



U.S. Department of Transportation Action Plan to Reduce Motorcycle Fatalities

October 2007





**U.S. Department of
Transportation**
Office of the Secretary
Of Transportation

1200 New Jersey Ave., S.E.
Washington, DC 20590

November 2, 2007

Dear Reader,

As with any mode of transportation, motorcycle riding brings both benefits and risks. As an avid motorcycle enthusiast myself, I know first hand the joy and the pain that can come with the freedom of the open road.

In August 2005, I suffered a broken collar bone in a motorcycle crash. Had it not been for my protective gear – including my helmet – I am convinced I would have suffered severe injury, or even death.

Unfortunately, many motorcycle crash victims aren't so lucky. While we have been successful in reducing automobile deaths in recent years, our progress is being negated by a rise in the rate of motorcycle fatalities – which have more than doubled in the last decade. I believe that overcoming this tragic trend is the greatest highway safety challenge our nation faces today. Therefore, the U.S. Department of Transportation is launching a comprehensive new initiative to curb the rising rate of motorcycle fatalities and to protect the joy and freedom that motorcycling can bring.

This new plan will help reduce motorcycle fatalities with new national safety and training standards, curb the use of counterfeit helmet labeling, place a new focus on motorcycle-specific road improvements, provide training for law enforcement officers on how to spot unsafe motorcyclists, and create a broad public awareness campaign on rider safety.

We have much work to do, but I am confident this new initiative will give us the kick-start we need to enjoy safer roads ahead.

Safe Riding,

A handwritten signature in black ink that reads "Mary E. Peters".

Mary E. Peters
U.S. Secretary of Transportation

A Growing Safety Problem

While significant progress has occurred in reducing fatalities among passenger vehicle occupants, motorcycle fatalities have been rising steadily since 1997, and currently represent our Nation's greatest highway traffic safety challenge. In 2006, motorcycle rider fatalities continued their nine-year increase, reaching 4,810 (a 5% increase from 2005) and exceeding the number of pedestrian fatalities for the first time since the National Highway Traffic Safety Administration (NHTSA) began collecting fatal motor vehicle crash data in 1975. In 2005, the motorcycle fatality rate was 73 per 100,000 registered motorcycles. By comparison, the fatality rate in the same year for passenger vehicles per 100,000 registrations was 14.

This trend has been so pronounced that motorcycle fatalities have for all practical purposes offset the gain in lives saved resulting from higher seat belt use and improved passenger vehicle safety. Motorcycle rider fatalities now account for 11 percent of total fatalities, and dramatically affect the Nation's overall highway fatality rate.

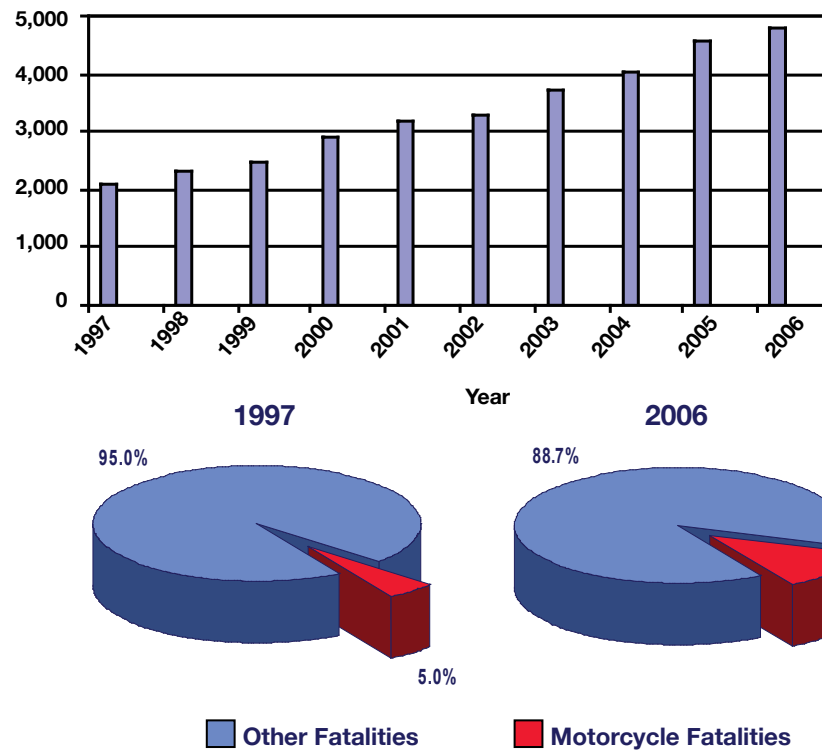
This document describes strategies for the Department to improve motorcycle safety during FY 2008 and 2009. Key Departmental motorcycle safety initiatives include:

- Conducting the *Motorcycle Crash Causes and Outcomes Study*, a comprehensive examination of the factors that causes crashes, which will help the Department develop stronger programs and strategies to combat the rising trends in motorcycle crashes.
- Developing National Standards for Entry Level Motorcycle Rider Training that will set the baseline for novice motorcycle rider training programs conducted in the United States.
- Amending Federal Motor Vehicle Safety Standard (FMVSS) No. 218, Motorcycle Helmets, to address the falsification of helmet certifications facilitated by the current labeling requirements of the motorcycle helmet standard.
- Distributing *Roadway Safety for Motorcycles*, a brochure containing official guidance on designing, constructing, and maintaining roadways for increased motorcycle safety, to road planners, designers, and engineers.
- Creating a training program designed to educate police on motorcycle safety and the specific enforcement efforts they can undertake to reduce motorcycle crashes.
- Marketing a "Share the Road" campaign kit for use by States, local communities, and motorcycle organizations.

Motorcycle Fatality and Demographic Trends

Between 1997 and 2005, motorcycle registrations have jumped 63 percent, from 3,826,373 in 1997 to 6,227,146 in 2005. But fatalities have increased disproportionately to the rise in registrations and sales. Motorcycle fatalities have increased each year from a low of 2,116 in 1997 to an all-time high of 4,810 in 2006. The proportion of motorcycle fatalities increased

Motorcycle Rider Fatalities by Year



Source: NCSA, FARS 1997-2005 (Final), 2006 (ARF) Proportion of Motorcycle Fatalities

to 11 percent of all motor vehicle traffic crash fatalities in 2006 from 5 percent in 1997. Younger (20-29) motorcycle riders continue to account for the highest number of fatalities each year, but motorcyclists over 40 have seen the greatest increases in fatalities from 1997 to 2006. The percentage increases between 1997 and 2006 in fatalities by age group are as follows: Under 20 (42%), 20-29 (86%), 30-39 (80%), 40-49 (172%), 50-59 (307%), Over 59 (280%).

Motorcycle Rider Fatalities by Year and Age Group

YEAR	AGE GROUP						Unknown	TOTAL
	< 20	20-29	30-39	40-49	50-59	> 59		
1997	166	694	556	405	207	87	1	2,116
1998	201	720	612	475	199	86	1	2,294
1999	137	761	612	570	286	117	0	2,483
2000	189	818	707	677	348	153	5	2,897
2001	211	925	798	729	383	149	2	3,197
2002	177	866	781	770	496	178	2	3,270
2003	229	950	839	904	575	215	2	3,714
2004	252	1,046	876	971	649	234	0	4,028
2005	270	1,172	975	1,027	766	365	1	4,576
2006	236	1,291	1,002	1,104	844	331	2	4,810



Major Characteristics of Motorcycle Crashes

- The majority of motorcyclists killed were White/Caucasian (77%), followed by African-American (9%), Hispanic (7%), and Native American (1%).
- In 2005, 27 percent of all fatally injured motorcycle operators had BAC levels of .08 g/dL. An additional 7 percent had lower alcohol levels (BAC .01 to .07 g/dL).
- Forty-one percent of the 1,878 motorcycle operators who died in single vehicle crashes in 2005 had BAC levels of .08 g/dL or higher. Sixty-one percent of those killed in single-vehicle crashes on weekend nights had BAC .08 g/dL or higher.
- Forty-five percent of fatally injured motorcyclists did not wear helmets.
- Helmet use rates are lower in States that do not require all riders to use helmets. In 2006, 68 percent of motorcyclists in States requiring helmets wore DOT-compliant helmets, compared to 37 percent in States not requiring all riders to use helmets.
- Twice as many motorcycle fatalities occurred on weekends as opposed to weekdays.
- The majority of those killed in motorcycle-related crashes were motorcycle operators (90%), while motorcycle passenger fatalities have been constant at 10 percent for several years.
- Over the last ten years, 90 percent of motorcyclists killed were male.
- Motorcyclists are more likely to be killed in crashes involving more than one vehicle; 55 percent were killed in multi-vehicle crashes, while 45 percent were killed in single vehicle crashes.
- Nearly one out of four motorcycle operators (24%) involved in fatal crashes were operating their vehicles with invalid licenses at the time the collision.
- The largest number of motorcycle fatalities (41%) is still in the 501-1,000 cc engine size group, followed by 38 percent in the 1,001-1,500 cc engine size group.
- Two-thirds of motorcyclists killed on 1,001-1,500 cc engine size motorcycles were riders over 40.

- There were increases in motorcycle fatalities between 1997 and 2006 for each engine size group, but the largest increase was for motorcycle operators with engine sizes ranging from 1,001-1,500 cc.

External Factors

There are many external factors affecting the increase in motorcycle crashes and resulting injuries and fatalities.

Motorcycles are becoming more and more prevalent in the vehicle fleet mix. The popularity of this mode of transportation is attributed to the low initial cost of a motorcycle, its use as a recreational vehicle, and, for some models, fuel efficiency. While motorcycles were once thought to be primarily warm weather vehicles, the motorcycle industry is now expecting the increased price of fuel to not only further increase sales, but to extend the riding season into the winter months.

These variables, as well as worsening congestion, the increase of light trucks and sport utility vehicles, and the appeal of motorcycling to middle-aged, new, and former riders with increased disposable income, influence the growing involvement in riding, demographics of riders, and the potential for increased fatalities and injuries due to crashes. All of these factors present significant challenges to reducing motorcycle deaths and injuries.

Improving Exposure Data

In order to more accurately identify and effectively address the growing problem of motorcycle fatalities, the Department re-baselined its motorcycle fatality rate measure for FY 2008 to reflect a change of focus from fatalities per 100 million vehicle miles traveled (VMT) to fatalities per 100,000 registrations. VMT is usually considered the best measure for exposure since it measures actual miles traveled, and is DOT's preferred method of measuring fatality rates.

However, State reporting of motorcycle VMT to the Federal Highway Administration (FHWA) was optional prior to this year. Even for those States that reported motorcycle VMT, it was often only measured as a standard proportion of total VMT rather than being collected directly through surveys or roadside counters. FHWA had to then estimate VMT for States that did not report based on data from States that did report. The accuracy of these counts was thus quite speculative. Beginning in 2007, FHWA began requiring States to collect and report motorcycle VMT data. Initial data will be available in 2008.

The Department is currently working with the States to improve and address any technical issues surrounding the collection of motorcycle exposure data. In October 2007, FHWA and NHTSA held a symposium on motorcycle travel to exchange State best practices in motorcycle VMT collection, explore new data sources and data collection technologies, and develop a long-term research and implementation roadmap.

The National Transportation Safety Board (NTSB) also recognizes the importance of such data and has encouraged the States to work with FHWA to improve motorcycle travel data

collection and reporting. During the motorcycle travel symposium, NTSB member Deborah Hersman stated, “Improving the quality of this data will have a major impact on improving both our understanding of motorcycle safety, and on our efforts to reduce the number of accidents and fatalities on our highways.” DOT supports NTSB’s and Member Hersman’s position and recognizes the critical need for the best motorcycle travel data possible towards the calculation of a more accurate and consistent measurement.

Improving Motorcycle Safety Performance

Motorcycle safety is not unlike other highway safety issues in that it will require a comprehensive effort, addressing multiple factors related to motorcycle and rider safety, to reverse the nearly decade long trend of increasing fatalities. The Department is planning just such a comprehensive effort to include improvements to the vehicle, the roadway environment, data collection and analysis, and behavior programs.

Improvements to motorcycle braking systems, including the use of anti-lock braking technology, enhancements to vehicle lighting to make vehicles and riders more visible to other motorists can make a contribution to reducing crashes. Increasing the use of helmets meeting Federal Motor Vehicle Safety Standard 218, making it unacceptable to ride after drinking, getting new riders to complete a rider training class and experienced riders to take refresher training, ensuring all motorcyclists have the appropriate license endorsement, and increasing motorists awareness and knowledge of how to share the road with motorcyclists are key to reducing motorcycle crashes. We recommend attacking the problem from many angles – behavioral, vehicle and infrastructure research, education and enforcement activities – and addressing emergency responses to motorcycle crashes. We will engage the motorcycle community including riders, manufacturers, clubs, State and local government agencies, insurance companies, law enforcement, and motor vehicle licensing administrators. Bringing together a variety of constituencies with an emphasis on reducing crashes, injuries, and fatalities will create a riding environment where safety comes first for all motorcyclists.

In addition, further research is needed for the Department to be able to fully respond to the safety problem with effective countermeasures. Completion of the motorcycle crash causation study, scheduled to commence in FY 2008, will provide extremely valuable information to inform the Department and States in the development of motorcycle safety programs.

Vehicle and Equipment Countermeasure Strategies

On the vehicle regulatory front, NHTSA achieved a substantial accomplishment that furthered the Department goal of reducing motorcycle-related deaths and improving global connectivity. On November 15, 2006, the NHTSA Administrator voted on behalf of the United States for the establishment of a global technical regulation (GTR) on motorcycle brakes under the United Nations’ (UN) 1998 Global Agreement for the Harmonization of Vehicle Regulations. The motorcycle global regulation is the second harmonized safety regulation to be established under the UN in Geneva. Working with other countries and motorcycle manufacturers and users’

associations, NHTSA established a GTR that makes several improvements over the existing motorcycle brakes regulations of the United States and other countries. It replaces existing tests in regulations with more effective ones, eliminates outdated tests and requirements, and adds clear and objective requirements that reflect best practices from around the world. For example, the GTR addresses new technologies such as anti-lock brake systems (ABS) and combined brake systems (CBS). It also provides for a more stringent stopping distance requirement and improved wet brake test procedures that better simulate real world conditions.

The agency's plan to propose amending the FMVSS based on the GTR will result in improvements to the U.S. standard, which will benefit motorcycle users in the United States. The agency anticipates publishing a proposed rule in FY 2008 and a final rule shortly after. Once finalized, this GTR will set the stage for further cooperative efforts with other countries facing similar problems and the same or even greater exposure rates, learning from their experience, and leveraging resources to jointly research and implement more effective vehicle related interventions.

Also, on the regulatory side, NHTSA is amending FMVSS No. 218, Motorcycle Helmets, to address the falsification of helmet certifications facilitated by the current labeling requirements of the motorcycle helmet standard. This change will enhance State helmet enforcement and adjudication efforts. The Notice of Proposed Rulemaking will be published in early FY 2008 and the final rule is expected in the same year. These amendments are expected to yield a safety benefit through the increased use of proper head protection by motorcycle riders.

Behavioral Countermeasure Strategies

Behavioral countermeasures are continuously being applied in an effort to reduce motorcycle crashes and their resulting injuries and fatalities. Enforcement activities are in place to interdict individuals who violate speed limits, reduce impaired riding, and encourage helmet use laws, as well as state licensing guidelines and requirements. Efforts to encourage participation in sanctioned riding classes and the acquisition of State required motorcycle license endorsements occurs through cooperative agreements with professional organizations and States that work with NHTSA to address driver licensing and vehicle registration issues. Behavioral countermeasures programs the Department will develop and implement include:

- A demonstration program that combines high-visibility enforcement with enhanced media to test its effectiveness in reducing alcohol-related motorcycle crashes.
- A training program designed specifically to educate police on motorcycle safety and the enforcement efforts they can undertake to reduce motorcycle crashes.
- Providing the results of the impaired-riding demonstration project conducted in Wisconsin to all States for use in developing similar programs to reduce the incidence of alcohol-related motorcycle operation.
- Releasing a CD-ROM version of the Riders Helping Riders peer-to-peer drinking-and-riding prevention curriculum for use in rider training programs and at motorcycle events and rider gatherings.

- Developing National Standards for Entry-level Motorcycle Rider Training that will set the baseline for novice motorcycle rider training programs conducted in the United States.
- Releasing the updated Motorcycle Operator Licensing Guidelines to assist States in designing, implementing, and maintaining State motorcycle licensing systems and integrating rider training programs with motorcycle operator licensing.
- Releasing and marketing a “Share the Road” campaign kit for use by States, local communities, and motorcycle organizations.
- Updating the National Agenda for Motorcycle Safety.
- Conducting and evaluating a statewide demonstration project to increase helmet use through education and communication programs.
- Developing an employer-based motorcycle safety program for employees who ride motorcycles on or off the job.
- Holding quarterly meetings with representatives of national motorcycle organizations, motorcycle manufacturers, and related motorcycle and highway safety groups to share planned activities and coordinate motorcycle safety efforts.
- Working with motorcycle manufacturers to meet the Secretary’s challenge to provide free helmets or helmets at a reduced cost and promote rider training.

Infrastructure Countermeasure Strategies

Infrastructure safety countermeasures that are incorporated into roadway design and construction, such as lighting, roadway markings, roadside safety appurtenances, and warning signs benefit all roadway users regardless of vehicle type. Assuring that appropriate infrastructure countermeasures are implemented requires a combination of good design, construction, and maintenance practices. To address specific infrastructure issues which may relate most directly to motorcycle crashes, injuries, and fatalities, the Department will:

- Hold meetings of the Motorcyclist Advisory Council (MAC) tasked with giving advice to DOT regarding a range of infrastructure-related topics of importance to motorcycle safety.
- Continue to emphasize the importance of recognizing the needs of motorcyclists during all phases of highway project implementation.
- Release and distribute the brochure Roadway Safety for Motorcycles containing tips for designing, constructing, and maintaining roadways for increased motorcycle safety.

Cooperation With States

In FY 2008 and 2009, NHTSA will work with State Highway Safety Offices (SHSOs) to analyze State motorcycle crash and licensing data to identify the State motorcycle crash problems and develop safety programs that address the problems. In addition, NHTSA will assist States in preparing applications to receive Section 2010, Motorcyclist Safety Grant, funding, and planning for the most effective use for those funds.

NHTSA will continue to conduct State Motorcycle Safety Technical Program Assessments, in States requesting them, to assess the current State motorcycle safety programs and provide recommendations on how to strengthen these programs. Motorcycle Safety Technical Program Assessments have been held in 18 States and three (Wisconsin, Florida, and New York) are currently scheduled to be conducted in FY 2008. The assessments have also resulted in improving State motorcycle safety programs by strengthening the relationship and cooperation of the State Highway Safety Offices and State Motorcycle Safety Administrators. NHTSA will also assist States in implementing the recommendations that result from the program assessments. NHTSA will also work with law enforcement agencies to develop strategies that promote and ensure rider compliance with all vehicle and traffic laws.

Communications

NHTSA research has shown that effective countermeasures, accompanied by a sound communication strategy, can achieve significant improvements in highway safety. In order to maximize the benefits of the countermeasure strategies, NHTSA plans a robust communications program to support motorcycle enforcement and behavior modification programs. Planned activities include:

- Releasing a public service announcement featuring Secretary Peters that communicates the importance of wearing a helmet and other protective gear when riding on a motorcycle.
- Holding a national press event to promote May as Motorcycle Safety Awareness Month.
- Creating and posting an online planner that will include earned media pieces designed to remind motorists to safely “Share the Road” with motorcycles, and to be extra alert when driving to help keep motorcyclists safe.
- Including information and communication materials addressing impaired riding in the *Drunk Driving. Over the Limit. Under Arrest.* crackdowns planner.
- Creating and posting an online planner addressing impaired motorcycling that will contain media pieces designed to be used by States and local agencies and the motorcycling community to remind motorcyclists that when they drink and ride, they put themselves and their bikes at risk.
- Scheduling interviews with Secretary Peters concerning motorcycle safety placed in a variety of publications including AARP, Parade, Modern Maturity, and other publications on motorcycle safety among the 50 and over age group.

- Developing a publication for highway and motorcycle safety agencies and organizations, public health, law enforcement, and medical groups, and other organizations interested in motorcycle helmet use to assist them in encouraging all riders to wear helmets.
- Posting a video to NHTSA's Web site on how to select and properly wear a DOT certified motorcycle helmet.
- Developing and promoting motorcycle safety educational materials to encourage older (50+) motorcyclists to take novice and experienced rider training, wear helmets and proper gear, get properly licensed, and not ride after drinking alcohol.

Behavioral Safety Research

While the Department works to implement countermeasure strategies designed to reduce motorcycle crash-related injuries and fatalities in the short term, we will also be implementing a behavioral safety research program intended to make future motorcycle safety performance improvements. These efforts are designed to build on what we learn today and expand our knowledge of motorcycle crashes and improved safety performance for future implementation.

NHTSA and FHWA Research Offices have a variety of motorcycle projects underway that will provide the States, safety groups and motorcycle riders with the information needed to reduce motorcycle deaths, injuries and crashes. These projects focus on alcohol-impaired riding, motorcycle operator experience, the benefits of rider safety training, increased helmet use (including universal helmet laws), and crash causation. They include:

- Conducting the pilot and full Motorcycle Crash Causes and Outcomes Study.
- Releasing the findings of the Study to Determine Motorcycle Impairment at Different Blood Alcohol Content (BAC) Levels. This study examined the impairing effects of alcohol on motorcycle skills at different BAC levels.
- Releasing the Evaluation of the Reinstatement of the Louisiana All-Rider Helmet Law assessing the changes following the reinstatement of the Louisiana all-rider helmet law in June 2004.
- Convening an expert panel to document the content and methods of selected existing initial entry training courses (both in the United States and abroad), and examine strengths and weaknesses of various approaches to evaluating the safety benefits of motorcycle rider safety training programs.
- Studying the extent that motorcycle crashes are caused by riders' overriding their sight distance and examining training to remediate this behavior.
- Serving as a member of the Organisation for Economic Co-operation and Development (OECD) committee organizing a motorcycle safety conference identify and develop strategies to improve motorcycle safety.

Vehicle Safety Research

NHTSA is also seeking approaches to mitigate the number of fatalities and injuries associated with motorcycle crashes through vehicle safety research. The agency's motorcycle-related vehicle safety research focuses on two areas, braking and conspicuity. Research-related activities include:

- Releasing the findings of motorcycle conspicuity research that investigated the effects of motorcycle lighting treatments on vehicle conspicuity, measured whether daytime running lights (DRLs) on passenger vehicles affect a driver's response to oncoming motorcycles, and evaluated newer lighting technologies to evaluate their effectiveness in enhancing motorcycle conspicuity.
- Conducting testing to quantify the differences in stopping distance with advanced braking systems (anti-lock and combined brake systems) on motorcycles.

Summary

The Department's efforts to reduce motorcycle crashes and resulting injuries and fatalities will continue to focus on making improvements to the vehicle, increasing the use of helmets and other protective gear, getting more riders to complete novice and experienced rider training courses and become properly licensed, reducing the incidence of riding after drinking, and increasing other motorists awareness of motorcycles on the road.

For the first time, through the FHWA Motorcycle Advisory Committee, the Department is working to improve roadway design and maintenance to make the roads specifically safer for motorcyclists. The Department is taking a new approach to educate motorcyclists about the dangers of drinking and riding by, in addition to general population messaging about drinking and driving, reaching out to motorcyclists specifically at shows and rallies and through motorcycle clubs and groups. Efforts to promote the use of helmets are expanding and include information on the importance of using a DOT certified helmet. In addition, FMVSS 218 will be updated to address the falsification of helmet certifications facilitated by the non-specific labeling requirements of the motorcycle helmet standard.

These and the numerous other activities described in this plan will assist the Department in reversing the unacceptable trend in motorcycle fatalities in order to meet its goal of 1.0 overall highway fatalities per 100 million vehicle miles traveled (VMT) by 2011.

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