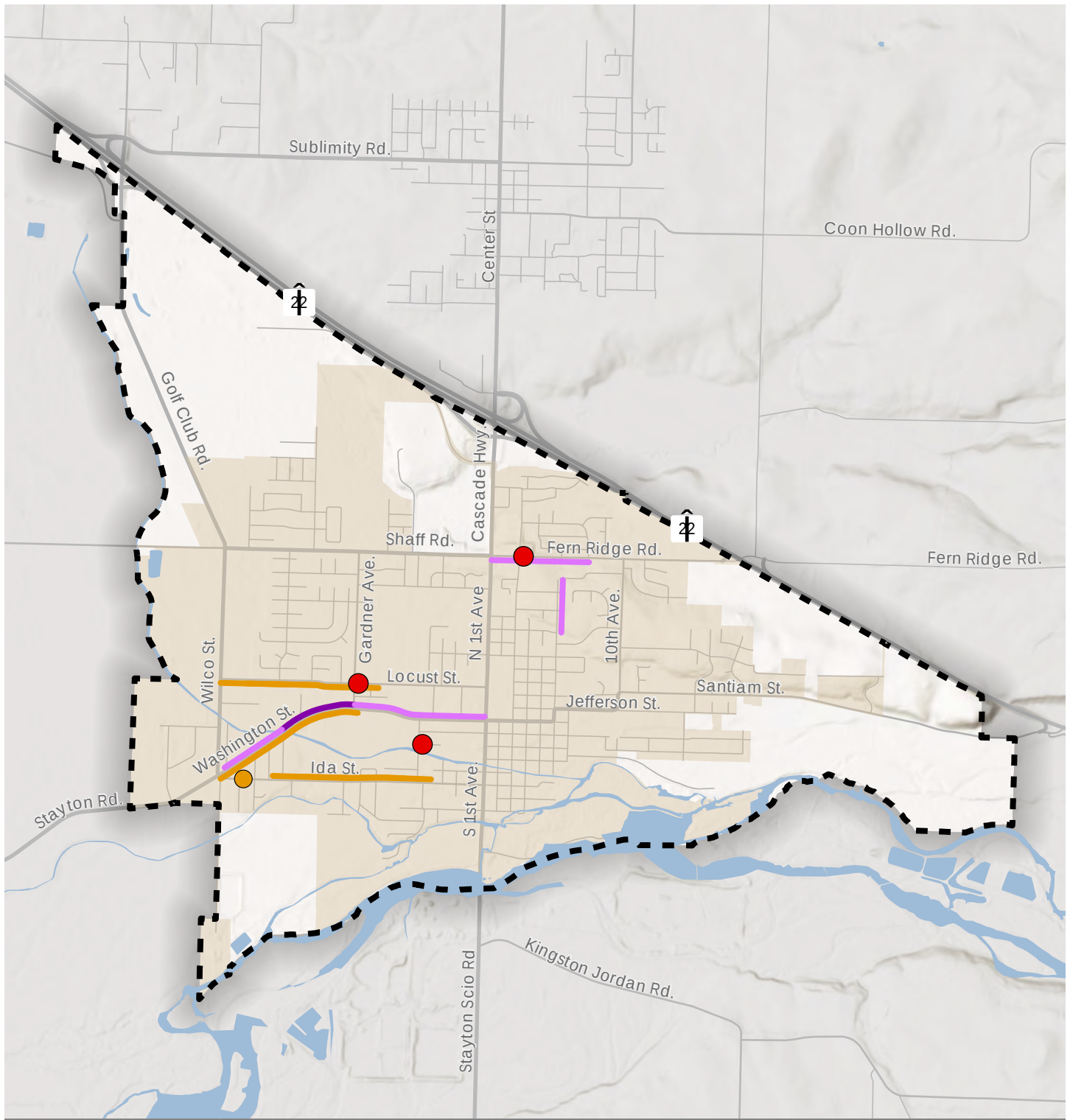


Figure B-4

Appendix C. Open House #1 Summary

OPEN HOUSE #1 SUMMARY

April 8, 2025

Project# 31028

To: City of Stayton
From: Nick Gross, Max Heller, Amy Griffiths; Kittelson & Associates, Inc.
RE: Stayton Safety Action Plan

Overview

The City of Stayton held the first public Open House for the Stayton Safety Action Plan (SAP) on Thursday April 3, 2025, from 5:00pm-8:00pm at the Stayton Community Center. The goal of this engagement event was to educate community members about the project and provide an opportunity for the community to share their transportation safety related concerns within City staff. The City provided several display boards where people were able to directly add comments regarding places where they feel unsafe, their transportation safety priorities, and how they move around Stayton. The event attracted approximately 15 to 20 participants who provided dozens of comments. This document summarizes key takeaways from the feedback received through this Open House.

Open House #1

Open House #1 was the first of two in-person public engagement events as part of the Stayton SAP project. This event was advertised on the City of Stayton website and attracted a range of local residents, business owners and City employees. The Open House was additionally attended by members of the SAP project team, including both City staff and the consultant team. The event included several displays, including:

- A board presenting a project background, including an introduction to the Safe System Approach
- A board provided a high-level overview of crash history within the study area
- Displays where community members could add comments to a map of Stayton and describe their concerns or transportation safety related priorities
- A board providing additional opportunities for community members to get involved, including a QR code to the project website

Photos of the comment boards are located at the end of this document.



KEY TAKEAWAYS

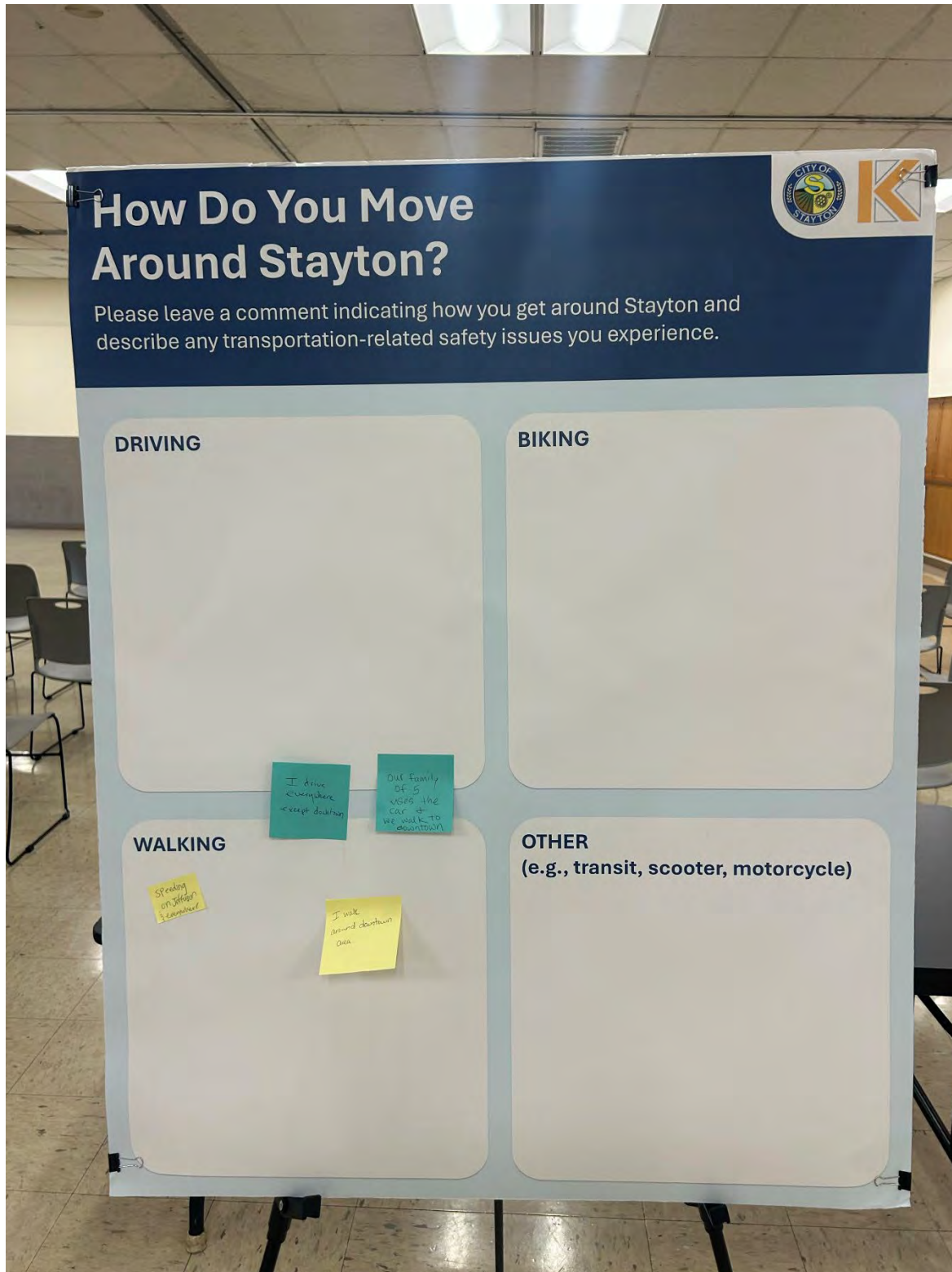
Feedback received from this Open House event was consolidated and analyzed to identify key themes and takeaways. This section summarizes this feedback.

- The community identified the following safety concerns:
 - Poor crosswalk and pedestrian visibility creates safety concerns at crossings
 - Poor motorist yield rates to pedestrians at crossings
 - Excessive accesses/driveways along arterial roadways (especially along First Avenue)
 - Drivers running stop signs, often due to poor visibility of the sign
 - School zone flashing beacons do not align with school arrival/release periods
 - Turning conflicts with pedestrians and vehicles, particularly in two-way left-turn lanes and at driveways
 - Parked cars reduce the visibility of pedestrians at crossings and block sidewalks
- The community identified the following desired safety improvements:
 - Curb extensions at pedestrian crossings
 - Enhanced pedestrian crossing signage (e.g. RRFBs) especially at City Hall and the library
 - Improved sidewalk connectivity, filling gaps in the network (especially at the Cannery)
 - Reduced speed limits, especially on Fern Ridge Road and Santiam Street
 - Access management to driveways and businesses on busy roads
 - Improve pavement conditions (e.g. fill potholes)
 - Transverse stripes to increase awareness of stop-controlled intersections
 - Ensure manhole grates do not pose hazards to cyclists
 - Enforcement of Right Turn on Red restriction at Fern Ridge Road & Shaff Road
 - Leading pedestrian intervals
 - Ensure school zone signage and flashing beacons are functioning and visible
 - Street lighting, especially at First Avenue & Washington Street
 - Adequate sight distance (especially at W. Town Drive & Shaff Road)



ATTACHMENTS

This section includes photographs of each of the three comment boards displayed at the Open House along with community member feedback.



What Type of transportation Safety Improvements Would You Like to See in Stayton?

Place a marker next to the improvement(s) you feel are most needed in Stayton.
Feel free to add more detailed comments.

INTERSECTION IMPROVEMENTS
(e.g., signal timing, left-turn lanes, etc.)

● *Signal Timing*

PEDESTRIAN INFRASTRUCTURE IMPROVEMENTS
(e.g., sidewalks, safe crossings, etc.)

● *Signal needs*
Push to create it
the intersection, especially on the south side and make it safer for pedestrians. I also want to see the bus stop area improved.

● *Bank OUT*

● *Sidewalks on southern side of town*
Bumpouts downtown

BICYCLE INFRASTRUCTURE IMPROVEMENTS
(e.g., bike lanes, parking, etc.)

Turning left on green, do not have a red light (no car waiting) until the light turns green!

TRANSIT IMPROVEMENTS
(e.g., bus stops, frequency, etc.)

LOWER SPEED LIMITS

GENERAL ROAD MAINTENANCE

● *100 stickers!*

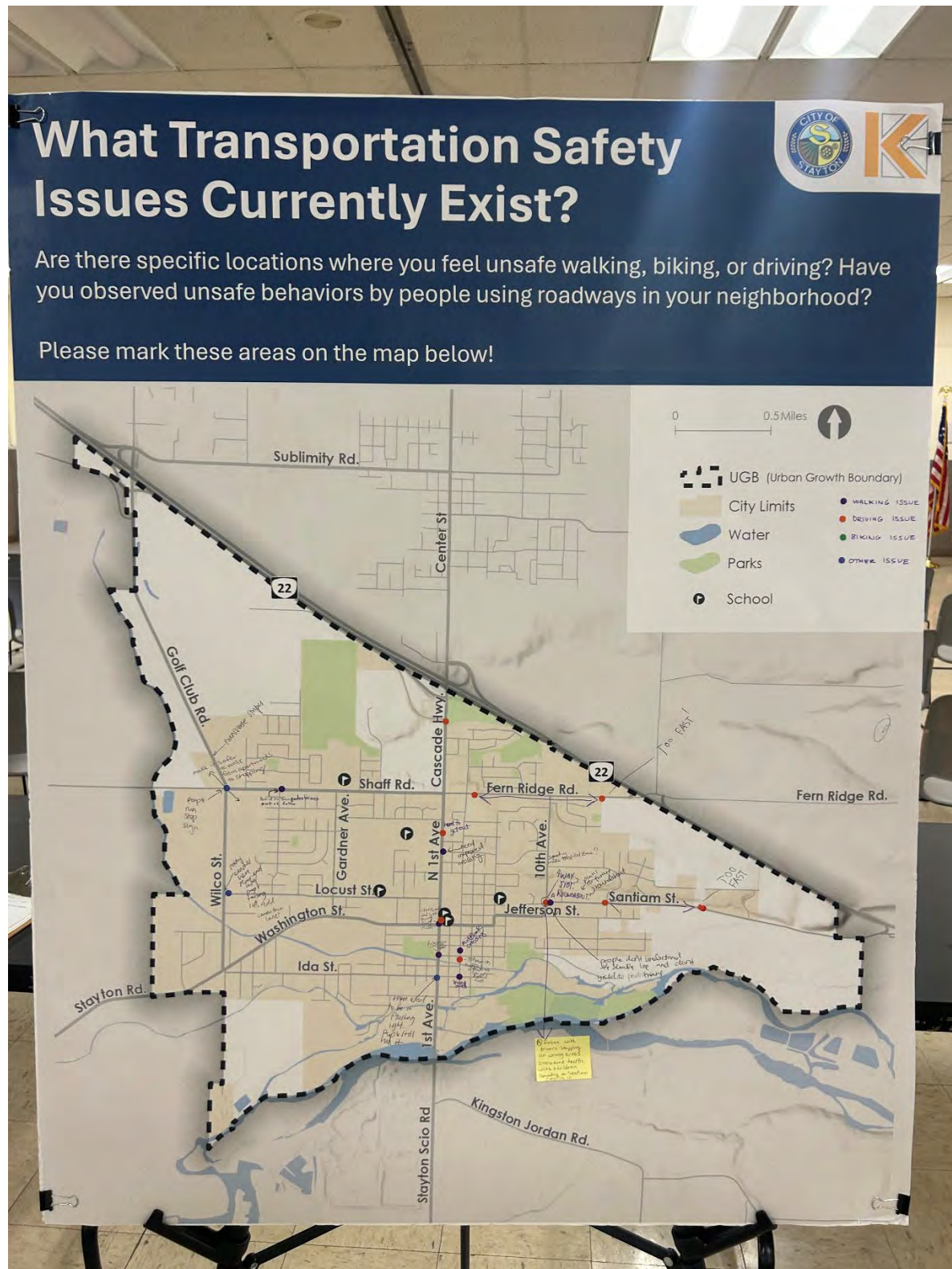
street paving

EDUCATION OR ENFORCEMENT

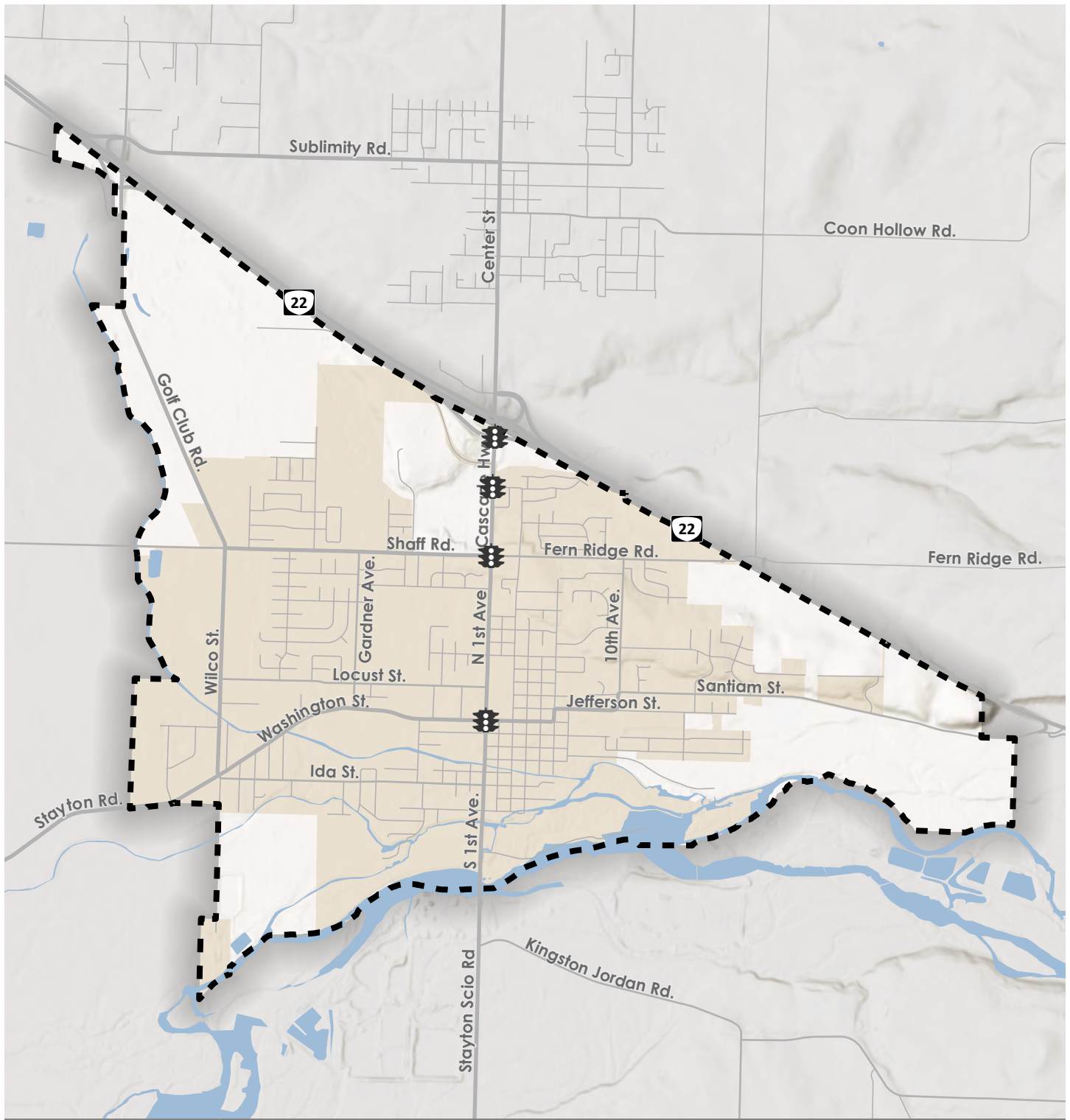
NO IMPROVEMENTS NEEDED

General feedback

Please share any additional transportation safety related comments or concerns!



Appendix D. Signal Locations



Traffic Signals



City Limits



UGB

0

0.5 Miles



Figure D

APPENDIX B: PUBLIC INVOLVEMENT SUMMARY

PUBLIC INVOLVEMENT SUMMARY

October 22, 2025

Project# 31028

To: City of Stayton

From: Nick Gross, Max Heller, Amy Griffiths; Kittelson & Associates, Inc.

RE: Stayton Safety Action Plan

Introduction

The Stayton Safety Action Plan included three rounds of public involvement. The first round occurred in April and focused on gathering input on existing conditions and transportation safety related concerns. The second round occurred in July and focused on gathering input on draft strategies and treatments. The final round will occur in December and will include a committee meeting and Planning Commission and City Council Hearings on the plan document.

Public Involvement Round 1: Safety Data Collection and Analysis

The first round of public involvement included an in-person open house. The goal of this engagement event was to educate community members about the project and provide an opportunity for the community to share their transportation safety related concerns within City staff.

OPEN HOUSE #1

The City of Stayton held the first public Open House for the Stayton Safety Action Plan (SAP) on Thursday April 3, 2025, from 5:00pm-8:00pm at the Stayton Community Center. This event was advertised on the City of Stayton website and attracted a range of local residents, business owners and City employees. The event attracted approximately 15 to 20 participants who provided dozens of comments. The Open House was attended by members of the SAP project team, including both City staff and the consultant team. The event included several displays, including:

- A board presenting a project background, including an introduction to the Safe System Approach
- A board provided a high-level overview of crash history within the study area
- Displays where community members could add comments to a map of Stayton and describe their concerns or transportation safety related priorities
- A board providing additional opportunities for community members to get involved, including a QR code to the project website.

Attachment A includes images of the comment boards.

KEY TAKEAWAYS

Feedback received from this open house event was consolidated and analyzed to identify key themes and takeaways. This section summarizes this feedback.

- The community identified the following safety concerns:
 - Poor crosswalk and pedestrian visibility creates safety concerns at crossings
 - Poor motorist yield rates to pedestrians at crossings
 - Excessive accesses/driveways along arterial roadways (especially along First Avenue)
 - Drivers running stop signs, often due to poor visibility of the sign
 - School zone flashing beacons do not align with school arrival/release periods
 - Turning conflicts with pedestrians and vehicles, particularly in two-way left-turn lanes and at driveways
 - Parked cars reduce the visibility of pedestrians at crossings and block sidewalks
- The community identified the following desired safety improvements:
 - Curb extensions at pedestrian crossings
 - Enhanced pedestrian crossing signage (e.g. RRFBs) especially at City Hall and the library
 - Improved sidewalk connectivity, filling gaps in the network (especially at the Cannery)
 - Reduced speed limits, especially on Fern Ridge Road and Santiam Street
 - Access management to driveways and businesses on busy roads
 - Improve pavement conditions (e.g. fill potholes)
 - Transverse stripes to increase awareness of stop-controlled intersections
 - Ensure manhole grates do not pose hazards to cyclists
 - Enforcement of Right Turn on Red restriction at Fern Ridge Road & Shaff Road
 - Leading pedestrian intervals
 - Ensure school zone signage and flashing beacons are functioning and visible
 - Street lighting, especially at First Avenue & Washington Street
 - Adequate sight distance (especially at W. Town Drive & Shaff Road)



Public Involvement Round 2: Document Needs and Develop Solutions

The second round of public involvement included an in-person open house and an in-person committee meeting. The feedback received through these events will inform the development of the *Strategies and Recommendations Memorandum*, including the proposed systemic and location-specific treatments and policies.

OPEN HOUSE #2

The Open House was held from 5:30-7:30pm on July 23, 2025 and had approximately 20 attendees, including Kittelson and City staff, along with local residents, business owners, and Marion County staff. The event was advertised on the City's website and through posters placed around Stayton. The event included several displays, including:

- A board presenting Vision Zero and the Safe System Approach
- A board summarizing the existing conditions analyses and presenting the SAP Emphasis Areas
- A board where community members could add comments to a list of draft systemic strategies and recommendations
- Boards where community members could add comments to vicinity maps of the five location-specific treatments
- A board summarizing next steps with a QR code for the project website

Attachment B includes images of the comment boards.



PUBLIC ADVISORY COMMITTEE MEETING #1

The Public Advisory Committee ("committee") meeting was held from 3:30-5:00 pm on July 23, 2025 and had eight participants, including Kittelson and City staff. The following people attended the meeting, arranged alphabetically by last name:

- Erin Cramer – Stayton School Board member
- Amy Griffiths – Kittelson & Associates
- Max Heller – Kittelson & Associates
- Larry McKinley – Stayton Planning Commission Chair
- Jonathan Penrice – Stayton resident
- Jennifer Siciliano – Community and Economic Development Director
- Steve Sims – Stayton City Council member
- Howard Tsang – Stayton Community Engagement Coordinator

Kittelson staff provided a background on the project, including a summary of the existing conditions analysis. Kittelson overviewed the systemic strategies and high-priority location treatments and provided committee members with opportunities to express feedback and ask questions.



KEY TAKEAWAYS

The feedback received from open house and committee meeting was consolidated and analyzed to identify key themes and takeaways. Takeaways are organized below based on their relevance to the systemic recommendations or the location-specific treatments.

Systemic Strategies

The following table summarizes the feedback received on the draft systemic treatments and strategies that were presented at the committee meeting and open house. Open house attendees also identified interest in systemic lighting improvements, especially along First Avenue and Third Avenue.

Treatment or Strategy	Feedback
Low-Cost Countermeasures at Stop Controlled Intersections	One open house attendee marked this as a “not as urgent” priority. Several other attendees discussed the importance of increasing driver awareness at stop-controlled intersections, particularly those along Golf Club Road, First Avenue, and Third Avenue.
Update Land Use and Development Code to Incorporate the SSA	Feedback on this strategy was neutral, but some committee attendees sought greater clarification on what this would entail and how this would compare to other cities’ codes.
Crossing Enhancements	Attendees of the committee meeting and open house were very supportive of crossing enhancements as an “urgent” priority. They identified interest in crossing improvements along First Avenue at Cedar Street and Hollister Street. Other intersections were identified as priorities locations including the intersection of Third Avenue & Fern Ridge Road.
Traffic Calming	Feedback on this strategy was mixed. Some open house attendees expressed interest in curb extensions, chicanes, and other “narrowing” treatments. Other attendees expressed a disinterest in speed humps, indicating that humps might inhibit emergency response vehicles or distract drivers. A committee member specifically recommended a curb extension at Third Avenue & Marion Street, citing poor visibility due to park cars.
Fill Sidewalk Gaps	Filling sidewalk gaps was widely supported as a “urgent” priority by open house attendees. Some key gaps identified include the area surrounding the Shaff Road and Golf Club Road intersection and local streets east of First Avenue.
Fill Bicycle Gaps	Open house attendees identified this as a “not as urgent” or “not urgent” improvement. Committee members discussed the importance of maintaining separation between bicyclists and pedestrians in shared facilities.

Treatment or Strategy	Feedback
Update Roadway Design Standards to Incorporate the SSA	Feedback on this strategy was neutral.
Appropriate Posted Speeds for All Road Users	Open house attendees identified speeding as prevailing issue on Stayton roads. This strategy received neutral to positive feedback.
20 Is Plenty	Committee attendees were supportive of this strategy and were confident in the City's ability to implement the program. This strategy received neutral to positive feedback at the open house. A committee member especially emphasized that adopting 20 is Plenty would help pedestrians and drivers share the road more comfortably on local streets without dedicated sidewalk facilities.
Dynamic Speed Feedback Signs	This strategy was widely supported by committee and open house attendees. Existing signs were described as being effective and the attendees of the events were supportive of expanding the program. Some people expressed concern for the long-term efficacy of these signs, pointing out that drivers get accustomed to their presence and that drivers might resume speeding once signs are removed. A couple of open house attendees identified this as an "urgent" improvement.
Hardened Centerlines and Turn Wedges	Feedback on this strategy was neutral to positive, with one open house attendee identifying this as an "urgent" improvement.
Education Campaigns	While education campaigns were supported by committee and open house attendees, they were identified as a lower priority compared to other treatments and strategies.
Targeted and High-Visibility Enforcement	Feedback on this strategy was neutral.
Develop Automatic Traffic Enforcement Policy and Program	Committee attendees indicated that automated enforcement would likely not be well received by Stayton residents and indicated preference for targeted and high-visibility enforcement instead.

Location-Specific Treatments

The following table summarizes the feedback received on the location-specific treatments that were presented at the committee meeting and open house. Open house attendees highlighted the importance of traffic calming and improvements along Third Avenue, in addition to the locations described below. Another open house attendee suggested implementing temporary curb extensions at Third Avenue/Ida Street.

Location	Feedback
First Avenue Segment	– Enhanced crossings were highly supported along this corridor, particularly at the school crossing at Cedar Street, Hollister Street, and in front of Safeway. Event attendees indicated poor driver yield rates at existing marked crosswalks along First Avenue. – Committee attendees raised concerns about traffic being diverted onto Third Avenue if site access is blocked or restricted. – Open house attendees expressed desires for new or improved left-turn lanes along the corridor.
First Avenue & Marion Street Intersection	– Open house attendees expressed crosswalk visibility concerns for southbound vehicles approaching this intersection and requested enhanced crossing treatments. – Open house attendees expressed a desire for a crosswalk on the south leg of the intersection, stressing the importance of pedestrian connections in the area. – Open House attendees also indicated that the intersection is very busy, with interest in consolidating library exit lanes. – A committee member supported the proposal to realign the intersection and implement an RRFB.
Locust Street Segment	– Committee members were skeptical about the effectiveness of curb extensions along Locust Street, stating that there are generally few parked on-street vehicles; however, both committee and open house attendees agreed that some traffic calming would be beneficial.
Washington Street Segment	– While some open house attendees claimed that there was little need for safety improvements along this corridor, others said that speeding was a major issue. – Committee members were supportive of traffic calming. – The intersection at Evergreen Avenue was mentioned as a frequent pedestrian crossing location for children where additional traffic calming or crossing enhancements would be beneficial. – Open house attendees felt the importance of safety improvements along this corridor would increase with upcoming development. – Open house attendees felt that passing should not be allowed on Washington Street.
Ida Street Segment	– Committee members indicated a need to fill in sidewalk gaps along this corridor and improve existing pedestrian facilities. – Committee members were supportive of removing the skip striping and striping with double yellow centerlines to prohibit passing. – Committee members were hesitant regarding mini-roundabouts, stating there might not be sufficient volumes on the minor approaches to warrant them. – Open house attendees agreed that traffic calming would be beneficial and did not see a need for a dashed centerline for passing.

Public Involvement Round 3: Public Advisory Committee Meeting #2 and Public Hearings

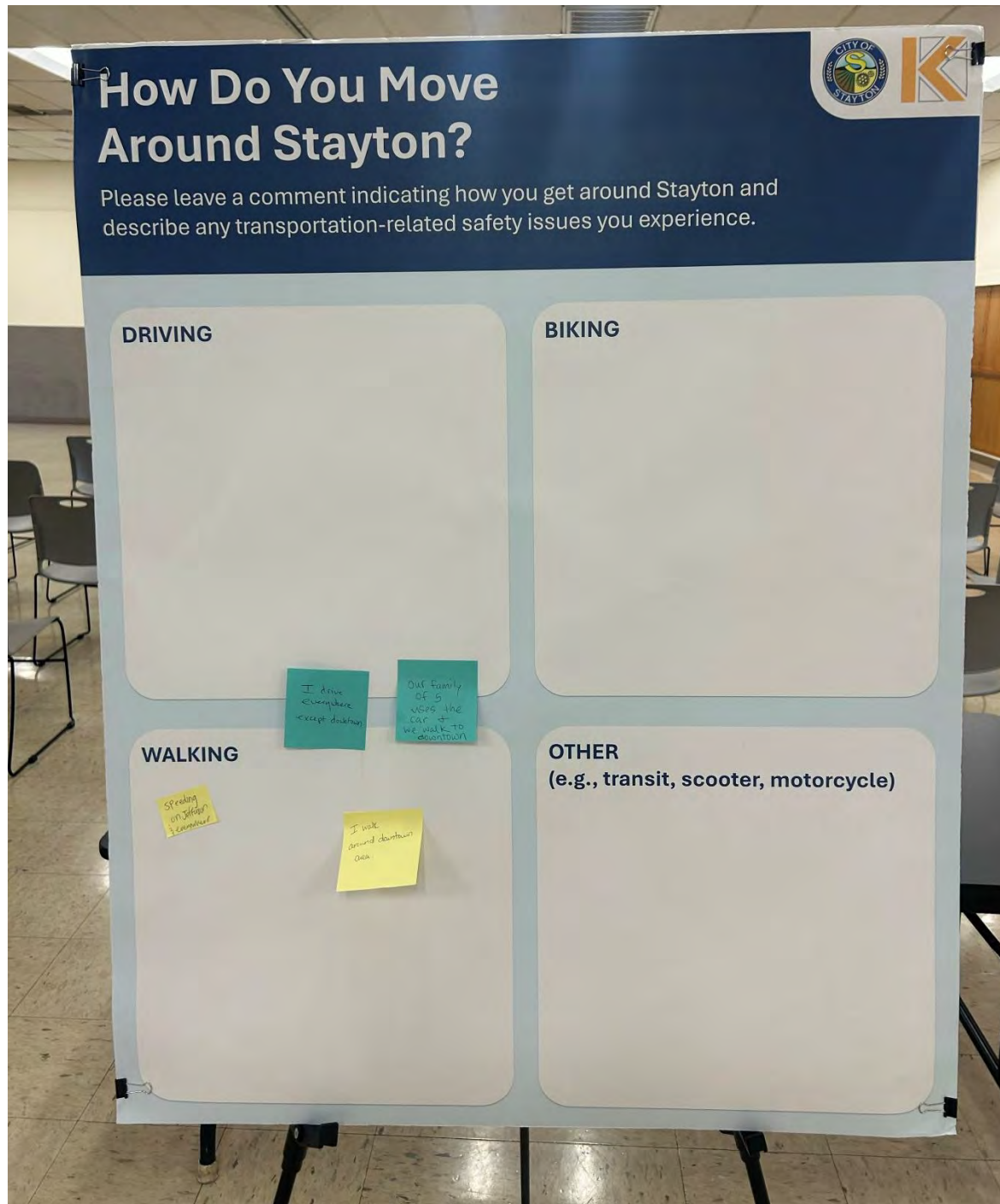
Kittelson staff overviewed the draft plan with the Public Advisory Committee during the second Public Advisory Committee meeting on September 29, 2025. The meeting focused on the aspects of the plan that were refined and updated based on the committee's input at the first Public Advisory Committee meeting and the input received during the second open house on July 23. The Public Advisory Committee expressed support for the draft plan.

Immediately following the Public Advisory Committee Meeting, the plan was presented to the Planning Commission. Planning Commission requested further exploration of tradeoffs of the recommendations, such as the impact of curb extensions on school buses. The figures in the Safety Action Plan with potential cross section and safety treatments indicate *"Conceptual Design Only: Final roadway design and the balance between roadway elements and right-of-way (ROW) will be subject to change based on further engineering analysis and public engagement."* Additionally, *Appendix C: Strategies and Performance Measures* highlights the key considerations identified by the Public Advisory Committee, Planning Commission, and prior engineering experience.

The revised draft plan was presented to City Council during a work session on October 20, 2025. The plan was updated to incorporate feedback about the inclusion of Tenth Avenue in the "Fill Sidewalk Gaps" cutsheet in *Appendix C: Strategies and Performance Measures*. The Safety Action Plan is expected to be adopted by City Council at a public hearing on November 3.

Attachment A: Open House #1 Feedback

This section includes photographs of each of the three comment boards displayed at the open house along with community member feedback.



How Do You Move Around Stayton?

Please leave a comment indicating how you get around Stayton and describe any transportation-related safety issues you experience.

DRIVING

BIKING

WALKING

OTHER
(e.g., transit, scooter, motorcycle)

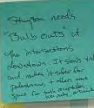
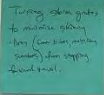
Handwritten feedback:

- DRIVING: I Drive everywhere except downtown
- DRIVING: Our family of 5 uses the car + we walk to downtown
- WALKING: Speeding on 3rd + 4th
- WALKING: I walk around downtown area




What Type of transportation Safety Improvements Would You Like to See in Stayton?

Place a marker next to the improvement(s) you feel are most needed in Stayton. Feel free to add more detailed comments.

INTERSECTION IMPROVEMENTS (e.g., signal timing, left-turn lanes, etc.)  Sticks Turn	PEDESTRIAN INFRASTRUCTURE IMPROVEMENTS (e.g., sidewalks, safe crossings, etc.)    	BICYCLE INFRASTRUCTURE IMPROVEMENTS (e.g., bike lanes, parking, etc.)  	TRANSIT IMPROVEMENTS (e.g., bus stops, frequency, etc.)
LOWER SPEED LIMITS	GENERAL ROAD MAINTENANCE   	EDUCATION OR ENFORCEMENT	NO IMPROVEMENTS NEEDED

General feedback

Please share any additional transportation safety related comments or concerns!

Please mark these areas on the map below!



Attachment B: Open House #2 Feedback

This section includes photographs of each of the comment boards displayed at the open house along with community feedback.

What type of transportation safety improvements would you like to see in Stayton? *Place a marker next to the improvement(s) you feel are most needed in Stayton. Feel free to add more detailed comments.*

PROPOSED STRATEGIES

PROPOSED STRATEGIES		How urgently do you think this should be addressed? • Urgent (red) • Not as urgent (yellow) • Not urgent (blue)	Do you have anything else you would like to add regarding this strategy?
Improving Intersections with...			
	Low-Cost Countermeasures at Stop Controlled Intersections	●	Add your comments here!
	Updating Stayton Land Use and Development Code to Increase Safety Analysis and Mitigation		
Improving Vulnerable Road User Experiences with...			
	Crossing Enhancements	● ● ● ● ●	Hard to see crossing path (Stayton)
	Traffic Calming		
	Filling Sidewalk Gaps	● ● ● ● ●	Don't like street lights, do like curb extensions, warning about train station
	Filling Bicycle Gaps	● ● ● ● ●	
	Improving Road Surface for Shared Facilities	● ● ● ● ●	
	Updating Roadway Design Standards to Provide Context-Sensitive Design	● ● ● ● ●	
	Appropriate Posted Speeds for All Road Users	● ● ● ● ●	
	20 Is Plenty on Local Streets	● ● ● ● ●	
Reducing Risky Driver Behaviors with...			
	Dynamic Speed Feedback Signs	● ● ● ● ●	Driver education on how to use turn lanes, they aren't fully using the turn lane
	Hardened Centerlines and Turn Wedges	● ● ● ● ●	
	Education Campaigns	● ● ● ● ●	
	Targeted and High-Visibility Enforcement	● ● ● ● ●	
	Developing Automatic Traffic Enforcement Policy	● ● ● ● ●	

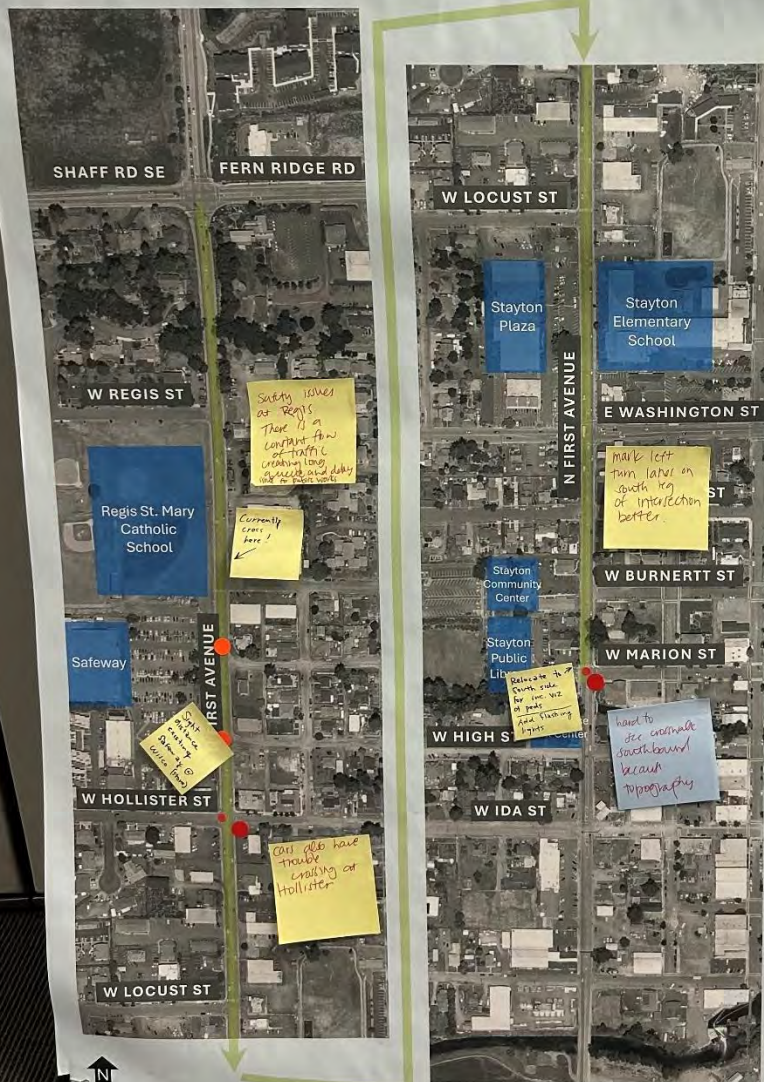
Where would you like to see safety improvements along the priority segments?



The priority segments are highlighted in green.

Place a marker near the location(s) you feel are most in need of improvements.

Feel free to add more detailed comments in the sticky notes.



Stickers

- Enhanced Crossing
- Fill Pedestrian and Bicycle Facility Gap
- Access Management
- Traffic Calming
- Lighting
- Other Intersection Improvement

General feedback

Please share any additional transportation safety related comments or concerns!

Add your comments here!

Very poor lighting except on First and Third

3rd or 4th lane is partial divider for walking

Kittelsohn & Associates, Inc.

APPENDIX C: STRATEGIES AND PERFORMANCE MEASURES MEMO

TECHNICAL MEMORANDUM

August 21, 2025

Project #: 31028

To: City of Stayton

From: Max Heller, Amy Griffiths, PE, Susan Wright, PE; Kittelson & Associates, Inc.

RE: Stayton Safety Action Plan Crash Reduction Strategies and Performance Measures
Memorandum

Strategies and Performance Measures

Introduction

This memorandum describes safety treatments and strategies that can be applied systemically to address the emphasis areas identified in the *Existing Conditions Memorandum*. Treatments refer to infrastructure improvements at locations, with systemic or location-specific applications. Strategies refer to non-infrastructure improvements, such as policy updates and educational programs.

The memorandum also identifies site-specific treatments at five high-priority locations with a relatively high history of crashes and presence of roadway risk characteristics. Lastly, this memorandum documents implementation timeframes, potential funding sources, and performance metrics for tracking progress towards achieving the City's safety goals.

Safe System Approach

The U.S. Department of Transportation (USDOT) has adopted the Safe System Approach (SSA) to guide its roadway safety efforts. This approach acknowledges that reducing fatal and serious injury (FSI) crashes is a multidisciplinary endeavor, requiring improvements to policy, planning and programming, and infrastructure to be successful. Figure 1 summarizes the key principles and objectives of this strategy. Importantly, the SSA builds multiple layers of protection to both prevent crashes and minimize harm when they occur. It achieves this through five complementary objectives: safer people, safer vehicles, safer speeds, safer roads, and post-crash care. To best identify and prioritize safety improvements in Stayton that are within the control and authority of the City, the treatments and strategies documented herein focus on safer people, safer speeds, and safer roads.

The Safe System Roadway Design Hierarchy characterizes treatments and strategies relative to their alignment with the SSA. The Safe System Roadway Design Hierarchy includes four tiers that are arranged from most to least aligned with the SSA principles: (1) remove severe conflicts, (2) reduce vehicle speeds, (3) manage conflicts in time, and (4) increase attentiveness and awareness. This hierarchy is visualized in

Figure 2. The tiered rating within the Safe System Roadway Design Hierarchy is an additional metric that guided the selection and prioritization of safety treatments within the Stayton SAP.

Figure 1. Safe System Approach



Figure 2. Roadway Design Hierarchy



Emphasis Areas

This section summarizes the emphasis areas identified based on the crash data analysis performed in the *Existing Conditions Memorandum* and feedback from the Technical Advisory Committee and the public. These emphasis areas include engineering, behavioral, and environmental factors that contribute to the existing roadway safety patterns and trends. They are elements that the City of Stayton and its partner agencies should focus on through the Safety Action Plan in efforts to reduce the number of fatal and serious injury crashes.

VULNERABLE ROAD USERS



Vulnerable road users is a term used to describe a variety of users of the Stayton roadway system who are more likely to be injured if they are involved in a crash. These users include people walking, biking, using mobility devices, or driving motorcycles. Vulnerable road users experienced significantly higher rates of fatal, serious injury, and minor injury (KAB¹) crash outcomes compared to road users in a car or truck, with over half of crashes involving a pedestrian or bicyclist resulting in a KAB severity outcome.

¹ Oregon Department of Transportation reports injuries on a five-point scale often referred to as KABCO. Injuries are defined as fatal injury (K), suspected serious injury (A), suspected minor injury (B), possible injury (C), and property damage only (O).

RISKY DRIVER BEHAVIORS



Risky driver behaviors include a variety of driver actions which significantly contribute to KAB severity outcomes. These behaviors include impaired, distracted, and reckless driving, along with failure to use safety equipment and speeding. These behaviors increase the likelihood of a crash occurring and increase the probability of a fatal or serious crash outcome when a crash does occur.

INTERSECTIONS



The majority of total crashes within the study area occurred within an intersection (rather than along the segment). Crashes occurring within an intersection are also more likely to result in a KAB severity outcome than segment crashes.

Stop-controlled intersections should be locations of particular emphasis within Stayton. Of the 16 intersections identified on the High Injury Network (HIN), 13 intersections are stop-controlled. The top four intersections on the HIN are stop-controlled and all have been the location of a traffic-related fatality or suspected serious injury; no fatal or suspected serious injuries occurred at signal-controlled intersections on the HIN.

COMPOSITE RISK AND INJURY NETWORK

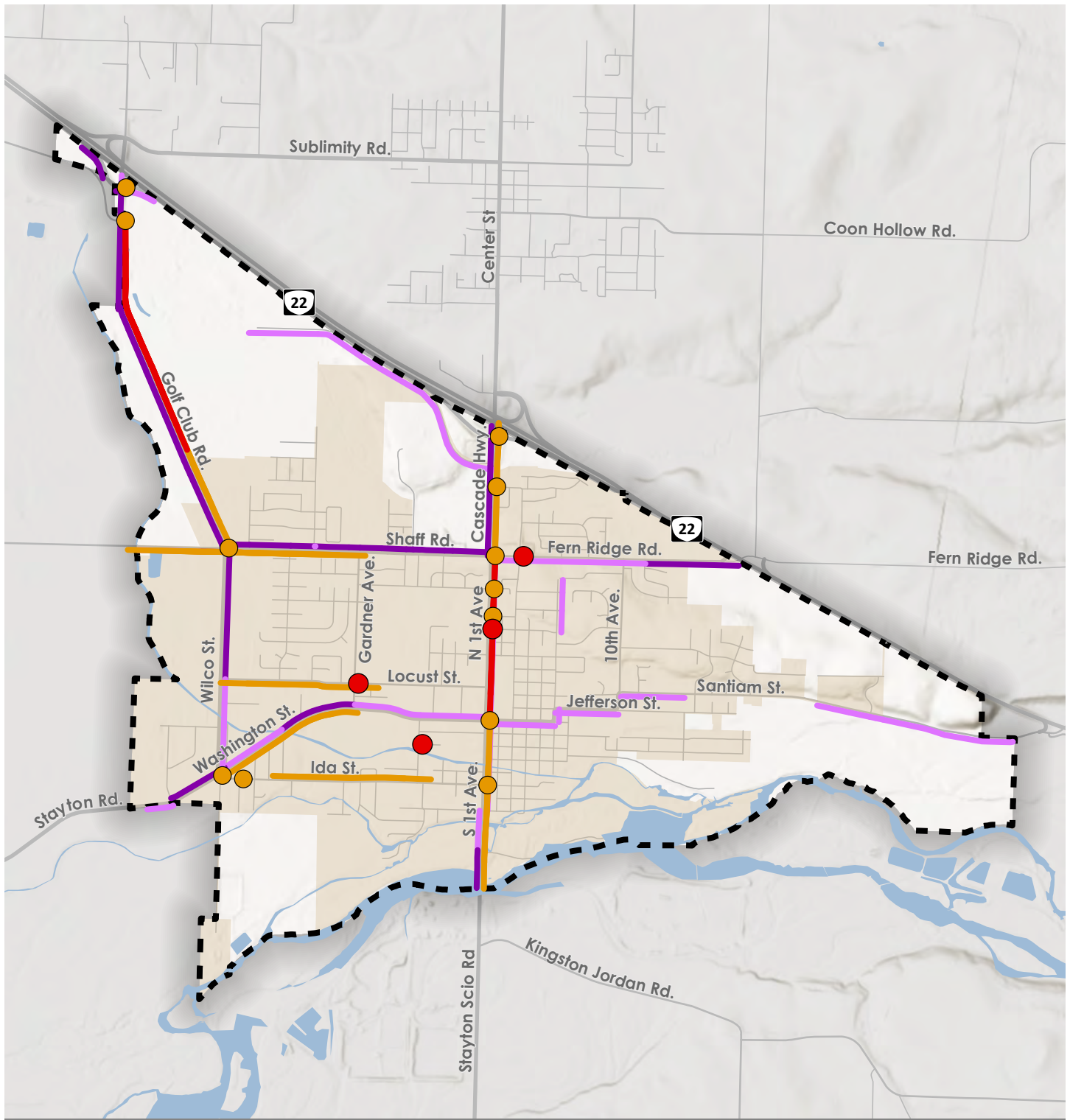
The Composite Risk and Injury Network (CRIN) integrates the High Injury Network (HIN)—developed using an Equivalent Property Damage Only (EPDO) screening—with the results of a high-risk roadway network analysis. The analysis considered roadway risk factors based on data availability and their relevance to the Stayton context, including:

- **Speed:** Posted speed greater than or equal to 35 mph
- **Functional Classification:** Roadways with AADT in excess of 5,000 vehicles/day²
- **Bicycle/Pedestrian Facilities:** Lack of designated facilities for bicyclists or pedestrians³
- **Activity Generators:** Within 0.25 miles of a school, park, or senior living facility

Figure 3 shows the resulting CRIN where red and orange road segments indicate that a road was on the HIN and purple roadway segments indicate that a road had a higher number of risk factors.

² Due to limited geospatial data availability regarding roadway volumes, functional classification is used as a proxy. Per ODOT Analysis Procedures Manual, arterials will be assumed to have volumes in excess of 5,000 vehicles per day.

³ A gap in the bicycle network or pedestrian network for a given roadway each contributed 0.5 points towards the total risk score.



Intersection HIN

- High
- Medium

Segment HIN

- High
- Medium

Roadway Risk Score

- ≥ 3 Risk Factors
- ≥ 2 Risk Factors

UGB

- City Limits

0 0.5 Miles



Figure 3

Treatment and Strategy Development

Kittelton reviewed the results of the network screening and emphasis areas assessments to identify system-wide treatments and strategies. These include both infrastructure treatments and non-infrastructure strategies that could be implemented throughout Stayton.

The following resources were reviewed to identify potential treatments and strategies:

- The Federal Highway Administration list of Proven Safety Countermeasures⁴
- The Oregon Department of Transportation (ODOT) All Roads Transportation Safety (ARTS) program Crash Reduction Factor Manual⁵
- The National Highway Transportation Safety Administration's Countermeasures That Work manual⁶
- County and City policy and design standards

For infrastructure treatments, contributing crash factors were analyzed to narrow the range of possible options and identify preferred options with proven effectiveness (supported through empirical study) in reducing the specific crash types or contributing factors highlighted in the emphasis areas. Non-infrastructure strategies were identified that include education, enforcement, engagement, and policy updates.

SYSTEMIC TREATMENTS AND STRATEGIES

The systemic treatments and strategies identified in this section are summarized in Table 1. They are organized based on the emphasis area they address. If a treatment or strategy addresses multiple emphasis areas, then it is grouped with the emphasis area that it most closely aligns with. In the following sections, each treatment is described in further depth, including an overview of the proposed treatment, additional details such as crash reduction factors, cost, implementation timeline, potential project partners, and candidate locations for implementation. Information is organized as shown in the example table below.

The relative cost is considered based on the cost to implement the strategy or treatment once. Implementation timeline considers the timeframe for starting to implement that strategy or treatment.

⁴ Kirley, B. B., Robison, K. L., Goodwin, A. H., Harmon, K. J. O'Brien, N. P., West, A., Harrell, S. S., Thomas, L., & Brookshire, K. (2023, November). Countermeasures that work: A highway safety countermeasure guide for State Highway Safety Offices, 11th edition, 2023 (Report No. DOT HS 813 490). National Highway Traffic Safety Administration.
https://www.nhtsa.gov/sites/nhtsa.gov/files/2023-12/countermeasures-that-work-11th-2023-tag_0.pdf

⁵ Federal Highway Administration. (n.d.). *Proven safety countermeasures*. U.S. Department of Transportation, <https://highways.dot.gov/safety/proven-safety-countermeasures>

⁶ Oregon Department of Transportation. (2024, November). Crash reduction factor manual (2024 ed.). Engineering & Technical Service Branch, Traffic-Roadway Section. <https://www.oregon.gov/odot/Engineering/ARTS/CRF-Manual.pdf>

Within the strategy/treatment table, relative cost and implementation timeline are defined as follows:

- **Relative Cost:**
 - "Low" is less than \$10,000
 - "Medium" is between \$10,000 and \$50,000
 - "High" is more than \$50,000
- **Implementation Timeline:**
 - "Near-term" is less than 2 years
 - "Medium-term" is between 2 and 5 years
 - "Long-term" is more than 5 years

Example Strategy or Treatment Table

Example Strategy or Treatment Table	
Partners: Agencies or groups that would be involved in implementation are listed here. Description: The strategy or treatment is described here, including a description of how it improves safety.	An example image will be provided here
CRASH REDUCTION FACTORS <i>This section provides key statistics illustrating the empirical benefit that the strategy or treatment provides.</i>	SSA ELEMENT Element of the SSA that is addressed by this strategy or treatment
LOCATIONS This section identifies specific location or certain location types that would be good candidates for this strategy or treatment. Alternatively, this section provides additional considerations for the highlighted strategy.	ROADWAY DESIGN HIERARCHY TIER 1 2 3 4 Remove Severe Conflicts Reduce Vehicle Speeds Manage Conflicts in Time Increase Awareness
	ESTIMATED RELATIVE COST \$ \$\$ \$\$\$
	IMPLEMENTATION TIMELINE Near-Term Medium-Term Long-Term

Table 1. Systemic Treatments and Strategies Summary

Name	Type	Roadway Design Hierarchy	Partners	Cost
Intersections				
Low-Cost Countermeasures at Stop Controlled Intersections	Infrastructure	Tier 4 - Increase Awareness	Stayton Public Works, Marion County Public Works	\$
Update Stayton Land Use and Development Code to Increase Safety Analysis and Mitigation	Policy	Tier 1 - Remove Severe Conflicts	Stayton City Council, Stayton Public Works	\$
Vulnerable Road Users				
Crossing Enhancements	Infrastructure	Tier 4 - Increase Awareness	Stayton Public Works, Marion County Public Works	\$-\$-\$
Traffic Calming	Infrastructure	Tier 2 - Reduce Vehicle Speeds	Stayton Public Works	\$-\$-\$
Fill Gaps in the Sidewalk Network	Infrastructure	Tier 1 - Remove Severe Conflicts	Stayton Public Works, Marion County Public Works	\$\$\$
Fill Gaps in the Bicycle Network	Infrastructure	Tier 1 - Remove Severe Conflicts	Stayton Public Works	\$\$-\$-\$-\$
Update Roadway Design Standards to Promote Context-Sensitive Design	Policy	Tier 2 - Reduce Vehicle Speeds	Stayton Public Works	\$
Appropriate Posted Speeds for All Road Users	Policy	Tier 2 - Reduce Vehicle Speeds	Stayton and Marion County Public Works	\$\$
20 Is Plenty	Policy	Tier 2 - Reduce Vehicle Speeds	Stayton Public Works	\$\$
Risky Driver Behaviors				
Dynamic Speed Feedback Signs	Infrastructure	Tier 2 - Reduce Vehicle Speeds	Stayton Public Works and Police Department	\$-\$-\$
Hardened Centerlines and Turn Wedges	Infrastructure	Tier 2 - Reduce Vehicle Speeds	Stayton Public Works	\$
Education Campaigns	Policy	Tier 4 - Increase Awareness	Stayton Schools, Stayton Police Department, Community Based Organizations	\$
Targeted and High-Visibility Enforcement	Policy	Tier 2 – Reduce Vehicle Speeds Tier 4 - Increase Awareness	Stayton Police Department, Marion County Sheriff's Office, Oregon State Police	\$\$\$
Develop Automatic Traffic Enforcement Policy and Program	Policy	Tier 2 – Reduce Vehicle Speeds	Stayton City Council, Stayton Police Department	\$\$\$

Intersections

The following sections present the strategies and treatments identified to address intersection safety. They improve awareness of stop-controlled intersections and provide potential updates to development code.

INFRASTRUCTURE TREATMENTS

Low-Cost Countermeasures at Stop-Controlled Intersections

Partners: Stayton Public Works, Marion County Public Works

Description: Low-cost stop-controlled intersection treatments like oversized stop signs, flashing beacons, and transverse stripes enhance safety by increasing driver awareness and compliance. These simple, affordable measures improve visibility and help reduce crash rates, especially at rural or low-volume intersections. By drawing more attention to stop conditions, they create a safer environment for all road users.



CRASH REDUCTION FACTORS

10% reduction
in FSI crashes at all
location types.¹

27% reduction
in FSI crashes at
rural intersections.¹

LOCATIONS

Intersections in suburban fringe areas, especially with immovable vegetation, skewed alignment, and/or unexpected stop signs.

For example: the intersections of Ida Street/Washington Street/Wilco Road and Shaff Road/Golf Club Road/Wilco Road.

SSA ELEMENT



Safer
Roads

ROADWAY DESIGN HIERARCHY TIER



ESTIMATED RELATIVE COST



IMPLEMENTATION TIMELINE



¹ Le, T., Srinivasan, R., Persaud, B., Lyon, C., & Eccles, K. (2017, January). Safety effects of low-cost systemic safety improvements at signalized and stop-controlled intersections (Paper No. 17-05379). Presented at the 96th Annual Meeting of the Transportation Research Board.

NON-INFRASTRUCTURE STRATEGIES

Update Stayton Land Use and Development Code to Increase Safety Analysis and Mitigation

Partners: Stayton City Council, Stayton Public Works

Description: Stayton's Land Use and Development Code establishes transportation-related requirements for new developments. Stayton could consider opportunities to update its code to address the emphasis areas and risk factors documented in the SAP.

A Transportation Impact Assessment (TIA) is a tool described in the city code that is used to determine the extent to which new developments will affect the transportation network. To better consider safety, the City could consider the following updates to the Land Use and Development Code:

- The City could consider adopting performance standards related to traffic safety and pedestrian and bicycle connectivity when updating the Transportation System Plan (TSP).
- Strengthen the requirement or revisit the trigger thresholds to verify compliance with the Access Spacing Standard to consider opportunities to consolidate accesses or restrict accesses to limited movements.
- Require that developers conduct the NCHRP Research Report 938 when considering intersection mitigations to reduce pedestrian and/or bicycle safety risks as part of intersection improvements.
- Include proportionate sharing provisions such as multimodal facility changes, intersection safety mitigation measures, intersection geometric and traffic control changes, and/or proportionate share contributions toward a previously identified deficiency.
- Provide specific guidance on how signals versus roundabouts are to be evaluated.



PROGRAM EFFICACY

The safety benefits of updates to the Stayton Land Use and Development Code will depend on the context and consistency of implementation. Nonetheless, strengthening the City's policy focus on multimodal safety will reinforce and enhance the broader strategies outlined in the SAP.

SSA ELEMENT



Safer Roads

ROADWAY DESIGN HIERARCHY TIER



ESTIMATED RELATIVE COST¹



IMPLEMENTATION TIMELINE



¹ Cost assumes that updates are performed in-house.

The following sections present the strategies and treatments identified to address vulnerable road user safety. They provide dedicated pedestrian and bicycle facilities and slow speeds.

Crossing Enhancements

and/or a Rapid Rectangular Flashing Beacon (RRFB) could be strategic options to further increase visibility of pedestrians at the crossing.

Note, quick-build installations can be used in instances of limited funding or when temporary installments would be desirable to raise public awareness about transportation safety and build public support for permanent installations.

Additional streetlights and high-visibility markings and signage can reduce pedestrian crashes by up to **40% each.**¹

RRFBs can reduce pedestrian crashes by up to **47%** and increase driver yield rates by up to **98%.**²



Safer Roads

1 Remove Severe Conflicts

2 Reduce Vehicle Speeds

3 Manage Conflicts in Time

4 Increase Awareness

```

graph LR
    A((Near-Term)) --- B((Medium-Term))
    B --- C((Long-Term))
    style B fill:#ffff00
  
```

Pedestrian crossings on the CRIN such as arterials, locations with posted speeds of 35+ mph or in proximity to activity generators like schools, and/or locations where driver yield rate and pedestrian visibility is poor. For example, consider crossing improvements along First Avenue or Washington Street.

FHWA's Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations.

- 1 Elvik, R., & Vaa, T. (2004). *Handbook of road safety measures*. Elsevier.
- 2 Fitzpatrick, K., Park, E., & Turner, S. (2016). Will you stop for me? Roadway design and traffic control device influences on drivers yielding to pedestrians in a crosswalk with a rectangular rapid-flashing beacon (Report No. TTI-CTS-0010). Texas A&M Transportation Institute.

Traffic Calming

Partners: Stayton Public Works

Description: Traffic calming is important for slowing vehicle speeds and discouraging cut-through traffic on lower volume roadways in Stayton. By reducing vehicle speeds, traffic calming treatments increase drivers' ability to avoid a crash with another road user. Traffic calming can also encourage additional pedestrian and bicyclist activity along the roadway.

The 2019 Stayton Transportation System Plan (TSP) includes the following traffic calming techniques:

- Mini roundabouts
- Narrowed travel lanes
- Curb extensions

To advance safety and comfort on neighborhood and collector streets, the City could evaluate opportunities to expand the use of these measures beyond the locations identified in the TSP. Where narrowed travels are proposed, the City could consider repaving the roadway surface to remove residual lane markings and improve comfort for bicyclists.

Stayton could also consider implementing additional traffic calming interventions, such as speed humps, raised or painted intersections or crossings, chicanes, and traffic diverters where appropriate to further discourage speeding and improve safety and comfort for all road users.

Quick-build installations can be used in instances of limited funding or when temporary installments would be desirable to raise public awareness about transportation safety and build public support for permanent installations.

¹ ODOT ARTS. (November 2024). 5.30 BP30-Install Speed Hump or Table for Non-state Highways. <https://www.oregon.gov/odot/Engineering/ARTS/CRF-Manual.pdf>



CRASH REDUCTION FACTORS

Speed humps can reduce crashes of all severities by up to **40%.**¹

LOCATIONS

Roadways on the CRIN and other local streets where speeding or cut-through traffic is a concern, such as Locust St, Washington St, Third Ave, and Hollister St.

SSA ELEMENT



Safer Roads

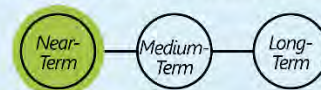
ROADWAY DESIGN HIERARCHY TIER



ESTIMATED RELATIVE COST



IMPLEMENTATION TIMELINE



Fill Gaps in the Sidewalk Network

Partners: Stayton Public Works, Marion County Public Works

Description: Adequate pedestrian facilities are essential for separating pedestrians from moving traffic. While sidewalks are one means of separating pedestrians from vehicles, other strategies exist, including paved shoulders and multi-use paths. Where the City is considering delineating a multi-use path with bollards on the roadway, roadway repaving may be needed to improve road condition and ensure smooth pedestrian facilities free of tripping hazards.



Source: Google Maps

CRASH REDUCTION FACTORS

*Sidewalks can reduce crashes involving a pedestrian by up to **89%** along roadways.¹*

LOCATIONS

Any roadway segments on the CRIN that have pedestrian infrastructure gaps or are located in proximity to activity generators, such as Shaff Road, Ida Street, Tenth Avenue, and local streets east of First Avenue.

Priority pedestrian project locations as identified within the Stayton TSP.

SSA ELEMENT



Safer Roads

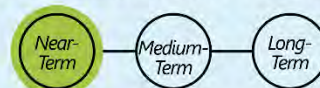
ROADWAY DESIGN HIERARCHY TIER



ESTIMATED RELATIVE COST



IMPLEMENTATION TIMELINE



¹ Gan, A., Khattak, A. J., & Council, F. M. (2005). Update of Florida crash reduction factors and countermeasures to improve the development of district safety improvement projects. Florida Department of Transportation.

Fill Gaps in the Bicycle Network

Partners: Stayton Public Works

Description: Many different bicycle facilities are available, from striped bike lanes to separated shared use paths. Filling gaps in Stayton's bicycle network with appropriate facility types is essential to creating a more connected, accessible, and safe multimodal network. Roadway repaving may be needed as part of these projects to improve road condition to provide comfortable facilities for people biking. Regardless of facility selection, maintaining separation between bicyclists and pedestrians should be prioritized.



Source: Google Maps

CRASH REDUCTION FACTORS

*Adding bicycle lanes can reduce crashes by **30%** on urban two-lane undivided collectors and local streets.¹*

*Adding buffered bicycle lanes can reduce crashes of all severities by **47%**.²*

*Adding a protected cycle track with a physical barrier such as a curb or parking spaces between the bike and motor vehicle lanes can reduce crashes of all severities by **59%**.³*

LOCATIONS

Any roadway segments on the CRIN with posted speeds over 25 mph that have bicyclist infrastructure gaps, such as Wilco Street and Washington Street.

Priority bicycle project locations as identified within the Stayton TSP.

SSA ELEMENT



Safer Roads

ROADWAY DESIGN HIERARCHY TIER



ESTIMATED RELATIVE COST



IMPLEMENTATION TIMELINE



- ¹ FHWA-HRT-21-012, (2021). Development of Crash Modification Factors for Bicycle Lane Additions While Reducing Lane and Shoulder Widths.
- ² ODOT ARTS. (November 2024). 5.24 BP24-Install Bufferd Bike Lanes. <https://www.oregon.gov/odot/Engineering/ARTS/CRFManual.pdf>
- ³ ODOT ARTS. (November 2024). 5.23 BP23-Install Cycle Tracks. <https://www.oregon.gov/odot/Engineering/ARTS/CRFManual.pdf>

NON-INFRASTRUCTURE STRATEGIES

Update Roadway Design Standards to Promote Context-Sensitive Design

Partners: Stayton Public Works

Description: Stayton's Roadway Design Standards are intended to set minimum standards and provide a uniform set of guidelines for public works improvements within the City of Stayton. The City could review and update these standards to reflect the goals and objectives of the SSA. For example, they could update their design standards to include the following:

- Develop a Stayton-specific methodology for using local context to classify roadways and select appropriate performance-based design elements.
- Incorporate target speed into design speed.



EFFICACY

Context classification is an emerging practice in the transportation sector. It provides roadway designers with better tools for developing multimodal roadway networks that address the needs of all roadway users, not just motorists.¹

SUPPLEMENTAL GUIDANCE

See ODOT's Highway Design Manual.

SSA ELEMENT



Safer
Roads

ROADWAY DESIGN HIERARCHY TIER

1

Remove
Severe
Conflicts

2

Reduce
Vehicle
Speeds

3

Manage
Conflicts in
Time

4

Increase
Awareness

ESTIMATED RELATIVE COST



IMPLEMENTATION TIMELINE

Near-
Term

Medium-
Term

Long-
Term

- ¹ Stamatiadis, N., Kirk, A., & Wright, L. (2023). Context classification: A new approach for improving highway design. *Transportation Research Procedia*, 69, 45–52. <https://doi.org/10.1016/j.trpro.2023.02.143>
- ² Cost assumes that updates are performed in-house.

Appropriate Posted Speeds for All Road Users

Partners: Stayton and Marion County Public Works, Stayton City Council

Description: Higher speeds increase the risk of a crash occurring, and the severity of a crash if it does occur. Lower speeds improve safety for all road users, especially vulnerable road users.

Stayton could explore opportunities to setting speed limits that balance mobility needs with safety under the SSA.



Source:

CRASH REDUCTION FACTORS

*While safety benefits vary depending on how widespread and to what extent appropriate speed limits are implemented, in one case study, comprehensive city-wide traffic calming and speed limit adjustments reduced traffic fatalities by **26%**.¹*

SUPPLEMENTAL GUIDANCE

See ODOT's 2025 Speed Zone Manual.

SSA ELEMENT



Safer
Speeds

ROADWAY DESIGN HIERARCHY TIER



ESTIMATED RELATIVE COST



IMPLEMENTATION TIMELINE



¹ FHWA. (n.d.). Case Study 7: Noteworthy Speed Management Practices. <https://highways.dot.gov/safety/speed-management/noteworthy-practice-booklet-speed-management/case-study-7-noteworthy-speed>.

20 Is Plenty

Partners: Stayton Public Works, Stayton City Council

Description: Higher speeds increase the risk of a crash occurring, and the severity of a crash if it does occur. Lower speeds improve safety for all road users, especially vulnerable road users.

Stayton could explore opportunities to setting speed limits that balance mobility needs with safety under the SSA.



CRASH REDUCTION FACTORS

Because local streets present the greatest level of road user mixing, it is unlikely that any level of roadway engineering will entirely eliminate conflicts and collisions. However, reducing speeds reduces the likelihood of crashes from occurring and the severity of crashes when they occur.

*At 20 mph the likelihood of a pedestrian dying in a crash is **10%**; that likelihood is **60%** at 30 mph.¹*

SSA ELEMENT



Safer
Speeds

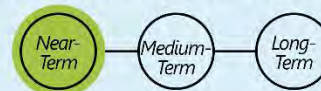
ROADWAY DESIGN HIERARCHY TIER



ESTIMATED RELATIVE COST



IMPLEMENTATION TIMELINE



¹ US Department of Transportation. (March, 2000). Literature Reviewed on Vehicle Travel Speeds and Pedestrian Injuries.

Risky Driver Behaviors

The following sections present the strategies and treatments for addressing risky driver behaviors. They include increasing driver awareness, education, and enforcement.

INFRASTRUCTURE TREATMENTS

Dynamic Speed Feedback Signs

Partners: Stayton Public Works and Police Department

Description: Dynamic speed feedback signs provide motorists with information about their speed in real time. When feedback displays are presented along with the posted speed, motorists can assess their own speed and adjust as needed. Using permanent installments paired with automated speed camera enforcement can enhance efficacy.



CRASH REDUCTION FACTORS

*This countermeasure treatment can reduce crashes of all severities by up to **10%**.¹*

LOCATIONS

Roadway segments with a history of speed-related crashes or public feedback about concerns with traffic speeds, such as Third Street, Fern Ridge Road, or Santiam Street.

SSA ELEMENT



*Safer
Speeds*

ROADWAY DESIGN HIERARCHY TIER



ESTIMATED RELATIVE COST



IMPLEMENTATION TIMELINE



¹ ODOT ARTS. (November 2024). 6.12 RD12-Speed Feedback Signs. <https://www.oregon.gov/odot/Engineering/ARTS/CRF-Manual.pdf>

Hardened Centerlines and Turn Wedges

Partners: Stayton Public Works

Description: Hardened centerlines and turn wedges can reduce speeds at intersection and prevent corner cutting; these outcomes lead to increased crosswalk visibility and ultimately reduce conflicts between vehicles and pedestrians.



CRASH REDUCTION FACTORS

*These countermeasure treatments can lead to a reduction in crashes of all severities by **10%** at intersections.¹*

LOCATIONS

Intersections where turning drivers frequently fail to yield to pedestrians or intersections with wide turns, such as the intersection of Santiam Street/Jefferson Street/Tenth Avenue.

SSA ELEMENT



Safer
Speeds

ROADWAY DESIGN HIERARCHY TIER



ESTIMATED RELATIVE COST



IMPLEMENTATION TIMELINE



¹ ODOT ARTS. (November 2024). 6.12 RD12-Speed Feedback Signs. <https://www.oregon.gov/odot/Engineering/ARTS/CRF-Manual.pdf>

NON-INFRASTRUCTURE STRATEGIES

Education Campaigns

Partners: Stayton Schools, Stayton Police Department, Community Based Organizations

Description: There are three main components of a safety-related education campaign: staff education, public education, and building a culture of responsibility. Education campaigns can focus on providing specific groups with relevant transportation safety training or providing public education regarding safe behaviors to all road users.



Stayton could consider the following programming options to address the Emphasis Areas described in the SAP:

- Enhance “Safety Town.” a program to teach young children different safety concepts including bike, pedestrian, and motor vehicle safety.
- Conduct bike clinics for all ages.
- Expand “Stop for pedestrians” campaign, focusing on the Guide to Oregon Crosswalk Laws.
- Conduct “Slow Down Stayton” campaign, focusing on the risks of speeding.
- Train law enforcement on the SSA.

Together, these approaches can cultivate a shared culture of responsibility amongst Stayton residents.

PROGRAM EFFICACY

The effectiveness of education campaigns can vary significantly based on their design and implementation. While education on safe road user behavior is crucial, it’s most impactful when integrated with other safety measures like safer infrastructure and vehicle technology, rather than as a standalone solution.

SSA ELEMENT



*Safer
People*

ROADWAY DESIGN HIERARCHY TIER



ESTIMATED RELATIVE COST¹



IMPLEMENTATION TIMELINE



Targeted and High-Visibility Enforcement

Partners: Stayton Police Department, Marion County Sheriff's Office, Oregon State Police

Description: Targeted and high-visibility enforcement campaigns can support engineering treatments to achieve Vision Zero. Enforcement efforts can focus on speeding, distracted and impaired driving, and other risky driver behaviors. Additionally, enforcement can target driver behavior at intersections and pedestrian crossings.



Source: City of Stayton

The City already has increased enforcement through grant funds, and can continue to expand this program. The CRIN can be a useful starting point for expanding target locations.

To ensure fairness and community trust, enforcement strategies should be developed with a strong emphasis on equity, minimizing disproportionate impacts on vulnerable populations while promoting safety for all road users. Developing a program where revenue from tickets is used to fund additional safety improvements can increase public acceptance of enforcement campaigns.

PROGRAM EFFICACY

*During a high-visibility speed enforcement effort in San Francisco, CA, mean speeds were reduced by **5%**.¹*

*During a high-visibility distracted driving enforcement effort in Hartford, CT, handheld phone use by drivers decreased **57%**.²*

SSA ELEMENT



Safer
People

ROADWAY DESIGN HIERARCHY TIER



ESTIMATED RELATIVE COST¹



IMPLEMENTATION TIMELINE



¹ Vision Zero SF. (2020).

² Chaudhary, N. K., Casanova-Powell, T. D., Cosgrove, L., Reagan, I., & Williams, A. (2014). Evaluation of NHTSA distracted driving demonstration projects in Connecticut and New York (Report No. DOT HS 811 635). National Highway Traffic Safety Administration. <https://www.nhtsa.gov/staticfiles/nti/pdf/811635.pdf>.

Develop Automated Traffic Enforcement Policy and Program

Partners: Stayton City Council, Stayton Police Department

Description: Automated traffic enforcement can be used to encourage compliance with posted speeds and prevent red-light running. Stayton could adopt a policy that will enable to City to develop and implement an automated traffic enforcement program. The program should be designed and implemented with equity in mind, ensuring that enforcement practices do not disproportionately impact marginalized or low-income communities. Developing a program that aligns with current best practices and reinvests revenue directly in safety projects can support public acceptance.¹



Source: PBOT

PROGRAM EFFICACY

*Speed safety cameras reduce total crashes of all severities by up to **49%** and FSI crashes by up to **44%**.¹*

While red light cameras are effective at reducing FSI crashes at intersections, they may lead to an increase in rear-end collisions.

SSA ELEMENT



Safer
People

ROADWAY DESIGN HIERARCHY TIER



ESTIMATED RELATIVE COST¹



IMPLEMENTATION TIMELINE



- ¹ GHSA & State Farm (December 2023). Automated Enforcement in a New Era, <https://www.ghsa.org/resource-hub/automated-enforcement-new-era>.
- ² Wilson C, et al. (November 2010). Do speed cameras reduce road traffic crashes, injuries and deaths? https://www.cochrane.org/evidence/CD004607_do-speed-cameras-reduce-road-traffic-crashes-injuries-and-deaths.

LOCATION-SPECIFIC TREATMENTS

In addition to the systemic treatments, Kittelson and City staff identified five high priority sites to develop conceptual figures illustrating specific traffic safety treatments that could be implemented. Sites were selected based upon the findings from the Existing Conditions analysis and included the following factors:

- Equivalent Property Damage Only (EPDO)
- Presence of Risk Factors⁷
- Community concerns
- Roadway jurisdiction⁸

The five sites selected for further concept development are listed in Table 2 and mapped in Figure 4.

Table 2. Priority Sites

Type	Site	Extents
Segment	First Avenue	Shaff Road to Washington Street
Intersection	First Avenue & Marion Street	N/A
Segment	Locust Street	Wilco Street to First Avenue
Segment	Washington Street	Wilco Road to First Avenue
Segment	Ida Street	Washington Street to First Avenue

Note that each of these sites is located along First Avenue or west of First Avenue, where a greater percentage of roadways is included in the CRIN. The limited connectivity west of First Avenue makes it challenging for road users to identify parallel routes, therefore improving these corridors is critical for the development of a complete multimodal network. The City should also consider implementing systemic treatments to locations on the CRIN east of First Avenue to provide safety treatments throughout the Stayton.

A comprehensive review was conducted for each site that included the following information:

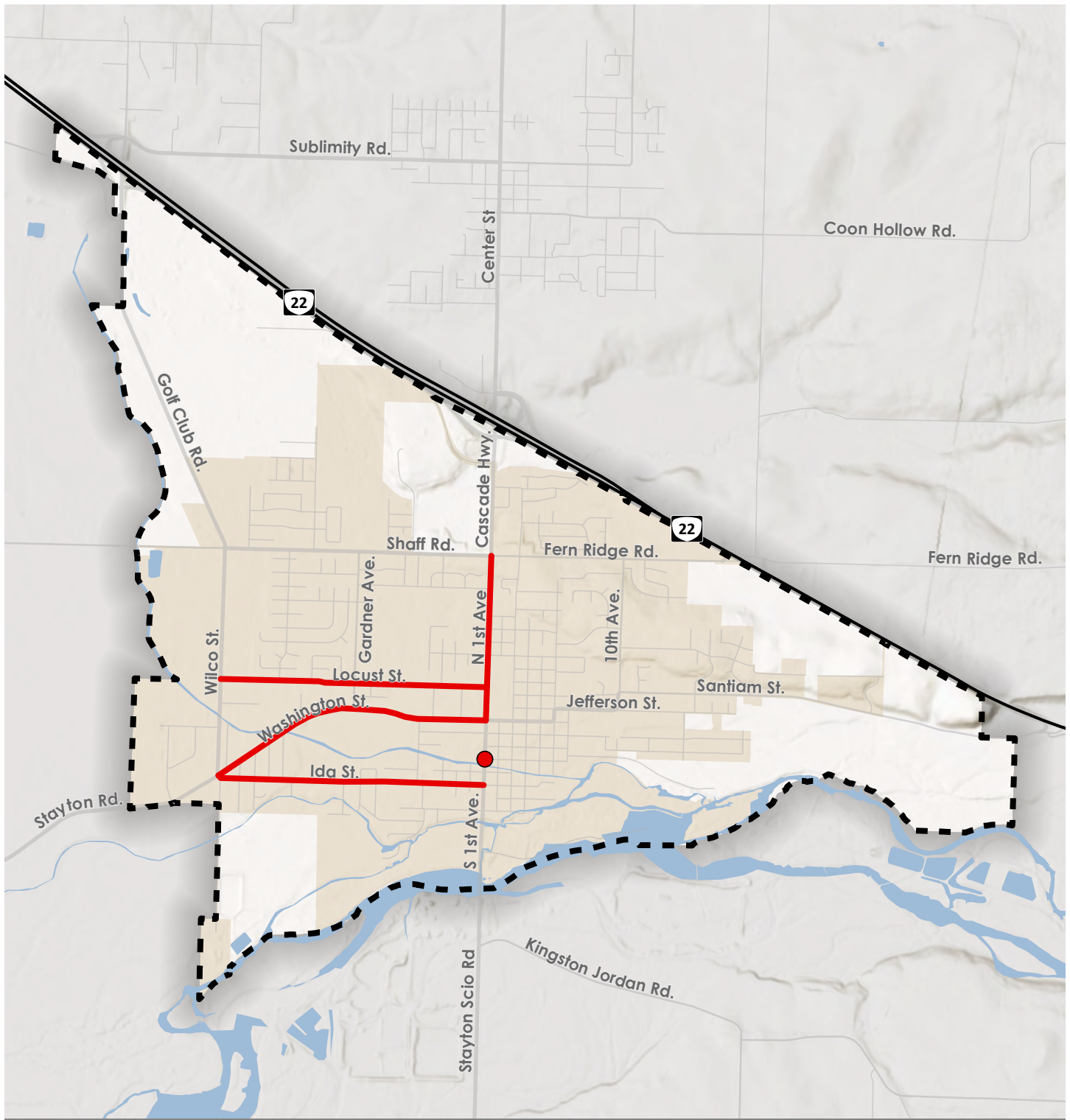
- Functional classification
- Existing roadway facilities
- Roadway condition
- Posted speed and observed speed (as data is available)
- Land use and context
- Community feedback
- Existing safety countermeasures
- Planned and in-process capital safety improvements
- Field conditions using aerial imagery
- Additional considerations and constraints
- Crash history

⁷ Risk Factors include roadways with the following characteristics: gap in bicycle or pedestrian infrastructure, “arterial” functional classification, posted speed limit greater than or equal to 35 mph, or proximity to schools, parks, or the senior center.

⁸ The City indicated a preference to select sites under the City’s jurisdiction. First Avenue is an exception as there are upcoming County projects that provide opportunity to coordinate additional improvements.

Upon reviewing these contributing factors, Kittelson identified the potential safety treatments to address the specific crash factors at each priority site.

Figure 5 through Figure 19 document the review of crash history and risk factors present at each site. The figures also identify potential safety treatments to address the crash history. After gathering input from the City, the advisory committees, and the public, preferred treatments will be illustrated and documented with crash reduction factors and planning-level cost opinions.



- Priority Intersections
- Priority Segments
- UGB
- City Limits



Figure 4

Pedestrian Crossing Treatment Assessment

The majority of the priority sites include pedestrian crossing enhancements in their list of proposed treatments. This section documents the pedestrian crossing evaluation conducted at the priority sites.

The FHWA *Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations* was produced as part of the Safe Transportation for Every Pedestrian (STEP) program and provides guidance on selecting appropriate countermeasures to help improve pedestrian safety at uncontrolled crossing locations. This guide includes a matrix of countermeasure options for evaluating appropriate levels of crosswalk protection based on roadway configurations, posted speed limit, and average annual daily traffic (AADT). Table 3 shows candidate crossing treatments based on the roadway characteristics present within the five high priority sites. The **blue** box indicates candidate crossing treatments for the Locust Street, Washington Street, and Ida Street locations. The **red** box indicates candidate crossing treatments for the two locations along First Avenue.

Table 3. Application of Pedestrian Crash Countermeasures by Roadway Feature (Source: FHWA)

Roadway Configuration	Posted Speed Limit and AADT								
	Vehicle AADT <9,000			Vehicle AADT 9,000–15,000			Vehicle AADT >15,000		
	≤30 mph	35 mph	≥40 mph	≤30 mph	35 mph	≥40 mph	≤30 mph	35 mph	≥40 mph
2 lanes (1 lane in each direction)	① 2 4 5 6	① 5 6 7 9	① 5 6 ⑦ ⑨	① 4 5 6 7 9	① 5 6 7 9	① 5 6 ⑦ ⑨	① 4 5 6 7 9	① 5 6 7 9	① 5 6 ⑨
3 lanes w/o raised median (1 lane in each direction with a two-way left-turn lane)	① 2 3 4 5 6 7 9	① ③ 5 6 7 9	① ③ 5 6 ⑨	① ③ 4 5 6 7 9	① ③ 5 6 ⑦ ⑨	① ③ 5 6 ⑨	① ③ 4 5 6 7 9	① ③ 5 6 ⑨	① ③ 5 6 ⑨
Given the set of conditions in a cell, # Signifies that the countermeasure is a candidate treatment at a marked uncontrolled crossing location. ● Signifies that the countermeasure should always be considered, but not mandated or required, based upon engineering judgment at a marked uncontrolled crossing location. ○ Signifies that crosswalk visibility enhancements should always occur in conjunction with other identified countermeasures.* The absence of a number signifies that the countermeasure is generally not an appropriate treatment, but exceptions may be considered following engineering judgment.									
1 High-visibility crosswalk markings, parking restrictions on crosswalk approach, adequate nighttime lighting levels, and crossing warning signs 2 Raised crosswalk 3 Advance Yield Here To (Stop Here For) Pedestrians sign and yield (stop) line 4 In-Street Pedestrian Crossing sign 5 Curb extension 6 Pedestrian refuge island 7 Rectangular Rapid-Flashing Beacon (RRFB)** 8 Road Diet 9 Pedestrian Hybrid Beacon (PHB)**									

Additional public outreach and analysis can be used to refine the selection and placement of enhanced pedestrian crossings in Stayton. National Cooperative Highway Research Program (NCHRP) Report 562: *Improving Pedestrian Safety at Unsignalized Crossings* is another resource the City can use to consider the appropriate level of crosswalk treatments considering pedestrian crossing volumes.

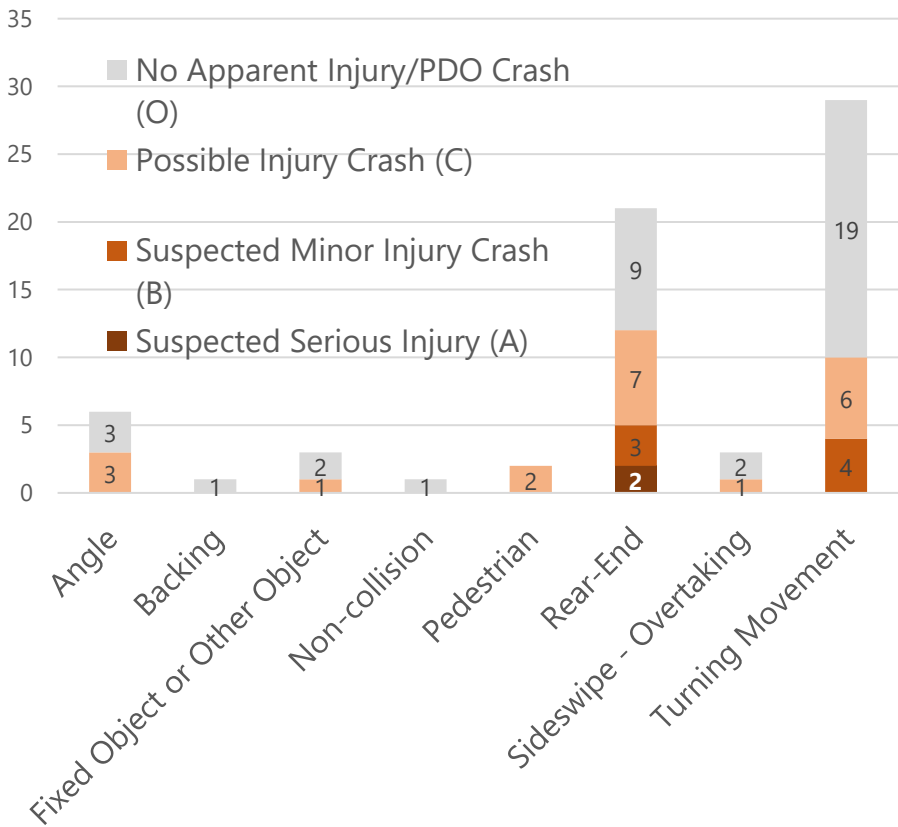


Functional Classification	Major Arterial
Roadway Jurisdiction	Marion County
Roadway Facilities	- Three Lanes (Two through lanes and a two-way left turn lane) - Minor-Street Stop-Controlled; Signals at intersections with Shaff Road/Fern Ridge Road and Washington Street
Roadway Condition	Good (Category II and Category III)
Posted Speed	30 MPH (20 MPH school zone in the vicinity of Locust Street)
Observed Speed	- NB 85th Percentile Speed at Hollister Street: 33 MPH - SB 85th Percentile Speed at Locust Street: 30 MPH 
Pedestrian Facilities	- Curb-tight sidewalks, width varies from 5-8 feet - Marked pedestrian crossings at Cedar St (flashing beacon) and Locust Street (continental markings)
Bicycle Facilities	None
Transit Facilities	Cherriots Route 30x runs along First Ave, with stops south of Regis Street
Land Use	- Commercial Retail Zoning - Several schools are located in the vicinity of First Avenue, including Stayton High School, Regis St. Mary Catholic School, and Stayton Elementary School
Community Feedback	- Difficult to cross the street and difficult to exit some driveways - Pedestrian crossings are especially needed at Locust Street; other suggested locations include Regis Street, Hollister Street, and Cedar Street - Concerns about access management diverting traffic to Third Avenue
Existing Safety Countermeasures	- High-visibility backplates at signalized intersections - Advanced warning signage (signal ahead, pedestrian crossing ahead, school crossing)
Planned Projects	TSP - P52: Study and implement crosswalk enhancements (Shaff Road to Water Street) - P21&22: Install 8-foot sidewalk on curb line (Regis Street to Water Street/Ida Street) - B2: Plans for parallel bicycle facilities along Third Avenue - M6: Install permissive/protected left turns at First Avenue/Washington Street County Project - Stayton Elementary ADA and Crosswalk Visibility Enhancements: Update curb ramps along First Avenue, implement RRFB with pedestrian refuge island at First Avenue/Locust Street
Considerations	- Access spacing does not meet City Access Spacing Standards - Freight route per TSP
Constraints	Limited right-of-way and utilities at back of sidewalk

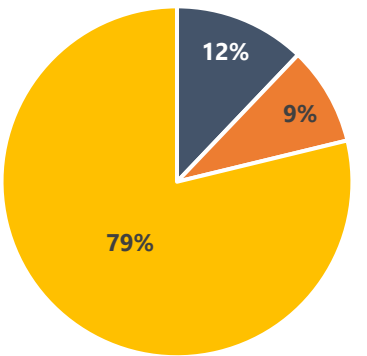
Crash History (January 1, 2018-December 31, 2022)

Nearest Intersection Street	Collision Type							Total
	Angle	Turn	Rear-End	Fixed Object	Ped	Sideswipe	Other	
Shaff Road/ Fern Ridge Road	3	3	10	1	-	1	1	19
Regis Street	-	2	3	-	-	-	-	5
Cedar Street	-	-	3	-	-	1	-	4
Fir Street	1	7	1	-	-	-	-	9
Hollister Street	-	2	-	1	-	-	-	3
Locust Street	1	6	2	1	-	1	-	11
Washington Street	1	9	2	-	2	-	1	15

Crash Severity by Type



Lighting Conditions



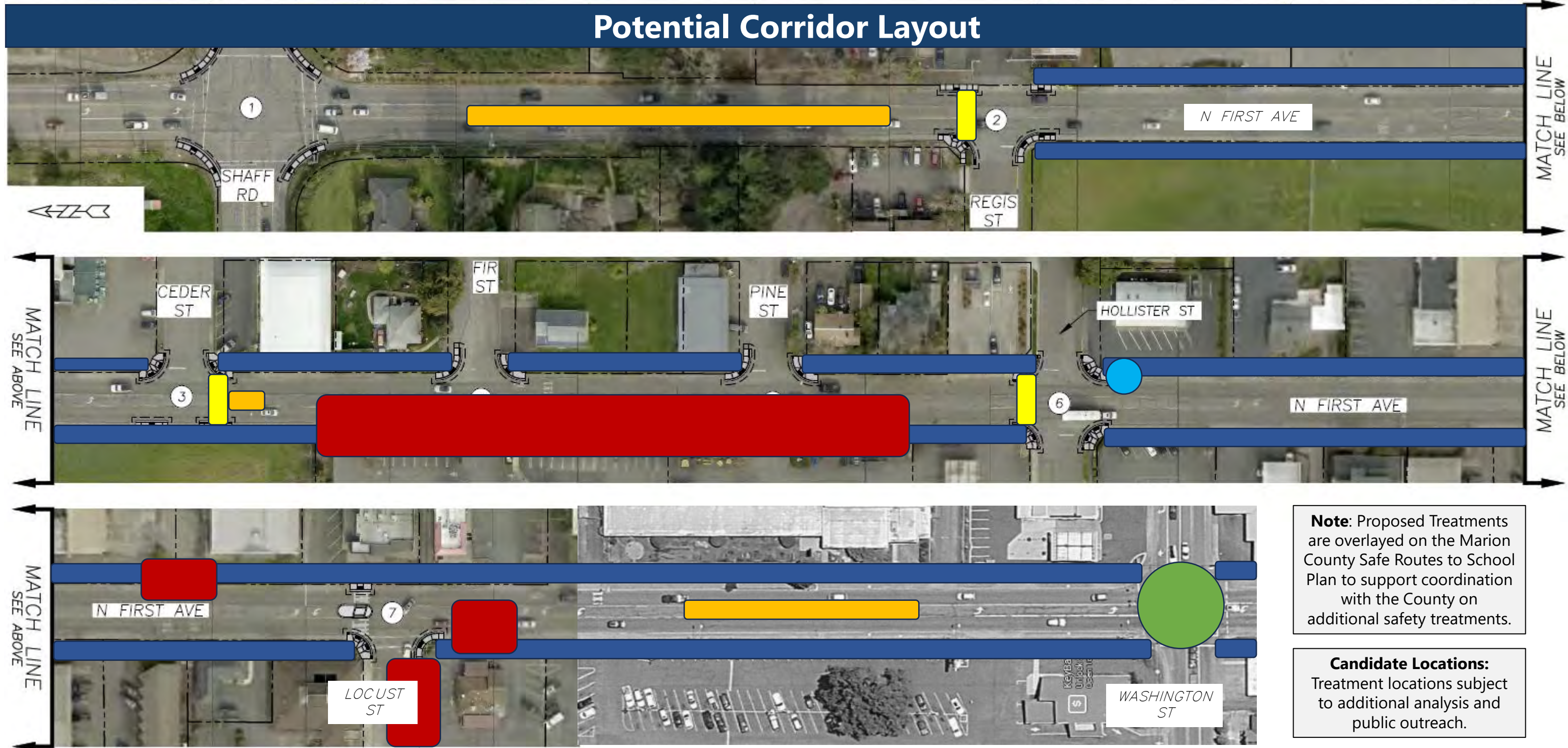
■ Darkness ■ Dawn/Dusk
■ Daylight

Potential Countermeasures

Countermeasure	Description
Crossing Enhancements	- Candidate treatments (as described in the FHWA STEP Guide): - Advance Stop Here for Pedestrians sign and stop line - In-Street Pedestrian Crossing Sign - Curb Extension - Pedestrian Refuge Island - Rectangular Rapid-Flashing Beacon - Pedestrian Hybrid Beacon - With plans for a parallel bicycle facility on Third Avenue, the importance of improved crossings will continue to increase. Note that there is insufficient space for curb extensions along First Avenue without a lane reduction. - Implement TSP Project P52: Study and implement crosswalk enhancements as part of the upcoming County Project.
Access Management	- Consolidate accesses and driveways - Limit businesses to a singular full access on First Avenue; if a secondary access is needed, consider right-in right-out options. - Encourage shared access points. - Shorten driveways to limit exposure.
Traffic Calming	Install center median with landscaping.
Fill Gaps in the Sidewalk Network	- Complete TSP Projects - P21&22: Install 8-foot sidewalk on curb line (Regis Street to Water Street/Ida Street)
Intersection Modifications	- Complete TSP Projects - M6: Install permissive/protected left turns at First Avenue/Washington Street - Install Leading Pedestrian Intervals (LPI), prohibit right-turn on red at signalized intersections, and update TSP project to install protected-only left turn phasing. - Access management along Locust Street approaching intersection.

Additional Considerations

- Crossing Enhancements:** Additional public outreach and pedestrian crossing volumes could be used to refine priority enhanced crossing locations along First Avenue.
- 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.
- 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 and emergency response services on any traffic calming treatments.



Legend

Colored image headers match symbols on map above

Widened Sidewalks

Foster City

Protected Turn Phasing

Oak Ridge, NC

Speed Feedback Sign

Access Management

Skyhall Bollard

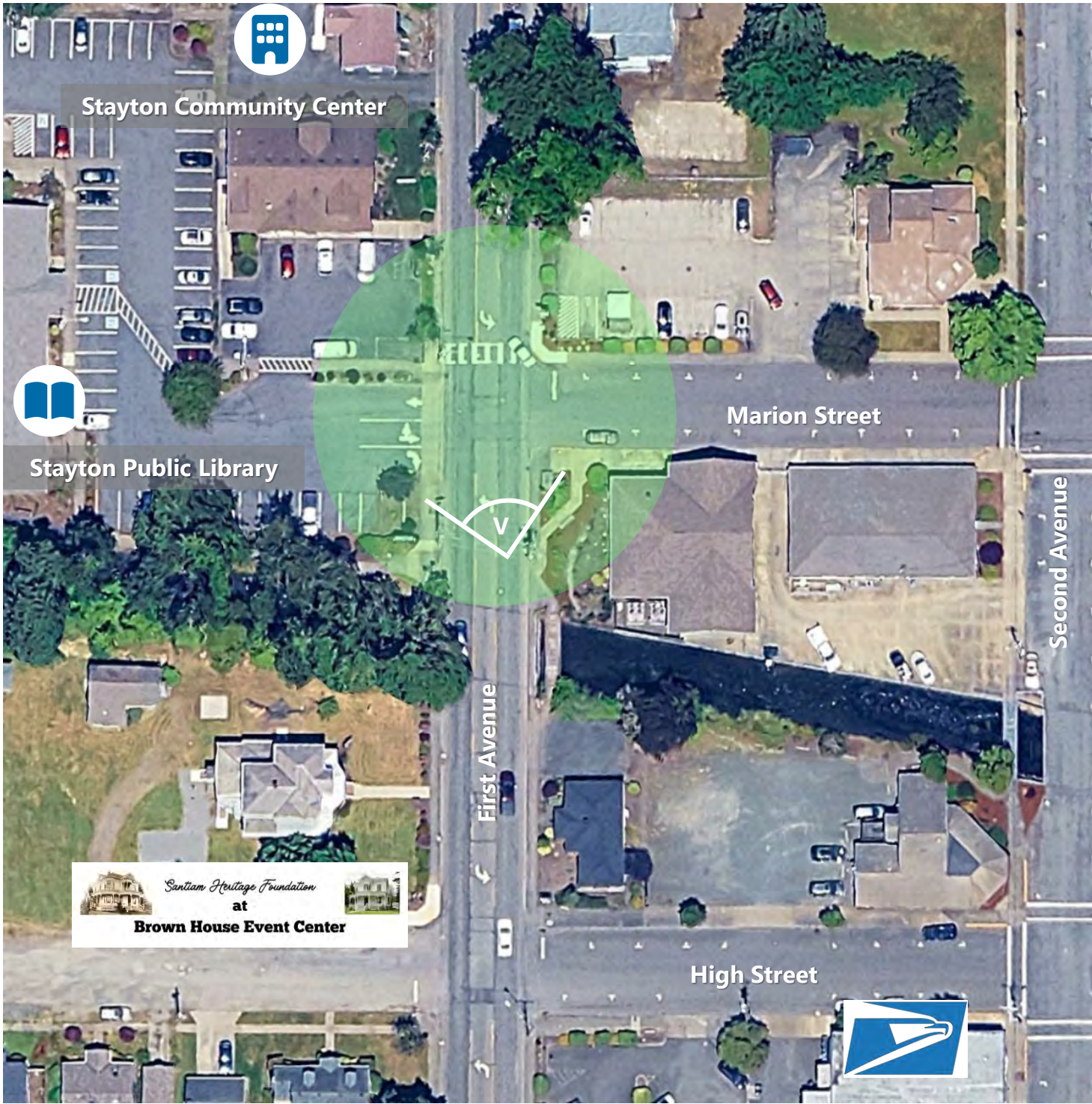
Enhanced Crossing

Landscaped Median

KITTELSON & ASSOCIATES

First Avenue (Shaff Road/Fern Ridge Road to Washington Street)
Conceptual Corridor Layout
Stayton, Oregon

Figure 7



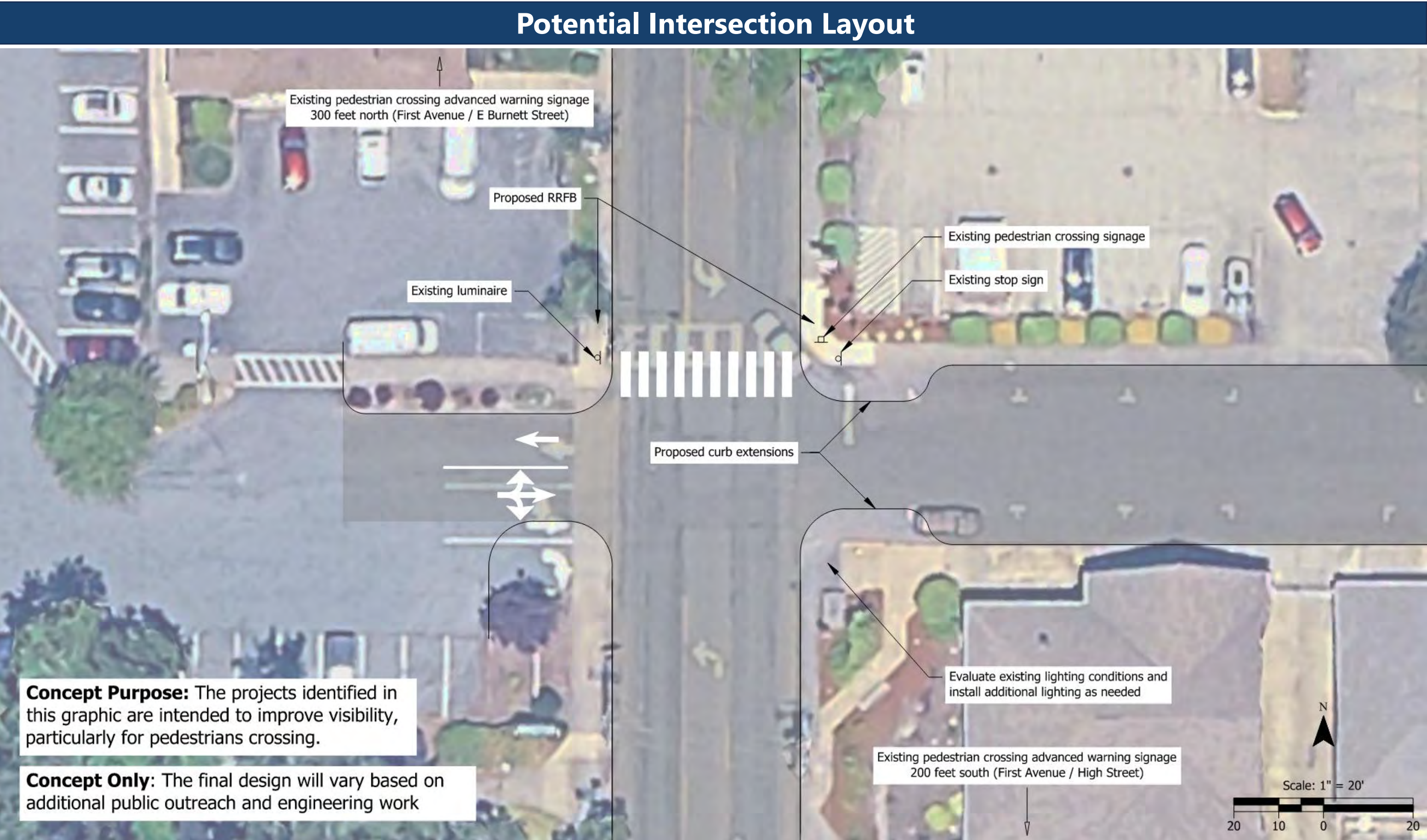
Functional Classification	First Avenue: Major Arterial / Marion Street: Local Street
Roadway Jurisdiction	First Avenue: Marion County / Marion Street: City of Stayton
Roadway Facilities	- First Avenue: Three Lanes (Two through lanes and a two-way left turn lane) - Marion Street: Unstriped two-way traffic, marked street parking - Community Center Parking Lot: Shared through-left turn lane and dedicated left turn lane
Roadway Condition	First Avenue: Good (Category II and Category III), Marion St: Category I (Very Good)
Posted Speed	First Avenue: 30 MPH, Marion St: 25 MPH
Pedestrian Facilities	- Curb-tight sidewalks, width varies from 5-8 feet - Marked crosswalk on north leg
Bicycle Facilities	None
Transit Facilities	None
Land Use	- Commercial Retail and Public Zoning - Surrounding zoning is Residential Mixed Use and Medium Density Residential - Community center and public library accessed via driveway
Community Feedback	- Many pedestrian connections in the area combined with the busyness of the intersection increase the importance of additional crossing enhancements - Challenging to see the crosswalk when traveling southbound due to the vertical curvature of the roadway. This challenge is especially present in dark conditions.
Existing Safety Countermeasures	- Pedestrian crossing signage on First Avenue - Marked crosswalk
Planned Projects (TSP)	P52: Study and implement crosswalk enhancements (Shaff Road to Water Street)
Considerations	Proximity to significant public buildings
Constraints	- Limited connectivity west of First Avenue makes this intersection and the primary access point for several community services - Existing development limits abilities to update the circulation between parking facilities for the library and community center

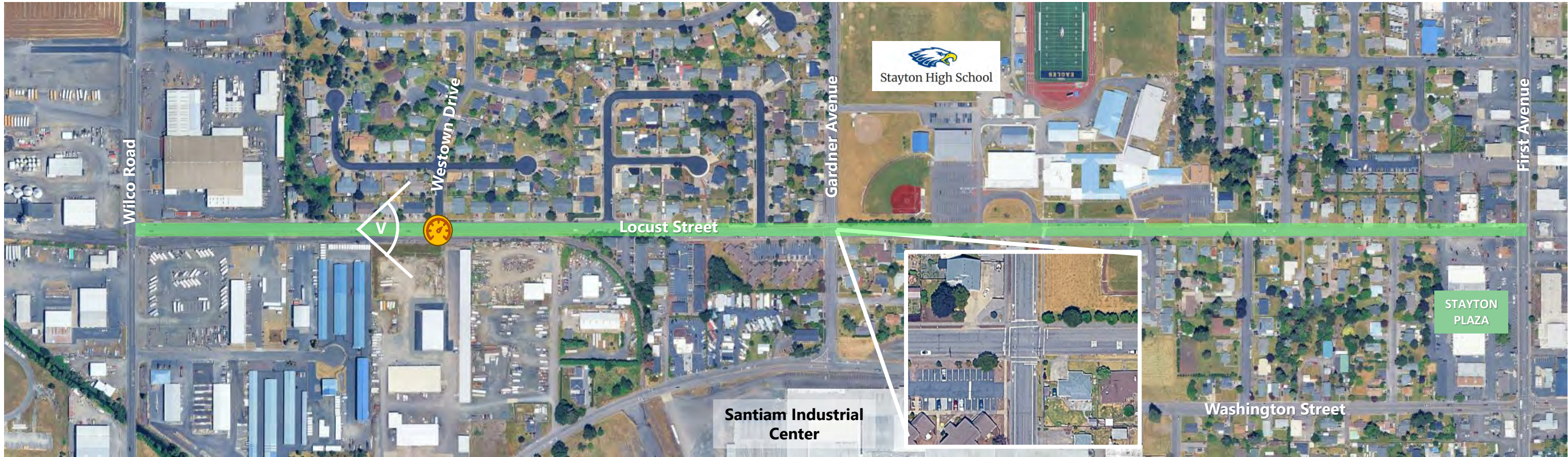
Crash History (January 1, 2018-December 31, 2022)

No reported crashes were identified at this location between January 1, 2018 and December 31, 2022.

Potential Countermeasures	
Countermeasure	Description
Crossing Enhancements	- Candidate treatments (as described in the FHWA STEP Guide): - Advance Stop Here for Pedestrians sign and stop line - In-Street Pedestrian Crossing Sign - Curb Extension - Pedestrian Refuge Island - Rectangular Rapid-Flashing Beacon - Pedestrian Hybrid Beacon - Crosswalk improvements align with TSP Project P52: Study and implement crosswalk enhancements
Intersection Modifications	Realign intersection: Remove dedicated right turn lane from library exit and add curb extensions on Marion Street to better align the intersection
Pedestrian and Bicycle Improvements	- Complete east-west multiuse trail from First Avenue to Evergreen Avenue - Provide wayfinding to and from the pedestrian path west of the library

Additional Considerations
Crossing Enhancements: Additional public outreach and pedestrian crossing volumes could be used to refine priority enhanced crossing treatment selection. Intersection Modifications: A traffic analysis should be conducted to evaluate the impacts of removing the dedicated right turn lane from the library exit. If a pedestrian refuge island were added to the concept, then that would remove the dedicated left turn lane from the north leg of the intersection. Additional traffic analysis should be conducted to explore the impact of removing the dedicated turn lane from that location.



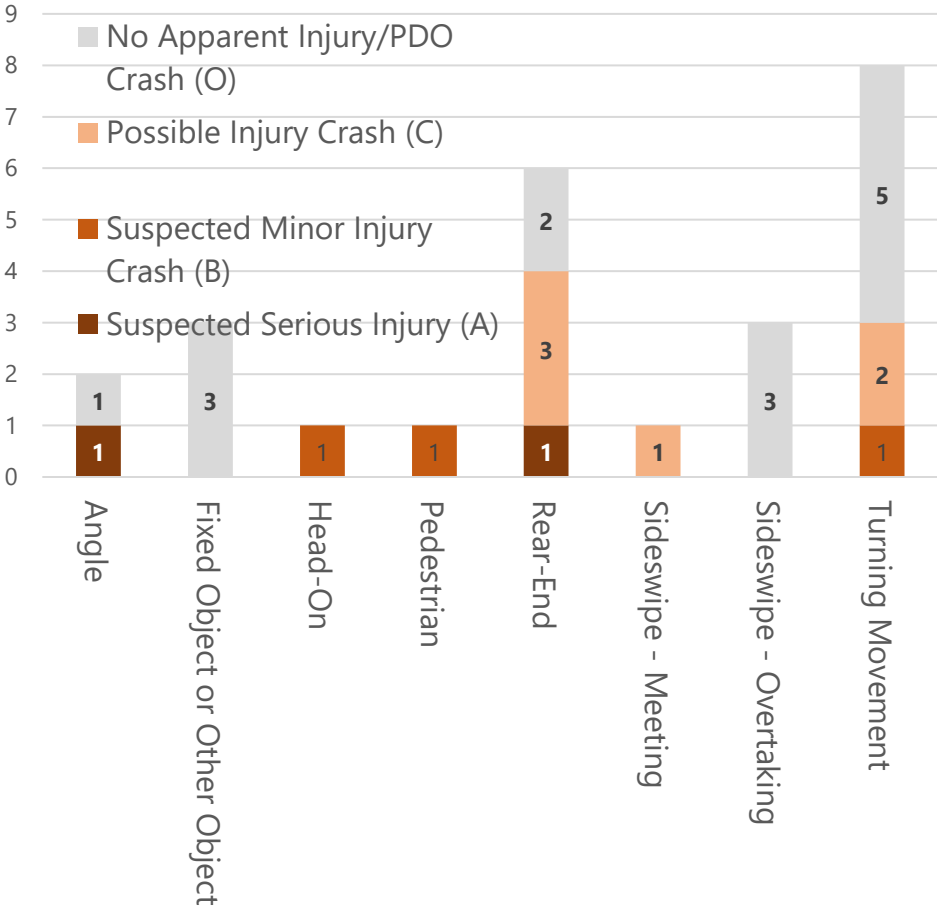


Functional Classification	Collector	Transit Facilities	None
Roadway Jurisdiction	City of Stayton	Land Use	Zoning varies, including Public, Commercial Retail, Density Residential, and Light Industrial
Roadway Facilities	- Two-way traffic without marked centerline - On-street parking - Minor street stop-controlled	Community Feedback	- Community mentioned they are concerned about rear-end crashes with left-turning vehicles from Wilco Road to Locust Street - Desire for traffic calming
Roadway Condition	Good (Category III)	Existing Safety Countermeasures	Advanced warning signage (school crossing)
Posted Speed	25 MPH (20 MPH school zone in the vicinity of high school)	Planned Projects (TSP)	- P31 & P32: Install Sidewalks (Stayton High School to First Avenue) - B14: Install bike lanes
Observed Speed	WB 85th Percentile Speed at Westown Drive: 31 MPH		
Pedestrian Facilities	6-foot sidewalks along majority of corridor. Mix of curb-tight and buffered facilities.	Considerations and Constraints	Mixed land use could create varied road user expectations
Bicycle Facilities	None	Constraints	Adding bicycle facilities may result in parking reduction

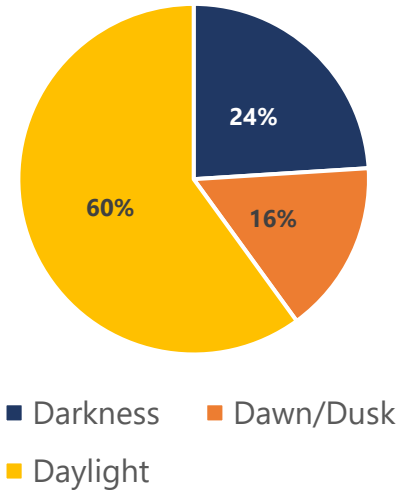
Crash History (January 1, 2018-December 31, 2022)

Nearest Intersecting Street	Collision Type							Total
	Angle	Turn	Rear-End	Fixed Object	Ped	Sideswipe	Other	
Wilco Street	-	-	2	1	-	-	-	3
Westown Drive	-	1	-	-	-	-	-	1
Gardner Avenue	1	1	1	-	1	-	-	4
Birch Avenue	-	-	-	-	-	-	1	1
First Avenue	1	6	2	1	-	1	-	11
Segment Crashes (Wilco to First Avenue)	-	-	1	1	-	3	-	5

Crash Severity by Type



Lighting Conditions



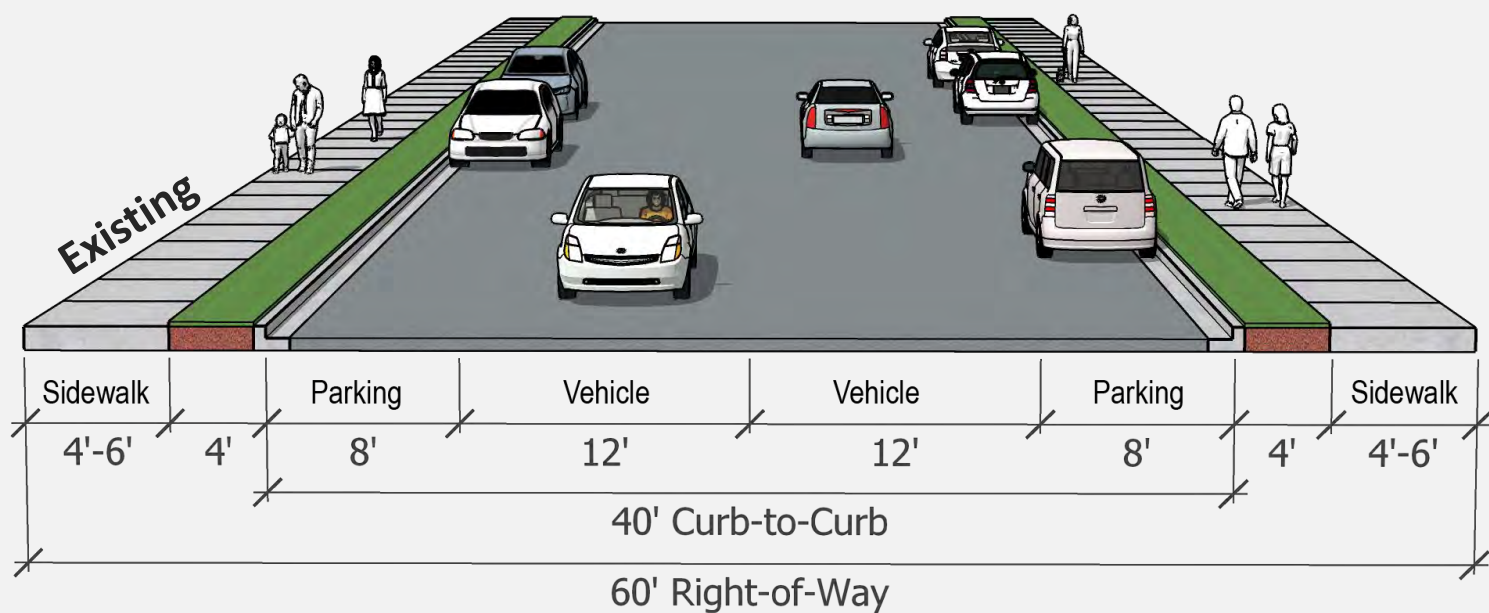
Potential Countermeasures

Countermeasure	Description
Fill Gaps in the Sidewalk and Bicycle Network	- Complete TSP Projects to fill sidewalk and bicycle gaps: - P31 & P32: Install Sidewalks (Stayton High School to First Avenue) - B14: Install bike lanes
Traffic Calming	- Install curb extensions - Install speed cushions, chicanes, and/or raised intersections along the segment - Restripe travel lanes to 11-feet wide - Implement a raised intersection or painted intersection at Locust Street/ Gardner Avenue
Intersection Modifications at First Avenue	Limit on-street parking or restrict accesses in the vicinity of First Avenue
Relocate Fixed Objects	Relocate fixed objects further from the roadway at locations with fixed object crashes
Access Management	Access management between Birch Avenue and First Avenue

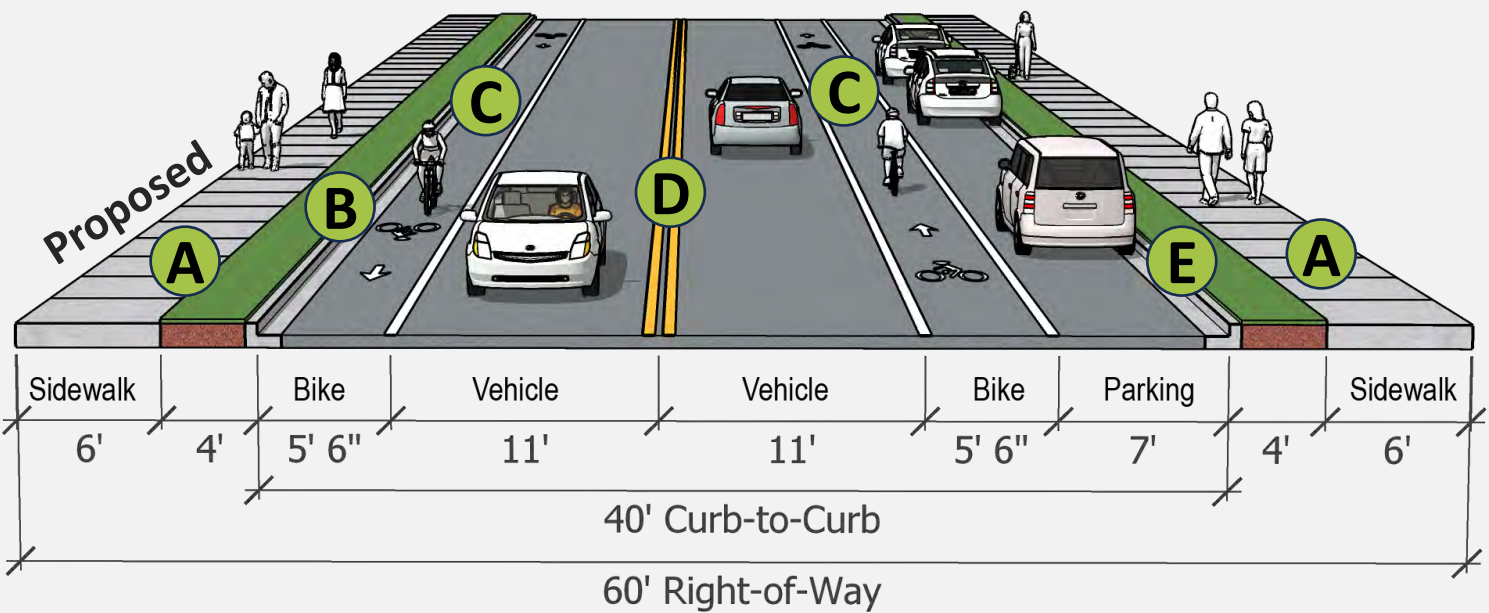
Additional Considerations

- Fill Gaps in the Sidewalk and Bicycle Network:** Addition of bike lanes may require removal of on-street parking or purchase of right-of-way, especially approaching First Avenue.
- Traffic Calming:** Proposed curb extensions are preferred only on minor-street approaches or where there is on-street parking to maintain a continuous bicycle facility along Locust Street. Coordinate with maintenance staff and emergency response services on any traffic calming treatments.
- 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.
- Sight Distance Checks:** Sight distance appears to be more limited along Locust Street at the horizontal curvature of the roadway west of Gardner Avenue. Consider parking limitations or other visibility improvements at this location.

Potential Cross Section and Safety Treatments



- A – Install new or widened sidewalk
- B – Remove parking on north or south side of street
- C – Install striped bike lanes
- D -- Repaved roadway with narrowed travel lanes
- E – Ensure fixed objects are clear of roadway



Speed Cushions



Raised Intersections



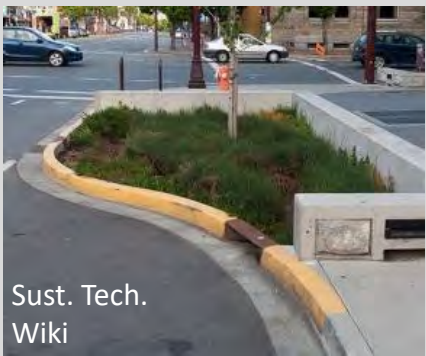
Chicanes



Access Management



Curb Extensions



Painted Intersections



Conceptual Design Only: Final roadway design and the balance between roadway elements and right-of-way (ROW) will be subject to change based on further engineering analysis and public engagement.

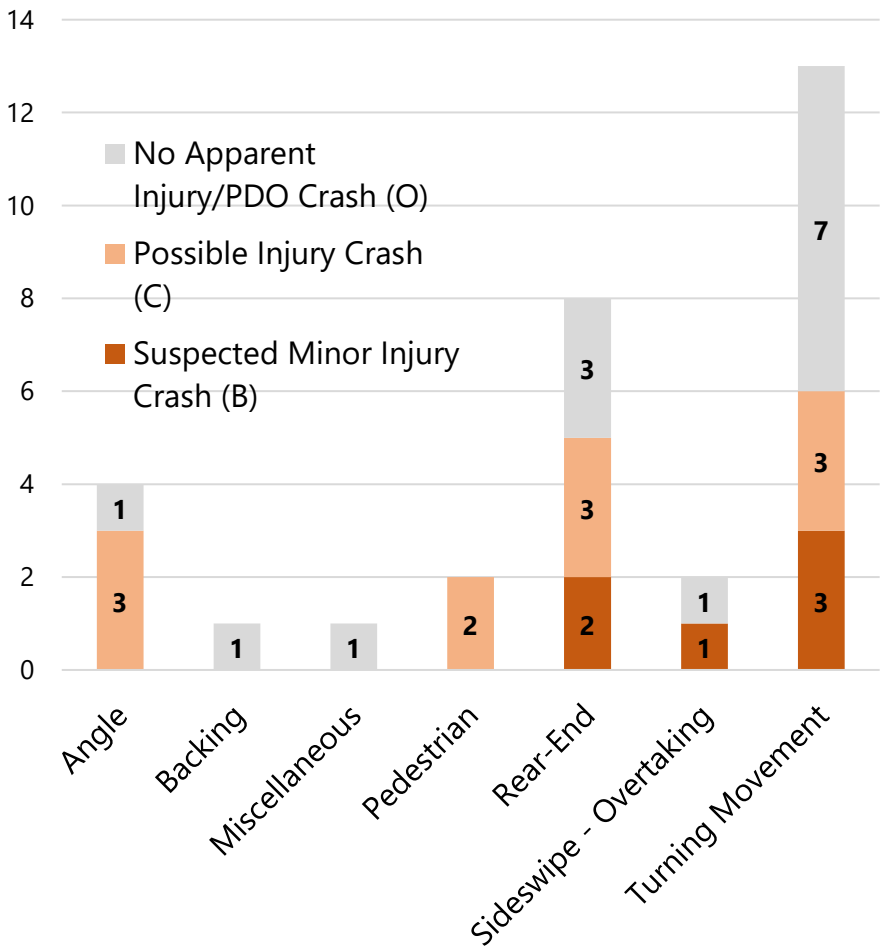


Functional Classification	Minor Arterial	Transit Facilities	None
Roadway Jurisdiction	City of Stayton	Land Use	- Primarily zoned Light Industrial - Some residential and commercial zoning
Roadway Facilities	- Two through lanes - Marked on-street parked along some segments - Minor street stop-controlled	Community Feedback	- Concerns regarding excessive speeding - Safety concerns at Washington Street/First Avenue intersection - As area develops, importance of safety infrastructure will increase
Roadway Condition	Very Poor (Category IV and Category V)	Existing Safety Countermeasures	- Painted median - Advanced warning signage (bump, railroad crossing)
Posted Speed	35 MPH, 25 MPH east of Gardener Ave	Planned Projects (TSP)	- P8, P9, P33, P34, P35: Install sidewalks (Wilco to First) - B15: Install bike lanes - M2: Install roundabout at Stayton Road/Wilco Road/Washington Street/Ida Street Intersection - M6: Install permissive/protected left turns at First Avenue/Washington Street
Observed Speed	WB 85th Percentile Speed at Douglas Avenue: 34 MPH		
Pedestrian Facilities	6-foot curb-tight sidewalks east of Evergreen Ave, sparse sidewalks west of Evergreen	Considerations	Freight route per TSP
Bicycle Facilities	None	Constraints	- Inactive railroad crossing east of Miller Drive - Highly skewed intersections

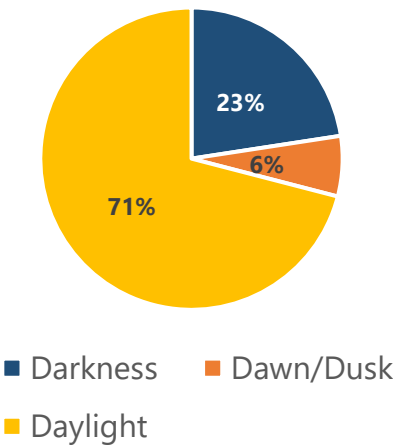
Crash History (January 1, 2018-December 31, 2022)

Nearest Intersecting Street	Collision Type						Total
	Angle	Turn	Rear-End	Ped	Sideswipe	Other	
Ida Street / Wilco Road	3	2	3	-	-	1	9
Noble Avenue	-	1	1	-	-	-	2
Larch Avenue	-	-	-	-	1	-	1
Gardner Avenue	-	1	-	-	-	-	1
Birch Avenue	-	-	2	-	1	-	3
First Avenue	1	9	2	2	-	1	15

Crash Severity by Type



Lighting Conditions



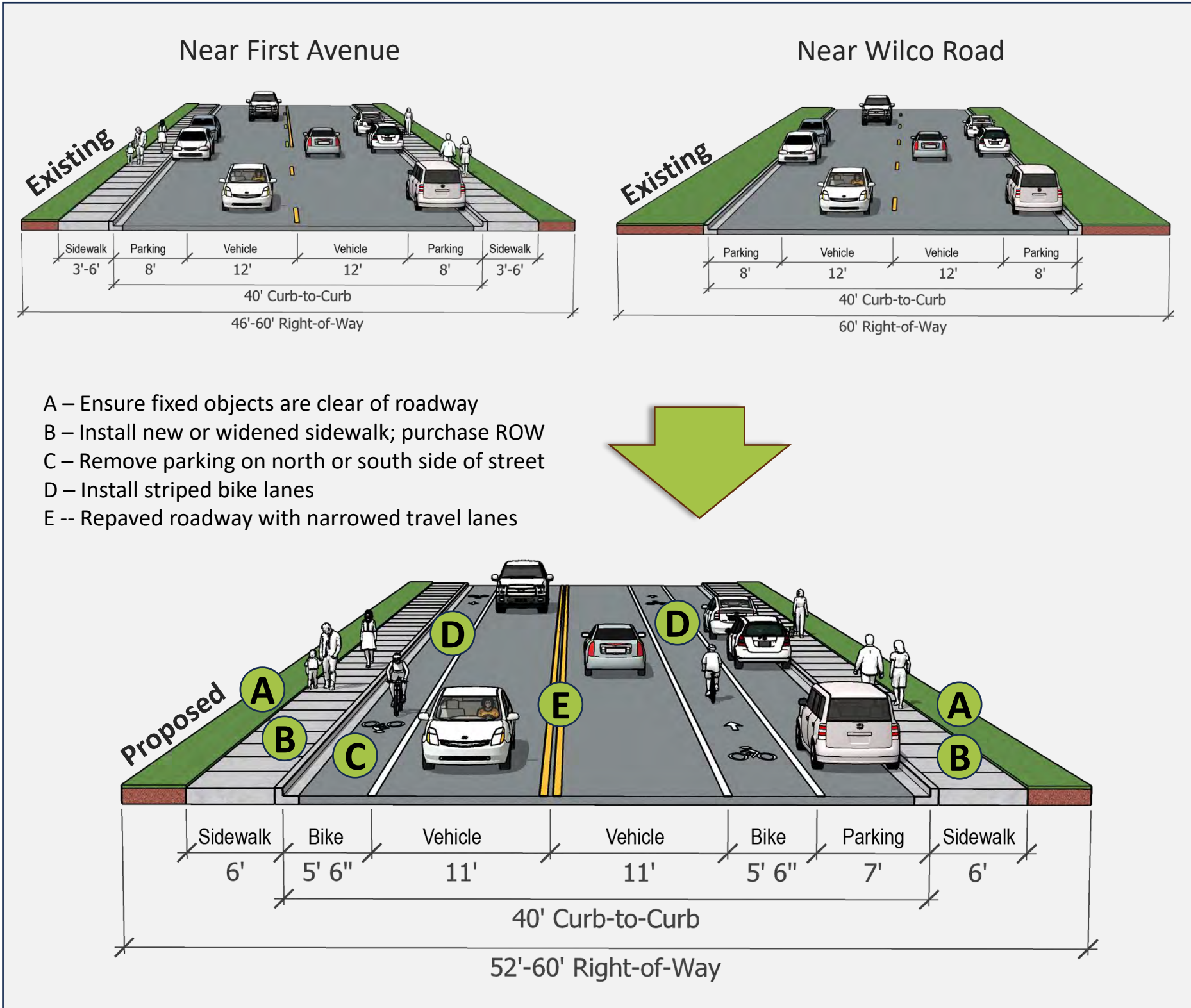
Potential Countermeasures

Countermeasure	Description
Fill Gaps in the Sidewalk and Bicycle Network	- Complete TSP Projects to fill bicycle and pedestrian gaps - P8, P9, P33, P34, P35: Install sidewalks (Wilco to First) - B15: Install bike lanes
Crossing Enhancements	Implement crossing improvements aligned with the informal paths at Gardner Avenue and Evergreen Avenue. See FHWA STEP Guide for candidate treatments.
Roadway Repaving and Restriping	- While addressing sidewalk and bicycle gaps (see above), narrow travel lanes to 11-feet wide and explore access management at driveways to support traffic calming and reduced conflict points - Repave roadway to avoid residual road markings and improve comfort for people biking in the roadway - Restripe centerline as solid double yellow line to restrict passing
Intersection Modifications	- Complete the following TSP Projects: - M2: Install roundabout at Stayton Road/Wilco Road/Washington Street/Ida Street Intersection - M6: Install permissive/protected left turns at First Avenue/Washington Street - Conduct access management in the vicinity of the intersection of with First Avenue. - Implement Leading Pedestrian Interval (LPI) and prohibit right-turn on red at the intersection with First Avenue.
Traffic Calming	- Implement raised or painted at intersection with Gardner Avenue - Consider implementing additional painted intersections
Maintain Vegetation	Maintain vegetation to improve sight distance with intersection of Birch Avenue
Remove Inactive Rail Crossing	Explore the potential to remove the rail crossing. This includes coordination to understand if there is a future need for a rail crossing to be reactivated, or if the railroad tracks, gate, and warning pavement markings can be removed.

Additional Considerations

- Fill Gaps in the Sidewalk and Bicycle Network:** Addition of bike lanes may require removal of on-street parking and may require purchase of right-of-way.
- Crossing Enhancements:** Additional public outreach and pedestrian crossing volumes could be used to refine priority enhanced crossing treatment selection.
- Intersection Modifications:** Traffic operations and turning movement analyses should occur with development or as part of a full roadway reconstruction project. Any limitations on high-volume access points should be further evaluated for their potential impact on overall traffic circulation.
- Traffic Calming:** Coordinate with maintenance staff and emergency response services on any traffic calming treatments.

Potential Cross Section and Safety Treatments



Crossing Enhancements



Raised Intersections



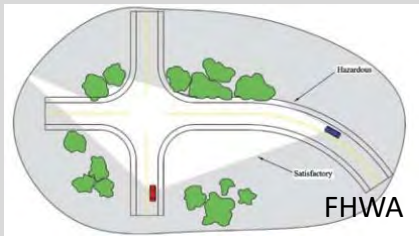
Painted Intersections



Access Management



Trim Vegetation



Roundabout



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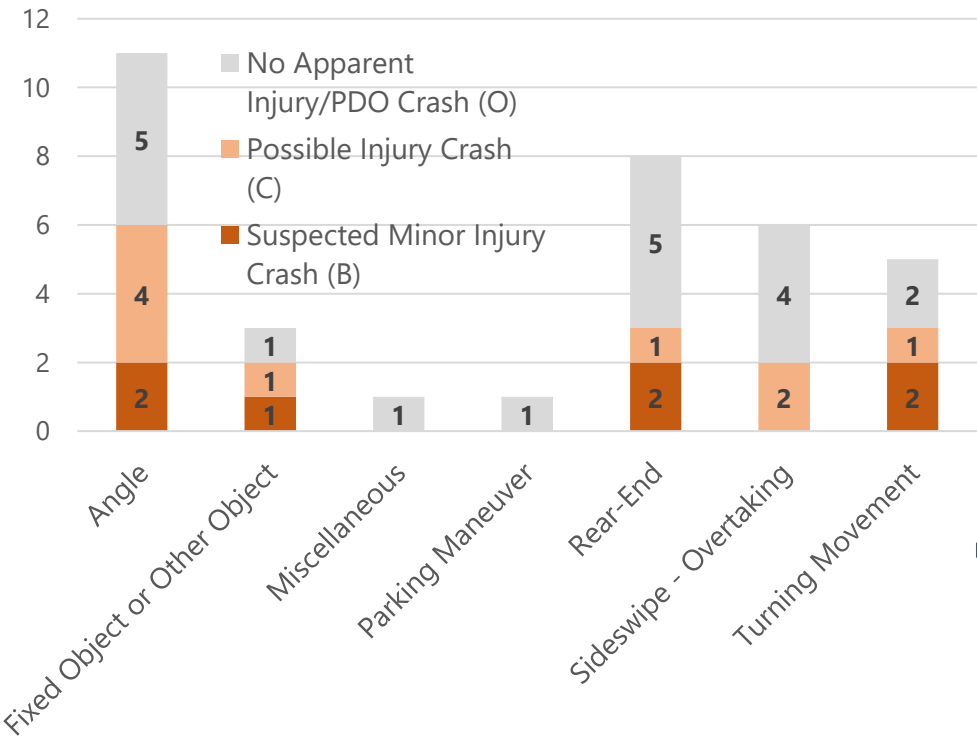


Functional Classification	Collector	Bicycle Facilities	None
Roadway Jurisdiction	City of Stayton	Transit Facilities	None
Roadway Facilities	- Two through lanes (marked) - Marked on-street parked along some segments - Minor street stop-controlled	Land Use	Zoned Low Density and Medium Density Residential
Roadway Condition	Very Poor (Category IV and Category V)	Community Feedback	- Drivers ignore intersection control devices - Need to fill sidewalk gaps
Posted Speed	30 MPH	Existing Safety Countermeasures	Reflective striping on utility poles
Observed Speed	WB 85th Percentile Speed at Birch Avenue: 29 MPH	Planned Projects (TSP)	- P12, P13, P14: Install sidewalks (Wilco Road to First Avenue) - B9: Add signing and striping to denote bicycle route - M2: Install roundabout at Stayton Road/Wilco Road/Washington Street/Ida Street Intersection
Pedestrian Facilities	6-foot sidewalks along majority of corridor. Mix of curb-tight and buffered facilities.	Considerations and Constraints	On-street parking required (per TSP)

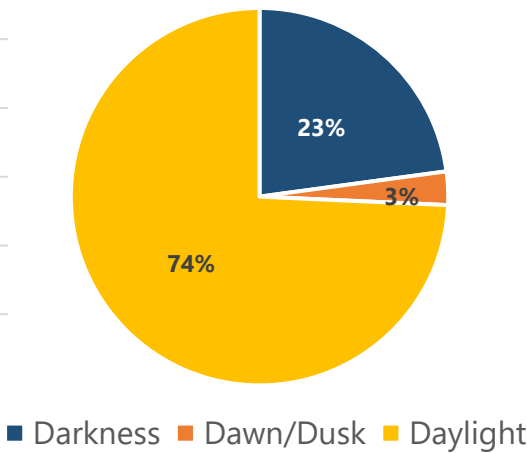
Crash History (January 1, 2018-December 31, 2022)

Nearest Intersecting Street	Collision Type						Total
	Angle	Turn	Rear-End	Fixed Object	Sideswipe	Other	
Wilco Street / Washington Street	3	2	3	-	-	1	9
Oak Avenue	2	-	-	-	-	1	3
Noble Avenue	-	-	3	-	-	-	3
Segment between Holly Ave and King Ave	-	-	1	-	4	-	5
Fern Avenue	-	-	-	1	-	-	1
Segment between Fern Avenue and Evergreen Avenue	-	-	1	1	-	-	2
Evergreen Avenue	-	-	-	1	-	-	1
Segment between Evergreen Avenue and Cherry Avenue	1	-	-	-	-	-	1
First Avenue	5	3	-	-	2	-	10

Crash Severity by Type



Lighting Conditions



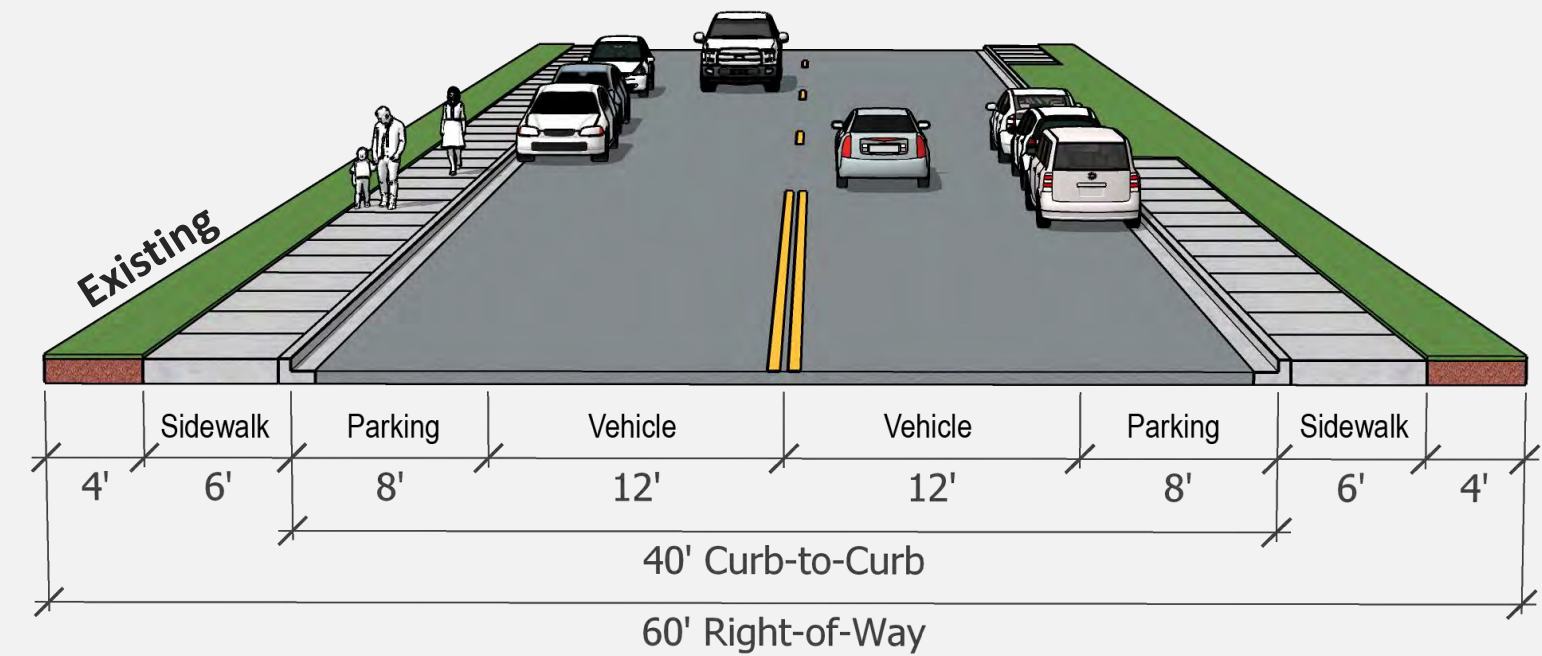
Potential Countermeasures

Countermeasure	Description
Fill Gaps in the Sidewalk and Bicycle Network	- Complete TSP Projects to fill bicycle and pedestrian gaps - P12, P13, P14: Install sidewalks (Wilco Road to First Avenue) - B9: Add signing and striping to denote bicycle route - Medium-term option to repave the roadway and implement a pedestrian side path using bollards.
Crossing Enhancements	Implement crossing enhancements as pedestrian facilities are installed. See FHWA STEP Guide for candidate treatments.
Traffic Calming	- Install speed cushions - Install curb extensions
Intersection Modifications	- Complete TSP Projects - M2: Install roundabout at Stayton Road/Wilco Road/Washington Street/Ida Street Intersection - Install raised or painted intersections at additional locations, potentially at Noble Avenue, Larch Avenue, and Evergreen Avenue
Roadway Repaving and Restriping	- Remove skip stripe and paint a double marked centerline to prohibit vehicle passing. - Repave roadway to improve comfort for people walking and biking.
Relocate Fixed Objects	Relocate fixed objects further from the roadway at locations with fixed object crashes.

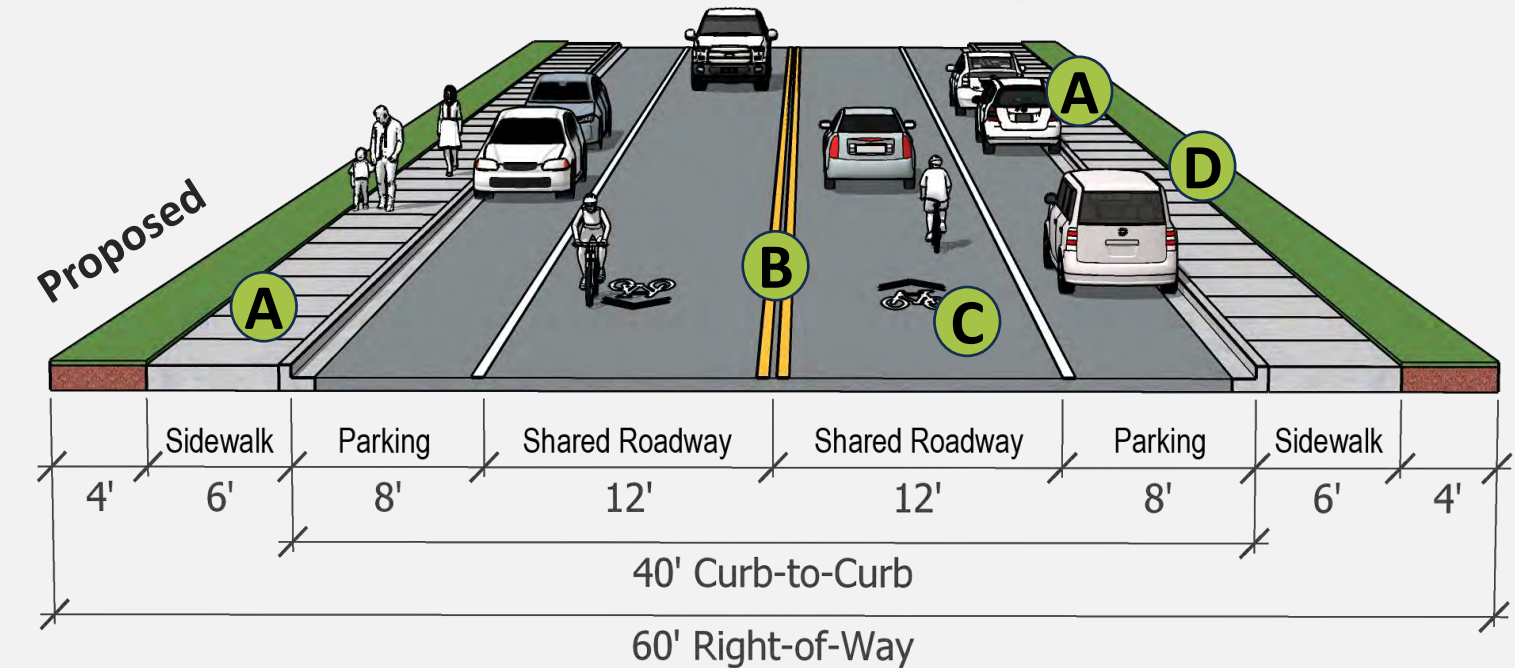
Additional Considerations

- Fill Gaps in the Sidewalk and Bicycle Network:** Addition of bike lanes may require removal of on-street parking or purchase of right-of-way.
- Crossing Enhancements:** Additional public outreach and pedestrian crossing volumes could be used to refine priority enhanced crossing treatments.
- Traffic Calming:** Consider narrowing the roadway with 11' travel lanes when the road is next repaved to provide additional space for wider sidewalks. Coordinate with maintenance staff and emergency response services on any traffic calming treatments.

Potential Cross Section and Safety Treatments



- A – Install new or widened sidewalk
- B – Repave and restripe roadway with solid centerline
- C – Install sharrows
- D – Ensure fixed objects are clear of roadway



Speed Cushions



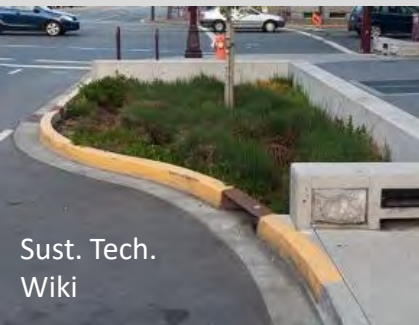
Raised Intersections



Crossing Enhancements



Curb Extensions



Painted Intersections



Roundabout



Conceptual Design Only: Final roadway design and the balance between roadway elements and right-of-way (ROW) will be subject to change based on further engineering analysis and public engagement.

Implementation and Monitoring

This section identifies the key actions that the City of Stayton and its partner agencies can take to implement the strategies and treatments identified within the SAP and monitor performance and progress towards achieving the objectives of the plan.

Implementation

The Safe Streets and Roads for All (SS4A) self-certification worksheet requires that this SAP identifies a comprehensive set of projects and strategies to address safety problems, with information about time ranges when they will be deployed, and an explanation of project prioritization criteria. Treatments and strategies were prioritized based on the following factors:

- Expected safety performance according to the crash reduction factor or Safe System Roadway Hierarchy Tier
- The amount of time, energy, or cost required for implementation
- Ability to implement interim or quick-build project phases
- Support from partners (businesses, agencies, nonprofits, etc.) that are interested in assisting implementation
- Near-term public support or need for education/marketing campaigns for the treatments

Table 4 presents the systemic and location-specific treatments and strategies highlighted in the previous sections along with a breakdown of implementation phases, organized by emphasis area. Treatments and strategies may be implemented in a different order as needs shift within the City, as funding becomes available, and as partner agencies have capacity to support implementation.

Table 4. Implementation Timeline

Treatment/Strategy	Emphasis Area Addressed ⁹	Partners	Near-Term Actions (<2 years)	Medium-Term Actions (2-5 years)	Long-Term Actions (>5 years)
First Avenue Improvements	N/A	– Stayton Public Works – Marion County Public Works	– Coordinate with County to incorporate additional safety treatments into upcoming County project along First Avenue	–	– -
First Avenue & Marion Street Improvements	N/A	– Stayton Public Works – Marion County Public Works	– Complete concept design for proposed treatments	– Design and construct proposed treatments	– -
Locust Street Improvements	N/A	– Stayton Public Works	– Complete concept design for proposed treatments – Construct quick-build/pilot installations for traffic calming	– Design and construct proposed treatments – Construct permanent traffic calming treatments	– -
Washington Street Improvements	N/A	– Stayton Public Works	– -	– Design and construct proposed treatments in conjunction with upcoming development	– -
Ida Street Improvements	N/A	– Stayton Public Works	– Complete concept design for proposed treatments	– -	– Design and construct proposed treatments
Low-Cost Countermeasures at Stop Controlled Intersections	Intersections	– Stayton Public Works – Marion County Public Works	– Install treatments at priority intersections and other suggested locations; coordinate with County as needed	– Coordinate with Marion County to continue implementing treatments	– -
Update Stayton Land Use and Development Code to Increase Safety Analysis and Mitigation	Intersections	– Stayton City Council – Stayton Public Works	– -	– Review and Update Stayton’s Land Use and Development Code	– -
Crossing Enhancements	Vulnerable Road Users	– Stayton Public Works – Marion County Public Works	– -	– Construct quick-build installations at high priority City-managed locations; identify locations for permanent crossing enhancements	– Continue constructing permanent crossing enhancements
Traffic Calming	Vulnerable Road Users	– Stayton Public Works	– Install quick-build traffic calming on high priority corridors, such as those identified on the CRIN or in previous sections	– Continue expanding quick build installations, construct permanent traffic calming	– Continue expanding quick build installations, construct permanent traffic calming
Fill Gaps in the Sidewalk Network	Vulnerable Road Users	– Stayton Public Works – Marion County Public Works	– Fill high priority sidewalk gaps on City-managed roadways as identified in the CRIN and Stayton TSP; identify County roadways for sidewalk infill	– Continue filing high priority sidewalk gaps on City-managed roadways – Coordinate with the County to fill high priority sidewalk gaps along County-managed roadways	– Continue filling sidewalk gaps
Fill Gaps in the Bicycle Network	Vulnerable Road Users	– Stayton Public Works	– Fill high priority bicycle gaps on City-managed roadways as identified in the CRIN and Stayton TSP; identify County roadways for bicycle improvements	– Continue filling high priority bicycle gaps on City-managed facilities – Coordinate with the County to fill high priority bicycle gaps on County-managed roadways	– Continue filling bicycle gaps

⁹ Location-specific treatments were selected based on a review of the CRIN and address all emphasis areas.

Treatment/Strategy	Emphasis Area Addressed ⁹	Partners	Near-Term Actions (<2 years)	Medium-Term Actions (2-5 years)	Long-Term Actions (>5 years)
Update Roadway Design Standards to Promote Context-Sensitive Design	Vulnerable Road Users	– Stayton Public Works	– -	– Review and Update Stayton’s Roadway Design Standards	– -
Appropriate Posted Speeds for All Road Users	Vulnerable Road Users	– Stayton and Marion County Public Works	– -	– Coordinate with Marion County and ODOT to draft and adopt policy and install updated speed limit signs as needed	– -
20 Is Plenty	Vulnerable Road Users	– Stayton Public Works	– Coordinate with City Council to draft and adopt “20 Is Plenty” policy – Install new speed limit signs on local streets	– -	– -
Dynamic Speed Feedback Signs	Risky Driver Behaviors	– Stayton Public Works – Stayton Police Department	– -	– Install dynamic speed feedback signs at priority locations	– Continue installing dynamic speed feedback signs at priority locations
Hardened Centerlines and Turn Wedges	Risky Driver Behaviors	– Stayton Public Works	– Install treatments at priority locations	– Continue installing treatments	– -
Education Campaigns	Risky Driver Behaviors	– Stayton Schools – Stayton Police Department – Community Based Organizations	– Identify partners and develop a transportation safety education plan	– Implement the transportation safety education plan	– Continue implementing the transportation safety education plan
Targeted and High-Visibility Enforcement	Risky Driver Behaviors	– Stayton Police Department – Marion County Sheriff’s Office – Oregon State Police	– -	– Perform targeted and high-visibility enforcement	– Continue performing targeted and high-visibility enforcement
Develop Automatic Traffic Enforcement Policy	Risky Driver Behaviors	– Stayton City Council – Stayton Police Department	– -	– Consider developing policy	– Consider developing and adopting policy

Funding Opportunities

The City of Stayton has limited transportation resources to cover expenses ranging from safety, repairs and maintenance to growth. The strategies and treatments within this plan cost money; to achieve the goals of this SAP, Stayton must prioritize safety through the fiscal budgeting process. This might include reallocating existing City funds or seeking additional funding sources. Potential funding sources at the federal, state, and local level include:

- Federal funding
 - SS4A Planning and Demonstration Grants¹⁰
 - SS4A Implementation Grants¹⁰
 - Highway Safety Improvement Program Grants
 - Better Utilizing Investments to Leverage Development (BUILD) Grants
 - Transportation Alternatives Program (TAP) Grants
- State funding
 - Pedestrian and Bicycle Strategic Grants
 - ARTS Program Grants
 - Transportation and Growth Management (TGM) Grants
 - Connect Oregon Grants
- Local funding
 - Tax Increment Financing (TIF)
 - Bonds

Performance Measures

Performance measures are important for many reasons: they help develop a better understanding of and linkage between the SAP and safety outcomes, they can help improve safety communication with the public and other project partners, and they create greater accountability by tracking City progress towards achieving the plan's safety goals. Performance measures can focus on objective crash statistics, behavioral metrics, or education and enforcement actions taken. For clarity, performance measures have been classified into "implementation metrics" and "outcome metrics." Implementation metrics evaluate progress towards implementing the strategies and treatments within the plan whereas outcome metrics evaluate the effectiveness of the implemented projects and policies in reducing fatal and serious injury crashes.

Implementation and outcome performance measures relating to each of the three emphasis areas are described in Table 5.

¹⁰ If SS4A is not renewed, there may be similar grant programs in future transportation bills.

Table 5. Performance Measures

Type	Performance Measure
Implementation Metrics¹¹	Number of systemic intersection strategies and treatments implemented
	Number of systemic vulnerable road user strategies and treatments implemented
	Number of risky driver behavior strategies and treatments implemented
	Number of location-specific treatments implemented
Outcome Metrics	Number of total crashes
	Number of FSI crashes
	Number of FSI crashes at intersections
	Number of FSI crashes involving a vulnerable road user
	Number of FSI crashes involving risky driver behavior

Next Steps

A Safety Action Plan will be developed to document the analysis conducted to-date, the recommended strategies and treatments, and the implementation and monitoring plan.

¹¹ To ensure consistency, Stayton should establish a standardized approach to measuring implementation metrics. Given that projects and strategies vary in cost, it may be helpful to track both dollars spent on safety and the number of projects delivered. Additionally, because infrastructure and policy projects often follow different timelines and implementation mechanisms, they should be tracked separately. The City can further subdivide implementation metrics as needed. Regardless of the chosen structure, using a consistent methodology year-over-year will best support effective tracking of SAP implementation progress.