

All Strategic Highway Safety Plans Approved

The Strategic Highway Safety Plan (SHSP) is a new federal requirement of SAFETEA-LU, 23 U.S.C. 148, and is a major part of the core Highway Safety Improvement Program (HSIP). As of September 28, 2007 all 50 states and the District of Columbia had an approved SHSP.

The purpose of the SHSP is to identify the state's key safety needs and guide investment decisions to achieve significant reductions in highway fatalities and serious injuries on all public roads. The SHSP development process, much like the transportation planning process, is comprehensive and collaborative. These processes include input from both public and private stakeholders.

SAFETEA-LU requires that "Each statewide and metropolitan planning process shall provide for consideration of projects and strategies that will increase the safety of the transportation system for motorized and nonmotorized users."

The objectives of Transportation Safety Planning (TSP) and the SHSP are based on bringing together all the appropriate partners to ensure a coordinated effort toward improving surface transportation safety.

SHSPs will undoubtedly lead to further collaboration among transportation planners, safety engineers, and other safety stakeholders. The metropolitan and statewide transportation planners are an integral part of the SHSP process.

Transportation planners help ensure that the goals, objectives, and strategies of the SHSP are integrated into statewide and metropolitan long range transportation plans as well as transportation improvement programs (TIPs).

The integration of the plans and processes will ideally place safety on par with other planning factors, particularly in choosing or evaluating new and continuing projects and initiatives.

If you would like more information on your state's safety goals, emphasis areas, strategies, etc., contact your state DOT's Safety Engineer to obtain a copy of the SHSP for your state. Most SHSPs can be obtained via the state DOT's web site. For general questions on SHSP, please contact Tamiko Burnell at Tamiko.Burnell@dot.gov

FTA to Improve Safety and Maintenance

Beginning in Fiscal Year 2008, the Federal Transit Administration (FTA) will implement new initiatives to enhance track worker protection and improve oversight of critical maintenance functions in the rail transit industry. Over the last 22 months, the rail transit industry has experienced a series of collisions, derailments, and fires resulting in 11 track worker fatalities, a three-fold increase in the rate of injury.

The industry also has been the target of negative attention through a series of well-publicized maintenance deficiencies responsible for hundreds of passenger injuries and millions of dollars in property damage.

FTA took action to address this situation through technical assistance, training and outreach, and research programs. Through its technical assistance programs, FTA has provided the industry with guidelines and practices developed by the American Public Transportation Association (APTA), American Railway Engineering and Maintenance of Way Association (AREMA), and the Federal Railroad Administration (FRA).

In the coming months, FTA will be conducting two-day workshops with maintenance, operations, safety, and executive leadership personnel at each of the nation's 13 heavy rail transit agencies to explore options for improving track worker safety and for enhancing maintenance oversight. These workshops will support the development of guidelines for improved maintenance practices.

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A Safety Evaluation of Red Light Cameras

The use of red light camera (RLC) systems has gained popularity as states and communities look for new approaches to reduce traffic crashes at urban and rural intersections. The goal is a worthy one. According to the Federal Highway Administration (FHWA), intersections account for 45 percent of all reported crashes, and 21 percent of fatalities. A number of studies point to the benefits of RLCs, but FHWA determined a more comprehensive, multi-jurisdictional evaluation was required.

Both previous research and the FHWA study showed RLCs decrease right-angle crashes and increase rear end crashes. The FHWA approach, however, involved an Empirical Bayes (EB) before and after study using data from 132 sites in seven jurisdictions to estimate the crash and associated economic effects and determine whether the positive effects of lower right-angle crashes was negated by the increase in rear end crashes.

The analysis, based on an aggregate of rear-end and right-angle crash costs for various severity levels, showed RLC systems provide a modest crash-cost benefit of approximately \$50,000 per site per year. The study found this benefit can be improved through careful selection of the sites to be treated (e.g., sites with a higher ratio of right-angle to rear end crashes), the presence of warning signs at both the intersection and the city limits, and

increased publicity. The study did note that even if modest, the economic benefit is important because many RLC systems, unlike other safety treatments, pay for themselves through red-light-running fines.

For more information on the study, visit the Turner-Fairbank Highway Research Center web site at:

<http://www.tfhrcc.gov/safety/pubs/05049/05049.pdf>.



An FHWA study found red light cameras, such as those shown above, have a modest economic benefit.

Improving Commercial Vehicle Safety

The Federal Motor Carrier Safety Administration (FMCSA) sponsors research through the Commercial Truck and Bus Safety synthesis program which is managed by the Transportation Research Board (TRB).

Synthesis Report 14

“The Role of Safety Culture in Preventing Commercial Motor Vehicle Crashes” examines how culture, i.e., an industry’s norms, attitudes, values, and beliefs, impacts safety. The research approach included a literature review, surveys, interviews with commercial vehicle managers and drivers, and case studies. The report concludes that a strong safety culture, when properly defined, is achievable. Elements that promote this culture include effective top to bottom communications, the use of proper terminology such as replacing “accident” and “mishap” with “crash” and “wreck,” recognition and certain rewards for safe driving behavior, driver experience, policies, procedures, employee safety responsibilities, and safety messages that are clear and simple. A copy of the report can be found at:

http://onlinepubs.trb.org/onlinepubs/ctbssp/ctbssp_syn_14.pdf.

Synthesis Report 15

“Health and Wellness Programs for Commercial Drivers” examines the health risks facing commercial truck and motorcoach drivers and the relationship between risk and crashes. The study concluded health and wellness are vitally important to the commercial trucking and motorcoach industry and are components in driver retention and efforts to hold down safety and health-related costs. The study indicates a paradigm shift is needed that integrates health, safety, and productivity management as a shared responsibility of individual drivers, managers, and senior leaders. The report recommends further research on the specific functional abilities that are linked to crash causation, and the relationship between worksite health and wellness programs and the health and safety of employees. More information on this research can be found at:

http://onlinepubs.trb.org/onlinepubs/ctbssp/ctbssp_syn_15.pdf.

Research Creates a Tool for Setting Speed Limits

Speed limits are generally acknowledged to be a significant factor affecting road safety and operating efficiency. Establishing appropriate speed limits can be a complicated and often controversial process that involves balancing safety with road user convenience and roadway efficiency. Research conducted through the National Cooperative Highway Research Program (NCHRP Project 3-67) has developed a knowledge-based decision-support tool for determining credible and enforceable speed limits on highways and local roads.

Typically, engineering and traffic studies provide the basis for most speed limits. These studies consider the physical features of the roadway, crash experience, traffic characteristics, control (signals or other control devices), length of the segment, and prevailing vehicle speed.

The new tool is designed to succeed USLIMITS, one of the current expert systems used to set speed limits in the U.S. USLIMITS2 is a web-based system that can be accessed at <http://www2.uslimits.org>. A set of decision rules, developed

with help of two expert panels, guide the process that can be used on all primary roadways – from rural two-lane segments to urban freeways.

These experts also developed a set of critical variables to consider, including operating speed, roadway geometrics, cross section, clear zone, crash statistics, roadside friction, major intersection/interchange spacing, pedestrian or bicycle activity, road classification, and proximity to a school zone. Research Results Digest 318 detailing information on this decision support tool can be found at:

http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rrd_318.pdf.

The Transportation Research Board (TRB) also will be hosting a hour-and-a-half webinar on the report scheduled for 2:00 to 3:30 p.m. EDT on Tuesday, October 23, 2007. To register, go to:

<https://www.gotomeeting.com/register/589123680>.

FTA to Improve Safety and Maintenance

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Over the next year, FTA will develop a training course specifically for track inspectors and supervisors, to address the unique demands of track inspection in the rail transit environment. The course will incorporate elements of FRA's 49 CFR Part 213, as well as APTA's rail transit standards and the AREMA guidance. FTA also will develop pocket guides on track inspection and track worker protection, and a training DVD on track worker protection.

FTA will continue to sponsor research through the Transportation Research Board (TRB), Transit Cooperative Research Program (TCRP), and the University Transportation Centers (UTC) to explore opportunities for using available technology to enhance maintenance activity performance. Through TCRP, FTA is also supporting pilot programs at New York City Transit and the Greater Cleveland Regional Transit Authority to test new technology for monitoring the location of track workers and providing additional warnings for oncoming trains.

For more information contact:

Levern McElveen
Federal Transit Administration
levern.mcelveen@dot.gov
(202) 366-1651



FTA has launched a number of new initiatives to improve safety and maintenance functions.

Safety Effects of Rumble Strips

According to a study on the safety effects of rumble strips at rural intersections, a common cause of traffic crashes at rural intersections is the failure of vehicles to slow down or stop at stop signs – a situation that rumble strips could address by warning drivers. A Wisconsin Department of Transportation (WIDOT) study reviewed results from other state DOTs, academia, and Transportation Research Board studies and concluded that rumble strips do cause drivers to reduce speed earlier and can impact the types of crashes, including rear-end and frontal impact crashes. Some potential pitfalls of rumble strips include motorists using opposing lanes to drive around the strips and a loss of control by motorcyclists and bicyclists. A copy of the WIDOT report and a synthesis of the research reviewed can be found at:

<http://www.dot.wisconsin.gov/library/research/docs/tsrs/tsrintersectionrumblestrips.pdf>.

Tools for Intersection and Pedestrian Safety

Intersection Safety

The Federal Highway Administration (FHWA) has produced a Sample Intersection Safety Action Plan that provides guidance for states on how to identify and systematically deploy cost-effective, publicly acceptable safety strategies that will result in substantial reductions in intersection-related fatalities and serious injuries. The plan includes four major components: intersection crash overview; goal establishment; an approach to strategy selection and data analysis; and strategy deployment levels and characteristics (e.g., costs, safety impacts). Most states should be able to conduct the majority of the data analyses using their own crash data system and information included from the Fatality Analysis Reporting System (FARS) data base.

The plan includes a “stretch” goal and a number of strategies needed to achieve the goal. To further help states a list of potential strategies also is included to allow for maximum flexibility. The Sample Plan also provides a benefit/cost process so states can determine levels of deployment and the statewide impact the plan will have on intersection crashes. The plan is to be used as a guide and should be coordinated with the state’s strategic highway safety plan. A copy of the Intersection Safety Action Plan can be found at:

<http://safety.fhwa.dot.gov/intersections/intersectionsap.htm>.

Pedestrian Safety

FHWA has developed a free, ready-made tool kit of outreach materials that states and communities can customize to improve pedestrian safety. The tool kit is designed to increase awareness among motorists that pedestrians are legitimate road users and can be expected to be in or near roadways; to educate pedestrians about how to minimize their risk; and to explain and enhance the development and operation of pedestrian facilities, such as crosswalks and pedestrian signals. Materials in the tool kit

are designed for use in television, radio, cinema, and print advertising. Some are available in both English and Spanish. To make sure the materials are used effectively, a Campaign Planning Step-by-Step Guide also is provided. A copy of the tool kit can be found at:

http://safety.fhwa.dot.gov/local_program/pedcampaign/index.htm.



Excellence in Transportation Planning Awards

The 2008 Transportation Planning Excellence Awards call for nominations is approaching fast. This Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) program “recognizes outstanding initiatives across the country to develop, plan, and implement innovative transportation practices.” The program is co-sponsored by the American Planning Association (APA).

Categories for 2008 include: transportation asset management; education and training; freight planning; homeland and personal security; linking planning and operations; modeling and technology applications; planning leadership; participation and consultation; safety planning; transportation; land use and economic development integration; transportation planning and environment; and tribal transportation planning. Entries for the biennial awards are due February 29, 2008. For more information on the awards program, visit:

<http://www.fhwa.dot.gov/planning/tpea/index.htm>.

Improving Safety at Exclusive Busway At-Grade Crossings

The Transit Cooperative Research Program (TCRP) has released a report (TCRP Report 117: Design, Operation, and Safety of At-Grade Crossings of Exclusive Busways) providing guidelines for planning, designing, and operating various kinds of busways that traverse roadway intersections. The information focuses on enhancing safety at these busway crossings while maintaining efficient transit and highway operations, and minimizing pedestrian delay.

Busways are dedicated lanes or facilities that allow for higher speeds and greater service reliability. They are not widely used in the U.S. A lack of motorist and pedestrian experience with this type of transit can lead to confusion or insufficient attention to potential dangers.

To improve safety, the report provides the following principles and guidelines: provide simple intersection designs; provide clear visual cues to make busway intersections conspicuous; maximize driver and pedestrian expectancy; separate conflicting movements; minimize street crossings; incorporate design features that improve safety for vulnerable users; and coordinate geometric design features and traffic control devices. A copy of the full report can be found at:

http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rpt_117.pdf.



Bus Only pavement markings are used at an intersection in Orlando, Florida.

Web Site for Regional Planning and Operations

Many strategies to address safety issues involve transportation operational improvements, to improve such things as traffic flow or reduce potential for conflicts between vehicles and other non-motorized transportation modes. The Planning for Operations web site provides important information on the development of regional operations objectives in Metropolitan Transportation Plans. The site is a joint effort of Federal Highway Administration's Office of Operations, Office of Planning, Environment and Realty, and the Federal Transit Administration (FTA). It is intended to promote outreach, technical assistance, and professional capacity building among transportation planners and operations personnel. An effective transportation system involves not only the infrastructure, but also a coordinated operation of a regional network to improve system efficiency, reliability, and safety.

Planning for Operations has two goals: 1) to enhance planning and operations functions and strengthen key institutional underpinnings and linkages; and 2) to help ensure investments in operations provide a regional benefit, when possible, and are on par with investments made in construction and preservation. The Planning for Operations web site is located at:

<http://www.plan4operations.dot.gov>.



A coordinated regional transportation network that focuses on more than infrastructure is critical for roadways such as the Washington, D.C. Beltway, which is used by residents from Maryland, Virginia, and the District of Columbia, as well as thousands of visitors each year.

Web Site Provides Research Information for Policy-Makers

A new web site which communicates the results of national rural safety research projects to policy-makers and the public has been created by the Center for Excellence in Rural Safety at the University of Minnesota. The Center is part of a broader, multi-year directive in the Safe, Accountable, Flexible and Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) to establish four national surface transportation centers. It will provide citizen-centered research, training, and outreach to enhance rural safety and to meet the on-line and seminar training needs of rural transportation practitioners and policy-makers.

Research activities will explore policy, behavior, and technology approaches, including safety-conscious planning, ITS and rural emergency response, integrated policy approaches, and related human factors, societal trends, and stakeholder needs analysis. The site also includes information on upcoming events such as the annual Center sponsored Summer Institute, a state-by-state breakdown of rural crash fatalities, news releases, and publications. The Center is located at:

<http://www.ruralsafety.umn.edu>.

Safety Tool for Pedestrian/Bicycle Crashes

A variety of factors are involved in pedestrian and bicycle crashes, including the age of the pedestrian/bicyclist, the width of the crossing, street corners with large turning radii, traffic volume and vehicle speed, and a misunderstanding of pedestrian signals.

The Pedestrian and Bicycle Intersection Safety Indices allows engineers, planners, and other practitioners to take these intersection characteristics into account and prioritize the areas of greatest risk for bicyclists and pedestrians.

Once the high-priority sites are identified, more in-depth studies can identify appropriate countermeasures. The report recommends PEDSAFE and BIKESAFE as tools to assist in countermeasure selection. The intent of the tool is not to dictate a predetermined index value, but rather to provide practitioners with a method for targeting the most hazardous sites and work within the confines of budgetary restrictions.

The Federal Highway Administration (FHWA) has developed safety indices that can proactively prioritize intersection crosswalks and intersection approaches to improve pedestrian and bicycle safety. The report, released by the Turner-Fairbank Highway Research Center, includes models that can help practitioners focus efforts where they are needed most. A copy of the report can be found at:

<http://www.fhrc.gov/safety/pedbike/pubs/06125/06125.pdf>.

News From the Field

Minnesota Evaluates Speed Management Program

The Minnesota’s Speed Management Program (MSMP), which is also known as HEAT (Highway Enforcement of Aggressive Traffic), focuses on engineering, enforcement, education, and evaluation. It involved speed studies (i.e., can road geometry support a 60 mph speed limit?), speed limit adjustment, increased speed enforcement, extensive public education through the Office of Traffic Safety, and a comprehensive evaluation.

The program evaluation showed the MSMP resulted in a decrease in the number of drivers traveling at excessive speed and a large decrease in the number of drivers traveling at least 10 mph above the speed limit. There was a halo effect on the number of drivers

traveling at 70 mph or more on two-lane highways located outside the enhanced enforcement zone. The study recommended MSMP be continued and an evaluation conducted on the long-term effectiveness of the effort. The Minnesota Department of Transportation and the Minnesota Department of Public Safety jointly conducted an evaluation of MSMP to determine its effectiveness in reducing fatalities and serious injuries as part of their Comprehensive Highway Safety Plan (CHSP). A copy of the study can be found at:

<http://www.cts.umn.edu/Publications/ResearchReports/pdfdownload.pl?id=314>.

2006 Data Shows Continued Decline

The number of motor vehicle fatalities dropped to the lowest level in five years, from 43,510 in 2005 to 42,642 in 2006, according to a preview of the 2006 Annual Assessment of Motor Vehicle Traffic Crash Fatalities and Injuries released by the National Highway Traffic Safety Administration (NHTSA).

The number of fatalities declined for all road users except motorcycle rider fatalities, which continued a nine-year increase rising to 4,810 in 2006. Injuries also declined to just under 2.6 million in 2006 from nearly 2.7 million in 2005 for all road users except motorcycles.

Finally, the motor vehicle fatality rate per 100 million vehicle miles traveled dropped to its lowest level at 1.42. For more information on the preview, visit:

<http://www.nrd.nhtsa.dot.gov/Pubs/810791.pdf>.

Minimizing Deer-Vehicle Crashes

A Georgia Department of Transportation (GDOT) study to evaluate techniques for reducing deer-vehicle crashes found wildlife reflectors did not alter deer behavior. In fact, the study showed deer exposed to these devices were more likely to be involved in a negative incident with a vehicle. Also, examinations of deer eyes showed their visual system is likely to be overwhelmed by abrupt changes in lighting (e.g., oncoming vehicle head-lights). Auditory systems also did not prove to be consistently effective.

The report recommends the Department continue to develop and use strategies that are based on the physiological and behavioral characteristics of white-tailed deer and to reduce deer access to the roadway where possible. A copy of the GDOT report can be found at:

<http://www.dot.state.ga.us/dot/construction/materials-research/b-admin/research/onlinereports/deerdevicefinal.pdf>.

VA Examines Ways to Slow Down Vehicles

A Virginia Transportation Research Center report, entitled “Evaluation of Best Practices in Traffic Operations and Safety: Flashing LED Stop Sign and Optical Speed Bars,” found the flashing LED stop sign showed an overall positive impact and were shown to be particularly effective at dusk and at night. Optical speed bars also produced a positive impact.

Vehicle speeds decreased at all locations, but tended to increase 90 days after installation at several of the sites. Post-installation speeds for optical speed bars were higher than those for LED stop signs, but still below preinstallation levels. The report examining the safety and operational impacts of flashing light-emitting diode (LED) signs and optical speed bars was released by the Virginia Transportation Research Council, a partnership of the Virginia Department of Transportation and the University of Virginia. For more information on the study, visit:

www.virginiadot.org/vtrc/main/online_reports/pdf/07-r34.pdf.

Directions in Road Safety

Managing Editor
Jody McCullough, FHWA

TSPWG Moderator
Rick Pain, TRB

Research, Content, and Format
Cambridge Systematics

Web Master
Mark Iansiti