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COMPASS Regional Safety Action Plan

TECHNICAL MEMORANDUM #4

September 16, 2024 Project #: 29061.0

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CC: Project Management Team

RE: Strategy Development

The purpose of this memorandum is to identify relevant local strategies that address the emphasis areas identified from the High-Injury Network (HIN), the challenges faced by COMPASS and its member agencies, and transportation safety issues identified through community input. This memo contains the following:

- Introduction and Guiding Principles
- Systemic Infrastructure and Non-Infrastructure Strategy Toolbox
- Location and Jurisdiction-Specific Strategies
- Before and After Evaluation Guidance

Of the strategies identified in this document, one strategy per COMPASS member agency is planned for further development in the next phase of this project to provide sufficient detail that can be used for applications for Safe Streets and Roads for All (SS4A) discretionary grant funding.

INTRODUCTION AND GUIDING PRINCIPLES

This introduction describes the guiding principles used to identify strategies and key findings from previous work in the COMPASS RSAP development process.

SAFE SYSTEM APPROACH & DESIGN HIERARCHY

The strategies identified in this memo apply the principles of the Safe System Approach (SSA). The SSA is a mindset shift from *crash prevention* to *injury/fatality prevention* – putting less emphasis on improving behavior and more emphasis on *designing for the mistakes that people make so that those mistakes don't result in fatal or severe injury crashes.* The Safe System Approach (SSA) has been in use in countries around the world for decades to help them move towards a goal of zero roadway deaths and serious injuries. It has proven to be effective, with countries adopting the approach in a variety of contexts. In January 2022, the United States Department of Transportation released its National Roadway Safety Strategy (Reference 1) that adopted the SSA as its core strategy for achieving its goal.

Figure 1: Safe System Approach Principles and Objectives (Source: FHWA)

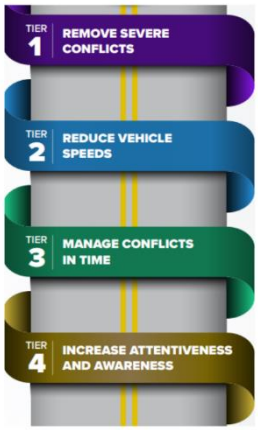


Figure 2: Safe System Roadway Design Hierarchy (Source: FHWA)

Figure 1 illustrates the six principles and five objectives of the SSA. The six SSA principles (shown in black text around the circle) encompass the fundamental beliefs the approach is built on. The five SSA objectives are conduits through which the approach is implemented. The strategies presented in this memo represent the facets of the SSA that are actionable by COMPASS and its member agencies. This memo presents strategies that address all SSA objectives.

To help agencies put the SSA into practice, FHWA recently published the *Safe System Roadway Design Hierarchy* (Reference 2). This guide is intended to help practitioners make project-specific decisions on treatments. It places strategies into four tiers with respect to their alignment with the SSA. Figure 2 illustrates this hierarchy. This hierarchy of strategy tiers was used to gauge the priority of strategies that are presented in this memo.

KEY FINDINGS FROM PREVIOUS WORK

This section describes key findings from previous COMPASS RSAP activities earlier in this project's process.

Emphasis Areas

The project team identified emphasis areas to address with strategies and countermeasures based on an analysis of the study area's historical crash types, locations, behavioral factors, and risk factors associated with fatal and serious injury crashes. Descriptions of the emphasis areas are shown in Figure 3. Additional details on the results of the crash analysis and the High-Injury Network can be found in *Technical Memorandum #3: Existing Conditions* (Reference 3). The High-Injury Network can also be viewed on an online ArcGIS server hosted by COMPASS on the following link: https://compassidaho.maps.arcgis.com/apps/dashboards/aa2067339363456a9fcec94b0d9875fd

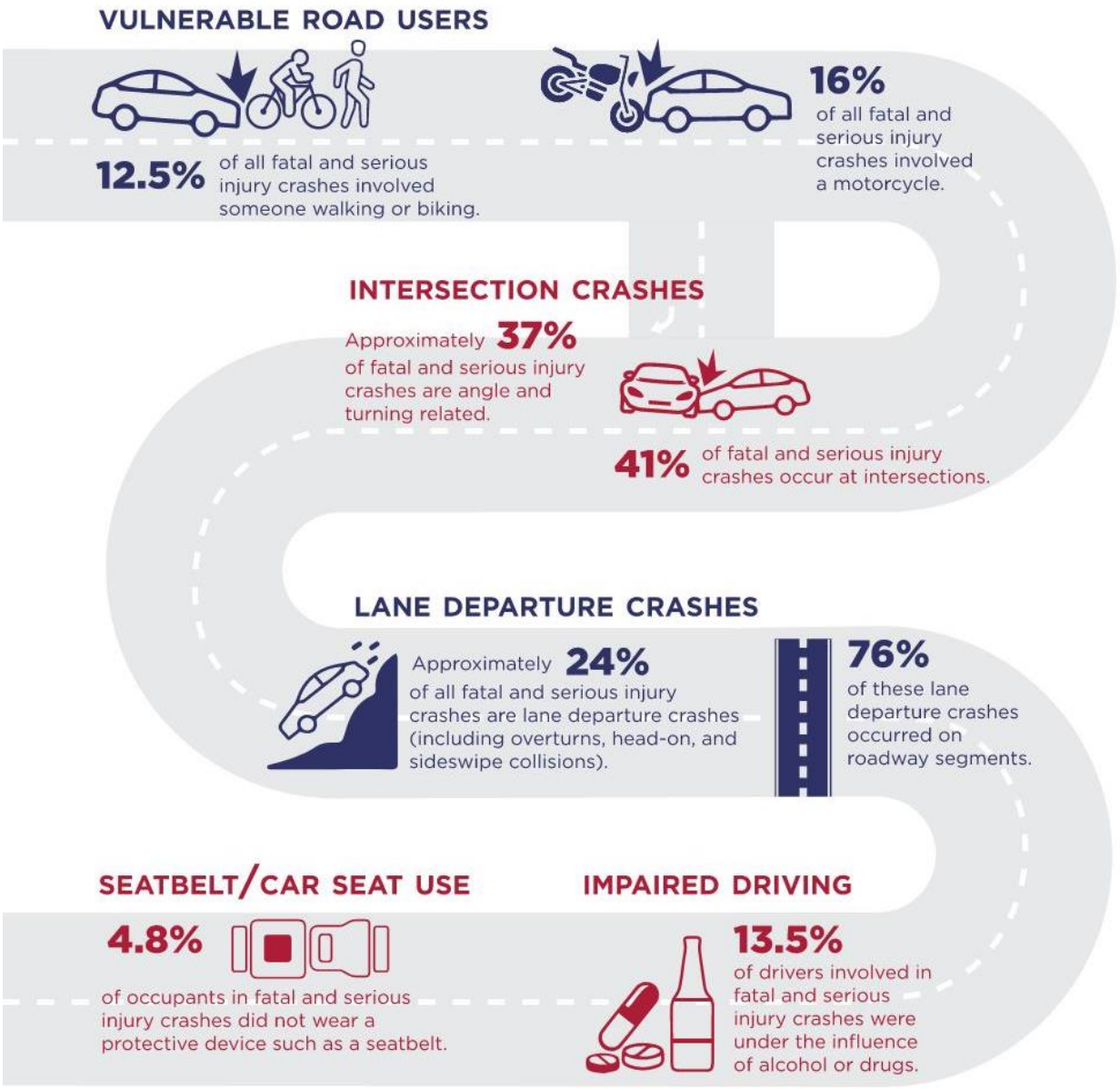


Figure 3: Emphasis Areas

Challenges and Successes of Member Agencies

COMPASS member agencies were interviewed individually to identify challenges faced and successes that each agency has had regarding transportation safety. The project team used these findings to identify jurisdiction-specific strategies in this memorandum. A summary of the successes and challenges of member agencies is illustrated in Figure 4. *Technical Memorandum #2: Existing Plans and Practices and Peer Review Summary* (Reference 4) provides detailed information and findings from the member agency interviews.

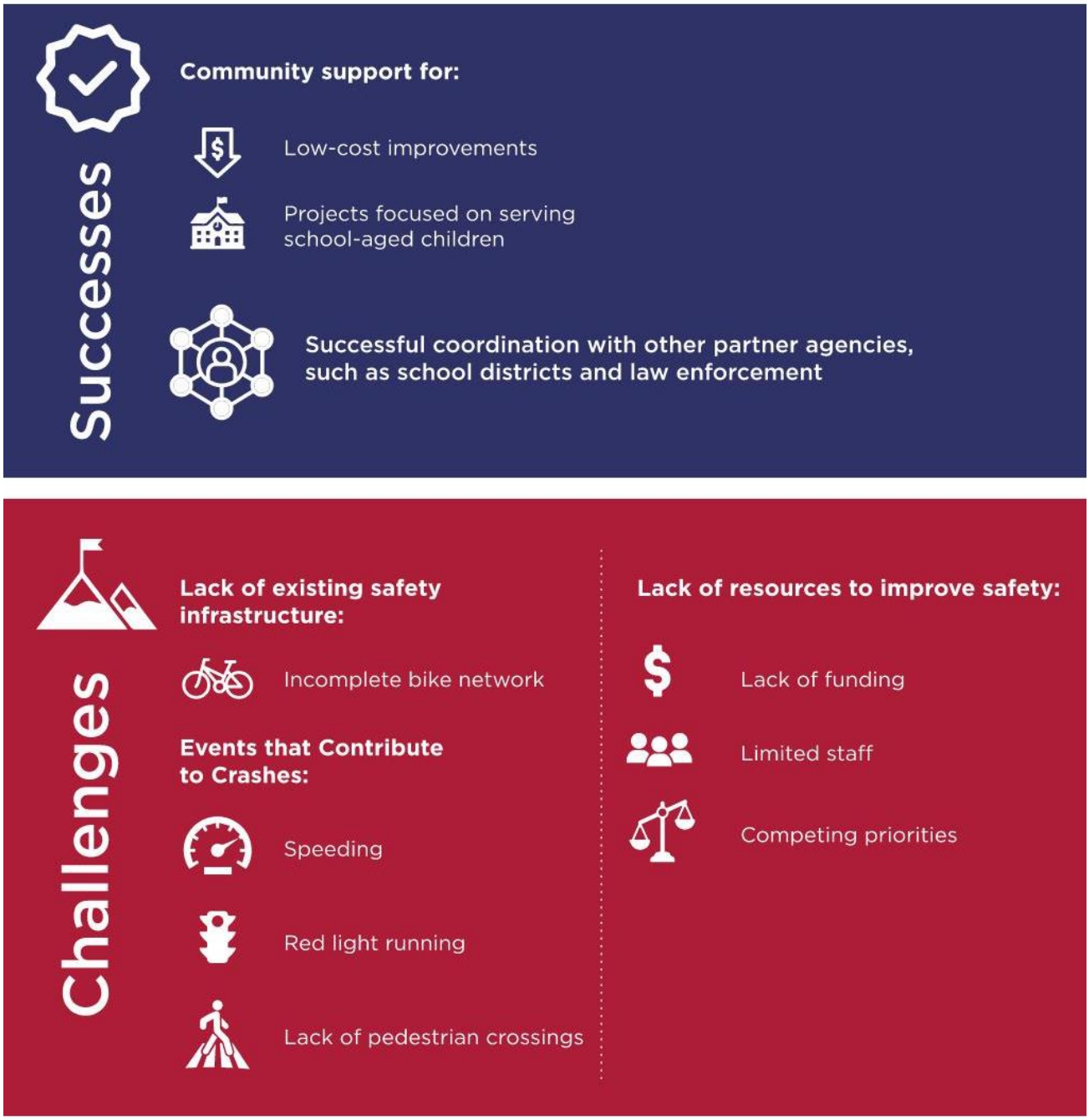
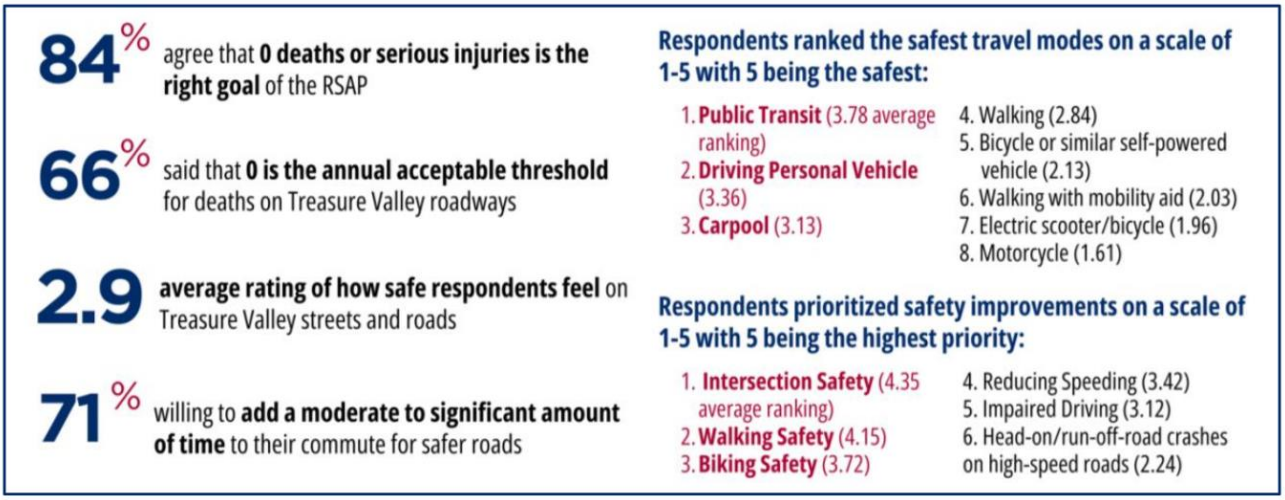


Figure 4: Member Agency Challenges and Successes

Public Outreach

To understand general public opinion and perception of transportation safety in the Treasure Valley, a transportation safety survey was conducted from March 5 to April 12, 2024 and received 423 responses. The survey asked community members how safe they feel traveling on regional streets and roads by various modes,

what safety priorities matter most to them, and what other transportation safety concerns should be considered in the RSAP. A summary of the survey results is shown in Appendix A. Key findings from the survey are shown in the graphic below.



The findings from the survey were used for support the identification and prioritization of the strategies presented in this document.

STRATEGIES TOOLBOX

The project team developed a toolbox of strategies to address the COMPASS RSAP emphasis areas. This section presents an overview of high priority strategies from the toolbox that align with the emphasis areas. Strategies in the toolbox include the Federal Highway Administration's (FHWA's) proven safety countermeasures (Reference 5) and strategies identified in FHWA's Safe System Roadway Design Hierarchy. The toolbox provides the ability to identify strategies based on the following components:

- **Emphasis Area:** What emphasis area does the strategy address?
- **Area Type:** What area type (i.e., urban or rural) and road type (i.e., local road vs. highway) is the strategy applicable to?
- **Safe System Approach Objective:** Which Safe System Approach objective does the strategy address?
- **Safe System Roadway Design Hierarchy Tier:** Which tier of the FHWA Safe System Roadway Design Hierarchy does the strategy fall into? Strategies in Tiers 1, 2, and 3 are most in alignment with Safe System principles and expected to be more effective than strategies in Tier 4 since they rely less on people making the correct decision.
- **Cost:** High-level cost estimate to implement the strategy. Low-cost strategies may be more appropriate for systemic application, while high-cost strategies may be more appropriate for capital projects. However, many high-cost strategies could be implemented on a temporary, or interim, basis using quick-build materials.
- **Priority:** Priority tiers are based on the expected effectiveness of the strategy at reducing fatal and serious injury crashes (based on information from FHWA's Proven Safety Countermeasures or Roadway

Design Hierarchy), exposure within the Treasure Valley (e.g., how widespread could deployment be?), and resources required to implement.

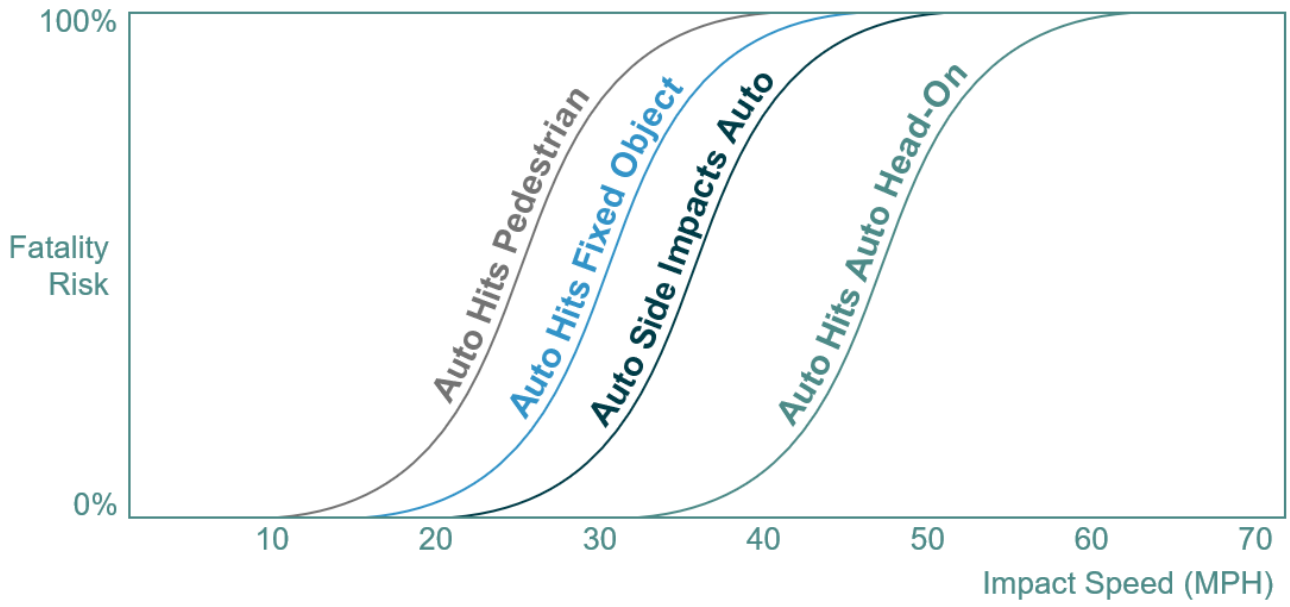
This section provides an overview of high-priority strategies by emphasis area. Some strategies address multiple emphasis areas and are referred to as cross-cutting. The complete toolbox of strategies is shown in Appendix B.

CROSS-CUTTING STRATEGIES

By their nature, certain strategies address fatal and serious injury crashes across multiple emphasis areas. Speed is directly related to crash severity for all crash types, as motor vehicles traveling at higher speeds carry more kinetic energy into a collision. Access management can reduce conflict points across all user types and locations. These cross-cutting strategies are described in this section.

Speed Management

There is a direct connection between vehicle speeds and a human's ability to survive a crash. Speed is a key variable in kinetic energy and kinetic energy is directly related to crash severity (Reference 6). This is illustrated in the graphic below, which relates the risk of fatality to the impact speed of a crash for different types of crashes (Reference 7):



Source: United States Department of Transportation, Safe System Approach

Speed management can reduce crash severity for most crash types and should be implemented through a combination of engineering, enforcement, and education techniques. This section primarily focuses on engineering solutions. Engineering solutions that change the built environment (i.e., installation of protected bike facilities or roundabouts) are typically more effective at reducing fatal and serious injury crashes than solutions that require individuals to make behavioral changes (i.e., enforcement or education efforts) (Reference 8).

Setting appropriate speed limits is the first step for effective speed management. However, roads also must be designed in a way that reinforces drivers to travel the desired speed limit. For example, it may not feel natural for drivers to drive less than 30 mph on a straight, 5-lane roadway with limited intersection control. However, drivers may feel more inclined to drive less than 30 mph if the roadway has traffic calming elements like narrow lane widths, on street parking, chicanes, roundabouts at intersections, curb extensions, and/or mid-block crossings. High-priority strategies for speed management include:

Public Outreach Findings

71% of respondents to the COMPASS RSAP survey indicated that they would accept adding a moderate to significant amount of time to their commute for safer roads.

- Road Design to Reinforce Desired Speed
- Setting Appropriate Speed Limits
- Traffic Calming Elements
    - Horizontal Deflection Elements: Chicanes, Roundabouts, or Traffic Circles
    - Vertical Deflection Elements: Speed Humps, Raised Crossings
    - Narrowing Elements: Curb Extensions, Presence of On-Street Parking or Protected Bike Facilities
- Dynamic Speed Feedback Signs

Dynamic Speed Feedback Signs: *Alerts drivers of their speed and indicates that their speeds are being monitored and enforcement may be present. Should be implemented in conjunction with other speed management strategies. Most effective when permanently installed and at locations with perceived need to slow. (e.g., school zones)*

Chicanes in Boise: *Chicanes are an alternating series of curb extensions along a roadway. They make drivers follow a curving pattern and discourage speeding. Quick-build options for chicanes may include bollards, planters, or materials with vertical separation.*

Roundabouts

Roundabouts are highly effective at reducing fatal and serious injury crashes at intersections for all roadway users. Roundabouts lower vehicle speeds on the approach to an intersection and reduce conflict points compared to other intersection control types (such as stop or signalized). Implementation of roundabouts is appropriate in

rural and urban land-use contexts, addresses the vulnerable roadway user and intersection crashes emphasis areas, and helps with speed management. Roundabouts can also enhance intersection capacity and reduce motor vehicle delay in certain cases.

While data limitations exist for assessing bicycle and pedestrian crash reduction factors at roundabouts, national roundabout design guide provided by the NCHRP's *2023 Guide for Roundabouts* and its sources provide recommendations for improving vulnerable roadway users' safety including:

- Setting crosswalks back from the entrance of a roundabout.
- Installing RRFBs and/or raised crosswalks for single-lane roundabouts, or PHBs for multi-lane roundabouts.
- Separate bicycle users onto a shared-use path, separate from the travel lanes before entering the roundabout, or merge bike lanes into the vehicular travel lanes before entering the roundabout.

Single-Lane Roundabout at Linder and Main in Kuna

Example of Mini- Roundabout in Middleton: *Mini-roundabouts can provide many of the safety and operational benefits while having a lower-cost, particularly in constrained, urban environments. Mini-roundabouts can also be implemented with quick-build materials for demonstration purposes. (Source: Google Maps)*

Access Management

Many of the roads that make up the High-Injury Network in the Treasure Valley have four to five travel lanes and a high-density of driveways or intersections. In other words, limited access management. Access management refers to the design, application, and control of entry and exit points (and as a result conflict points) along a roadway. The strategy reduces, or removes, conflict points associated with turning and angle crashes, crashes involving people walking or biking along roadways or crossings, and lane-departure crashes that result in head-on collisions with the opposing direction of traffic.

Access management is easier to implement proactively through policies that require shared access and discourage direct access onto major streets. Within the Treasure Valley, the implementation of access management policies often requires coordination between separate land-use and roadway authority agencies

(e.g., a project in the City of Boise would require coordination between the City of Boise and ACHD). Agencies should look to collaborate in the development and implementation of these policies.

On existing corridors, low-cost solutions can be implemented by restricting left-ins or left-outs through the construction of a raised median, extruded curb, or other form of vehicle delineation. Retrofits on major corridors is still possible but can be more challenging as businesses may be resistant to change and solutions may require the purchase of access rights or property, or implementing changes to parking and circulation on sites outside of the right-of-way to implement new access configurations.

Raised Medians and Channelization on Parkcenter Boulevard in Boise: *This treatment restricts left-turns from and channelized left-turns to adjacent side streets. Raised medians with larger buffer areas can provide a greater deterrent and are more visible than extruded curbs or other temporary treatments access management treatments. (Source: Google Maps)*

STRATEGIES FOR VULNERABLE ROAD USERS

Bicycle and pedestrian-related treatments seek to provide dedicated space for people walking and biking, reduce or eliminate conflict points between people walking/biking and vehicles, or raise awareness of drivers nearing potential conflict points with people walking and biking. Generally, these treatments can be categorized as walkways, bikeways, crossings, or intersection treatments.

Public Outreach Findings

Respondents to the COMPASS RSAP survey ranked walking and biking safety as the second and third highest priorities for improving safety in the Treasure Valley.

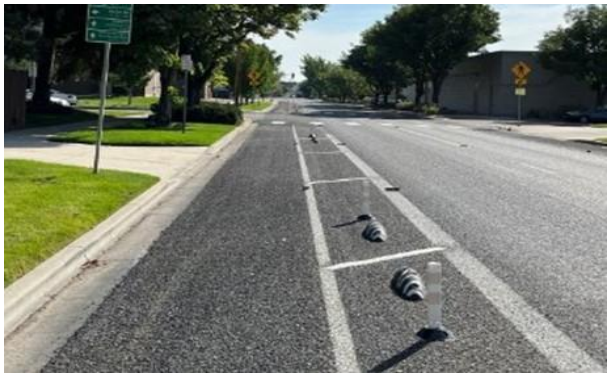
Walkways & Bikeways

A walkway includes any type of shared-use path, sidewalk, or other defined space for people walking or traveling by mobility device. Bikeways include any dedicated space for people biking and allow bicyclists to ride at a preferred speed with less interference from traffic conditions. Bike lanes or shared-use paths can also be utilized by people riding scooters. High-priority treatments in this category include:

- Sidewalks (Attached or Detached)
- Bike Lanes (Protected or Buffered)
- Raised Bike Lanes
- Shared-Use Paths

Implementation of these facilities should be prioritized in areas with a history of non-motorized crashes, on higher-speed, multi-lane roadways, in locations with attractors for people walking and biking (i.e., schools, community centers, or transit stops), and in areas with higher-proportions of transportation-disadvantaged populations. Many agencies in the Treasure Valley have already completed bicycle and pedestrian planning efforts to identify locations to implement these facilities based on the prioritization factors listed above.

Protected Bike Lane: *Vertical separation between the bike lane and travel lane provides a barrier between vehicles and people biking. This may be provided by curb, parking, or other vertical elements.*



Protected Bike Lane with Temporary Delineation: *Bollards or other vertical elements can be added to striping to provide a quick-build option for protected bike lanes.*

Shared-Use Path with Buffer Space
(Source: Google Maps)

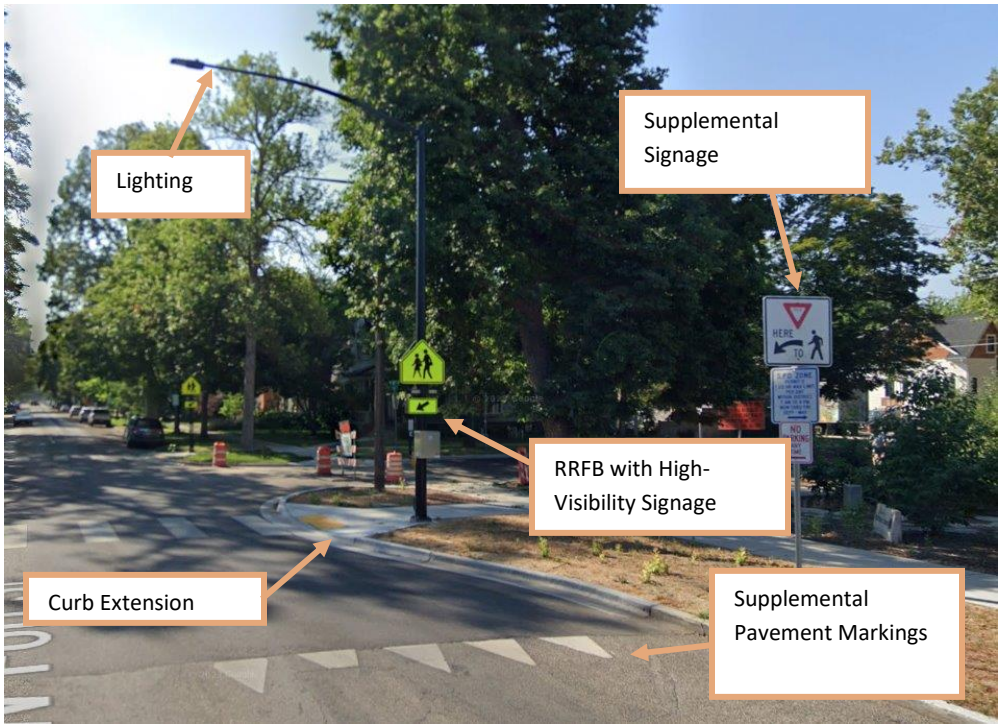
Flex Post SHUR CURB Separated Walkway: *Extruded curbs or materials may be used to provide separated walkways or pathways on an interim basis or when stormwater treatment does not allow for traditional curb and gutter.*

Unsignalized Intersections and Mid-Block Crossings

Crossing-related treatments seek to improve the visibility of people walking or biking across a roadway or at an unsignalized intersection, reduce the conflict zone between drivers and people using the crossing, and increase the awareness of drivers approaching a crossing location. High priority crossing treatments include:

- Actuated Crossings
    - Rectangular Rapid Flashing Beacon (RRFB)
    - Pedestrian Hybrid Beacon (PHB)
- Pedestrian Refuge Islands
- Crosswalk Visibility Enhancements
    - High-Visibility Crosswalks
    - Improved Lighting
    - Enhanced Signing and Pavement Markings
    - Curb Extensions/Bulb-Outs
- Raised Crosswalk

These treatments should be used in conjunction to improve visibility and awareness at crossing locations (see the picture below). Implementation should be prioritized at the crossing of major roadways on dedicated bicycle routes, near attractors for people walking and biking, and high-speed, multi-lane roadways. Agencies should also consider developing policies to identify and prioritize locations for implementation of these treatments.



Example of Crossing Treatment Elements on 2-Lane Collector Roadway: Crossing treatments may be used individually or in conjunction to improve safety for people walking or biking across roadways. *(Source: Google Maps)*

Raised Crossing – Permanent Installation vs. Quick-Build Application

Example of Raised Crossing at Boise Airport: *Raised crossings can increase awareness for drivers approaching a crossing and provide traffic calming benefits along a corridor, especially when placed at mid-block locations between roundabouts other traffic control devices. (Source: Google Maps)*

Example of Quick-Build Raised Crossing: *Temporary raised crossing constructed of rubber or similar material can be used as a quick, low-cost alternative to permanent raised crossings. (Source: Rosehill Highways)*

Signalized Intersection Treatments

Signalized intersection treatments are focused on increasing visibility for people walking and biking through an intersection, reducing vehicle speeds traveling through intersections, and increasing the likelihood of drivers yielding to people walking and biking. Treatments may include:

- Protected Intersections: Intersection configuration that provides physical barriers and separation between vehicles, bicycles, and pedestrian movements. Typically includes elements to shorten crossing distances, decrease vehicle speeds, and improve visibility of other intersection users. Generally provided on roadways with protected or buffered bike lanes.
- Bike Boxes
- Leading Pedestrian Interval (LPI)

Further intersection treatments related to signal timing and operations that provide benefit to vulnerable road users are summarized below and described in detail in later sections:

- Flashing Yellow Arrow with Time-of-Day and Pedestrian Call Restrictions
- Limiting Permissive Left-Turn Phasing
- Prohibit Right-Turn on Red

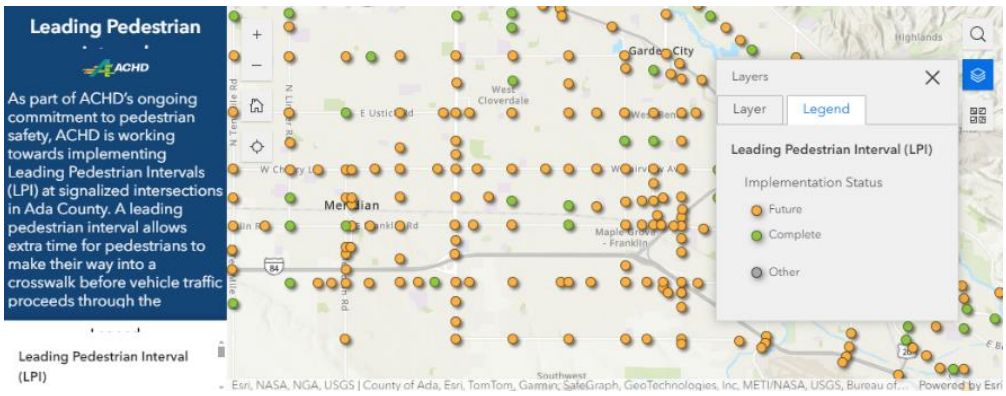
Example of Protected Intersection Elements: *Protected intersections improve the comfort and safety of people walking and biking by reducing vehicle-turning speeds, reducing the speeds of people biking, and further separating people walking and biking from turning motor vehicles. They are typically used in conjunction with protected bike lanes on one or both intersecting streets; however, certain elements (e.g., reduced turning radii) can be applied at other intersections.*

Example of Bike Box: *Bike boxes increases the visibility of bicyclists and help to prevent conflict being left and right-turning vehicles and bicyclists. They are most typically used at signalized intersections with high-amounts of right and left-turning vehicles and can be implemented at a relatively low cost.*

ACHD Leading Pedestrian Interval Implementation

A Leading Pedestrian Intervals (LPI) gives someone walking the opportunity to enter a crosswalk before conflicting left or right-turning vehicles are given a green indication in the corresponding direction. LPI's reduce fatal and serious injury crashes for people walking by increasing the visibility for people using the crossing and reducing the potential conflict between people driving and people walking. ACHD is currently working towards implementing LPI at all traffic signals in its jurisdiction. ACHD is tracking its progress on this publicly available dashboard:

https://experience.arcgis.com/experience/79ab458df39a48239a2d329125a1f8cd



ACHD LPI Implementation Map

MULTIMODAL MAIN STREET

In the Treasure Valley, there are multiple small towns (Star, Middleton, Greenleaf, Wilder, Parma, and Notus) that are bisected by a State Highway which serves as a "Main Street" for the communities. In these communities, the State Highway needs to balance competing needs and objectives. The State Highway is responsible for serving regional traffic passing through the community as well as providing direct access for community members to businesses, schools, parks, and other activity generators for people walking and biking. Treatments for these sections should focus on improving multimodal access to community members and speed management for vehicle traveling through the corridor, potential strategies include:

- Sidewalks or Shared-Use Paths
- Bike Lanes (Protected or Buffered)
- Crossing Improvements
    - RRFB or PHB
    - Pedestrian Refuge Islands
    - Visibility Enhancements
    - Improved Lighting
- Road Reconfiguration (Four-Lanes to Three-Lanes)

STRATEGIES FOR INTERSECTIONS

This section discusses strategies for reducing fatal and serious injury crashes at intersections. Strategies for intersections can generally be categorized as strategies for signalized or unsignalized intersections.

Public Outreach Findings

Respondents to the COMPASS RSAP survey indicated that improving safety specifically at intersections was the highest priority for improving safety in the Treasure Valley.

Signalized Intersection Strategies

Treatments at signalized intersections seek to improve the visibility of the intersection for approaching drivers, improve the visibility of other conflicting movements, reduce or eliminate conflicting movements, and/or reduce vehicle speeds for users navigating the intersection. Treatments can generally be categorized as signal timing adjustments, signal operations or phasing modifications, or physical changes to the intersection's configuration. A list of high priority treatments in these categories are as follows:

- Traffic Signal Timing, Operations, or Phasing Modifications
    - Flashing Yellow Arrow with Time-of-Day and Pedestrian Call Restrictions
    - Left-Turn Restrictions or Reduced Left-Turn Conflict Intersection Form (i.e., median U-turn or displaced left-turn)
    - Protected Left-Turn Phasing
    - Prohibit Right-Turn on Red
    - Coordinated Signal Timing (Lower Speeds)
- Traffic Signal Equipment
    - Backplates with Retroreflective Borders

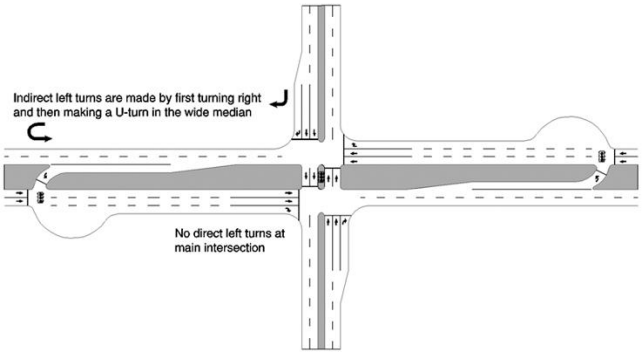
- Blank-out Signage or Turn-Lane Pedestrian Indicator: Crash modification factors are unavailable for these treatments due to lack of data-availability, but these are both treatments that seek to reinforce desired driver behavior.

- Removal of Vegetation, Parking, and Other Sight Distance Obstructions

Left-Turn Phasing Considerations

Many of the high-priority treatments are focused on limiting conflicts between left-turning vehicles and opposing through vehicles or people walking or biking across the intersection. These treatments range from lower-effort (conversion from permitted to protected phasing) to higher-effort (conversion of conventional traffic signal to a median u-turn intersection).

Protected Left-Turn Phasing: *If there is already a dedicated left-turn lane, converting left-turn signal phasing from permitted to protected can be a low-cost, effective treatment to reduce angle, turning, and non-motorized crashes at intersections. Flashing yellow arrows with time-of-day restrictions may also be implemented so that permitted left-turns are restricted during periods with high-levels of opposing vehicles traffic.*



Median U-Turn Intersection: *A Median U-Turn intersection is a form of reduced left-turn conflict intersection that moves the left-turn movement from the main intersection to a further downstream approach. Reduced left-turn conflict intersections have a higher cost to implement but can be effective at reducing turning-related crashes while maintaining or improving motor vehicle travel times. (Source: FHWA)*

Unsignalized Intersections

The High-Injury Network showed that unsignalized intersections with the highest amount of fatal and serious injury crashes were primarily in rural rather than urban settings in the Treasure Valley. In rural settings, unsignalized intersections often have lower traffic volumes, lack of turn lanes and lighting, and higher vehicle speeds. Fatal and serious injury crashes often involve high-speed turning, angle, or rear-end related crashes. There are lower-cost improvements that improve sight distance, driver awareness, and traffic control device visibility. High priority treatments for unsignalized intersections in rural settings include:

- Advanced Warning Signage
- Enhanced Approach Pavement Markings
- Retroreflective and/or Over-Sized Stop or Advanced Warning Signs
- Removal of Vegetation, Parking, and Other Sight Distance Obstructions
- Properly Painted Stop Bar
- Conversion from Two-Way Stop Control to All-Way Stop Control
- Conversion from Two-Way Stop Control to Roundabout

- Dedicated Left and Right-Turn Lanes (Most applicable on uncontrolled approach on high-speed roadways)
- Left-Turn Restrictions or Reduced Left-Turn Conflict Intersections (i.e., median U-turn or displaced left-turn)

High-Priority Countermeasures for Unsignalized Intersections

These countermeasures are typically most appropriate in rural settings and may be installed incrementally at lower cost. Examples are shown in the pictures below.

***Advanced Warning Signage on Stop-Controlled Approach**. (Source: Google Maps)*

***Advanced Warning Signage with Beacons on Through-Approach** (Source: Google Maps)*

***Stop Ahead Pavement Markings** (Source: FHWA)*

***Edge Line Markings at Intersection Approach** (Source: FHWA)*

In urban settings, strategies listed above such as removal of sight distance obstructions, conversion from two-way stop to all-way stop controlled or roundabout, and properly painted stop bars can be effective at addressing fatal and serious injury crashes at unsignalized intersections. Access management or speed management treatments can also reduce crashes at unsignalized intersections on a corridor-level. Additional treatments for non-motorized users at unsignalized intersections are listed in the *Strategies for Vulnerable Road Users* section of the memorandum.

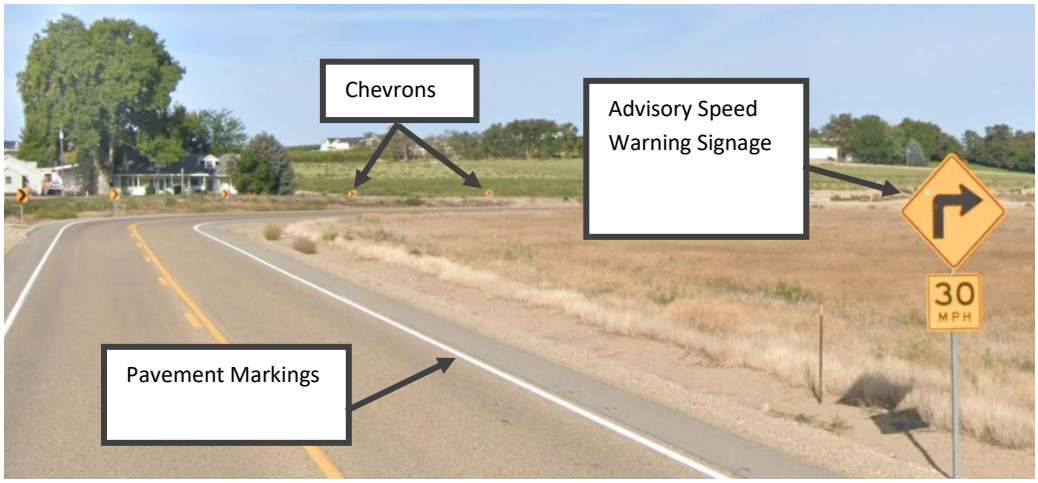
STRATEGIES FOR LANE-DEPARTURES

Lane departure crashes occur when a vehicle leaves their travel lane and collides with another vehicle or object or overturns. Strategies for lane-departures seek to improve the visibility of the roadway, provide physical barriers, and alert drivers of horizontal curves or other changes in the roadway. High-priority strategies that reduce serious injury and fatal crashes related to lane-departures include:

- Wider Edge Lines, Wider Shoulders, Enhanced Pavement Markings

- Median Buffer Area or Raised Median
- Enhanced Delineation at Horizontal Curves
- Rumble Strips (not applicable in urban areas)

In the Treasure Valley, lane departure crashes in unincorporated areas make up a larger percentage of fatal and serious injury crashes compared to incorporated areas (Reference 3). In rural areas on roadways with higher speeds, a large proportion of lane departure crashes occur at horizontal curves. Potential strategies to mitigate these crash types seek to enhance the delineation within and ahead of the horizontal curve. These strategies may include enhanced pavement marking, in-lane curve warning pavement markings, retroreflective strips, and chevron signs. These strategies may be applied separately or in combination with each other.



Example of Strategies for Enhanced Delineation at Horizontal Curves (Source: Google Maps)

SAFETY IMPROVEMENTS ON HIGH-CAPACITY ARTERIALS

Improving safety through speed management on high-capacity roads (e.g., arterials or roads designed to maintain high Level of Service targets for automobiles) may require a different set of treatments than collector or local roadways. Speed management on high-capacity arterial roads should focus on the following treatments:

- **Intersection Control**: Use of roundabouts at intersections or signal progression that encourage lower speeds.
- **Mid-Block Crossings:** Consistently spaced crossing elements (e.g., pedestrian hybrid beacon with curb extensions) that provide crossings opportunities for people walking and biking and require vehicles to stop.
- **Horizontal Deflection:** Horizontal deflection elements such as roundabouts, medians or pedestrian islands, curb extensions, or horizontal shifts in the alignment can lower driver speeds while still allowing emergency service access.

For some arterial roadways in the Treasure Valley, it may not be feasible to achieve lower speeds (less than 35 miles per hour) based on agency's desire to maintain high-vehicle capacity levels and the existing design elements of roadways (e.g., many roads were built and designed for high-speeds, and opportunities to lower speeds may

be limited based on limited right-of-way for horizontal deflection elements or roundabouts). To reduce fatal and serious crashes on these roadways, agencies should refer to Tier 1 treatments of the Safe System Roadway Design Hierarchy, which calls for treatments that remove conflicts between different users and between conflicting movements on a roadway. These treatments are highlighted throughout this document, but include the following:

- **Protected and/or Separated Bicycle and Pedestrian Facilities:** Includes shared-use paths, protected bike lane, and detached sidewalks. These treatments remove conflicts between people walking and biking and people driving along roadway segments.
- **Access Management:** Removes and consolidates right-turn and left-turn movements in areas with high access density. Raised medians can also eliminate potential lane-departure/head-on crashes.
- **Eliminating or Mitigating Left-Turn Conflicts at Intersections:** Eliminating the left-turn movement at intersections can remove the potential conflict between left-turns and on-coming traffic or bicycle/pedestrian crossings. Conversion to a restricted crossing u-turn or other reduced conflict intersection can improve safety and maintain vehicle delay on high-volume, high-capacity roadways. Converting a permitted left-turn to protected is also an effective method at improving safety, but less effective at reducing crashes than eliminating the movement (protected phasing is a Tier 3 treatment in the Safe System Roadway Design Hierarchy).

POLICIES, PROCESSES, AND OTHER STRATEGIES

There are several strategies focused on education, enforcement, agency coordination, and internal agency processes that COMPASS, its member agencies, and other partners should implement. This section highlights high priority, non-infrastructure strategies – organized by relevance to the implementation partners of the RSAP:

- Strategies that are applicable to all or most agencies
- Strategies that are applicable to COMPASS
- Strategies that are applicable to COMPASS member agencies
- Strategies that engage medical service partners
- Strategies that address motorcyclist crashes

For each set of strategies presented, each section's table identifies strategy type, SSA objective addressed, and strategy description. Among strategy types:

- **Agency coordination** engages member agencies to realize the strategy.
- **Education** strategies provide partners and community members with tools and knowledge to build a safer transportation network together.
- **Plans/Studies** update and adjust existing transportation planning documents to align with the goals, findings, and recommendations in this RSAP.
- **Agency Operations** strategies target the existing paradigms of project planning and implementation to facilitate the safety goals of COMPASS and its member agencies.

A toolbox with all non-infrastructure strategies, including medium and low priority strategies, is provided in Appendix C.

Strategies Applicable to All Agencies

The strategies in Table 1 below are implementable by all member agencies and are more effective as more agencies participate.

Table 1: High Priority Strategies Applicable to All Agencies

Strategy	Type of Strategy	Safe System Approach Objective	Description
Implement the Safe System Approach	Agency Coordination	Cross Cutting	All agencies commit to adopting the SSA objectives – ensuring projects implemented by member agencies align with the proven, national best practice of reducing fatal and serious injuries. The strategies outlined in this document provide a roadmap for meeting SSA objectives.
Continue the Safety Working Group	Agency Coordination	Cross Cutting	Continued communication and collaboration among member agencies ensure challenges are overcome, successes are identified, and goals and resources continue to be shared across agency boundaries. This could be accomplished through regularly scheduled meetings and information-sharing (e.g., regular email updates highlighting safety-related news in the Treasure Valley).
Public Health Stakeholder Engagement	Agency Coordination	Safer People	Create opportunities to engage with community health partners when planning and implementing transportation safety programs. This can help agencies improve post-crash care or identify and address behavioral factors associated with fatal and serious injury crashes.
High-Visibility Safety Education Campaigns	Education	Safer People	Conduct education campaigns to inform community members about necessary changes and updates to transportation system improvements – emphasizing high visibility of these campaigns is key to engaging and informing more of the community. An example education campaign may highlight the safety benefits provided by speed management.

COMPASS Strategies

Table 2 summarizes the recommended high priority strategies for COMPASS to implement.

Table 2 COMPASS High Priority Strategies

Strategy	Type of Strategy	Safe System Approach Objective	Description
Provide Grant Support to Member Agencies	Agency Coordination	Cross Cutting	COMPASS can assist member agencies in identifying projects that can be funded by grants, finding grant funding opportunities for already identified projects, and provide support for grant applications.
Crash Analysis Support	Agency Coordination	Cross Cutting	COMPASS can provide technical experience to guide agency staff towards solutions by collecting, analyzing, and making recommendations from crash data and other relevant data sets.
Incorporate Vision, Goals, Performance Measures, and Targets into the Next CIM Update	Plan/Study	Cross Cutting	Incorporate the vision, goals, performance measures, and targets recommended in this RSAP in COMPASS' next Communities in Motion Regional LRTP update.
Update Transportation Improvement Plan (TIP) & Communities in Motion (CIM) Prioritization to Reflect RSAP and Prioritize Safety	Plan/Study	Safer Roads	Incorporate safety as a primary facet of the transportation project prioritization used to program the Transportation Improvement Plan and Communities in Motion plan.
Update COMPASS' Complete Network Policy to Align with RSAP Outcomes	Agency Coordination	Safer Roads	Review COMPASS' Complete Network Policy to ensure alignment with the findings and priorities of the RSAP.
Create a Publicly Available Tracking Dashboard	Agency Coordination	Cross Cutting	Provide a publicly accessible dashboard that tracks the progress of safety improvements as a transparent means of reporting investment results. Dashboards can also be used to supplement the annual report on safety performance to meet SS4A program requirements.
Create an RSAP Update Checklist	Agency Coordination	Cross Cutting	Proactively create an evaluation checklist encompassing all facets of the RSAP – ensuring the recommended strategies stay relevant to present challenges. This strategy ensures the RSAP acts as a living document, adapting the strategies and recommendations as the Treasure Valley grows.

Strategy	Type of Strategy	Safe System Approach Objective	Description
Regularly Assess Implementation Successes and Challenges	Agency Coordination	Cross Cutting	Create a routine critical evaluation of implementation strategies and adapt strategies to community specific success factors.
Best Practices in Safety Analysis, Planning, Engineering Training	Education	Safer People	Invest in the training of member agency staff on transportation safety best practices through workshops and lectures.
Create Safe System Assessment Framework	Agency Coordination	Safer Roads	Create a Safet System Assessment Framework, which member agencies can use to assess how roadway designs align with SSA objectives.
Road Safety Audits	Plan/Study	Safer Roads	Conduct routine road safety audits of existing transportation facilities. These audits capture dynamic impressions of site safety deficiencies that may not be observable from crash data.

Member Agency Strategies

The strategies in Table 3 below can implemented by the individual member agencies of COMPASS to improve transportation safety across the Treasure Valley.

Emergency Medical Services Strategies

Engagement and coordination with emergency medical service partners is critical to meet the SSA objective of post-crash care. The ability to directly address this objective may be outside the purview of member agency staff. A high priority post-crash care strategy is engaging EMS partners to identify opportunities to improve crash response times. Based on conversations with representatives from the Boise Fire Department and Ada County Paramedics, the following strategies were also identified to improve crash response times and ultimately improve post-crash care:

- Improvements to the Computer-Aided Dispatch (CAD) process and software. Could include better coordination and data-sharing on road construction activities and quicker incorporation of road construction activities into CAD. EMS representatives indicated that there can be delays when incorporating road construction projects and associated road closures into CAD software.
- Public education campaigns focused on expectations for drivers when EMS is approaching or responding. Could include improved incorporation of these elements into Idaho Driver's License Test.
- Ensuring that EMS is considered in work zone planning. EMS representatives indicated that work zones can create median barriers on large highways sometimes requiring EMS to send redundant resources in multiple directions.
- Continue utilizing and implementing route preemption via GPS on traffic signals. Includes upgrades to signal controllers so that they are compatible with signal preemption systems (e.g., Smart Opticom).

- Coordinate with hospitals in the Treasure Valley to obtain post-crash care outcome and patient discharge data so that it can be linked to crash data and used as a performance measure. EMS representatives indicated that there should be conversations with the hospitals to discuss why the data is important and how it would be used by EMS.
- Evaluate usage of rail crossing sensors which could provide real-time information on rail crossing status and provide EMS responders with updating routing information for improved response times.

Collaboration with emergency medical service partners and other health care and public health providers can also build momentum and partnership with safety education campaigns for the SSA objective of safer people.

Motorcyclist Strategies

Public Outreach Findings

Respondents to the COMPASS RSAP survey ranked motorcycle as the travel mode that feels the least safe in the Treasure Valley.

Motorcycle, moped, and scooter-related crashes comprise 16.0% of all fatal and serious injury crashes within the COMPASS jurisdiction (Reference 3). As vulnerable road users, specific strategies aimed at reducing fatal and severe injury crashes involving motorcycles are critical to achieving the vision of zero roadway deaths in the Treasure Valley. Engagement with partner agencies in rider education is a potential means of reducing crash risk. One such avenue of motorcycle rider education is a local program, *STAR: Skills Training Advantage for Riders (*Reference 8). Per Idaho *STAR*:

> *"…a review of all 10,121 motorcycle crashes statewide from 1996-2014 indicated that STAR training is associated with a 79% reduced crash risk and an 89% reduction in the risk of a fatal crash"*

Encouraging community members who ride motorcycles to take and pass Idaho STAR training via a high-visibility media campaign is a recommended strategy directed at reducing fatal and severe injury crashes related to motorcyclists.

Other education campaigns (such as Look Twice for Motorcycles) can also be implemented through partnership across agencies to increase driver awareness or safer strategies related to these vulnerable road users.

Table 3: High Priority Strategies Applicable to COMPASS Member Agencies

Strategy	Type of Strategy	Safe System Approach Objective	Description
Incorporate Safety into Maintenance Projects	Agency Operations	Safer Roads	Use pavement maintenance projects as opportunities to improve the safety performance of facilities for all modes of transportation (e.g. restriping a road to provide bike lanes or a center turn lane).
Incorporate Safety into Capital Projects Development Processes	Agency Operations	Safer Roads	Require that projects identified in capital project development processes are programmed and planned to meet safety goals, alongside those other elements of the transportation system. A Safe System Assessment framework is a method that can accomplish this strategy.
Create Local Task Forces to Review Fatal and Serious Injury Crashes	Agency Coordination	Cross Cutting	Establish local task forces that review fatal and serious injury crash data on a regular basis to identify opportunities to prevent future occurrences.
Establish Dedicated Funding for Safety Projects	Agency Coordination	Safer Roads	Allocate incoming funding to safety-focused efforts, facilitating more rapid implementation of the strategy recommendations and projects presented in this plan – especially where communities only have funding ear-marked for maintenance and operations improvements.
Clearly Define Safety as a Priority in Project Development and Prioritization	Agency Operations	Safer Roads	Set a clear prioritization scale in the project development and prioritization phases that puts safety first.
Coordinate Across Jurisdictions on Smaller Projects to Improve Funding Opportunities and Contractor Bidding	Agency Coordination	Safer Roads	Bundle similar, small projects/strategies across multiple jurisdictions into a larger systemic project. This larger overall project cost can attract a wider range of contractor bids.
Road Safety Audits	Plan/Study	Safer Roads	Conduct routine road safety audits of existing transportation facilities. These audits capture dynamic impressions of site safety deficiencies that may not be observable from crash data.
Allow Developments to Implement Safety Improvements In lieu of Capacity Improvements	Agency Coordination	Safer Roads	Agencies can require development to invest in improving / maintaining sidewalk connectivity or bicycle facility creation in lieu of vehicular improvements – prioritizing infrastructure upgrades that are focused on improving safety instead of operations.

Enforcement Strategies

Enforcement strategies can improve roadway safety by targeting specific behaviors of roadway users, such as speeding or red light running. Compliance to speed limits and other traffic signals should be self-enforcing through the design and context of the roadway system, but enforcement strategies can be deployed in conjunction with other safety countermeasures to encourage compliance (Reference 10). The effectiveness of enforcement in ensuring speed limit compliance is dependent on a sustained enforcement campaign and can be difficult and often infeasible to deploy over a large area based on law enforcement resources. Law enforcement partners provided also feedback that if the design of the transportation system does not self-enforce safe speeds, then speeds revert to previous levels once the enforcement campaign is over. Agencies should make efforts to prioritize locations for enforcement based on available data related to speeding, red-light running, or other areas with higher rates of non-compliance.

Automated speed enforcement cameras and automated red-light running cameras are effective enforcement strategies that do not require the same level of resources as traditional enforcement efforts. Red light running cameras and speed enforcement cameras are currently not permitted in Idaho, and legislation would need to be passed before they could be implemented. If the implementation of these treatments is desired, COMPASS, COMPASS member agencies, and local law enforcement agencies should collaborate to support legislation to allow red light running camera and speed camera enforcement.

LOCATION AND JURISDICTION-SPECIFIC STRATEGIES

This section presents potential location-specific and systemic strategies for each COMPASS member agency. These strategies are defined below:

- **Location-Specific Strategies:** Improve safety at locations where high amounts of fatal and serious injury crashes have occurred. Strategies tend to be higher cost and effort but are highly effective at reducing fatalities and serious injuries. Some of these locations may have options for the implementation of lower-cost, interim strategies until a comprehensive strategy or project can be implemented.
- **Systemic Strategies:** These are strategies that proactively improve safety at locations which may not have high amounts of fatal and serious crashes, but share similar characteristics (i.e., number of lanes on roadway, intersection control-type) with locations that do have high amounts of fatal and serious crashes. These strategies tend to be lower effort and are most effective if applied systemically and proactively at multiple, similar locations across a jurisdiction or jurisdictions.

This section describes the initial screening process, presents a list of potential locations for location-specific projects, and identifies potential strategies (including location-specific and systemic) for each COMPASS member agency.

LOCATION-SPECIFIC STRATEGIES

The project team conducted an initial screening of the High-Injury Network to identify segments and intersections with the highest number of fatal and serious injury crashes within the study area. A separate review was also conducted for corridors and intersections with the highest amount of non-motorized fatal and serious injury crashes. These locations are shown in Figure 5. More information about these locations is provided in Appendix D.

After the initial screening of high-crash locations, 10 priority locations were identified based on the extent of fatal and serious injury crashes, the potential for improvement through the implementation of strategies (e.g., is there a proven safety countermeasure that addresses crashes at this location that has not been implemented yet?), the known-priorities of COMPASS member agencies, and input from the Safety Working Group. These locations, along with potential strategies to reduce fatal and serious injury crashes, are identified in Table 4.

Table 4 Location-Specific Strategies - Top 10 Locations

Location	Jurisdiction	KA Crashes	Potential Strategies
Farmway Road / Ustick Road Intersection	HD4	7	Roundabout
Northside Boulevard (6th Street to 2nd Street)	Nampa	12	Signalized Intersection Improvements, Improved Bike/Ped Facilities, Speed Management
SH-45 (Roosevelt Ave to Greenhurst Road)	Nampa / ITD	14	Signalized Intersection Improvements, Improved Bike/Ped Facilities, Speed Management, Access Management
Garrity Boulevard (I-84 to 11th Avenue	Nampa / ITD	21	Access Management, Speed Management, Signalized Intersection Improvements, Improved Bike/Ped Facilities
Idaho Center Boulevard (I-84 to Cherry Lane)	Nampa	13	Access Management, Speed Management, Improvements to Idaho Center Boulevard / Franklin Road intersection
Southside Boulevard / Lewis Lane Intersection	Canyon County / NHD	6	Roundabout, Interim Low-Cost Countermeasures for Stop-Controlled Intersections
Meridian Road / Amity Road Intersection	Meridian / ACHD / ITD	6	Signalized Intersection Improvements, Left-Turn Phasing
Fairview Avenue (Locust Grove Road to Curtis Road)	Boise / Meridian / ACHD	44	Access Management, Signalized Intersection Improvements, Improved Bike/Ped Facilities
US 20-26 Couplet (Front Street and Myrtle Street) from 13th Street to Broadway Avenue	Boise / ACHD / ITD	22	Dedicated Bike Facilities, Intersection Safety Improvements, Speed Management, Bike/Ped Crossings
Pleasant Valley Road / Kuna Mora Road Intersection	Ada County / ACHD	6	Roundabout, Interim Low-Cost Countermeasures for Stop-Controlled Intersections, All-Way Stop

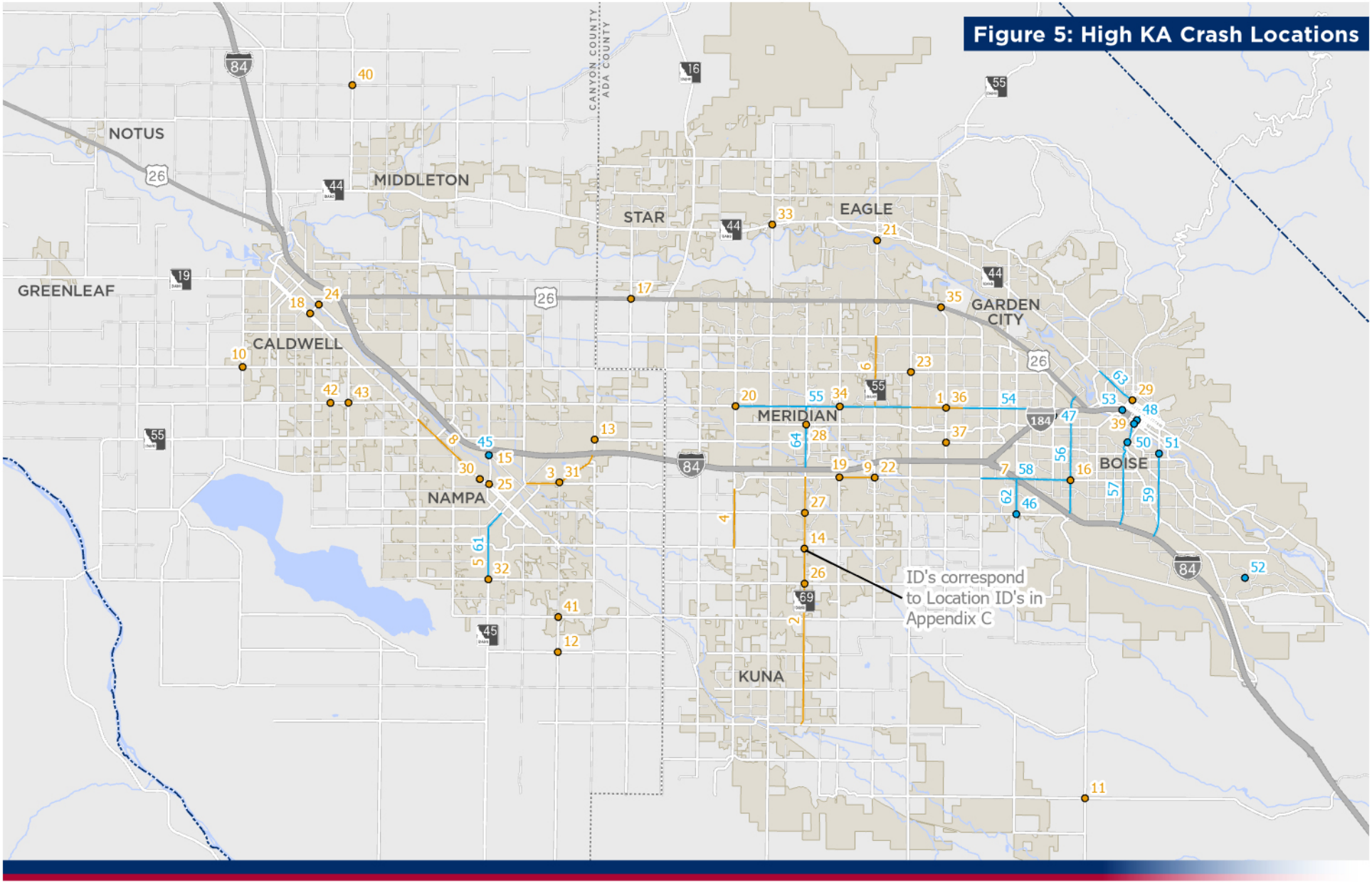


Figure 5: High KA Crash Locations
NOTUS
MIDDLETON
STAR
EAGLE
GREENLEAF
CALDWELL
GARDEN CITY
MERIDIAN
BOISE
NAMPA
KUNA
CANYON COUNTY
ADA COUNTY
ID's correspond to Location ID's in Appendix C
High KA Crash Locations
Segments
Segments (Non-Motorized Crashes)
Intersections
Intersections (Non-Motorized Crashes)
County Boundary
COMPASS Boundary
City Boundary
Includes crash data from 2018-2022
COMPASS
Regional Safety Action Plan
0
5 Miles
Data Sources: Ada County, Canyon County, COMPASS

JURISDICTION-SPECIFIC STRATEGIES

Location-specific and systemic strategies to reduce fatal and serious injury crashes were identified for each COMPASS member agency. These strategies were identified based on:

- The location-specific screening of areas with historical crash activity.
- Areas identified in the HIN with high risk factors.
- The priorities of each member agency based on discussion at the Safety Working Group meetings, member agency interviews, and member agency's guiding documents, processes, and policies.

These strategies are shown in Appendix D.

Priority levels are also identified for each jurisdiction-strategy based on the following criteria:

- **Effectiveness:** What is the strategy's potential effectiveness for reducing fatal and severe injury crashes? A higher-priority was assigned to strategies with proven countermeasures, that address the COMPASS RSAP emphasis areas, and/or are implemented in locations with higher scores on the High-Injury Network.
- **Cost:** What is the approximate cost to implement the strategy? Strategies that could be implemented at lower costs were assigned a higher priority. Planning level cost ranges for each strategy are presented in the Strategy Toolbox in Appendix A.
- **Agency Support:** Does the strategy align with each COMPASS member agency's priorities? Strategies that aligned with member agency's priorities and likely to receive community and agency support were assigned a higher priority.

One strategy per COMPASS member agency is planned for further development in the next phase of this project.

BEFORE-AFTER EVALUATION GUIDANCE

Research has proven the effectiveness of many of the treatments recommended in this memorandum. However, there may be instances where COMPASS or its member agencies want to review the effectiveness of a treatment or set of treatments. Potential situations where COMPASS or its member agencies should consider performing a before-after study include:

1. To evaluate the effectiveness of a treatment for which a crash modification factor (CMF) has not been established.
2. Should COMPASS' safety monitoring efforts indicate progress towards its safety targets is not occurring, an evaluation of the treatments can determine which are, or are not, having the anticipated effect.
3. To build confidence among staff, elected officials, or the public with regards to the local efficacy of a treatment.

TYPES OF BEFORE-AFTER EVALUATIONS

Before-after studies use crash data pre- and post-treatment installation to determine the change in site safety performance. Before-after evaluations are made more reliable by:

1. Using large sample sizes (comprised of multiple evaluation sites)
    a. Location-specific projects can be served by analyzing a single site, while systemic treatments are better evaluated over many sites.
2. Lengthening the study period to capture the representative mean crash rate of the site.
    a. This is only possible if other significant changes do not occur in the before or after periods, including significant changes in traffic volumes.
3. Adjusting for changes in traffic volume that would otherwise misrepresent the typical incidence of crashes.

Evaluations are divided between two common methods: simple (or naïve), and the Empirical Bayes method. The simple method compares the crash value before treatment to the value after treatment, attributing all changes in safety performance to the treatment evaluated. This assumes that the safety performance of the site is purely the product of the treatment used and can produce inaccurate crash modification factor values. Alternatively, the Empirical Bayes method uses data related to crashes, traffic volumes, and geometric/operational characteristics before and after treatment to isolate the effect of the treatment more accurately. The Empirical Bayes method ultimately compares the crash frequency after treatment to the expected crash frequency in the same future condition without treatment.

RECOMMENDATIONS

When a before-after study is desired, COMPASS or its member agencies should consider performing the most statistically rigorous study possible. Given the size of the Treasure Valley, there may not be sufficient sites to perform an EB-based before-after study in some cases. When this occurs, grouping similar sites with the same treatment can provide a larger sample size to mitigate the effects of traffic volumes and regression to the mean bias of the simple before-after method. While the simple method is not as rigorous as the Empirical Bayes, a greater level of confidence can be attained by the results by applying the metrics outlined in *Observational Before-After Studies in Road Safety* (Reference 10).

Where sites have no crash history, the effect of the treatment is small, or the agency would like an expeditious before-after study conducted on a quick build treatment, it is recommended that video analytics be considered. Video analytics track individual users travelling through an intersection – as shown in Figure 6 - which provides information on the user (mode type, speed, movement type, signal compliance, and interactions with other intersection users). This data provides insight into the factors that contribute to crash rates which are often overlooked in both traditional crash data and field observations. It also provides a larger sample size in less time than a traditional crash-based study.

Figure 6: Example of Video Analytics

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APPENDIX A: PUBLIC OUTREACH SUMMARY

REGIONAL SAFETY ACTION PLAN SURVEY SUMMARY

May 23, 2024 Project #: 29061.0

To: Hunter Mulhall and Austin Miller, COMPASS

From: Doug Self and Natalie Haskell, Atlas Strategic Communications

CC: Project Management Team

RE: Regional Safety Action Plan Spring Survey Key Findings and Analysis

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Understanding public perception of transportation safety in the Treasure Valley is integral to the success of the COMPASS Regional Safety Action Plan (RSAP) and ensuring its strategies meet the needs of travelers in the region. To gauge opinion on the safety of the region's streets and roads, the RSAP Public and Stakeholder Involvement team conducted a transportation safety survey across Southwest Idaho from March 5 to April 12.

The survey asked community members how safe they feel traveling on regional streets and roads by various modes, what safety priorities matter most to them and other transportation safety concerns to consider in the RSAP. In total, 423 people responded to the survey from nearly every zip code in the Treasure Valley. The findings gleaned from the survey responses are explored further in the following summary, diving into survey highlights and key themes to integrate into the developing RSAP.

PERCEIVED TRANSPORTATION SAFETY IN THE TREASURE VALLEY

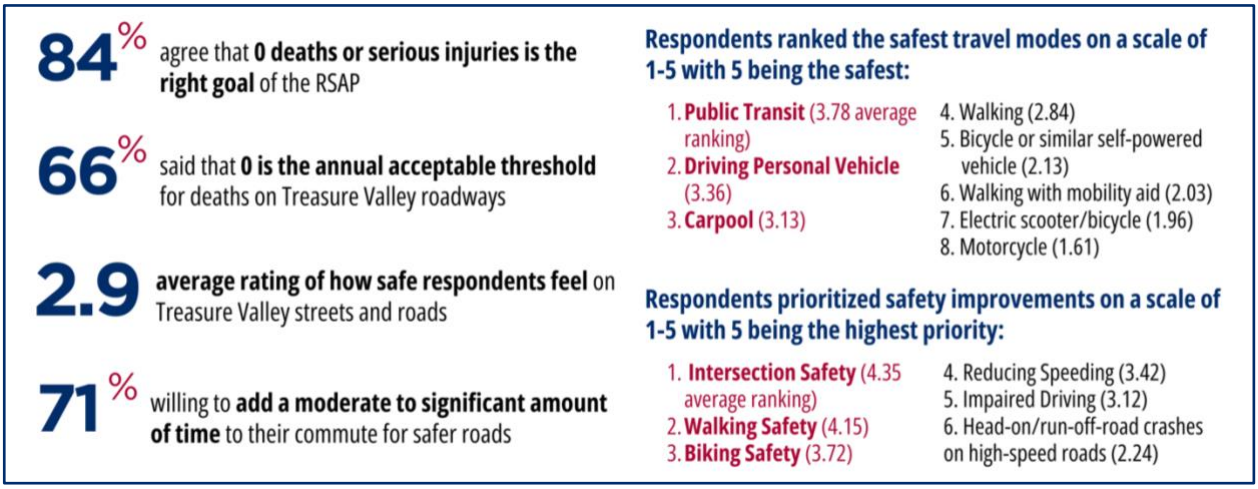
The following section highlights key findings of the survey and provides further analysis of the qualitative results to help inform the RSAP strategies.

KEY FINDINGS

The survey findings indicate broad support for the goal and purpose of the RSAP while underscoring the urgent need to improve transportation safety in the Treasure Valley. Roughly 50 percent of survey respondents reside in Boise and community members ages 25 to 54 comprise more than 50 percent of all respondents.

The vast majority agree that zero deaths or serious injuries is both the correct goal for the RSAP and the appropriate annual acceptable threshold on roadways in Ada and Canyon Counties. Most respondents support adding some amount of time to their regular commutes for safety enhancements. On average, respondents provided a 2.9 rating (1-5 rating, 1 = not safe, 5 = very safe) when asked how safe they feel on roadways and shared that they feel safest traveling via public transit, driving their personal vehicle

and carpooling. Intersection safety, walking safety and biking safety were identified as the top three priorities for the RSAP, respectively.



DIVING DEEPER

The survey asked multiple open-ended questions and provided opportunities for additional commentary to gain a qualitative understanding of safety priorities and concerns that community members share in Southwest Idaho. The consensus demonstrates a clear recognition that there is both a significant desire and critical need to improve transportation safety in the Treasure Valley. However, safety priorities vary as some respondents place greater emphasis on the need for pedestrian and cyclist-friendly roadways while others focus on vehicle safety and driver behavior, with many falling somewhere in-between.

SAFETY CONCERNS

Additional safety concerns were raised in the survey responses – from the need for improved infrastructure planning to better accommodate transportation needs and regional growth to enhancing school zone safety and mitigating the impact of active construction projects. Several respondents specifically identified skateboards as a write-in mode of transportation where safety lacks significantly, and others noted traveling along the Greenbelt or walking with their children as areas of concern. Ada County residents expressed feeling safer traveling by personal vehicle, walking, and biking than Canyon County residents.

Many respondents emphasized that pedestrian and cyclist safety is essential, namely calling for additional sidewalks and bike lanes, better maintenance of existing bike lanes and educating drivers about the cyclist rules of the road. General maintenance of roadways and shoulders (e.g., regular cleaning/sweeping, fixing potholes, striping and effective snow removal) was also flagged as a key strategy to improving safety for cyclists and drivers alike. Driver education came up repeatedly as an integral element to transportation safety in the valley, specifically educating drivers about rules of the road for bicyclists and how to navigate roundabouts and four-way stop signs.

Respondents also frequently commented on intersection safety, specifically sharing instances of drivers frequently running red lights or not treading cautiously on yellow lights. Speeding and speed limit enforcement were often raised as concerns that must be addressed to effectively improve safety on regional streets and roads. Stricter enforcement of traffic laws in general and considering new policies to mitigate safety issues could also be critical to addressing poor driver behavior and enhancing overall transportation safety.

A few residents shared that school zone safety and accountability of contracted school (or youth camp/activities) bus services need to be top of mind when considering children's safety in transportation as well. Accessibility and ADA compliance in transportation infrastructure and an enhanced public transit system in the region are also crucial strategies respondents raised in their commentary. Construction impacts, access management, and visibility obstructions (e.g., overgrown vegetation and street parking) also require attention.

When asked about specific safety concerns to share with the project team, respondents noted the following roads and/or intersections as routinely challenging locations:

- Amity Road approaching Federal Way in Southeast Boise (speeding)
- 15th & Hill Road intersection (e-bikes and scooters obstructing roadways and sidewalks)
- Bergeson Avenue & Columbia Village (striping)
- Floating Feather between Horseshoe Bend and Eagle Road (bike lane maintenance)
- Glenwood Bridge to Riverside Drive (pedestrian safety)
- SH-44 & Fisher Parkway into Eagle Island State Park (pedestrian/cyclist crossing)
- Federal Way approaching Peace Valley Charter School (school zone safety/speeding)
- Federal Way & Victory Road (railroad crossing)
- Collister Road from Catalpa to State Street (speeding)
- Victory Road Southbound (pedestrian access)
- WB I-84 on ramp at Gowan
- 15th & State Street (congestion)
- Visibility impediments at stop signs along Amity Road and Victory Road
- Kuna Road & SH-69 (intersection safety / lighting)
- Designated right-hand turn lanes on E Amity Road at Meridian Road and S Eagle Rd at Victory Road
- Greenhurst Road at East Valley Middle School (pedestrian access)
- Eagle Road (speeding)
- Bergeson & Gekeler (water accumulation)
- Warm Springs to the foothills (speeding)
- Highway 20/26 from Middleton Road to I-84 (ongoing construction)
- Fairview Avenue / Franklin Road / Orchard Street / Overland Road / Chinden / Broadway / State Street (pedestrian access / sidewalk gaps)
- 12th Avenue at Nampa High School (pedestrian access)
- Caldwell Blvd. (congestion)
- Ustick & Indiana (bike access)

OTHER SAFETY PRIORITIES

In addition to the transportation priorities named in the survey, respondents highlighted a diverse array of other priorities that encompass both behavioral and infrastructure issues and reflect much of the safety concerns raised above.

Key issues include combating inattentive or distracted driving and addressing aggressive driving behaviors, ensuring safer school zones and child transportation, mitigating the impact of active construction projects, and coping with insufficient infrastructure. Roadway maintenance was often identified as a critical area for improvement – spanning from basic upkeep like street cleaning and pothole repair to ensuring proper signage and bike lane maintenance. Implementing a broader public transit system, thoughtful access management and promoting driver education opportunities were also regularly cited as essential strategies to safety. Strengthening enforcement and traffic laws, including cracking down on speeding, and enhancing accessibility rounded out the list of priorities respondents shared, highlighting the multifaceted nature of transportation safety challenges in the Treasure Valley.

COMMUTER TRAVEL

In discussing safer commutes, respondents who commute regularly acknowledged that safety is a critical priority and raised that improving transportation safety could reduce travel times and help ease commuter traffic. For example, adding a strategy to the RSAP like carpool lanes on the interstate could more efficiently move traffic and shorten commute time. When looking at the survey findings by counties, both Ada County and Canyon County residents expressed willingness to add a moderate to significant amount of time to their commutes for safety. Many retirees and remote workers commented on the question to affirm safety as a priority – both on thoroughfares and in residential communities – despite not regularly traveling during those high-traffic hours.

CONCLUSION

Despite varying opinions on where resources should focus, there is a clear understanding from survey respondents that transportation safety needs to be improved in the Treasure Valley. Throughout the survey, respondents demonstrated that regional transportation safety concerns are only worsening and that efforts need to be implemented now to prevent further tragedies on our streets and roads. The survey findings indicate wide support for the RSAP's goal and many of the strategies included in initial plan development. The findings also support an integrated community approach that allows for local municipalities and agencies to collaborate in identifying and executing the strategies that best work for their residents.

APPENDIX B: SYSTEMIC STRATEGIES TOOLBOX

					Emphasis Area					Area Type										
#	Strategy	Category	Cost ($, $$, $$$)	Priority	Vulnerable Road Users	Intersection Crashes	Lane Departure Crashes	Seatbelt Use	Impaired Driving	Urban Local	Urban Collector	Urban Two-Lane Arterial	Urban Multi-Lane Arterial	Rural Local	Rural Collector	Rural Highway / Arterial	Interstate	SSA Objective	Safe System Roadway Design Hierarchy Tier	More Information	Crash Modification Factor (if applicable)[1]	Estimated Reduction in Crashes[2]	Quick Build Option Available?
1	Bicycle Lanes (including Protected and Raised)	Bike	$$	High	X						X	X	X		X	X		Safer Roads	Tier 1	https://highways.dot.gov/safety/proven-saf	0.43 - 0.73	30% - 50%	Yes. Paint and vertical delineation (flex posts, concrete, rubber).
2	Bicycle Intersection Treatments (e.g., Bicycle boxes, Green Pavement Markings)	Bike	$	High	X	X					X	X	X		X	X		Safer Roads	Tier 4	https://highways.dot.gov/sites/fhwa.dot.go	NA	39%	Yes. Impovements are largely striping or flex post.
3	Protected Intersection	Bike	$$	High	X	X					X	X	X					Safer Roads	Tier 1	https://highways.dot.gov/sites/fhwa.dot.go	NA	26% - 56%	No. Most cases will require reconfiguration and drainage configuration.
4	Crosswalk Visibility Enhancements	Crossing	$	High	X	X					X	X	X	X	X	X		Safer Roads	Tier 4	https://highways.dot.gov/safety/proven-saf	x	x	Yes. Signage and stirping.
5	Medians and Pedestrian Refuge Islands	Crossing	$$	High	X		X				X	X	X		X	X		Safer Roads	Tier 1, Tier 2	https://highways.dot.gov/safety/proven-saf	0.54	46% - 56%	Partial. Most cases will require reconfiguration. Interim treatment may be provided via vertical delineation and striping.
6	Pedestrian Hybrid Beacons	Crossing	$$	High	X						X	X	X		X	X		Safer Roads	Tier 3	https://highways.dot.gov/safety/proven-saf	0.55 - 0.88	15%-55%	No.
7	Rectangular Rapid Flashing Beacons	Crossing	$$	High	X						X	X	X		X	X		Safer Roads	Tier 3	https://highways.dot.gov/safety/proven-saf	0.3	47%	No. Though may be implemented at lower cost than PHB.
8	Raised Crosswalks	Crossing	$$	High	X						X	X			X	X		Safer Speeds	Tier 2	https://highways.dot.gov/sites/fhwa.dot.go	x	45%	Yes. Low cost quick installation options are available via rubber mat installations.
9	Emergency Vehicle Preemption	EMS	$	High							X	X	X			X		Post-Crash Care	Tier 3	https://highways.dot.gov/sites/fhwa.dot.go	x	x	Yes. Retrofit of existing infrastructre.
10	Speed Safety Cameras (Requires Legislation, See Related Strategy)	Enforcement	$$	Low	X	X	X				X	X	X					Safer Speeds	Tier 2	https://highways.dot.gov/safety/proven-saf	0.63	37% - 54%	No.
11	Red Light Running Cameras (Requires Legislation, See Related Strategy)	Enforcement	$	Medium	X	X					X	X	X					Safer Roads	Tier 1	https://www.fhwa.dot.gov/resourcecenter/	0.52 - 0.87	12% - 48%	No.
12	Backplates with Retroreflective Borders	Intersection	$	High		X					X	X	X		X	X		Safer Roads	Tier 4	https://highways.dot.gov/safety/proven-saf	0.85	15%	Yes. Retrofit of existing infrastructre.
13	Dedicated Left-Turn Lanes at Intersections	Intersection	$$	High		X						X	X		X	X		Safer Roads	Tier 1	https://highways.dot.gov/safety/proven-saf	0.52 - 0.72	28% - 48%	No. May require reconfiguration of road and signal.
14	Dedicated Right-Turn Lanes at Intersections	Intersection	$$	Medium		X						X	X		X	X		Safer Roads	Tier 1	https://highways.dot.gov/safety/proven-saf	0.73 - 0.86	14% - 26%	No. May require reconfiguration of road and signal.
15	Reduced Left-Turn Conflict Intersections	Intersection	$$$	High		X						X	X			X		Safer Roads	Tier 1	https://highways.dot.gov/safety/proven-saf	0.7	22% - 63%	No. Will require significant construction.
16	Roundabouts	Intersection	$$$	High		X					X	X	X		X	X		Safer Roads, Safer Speeds	Tier 1, Tier 2	https://highways.dot.gov/safety/proven-saf	0.18 - 0.22	78% - 82%	No. Will require significant construction for most locations. Mini-Roundabouts (e.g., traffic circles) are lower cost solutions for low-volume roads.
17	Intersection Conflict Warning System	Intersection	$$	Low		X									X	X		Safer Roads	Tier 4	https://highways.dot.gov/sites/fhwa.dot.go	0.70 - 0.74	25% - 30%	No.
18	All-way Stop Control	Intersection	$	High	X	X					X	X			X	X		Safer Roads, Safer Speeds	Tier 3	https://www.cmfclearinghouse.org/detail.pl	0.30	70%	Yes. Primarily signing and striping..
19	Systemic Application of Multiple Low-Cost Countermeasures at Stop-Controlled Intersections	Intersection	$	High	X	X					X	X			X	X		Safer Roads	Tier 4	https://highways.dot.gov/safety/proven-saf	0.73 - 0.89	10% - 27%	Yes. Components can be added incrementally and requires minimal construction.
20	Lighting	Intersection/Roadway	$$	Medium	X	X	X				X	X	X	X	X	X	X	Safer Roads	Tier 4	https://highways.dot.gov/safety/proven-saf	0.67	28% - 42%	No.
21	Walkways (i.e., Pathways, Sidewalks)	Pedestrian	$$	High	X						X	X	X	X	X	X		Safer Roads	Tier 1	https://highways.dot.gov/safety/proven-saf	0.6	65% - 89%	Yes. Design and construction work are common practice. Vertical delineation and striping may be provided as interim treatment.
22	Pedestrian Scramble	Pedestrian	$	Low	X						X	X						Safer Roads	Tier 3	https://highways.dot.gov/sites/fhwa.dot.go	x	x	Yes if existing signal controller has capabilities. Minor signal timing and paint alterations.
23	Road Reconfiguration	Roadway	$$	Medium	X								X			X		Safer Roads, Safer Speeds	Tier 1, Tier 2	https://highways.dot.gov/safety/proven-saf	0.53 - 0.81	19% - 47%	No. Requires significant design and construction elements.
24	Speed Management	Roadway	$$	High	X	X	X				X	X	X	X	X	X		Safer Speeds	Tier 2	https://highways.dot.gov/safety/proven-saf	x	26% (Citywide Speed Management Strategies)	Yes. Especially on collector and local roads, where horizontal or vertical deflection elements can be implemented.
25	Enhanced Delineation for Horizontal Curves (i.e., Signage, Striping)	Roadway	$	High			X								X	X	X	Safer Roads	Tier 4	https://highways.dot.gov/safety/proven-saf	0.61 - 0.85	15% - 60%	Yes. Signage and stirping components can be implmented incrementally.
26	Longitudinal Rumble Strips and Stripes on Two-Lane Roads	Roadway	$	Low			X									X		Safer Roads	Tier 4	https://highways.dot.gov/safety/proven-saf	0.36 - 0.56	13% - 64%	Yes. Minor alterations of roadway.
27	Tranverse Rumble Strips	Roadway	$	Low		X									X	X	X	Safer Speeds	Tier 4	https://highways.dot.gov/sites/fhwa.dot.go	x	x	Yes. Minor alterations of roadway.
28	Median Barriers	Roadway	$$	Medium			X					X	X			X	X	Safer Roads	Tier 1	https://highways.dot.gov/safety/proven-saf	x	8%	Yes. Quick installation devices available.
29	Roadside Design Improvements at Curves	Roadway	$$	Low			X							X	X	X	X	Safer Roads	Tier 1	https://highways.dot.gov/safety/proven-saf	0.56 - 0.92	8% - 44%	No. Requires significant design and construction elements.
30	SafetyEdge	Roadway	$$	Medium			X								X	X	X	Safer Roads	Tier 1	https://highways.dot.gov/safety/proven-saf	0.79 - 0.89	11% - 21%	No. Typically completed during initial construction.
31	Wider Edge Lines, Enhanced Pavement Markings	Roadway	$	High			X							X	X	X	X	Safer Roads	Tier 4	https://highways.dot.gov/safety/proven-saf	0.64	22% - 37%	Yes. Minor paint alterations.
32	Corridor Access Management	Roadway	$$$	High	X	X					X	X	X		X	X		Safer Roads	Tier 1	https://highways.dot.gov/safety/proven-saf	0.53 - 0.81 (CMF to replace TWLTL with raised median)	19% - 47%	Partial. Vertical delineation elements can restrict left-in/left-out movements.However, may require significant outreach and coordination with property owners and agencies.
33	Pavement Friction Management	Roadway	$$	Low			X								X	X	X	Safer Roads	Tier 1, Tier 2	https://highways.dot.gov/safety/proven-saf	0.37 - 0.80	20% - 63%	Yes if completed and coordinated with typical resurfacing.
34	Centerline Buffer Areas	Roadway	$$	Medium			X								X	X	X	Safer Roads	Tier 1	https://highways.dot.gov/sites/fhwa.dot.go	x	35% - 90%	Partial. May be implemented via striping changes if cross-sectional space available on roadway fore-striping.

#	Strategy	Category	Cost ($, $$, $$$)	Priority	Vulnerable Road Users	Intersection Crashes	Lane Departure Crashes	Seatbelt Use	Impaired Driving	Urban Local	Urban Collector	Urban Two-Lane Arterial	Urban Multi-Lane Arterial	Rural Local	Rural Collector	Rural Highway / Arterial	Interstate	SSA Objective	Safe System Roadway Design Hierarchy Tier	More Information	Crash Modification Factor (if applicable)[1]	Estimated Reduction in Crashes[2]	Quick Build Option Available?
35	Gateways (e.g., Advanced Warning Signage/Structure)	Roadway	$$	Medium	X	X						X	X			X		Safer Speeds	Tier 2	https://highways.dot.gov/sites/fhwa.dot.go	x	32%	Yes. Minimal design, and installation time.
36	Variable Speed Limits	Roadway	$	Low			X										X	Safer Speeds	Tier 2	https://highways.dot.gov/safety/proven-saf	x	34% - 65%	No.
37	Dynamic Speed Feedback Signs	Roadway	$$	High			X			X	X	X	X		X	X		Safer Speeds	Tier 2	https://highways.dot.gov/sites/fhwa.dot.go	0.93 - 0.95	5% - 7%	Yes. Trailer/tempory options available.
38	Yellow Change Intervals	Signal Timing/Operations	$	Medium		X						X	X	X	X	X		Safer Roads	Tier 3	https://highways.dot.gov/safety/proven-saf	x	x	Yes. Signal timing adjustment.
39	Leading Pedestrian Interval	Signal Timing/Operations	$	High	X	X						X	X	X				Safer Roads	Tier 3	https://highways.dot.gov/safety/proven-saf	0.87	13%	Yes. Signal timing adjustment. May trigger additional ADA improvements.
40	Left-Turn Phasing (Convert to Protected Phasing)	Signal Timing/Operations	$	High	X	X						X	X	X		X		Safer Roads	Tier 3	https://highways.dot.gov/sites/fhwa.dot.go	0.01 - 0.13	87%	Yes. Signal timing adjustment. Requires dedicated left-turn lane and left-turn signal-head.
41	Prohibit Right-Turn on Red	Signal Timing/Operations	$	Medium	X	X						X	X	X				Safer Roads	Tier 3	https://safety.fhwa.dot.gov/older_users/fhv	x	9%	Yes.
42	Coordinated Signal Timing (Lower Speeds)	Signal Timing/Operations	$$	Medium		X						X	X	X				Safer Speeds	Tier 2	https://highways.dot.gov/sites/fhwa.dot.go	x	7%	Yes. Signal timing adjustment.
43	Rest on Red	Signal Timing/Operations	$	Medium		X						X	X	X		X	X	Safer Roads, Safer Speeds	Tier 3	https://trid.trb.org/View/61088#:~:text=The	x	x	Yes. Signal timing adjustment.
44	Flashing Yellow Arrow with Time-of-Day and Pedestrian Call Restrictions	Signal Timing/Operations	$	High	X	X						X	X	X		X		Safer Roads	Tier 3	https://www.kivitv.com/news/new-upgrade	0.86 - 0.90	10% - 14%	Yes. Signal timing adjustment.
45	Dedicated Bike Signals	Signal Timing/Operations	$	Medium	X	X						X	X	X				Safer Roads	Tier 3	https://nacto.org/publication/urban-bikewa	x	x	Partial. Signal equipment/timing change. May require changes to intersection geometry.
47	Raised Intersections	Intersection	$$	Medium	X	X						X	X	X				Safer Roads, Safer Speeds	Tier 2	https://safety.fhwa.dot.gov/saferjourney1/li	x	x	No.

Notes

CMF should be reviewed before they are used to calcute expected change in crashes (i.e., may only be applicbale to certain site conditions or crash types).

s based on case studies or similar evaluation (primarily sourced from FHWA's proven safety countermeasures).

APPENDIX C: NON-INFRASTRUCTURE STRATEGIES TOOLBOX

#	Strategy	Category	Priority	Vulnerable Road Users	Intersection Crashes	Lane Departure Crashes	Seatbelt Use	Impaired Driving	Agency Responsible	SSA Objective	More Information
1	Continue Safety Working Group	Agency Coordination	High	X	X	X	X	X	COMPASS; Member Agencies	Cross Cutting	
2	Provide Grant Funding Support to Member Agencies	Agency Coordination	High	X	X	X	X	X	COMPASS	Cross Cutting	
3	Crash Analysis Support	Agency Coordination	High	X	X	X	X	X	COMPASS	Safer Roads	
4	Incorporate Vision, Goals, Performance Measures, and Targets into the Next CIM Update	Agency Coordination	High	X	X	X	X	X	COMPASS	Safer Roads	
5	Update TIP and CIM Prioritization to Better Incorporate Safety and This Plan	Agency Coordination	High	X	X	X	X	X	COMPASS	Safer Roads	
6	Update COMPASS' Complete Network Policy to Align with RSAP Outcomes	Agency Coordination	High	X	X	X	X	X	COMPASS	Safer Roads	
7	Improve How Safety is Incorporated into Maintenance Projects	Agency Coordination	High	X	X	X			Member Agencies	Safer Roads	a14091/
8	Improve How Safety is Incorporated into Capital Project Development Processes (e.g., Safe System Assessment)	Agency Coordination	High	X	X	X			Member Agencies	Safer Roads	assessment-framework
9	Create Local Task Forces to Review Fatal and Serious Injury Crashes	Agency Coordination	High	X	X	X			COMPASS; Member Agencies	Cross Cutting	
10	Establish Dedicated Funding for Safety Projects	Agency Coordination	High	X	X	X			COMPASS; Member Agencies	Safer Roads	
11	Clearly Define Safety as a Priority in Project Development and Prioritization	Agency Coordination	High	X	X	X	X	X	Member Agencies	Safer Roads	
12	Coordinate Across Jurisdictions on Smaller Projects to Improve Funding Opportunities and Contractor Bidding	Agency Coordination	High	X	X	X			COMPASS; Member Agencies	Safer Roads	
13	Implement the Safe System Approach	Agency Coordination	High	X	X	X	X	X	COMPASS; Member Agencies	Cross Cutting	
14	Public Health Stakeholder Engagement	Agency Coordination	High	X	X	X	X	X	COMPASS; Partner Agencies	Safer People	
15	Create a Publicly Available Tracking Dashboard	Agency Coordination	High	X	X	X	X	X	COMPASS	Cross Cutting	
16	Create an RSAP Update Checklist	Agency Coordination	High	X	X	X	X	X	COMPASS	Cross Cutting	
17	Implement Crash Prediction Analysis	Agency Coordination	Medium		X	X			COMPASS	Safer Roads	
18	Increase Transit Funding to Reduce Driving Trips	Agency Coordination	Medium	X		X		X	Member Agencies	Safer People	
19	Regularly Assess Implementation Successes and Challenges	Agency Coordination	High	X	X	X	X	X	COMPASS	Cross Cutting	
20	Regional Safe Routes to School Program	Education	Medium	X					COMPASS; Member Agencies	Safer People	
21	Support ITD in Data Driven Decision Making Surrounding Motorcycle Laws	Education	Low	X					Member Agencies	Safer People	
22	High-visibility Safety Education Campaign (i.e., Seatbelt-Usage, DUI, Motorcycle Safety)	Education	High	X	X	X	X	X	COMPASS; Member Agencies	Safer People	
23	Best Practices in Safety Analysis, Planning, Engineering Training	Education	High	X	X	X	X	X	COMPASS	Safer People	
24	Encourage Motorcycle Riders to Complete and Pass Idaho STAR Training	Education	High	X					Member Agencies	Safer People	12/countermeasures-that-work-11th-2023-tag_0.pdf
25	Foster Partnerships Between Motorcycle Community and Agency Partners	Education	Medium	X					COMPASS	Safer People	
27	EMS - Bystander Training Courses	EMS	Low	X	X	X	X	X	Partner Agencies	Post-Crash Care	
28	Improve EMS Response Times (e.g., improve incorporation of roadway construction projects into CAD software, public education campaign to provide expectations for drivers when EMS is approaching)	EMS	High	X	X	X	X	X	COMPASS; Partner Agencies	Post-Crash Care	
29	Alcohol-Impaired Motorcyclists: Detection, Enforcement, and Sanctions	Enforcement	Low	X				X	Member Agencies; Law Enforcement	Safer People	work/motorcycle-
30	Equitable Enforcement Strategies	Enforcement	Medium	X	X	X	X	X	Member Agencies; Law Enforcement	Safer Speeds	
31	Automated Speed Enforcement Legislation	Enforcement	Medium	X	X				Member Agencies; Law Enforcement	Safer Speeds	
32	Progressive Ticketing	Enforcement	Medium	X	X	X	X	X	Partner Agencies	Safer People	
33	Support Efforts Related to Motorcycle Helmet Use Laws	Legislation	Low	X			X		Member Agencies; Law Enforcement	Safer People	12/countermeasures-that-work-11th-2023-tag_0.pdf
34	Local Road Safety Plans	Plan/Study	Medium	X	X	X	X	X	Member Agencies	Safer Roads	countermeasures/local-road-safety-plans
35	Road Safety Audits	Plan/Study	High	X	X	X			COMPASS; Member Agencies	Safer Roads	countermeasures/road-safety-audit
36	Allow Developments to Implement Safety Improvements in Lieu of Capacity Improvements	Roadway (Policy)	High	X	X	X			Member Agencies	Safer Roads	
37	Make Safety Features a Priority in Fleet Vehicles	Vehicles	Medium	X	X	X			Member Agencies	Safer Vehicles	
38	Safe System Assessment	Agency Coordination	High	X	X	X	X	X	COMPASS; Member Agencies	Safer Roads	assessment-framework
39	Use Big Data or Traffic Signal Data to Prioritize Enforcement (e.g., Identify Areas with Speeding or Red Light Running)	Enforcement	Medium	X	X	X	X	X	COMPASS; Member Agencies; Law Enforcement	Safer People	
40	Adopt Ordinance that Require Motorists to Provide Space (e.g., at least 3 feet) when Passing Bicyclists	Legislation	Medium	X		X			Member Agencies; Law Enforcement	Safer People	

APPENDIX D: LOCATION SPECIFIC TOOLBOX

Location ID	Location	City/County	Road Ownership	Total KA Crashes	Approx. Distance (Miles)	KA Crashes/Mile	Notes
1	Fairview Ave (Locust Grove Rd to Curtis Rd)	Boise/Meridian	ACHD	44	6	7.3	14 crashes between Eagle and Cloverdale; also non-motorized
2	SH 69 (Overland Rd to Kuna Rd)	Kuna/Meridian	ITD	24	7	3.4	12 crashes Overland to Victory
3	Garrity Blvd (11th Ave to I-84)	Nampa	ITD	21	2.2	9.5	
4	Ten Mile Rd (Amity Rd to Overland Rd)	Meridian	ACHD	16	1.6	10	
5	SH 45 (Roosevelt Ave to Greenhurst Rd)	Nampa/Melba	ITD	14	1.5	9.3	Also non-motorized
6	Eagle Rd (Fairview Ave to McMillan Road)	Meridian/Eagle	ITD	13	2	6.5	
7	Overland Rd (Orchard Rd to Maple Grove Rd)	Boise	ACHD	12	2.5	4.8	Also non-motorized
8	Caldwell Blvd (Orchard Ave to Middleton Rd)	Nampa	ITD	11	2.2	5	
9	Overland Rd (Locust Grove to Eagle Rd)	Meridian	ACHD	8	1	8	6 crashes on half-mile block

Location ID	Location	City/County	Control Type	Major Road Ownership	KA Crashes	HIN Score	Notes
10	Farmway Rd / Ustick Rd	Canyon County	2-Way Stop	HD4	7	3.15	
11	Pleasant Valley Rd / Kuna Mora Rd	Ada County	2-Way Stop	ACHD	6	3.15	
12	Southside Blvd / Lewis Lane	Canyon County	All-Way Stop	NHD	6	3.15	
13	Idaho Center Blvd / Franklin Rd	Nampa	Signal	Nampa	6	0.85	0 KA crashes coded in junction, 6 KA crashes associated with short (<0.1 mile segment) directly east of signal, assumed intersection crashes
14	Meridian Rd (SH-69) / Amity Rd	Meridian	Signal	ITD	5	>3.5	
15	Northside Blvd / 6th St	Nampa	Signal	Nampa	5	3.43	Also top non-motorized HIN score
16	Orchard St / Overland Rd	Boise	Signal	ACHD	5	3.42	
17	Star Rd / US 20-26	Ada County	Signal	ITD	5	3.29	
18	Blaine St (I-84 Business) / 21st Ave	Caldwell	Signal	ITD	4	>3.5	
19	Locust Grove Road / Overland Rd	Meridian	Signal	ACHD	4	>3.5	
20	Ten Mile Rd / Cherry Ln	Meridian	Signal	ACHD	4	3.42	
21	Eagle Rd / Riverside Dr	Eagle	Signal	ITD	4	3.43	
22	Eagle Rd / Overland Rd	Meridian	Signal	ITD	4	3.43	
23	Ustick Rd / Cloverdale Rd	Boise	Signal	ACHD	4	3.43	
24	Chicago St / 21st Ave	Caldwell	Signal	Caldwell	3	>3.5	
25	Northside Blvd / 2nd St	Nampa	Signal	ITD	3	>3.5	
26	Meridian Rd (SH-69) / Lake Hazel Rd	Ada County	Signal	ITD	3	>3.5	
27	Meridian Rd (SH-69) / Victory Rd	Meridian	Signal	ITD	3	>3.5	
28	Meridian Rd / Pine Ave	Meridian	Signal	ACHD	3	>3.5	
29	State St / 15th St	Boise	Signal	ACHD	3	>3.5	
30	Caldwell Blvd (I-84 Business) / Canyon St	Nampa	Signal	ITD	3	3.43	
31	Garrity Blvd (I-84 Business) / Kings Rd	Nampa	Signal	ITD	3	3.43	
32	SH-45 / Greenhurst Rd	Nampa	Signal	ITD	3	3.42	
33	SH-44 / Linder Rd	Eagle	Signal	ITD	3	3.42	
34	Fairview Ave / Locust Grove Rd	Meridian	Signal	ACHD	3	3.42	
35	Five Mile Rd / Chinden Blvd	Garden City	Signal	ITD	3	3.43	
36	Five Mile Rd / Fairview Ave	Boise	Signal	ACHD	3	3.43	
37	Five Mile Rd / Franklin Rd	Boise	Signal	ACHD	3	3.43	
38	Curtis Rd / I-84 EB Ramp Terminal	Boise	Signal	ACHD	3	3.42	Also top non-motorized HIN score
39	9th St / Myrtle St	Boise	Signal	ITD	3	3.42	Also top non-motorized HIN score
40	Emmett Rd / Galloway Rd	Canyon County	2-Way Stop	HD4	3	3.15	
41	Galloway Rd / Emmett Rd	Canyon County	2-Way Stop	HD4	3	3.15	
42	Southside Blvd / Locust Ln	Nampa	All-Way Stop	Nampa	3	3.15	
43	Florida Ave / Homedale Rd	Caldwell	All-Way Stop	Caldwell	3	3.15	
44	Lake Ave / Homedale Rd	Caldwell	All-Way Stop	Caldwell	3	3.15	

Location-ID	Location	Jurisdiction	Control Type/Corridor	Road Ownership	Non-Motorized KA Crashes	Notes
45	Northside Blvd / 6th St	Nampa	Signal	Nampa	2	3 additional non-motorized KA crashes on Northside between railroad and 6th St
46	Cole Rd / Victory Rd	Boise	Signal	ACHD	2	
47	Curtis Rd / I-84 EB Ramp Terminal	Boise	Signal	ACHD	2	
48	9th St / Front St	Boise	Signal	ITD	2	
49	9th St / Myrtle St	Boise	Signal	ITD	3	3 additional non-motorized KA crashes on Myrtle between 8th and 9th
50	Capitol Blvd / University Dr	Boise	Signal	ACHD	2	
51	Broadway Ave / University Dr	Boise	Signal	ITD	3	
52	Lake Forest Dr / Mimosa Way	Boise	Stop control on minor approach	ACHD	2	
53	16th St / Front St	Boise	Stop control / ped crossing	ACHD	3	
54	Fairview Ave (Curtis to Mitchell)	Boise	Corridor	ACHD	5	
55	Fairview Ave (Cloverdale to Ten Mile)	Boise/Meridian	Corridor	ACHD	5	
56	Orchard St (I-84 to Chinden)	Boise/Garden City	Corridor	ACHD	5	
57	South Vista Ave (I-84 to Rose Hill)	Boise	Corridor	ACHD	4	
58	Overland Rd (Orchard to Maple Grove)	Boise	Corridor	ACHD	3	
59	Broadway St (University to I-84)	Boise	Corridor	ITD	7	
60	9th St (Idaho to Rose Hill)	Boise	Corridor	ACHD	8	
61	12th Ave/SH-45 (7th to Greenhurst)	Nampa	Corridor	ITD	8	
62	Cole Rd (Victory to Fairview)	Boise	Corridor	ACHD	7	
63	State St (15th to Whitewater Park)	Boise	Corridor	ACHD	4	
64	Meridian Rd (I-84 to Fairview Ave)	Meridian	Corridor	ACHD	4	

APPENDIX E: JURISDICTION-SPECIFIC STRATEGIES TOOLBOX

Land Use Agency	Roadway Agency	Location-Specific or Systemic?	Project	Item(s) to Address	Toolbox Strategy ID(s)	Potential Countermeasure(s)	Priority	Existing Project(s)?
Ada County	ACHD	Systemic	Sidewalk Gap Filling	Lack of connectivity for walking and biking between ongoing development and existing attractors.	1, 2, 3, 4, 5, 6, 7, 21	Install walking and biking facilities where development is unlikely to occur to fill existing gaps.	High	
Ada County	ACHD	Location-Specific	Kuna Mora Rd / S Pleasant Valley Rd	Two-way stop control, 6 KA crashes	16, 17, 18, 19	Convert to 4-way stop with advanced / enhanced signage, or roundabout.	N/A	ACHD pursuing advance enhanced signage improvements.
Ada County	ACHD	Systemic	Rural Collector Roads	Lack of pedestrian and bicycle connectivity	1, 21	Install "Visually Separated Facilities", such as paved shoulder or bike lane.	Low	
Ada County	ACHD	Location-Specific	Seamans Gulch/ Cartwright Road	5 KA crashes, including lane departures. Recreational bike route with limited shoulder space.	25, 26, 27, 28, 29, 30, 31, 33, 34	Lane departure and curve delineation treatments: signage, striping, rumble strips, median barrier/buffer area, SafetyEdge, wider edge lines. Bike lanes or wider shoulder.		
Ada County	ACHD	Location-Specific	Orchard Street Realignment	4 KA between Interstate and Gowen (along Orchard) Skewed intersection with W Gowen Road.	-	Realign N Orchard St to align with S Orchard St / W Gowen Rd - constructed to have each approach meet at right angles.		
Ada County, Canyon County	ACHD, ITD, Nampa, Caldwell, Middleton, HD4	Systemic	LPI Implementation	Bicycle and pedestrian crashes at signalized intersections.	39	Systemically implement leading pedestrian intervals and associated APS and ADA upgrades at signalized intersections.	High	
Boise	ITD	Location-Specific	US 20-26 (Front St and Myrtle St) 13th St/Broadway Ave	22 KA crashes	1, 2, 3, 4, 5, 6, 9, 12, 19, 24, 32, 35, 39, 40, 41, 42	Protected bike lanes, Intersection Safety Improvements, Speed Management, Gateway Features	High	
Boise	ACHD	Location-Specific	Fairview Ave N Garden St / Ten Mile Rd	>50 KA crashes, high access density, no bike facilities	1, 2,5,6, 15, 28, 32, 29, 40	Access Management: Consolidate driveways, add center median barrier, and eliminate left-turns. Consider quick-build applications for median barrier (i.e., extruded curb). Protected Bicycle Facilities: Shared-use path or protected bike lanes. Signal improvement package as described below.	High	
Boise	ITD	Location-Specific	SH-55 (Eagle Rd) Ustick Rd / US 20-26 (Chinden Blvd)	High KA crash rate, head-on / rear-end. High speed related crashes.	4, 5, 6, 7, 24, 31, 37, 42	Speed management techniques, including mid-block pedestrian crossings, dynamic speed feedback, lower speed limits, signal timing, enhanced pavement markings	Low	
Boise	ACHD	Systemic	Signalized Intersections (Arterials in Areas with High Bicycle/Pedestrian Activity)	Non-motorized KA crashes at signals. Turning crashes	2, 3, 4, 9, 12, 13, 39, 40, 41, 44	Signal timing package consisting of leading pedestrian interval/accessible pedestrian signal, no right-turn on red and protected left-turn phasing. Non-signal timing improvements such as bike boxes, protected intersection elements (raised curb islands), removal of channelized right-turns)	High	
Boise	ACHD	Systemic	Arterials without protected bike lanes (examples below, Overland, Orchard, Cole, 9th/Capitol/Vista, Vista, State, Broadway)	Non-motorized KA crashes	1, 2, 3, 4, 5, 6, 9, 12, 24, 32, 39, 40, 41, 42	Add protected bike lanes (permanent or quick-build). This could include converting existing bike lanes or adding where there are none today. Signalized intersection improvements along the corridor as described above. Access Management	High	

Land Use Agency	Roadway Agency	Location-Specific or Systemic?	Project	Item(s) to Address	Toolbox Strategy ID(s)	Potential Countermeasure(s)	Priority	Existing Project(s)?
Boise	ACHD	Location-Specific	15th St and 16th St State St/Shoreline Dr	16 KA Crashes, 9 bike/ped	1, 2, 3, 4, 8, 19, 24, 39, 40, 41, 42	Protected bike lanes, Intersection Safety Improvements, Enhanced Crossings, Speed Management	High	ACHD has recently implemented speed management treatments.
Boise	ACHD	Location-Specific	Five Mile Rd Overpass	Lack of pedestrian and bicycle facilities on connection over I-84.	1, 21	Protectected bike lanes, pathways, sidewalks	Medium	
Boise	ACHD	Location-Specific	Overland Rd Orchard St / Maple Grove Rd	12 KA crashes (3 non-motorized)	-	*Low-priority/further study required*	Low	ACHD designing from Vista to Orchard with sidewalks with signal improvements for bike/ped
Boise	ITD	Location-Specific	US20-26 (Broadway St) I-84 / University Dr	7 non-motorized KA crashes	-	*Low-priority/further study required*	Low	
Boise	ACHD	Location-Specific	S Vista Ave I-84 / Rose Hill St	4 non-motorized KA crashes	-	*Low-priority/further study required*	Low	
Boise	ACHD	Location-Specific	Cole Rd Victory Rd / Fairview Rd	7 non-motorized KA crashes	-	*Low-priority/further study required*	Low	
Boise	ACHD	Location-Specific	State St 15th St / Whitewater Park Blvd	4 non-motorized KA crashes	-	*Low-priority/further study required*	Low	
Boise	ACHD/ITD	Location-Specific	Curtis Rd / I-84 EB Ramp Terminal	3 KA crashes (2 non-motorized)	-	*Low-priority/further study required*	Low	
Boise	ACHD	Location-Specific	9th St/Capitol Blvd Idaho St / Rose Hill St	8 non-motorized KA crashes	-	*Low-priority/further study required*	Low	Yes
Boise	ACHD	Location-Specific	Franklin Street (Milwaukee St to Liberty St)	Inadequate ADA accessibility, key connection across I-84 connector, limited access to bus stops and bus routes. 7 KA crashes.	1, 2, 4, 37	Speed management. Fill sidewalk gaps. Protected bicycle facilities. Intersection treatments for bike/ped.	High	RAISE grant project.
Boise	ACHD	Location-Specific	Phillippi Street (Irving St / Malad St). Include Intersection of Phillippi/Overland	Sidewalk gaps, lack of bicycle facilities, lack of midblock crossings, non-ADA compliant facilities, 3 KA crashes. Adjacent to bike/ped generators.	1, 2, 4, 6, 7, 8, 21,	Fill sidewalk gaps. Bicycle lanes.Speed management. Enhanced pedestrian crossings. Intersection treatments for bike/ped.		RAISE grant project.
Boise	ACHD	Location-Specific	University Drive (Chrisway Drive to Lincoln Ave)	Lack of protected facilities for people biking and lack of enhacned crossings on corridor with high amount of bicycle and pedestrian actvity (corridor bisects Boise State University).	1, 2, 6, 22, 23, 24	Re-allocate 5 lane cross-section to 3 vehicle lanes with protecected bike facilities.Add PHB crossings. Pedestrian scramble at Lincoln/Unniversity intersection.	High	BSU concept: https://www.boisestate.edu/operations/campus-projects/university-drive/

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Boise	ACHD	Location-Specific	Eckert Road Bridge	River crossing and access to Barber Park for all modes. Conflict due to increased bike/ped and car traffic. 1 KA, bicycle related	1, 21	Protected Bike lanes, Walkway / Pathway, intersection treatments at Barber Park.	Medium	Study programmed into IFYWP.
Boise/Garden City	ACHD	Location-Specific	Orchard St I-84 / US20-26 (Chinden Blvd)	21 KA crashes (4 bike/ped), lack of protected bike lanes	1, 2, 3, 4, 5, 6, 7, 13, 21, 24, 31, 35, 39, 40, 41	Protected bike lanes, Intersection Safety Improvements, Speed Management	High	
Caldwell	Caldwell	Location-Specific	Caldwell Blvd Simplot Blvd / Homedale Rd	High KA crash rate, high driveway density. Lack of protected bike facilities and crossings in areas with high bike/ped activity in downtown area.	1, 2, 3, 4, 5, 6, 7, 9, 12, 19, 24, 31, 32, 39, 40, 41, 42	Access Management: Consolidate driveways, add center median barrier, and eliminate left-turns. Consider quick-build applications for median barrier (i.e., extruded curb). Signal improvements along corridor: Protected left-turn phasing, LPI, removal of right-turn channelization. Addition of mid-block crossings, protected bicycle facilities, and other bicycle/pedestrian improvements.	High	
Caldwell	Caldwell	Location-Specific	Ustick Rd Farmway Rd / I-84	Frequent KA crashes, rear-end, motorcycle, alcohol. Gaps in bicycle/pedestrian network.	1, 2, 3, 4, 5, 6, 7, 8, 9, 12, 18, 19, 24, 31, 39, 40, 41, 42	Intersection Improvements: Improve uncontrolled intersections to 4-way stop or roundabout. On signalized intersections (i.e., 10th Ave) implement signal timing package including leading pedestrian interval and no right-turn on red. Fill sidewalk and bicycle facility gaps along the corridor. Consider mid-block crossings near ped/bike attractors. Speed management: Lower speed limit, increase	High	
Caldwell	Caldwell	Systemic	Intradevelopment Locations	Lack of connectivity for walking and biking between ongoing development and existing attractors.	25, 26, 27, 28, 29, 30, 31, 33, 34	Perform connectivity analysis to identify gaps in walking and biking network not anticipated to be filled by development. Install walking and biking facilities in gaps such as, sidewalks, protected bike lanes, shared-use paths, and roadway crossings (with enhanced crossing treatments).	High	
Caldwell	Caldwell	Location-Specific	Homedale Rd 10th Ave / I-84-BUS (Caldwell Blvd)	Angle related event; 10th ave uncontrolled major movement. Gaps in bicycle/pedestrian network.	1, 2, 3, 4, 5, 6, 7, 9, 12, 16, 18, 19, 24, 31, 39, 40, 41, 42	Intersection Improvements: Improve uncontrolled intersections to 4-way stop or roundabout. If intersections are signalized implement signal timing package including leading pedestrian interval and no right-turn on red and consider protected intersection elements. Fill sidewalk and bicycle facility gaps along the corridor. Consider mid-block crossings near ped/bike attractors. Speed management: Lower speed limit, increase enforcement efforts.	Medium	
Canyon County	HD4	Location-Specific	Galloway Rd / Emmett Rd	3 KA crash, angle event	16, 17, 19	Convert to 4-way stop with advanced / enhanced signage, or roundabout.	High	

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Canyon County	HD4	Location-Specific	Farmway Rd / Ustick Rd	7 KA crashes, angle events	16	Roundabout planned	High	Yes, Roundabout
Canyon County	HD4	Systemic	Horizontal Curves	Lane departure crashes at horizontal curves	25, 26	Systemic package of enhanced delineation at horizontal curves	Medium	
Canyon County	HD4	Location-Specific	Old Hwy 30 / Galloway Rd	2 KA crashes, angle events	16, 17, 19	Convert to 4-way stop with advanced / enhanced signage, or roundabout.	Medium	
Canyon County	HD4	Systemic	Rural Collector Roads	Lack of pedestrian and bicycle connectivity	1, 21	Install "Visually Separated Facilities", such as paved shoulder or bike lane.	Low	
Canyon County	NHD	Location-Specific	Southside Blvd / Lewis Ln	6 KA crashes, angle events	16, 17, 19	Convert to roundabout. Improve advanced warning signage and pavement markings (interim strategy).	High	
Canyon County	HD4	Systemic	Rural 2-Way stop controlled Intersections	High speed uncontrolled approaches, angle events	16, 17, 19	Consider conversion to 4-way stop with advanced / enhanced signage, or roundabout.	High	
Eagle	ITD	Location-Specific	SH-44-55 (State St) SH-55 / Eagle Rd	High KA crash rate, lack of crossing opportunities.	4, 5, 6, 7, 24, 31, 35, 37, 42	Gateways Speed management techniques, including mid-block pedestrian crossings, dynamic speed feedback, lower speed limits, signal timing, enhanced pavement markings	Medium	
Eagle	ACHD/ITD	Systemic	Arterials and Collectors with Gaps in Sidewalks/Bicycle Facilities (including Floating Feather Road, Beacon Light Road, Park Ln)	Lack of connectivity for walking and biking between ongoing development and existing attractors.Arterials with high vehicle speed around pedestrian/bicycle attractors.	1, 2, 3, 4, 5, 6, 7, 21, 37, 42	Fill in sidewalk gaps, protected bike facilities, Unsignalized and Signalized Intersection Treatments, Speed Management.	High	
Eagle	ACHD/ITD	Systemic	State Highway Signalized Intersections	High KA crash rate. Angle, turning, alcohol related crashes	1, 21	Signal timing package consisting of leading pedestrian interval/accessible pedestrian signal, no right-turn on red and protected left-turn phasing. Non-signal timing improvements such as bike boxes, raised corner islands, removal of channelized right-turns	Medium	

Land Use Agency	Roadway Agency	Location-Specific or Systemic?	Project	Item(s) to Address	Toolbox Strategy ID(s)	Potential Countermeasure(s)	Priority	Existing Project(s)?
Eagle	ACHD/ITD	Location-Specific	SH-55 (Eagle Rd) / Riverside Dr	4 KA crashes, angle related events, alcohol related event	40	Convert permitted to protected left-turn	Low	
Eagle	ACHD	Location-Specific	Floating Feather Road, Horseshoe Bend to HWY16	5 KA, 3 at Floating Feather & Hwy 55. key E-W connectivity between Hwy 16 and 55. Lack of pedestrian connectivity Floating Feather, no protected bike facilities. Many intersections that serve as neighborhood gateways	1, 3, 4, 6, 7, 8, 21, 24, 37	Speed management, roundabouts at intersections, protected bike facilities, enhanced crossings, fill sidewalk gaps		City of Eagle studying
Eagle	ACHD	Location-Specific	Park Lane, HWY 44 to Floating Feather	0 KA along Park Lane. Multiple bike/ped attractors. Sidewalk gaps ,north of Prickly Pear Dr, lack of protected bicycle facilities, few enhanced crossings.	1, 4, 6, 7, 8, 21, 24, 37	Fill sidewalk gaps, provide protected bike facilities, enhanced crossings, speed management		City of Eagle studying
Garden City	ITD	Location-Specific	US 20-26 (Chinden Blvd) Garrett St/N Maple Grove Rd / E 36th St	Sidewalk gaps and lack of dedicated bike facilities. Lack of pedestrian crossings to access ped/bike activity generators throughout the corridor.	1, 2, 3, 4, 5, 6, 9, 12, 13, 21, 39, 40, 41	Systemic signal package as described below. Implement recommendations from Chinden Boulevard Corridor Project Development (COMPASS, 2016)	High	
Garden City	ACHD	Location-Specific	Adams St N Kent Ln / 37th St	Cut-through route for traffic through neighborhoods. Parallel route for bike/ped travel from Chinden. KA crashes at Adams / VMP.	1, 2, 3, 4, 6, 7, 8, 13, 21, 24, 31, 37 39,40, 41	Signal package at Adams St / Veterans Memorial Pkwy Install speed management elements (e.g. dynamic speed limit signs, enhanced striping), protected bike facilities, and enhanced pedestrian crossings - facilitating bicycle and pedestrian traffic from Chinden to Adams.	High	
Garden City	ACHD/ITD	Systemic	Signalized Intersections (Arterial / Arterial, e.g., Chinden/Orchard)	High KA crash rate. Angle, turning, alcohol related crashes	1, 2, 3, 4, 5, 6, 7, 13, 21, 24, 31, 35, 39, 40, 41	Signal timing package consisting of leading pedestrian interval/accessible pedestrian signal, no right-turn on red and protected left-turn phasing. Non-signal timing improvements such as bike boxes, raised corner islands, removal of channelized right-turns	High	
Greenleaf	ITD	Location-Specific	SH-19 / Notus Rd	1 KA crash, heavy freight and agriculture traffic from North and South.	14, 12	Dedicated right turn lane onto Notus Rd, advance signage, sigh distance improvements.	High	
Greenleaf	ITD	Location-Specific	SH-19 (Main St) Friends Rd / Top Rd	Highway as Main Street	1, 4, 5, 6, 7, 21, 23, 24, 31, 35, 37	Connectivity: Fill sidewalk gap along north of SH-19. Reallocate space to provide a Paved Shoulder or Sidepath on south side. Provide median enhanced crosswalks. Coordinate with Royal Ridge Development on the implementation of crossing improvement and improvements to other intersections on SH-19, including at Friends Rd. Speed Management: Reduce speed limit, add advanced warning signs. Add speed feedback signs.	High	

Land Use Agency	Roadway Agency	Location-Specific or Systemic?	Project	Item(s) to Address	Toolbox Strategy ID(s)	Potential Countermeasure(s)	Priority	Existing Project(s)?
Greenleaf	Greenleaf	Systemic	Low Volume, Local and Collector Streets	Lack of pedestrian and bicycle connectivity	1, 21	Fill sidewalk gaps, and install "Mixed Traffic Facilities", such as yield roadway, bicycle boulevard, or advisory shoulder.	High	
Kuna	ACHD	Systemic	Intradevelopment Locations	Lack of connectivity for walking and biking between ongoing development and existing attractors. (e.g., Deer Flat Rd)	16, 17, 19	Perform connectivity analysis to identify gaps in walking and biking network not anticipated to be filled by development. Install walking and biking facilities in gaps such as, sidewalks, protected bike lanes, shared-use paths, and roadway crossings (with enhanced crossing treatments).	High	
Kuna	ACHD	Systemic	Arterials and Collectors with Attractors	Lack of pedestrian crossings	4, 5, 6, 7	Install pedestrian crossings	High	
Kuna	ITD	Location-Specific	SH-69 (Meridian Rd) Lake Hazel Rd / Kuna Rd	High KA crash rate at intersections with major roads and along segments		*Low-priority/further study required*	Low	
Kuna	ACHD	Location-Specific	Swan Falls (Avalon Ave / Sunbeam)	Key connection point/crossing of Indian Creek and railroad, lack of bike/ped facilities. 1 KA crashes, bike.	1, 4, 7, 8, 21, 20	Fill sidewalk gaps, dedicated bicycle facilities or shared-use path, add lighting, mid-block crossings		
Melba	Melba	Systemic	Low Volume, Local and Collector Streets	Lack of pedestrian and bicycle connectivity	1, 21	Fill sidewalk gaps, and install "Mixed Traffic Facilities", such as yield roadway, bicycle boulevard, or advisory shoulder.	High	
Meridian	ITD	Location-Specific	SH-55 (Eagle Rd) I-84 / Ustick Rd	High KA crash rate, head-on / rear-end. High speed related crashes.	4, 5, 6, 7, 24, 31, 37, 42	Speed management techniques, including mid-block pedestrian crossings, dynamic speed feedback, lower speed limits, signal timing, enhanced pavement markings	Medium	
Meridian	ITD	Location-Specific	SH-69 (Meridian Rd) I-84 / Lake Hazel Rd	High KA crash rate at intersections with major roads and along segments	-	*Low-priority/further study required*	Low	
Meridian	ITD	Location-Specific	SH-69 (Meridian Rd) I-84 / Fairview Ave	4 non-motorized KA crashes	-	*Low-priority/further study required*	Low	
Meridian	ACHD	Location-Specific	Fairview Ave N Curtis Rd / Ten Mile Rd	High KA crash history along corridor and at intersections with major roads; angle related crashes	1, 21	Access Management: Consolidate driveways, add center median barrier, and eliminate left-turns. Consider quick-build applications for median barrier (i.e., extruded curb). Protected Bicycle Facilities: Shared-use path or protected bike lanes. Signal improvement package as described below.	High	

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Meridian	ACHD/ITD	Systemic	Signalized Intersections (Arterials, e.g., intersections on Meridian Rd, Eagle Rd, Overland Rd, Ten Mile Rd, Fairview Ave)	High KA crash rate at signalized intersections of major roads.	16, 17, 19	Signal timing package consisting of leading pedestrian interval/accessible pedestrian signal, no right-turn on red and protected left-turn phasing. Non-signal timing improvements such as bike boxes, raised curb islands, removal of channelized right-turns	High	
Meridian	ACHD	Location-Specific	Overland Rd SH-55 / SH-69	22 KA crashes - 1 Ped KA. High access density especially between SH-69 and Locust Grove. Many angle-turning crashes, head-ons, and rear-ends. Lack of protected bike lanes.	1, 2, 3, 4, 5, 6, 9, 12, 19, 24, 32, 37, 39, 40, 41, 42	Access Management: Consolidate driveways, add center median barrier, and eliminate left-turns. Consider quick-build applications for median barrier (i.e., extruded curb). Protected Bicycle Facilities: Shared-use path or protected bike lanes. Signal improvement package.	High	
Meridian	ACHD/ITD	Systemic	Arterial Roadways	High KA crashes on arterial roadways and at arterial-arterial intersections	4, 5, 6, 7, 24, 31, 37, 42	Speed management techniques, including mid-block pedestrian crossings, dynamic speed feedback, lower speed limits, signal timing, enhanced pavement markings	Medium	
Meridian	ACHD	Location-Specific	Ten Mile Rd Amity Rd / Overland Rd	High risk characteristics, potential for future development	-	*Low-priority/further study required*	Low	
Meridian	ACHD	Location-Specific	Amity Corridor, Cloverdale to Locust Grove	1 KA crash at Amity&Cloverdale - drug related head-on. Sidewalk / path gaps, and lack of pedestrian crossings across Amity Corridor. Lack of protected bicycle facilities. Major corridor serving residential community, lack of pedestrian facilities to move across Amity.	1, 4, 6, 7, 8, 21, 24, 37	Speed management and Pedestrian/ Bicycle improvements: protected bicycle facilities, enhanced crossiings		
Middleton	Middleton	Systemic	Intradevelopment Locations	Lack of connectivity for walking and biking between ongoing development and existing attractors.	16, 17, 19	Perform connectivity analysis to identify gaps in walking and biking network not anticipated to be filled by development. Install walking and biking facilities in gaps such as, sidewalks, protected bike lanes, shared-use paths, and roadway crossings (with enhanced crossing treatments).	High	
Middleton	ITD	Location-Specific	SH-44 (Main St) Hartley Ln / S Dewey Ave	Highway as Main Street	1, 4, 5, 6, 7, 21, 23, 24, 31, 35, 37	Connectivity: Fill sidewalk gaps along SH-44. Add protected bike facilities. Provide median enhanced crosswalks. Speed Management: Reduce speed limit. Add speed feedback signs.	High	
Middleton	Middleton	Systemic	Arterials and Collectors with Attractors	Lack of pedestrian crossings	4, 5, 6, 7	Install pedestrian crossings	High	

Land Use Agency	Roadway Agency	Location-Specific or Systemic?	Project	Item(s) to Address	Toolbox Strategy ID(s)	Potential Countermeasure(s)	Priority	Existing Project(s)?
Middleton	Middleton	Location-Specific	Willis Rd / Cemetery Rd	1 KA crash, angle event	16	Roundabout	Low	
Nampa	ITD	Location-Specific	I-84-BUS (Garrity Blvd) 11th Ave / I-84	30 KA crashes. rear end, angle event, mixed industrial with residential access	1, 2, 3, 4, 5, 6, 7, 9, 12, 16, 18, 19, 24, 31, 39, 40, 41, 42	Access management; Speed Management. Safety improvements to traffic signals.	High	
Nampa	Nampa	Location-Specific	Northside Blvd 6th St to Rail Road	High KA crash, 6 non-motorized	1, 4, 5, 6, 7, 21	Fill sidewalk gaps and provide pedestrian crossings. Provide separate bicycle facilities. Signalized intersection improvements.	High	
Nampa	Nampa/ITD	Location-Specific	Idaho Center Blvd Cherry Ln / I-84	13 KA crashes; wide multi-lane road, head-on	4, 5, 6, 7, 9, 12, 16, 18, 19, 24, 31, 39, 40, 41, 42	Signalized Intersections: Implement signal timing package including protected left-turns, leading pedestrian interval and no right-turn on red. Consider quick build applications to remove channelized right turns at Franklin Rd / Idaho Center Blvd and access management on Franklin Rd to east of intersection. Consider access management and speed management along corridor.	High	
Nampa	Nampa	Systemic	Signalized Intersections	Non-motorized KA crashes	39	Install leading pedestrian interval and accessible pedestrian signals	High	
Nampa	Nampa	Systemic	Arterials / Collectors Near Schools	Lack of pedestrian crossings	4, 5, 6, 7	Install pedestrian crossings	High	
Nampa	Nampa	Location-Specific	Roosevelt Ave / Midland Blvd	3 KA crash, angle event, head-on, alcohol involved, non-motorized	39, 40, 41	Implement signal timing package including protected left-turns, leading pedestrian interval, and no-right turn on red.	Medium	
Nampa	Nampa/NHD	Location-Specific	Southside Blvd / Locust Ln	3 KA crash, angle event, overturn	16, 17, 19	Install advanced / enhanced warning signage, or roundabout	Medium	
Notus	Notus	Location-Specific	US 20-26 Notus Rd / 3rd St	Highway as Main Street	1, 4, 5, 6, 7, 21, 23, 24, 31, 35, 37	Connectivity: Fill sidewalk gaps on US 26. Enhanced crossings. Protected bike facilities Speed Management: Reduce speed limit, add advanced warning signs. Add speed feedback signs.	High	
Notus	Notus	Systemic	Low Volume, Local and Collector Streets	Lack of pedestrian and bicycle connectivity	1, 21	Fill sidewalk gaps, and install "Mixed Traffic Facilities", such as yield roadway, bicycle boulevard, or advisory shoulder. Focus on connections to/from High School. Coordinate with RAISE grant package which includes improvements to 1st St, 3rd St, Notus St, and Jasper	High	RAISE Grant Project

Land Use Agency	Roadway Agency	Location-Specific or Systemic?	Project	Item(s) to Address	Toolbox Strategy ID(s)	Potential Countermeasure(s)	Priority	Existing Project(s)?
Parma	ITD	Location-Specific	US 20-26 Parma Rd / Spur Ave	Highway as Main Street	1, 4, 5, 6, 7, 21, 23, 24, 31, 35, 37	Connectivity: Fill sidewalk gaps along corridor. Protected bike facilities. Provide median enhanced crosswalks. Lighting. Speed Management: Reduce speed limit, add advanced warning signs. Add speed feedback signs.	High	
Parma	Parma	Systemic	Low Volume, Local and Collector Streets	Lack of pedestrian and bicycle connectivity	1, 21	Fill sidewalk gaps, and install "Mixed Traffic Facilities", such as yield roadway, bicycle boulevard, or advisory shoulder.	High	
Star	ITD	Location-Specific	SH-44 (W State St) SH-16 / Can Ada Rd	Wide arterial with lack of bike facilities, gaps in sidewalk, and lack of crossing opportunities.	1, 2, 3, 4, 5, 6, 7, 9, 12, 13, 21, 24, 31, 35, 39, 40,41, 42	Install gateway features. Provide protected bike facilities (protected bike lanes or shared-use path) Install enhanced mid-block pedestrian crossings.	Medium	
Star	ACHD/ITD	Systemic	Intradevelopment Locations	Lack of connectivity for walking and biking between ongoing development and existing attractors.	4, 5, 6, 7, 24, 31, 37, 42	Perform connectivity analysis to identify gaps in walking and biking network not anticipated to be filled by development. Install walking and biking facilities in gaps such as, sidewalks, protected bike lanes, shared-use paths, and roadway crossings (with enhanced crossing treatments).	High	
Star	ACHD/ITD	Systemic	Arterials and Collectors with Attractors	Lack of pedestrian crossings	4, 5, 6, 7	Install pedestrian crossings	High	
Wilder	Wilder	Location-Specific	US 95 (5th St) Mercer Dr / D Ave	Highway as Main Street	1, 4, 5, 6, 7, 21, 23, 24, 31, 35, 37	Connectivity: Reallocate existing roadway space to provide a 3-lanes of motor vehicle traffic and buffered bike lanes. Provide median enhanced crosswalks. Lighting. Speed Management: Reduce speed limit, add advanced warning signs. Add speed feedback signs.	High	
Wilder	Wilder	Systemic	Low Volume, Local and Collector Streets	Lack of pedestrian and bicycle connectivity	1, 21	Fill sidewalk gaps, and install "Mixed Traffic Facilities", such as yield roadway, bicycle boulevard, or advisory shoulder.	High	