



COLORADO

## Chapter 10: Implementation

Effective implementation of the Strategic Highway Safety Plan (SHSP) requires coordination and collaboration among all stakeholders. The SHSP defines a system, organization, and a process to achieve an enhanced level of roadway safety by integrating the work of the disciplines and agencies involved. Strategies and implementation efforts provide a structured framework to integrate efforts from local, county, regional, state, Tribal, and federal agencies, along with private sector and advocacy groups. This multidisciplinary approach unites all stakeholders in a shared mission to enhance roadway safety. This chapter outlines approaches to implementing the SHSP through action planning, collaborating, and monitoring.

## Focus Area Categorization

The SHSP identified Focus Areas that could have the greatest impact on fatalities and serious injuries over the next five years. In this section, Colorado looked deeper at the data trends within individual Focus Areas to identify commonalities that allow them to be grouped into categories to illustrate the underlying trend. The Focus Area categorization helps inform the development of effective actions based on these data trends.

Focus Area categories include:

- » **Safety Culture:** Focus Areas that are overarching and aim to grow safety supportive beliefs and behaviors among organizations and the public.
- » **High-Impact:** Focus Areas with the highest proportion of fatalities and serious injuries. Effective strategies in these areas will lead to greater impacts in reducing fatalities and serious injuries. Strategies and actions under the High-Impact Focus Areas will prioritize efforts proven to have a positive impact on safety. Engineers, planners, and other stakeholders can look to these Focus Areas to identify opportunities to have the greatest impact on reducing fatalities and serious injuries.
- » **Emerging and Monitoring:** These areas are experiencing increasing numbers of fatalities and serious injuries or other external factors such as policy changes or emerging technologies. Strategies and actions under the Emerging and Monitoring Focus Areas will evolve and be more flexible in response to the monitoring efforts. The strategies and actions will also be supported by data-driven successes while also being open to piloting new approaches.
- » **Double Down on Success:** Focus Areas where severe crash reduction is actively being addressed, and fatalities and serious injuries are stable or decreasing. These areas may have programs and policies in place or have active stakeholder initiatives supporting safety improvements. The Double Down on Success Focus Area strategies and actions replicate, adopt, and adapt activities with previous demonstrated success in improving safety.

Figure 10-1 illustrates the categorization of each Focus Area. Strategies within each Focus Area align with the overall category to encourage effective and efficient implementation. For example, strategies within Focus Areas under the Emerging and Monitoring category emphasize monitoring data trends and adjusting efforts to reflect the changing landscape of the safety challenges. In comparison, strategies under the Doubling Down on Success category aim to build on previous successes and expand effective programs and projects.





Figure 10-1: Focus Area Categorization

## Action Plans

Successful SHSP implementation will result in transportation safety improvements that save lives and reduce injuries. The SHSP is implemented through the objectives, strategies, and Annual Action Plans developed for each Emphasis Area.

Annual Action Plans are updated through the ATS initiative and identify next steps for selected strategies, assign implementation champions and establish timelines to turn SHSP concepts and ideas into a reality.

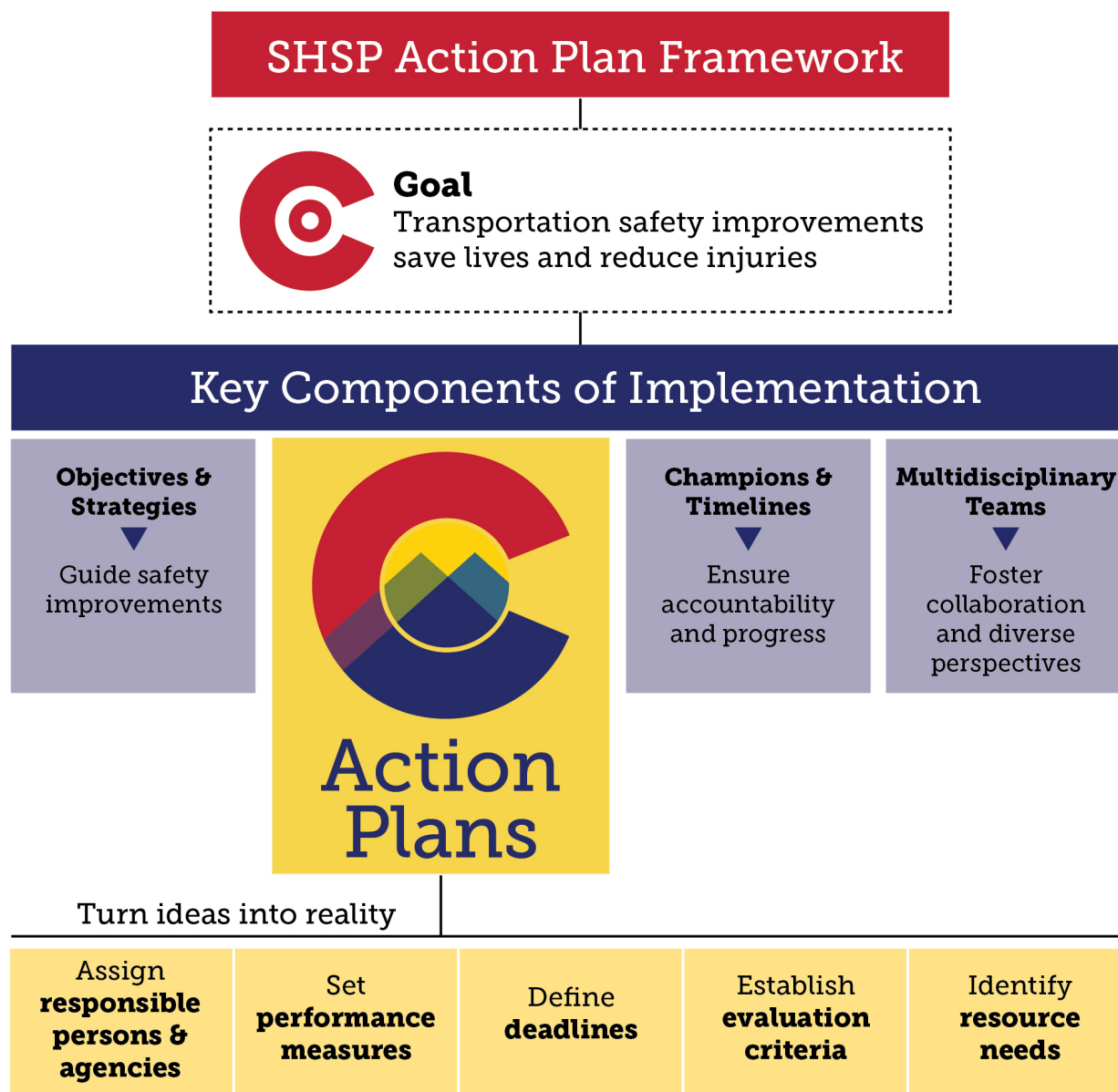


Figure 10-2: SHSP Action Plan Framework

The Emphasis Areas, Focus Areas, and strategies outlined in the SHSP create the framework for reducing fatalities and serious injuries. Action planning transitions from planning to effective implementation. The action planning framework is illustrated in Figure 10-2. The priority of action planning is to advance efforts within each Focus Area to reach the SHSP goals.

Annual Action Plans promote effective and efficient implementation as individual safety improvement actions are refined and improved over time. Changes in transportation safety are often unpredictable and require flexible strategies and actions. The SHSP is updated every five years, allowing five years for potential changes in areas such as legislation, technology, public health, planning and engineering, and best practices. For example, the recent introduction of the Colorado hands-free law, introduced a need for additional education and media outreach.

## Develop an Action Plan

The Advancing Transportation Safety (ATS) initiative develops Annual Action Plans that provide a blueprint for implementation of the SHSP. In order to produce, implement, and refine Annual Action Plans, ATS engages Emphasis Area Working Groups that meet monthly. At quarterly working group meetings, action champions report out on progress of each specific strategy.

The 2025 SHSP's inaugural Annual Action Plan will be informed by members of the ATS Emphasis Area Working Groups and finalized and adopted by the ATS Steering Committee by the end of Federal Fiscal Year (FFY) 2025. The Annual Action Plan is a living document with formal updates and reporting occurring at 12-month intervals over the life of the SHSP. Annual Action Plans will include assessment of strategy readiness and identification of funding sources, resources available, cost effectiveness, champions, inter-agency partnerships, performance measures, and timelines.

When identifying actions, ATS establishes the following:

» **Champion(s): Determine the stakeholder(s) to lead or support implementation.**

This process requires ATS members to identify which individuals will be responsible for a specific strategy or action.

» **Partnerships: Determine the long-term 'owner(s)' of the strategy.**

Many of the strategies selected for implementation benefit from collaboration across organizations and agencies. Members of ATS enlist support for the Champion(s) during implementation, often based on historical partnerships and shared safety improvement priorities. Other agencies may advance strategies independently through their own strategic planning or programming. In such cases, ATS maintains communication with the lead agencies to collect periodic updates and tracking information. Identifying who is the long-term owner and engaging them early fosters sustainability.

» **Effectiveness: Determine the potential impact on fatalities and serious injuries.**

The ATS initiative identifies the potential impact of each action on SHSP overall goals and Focus Area goals, and the cost-effectiveness of each action. Cost-effectiveness evaluations weigh the expense of implementing an action against its effectiveness in reducing fatalities and serious injuries measured in monetary terms using approved data sources, like Federal Highway Administration's (FHWA) Proven Safety Countermeasures, National Highway Traffic Safety Administration's (NHTSA) Countermeasures that Work, and the CMF Clearinghouse as well as evaluation results from peer states. For HSIP and other safety funding programs, formal cost-effectiveness of individual projects is developed at the time of grant application following the Benefit Cost Analysis (BCA) processes outlined in those programs. ATS also develops theories of change that define the needed skills/knowledge/beliefs and behaviors to achieve the desired outcomes, increasing the likelihood of timely and effective implementation.

» **Level of Effort: Determine the ease of implementation.**

This includes identifying the resources in place to support implementation or identifying and characterizing current and future challenges. Resources may include funding streams, staffing availability, policies, and political will.

The Annual Action Plans compile inputs for the above elements and determine a Readiness Score for implementation of SHSP strategies. The resulting scores identify strategies with the structures in place for immediate implementation and the greatest impact.

Strategies may also be categorized as mid-term (two-to three years) and long-term (four to five years). For example, mid-term strategies have supporting elements, such as proven effectiveness, but lack sustained champions or resources. Actions for mid-term strategies may focus on securing needed resources or selecting a champion to increase the strategy's readiness. Actions for long-term strategies may include additional groundwork such as identifying financial support, educating stakeholders, growing support among leaders, and identifying potential champions.

The ATS Annual Action Plan process allows the ATS to codify a focused implementation roadmap that stays current and adapts over the five-year implementation period of the SHSP.

## Action Plan Reporting and Evaluation

Led by the groundwork conducted to measure strategy readiness and identify powerful actions, Annual Action Plans and Annual Reports serve as the mechanism to report and measure success in SHSP implementation. Annual Reports evaluate the current status of actions within each strategy, and analyze data to determine progress on the performance measurement targets identified in the SHSP at the Focus Area and Statewide levels. Annual Reports are utilized by the Emphasis Area Working Groups and Steering Committee to develop and refine the subsequent Annual Action Plan. Annual Reports will be completed alongside development of the Annual Action Plan.

Regular meetings with ATS members provide an opportunity for reporting on the progress of assigned strategies and actions, supporting continuous improvement and collaborative problem solving. Additionally, Annual Action Plans evaluate the effectiveness of ATS, identifying which strategies and actions were successfully implemented and which outstanding strategies and actions need to be incorporated into the next year's Annual Action Plan.

This evaluation process also provides opportunities for action items to be reassigned, redirected, or removed. Implementation efforts are intended to be flexible to reflect the changes and progress in highway safety-related challenges. Annual Action Plans are nimble and proactive, allowing for ATS and other partners to take on strategies and action items suitable to the implementation environment. Successes illuminate opportunities to double down on what works—both continuing along the forged path as well as applying new concepts to other Focus Areas to test applicability. Challenges or setbacks are opportunities to learn, adjust, and try again.

**Readiness Score:** Members of ATS review strategies for existing partnerships, anticipated effectiveness, estimated level of effort, and existing champions. The exercise results in a Readiness Score that identifies strategies best primed for early implementation. Annual Action Plans document this process annually to identify the strategies ready for implementation each year.

## Promote Additional and Alternative Strategies

While the SHSP is intended to be a holistic roadmap for saving lives, not all elements of traffic safety are featured explicitly within the plan or its strategies. The SHSP prioritizes areas where the State of Colorado can see the largest improvement in safety, and while these are crucial for realizing the SHSP Vision, the plan recognizes that other smaller or tangential efforts also contribute to reducing fatalities and serious injuries.

There is flexibility within SHSP implementation to adapt to new and changing priorities, specifically in support of proven countermeasures, programs, and policies. Implementation efforts are not limited to the strategies identified in the SHSP. The SHSP encourages safety partners to promote and implement strategies to advance transportation safety across the state, including innovative strategies. The SHSP is a tool for identifying regional challenges and expanding opportunities to implement data-driven solutions.

## Align With Regional and Local Safety Planning Efforts

The SHSP's Vision and Mission recognize that achieving zero fatalities and serious injuries requires collaboration with agencies and partners across Colorado. Aligning regional and local safety planning efforts with the SHSP furthers the Safe System Approach tenet that responsibility is shared. Regional and local jurisdictions are encouraged to participate in statewide safety planning initiatives such as ATS, Emphasis Area Working Teams, the Safety Summit, transportation safety task forces, and support safety related legislative efforts. The Statewide Safety Champion, ATS, and Safety Circuit Rider Program are resources for local and regional safety improvements and strategy implementation.

## Identify Funding and Resources

The SHSP must be updated every five years to maintain Colorado's eligibility for federal Highway Safety Improvement Program (HSIP) funding. Each state receives HSIP funds to implement safety programs and projects to improve safety on their roadways. In turn, each state must submit an annual report summarizing the implementation and effectiveness of those safety programs and projects. Colorado's safety expenditures are not limited to HSIP funds, and this section outlines funding resources local agencies can use to address the safety Focus Areas in this plan.

While HSIP funding supports infrastructure improvements, NHTSA focuses on human behavior-related safety initiatives. NHTSA requires Colorado to submit a Triennial Highway Safety Plan (3HSP) and promotes highway safety awareness programs and initiatives. The SHSP's safety priorities align with both the HSIP and 3HSP. Related NHTSA safety improvement initiatives include Section 402 and Section 405 funding programs.

Local agencies can apply for several discretionary grants based on community needs. The Infrastructure Investment and Jobs Act (IIJA) established the Safe Streets and Roads for All (SS4A) program, allocating \$5 billion from 2022 to 2026. Communities receiving SS4A grants are first tasked with developing a safety action plan and can then apply for implementation grants.

Additional discretionary grants are available to improve transportation safety, including Safe Routes to School, Infrastructure for Rebuilding America (INFRA) Grant Program, Railroad Crossing Elimination (RCE) Grant Program, and the Tribal Transportation Program Safety Fund (TTPSF). Colorado's Local Technical Assistance Program (LTAP) offers assistance with securing funding for local roadway safety improvements.

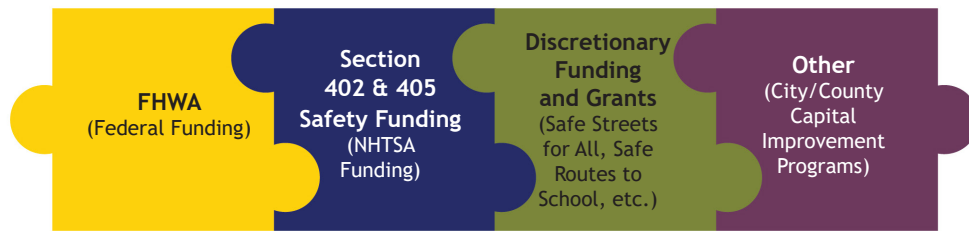


Figure 10-3: Grant Funding Programs and Sources

## Implement the Safe System Approach

The implementation process utilizes the Safe System Approach (SSA) as a guide for holistic safety improvements across Colorado. The SHSP and identified strategies reflect the needs within the Safe System elements (Safety Culture, Safe Driving, Safe People, Safe Roads, Post-Crash Care) and implementation processes will rely heavily on realizing the principles of the SSA. The mechanisms for realizing these principles are highlighted below.

### Death and Serious Injuries are Unacceptable

Implementing the principle that “Death and Serious Injuries are Unacceptable” in Colorado requires a comprehensive vision centered on zero traffic-related fatalities and serious injuries. Each Focus Area within the SHSP sets targets to contribute to the overall goal, with the High Impact Focus Areas having the greatest potential to reduce fatalities and serious injuries. Assessing the effectiveness of these strategies is crucial, and the ATS Annual Action Plan Readiness Score is an essential tool in this regard. Strategies with high Readiness Scores may have success in reducing crash severity and frequency in the near term, subject to sustainable funding and staffing. By focusing implementation efforts on strategies that have a high Readiness Score, Colorado capitalizes on efforts likely to yield “quick wins,” while simultaneously working to improve the readiness of equally important longer term strategies.

### Humans Make Mistakes

This SSA principle involves designing and operating a transportation system that accommodates human errors, preventing common mistakes from leading to deaths or serious injuries. Recognizing that mistakes are inevitable, the SHSP strategies and actions focus on creating forgiving road environments that increase safety redundancy and minimize the consequences of human errors. This involves implementing roadway infrastructure that prevents or minimizes the impacts of crashes if mistakes do occur and exploring advanced technologies to assist roadway users and operators. Colorado’s approach is adaptive and reflects regional needs—whether addressing the high speeds common in rural areas or managing the high volumes of pedestrians and bicyclists in urban areas. By integrating these safety measures and applying a data-driven approach, Colorado remains committed to a context-sensitive approach that includes redundancy to prioritize human life when mistakes occur.

### Humans are Vulnerable

Recognizing that human bodies have finite tolerance for crash forces, the SHSP addresses separating users in time and space and reducing speeds and speed-related behaviors to minimize the impact of



crashes and increase chances of survival. Infrastructure design, lighting, advanced technologies, road signage, and other improvements included in the SHSP improve safety for all users with an emphasis on Colorado's Vulnerable Road Users (VRUs) including pedestrians, bicyclists, and older road users. The state aims to build a transportation system inherently protective of human life and resilient to human vulnerabilities, so that even in the face of errors, fatalities and serious injuries are significantly reduced.

## Safety is a Shared Responsibility

Safety is a shared responsibility involving various stakeholders including planners, designers, public health representatives, first responders, the court system, and road users. Each partner has a unique perspective of the larger system. Primary leaders in implementing the SHSP and sharing the responsibility include the ATS initiative, the Statewide Safety Champion, and agency plan signatories.

### ATS:

- » Led by state agency leaders and comprises federal, state, regional, Tribal, and local stakeholders.
- » Evaluates program outcomes annually.
- » Establishes policies, reviews progress, addresses challenges, and promotes collaboration.
- » Develops and implements annual action plans for implementation of SHSP strategies.
- » Meets regularly to track progress and develop performance measures.
- » Provides quarterly progress reports and recommendations to the ATS Steering Committee and to CDOT's Transportation Safety Sponsor Committee.

### Organizational Safety Culture: Transportation Safety Sponsor Committee

The Transportation Safety Sponsor Committee, led by CDOT's Chief Engineer, is a committee of CDOT leaders committed to improving traffic safety and fostering safety culture at the organizational level. It is composed of CDOT executive leaders such as the Deputy Director, Chief of Staff, Regional Transportation Directors, and Division Directors for Maintenance and Operations, Communications, and the Office of Transportation Safety. Staff from various CDOT divisions involved in safety give regular updates and receive guidance from the committee.

### Statewide Safety Champion:

- » Manages SHSP coordination and evaluation.
- » Serves as the communication link between the ATS Steering Committee and Emphasis Area teams.
- » Oversees safety events and provides analytical support.
- » Reviews progress and coordinates SHSP updates.

### Plan Signatories:

- » Promote the pillars identified in the SHSP Partner Pledge: Shared Ownership, Mutual Agency, and Accountability.
- » Lead strategies and action steps relevant to each agency or organization.
- » Engage in events, meetings, and initiatives that support the SHSP's success.
- » Provide resources and expertise to advance the SHSP's implementation.
- » Advocate for a culture of safety by promoting the SHSP whenever possible.

## Safety is Proactive

Implementing a proactive approach to safety requires forward-thinking strategies that anticipate and address safety risks before they result in crashes. The proactive approach includes continuous monitoring of data trends to identify and address emerging safety challenges promptly, rather than waiting for the next five-year plan cycle. Additionally, the SHSP emphasizes risk-based applications like the early identification of high-risk areas and targeted enforcement campaigns to mitigate specific behaviors such as distracted, speeding, or impaired driving. By creating a dynamic system that quickly responds to new data and evolving conditions, Colorado commits to a safety culture where proactive measures continuously improve road safety and prevent crashes from becoming more severe.

## Redundancy is Crucial

As demonstrated throughout the SHSP, Focus Areas often have overlapping safety concerns and strategies. While overlapping strategies may feel redundant, this redundancy is crucial for maintaining a safe transportation system. If one part fails, other parts of the system can prevent fatalities and serious injuries and fulfill the SHSP Vision. This redundancy is present among SHSP strategies and the bodies responsible for implementation. This principle is best illustrated using the “Swiss cheese model” where elements of the roadway network and contributing factors are aligned in layers. When a gap or failure occurs, the next layer of the system intervenes to prevent the failure from leading to a fatality or serious injury.

In the Swiss cheese model, the risk of a crash occurring can be modeled as a series of slices of Swiss cheese. If each slice of cheese represents a layer of defense (for example, wearing a seat belt, driving defensively, a well-maintained vehicle), then each hole represents a weakness in the system. A fatal or serious injury crash occurs when a hole in each slice momentarily aligns, permitting a system failure to occur. More layers of protection (redundancy) reduces the likelihood of a fatal or serious injury crash.

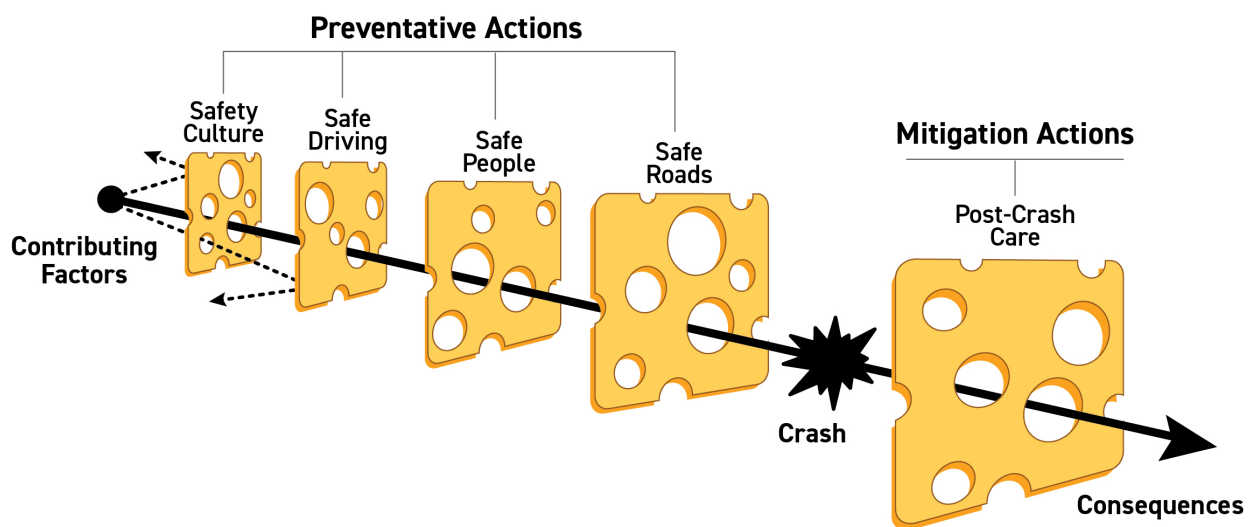


Figure 10-4: Safe System Swiss Cheese Graphic

# Performance Measures and Evaluation

The SHSP aims to reduce fatalities and serious injuries on Colorado’s roadways. It sets performance targets for 2025-2029, relying on lead agencies to implement strategies and allocate resources effectively. The SHSP performance measures align with the 10-year Statewide Plan and Policy Directive 14, which identifies a goal of a 5% reduction in fatalities and serious injuries on a year-over-year basis.

The same performance targets apply for all fatalities and serious injuries, including VRUs. Each Focus Area in the plan will be monitored to identify progress and areas needing additional attention.

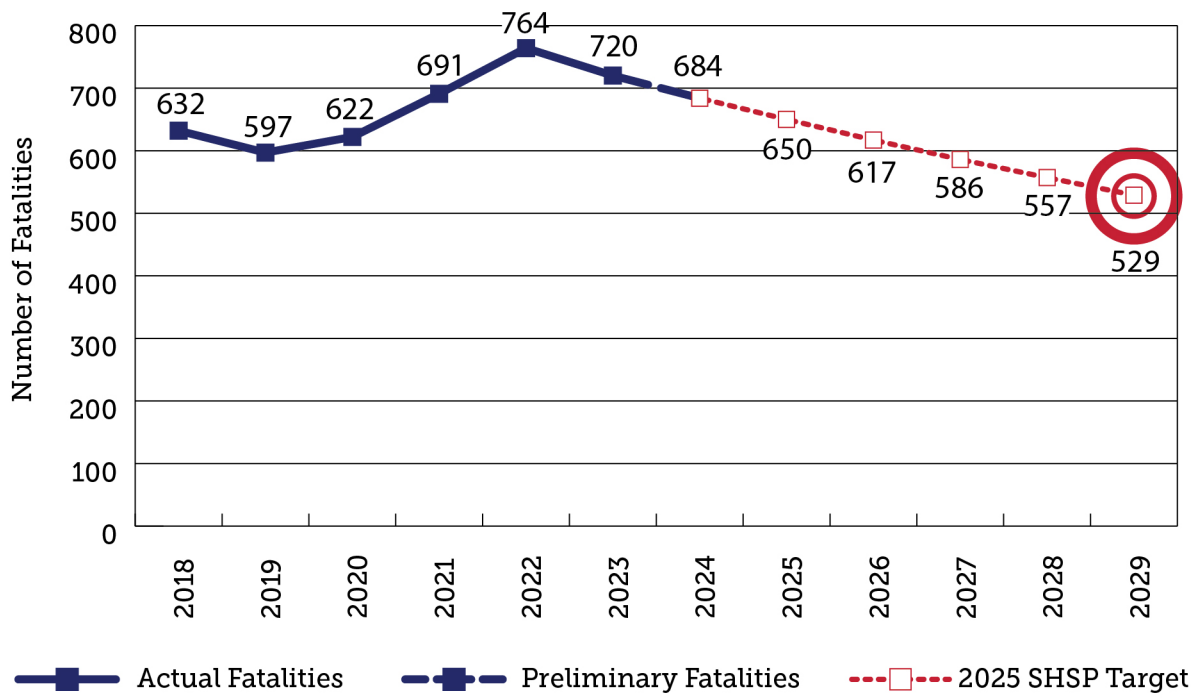


Figure 10-5: Fatalities Performance Measure Goal

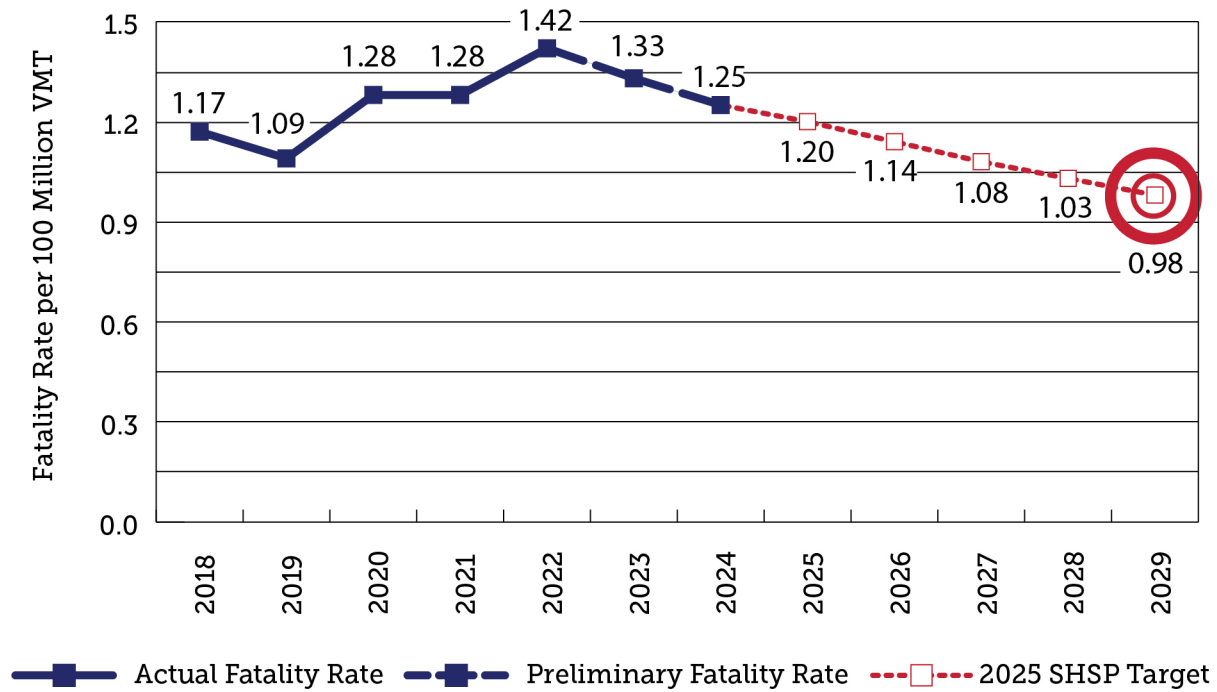


Figure 10-6: Fatality Rate Performance Measure Goal

Note: 2023/2024 VMT Miles not finalized, projected .06% growth rate used.

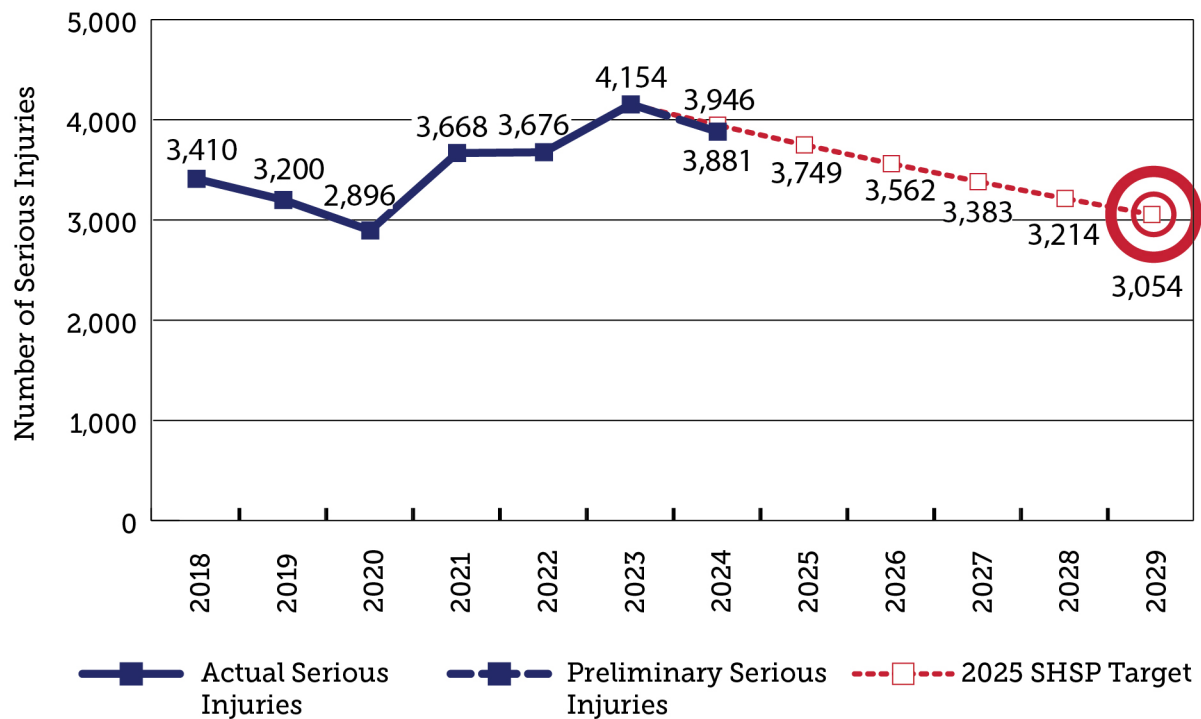


Figure 10-7: Serious Injuries Performance Measure Goal



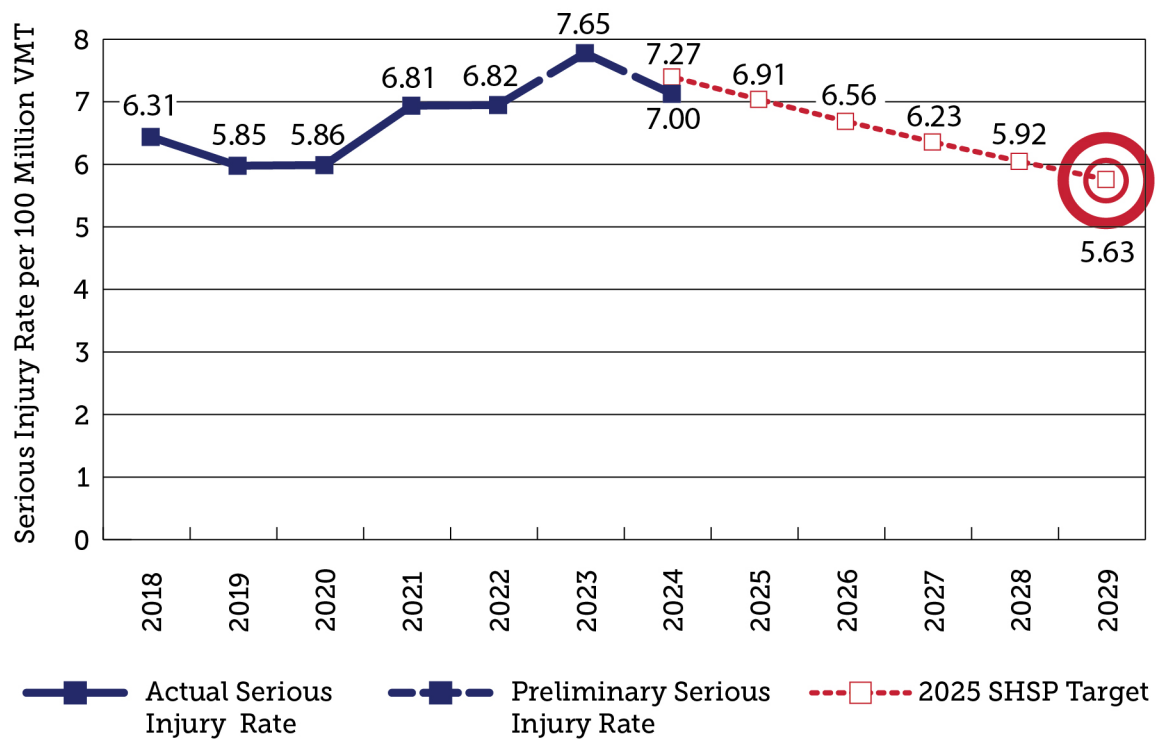


Figure 10-8: Serious Injury Rate Performance Measure Goal

Note: 2023 VMT Miles not finalized, projected .06% growth rate used.

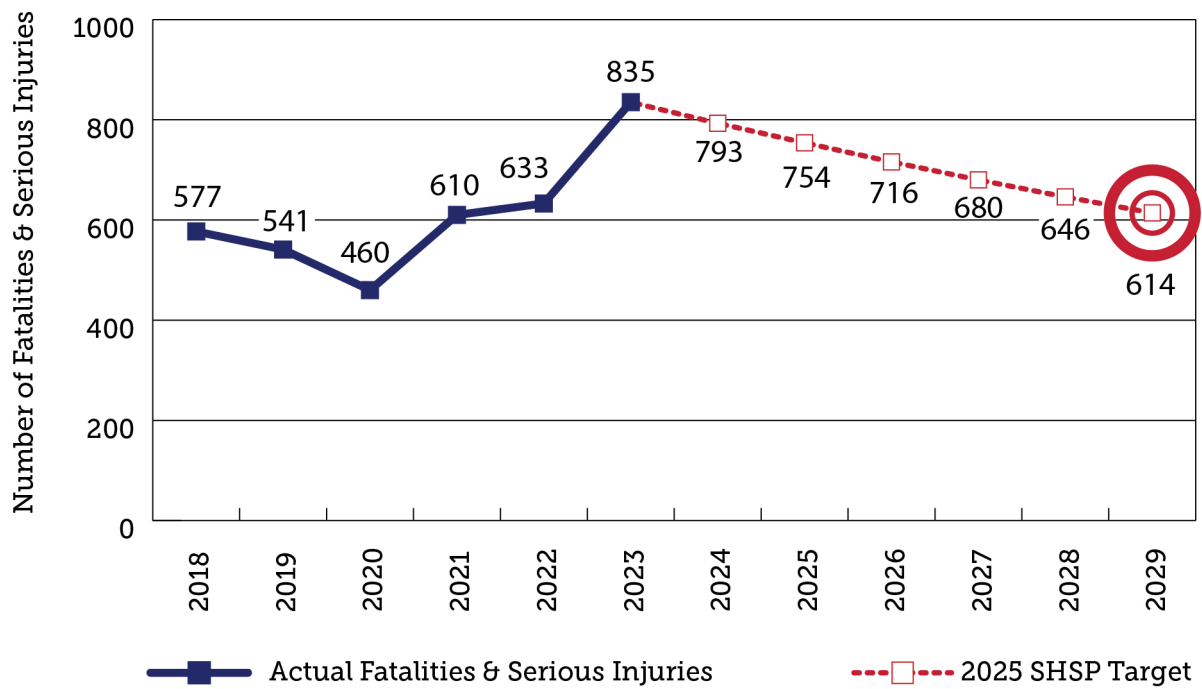


Figure 10-9: Pedestrian and Bicyclist Fatalities and Serious Injuries Performance Measure Goal

## Alignment with Other Performance Measures (WIGs, PD-14, HSP)

Several statewide plans align with the SHSP, reinforcing shared transportation safety goals.

- » Wildly Important Goals (WIGs): The Governor of Colorado requires all state departments to establish WIGs. Colorado's WIG for transportation safety aims to reduce traffic fatalities and serious injuries by 22.5% from 2023 to 2027. The WIGs are more aggressive and follow a shorter timeline to coincide with the Governor's term. In contrast, the SHSP has a longer term vision, extending through 2029.
- » Policy Directive 14.0 (PD-14): PD-14 establishes the framework for developing and implementing Colorado's 2050 Statewide Transportation Plan and 10-year plan by establishing performance goals and targets to help guide strategic transportation investments, advance transportation safety, fix our roads, and sustainably increase transportation choice.
- » Triennial Highway Safety Plan (3HSP): Developed by CDOT's Highway Safety Office, the 3HSP establishes hundreds of performance measures, many of which align with the SHSP. Ensuring consistency between the next major 3HSP update and the SHSP will help unify statewide safety goals.
- » Colorado Highway Safety Improvement Program (HSIP) Manual: Developed by CDOT's Traffic Safety Engineering Branch, the HSIP Manual identifies what HSIP is, how to apply for HSIP funds, and how projects will be prioritized to receive HSIP funding. Projects that apply for HSIP funding will be prioritized based on their alignments with the strategies identified in the SHSP and actions identified in the accompanying action plan. This plan and the HSIP Manual work hand in hand to assist agencies in applying for HSIP funds for projects that align with SHSP.