

# **Texas Motorcycle Rider Survey, 2012**

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## **ABSTRACT**

As part of an effort to reduce the number of motorcycle crashes and injuries in the state, the Texas Department of Transportation (TxDOT) sponsored a study of existing and potential motorcycle crash countermeasures, with the goal of producing a strategic motorcycle safety plan for the state of Texas. A survey of Texas motorcycle riders gathered information about the characteristics, experiences, and attitudes of Texas motorcycle riders for the purpose of identifying and prioritizing effective countermeasures for reducing the frequency and severity of injury-producing motorcycle crashes.

## **INTRODUCTION**

In the summer of 2012, TTI researchers conducted an online survey to collect information about the experiences and attitudes of Texas motorcycle riders, particularly those pertaining to motorcycle safety and safety countermeasures. The survey's objective was to help identify and prioritize crash countermeasures for inclusion in the Strategic Motorcycle Safety Plan.

The survey included over 40 questions and included topics of particular interest to motorcycle safety stakeholders in Texas, including reasons for wearing (or not wearing) DOT-approved motorcycle helmets and other protective gear; training experiences, riding habits, and crash experiences. Some survey questions solicited respondents' opinions regarding a selection of advanced technologies for motorcycles and other vehicles.

Survey participants were recruited primarily through the mailing lists of the Texas Motorcycle Safety Coalition, Texas motorcycle clubs and organizations, and individuals who had provided contact information to TTI at Texas motorcycle rallies and events. Because of the recruiting mechanism, survey respondents overall represent an older, more experienced, and likely more safety-aware sample compared to the overall rider population in the state. The survey results therefore do not reflect universal rider behaviors and safety records for the state of Texas; however, the concerns and opinions of this group of riders helped to highlight some persistent motorcycle safety issues.

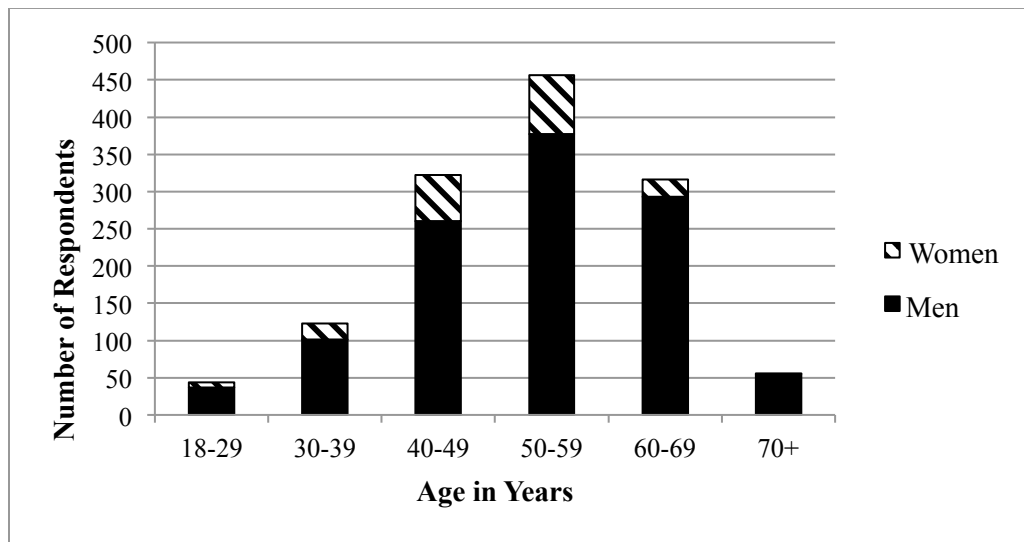
## **SURVEY RESULTS**

A total of 1,386 riders responded to the survey; not every respondent answered every question, so analyses were based on the total number of responses to each question. This paper presents

some of the highlights of this survey, focusing on the questions and answers that contributed most directly to the development of the Strategic Motorcycle Safety Plan for Texas.

### Demographics and Riding Experience

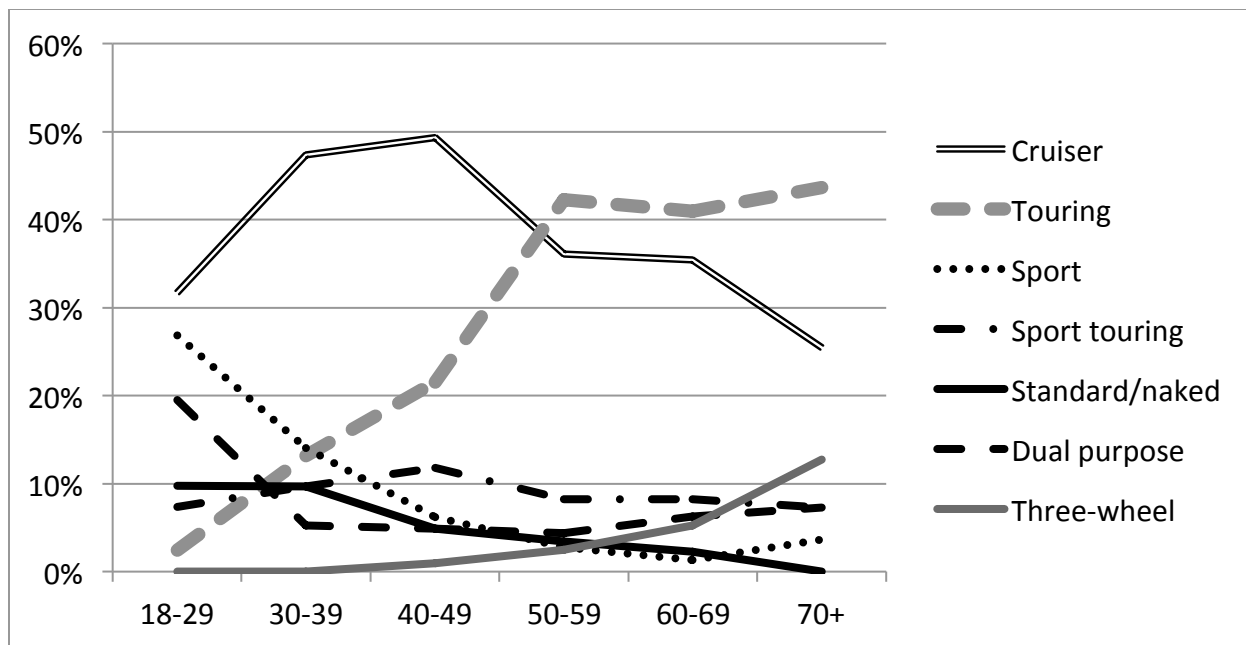
Eighty-five percent of respondents were male and 15 percent female, ranging in age from 21 to 81 years (see Figure 1). The average respondent was over 50, and had been riding for more than 30 years at the time of the survey; as noted above, this represents an older demographic compared to the state's overall rider population. Just over three percent of respondents were younger than 30, and only five percent were beginning riders (less than two years of riding experience).



**Figure 1. Age Distribution of Survey Respondents.**

### Motorcycle Preferences

When asked what type of motorcycle they ride most frequently, 39.8 percent of respondents specified cruisers and 33.2 percent specified touring bikes. Sport-touring models were a distant third at 9.1 percent, followed by dual-purpose (on and off-road), sport bikes (five percent), standard/naked bikes (4.1 percent) and three-wheelers/trikes (2.8 percent). Figure 2 shows the most frequently-ridden bikes by respondent age; touring and three-wheel bikes tend to gain in popularity as rider age increases, while sport and dual-purpose bikes are more popular with riders under 30.



**Figure 2. Type of Motorcycle Respondents Most Frequently Ride.**

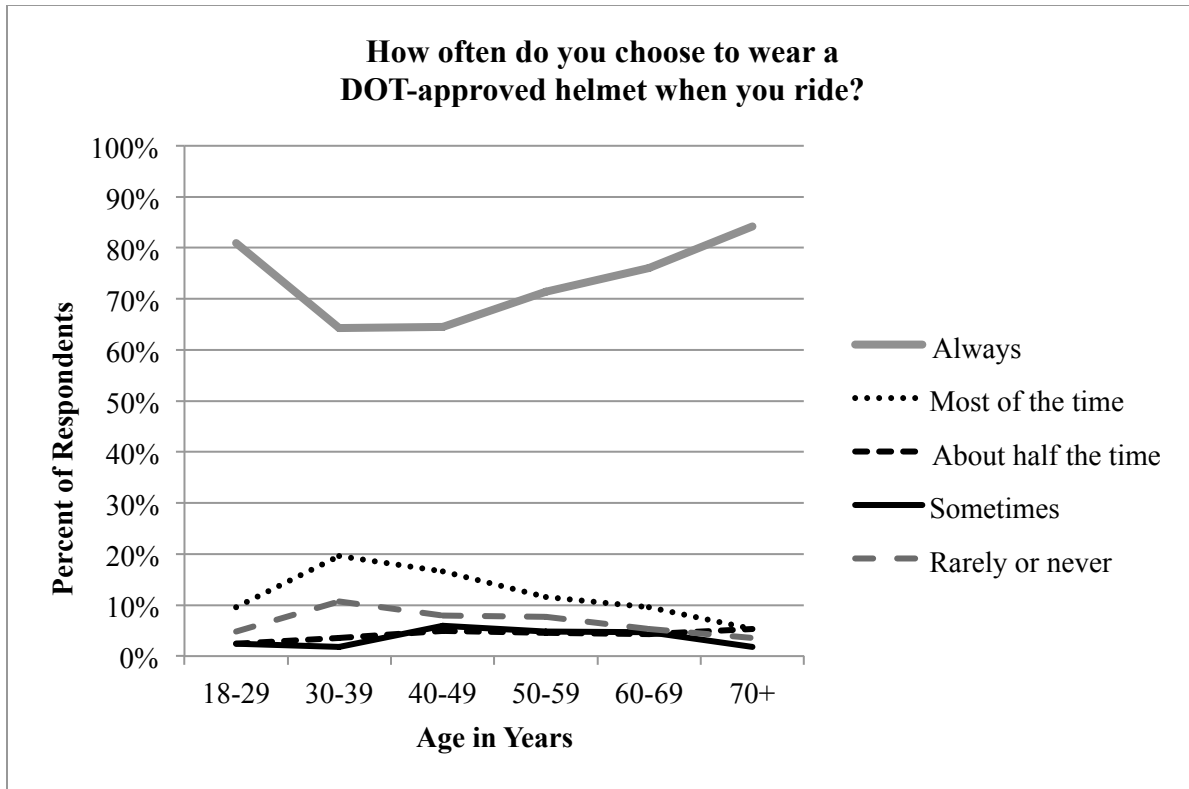
### Training Experiences and Needs

Just under 72 percent of respondents have taken at least one motorcycle training course. Most of these (82 percent) indicated that motorcycle training had significantly improved their riding skills, and 92 percent of respondents indicated definite or potential interest in taking additional training courses in the future. Comments on this question indicated interest in courses that specifically address high-performance, track or off-road riding, as well as courses designed specifically for three-wheeled motorcycles.

Respondents' criticisms of available basic and advanced courses in Texas tended to focus on the teaching abilities of particular instructors, the number and quality of motorcycles available for use in the basic courses, and the quality and completeness of instructional materials.

### Helmets and Other Safety Gear

Texas law does not require motorcycle riders aged 21 years and older to wear motorcycle helmets. Approximately 71 percent of survey respondents reported wearing a DOT-approved helmet every time they ride; another 13 percent reported wearing a helmet "most of the time." This percentage varied by age, as shown in Figure 3; respondents under 30 years of age and over 60 years of age were the most likely (over 80 percent) to state that they wear a DOT-approved helmet every time they ride; this dropped to 64 percent of the riders between 30 and 49 years of age.



**Figure 3. Reported helmet use (by age group).**

Seven percent of respondents reported that they rarely or never wear a DOT-approved helmet when they ride a motorcycle; another nine percent said that they wear a helmet “sometimes” or “about half the time.” This percentage also varied by age group, with respondents aged 30 to 39 most likely to say that they rarely or never wear a DOT-approved helmet to ride (11 percent).

Table 1 lists the reasons that respondents gave in their comments for either occasionally or regularly not choosing to wear a helmet. (Respondents could select more than one answer to this question, so the percentages do not total 100.) The most frequent reason respondents gave was “personal freedom” (58 percent of respondents answering this question). Hot weather (37 percent) and discomfort (26 percent) were the next most frequently stated reasons, along with “it’s more fun to ride without a helmet” (25 percent). A number of participants stated that they see better (18 percent) or hear better (16 percent) without a helmet. Interestingly, while some respondents said they were less likely to wear a helmet if they were going to be riding on smaller roads at low speeds, others asserted that they didn’t wear a helmet because it would offer no protection at higher speeds.

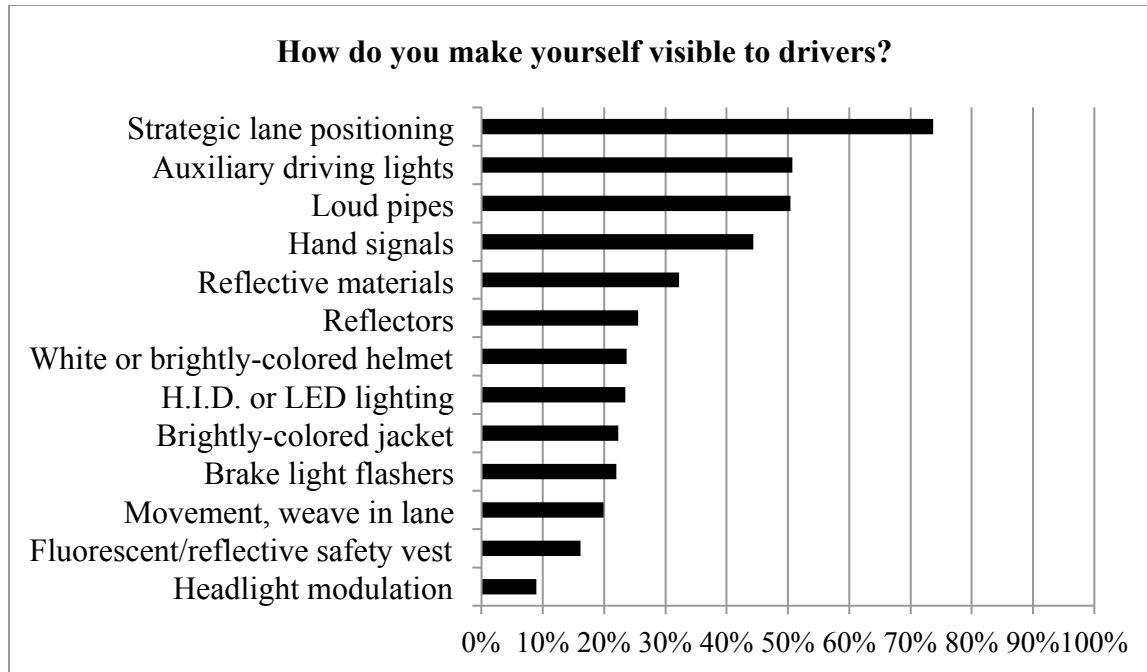
**Table 1. Participants' Reasons for not Wearing a Helmet.**

<b>Reasons for Not Wearing a Helmet</b>	<b>#</b>	<b>Percent</b>
Personal freedom/choice	314	58.0%
Weather (too hot/humid)	197	37.0%
Uncomfortable	139	26.0%
More fun to ride without helmet	136	25.0%
See better without helmet	98	18.0%
Hear better without helmet	86	16.0%
I tend to give my passenger the only helmet	43	8.0%
Habit	32	6.0%
Know someone who was injured because of helmet	31	6.0%
I'm a cautious rider – helmet not as important	26	5.0%
Helmet not as important if I'm not in heavy traffic	21	4.0%
No protective benefits	20	4.0%
Too expensive	10	2.0%
Peer pressure	5	1.0%
The helmet I have doesn't fit	3	1.0%
Other	98	18.0%
<b>Total responses:</b>	<b>539</b>	

Respondents were also asked about their use of other motorcycle safety gear. Respondents most frequently reported wearing boots (89 percent) and gloves (85 percent) when riding, followed by goggles/eyewear (73 percent) and protective jackets (57 percent).

### **Conspicuity**

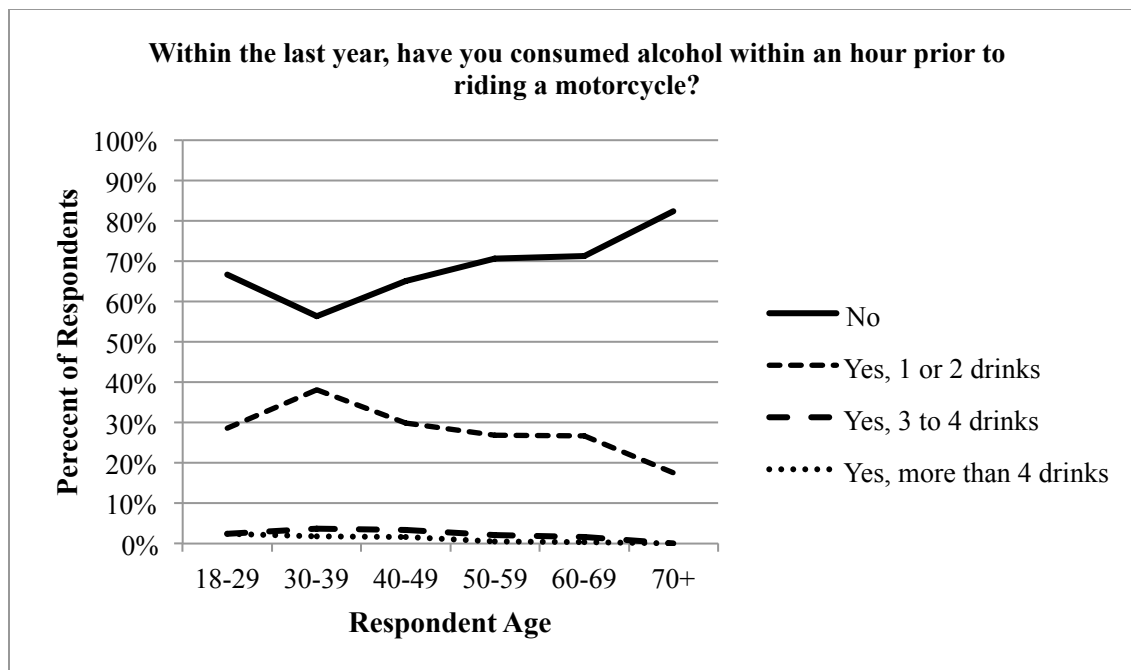
Approximately half of all motorcycle crashes in Texas involve another vehicle, and of the survey respondents who reported having been in a crash, 47 percent indicated that their crash involved another driver who did not see them. Respondents were asked about the ways in which they make themselves or their motorcycles more conspicuous to other road users. Most of the respondents provided more than one answer to this question, describing multiple strategies for maximizing their conspicuity on the road. Figure 4 summarizes the responses given. The most frequent answer (74 percent of those responding to this question) was “strategic lane positioning” to place the rider and motorcycle in other drivers’ most likely field of view while on the road. Fifty-one percent of respondents used auxiliary lights. Just 32 percent use reflective materials, and even fewer regularly wear brightly-colored helmets (24 percent) or jackets (22 percent).



**Figure 4. Methods used to improve conspicuity.**

### Alcohol Use

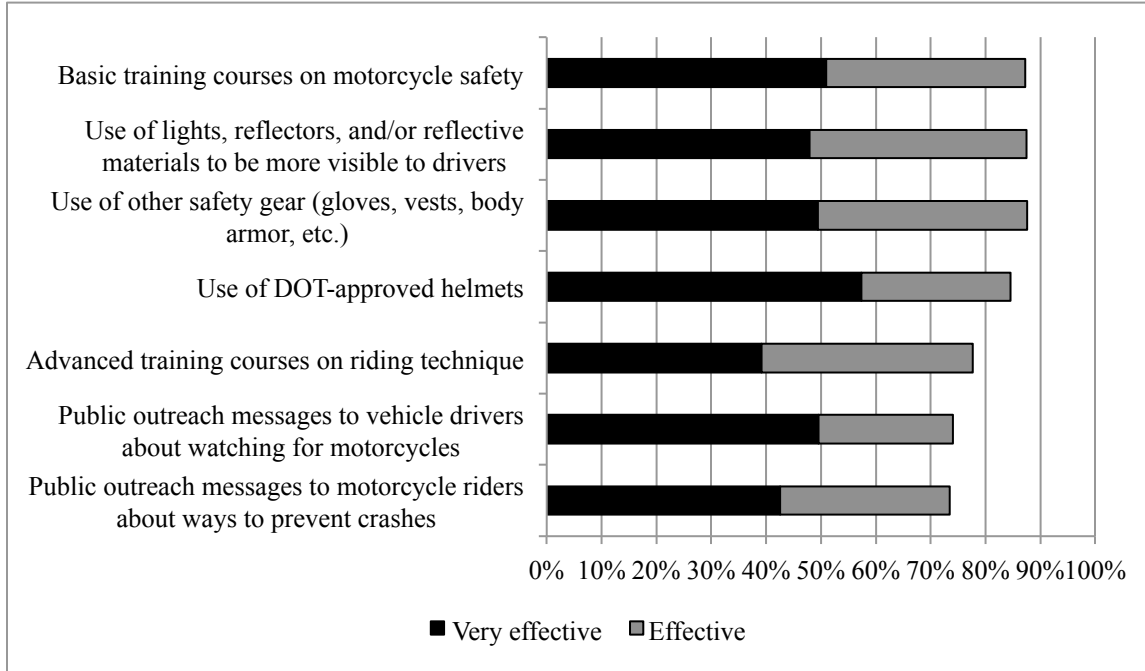
Survey respondents were asked whether they had consumed alcohol within an hour prior to riding a motorcycle during the past year. While most respondents (69 percent overall) stated that they had not consumed any alcohol within an hour of riding, 31 percent stated they had consumed one more alcoholic drinks prior to riding at least once during the past year. These percentages varied by age, as shown in Figure 5. The highest percentages of reported alcohol consumption prior to riding were among respondents aged 30 to 39, with 38 percent of this age group stating that they had consumed one to two drinks prior to riding sometime during the past year. It should be emphasized again that respondents to this survey likely represent a more safety-conscious sample compared to the overall Texas motorcycle rider population and therefore a population less likely to ride under the influence of alcohol.



**Figure 5. Alcohol use prior to riding - by age group.**

Respondents were asked to rate the effectiveness of various strategies for improving the safety of motorcycle riders. Figure 6 illustrates the percentages of respondents who rated each of the strategies on a five-point scale from “very effective” to “very ineffective.”

All of the listed strategies received high percentages of “effective” or “very effective” ratings. Basic rider training, the use of safety gear such as vests and body armor, and improving conspicuity through lights and reflective materials were rated the highest overall, with just over 87 percent of respondents rating each of these as “effective” or “very effective.” Nearly 85 percent of respondents rated the use of DOT-approved helmets as “effective” or “very effective.” Participants provided additional suggestions as comments, such as greater emphasis on motorcycle awareness in driver training courses, more stringent licensing standards for both drivers and motorcycle riders, and measures (including increased education and stricter penalties) to reduce distracted driving.

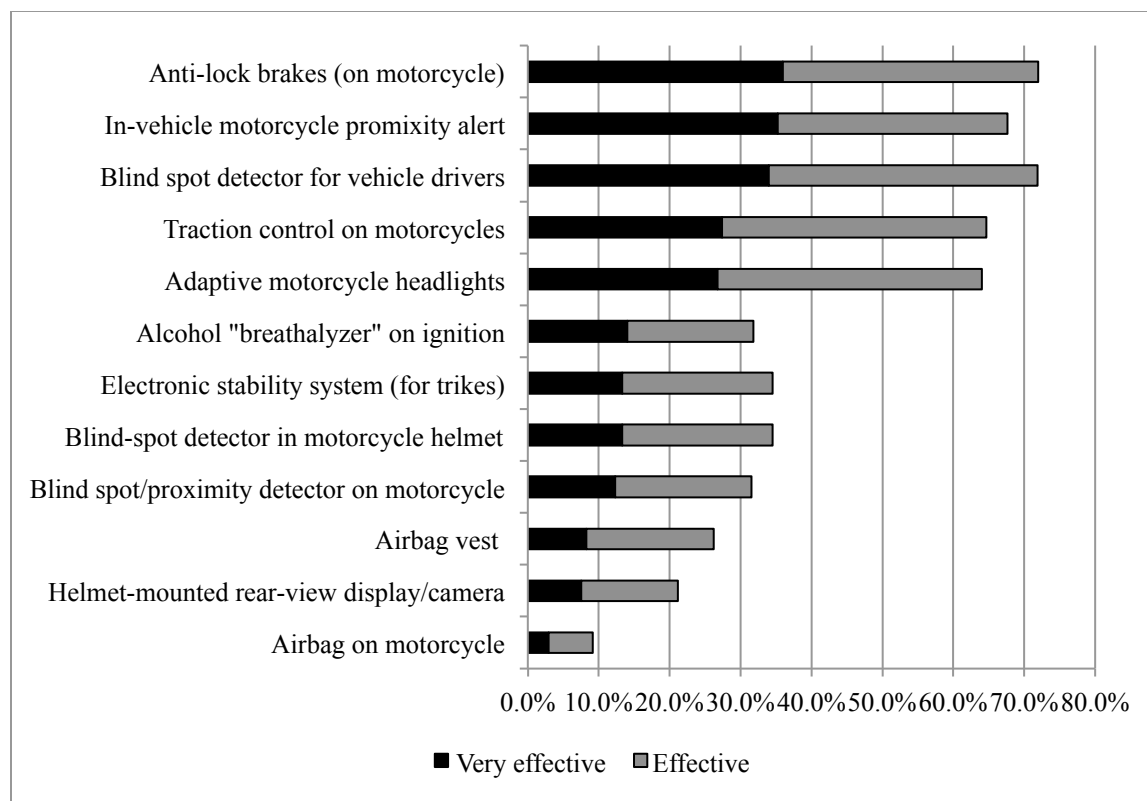


**Figure 6. Respondent ratings of effectiveness for motorcycle safety measures.**

### Opinions on Advanced Vehicle Technologies

The survey presented respondents with a selection of intelligent transportation systems (ITS) and other advanced technologies that are currently available or emerging on the market for motorcycles and riders. These included motorcycle airbags, airbag vests, alcohol interlock devices, anti-lock brakes, traction control, electronic stability systems for three-wheeled motorcycles, adaptable headlights, proximity alert systems, and rear view displays and blind spot detectors within motorcycle helmets. The list also included blind spot detectors and motorcycle proximity alerts for passenger vehicles. The technologies rated highest by survey respondents included anti-lock brakes for motorcycles, motorcycle proximity alerts and blind-spot detectors for passenger vehicles, traction control for motorcycles, and adaptable motorcycle headlights, as shown in Figure 7. Other technologies suggested by participants included motorcycle speed governors, advanced lighting systems for increased conspicuity, and proportional braking assistance.





**Figure 7. Respondent ratings for motorcycle and vehicle technologies.**

## CONCLUSIONS

The rider survey was a key source of information contributing to the development of the *Texas Strategic Action Plan for Motorcycles (2013-2018)*, which was developed as a product of the TxDOT-sponsored research study. Additional research activities that contributed to the strategic plan development included an analysis of crashes involving motorcycles in Texas over a five-year period and an expert workshop in which dozens of existing and potential motorcycle crash countermeasures were evaluated and ranked. The strategic plan is intended to act as a living document that provides guidance to motorcycle and roadway stakeholders (including TxDOT and the Texas Motorcycle Safety Coalition); the goal of the plan is to focus resources on countermeasures that have the greatest opportunity to reduce the frequency and severity of motorcycle crashes.

Several of the countermeasures and focus areas recommended in the strategic plan can be directly tied to the rider survey results. Examples include the following:

- *Measures to improve motorcycle training quality.* Motorcycle safety training was highly rated by respondents as an effective tool for preventing crashes. Plan strategies include the development of specialized training for three-wheeled vehicles, providing funding to improve the types and quantities of motorcycles used for rider training, improving oversight of motorcycle instructors to ensure course quality, and translating the course curricula into Spanish.

- *Measures to increase helmet and safety gear use.* Again, the older and more safety-conscious survey respondent population was more likely than the overall Texas rider population to report regular helmet use. However, even in this group there was a percentage who reported never wearing a helmet while riding, and a larger group that reported wearing a helmet only part of the time. Recommended helmet and safety gear strategies in the plan include outreach to riders on the safety benefits of helmet use and encouraging legislation to reinstate a helmet law in Texas.
- *Measures to increase conspicuity.* The high percentage (47 percent) of respondent-described crashes that involved a vehicle driver who didn't see the motorcycle prior to the crash highlight the need for improving the conspicuity of riders and motorcycles. Within this focus area, recommended countermeasures include rider education on the use of reflective and high-visibility clothing and gear,
- *Measures to increase motorist awareness of motorcycles.* In addition to improving rider conspicuity, increasing driver attention and awareness of motorcycles on the road became one of the plan's focus areas, with strategies including additional driver-education course content about safely sharing the road with motorcycles, outreach/awareness campaigns, and encouragement to consumers and the auto industry to promote proximity alarms, blind spot warnings, and similar vehicle technologies that may help motorists to detect motorcycles that are close to them on the road.
- *Measures to reduce impaired riding.* Thirty percent of respondents reported consuming one or more alcoholic drinks within an hour of riding. Assuming that this respondent population is older and more safety-conscious than the overall motorcycle population in Texas, the impaired riding problem is likely to be considerably more widespread. Within this focus area, the plan's recommended strategies include peer-to-peer outreach among riders discouraging drinking prior to riding, encouraging rider group leaders to reduce the consumption of alcohol at motorcycle events, and exploring enforcement measures such as alcohol ignition interlocks.
- *Measures to encourage the adoption of advanced vehicle technologies that improve safety.* The majority of survey respondents were in favor of at least some of the suggested vehicle technologies for improving rider safety; however, the responses indicate that more information is needed within the rider community about some of the emerging motorcycle technologies. The plan includes recommendations for promoting the availability and safety benefits of these technologies and for encouraging further development of these technologies within the motorcycle industry.

## ACKNOWLEDGEMENT

This material is based upon the research project "Evaluation of the Measures and the Development of a Plan to Reduce the Number and Mitigate the Severity of Crashes Involving Motorcyclists on Texas Highways," performed in cooperation with the Texas Department of Transportation and the U.S. Department of Transportation, Federal Highway Administration. Any opinions, findings, and conclusions or recommendations expressed in this publication are those of the Author(s) and do not necessarily reflect the views of the Texas Department of Transportation or the U.S. Department of Transportation.