

NCHRP Project 17-18(3): Guidelines for Implementation of the AASHTO Strategic Highway Safety Plan

Summary of the Problem Being Researched

In the summer of 1988, the AASHTO Standing Committee on Highway Traffic Safety (SCOHTS) established a task force to develop a comprehensive highway safety strategy. The task force worked cooperatively with the TRB to produce the Highway Safety Strategic Plan: 1991-2000, in early 1990. The plan identified a number of strategies applicable to the driver, vehicle, highway environment, and traffic records. The strategies were estimated to cost \$1.46 billion annually, and to save a minimum of 64,000 lives over the coming decade.

In late 1996 and early 1997, in an effort to update and improve upon the existing plan, AASHTO, with assistance this time from FHWA and NHTSA as well as TRB, held workshops designed to arrive at a new plan. Nearly 100 individuals were involved, and they represented driver, vehicle, emergency medical service (EMS), safety management, pedestrian, and bicycle areas, as well as the areas of highway facilities and information management that are more typically identified as within the scope of AASHTO activities. It was a truly comprehensive effort, which involved several stages of development, between the invited experts and individuals acting in a "staff arm" capacity for the effort. The invitees included representatives from federal agencies and TRB, as well as many other stakeholders in the highway safety arena.

In 1998, AASHTO approved the Strategic Highway Safety Plan. The plan included strategies in 23 key emphasis areas that affect highway safety. The goal of the plan, as it moves from the research phase to the implementation phase, is to reduce fatality rate from 1.5 to 1.0 deaths per 100 million vehicle miles traveled (mvmt) by 2008.

Project Objectives

The objective of the project has been to develop and validate guidance documents to assist state and local agencies in implementing strategies to reduce the fatality rate from 1.5 to 1.0 deaths per 100 mvmt. The targeted areas are being addressed as funding becomes available. The three phases of this project focus on the following areas:

Phase 1

- Aggressive Driving
- Head-on Crashes on Two-Lane Roads
- Run-Off-The-Road Crashes on Two-Lane Roads
- Drivers With Suspended and Revoked Licenses
- Hazardous Trees
- Unsignalized Intersections

Phase 2 [SPR-2(209)]

- Older Drivers
- Unbelted Occupants
- Pedestrians
- Horizontal Curves
- Signalized Intersections
- Utility Poles
- Heavy Trucks

Phase 3 [TPF-5(058)]

- Distracted/Drowsy Drivers
- Motorcycles
- Rural Emergency Medical Services
- Work Zones
- Alcohol

Phase 4

- Head-on Crashes on Freeways [TPF-5(058)]
- Bicyclists
- Younger Drivers
- High and Low Speed Guides
- Data Needs, Sources, and Analysis

The implementation aspect of the first two phases of the project emphasizes program development, evaluation, testing, and measuring, through a demonstration process. The Phase 3 and Phase 4 guides will not be demonstrated but will undergo an additional agency review.

Accomplishment of the project objectives will require completion of seven primary tasks for Phase 1 emphasis areas (Tasks 0 through 6) and 5 tasks for Phase 2, 3, and 4 emphasis areas (Tasks 1 through 5). These tasks are outlined below with a brief description of the task objectives.

Task 0. Amplified Research Plan – Revise the research plan based on the panel’s comments to the original proposal dated October 25, 1999. This task is not required for the Phase 2, Phase 3, and Phase 4 emphasis areas.

Task 1. Identify Promising Strategies – Review appropriate reference materials and survey/interview appropriate persons to arrive at an initial list of promising strategies for each of the emphasis areas.

Task 2. Establish Recommendations for Strategies and Their Implementation – Build on the strategies identified in Task 1 through workshops and symposiums and prepare a summary report of findings and recommendations.

Task 3. Develop Draft Implementation Guides - Produce a user-friendly implementation guide that may be readily adopted and adapted by state or local agencies to implement one or more strategies in each of the emphasis areas.

Task 4. Assist Selected States with Implementation Programs and Conduct Assessments –

Test implementation guides by using them to prepare implementation plans with demonstration agencies. Task 4 of Phase 3 & 4 will include an Agency Quality Review rather than this demonstration.

Task 5. Refine Guidance Documents – Produce final set of implementation guides for each emphasis area by refining the draft documents based upon what was learned in Task 4.

Task 6. Submit Final Report – Provide a report that documents the efforts and results of the entire project. This report, originally part of Phase 1, will be deferred until the end of the project, as agreed upon in the modification to the contract made in October 2002.

NCHRP 17-18(3)A Technical Support for Lead States

A separate contract was awarded to the CH2M HILL team for technical support as Lead States develop implementation plans to reduce fatalities related to the Phase 1 emphasis areas. The emphasis area managers will provide support as needed to the Lead States. This project also includes updating of materials in the web-based guides as needed, based on results of the Lead State efforts.

Activities This Quarter

Work continued on Phase 3 and Phase 4 this quarter. Progress was made on Task 5 of Phase 3 and Tasks 3, 4 and 5 of Phase 4. The following is a review of progress made as of the end of June 2006.

Phase 3 [TPF-5(058)]*Task 5. Refine Guides*

The project team is working to enlist the help of an additional reviewer for the Motorcycle Guide. This review will continue into the third quarter. The final files for the published Phase 3 guides were received from NCHRP. The development of the web-based guides will begin in the third quarter.

Phase 4*Task 3. Revise Draft Guide*

Revisions of the Speed guides were made based on comments received from the NCHRP Panel and Task 2 workshop participants.

Task 4. Agency Quality Review

A workshop to obtain comments on the Speed guides was held at the National Academy of Sciences Keck Center in Washington, DC, on June 28th and 29th. The agenda, list of workshop attendees, and summary of discussions held in breakout sessions are attached to this progress report (Appendix 1).

Task 5. Refine Guides

The Head-On, Bicycle, Younger Driver, and Data Guides are currently going through final revisions. These will be finalized early in the third quarter.

NCHRP 17-18(3)A Technical Support for Lead States

CH2M HILL and emphasis area managers provided technical support related to the NCHRP Report 500 guides as requested.

Schedule and Budget

As of June 30, for Phase 3, we estimate that we are approximately 96 percent complete and for Phase 4 we estimate that we are 89 percent complete. We are approximately 97 percent spent for Phase 3 and 74 percent spent for Phase 4.

Plans for Next Quarter

In the next quarter, work is planned on Phase 3 Task 5 and Phase 4 Task 5.

Phase 3 [TPF-5(058)]

Task 5. Refine Guides

Review and final revisions of the Motorcycle guide will continue. The web-based versions of the Phase 3 guides will be completed.

Phase 4

Task 5. Refine Guides

Final revisions will be completed on the Head-On, Bicycle, Younger Driver, and Data Guides. Final revisions to the Speed guides will be made based on comments received from the NCHRP panel and Task 4 speed workshop participants.

NCHRP 17-18(3) A Technical Support for Lead States

The project team will provide technical support as needs arise.

Problems Encountered

None to report.

**NCHRP Project 17-18(3)
Phase 4 Agency Quality
Review Speed Guide Workshop,
June 28 and 29, 2006**

NCHRP 17-18(3) Phase 4 Speed Guide Workshop

June 28-29, 2006

National Academy of Sciences Keck Center
Washington, DC

Agenda

June 28, 2006		Room
8:00 AM—9:00 AM	Registration and Continental Breakfast	109
9:00 AM —10:30 AM	Welcome and Introductions (<i>Nick Antonucci, CH2M HILL</i>) Objectives and Plan for the Workshop (<i>Nick Antonucci</i>) Comments from NCHRP (<i>Chuck Niessner, NCHRP</i>) Overview of Speed Guides (<i>Kelly Hardy, CH2M HILL</i>)	109
10:30 AM—10:45 AM	Break	
10:45 AM—12:00 PM	Breakout Sessions for High and Low Speed Guides (<i>led by Kelly Hardy, and Ingrid Potts, Midwest Research Institute</i>) <ul style="list-style-type: none"> • Introductions and comments from each reviewing agency • Questions and further sharing 	109, 204
12:00 PM—1:00 PM	Lunch - held at the Keck Center	
1:00 PM—4:30 PM <i>(Break 3:00—3:15)</i>	Breakout sessions for Low and High Speed Guides <ul style="list-style-type: none"> • Critique strategy section of the guides • Identify and discuss organizational and institutional issues related to the AASHTO Plan and the use of the guides (especially technology transfer issues) 	109, 204
4:30 PM—5:00 PM	Review of Discussions, Organize for Day 2	109
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June 29, 2006		
7:00 AM—8:00 AM	Continental Breakfast	109
8:00 AM—11:00 AM <i>Break (9:30—9:45)</i>	Breakout Sessions continued <ul style="list-style-type: none"> • Critique strategy section of the guides • Identify and discuss organizational and institutional issues related to the AASHTO Plan and the use of the guides (especially technology transfer issues) 	109, 204
11:00 AM—12:00 PM	Summary of Recommendations and Coordination of Guides	109

Attendees

Low- and High-Speed Workshop Attendees

Name	Agency	E-Mail
Nick Antonucci	CH2M HILL	Nick.Antonucci@ch2m.com
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Speed Workshop

Summary of Suggested Changes

- Add a strategy on occupant protection
- Include discussion of street racing in the Low Speed Guide
- Discuss speed governors and in-vehicle devices as a penalty for repeat offenders
- Reorganize the C objective to create separate strategies on speed-activated warning devices, and signs and marking for curves
- Remove discussion of improving operation on arterial streets from the strategy discussing traffic calming (E3)
- Broaden the strategy on lighting to include road users other than just pedestrians

Below is a list of more specific recommended changes to the individual guides. The comments from both breakout groups, as well as those from the Panel, will be combined to ensure the changes are made in both guides where appropriate.

Low-Speed Guide

Strategy A1

- Discuss looking at the totality of a neighborhood to set the speed limit
- 85th percentile not the only way to develop speed limits, also discuss crash history, roadway environment, and input from judicial and law enforcement officials
- Add discussion on the importance of educating the public on how speed limits are created

Strategy A2

- Possibly add a strategy table to more extensively discuss school zones
- Add time of day variable speed limits (Milwaukee listed as an example)
- Discuss the use of flashers throughout the U.S. Not used extensively in many areas.

Objective B

- Possibly include discussion on Police Pursuit policies within the education objective. Many severe injuries and deaths surrounding police pursuits may have a negative impact on public perception of law enforcement officials
- NHTSA SPEED Campaign starting in mid to late fall. Add mention of it within the education strategies. Possible items to include are Campaign taglines and website information. This campaign will likely be used by state and local agencies.

Strategy B1

- Add effectiveness from Scotland study of an educational campaign
- On local level, campaigns may need to come from enforcement due to lack of funding in other areas, such as public works departments

Strategy B2

- Add mention of insurance surcharge as another penalty of speeding

Strategy B3

- Add further discussion of the Speed Watch programs through the United States. See examples in Bellevue, Seattle, and Collier County

Strategy C3

- Include discussion on speed governors, limiters, or trackers
- Add discussion on outreach to courts – to stress the importance of tracking and prosecuting repeat offenders
- Add discussion on pros and cons of driving/traffic schools
- Change fines to penalties

Strategy C5

- Add Special Times to this strategy (such as the major holidays)

Objective D

- Add a strategy on the consistent use of advisory signs, and pavement markings
- Add a separate strategy for curves, including the use of signing, pavement marking, delineators and raised pavement markers on curves

Strategy D2

- Change title to Active Speed Feedback Signs
- Possibly add animal warning signs
- Strategy to include all signs, pavement markings, and delineators that are actively triggered by the vehicle's speed

Strategy E1

- Improved discussion of self-organizing roads
- Add the point that with this strategy other strategies should also be implemented

Strategy E3

- Remove discussion on improving arterial streets

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- Include discussion of on-street parking as a traffic calming tool

Strategy E4

- Change strategy text to reflect that lighting is not just beneficial for pedestrian, but all users of the intersection

High-Speed Guide

- Page III-6, last paragraph: highlight that attention needs to be paid to middle aged drivers as well.

Strategy A1

- Discuss emergency medical services; most states have public speakers that educate. It's a resource that often goes overlooked but is important.
- NCHRP 3-67 – a program that is currently in development which will provide an expert system for determining speed limits. Add a reference to this program.
- Add a reference discussing how lowered speeds as a result of enforcement usually do not last when the enforcement period ends.

Strategy A2

- Reference human factors scan report
- Mention torrential rain and its effect on conditions. Also mention nighttime speed limits (because of wild animals, etc.)

Strategy A3

- Mention the importance of variable speeds for heavy vehicles in the mountain states because of steep grades, especially downhill. Speeds in these situations are enforced in Colorado.

Objective B

- Mention automobile advertisements and their heavy basis on high speed performance. This issue must be addressed in Objective B; add more information about injury severity at high speeds specifically.

Strategy B1

- Keys to Success – media's responsibility. Federal requirements for public service do not exist anymore; take the statement about free time out.

Objective C

- Law enforcement are the first people often to identify the problem and get people involved, though this seems like a secondary consideration in the strategies.
- Add a new C Strategy: High Visibility Enforcement

Strategy C1

- Talk about law enforcement networks and their role in speed enforcement - multi-jurisdictional speed enforcement.
- Table 25: Text reads “no extensive training required.” This is misleading; every officer has to be certified in radar operation, etc.

Strategy C2

- Page V-27 – change first paragraph (see hard copy)
- If we have more information from Europe Scottsdale on automated enforcement, then put this in an appendix
- Add a reference to the human factors scan report. Also add a reference to the IIHS testimony on their website regarding red light cameras.
- Page V-31 – reference NHTSA red light guides language.
- Page V-28 – remove untrue statement about photos of driver.
- Strategy to add: Reduce opportunities for drivers convicted of speeding violations to wash their records. This can undermine law enforcement when drivers can repeatedly attend classes and hide their true driving record.

Strategy D1

- Discuss MUTCD guidelines for space signing, versus what is actually feasible in the field; how to compromise?

Strategy D2

- Document from Penn State by Philip Garvey – it is about Variable Message Signs for the visually impaired. It would be a valuable reference for this strategy.

Strategy D3

- Signs that suggest fine that you would get if you were caught are discussed. The specific sign types that we are talking about are unclear; make this more clear and specific.

Strategy D4

- Why are they called “in-pavement” measures? Pavement markings are not in the pavement – this is confusing language.
- Markings may not really induce illusions – speeds are often just temporarily lowered because there are new markings on the road, but after awhile people become used to them and speeds rise again. This is called the “novelty effect.”
- Possibly discuss the use of wider edgelines as a perceptual pavement marking.
- Add references for bicycle friendly rumble strips (PennDOT).
- Richard Retting will send studies to add as references.

Strategy E2

- Possibly mention lighting; however also mention lighting concerns with respect to older drivers.
- Why do we have “enforcement” here? It is “design elements...”

- Add to toolbox: Flashing beacon over signs and intersections in rural areas

Strategy E3

- Discuss performing roadway safety audits BEFORE the roadway is designed. This way, they are much less expensive.

Strategy E4

- Possibly recommend construction of roundabouts in place of traditional intersections. Reference FHWA Roundabout Guide.

Strategy E5

- Add related countermeasure: sign in advance of signal that indicates “Signal ahead” when in yellow phase. Some states don’t use clearance intervals, and only use change intervals, but the document shouldn’t mandate things to states.
- Mention minimum green times on high speed roads (ITE guideline is a minimum of 15 seconds.)

Strategy E6

- Add strategy: detection systems that will delay onset of yellow phase when drivers are in the dilemma zone. This is called “green extension.”

Strategy E7

- Discussion on strong language – afraid that in legal situations that “implement” seems too definite. Maybe just leave the verb out on all titles. (We decided that “implement” will stay, and verbs will be used – this is the way all past guides have been.)

Strategy E8

- Mention older drivers’ eyesight – the eye adjustment does not react to the changed lighting as well as other drivers.
- Secondary crashes – VMS notify upstream traffic.

APPENDICES

- Add additional references:
 - Proceedings from summit on speed (2005)
 - Reference the human factors scan report from 2004 (automated enforcement, traffic calming for low speed.)