

Welcome! We'll begin soon.

Meeting Administration



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meeting on
mute



To ask a
question, use
the Q&A
function



Participate
in poll
questions



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Captions"
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Mute



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Participants 2



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SS4A July Community of Practice Meeting: Safe System Approach

July 10, 2024



U.S. Department of Transportation
Federal Highway Administration

ZERO IS OUR
GOAL
A SAFE SYSTEM IS HOW WE GET THERE

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Today's Speakers

Host



Jessica Rich
SS4A Program Manager
Office of Safety, FHWA

Guest Speaker



Jeff Shaw
Intersection Safety Program Manager
Office of Safety, FHWA

Guest Speaker



Chimai Ngo
Vision Zero Program Manager
Office of Safety, FHWA



Today's Agenda



1. Welcome



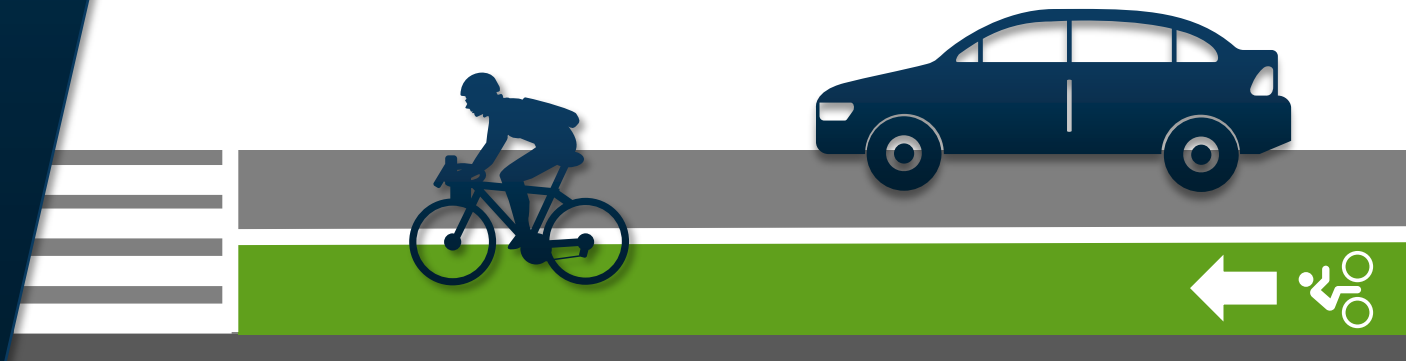
2. Technical Assistance Center Updates



3. Safe System Approach Explained



4. Next Steps and Q&A





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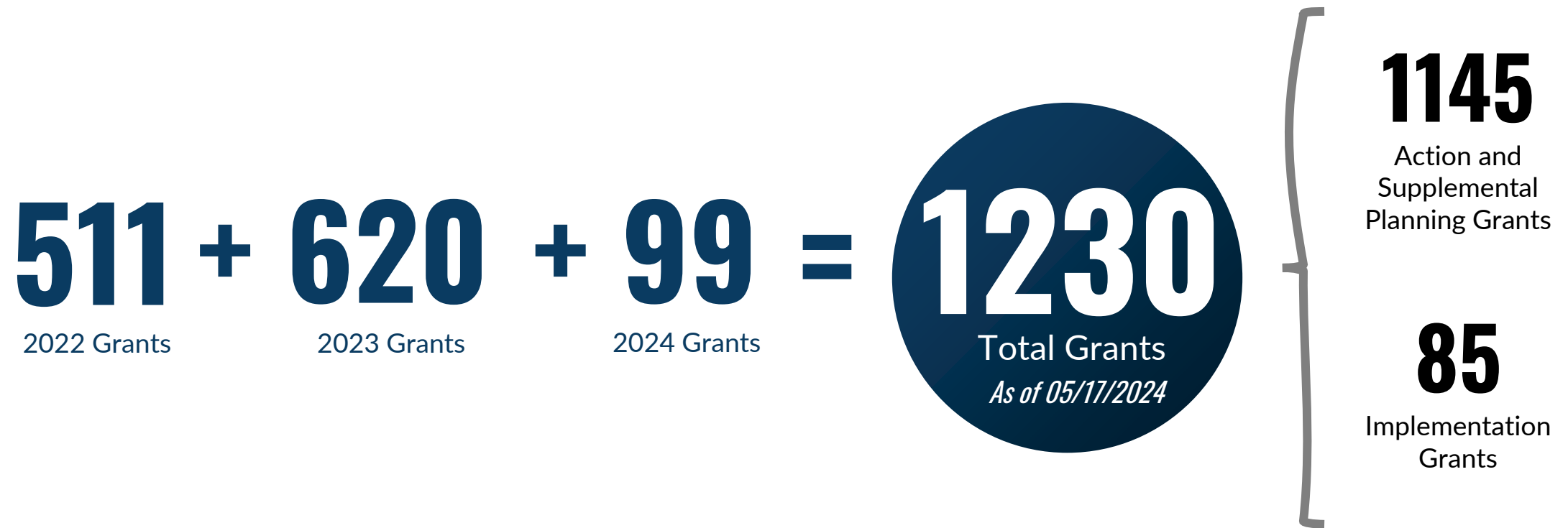
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Welcome



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Welcome, New SS4A Grant Community Members!



Technical Assistance Center Updates

The SS4A Technical Assistance Center (TAC) is part of the broader grant program and provides information and educational resources for SS4A grant recipients.



Clearinghouse Website

<https://www.ss4aclearinghouse.org/>

Provides a resource library and other technical assistance resources. You can find:

- Past trainings and webinars
- Searchable resource library
- CoP meeting materials
- FAQs, and more



One-on-One Technical Assistance

[Request assistance using this form.](#)

Provides customized support for technical roadway safety topics, including Action Plan components. For example, you can request support on your:

- Data collection and analysis,
- Public engagement strategies,
- Project prioritization, and more





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The Safe System Approach



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Safe System Approach

Zero roadway fatalities is our goal.
A Safe System is how we will get there.

The Safe System approach aims to eliminate fatal and serious injuries for all road users by:



Accommodating human mistakes



Keeping impacts on the human body at tolerable levels



Source: [Zero Deaths and Safe System | FHWA \(dot.gov\)](https://www.fhwa.dot.gov/safety/zero-deaths-and-safe-system/)

Safe System Approach

6 Principles



Source: [Zero Deaths and Safe System | FHWA \(dot.gov\)](https://www.fhwa.dot.gov/safety/zero-deaths-and-safe-system/)

The 6 Safe System Principles



Death/serious injury is unacceptable



Safety is proactive



Humans make mistakes



Responsibility is shared



Humans are vulnerable



Redundancy is crucial

Source: FHWA



Source: Vision Zero Network

The 6 Safe System Principles



Death/serious injury is unacceptable



Safety is proactive



Humans make mistakes



Responsibility is shared



Humans are vulnerable



Redundancy is crucial

Source: FHWA



Source: Fehr & Peers

The 6 Safe System Principles



Death/serious injury is unacceptable



Safety is proactive



Humans make mistakes



Responsibility is shared

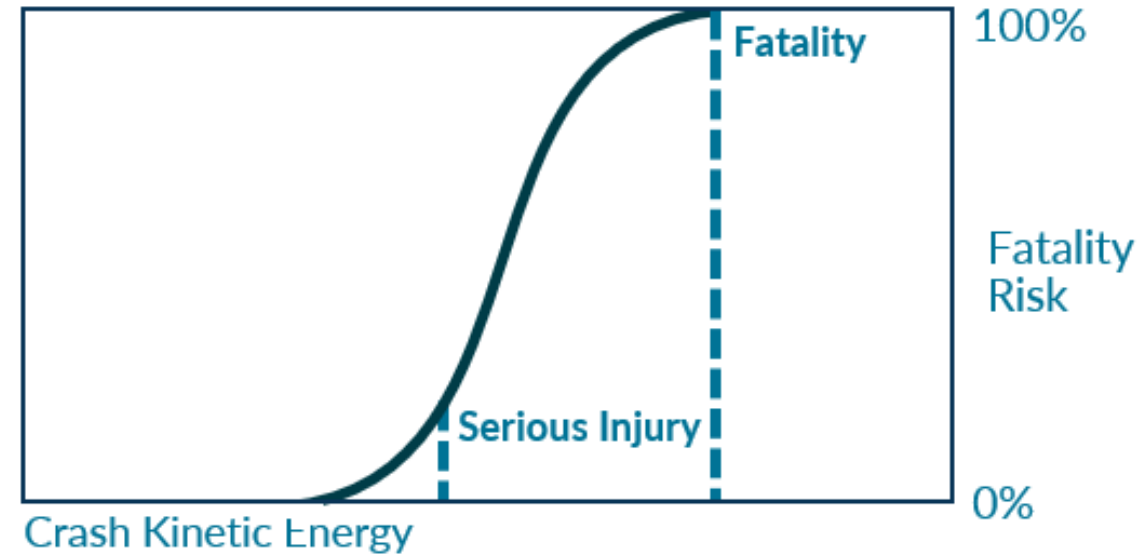


Humans are vulnerable



Redundancy is crucial

Source: FHWA



Source: FHWA

The 6 Safe System Principles



Death/serious injury is unacceptable



Safety is proactive



Humans make mistakes



Responsibility is shared



Humans are vulnerable



Redundancy is crucial

Source: FHWA



Identify risks



Mitigate risks

The 6 Safe System Principles



Death/serious injury is unacceptable



Safety is proactive



Humans make mistakes



Responsibility is shared



Humans are vulnerable



Redundancy is crucial

Source: FHWA



- **System managers**
 - Planners, designers, builders, operators, maintenance workers
- **Vehicle manufacturers**
- **Law enforcement personnel**
- **Post-crash personnel**
- **System users**

The 6 Safe System Principles



Death/serious injury is unacceptable



Safety is proactive



Humans make mistakes



Responsibility is shared



Humans are vulnerable



Redundancy is crucial

Source: FHWA



Safer road users



Safer vehicles



Safer speeds



Safer roads



Post-crash care

Safe System Approach

5
Elements



Source: [Zero Deaths and Safe System | FHWA \(dot.gov\)](#)

The 5 Safe System Elements



Safer vehicles



Safer speeds



Safer roads



Safer road users



Post-crash care

Active safety

Measures to reduce the chance of a crash occurring

- Lane departure warning
- Autonomous emergency braking

Passive safety

Protective systems for when crashes do occur

- Seatbelts and airbags
- Crash-absorbing vehicle crumple zones

The 5 Safe System Elements



Safer vehicles



Safer speeds



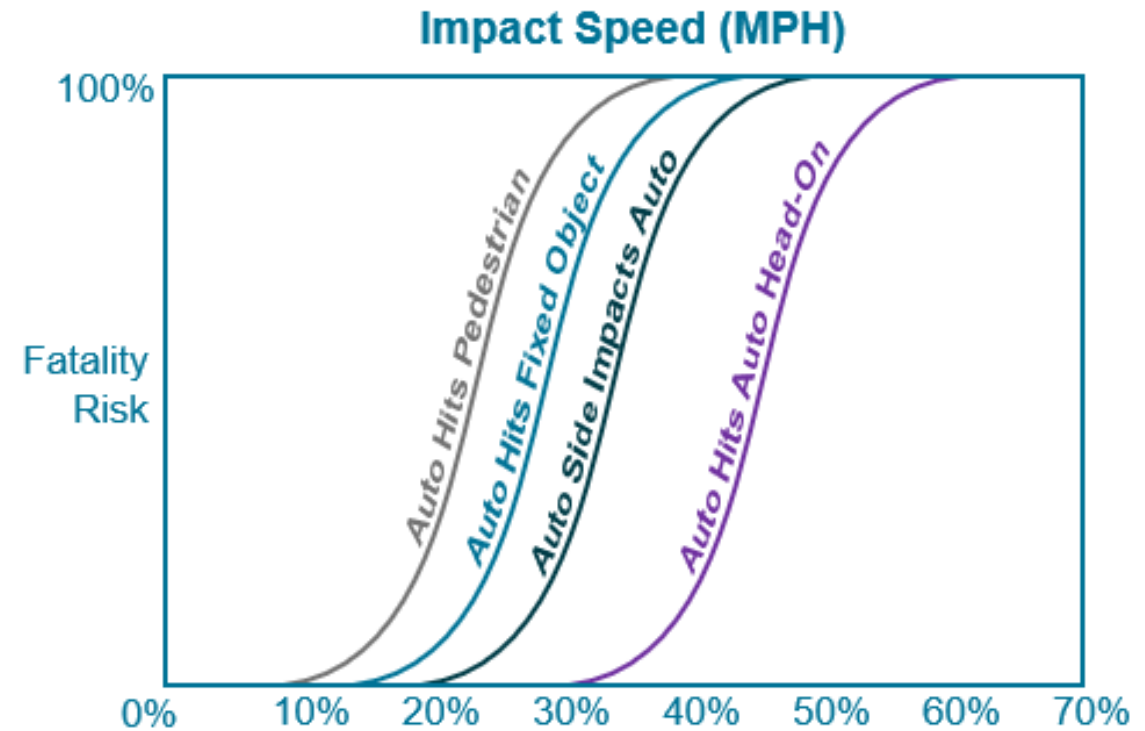
Safer roads



Safer road users



Post-crash care



Source: FHWA

“Speed is at the heart of a forgiving road transport system. It transcends all aspects of safety: without speed there can be no movement, but with speed comes kinetic energy and with kinetic energy and human error come crashes, injuries, and even deaths.”

Organization for Economic Co-operation and Development

The 5 Safe System Elements



Safer vehicles



Safer speeds



Safer roads



Safer road users



Post-crash care

Safe roads are designed and operated to:

1. Prevent severe crashes
2. Keep impacts on the human body at tolerable levels

Preventing crashes involves:



Separating users in space



Separating users in time



Increasing attentiveness and awareness

Source for all images:
Fehr & Peers

The 5 Safe System Elements



Safer vehicles



Safer speeds



Safer roads



Safer road users



Post-crash care



Walk



Bike



Drive



Transit



Other

The 5 Safe System Elements



Safer vehicles



Safer speeds



Safer roads



Safer road users



Post-crash care



First responders



Medical care



Crash
investigation



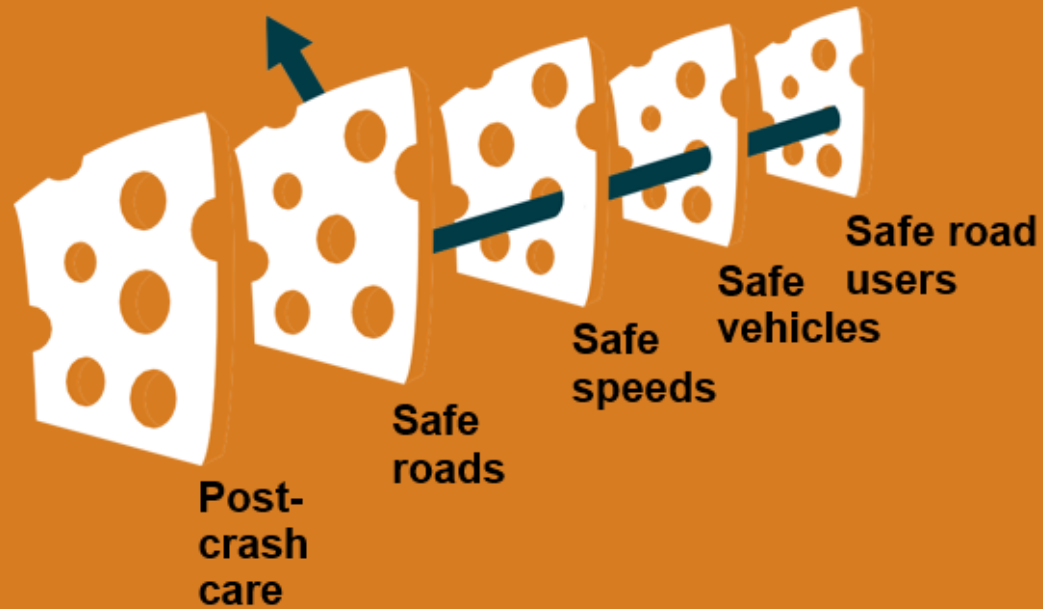
Traffic incident
management



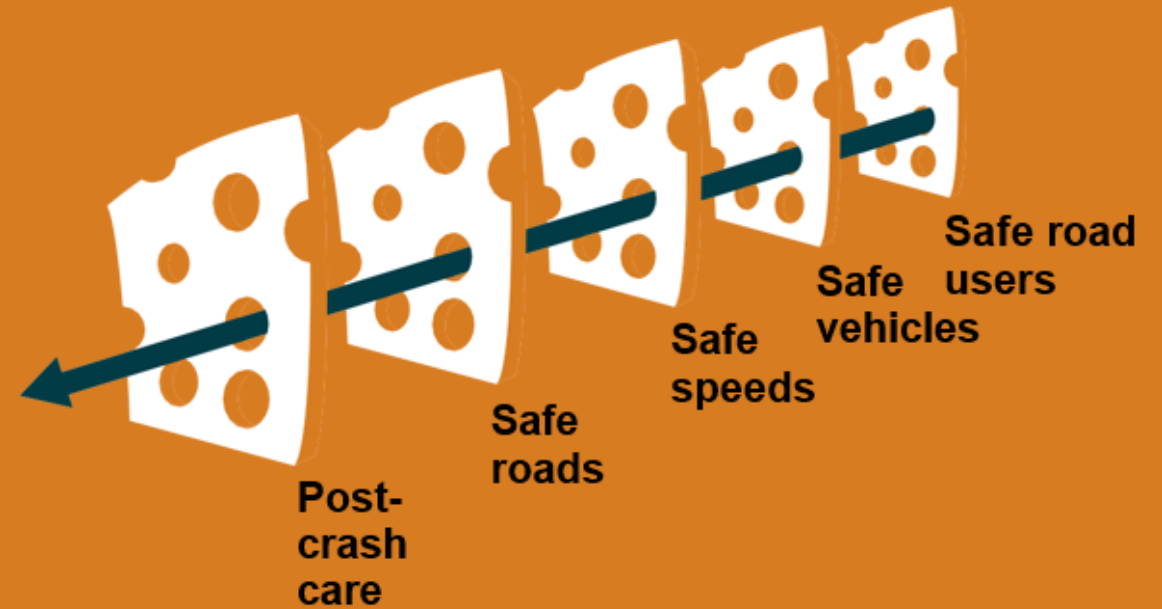
Justice

Supporting the Safe System Approach

The “Swiss Cheese Model” of redundancy creates layers of protection



Death and serious injuries only happen when all layers fail



Comprehensive Safety Action Plans

What are Comprehensive Safety Action Plans (Action Plans)?

- Action Plans are the basic building block to significantly improve roadway safety.
- The goal of an Action Plan is to develop a holistic, well-defined strategy to prevent roadway fatalities and serious injuries.

A successful Action Plan includes the following eight components:



1. Leadership commitment and goal setting



2. Planning structure



3. Safety analysis



4. Engagement and collaboration



5. Policy and process changes

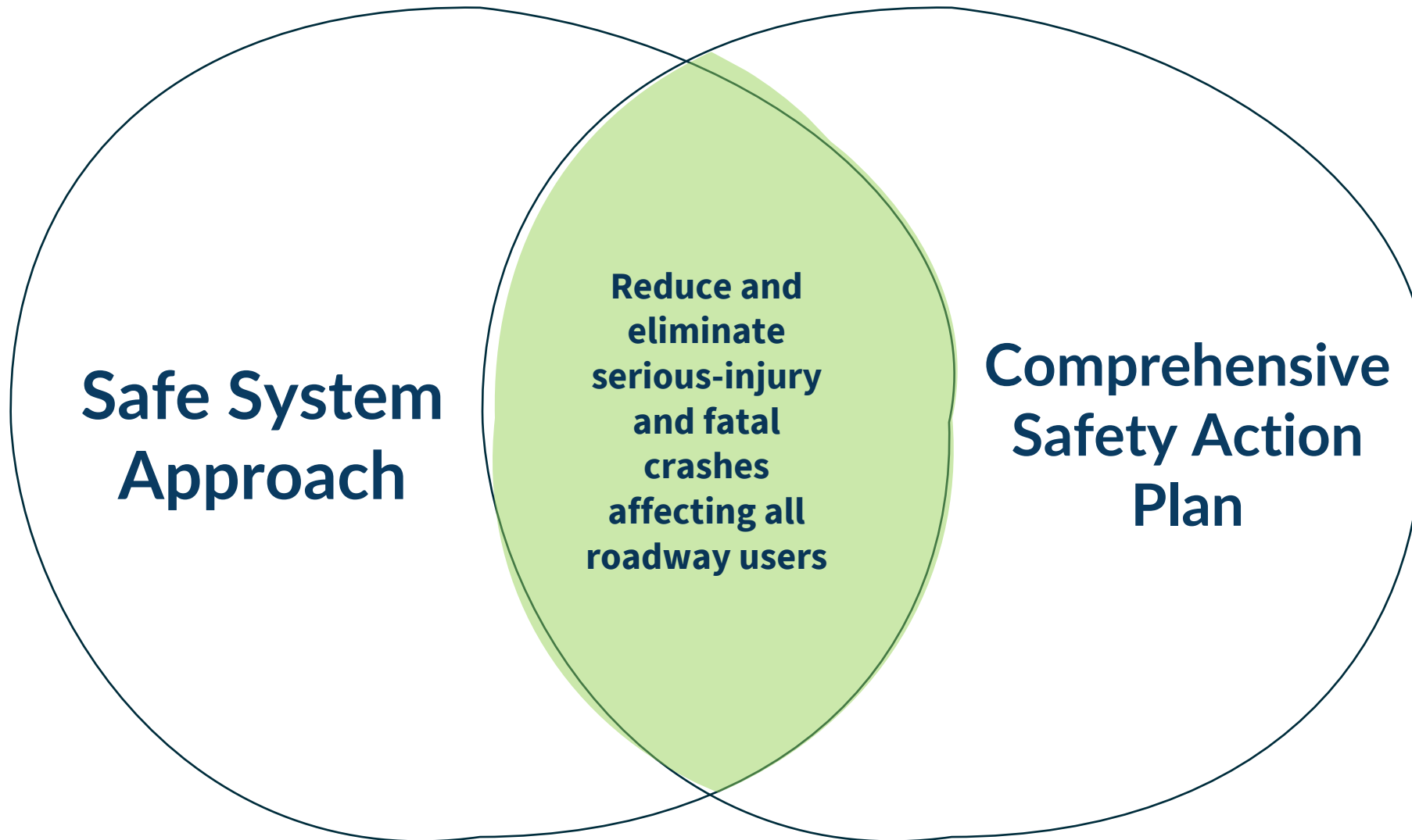


6. Strategy and project selections



7. Progress and transparency

Safe System Approach and Action Plans



Safe System Approach Principles and Action Plans Work Together

Action Plan	1. Leadership Commitment and Goal Setting	2. Planning Structure	3. Safety Analysis	4. Engagement and Collaboration	5. Policy and Process Change	6. Strategy and Project Selection	7. Progress and Transparency
Safe System Approach Principles	Death and Serious Injuries are Unacceptable	Responsibility is Shared	Death and Serious Injuries are Unacceptable	Responsibility is Shared	Safety is Proactive	Safety is Proactive	Responsibility is Shared
	Responsibility is Shared	Humans Make Mistakes	Safety is Proactive	Humans are Vulnerable	Redundancy is Crucial	Redundancy is Crucial	Death and Serious Injuries are Unacceptable

Tools for Integrating the Safe System Approach

Safe System Policy-Based Alignment Framework

The Safe System Policy-Based Alignment Framework is a tool to help agencies assess policies and safety planning documents in a holistic manner through a Safe System lens.

[Access this resource here.](#)

Safe System Project-Based Alignment Framework

The Safe System Project-Based Alignment Framework (Project-Based Framework) was developed to assess roadway locations and potential improvements through a Safe System Approach lens.

[Access this resource here.](#)

Safe System Roadway Design Hierarchy

The Safe System Roadway Design Hierarchy is a tool that characterizes engineering and infrastructure-based countermeasures and strategies relative to their alignment with the Safe System Approach.

[Access this resource here.](#)

Vision Zero Toolkit

The Vision Zero Toolkit provides communities, organizations, and advocates with tools and resources to advance Vision Zero. Each section includes a variety of available resources, as well as notable practices from Vision Zero communities.

[Access this resource here.](#)

Safe System Approach Video

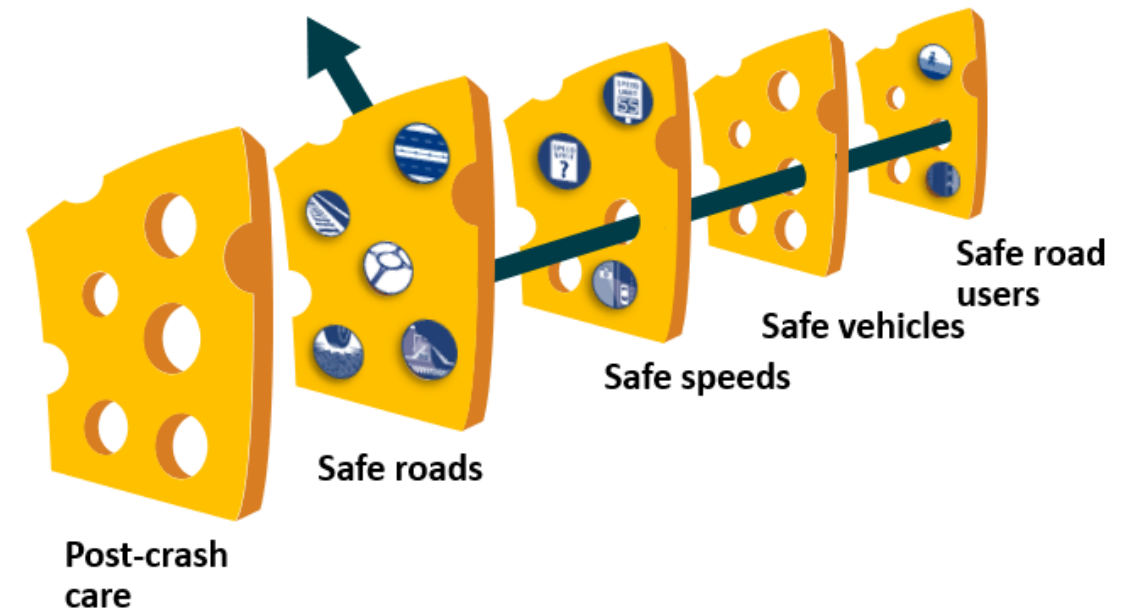
The video provides an overview of the philosophy behind the Safe System Approach and uses a scenario that illustrates opportunities to save lives when SSA is implemented.

[Access this resource here.](#)

Tools for Integrating the Safe System Approach

Proven Safety Countermeasure	Tier 1 Remove Severe Conflicts	Tier 2 Reduce Vehicle Speeds	Tier 3 Manage Conflicts in Time	Tier 4 Increase Attentiveness and Awareness
Speed Management				
<u>Appropriate Speed Limits for All Road Users</u>		✓		
<u>Speed Safety Cameras</u>		✓		
<u>Variable Speed Limits</u>				
Pedestrian/Bicyclist				
<u>Bicycle Lanes</u>	✓			
<u>Crosswalk Visibility Enhancements</u>				
<u>Leading Pedestrian Interval</u>				
<u>Medians and Pedestrian Refuge Islands</u>	✓			
<u>Pedestrian Hybrid Beacons</u>				✓
<u>Rectangular Flashing Beacons (RRFB)</u>				
<u>Road Diets</u>	✓			
<u>Walkways</u>	✓			
Roadway Departure				
<u>Enhanced Delineation for Horizontal Curves</u>				
<u>Longitudinal Rumble Strips and Stripes</u>				
<u>Median Barriers</u>	✓			
Roadway Departure (continued)				
<u>Roadside Design Improvements at Curves</u>	✓			
<u>SafetyEdgeSM</u>	✓			
<u>Wider Edge Lines</u>				✓
Intersections				
<u>Backplates with Reflective Borders</u>				✓
<u>Corridor Access Management</u>	✓			
<u>Dedicated Left and Right Turn Lanes at Intersections</u>	✓			
<u>Reduced Left Turn Conflict Intersections</u>	✓			
<u>Roundabouts</u>	✓	✓		
<u>Systemic Application of Multiple Low-Cost Countermeasures at Stop-Controlled Intersections</u>				✓
<u>Yellow Change Intervals</u>			✓	
Crosscutting				
<u>Lighting</u>				✓
<u>Local Road Safety Plans</u>	✓	✓	✓	✓
<u>Pavement Friction Management</u>	✓	✓		
<u>Road Safety Audit</u>	✓	✓	✓	✓

The “Swiss Cheese Model” of redundancy creates layers of protection:



Adapted from James Reason’s model for analyzing accident causation
<https://royalsocietypublishing.org/doi/10.1098/rstb.1990.0090>

Tools for Integrating the Safe System Approach

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Safe System Approach Video

The video provides an overview of the philosophy behind the Safe System Approach and uses a scenario that illustrates opportunities to save lives when SSA is implemented.

[Access this resource here.](#)

Key Takeaway!

Utilize these tools to turn the Safe System Approach into tangible results.



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Case Studies



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Case Study #1

Springfield, MO

SGF Yields: A Pedestrian Safety Program Implementing Safe System Principles in the City of Springfield, Missouri

Background

25%↑

Springfield saw a 25% increase in pedestrian crashes from 2014 to 2016.



To investigate this problem further, the City conducted crosswalk compliance studies at several crosswalks around the City.

25% Only 25% of drivers were yielding to pedestrians.

In response, Springfield initiated a pedestrian safety program called SGF Yields.



Source: City of Springfield, MO – SGF Yields Program

The campaign aimed to achieve public buy-in with a highly visible mascot: a pedestrian figure named Mr. Walker.

SGF Yields: Mr. Walker in Action



Safe System Approach in Practice for Springfield

	<i>SSA Principle</i>		<i>Action Plan Component</i>		<i>Outcome</i>
	Death and Serious Injury is Unacceptable	+	Leadership Commitment	=	Identified safety risks and is taking steps to protect road users.
	Safety is Proactive	+	Safety Analysis	=	Identified and collected data on leading indicators of crash risks, instead of improvements after a crash occurs.
	Responsibility is Shared	+	Engagement and Collaboration	=	Included a multitude of stakeholders to encourage shared responsibility.
	Redundancy is Crucial	+	Policy and Process Changes	=	Advocated for policy changes aimed at improving pedestrian safety.
	Redundancy is Crucial	+	Strategy and Project Selections	=	Protected pedestrians by implementing various changes to ensure multiple layers of protection.

What can we Learn From The City of Springfield?

SGF Yields Results:

The city of Springfield more than doubled driver compliance rates at crosswalks, increasing the annual average percentage of drivers yielding to pedestrians from 25% to 52% between 2017 and 2023.



Embrace the Safe System Approach in multiple ways to create a campaign that addresses safety through multiple approaches and involves all road users.



Case Study #2

San José, CA

Promising Practices for Transportation Agencies to Address Road Safety Among People Experiencing Homelessness

Background



Using data analysis, San José learned that there were 51 traffic fatalities among people experiencing homelessness between 2018 and 2022.



To meaningfully engage people experiencing homelessness and integrate their needs into their Vision Zero plan, the City conducted targeted pop-up events and surveys.



The City developed projects – particularly safe crossings between encampments and services - to address the road safety needs for people experiencing homelessness, making progress towards zero death.

Safe System Approach in Practice for San José

SSA Principle

Action Plan Component

Outcome



**Death and
Serious Injury is
Unacceptable**

+

**Safety
Analysis**

=

Created a GIS StoryMap to identify, design, and pilot road safety improvements geared towards people experiencing homelessness.



**Responsibility
is Shared**

+

**Engagement
and
Collaboration**

=

Leveraged partnerships with Vision Zero and the County Office of the Medical Examiner to help improve safety for people experiencing homelessness.

What can we Learn From The City of San José?

San José's Results:

Based on the findings from the pop-up events and surveys, the City is in the process of updating its Vision Zero Action Plan for 2025 to include more initiatives to reduce traffic fatalities and injuries among people experiencing homelessness.

The initiatives include rebuilding intersections with the highest fatal and severe injuries as well as creating strategies to improve safety at a crossing that would not typically meet the warrant requirements but is used by people experiencing homelessness.





Case Study #3

Denver, CO

Vision Zero Rapid Response Program **Denver Department of Transportation and Infrastructure (DOTI)**

Background

In October 2017, Denver released their Vision Zero Action Plan with a goal to eliminate traffic fatalities by 2030.

One of the goals of the plan was to “perform engineering reviews at traffic fatality and high collision locations to identify risk factors that can be addressed citywide.”

To support this goal, Denver created a Rapid Response program.

This Rapid Response program:



Makes decisions with data by using crash trends, rapid response information, and other data and analytics that are available and appropriate to systematically identify locations that need street modifications and implement changes.



Collaborates with other agencies by making partnerships central to the implementation of the program.

Safe System Approach in Practice for Denver

SSA Principle

Action Plan Component

Outcome



**Safety is
Proactive**

+

**Safety
Analysis**

=

Collected data and measured the effectiveness of countermeasures to proactively identify safety improvements.



**Responsibility
is Shared**

+

**Engagement
and
Collaboration**

=

Leveraged partnerships to collect data needed to identify crash patterns. Rapid Response team used crash patterns to propose appropriate safety countermeasures.

What can we Learn From The City of Denver?

Denver's Results:

The Rapid Response program has reviewed every fatal crash in Denver since 2020 and has recommended over 50 signage, pavement marking, or signal timing and phasing work orders. After the treatments were implemented the number of crashes decreased by 33%.



Use data analysis to link your Action Plan and the Safe System Approach to implement data-backed countermeasures that considers the safety of all roadway users when evaluating crashes.



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Next Steps



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Next Steps

Upcoming Meetings

**Safe System Approach Pt. 2 –
SS4A Panel Discussion**
Summer 2024

Next Peer Exchange
Summer 2024



A dark blue background featuring silhouettes of several people sitting around a long table in a meeting room, with large windows in the background.

Questions?

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For any questions following the webinar, please reach out to the FHWA POC for your grant. If you need help identifying this POC, please contact the **SS4A Team** at: SS4A.FHWA@dot.gov



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Safe Streets and Roads for All

July 10, 2024

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Thank you!

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