



Source: Adobe Stock

Speed Safety Cameras are a Proven Safety Countermeasure

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U.S. Department of Transportation
Federal Highway Administration


Outline

- National Roadway Safety Strategy/Safer Speeds
- Proven Safety Countermeasures (PSCs)
- Speed Safety Cameras
- Integrating Equity
- Noteworthy Practices



Source: Alexander Oganezov / stock.adobe.com





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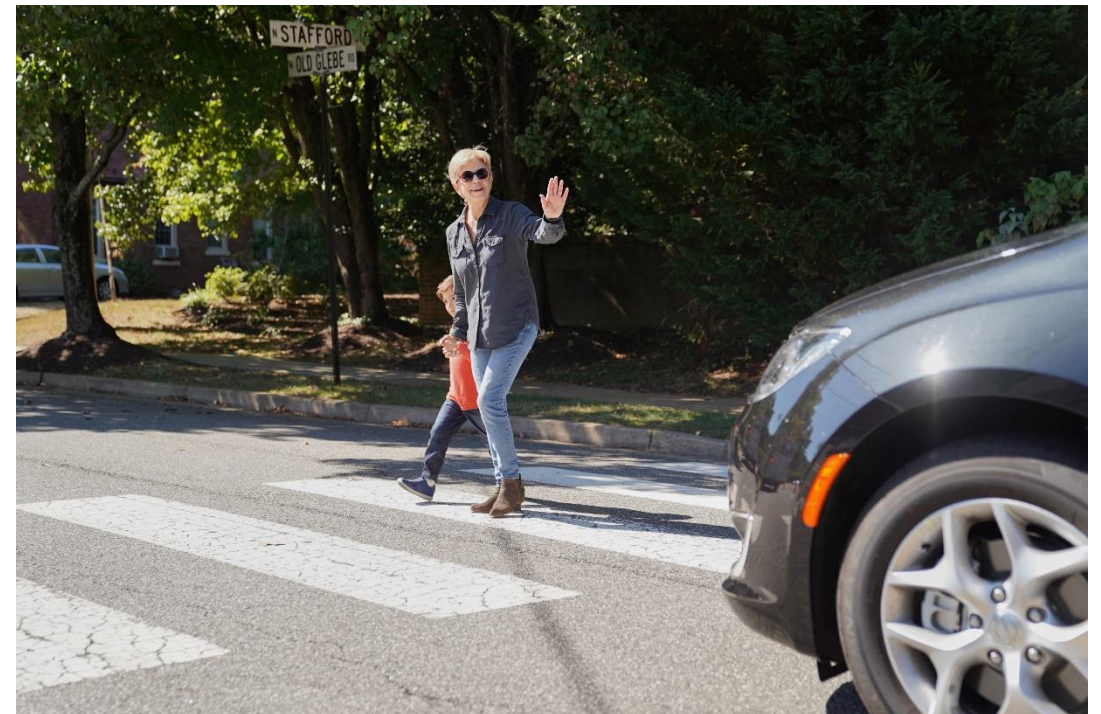


Source: Getty Images

National Roadway Safety Strategy

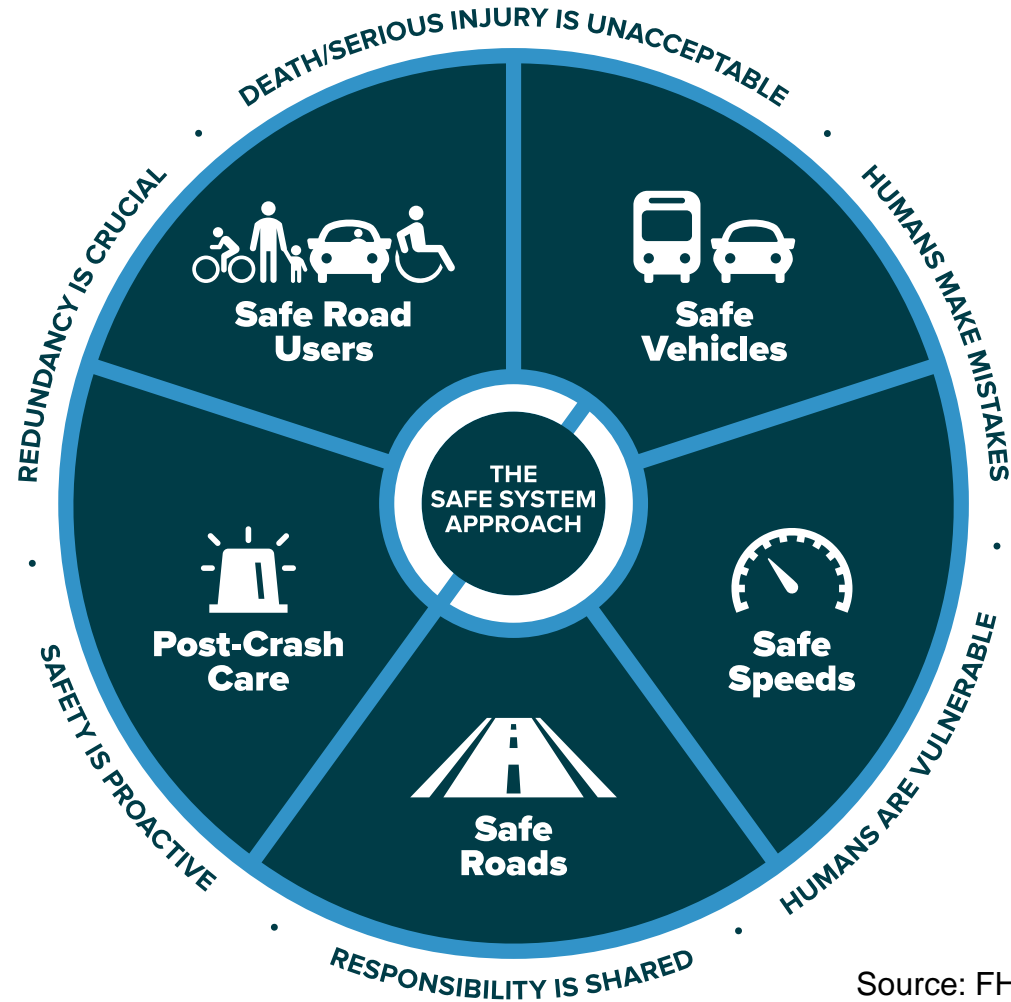
U.S. DOT's comprehensive approach to significantly reducing serious injuries and deaths on our Nation's highways, roads, and streets.

- ❖ Sets a Department-wide vision and goal
- ❖ Adopts the Safe System Approach
- ❖ Identifies new priority actions and notable changes to existing practices
- ❖ Leverages new funding and policies in the Bipartisan Infrastructure Law to bring this strategy to life
- ❖ Advances equity and climate goals
- ❖ Calls others to action



Source: NHTSA

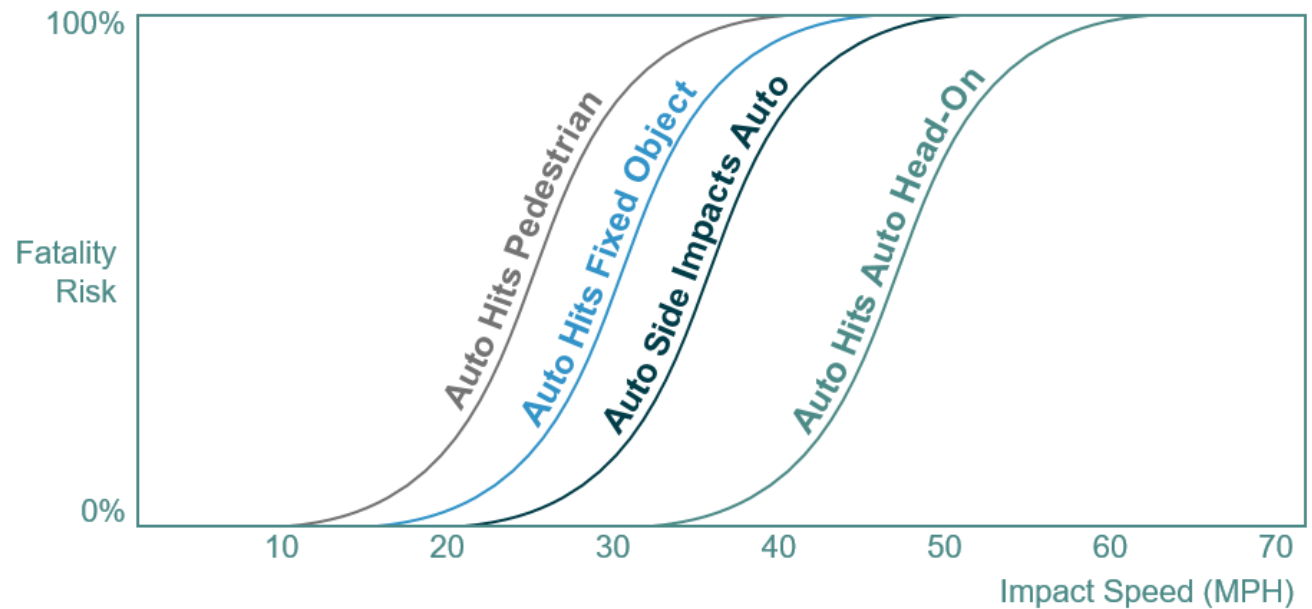
Safe System Approach



Source: FHWA

Safer Speeds in the NRSS

Promote safer speeds in all roadway environments through a combination of thoughtful, context-appropriate roadway design, targeted education and outreach campaigns, and enforcement.



Source: FHWA

Safer Speeds

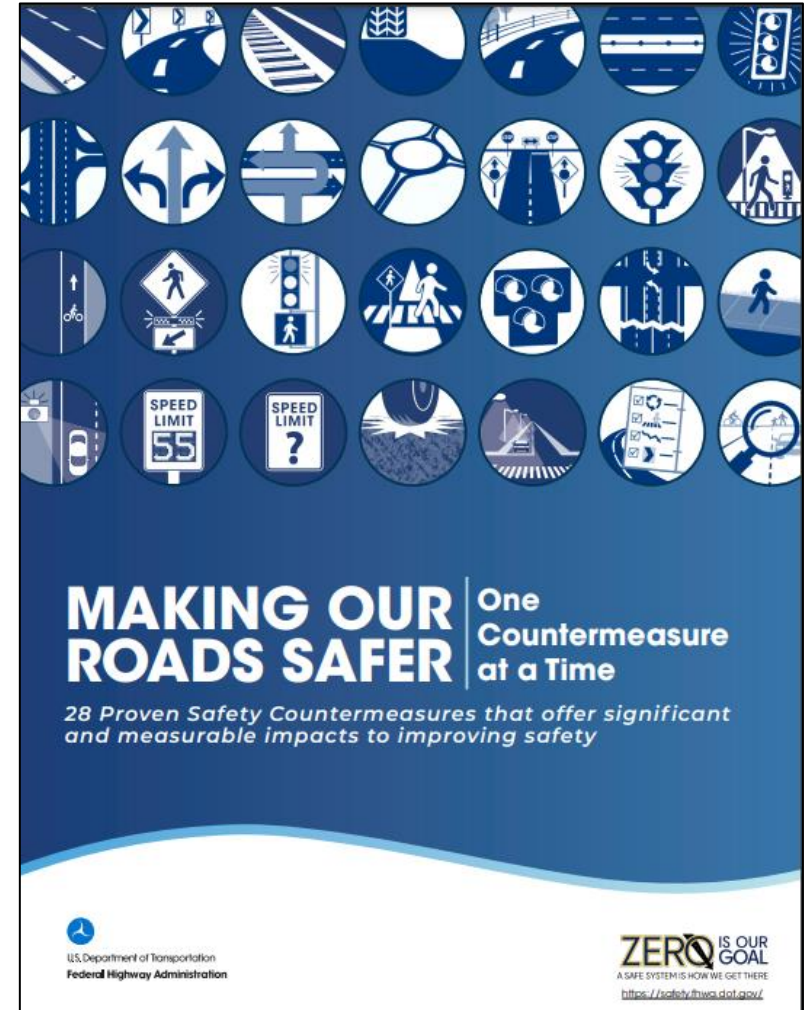


Departmental Actions for Safer Speeds

- Clarify the applicability and **correct use of key approaches to speed limit setting, like the 85th percentile**, to account for all road users and leverage best practices such as variable speed limits
- Implement a robust, **multimodal speed management program** that takes a holistic approach to vehicle speeds and speeding via infrastructure interventions, speed limit setting, education, and enforcement
- Elevate noteworthy practices on **re-engineering roads to slow down vehicles**, and create roadway designs that "**self-enforce**" appropriate vehicle speeds
- Study and pilot **automated speed enforcement** strategies designed to ensure their equitable application.

FHWA's Proven Safety Countermeasures

- Launched in 2008
- Updated in 2012, 2017, and 2021
- 28 countermeasures
- Selection Criteria
 - Proven effective
 - Not widespread deployment
- Guidance and Technical Assistance



Source: FHWA

28 Proven Safety Countermeasures

SPEED MANAGEMENT



Speed Safety Cameras



Variable Speed Limits



Appropriate Speed Limits for All Road Users

ROADWAY DEPARTURE



Wider Edge Lines



Enhanced Delineation for Horizontal Curves



Longitudinal Rumble Strips and Stripes



SafetyEdgeSM



Roadside Design Improvements at Curves



Median Barriers

INTERSECTIONS



Backplates with Reflective Borders



Corridor Access Management



Left- and Right-Turn Lanes at Two-Way Stop-Controlled Intersections



Reduced Left-Turn Conflict Intersections



Roundabouts



Systemic Application of Multiple Low Cost Countermeasures at Stop-Controlled Intersections



Yellow Change Intervals

PEDESTRIAN/BICYCLIST



Crosswalk Visibility Enhancements



Bicycle Lanes



Rectangular Rapid Flashing Beacons



Leading Pedestrian Interval



Medians and Pedestrian Refuge Islands in Urban and Suburban Areas



Pedestrian Hybrid Beacons



Road Diets (Roadway Reconfiguration)



Walkways

CROSSCUTTING



Pavement Friction Management



Lighting



Local Road Safety Plans



Road Safety Audits

2021 New PSCs



Rectangular Rapid Flashing Beacons (RRFBs)



Lighting (Intersection and Segments)



Crosswalk Visibility Enhancements



Pavement Friction Management (CPFM and HFST)



Wider Edge Lines



Bicycle Lanes



Variable Speed Limits



Speed Safety Cameras



Appropriate Speed Limits for All Road Users

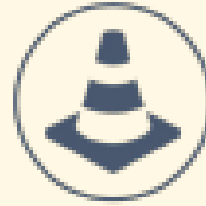
Variable Speed Limits (VSL)



CONGESTION



INCIDENTS



WORK ZONES



INCLEMENT WEATHER

Source: FHWA

Safety Effectiveness

- **34%** reduction for total crashes.
- **65%** reduction for rear-end crashes.
- **51%** reduction for fatal and injury crashes.

Particularly effective on

- Urban and rural freeways
- High-speed arterials > 40 mph



Source: WSDOT

Appropriate Speed Limits for All Road Users



Applications

- Legislative Statutory Speed Limits
- Non-Statutory Speed Limits
 - MUTCD/Engineering Judgement
 - Expert Systems Tools
 - USLIMITS2
 - NCHRP Report 966: Posted Speed Limit Setting Procedure and Tool
 - Safe System Approach

Considerations

- A range of factors
- Speed limit setting to be used with other strategies



Source: FHWA, TRB

Speed Safety Cameras (SSCs)

✦ Fixed-point units

- Up to 54% reduction for all crashes
- Up to 47% reduction for injury crashes
- 63% reduction in speeding during school hours (New York City)

✦ Point to Point (P2P) units

- Up to 37% reduction for fatal and injury crashes

✦ Mobile units

- Up to 20% reduction for fatal and injury crashes



Source: Getty Images

Speed Safety Cameras (SSCs)

Applications

- Fixed units
- Point-to-Point (P2P) units
- Mobile units

Considerations

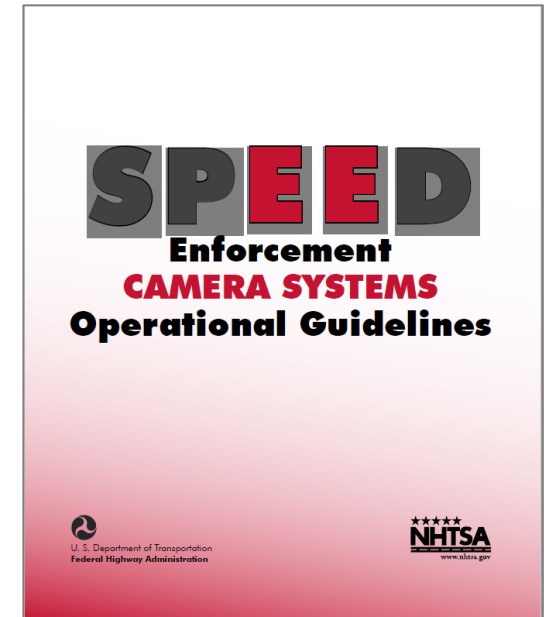
- Public trust is essential
- Use overt and covert enforcement to encourage drivers to comply with speed limits everywhere.
- Conduct legal and policy review if SSCs are authorized within a jurisdiction.
- USDOT published SSC Guidelines in 2008, with an update ongoing.



Source: Vision Zero Network

History: Joint FHWA/NHTSA Guidelines

- ✦ The *Speed Enforcement Camera Systems Operational Guidelines* was published in 2008 (jointly by FHWA and NHTSA).
- ✦ NTSB Recommendation H-17-29 to FHWA: Work with NHTSA to update the Guidelines to reflect the latest technologies and operating practices.



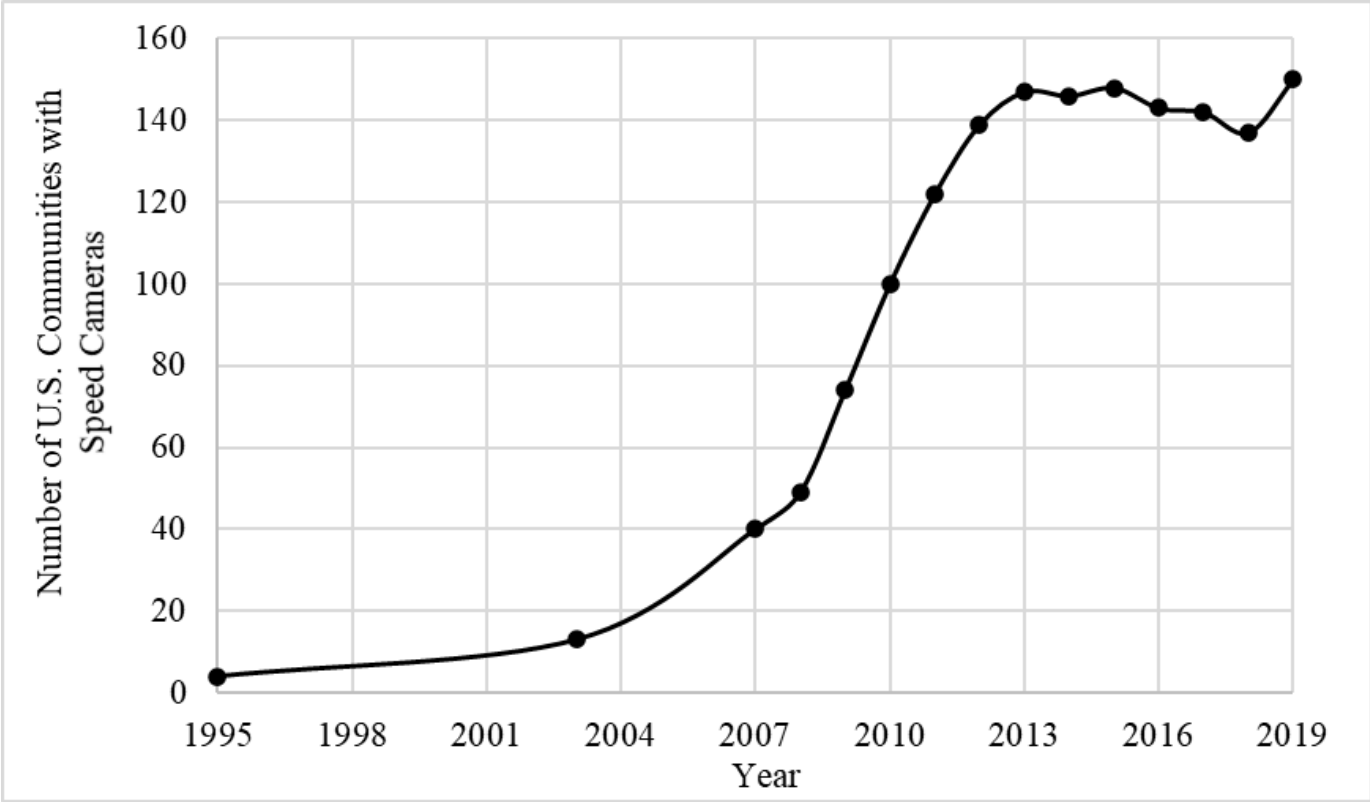
Source: NHTSA and FHWA (2008)





Growing Number of SSC Programs

SSC programs have grown in the United States since the publication of the 2008 Guide.



Source: FHWA
Data Source: IIHS, 2021

What will be addressed in the Update?

2008 SSC Guide:

- Chapter 1: Introduction.
- Chapter 2: General Considerations and Planning
- Chapter 3: Program Startup
- Chapter 4: Operations
- Chapter 5: Violation Notice Processing, Delivery
- Chapter 6: Violation Notice Receipt and Adjudication
- Chapter 7: Program Evaluation.
- Appendix: ASE Practice in the United States, Additional Resources.

Updated SSC Guide:

- Address equity in each stage:
 - Engagement of equity stakeholders during planning implementation and evaluation.
 - Evaluating impact along demographic and social categories.
 - Assure underserved communities are not disproportionality impacted by SSC citations, surveillance and fines.
 - Focus on reduction of fatalities and serious injuries, not revenue generation.
 - Assuring equitable site locations based on safety improvement, not citation generation.
 - Seeking Public trust through transparency.
 - Encourage use of funds gathered through SSCs for longer-term engineering improvements – prioritize these investments in underserved communities.
- Addition of case studies to share existing practices



Site Location

- ✦ Underserved communities may experience disparities in traffic fatalities and serious injuries.
- ✦ Site locations should be based on safety data not citation data.
- ✦ It is important to site SSCs in overburdened communities to redress the risk of fatal and serious injury crashes caused by speeding.
- ✦ However, it is critical to **monitor any disproportionate impacts of SSCs to minimize the burdens of penalties on underserved or overburdened communities.**
- ✦ Since underserved or overburdened communities may experience a disproportionate impact from SSCs, these communities can be prioritized for longer-term engineering solutions.



Penalty Structures

- ✦ Recognize that underserved communities may be **disparately impacted** by SSC penalties.
- ✦ Encourage **innovative penalty structures**, including:
 - Low fines
 - Alternative penalties like community service and road safety courses
 - Progressive fines based on income
 - Emphasize consistent and fair penalties as opposed to burdensome penalties



New York City

Program Background

- SSC program owned and maintained by NYCDOT
- SSCs permitted in 750 school zones
 - Operate Monday-Friday 6:00 a.m. to 10 p.m.
 - Enforce quarter mile radius from school entrance
- Issues \$50 fine to the registered vehicle for speed 10 mph or more over speed limit
 - Fine issued regardless of the violating speed or whether it was a repeat offense.
 - No points are given to the vehicle owner's license (NYCDOT, 2017).



New York City

Program Benefits

- Safety:
 - Reduction in speeding
 - Low rate of repeat citations
 - Reduction in fatal crashes and injury crashes
 - Consistent enforcement compared with non-camera locations
- Equity:
 - No interaction between driver and law enforcement officer
 - Lower ticket cost; \$50 compared to \$180 and more for a “traditional” speeding ticket
 - No points on driver’s license



Seattle

School Zone Speed Safety Camera Program

- Fixed camera program since 2012
- 17 cameras in school zones – operational when school zone signs are flashing.
- Contracted with vendor to lease cameras
 - Fixed price contract does not depend on amount of revenue or number of citations.
 - Contract delineates vendor and city responsibilities.
- Site selection criteria
 - Speed, camera necessity, volume, geographic balance.
- Revenues go to school traffic safety and pedestrian safety projects.





Funding

- ✦ Highway Safety Improvement Program (HSIP) Funding
- ✦ Other Federal funds and grants
- ✦ Integrate into policies and practices

Summary

- ✦ SSCs are a FHWA Proven Safety Countermeasure that can reduce roadway fatalities and injuries by 20 to 37 percent.
- ✦ The primary function of an SSC program is to address speeding-related safety problems within a jurisdiction that cannot be addressed more effectively with other countermeasures.
- ✦ Integrating equity is critical at every stage of a successful SSC Program.
- ✦ Jurisdictions who explore the use of SSCs must consider equity and civil rights concerns in all stages of an SSC program (planning, design, operation, and evaluation).



Speed Management Resources



[Home](#) / [Safety](#) / [Speed Management Safety](#)

Speed Management Safety

[USLIMITS2](#)

[Facts & Statistics](#)

[Engineering Speed Limits](#)

[Traffic Calming ePrimer](#)

[Ongoing Research](#)

[Reference Materials](#)

[Related Web Site Links](#)

Contact Us

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If you are deaf, hard of hearing, or have a speech

Reference Materials

- [Speed Management Practices](#)
- [Self-Enforcing Roadways: A Guidance Report](#)
- [Speed Management ePrimer for Rural Transition Zones and Town Centers](#)
- [Speed Management Outreach Materials](#)
 - [Lower Citywide Speed Limits and Design Changes: Safer city arterials for all road users \[PDF 1.34 MB\]](#)
 - [Speed Limit Basics \[PDF, 1.25 MB\]](#)
 - [Speed Management Countermeasures: More than Just Speed Humps \[PDF 1.37 MB\]](#)
 - [Speed Management Case Study: Georgia Department of Transportation Setting Speed Limits with Help from USLIMITS2 \[PDF 1.01 MB\]](#)
 - [Speed Management Case Study: Reducing Excessive Speeding in Rural Communities in Iowa \[PDF, 1.15 MB\]](#)
 - [Noteworthy Practice Booklet - Speed Management \[PDF, 3.98MB\]](#)
 - [Case Study 1: Strategic Speed Management Program - CITY OF AUSTIN, TEXAS, \[PDF 824KB\]](#)
 - [Case Study 2: Self-Enforcing Roadways - CITY OF GOLDEN, CO, \[PDF 604KB\]](#)
 - [Case Study 3: Setting Credible Speed Limits - NEW HAMPSHIRE DOT, \[PDF 605KB\]](#)
 - [Case Study 4: High Visibility Enforcement - CITY OF ORO VALLEY, ARIZONA, \[PDF, 289KB\]](#)
 - [Case Study 5: Successful Strategies for Adoption of Safety Cameras - NEW YORK CITY, NEW YORK, \[PDF 534KB\]](#)
 - [Case Study 6: Targeted Reporting of Speeding-Related Crashes - ARIZONA DOT, \[PDF 470KB\]](#)
 - [Case Study 7: Consistent Speed Limits for Vulnerable Road Users - Examples from Various Agencies, \[PDF 1.97MB\]](#)
 - [Case Study 8: Network Approach to Setting Speed Limits NEW ZEALAND TRANSPORT AGENCY, \[PDF 315KB\]](#)
- [Integrating Speed Management within Roadway Departure, Intersections, and Pedestrian and Bicyclist Safety Focus Areas](#)

<https://highways.dot.gov/safety/speed-management/reference-materials>

Speed Management Countermeasures: A Desktop Report on Potential Effectiveness in Reducing Speed July 2014

Engineering countermeasures used to manage speeds. Studies where an increase in speed were reported are also relevant in selection of countermeasures.

Roadway	Reference	Sites	Speed Limit (mph)	Volume (vpd)		Mean Speed (mph)		85 th %ile Speed (mph)			Percent Change	
				Before	After	Before	After	Change	Before	After		Change
Vertical Deflections Within the Roadway												
1	1 (1999)	178	—	46 to 11544	46 to 11043	—	—	—	35	27	-6	
	2 (2005)	7	—	400 to 4362	401 to 3384	—	—	—	32	26	-6	
	3 (2000)	4	—	475 to 1306	433 to 1343	—	—	—	36	31	-5	
		1	25	1300	—	22	23	1	37	29	-8	
		3	25	218 to 746	—	24	18	-6	28	22	-6	
2	—	—	—	—	—	—	—	—	36	29	-7	
	—	—	—	2456 to 7485	2593 to 2931	—	—	—	38	25	—	

Turned for your search on "Speeding". [MODIFY]

CMFs? Use our [COMPARISON TOOL](#) or [CHECK OUT OUR FAQ](#).

SEARCH TIPS.

Results Control: [COLLAPSE ALL](#) | [EXPAND ALL](#)

Click on the links below to expand individual categories.

[EXPORT ALL RESULTS TO EXCEL](#)

- Category: Advanced technology and ITS (130)
- Category: Delineation (3)
- Category: Speed management (15)
- Category: Work zone (1)

Speed Management Countermeasures: A Desktop Report on Potential Effectiveness in Reducing Crashes July 2014

Effectiveness of engineering countermeasures. Studies where an increase in crashes were reported are also shown. Information is also relevant in selection of countermeasures.

	Area	Roadway	Reference	Sites	Study Period (Before/after)	Crash Type	CMF	Clearinghouse Star Rating	Crash Reduction	Location
not labeled study	Vertical Deflections Within the Roadway									
	pedestrian	urban	—	100 (2009)	6	all	—	—	-48%	CA
	pedestrian	urban	—	100 (2009)	5	all	—	—	3%	FL
	pedestrian	urban	—	100 (2009)	16	all	—	—	-46%	MD
	pedestrian	urban	—	100 (2009)	20	all	—	—	-33%	NE
	pedestrian	urban	—	100 (2009)	4	all	—	—	-46%	OH
	urban	urban	—	100 (2009)	5	all	—	—	-40%	OR
	urban	residential	6 (2003)	19	2-3 yrs/2-3 yrs.	total	—	—	-38%	GA
	urban	residential	6 (2003)	19	2-3 yrs/2-3 yrs.	injury	—	—	-93%	GA
	pedestrian	urban	—	100 (2009)	4	all	—	—	-64%	MD
urban	urban	—	100 (2009)	4	all	—	—	-36%	OR	

PSC Resources

<https://highways.dot.gov/safety/proven-safety-countermeasures>

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FHWA Home / Safety / Proven Safety Countermeasures

Speed Safety Cameras
VIEW THE NEW COUNTERMEASURE!

Proven Safety Countermeasures

FHWA's Proven Safety Countermeasures initiative (PSCI) is a collection of countermeasures and strategies effective in reducing roadway fatalities and serious injuries on our Nation's highways. Transportation agencies are strongly encouraged to consider widespread implementation of PSCs to accelerate the achievement of local, State, and National safety goals.

PROVEN SAFETY COUNTERMEASURES (PSC) TOOLS

FILTER TOOL »
Filter countermeasures by focus area, crash type, problem identified, and area type.

SEARCH PSCs

SPEED MANAGEMENT

- Speed Safety Cameras
- Variable Speed Limits
- Appropriate Speed Limits for All Road Users

ROADWAY DEPARTURE

- Wider Edge Lines
- Enhanced Delineation for Horizontal Curves
- Longitudinal Bumble Stripes and Stripes
- SafetyEdge™
- Roadside Design Improvements at Curves
- Median Barriers

FHWA Home / Safety / Proven Safety Countermeasures

Proven Safety Countermeasures Filter Tool

All 28 PSCs are listed at the bottom of the page in alphabetical order. Answer one or more of the following questions to obtain a tailored listing of potential PSCs for the location of interest. Users may select multiple answers for each question. After checking the desired box(es), click "Apply Filters"; then the list of PSCs will update at the bottom of the page to match the query. Click "Clear Form" to remove all filters and return to the default display of all 28 PSCs. Select a countermeasure name to learn more including a description, safety effectiveness, context, application, and considerations for implementation.

What type of area is the roadway located? <ul style="list-style-type: none"><input type="checkbox"/> Urban<input type="checkbox"/> Suburban<input type="checkbox"/> Rural	What is the functional classification of the roadway? <ul style="list-style-type: none"><input type="checkbox"/> Freeway<input type="checkbox"/> Highway<input type="checkbox"/> Arterial<input type="checkbox"/> Collector<input type="checkbox"/> Local
Which focus area is being addressed? <ul style="list-style-type: none"><input type="checkbox"/> Roadway Departure<input type="checkbox"/> Intersection<input type="checkbox"/> Pedestrian<input type="checkbox"/> Bicyclist<input type="checkbox"/> Speed Management	What is vehicular volume in Average Annual Daily Traffic (AADT) along the major roadway? <ul style="list-style-type: none"><input type="checkbox"/> Low (<2,000)<input type="checkbox"/> Medium (2,000-15,000)<input type="checkbox"/> High (>15,000)
What problem is being addressed? <ul style="list-style-type: none"><input type="checkbox"/> Inadequate Visibility, conspicuity, or Sight Distance<input type="checkbox"/> Excessive Vehicular Conflicts<input type="checkbox"/> Congestion<input type="checkbox"/> Excessive Speeds<input type="checkbox"/> Non-Compliance (yielding right-of-way)<input type="checkbox"/> No Separation of Users<input type="checkbox"/> Driver Inattention (distracted/drowsy)<input type="checkbox"/> Driver Impairment (alcohol/drugs)	What specific crash types are being targeted at the location? <ul style="list-style-type: none"><input type="checkbox"/> Angle<input type="checkbox"/> Left-Turn<input type="checkbox"/> Right-Turn<input type="checkbox"/> Rear End<input type="checkbox"/> Pedestrian/Bicyclist<input type="checkbox"/> Head On<input type="checkbox"/> Run-Off-Road/Single Vehicle<input type="checkbox"/> Sideswipe, same direction<input type="checkbox"/> Sideswipe, opposite direction<input type="checkbox"/> Wet<input type="checkbox"/> Nighttime<input type="checkbox"/> Speed-related<input type="checkbox"/> Rollover<input type="checkbox"/> Fixed-Object

Apply Filters **Clear Form**

PROVEN SAFETY COUNTERMEASURES (PSC) TOOLS **NEW**

FILTER TOOL »
Filter countermeasures by focus area, crash type, problem identified, and area type.

SEARCH PSCs



Source: FHWA

Improving Road Safety for All Users on Federal-Aid Projects Request for Information (RFI)

- [National Roadway Safety Strategy](#) and the [Moving to a Complete Streets Design Model: A Report to Congress on Opportunities and Challenges](#) include commitments and strategies to address national crisis of traffic fatalities and serious injuries
- Request Comments on:
 - Whether changes to FHWA's Design Standards regulation or other FHWA regulations are needed to better serve all users;
 - How the safety performance of Federal-Aid projects should be assessed; and,
 - How to include features that improve safety performance across Federal-Aid projects.
- Use information gathered to consider future rulemakings, guidance and other resources
- Docket No. FHWA-2021-0011 in [Federal Register](#) (Open through March 20, 2023)



View and Comment on the RFI



<https://www.federalregister.gov/documents/2023/02/03/2023-02285/improving-road-safety-for-all-users-on-federal-aid-projects>

Questions



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