

What's MO's FUTURE ?

What's Your Role?

What's Your Legacy?

February 15, 2007

Working Together We Can Make A Difference

The Safety Problem Is Global

**The Safety Solution is
Local and Personal !!!**



The Problem – Tomorrow

Of every 100 children born this year...

**One will die
violently
in a highway
crash during
his/her lifetime.**

**77 will be injured in
a crash during their
lifetimes...some
more than once.**



*Putting YOUR Ideas into
ACTION*

Ideas without ACTION = SQUAT

Your Contribution

Your Legacy



IN THE BEGINNING...

◆ Vision

◆ Mission

◆ Goal

◆ PLAN of ACTION.



Provide a comprehensive, coordinated, continuing, communicative, focused, and unified approach.

Integrated and Coordinated

- Education
- Engineering
- Enforcement
- Emergency Services

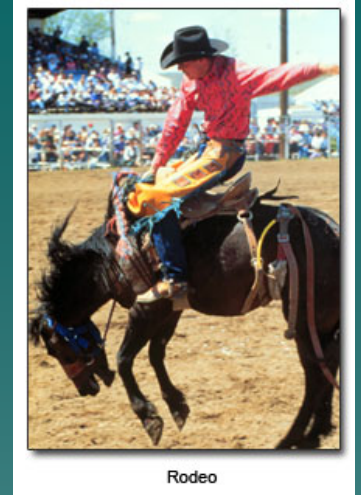


Team work



Why

- ◆ Leverage resources.
- ◆ Additional funding sources.
- ◆ Powerful funding request tool.
- ◆ Make safety efforts more effective and efficient.
- ◆ Make the task easier.
- ◆ Support legislative initiatives.
- ◆ Reduce fatalities and injuries.



In Consultation with

- ◆ Regional planning and MPO's
- ◆ Major Modes of Transportation
- ◆ Governor's Highway Safety Office
- ◆ State and Local Law Enforcement
- ◆ Highway/Grade-Crossing Safety
- ◆ Operation Lifesaver
- ◆ Motor Carrier Safety
- ◆ Department of Motor Vehicles

Other Stakeholders and Interested Parties

- ◆ Medical Community
- ◆ Emergency Response
- ◆ Highway Industry
- ◆ Railroad Industry
- ◆ Insurance Industry
- ◆ Hospitality Industry
- ◆ Motorcycle Community
- ◆ Media
- ◆ Judiciary
- ◆ Legislature
- ◆ Governor's Office
- ◆ Tribal Governments
- ◆ Academia
- ◆ Civic Organizations
- ◆ Safety Advocates
- ◆ State and Local Agencies
- ◆ Dick and Jane Citizen

SHSP Characteristics

- ◆ Data driven
- ◆ Strategic
- ◆ Comprehensive
- ◆ Integrated
- ◆ Mission statement
- ◆ Vision statement
- ◆ Goals
- ◆ Prioritization of emphasis areas
- ◆ Targets
- ◆ Measurable success indicators
- ◆ Living document
- ◆ ACCOUNTABILITY

EVALUATION

Data Driven

- ◆ Where?
- ◆ When?
- ◆ Who?
- ◆ How?
- ◆ What?



The What Contributing Factors

| | USA | Missouri |
|------------------------|------|----------|
| ◆ Roadway Departure | 60 % | 64 % |
| ◆ BAC Related | 39 % | 46 % |
| ◆ Belt Use | 82% | 77 % |
| ◆ Restrained Deaths | 41% | 30 % |
| ◆ Intersections | 21 % | 18 % |
| ◆ Pedestrian | 11 % | 7 % |
| ◆ Speed Related | 30% | 42 % |
| ◆ Young Drivers(16-24) | 24 % | 28 % |
| ◆ Older Drivers (65+) | 15% | 14 % |

Typical Emphasis Areas

- Alcohol/Drug Impairment
- Driver Behavior and Awareness
- Hwy-Rail Crossings
- Information Systems
- Intersections
- Motor Carriers
- Motorcyclists
- Legislation
- Occupant Protection
- Older Drivers
- Pedestrians
- Roadway Departure
- Training Programs
- Younger Driver
- Work Zone

YOUR Processes and Tools

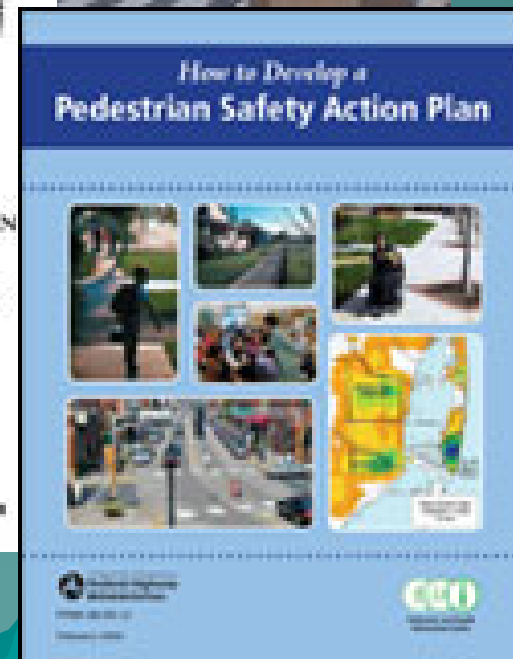
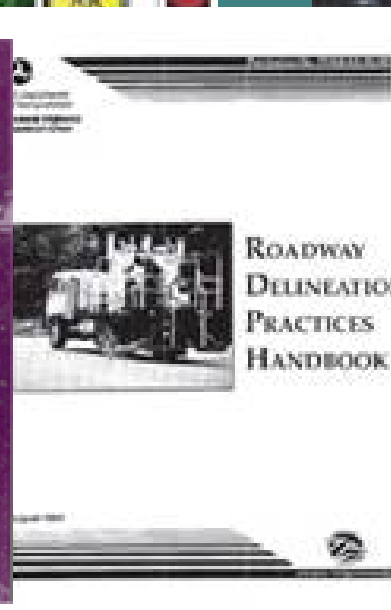
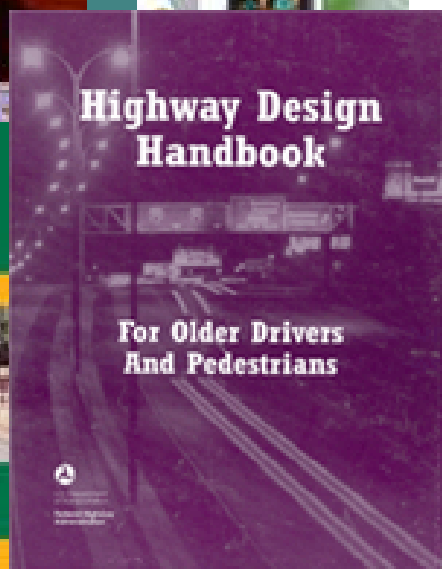
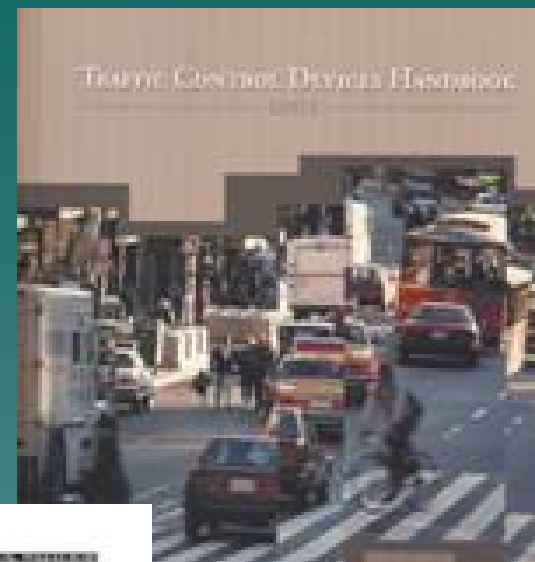
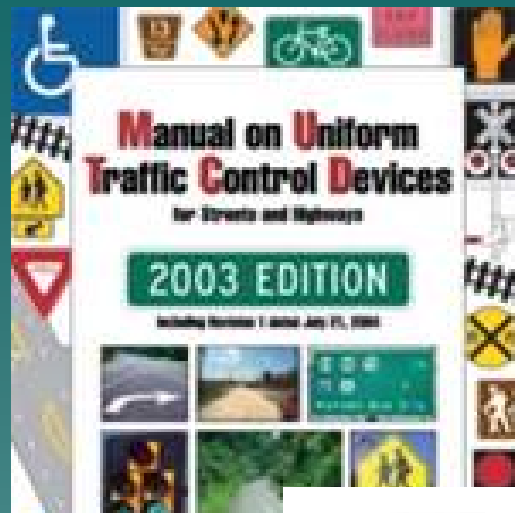
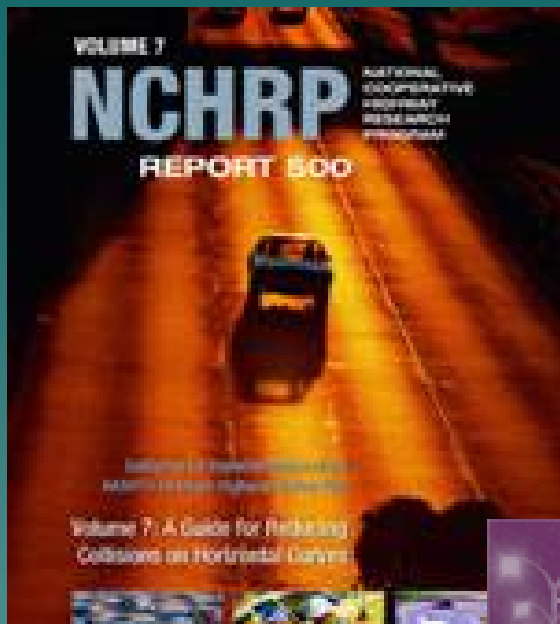
- Tool Box of Countermeasures
- Road Safety Audits (Pedestrian and WZ)
- Pedestrian Safety and Accessibility
- Speed Management - USLIMITS
- Incorporating Safety into Preservation Projects
- Low Cost Treatments for Curves
- Law Enforcement in Work Zones
- Intersection Safety

What Else is New ... A Quick Rundown

The Process

- Confirm the safety problem.
- Conduct an (4 E's) analysis to identify the factors.
- Identify alternative countermeasures.
- Select the most appropriate single or combined set of countermeasures.
- Implement the countermeasures and monitor.

Resources



Report.Center@fhwa.dot.gov
301-577-0906

Tool Box of Countermeasures and their Potential Effectiveness

Desktop Reference for Crash Reduction Factors



Report No. FHWA-SA-07-015
U.S. Department of Transportation
Federal Highway Administration

September 2007



Toolbox of Countermeasures and Their Potential Effectiveness for Roadway Departure Crashes

Introduction

This issue brief documents estimates of the crash reduction that might be expected if a specific countermeasure or group of countermeasures is implemented with respect to roadway departure crashes and other non-intersection crashes. The crash reduction estimates are presented as Crash Reduction Factors (CRFs).

Traffic engineers and other transportation practitioners can use the information contained in this issue brief when asking the following types of question: Which countermeasures might be considered along a particular section of a highway that is experiencing a high number of roadway departure crashes? What changes in the number of roadway departure crashes can be expected with the implementation of the various countermeasures?

When selecting countermeasures to reduce roadway departure crashes, the practitioner should first consider the number of roadway departure crashes and the number of vehicles leaving the roadway. Next, the practitioner should consider the following types of question:



Toolbox of Countermeasures and Their Potential Effectiveness for Pedestrian Crashes

Introduction

This issue brief documents estimates of the crash reduction that might be expected if a specific countermeasure or group of countermeasures is implemented with respect to pedestrian crashes. The crash reduction estimates are presented as Crash Reduction Factors (CRFs). As some studies reviewed included bicycle crashes in their analysis, some of the crash reduction estimates include bicyclists.

Traffic engineers and other transportation professionals can use the information contained in this issue brief when asking the following types of question: Which countermeasures might be considered at the signalized intersection of Maple and Elm streets, an intersection experiencing a high number of pedestrian crashes? What change in the number of pedestrian crashes can be expected with the implementation of the various countermeasures?

Crash Reduction Factors

A CRF is the percentage crash reduction that might be expected after implementing a countermeasure or group of countermeasures.



Toolbox of Countermeasures and Their Potential Effectiveness for Intersection Crashes

Introduction

This issue brief documents estimates of the crash reduction that might be expected if a specific countermeasure or group of countermeasures is implemented with respect to intersection crashes. The crash reduction estimates are presented as Crash Reduction Factors (CRFs).

Traffic engineers and other transportation professionals can use the information contained in this issue brief when asking the following types of question: Which countermeasures might be considered at the signalized intersection of Maple and Elm streets, an intersection experiencing a high number of total crashes and left-turn crashes? What change in the number of total crashes and left-turn crashes can be expected with the implementation of the various countermeasures?

Crash Reduction Factors

What is an RSA?

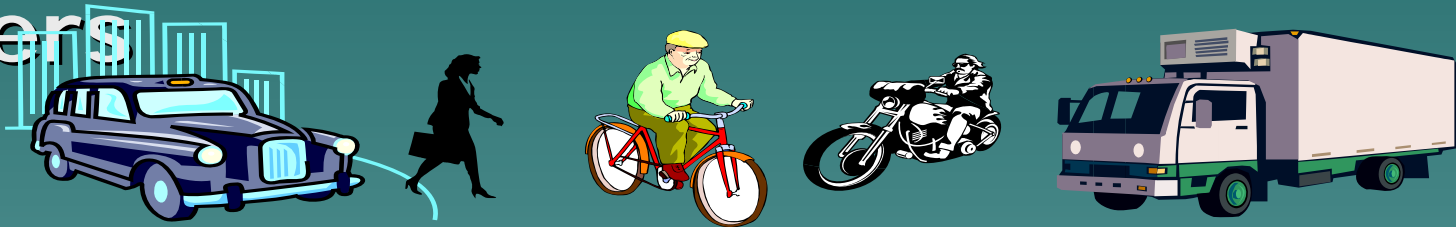


- ◆ Formal safety performance examination
- ◆ Road Segment or Intersection
- ◆ Independent, multidisciplinary team



A Road Safety Audit Also...

- ◆ Considers The Safety Of All Road Users



- ◆ Considers Interactions Of The Surrounding Area
- ◆ Examines The Interaction Of Project Elements
- ◆ Proactively Considers Mitigation Measures

Consideration for Pedestrian RSA

- ◆ **User Groups:** Do pedestrian facilities address the needs of all user groups?
- ◆ **Connectivity of Pedestrian Facilities:** Are safe paths provided for all pedestrians throughout the study area?
- ◆ **Traffic:** Are design, posted, and operating traffic speeds compatible with pedestrian safety needs?
- ◆ **Behavior:** Do pedestrians or motorists regularly misuse or ignore pedestrian facilities?
- ◆ **Construction:** Have the effects of construction on all pedestrians been addressed adequately?
- ◆ **School Presence:** Are special provisions needed due to the presence of a school zone in the RSA?

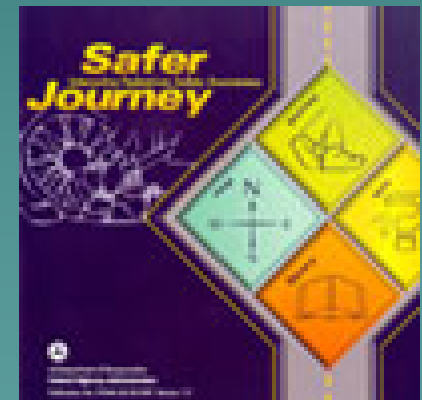
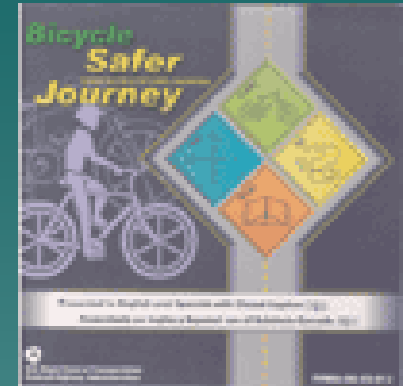
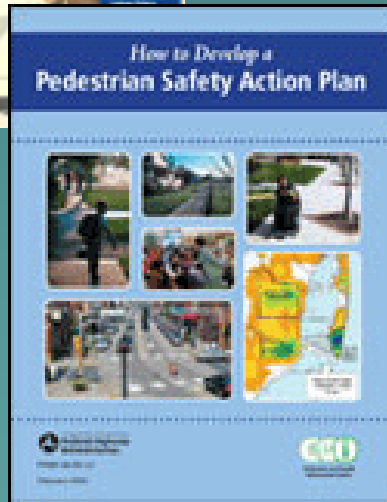
RSA ZONES

- ◆ Street
 - ◆ Street Crossing
 - ◆ Parking Areas
 - ◆ Adjacent
Development
 - ◆ Transit
- 

TOPICS

- ◆ Pedestrian Facilities
- ◆ Traffic
- ◆ Traffic Control Devices

Pedestrian Safety



<http://safety.fhwa.dot.gov/>

Pedestrian Safety Resources

PBCAT

Use crash analysis software to type pedestrian crashes and analyze crash data.

Walkability Check list

Walk through your neighborhood to find out how “walkable” it is.

PEDSAFE

an expert system (CD & Report) designed to assist practitioners with the selection of countermeasures to address pedestrian safety and mobility problems.

Pedestrian Safety Workshops

- **Designing for pedestrian safety**
 - addresses safety issues through design and engineering solutions (2-day)
- **Developing a pedestrian safety action plan**
 - action plan tailored to address the community's unique safety issues. (2-day)
- **Planning & designing for pedestrian safety**
 - addresses safety issues through engineering, enforcement, and education solutions. (3-day)

Pedestrian Beacon – Desert HAWK (High Intensity Activated Crosswalk)



Figure 1. City of Tucson HAWK Signal

HAWK Sequence



1



4



2

Flashing



5

Wig-Wag



3



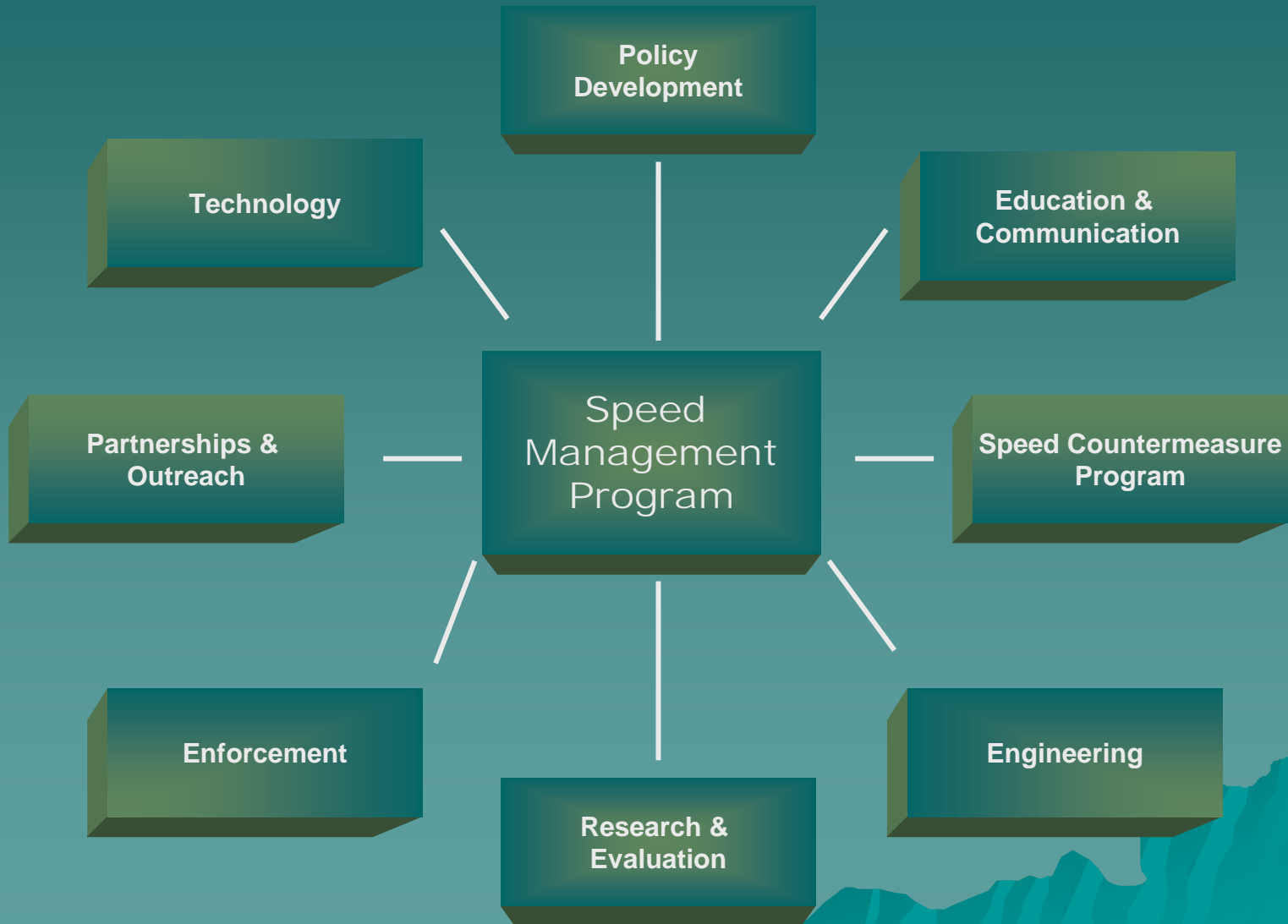
Return
to 1



Attachment 1



Comprehensive Speed Management Program



Guidance and Strategic Initiatives

Uniform Guidelines for State Highway Safety Programs



November 2006

Highway Safety Program Guideline No. 19

Speed Management

Each State, in cooperation with its political subdivisions, tribal governments and other parties as appropriate, should develop and implement a comprehensive highway safety program reflective of State demographics to achieve a significant reduction in traffic crashes, fatalities, and injuries on public roads. The highway safety program should include a comprehensive speed management program that encourages people to voluntarily comply with speed limits. This guideline describes the components that a State speed management program should contain and the criteria that the program components should meet.

Speed management involves a balanced program effort that includes: defining the relationship between speed, speeding, and safety; applying road design and engineering measures to obtain appropriate speeds; setting speed limits that are safe and reasonable; applying enforcement efforts and appropriate technology that effectively address speeders and deter speeding; marketing communication and educational messages that focus on high-risk drivers; and soliciting the cooperation, support, and leadership of traffic safety stakeholders.

I. PROGRAM MANAGEMENT

While speeding is a national problem, effective solutions must be applied locally. The success of a speed management program is enhanced by coordination and cooperation among the engineering, enforcement, and educational disciplines. To reduce speeding-related fatalities, injuries, and crashes, State, local, or tribal governments should:

- Provide the NHTSA Speed Management Workshop that offers a comprehensive approach to speed management through partnering with a broad range of transportation and safety disciplines. This multidisciplinary team improves communication and cooperation and facilitates the development of innovative strategies for reducing speeding-related fatalities and injuries.
- Establish a Speed Management Working Group as outlined in the *Speed Management Workshop Guidelines* to develop and implement a localized action plan that identifies specific speeding and speeding-related crash problems and the actions necessary to address problems and to establish the credibility of posted speed limits.

DOTHS 809 924

September 2005

Speed Management Strategic Initiative




USLIMITS

- ◆ Web-based expert advisor system.
- ◆ User friendly, logical, and objective.
- ◆ Calculates speed limit based on road specific information.
- ◆ <http://www2.uslimits.org/>

Road Specific Data

- ◆ Type of surrounding development.
- ◆ Access frequency Road function
- ◆ Road characteristics
- ◆ Existing vehicle operating speeds.
- ◆ Pedestrian activity.
- ◆ Crash history.
- ◆ Any special conditions existing on the road section (e.g., adverse alignment and parking).

Benefits

- ◆ Addresses Public and Political awareness acceptance and concern.
 - ◆ Reduces the speed differentials.
 - ◆ Increases consistent speed limits.
 - ◆ Supports the integrity of engineering, enforcement and adjudication.
- 

Incorporating Safety into Preservation Program

- Preservation program is considered to be an element of its overall safety strategy.
- Leadership supports an integrated road safety strategy.
- Funding of integrated safety improvements is an appropriate expenditure.
- Safety improvements are targeted and cost-effective.
- "Scope creep" does not interfere with timely road work.

INSTITUTIONAL PRACTICES

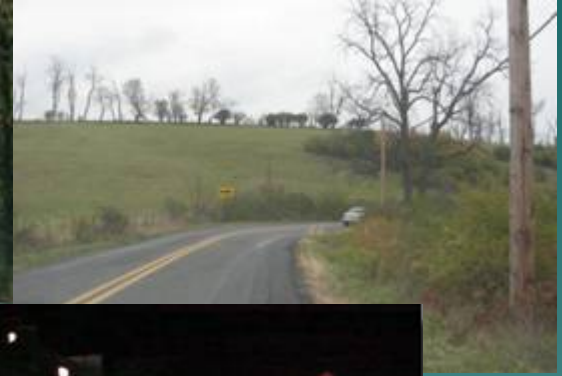
- ◆ Integrate Safety into Preservation Projects
- ◆ Establish Multi-fund Project Tracking
- ◆ Provide for Flexible Project Development Cycles
- ◆ Strengthen State-Local-Federal Relationships
- ◆ Develop an Expedient Procedure for Minor Right-of-way Acquisition
- ◆ Engage Safety Experts in Project Development

TECHNICAL PRACTICES

- ◆ Identify Targeted Safety Improvements
- ◆ Selectively Improve Geometry
- ◆ Install Traffic Control Devices and Guidance
- ◆ Improve Roadsides
- ◆ Improve Private and Public Access Points



Low Cost Treatments



Low-Cost Treatment for Horizontal Curve Safety

- ◆ Basic traffic signs and markings found in the MUTCD
- ◆ Enhanced traffic control devices
- ◆ Additional traffic control devices not found in the MUTCD
- ◆ Rumble strips
- ◆ Minor roadway improvements
- ◆ Innovative and experimental treatments

Guide for Law Enforcement Personnel in Work Zones

- ◆ Roles and Responsibilities
- ◆ Most Common Law Enforcement Services in Work Zones
- ◆ Understanding Work Zone Traffic Control
 - 1.The Advance Warning Area
 - 2.The Transition Area
 - 3.Activity Area
 - 4.Termination Area
- ◆ Recommended Practices
- ◆ Typical Applications

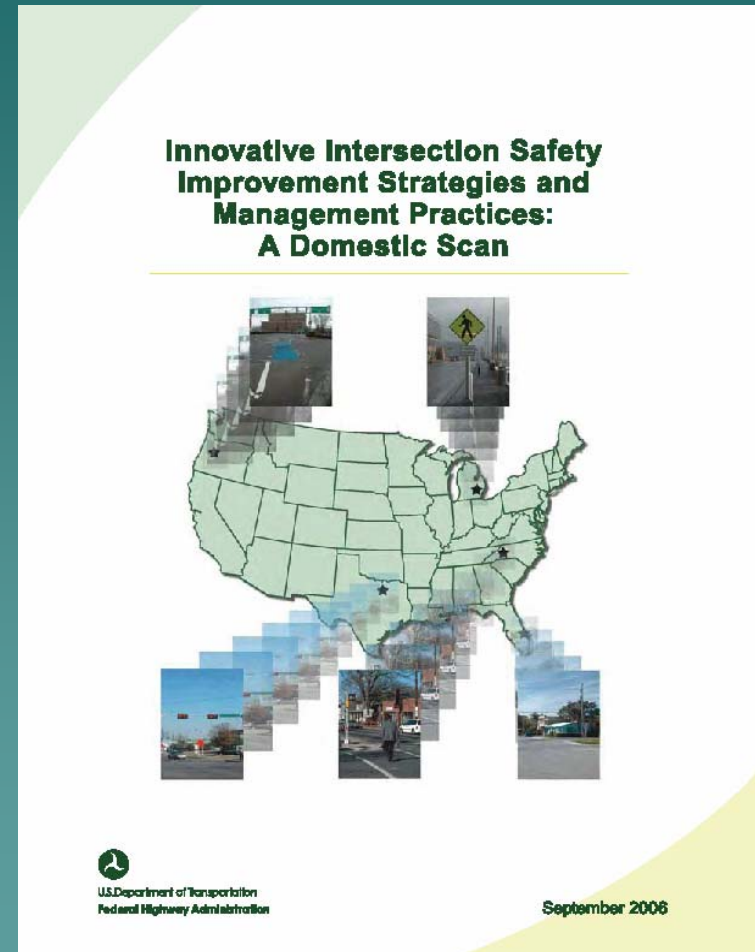


Intersection Resources

- ◆ *Identifying and documenting 10-12 Success stories (countermeasure implementation with actual crash reductions).*
- ◆ *Training courses – Intersection Safety Workshop*
- ◆ *Older Driver – Report and Workshop*
- ◆ *Domestic and International Signalized Intersection Safety Scans*
- ◆ *NCHRP 500 Volume 5 and 12*
 - *Repackaging" the 77 countermeasures to single page guide sheets*
 - *A glove-box sized brochure with the 77 countermeasures*

Innovative Intersection Safety Domestic Scan



- ◆ To gain knowledge about the processes and procedures to gain agency management's approval.
- ◆ To gain knowledge about the safety effects of these treatments and comprehensive approaches to intersection safety.



PDF and Hard Copies Available
ed.rice@dot.gov

77 Countermeasures Single Page Guides

UNSIGNALIZED INTERSECTION SAFETY STRATEGIES



Provide Supplementary Stop Signs Mounted Over the Roadway

WHERE TO USE
Unsignalized intersections with patterns of right-angle crashes related to lack of driver awareness of the presence of the intersection. In particular, it might be appropriate to use this strategy at the first stop-controlled approach (possibly of a series) located on a long stretch of highway without any required stops, or at an intersection located after a sharp horizontal curve.




Photo by FHWA

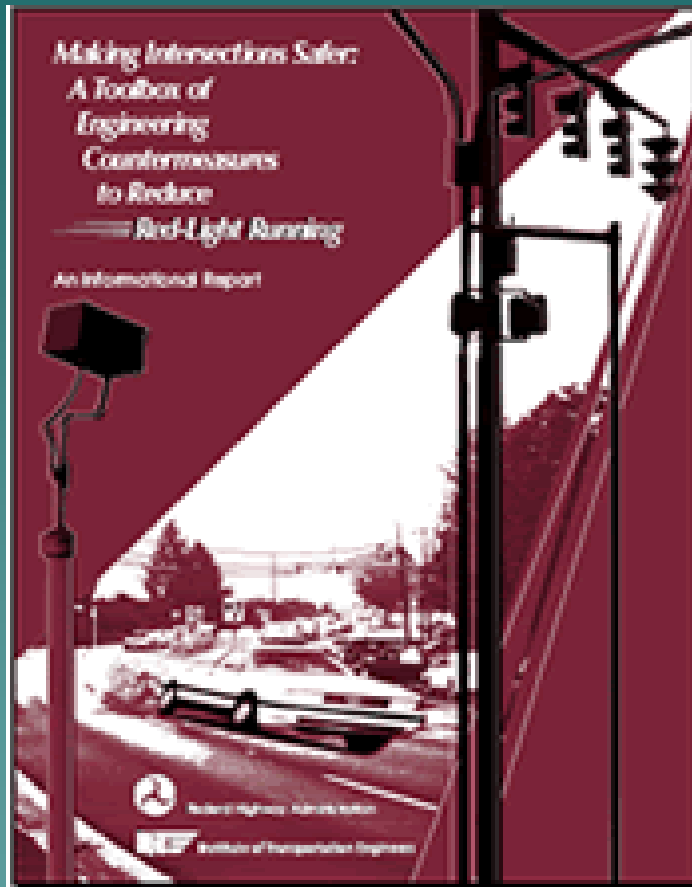
DETAILS
Many stop signs at stop-controlled intersections are not readily visible to approaching drivers due to geometric conditions, presence of vegetation, or other objects (such as tall vehicles) that can limit the view of the regular stop signs. Thus, intersection crashes may occur because approaching drivers may be unaware of the presence of the stop sign at the intersection. The visibility of stop signs and, thus, the ability of approaching drivers to perceive them can be enhanced by providing supplementary stop signs suspended over the roadway.

The target for this strategy should be stop signs at intersections that are not clearly visible to approaching motorists, particularly approaching motorists on the minor road. The strategy is particularly appropriate for intersections with patterns of rear-end, right-angle, or turning collisions related to lack of driver awareness of the presence of the intersection or stop sign.

KEY TO SUCCESS
Locating the supplementary overhead sign (or signs) in the direct line of sight of approaching drivers.

NCHRP Report 500 / Volume 5: A Guide for Addressing Unsignalized Intersection Collisions STRATEGY E8

Reduce Red-Light Running



- ◆ The Problem
- ◆ Understanding RLR
- ◆ Engineering Countermeasures
- ◆ Problem ID and Resolution Process
- ◆ Future Needs

http://safety.fhwa.dot.gov/intersections/rlr_report/index.htm

What Else is New

- *Maintaining Traffic Sign Retroreflectivity: Impacts on State and Local Agencies,*
- **Maintaining Traffic Sign Retroreflectivity"**
- *Railroad-Highway Grade Crossing Handbook*
- **Highway Safety and Trees - The Delicate Balance: [DVD/Brochure]**
- **Selection of W-Beam Guardrail Terminals: [Guidelines on CD/DVD]**

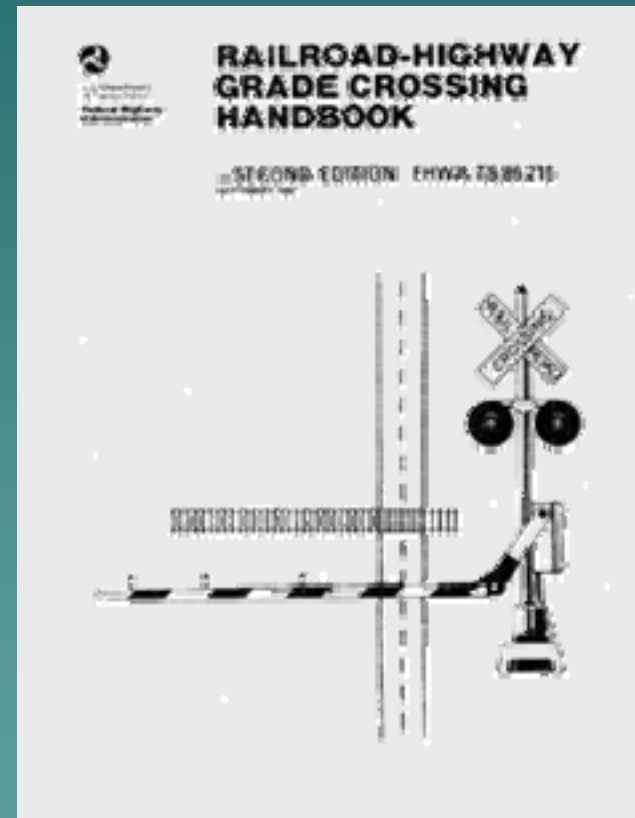
<http://safety.fhwa.dot.gov/index.htm>

Sign Retroreflectivity Standard Final Rule



http://safety.fhwa.dot.gov/roadway_dept/retro/index.htm

Rail-Highway Grade Crossing Handbook



<http://safety.fhwa.dot.gov/xings/index.htm>

Highway Safety and Trees



http://safety.fhwa.dot.gov/roadway_dept/trees.htm

Selection of W-Beam Barrier Terminals

- ◆ Types: Energy absorbing, non-energy absorbing, or buried-in-backslope.
- ◆ Making Better Choices: Different performance characteristics
- ◆ To provide information to select and properly install.
- ◆ To show the crash performance of each terminal type.
- ◆ To provide guidance on proper site grading
- ◆ To presents examples of both appropriate and inappropriate installations.

FHWA Resource Center SAFETY AND DESIGN TEAM

Courses, Seminars, and Workshops

1-day and 3-day Intersection Safety Workshop *

CSS Course and Toolbox

Designing for Pedestrian Safety

Developing a Pedestrian Safety Action Plan

Empirical Bayes Analysis for Safety

Exploring the Green Book: Basic Geometric Design

Fundamentals of Planning, Design and Approval of Interchange Improvements to the Interstate System*

Highway Geometric Design for Safety & Efficiency

Horizontal Curve Safety

Low-cost Safety Improvements

Making Highways Safer with ITS workshop

Older Driver and Pedestrian Handbook

Pavement Marking Retroreflectivity

Planning and Designing for Pedestrian Safety 3-Day workshop

Road Safety Audits

Roadside Design

Roadside Landscaping for Safety

Roundabouts: Designing Intersections for Safety

Safety Effects of Geometric Design Features on 2-Lane Rural Roads

Sign Management and Retroreflectivity Workshop

Signalized Intersection Handbook Workshop

<http://www.fhwa.dot.gov/resourcecenter/teams/safety/courses.cfm>

Websites

◆ <http://safety.fhwa.dot.gov>



• <http://safety.transportation.org>

NCHRP
Project 17-18



DRIVING DOWN FATALITIES

Implementing the AASHTO
Strategic Highway Safety Plan

Saving 9,000 More Lives a Year

TOOLS FOR LIFE

<http://www.transportation.org/>



How Do YOU Get There?

- ✓ No “one size fits all.”
- ✓ Every ONE is
UNIQUE.
- ✓ Process to fit needs.
- ✓ Similarities between successful ventures.



Challenges

- ◆ Language and culture
- ◆ Turf and Funds
- ◆ Silos
- ◆ Organizational Structures
- ◆ Approaches to the problem
- ◆ Commitment, Determination, Perseverance



Contributions



- ◆ Serve as Champion
- ◆ Lead/support the effort
- ◆ Participate in on Teams
- ◆ Build upon existing partnerships and coalitions
- ◆ Help form and enhance coalitions
- ◆ Bring other partners to the table
- ◆ Keep the partners focused
- ◆ Provide and analyze data

Contributions

- ◆ Establish and support teams
- ◆ Hold the partners accountable
- ◆ Keep the momentum The BIG MO!!
- ◆ Share expertise and knowledge
 - Coalition Building
 - Data Analyses
 - Goal Setting
 - Performance Measures
 - Problem ID
 - Identifying Strategies
 - Evaluation



ACCOUNTABILITY



On the Journey to Providing Safer Roads and Saving Lives



Contact Information

Rudolph M. Umbs, P. E.
Senior Highway Safety Engineer
Federal Highway Administration

202-365-3285

rudolph.umbs@dot.gov

<http://safety.fhwa.dot.gov>

Report.Center@fhwa.dot.gov

301-577-0906

