

An Examination of

Washington State's Vehicle Impoundment Law For Motorcycle Endorsements



U.S. Department of Transportation
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16. Abstract <p>In July 2007, Washington State modified its vehicle code to expressly allow law enforcement officers to impound motorcycles of motorcyclists operating without a proper motorcycle endorsement on their licenses. The objective for this study was to examine the effects of this law regarding implementation issues, rider and law enforcement awareness of the law, the degree to which the law is being enforced, whether endorsements and/or rider safety training increased, and the effect of the law on crashes.</p> <p>The impoundment law has not caused any unforeseen problems for State and local law enforcement agencies charged with enforcing the law. Results indicate that most law enforcement officers and many riders are aware of the law. It appears that relatively few motorcycles are being impounded, and the number of citations issued for unendorsed riding has not changed. Findings related to endorsements, training, and crashes are somewhat inconclusive. Although some results suggest the law may have had a positive effect on endorsement and training rates, other results do not. No significant influence of the law on crash rates was found. Results from time-series analyses of endorsement, training, and crashes may have been affected by economic or other confounding factors.</p>					
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Executive Summary

Background

An increase in the number of fatal motorcycle crashes in the United States, from 2,093 in 1997 to 4,750 in 2006, was a cause of concern to riders, the public, the National Highway Traffic Safety Administration, and others in the motorcycle safety community. This concern resulted in a search for ways to increase motorcycle safety and reduce motorcycle deaths and injuries. During the same period (1997–2006), the number of fatal motorcycle crashes in Washington State increased nearly 300%, from 27 in 1997 to 80 in 2006. The upward trend in fatal motorcycle crashes in Washington resulted in the creation of the Governor's Task Force on Motorcycle Safety in 2006. The purpose of the task force was to address motorcycle safety issues in the State.

All 50 States plus the District of Columbia require motorcycle operators to have a specific license or endorsement; however, many people ride motorcycles without an endorsement.¹ The proportion of motorcyclists who ride without an endorsement is unknown and estimates vary. Of vehicle operators involved in fatal crashes, a greater proportion of motorcyclists (22%) than drivers of passenger vehicles (12%) were operating while not properly licensed in 2010.² Unendorsed motorcycle riders are overrepresented in crashes, and riding unendorsed is correlated with other risky-riding behaviors, such as speeding, riding unhelmeted, and riding under the influence of alcohol. The number of unendorsed riders and the correlation between unendorsed riding and unsafe riding resulted in recommendations at the national and State levels to increase the number of riders who have been endorsed to ride a motorcycle.

When considering the relative safety of riding a motorcycle without the proper endorsement, it is important not to assume that riding unendorsed is causing risky behaviors that result in crashing, simply because riding unendorsed is correlated with those risky behaviors. If we contrived to put an endorsement on the license of every unendorsed rider, it seems unlikely that this alone would positively affect rider safety. Increasing endorsements does, however, hold promise for rider safety in two ways: (a) to become endorsed, the rider must show that he or she has some minimal skill and knowledge regarding safe motorcycle operation; and (b) many States allow riders to waive State licensing skill and/or knowledge tests if they have successfully completed a motorcycle safety training class. Theoretically, safety training has the potential to render that person a safer rider.

In July of 2007, the Washington State legislation changed the language in its vehicle code to clarify that its existing impoundment law for unlicensed drivers also applied to operators without a specially endorsed license, including motorcyclists and commercial vehicle operators.

¹ To operate a motorcycle legally, States may require what they term a "motorcycle license," or a driver's license with an added motorcycle "endorsement." People may also operate motorcycles with motorcycle-specific learner's permits. For this report, the term "endorsement" will refer to a motorcycle license or a driver's license with a motorcycle endorsement, but not to a motorcycle learner's permit.

² For this statistic, an improperly licensed driver is one without a driver's license, and an improperly licensed motorcyclist is one without a driver's license and/or without a motorcycle endorsement.

The law now expressly allows law enforcement officers to impound the vehicles of operators who are not properly endorsed. This law potentially encourages law enforcement officers to impound motorcycles of unendorsed riders and, thus, to discourage unendorsed riding. Though this law affects all types of endorsements, including those of commercial vehicle operators, it certainly has the potential to affect the endorsement and crash rates of motorcyclists in Washington. Understanding the extent to which it has affected those rates was the primary objective of this project.

Methodology

To understand the effect that Washington's motorcycle impoundment law may have on the safety of the State's motorcyclists, we sought to understand:

- Any issues associated with the *implementation* of the law;
- *Awareness* of the law amongst motorcyclists, law enforcement officers and others;
- *Media outreach* efforts to make riders aware of the law;
- *Enforcement* of the law, in terms of prevalence of citations issued and impoundment under the law;
- Effects of the law on *endorsements*;
- Effects of the law on *riders taking safety training*, and
- Effects of the law on *crashes*.

Various types of data were collected and analyzed to understand the issues of interest. In some cases more than one type of data was collected to understand a given issue. Sources of information included the following:

Interviews, Internet, and News Media Searches

Much of the data collected for this project was qualitative, coming from interviews and Internet searches. Interviews were conducted as open-ended conversations with State officials, law enforcement officials, leaders of motorcycling clubs and representatives of towing companies. Internet searches concentrated on news articles, bulletin board posts, and blog posts, starting in the summer of 2006 and continuing to 2010, with special emphasis on the period from a year before to a year after implementation of the law. A Lexis-Nexis search was performed for news articles in Washington State, from June 2006 until February 2010, with the primary focus on the year before and year after the law went into effect in July 2007.

Reports of a Media Outreach Campaign

In December 2006, Washington Department of Licensing contracted with Desautel Hege Communications to create a media campaign for the Washington Motorcycle Safety Program. The primary purpose of the campaign was to create an awareness of the increasing motorcyclist fatalities in Washington and to communicate the importance of motorcycle safety issues, such as motorists' awareness of riders, being alert and slowing down while riding, and riders becoming endorsed. The campaign used the slogan "Endorse Your Sport," and ran for three years, from

2006 until 2009. They collected statistics regarding campaign activities in three yearly reports. We reviewed these reports, summarized the activities and provided statistics for the first year of the campaign.

Rider Surveys

During this project, the Washington Traffic Safety Commission (WTSC) conducted a survey of attendees at a motorcycle show in Seattle, Washington. The WTSC survey included questions to determine whether riders were aware of the motorcycle impoundment law and whether they considered it a reasonable way to encourage endorsement. Demographic questions were also included. The survey data were analyzed by PIRE. Summary statistics have been provided on responses to questions on awareness of the law, familiarity with the media outreach campaign and opinions of the law. Additional analyses were conducted to identify relationships between variables.

Data from Washington State Enforcement, Crash and Licensing Records

Files containing data concerning impoundments, endorsements, citations, and crashes were collected from various Washington State agencies. In most cases, the data were analyzed using time-series analysis. Because data for motorcycle impoundments were not recorded prior to the impoundment law, it was not possible to analyze them for changes after the law. Analysis of crash data included motorcyclists' endorsement status at the time of the crash. Monthly data on numbers of riders taking safety training were sought but not available. We were, however able to examine data on the type of skill test used to obtain an endorsement, to look for any effects of the law on riders taking safety training as part of the endorsement process.

Time-series analyses used ARIMA intervention models. The time-series approach allows researchers to account for other time-related factors (such as trends, drift, and seasonality) that may have affected the variables under study, as well as eliminating the effects of other unmeasured processes that can produce autocorrelation in a series over time. Monthly unemployment figures for the State of Washington were used as a measure of economic health over time. National motorcycle crashes from the Fatality Analysis Reporting System (minus Washington crashes) and Oregon crash data were used as comparison groups in the time-series analyses of Washington crashes. Changes in Washington State unemployment rates in the period after the law went into effect in July 2007 ultimately became a confounding factor which made it difficult to determine the extent to which the variables under study may have been affected by the law.

Results

Implementation Issues

Interviews with law enforcement officers and towing-company representatives suggested that there are no unforeseen problems being caused by the impoundment law. When motorcycles are impounded, the process is not taking an inordinately long time for either law enforcement or towing and impoundment companies. Impounded motorcycles tend to be relatively expensive and prized by their owners and are therefore in impoundment lots for a short period and do not

create costs for law enforcement agencies. Most law enforcement interviewees reported that motorcycles are being towed without damaging the motorcycles. Towing-company representatives reported that they know how to tow motorcycles without damaging them.

It would appear that the primary requirement for retrieving impounded motorcycles is that the registered owner be present. It is not clear whether impoundment lots are requiring proof of endorsement from the rider who retrieves the motorcycle.

Awareness of the Law and Media Outreach

It is not certain how many riders are aware of the law. The interviewees' rough estimates varied widely. In general, the estimates ranged from 30% to "most." Results of the questionnaire given in Seattle showed that 56% of respondents correctly answered that the law allows motorcycles of unendorsed riders to be impounded. These riders may not be representative of all riders in Washington. Interviewees suggested that riders in rural areas or riders who are not part of a riding group are less likely to be aware of the law. Reinforcing this suggestion was the finding that interviewees who were unfamiliar with the law were all from the eastern part of the State.

Survey results suggested that riders who were aware of the law were more likely to be younger and endorsed, and who took the license test as part of their safety training. Sport bike riders were more likely to be aware of the law than riders of other types of motorcycles. People aware of the law were more likely to be familiar with the term "Endorse Your Sport."

Riders have apparently learned about the law in multiple ways, including news, public service announcements, and other information associated with the *Endorse Your Sport* campaign; traffic stops; communications within rider groups; and Internet discussion groups. Although people have certainly become aware of the law through the *Endorse Your Sport* materials and activities, the existence of the impoundment law is only a small part of the information presented by the campaign. It seems likely that much of the awareness of the law has come through communication among riders.

Enforcement of the Law

There appears to have been no significant effect of the law on citations for operating a motorcycle without proper endorsement.

Interviews with law enforcement officials and towing-company representatives suggested that motorcycles were being impounded under the law, but not in great numbers. When motorcycles are not impounded, it appears to be due to a combination of factors, including (a) the unlikelihood of detecting unendorsed riders, (b) the disinclination of law enforcement officers to impound motorcycles, and (c) the explicit instructions to law enforcement agencies to not impound vehicles. Interviews suggested that impoundments were more common immediately after the law became effective and that occasional increases may have occurred around the time of local high-visibility motorcycle safety activities.

Effects of the Impoundment Law on Endorsements

After controlling for effects of the economy, a statistically nonsignificant 6.2% increase in new endorsements was found. Shifting the post-intervention period earlier in time by 6 months to measure any effects of pre-law publicity resulted in a nonsignificant 4% increase in endorsements. There was also no significant increase in total endorsements after the law.

Interviews with State officials, law enforcement officials, and riders resulted in anecdotal evidence suggesting riders who had previously ridden without an endorsement obtained one because of the law. If that is true, there were apparently not enough endorsements obtained to significantly change endorsement rates.

Effects of the Impoundment Law on Riders Taking Training

A possible beneficial effect of the impoundment law on motorcycle safety in Washington would be realized if it encouraged more riders to attend motorcycle safety training in the process of acquiring their endorsements. Unfortunately, monthly figures were not available for applications to or attendance in Washington's motorcycle safety training classes. Insight into the potential effect of the law on increased training was available in the form of numbers of endorsement applicants using test waivers from safety training compared to those taking tests at licensing stations. Time-series analysis showed significant increases in both safety training (27.3%) and licensing station (23.7%) tests. However, combining the two tests resulted in a nonsignificant increase in number of endorsement tests. If the number of tests *did* increase significantly, we would expect the number of endorsements to increase significantly as well, but such was not the case.

The ratio of applicants taking safety-training tests to those taking licensing-station tests increased significantly by 10.8% after the law. This would tend to suggest that the law did encourage riders to seek training as a path to endorsement. However, if the goal of training was to become endorsed, we would expect to see an increase in endorsements. The fact that we did not suggests that the law is not driving more people to become endorsed, but that the *same* number of people are becoming endorsed and that something has made training more attractive than the license-station tests. One possibility is that previous wait times for classes have reportedly been eliminated. The lack of wait times has occurred partly because the demand for classes declined along with the economy. It is difficult to interpret the findings as suggesting that training classes have become more attractive than testing at the licensing station, given the current National reductions in the demand for classes.

Nearly all of the interviewees for this project, including the State official in charge of the motorcycle safety training program when the law went into effect, law enforcement officers, riding-club representatives and towing-club representatives (who were also riders) told stories of an increase in the number of riders taking training because of the law. State officials stated that an increased demand initially resulted in increased waiting times for classes. Wait times were subsequently reduced, first by an increase in the number of available classes, then by the general economic downturn that began in 2008 that apparently reduced the demand for motorcycle safety classes across the Nation.

Effects of the Impoundment Law on Crashes

After controlling for unemployment, a small (1.6%) but statistically nonsignificant reduction in crashes was found. Of interest is a significant 21.9% reduction in the proportion of crashes involving unendorsed riders after the law went into effect. This shift in crashes toward a more highly endorsed population might be taken as evidence of a shift in endorsement rates in the population at large, indicating that the law has been effective in causing unendorsed riders to become endorsed. This interpretation would seem to run counter to the lack of significant increases in the endorsement rate for the same period.

Another possible interpretation is that the law discouraged unendorsed riders from riding, thus limiting their exposure. However, if the shift was due to a reduction in crashes of unendorsed riders, we would likely have seen a significant reduction in overall crashes (unless it was obscured by the reduction deemed attributable to economic factors). A decline in unendorsed rider crashes, coupled with a corresponding increase in endorsed rider crashes, could cause this finding. It is difficult to understand, however, how the impoundment law could contribute to an increase in crashes of endorsed riders. A final possibility is that the law did increase endorsements, creating a shift in the proportion of endorsed riders in the motorcyclist population at large, but the increase was not detected by time-series analyses of endorsement rates.

Discussion

Implementation of the law seems to have caused no problems for law enforcement agencies, local government, or towing companies. The lack of problems is partly because the effort required is relatively minimal and partly because not many motorcycles are being impounded. Primary reasons for not impounding motorcycles of unendorsed riders are the limited likelihood of detecting unendorsed riders, the limited willingness of law enforcement to impound motorcycles, and a policy of not impounding vehicles in some agencies. Estimates of the proportion of law enforcement officers who are aware of the law vary, but it is evident that not all officers are aware of it. Our finding suggests that law enforcement in more isolated parts of the State are less likely to know of the law. The actual number of impoundments across the State would be difficult to determine, as would the proportion of impoundments for those motorcycles that are eligible for impoundment. The one law enforcement agency we identified that keeps records of motorcycle impoundments, the Washington State Patrol (WSP), has only kept records since the law went into effect, making it impossible to determine pre- and post-changes in impoundments. WSP records show that impoundments were relatively stable for the first 2.5 years after the law and then dropped by about half. It was suggested this may be due to a decreased focus on the law by officers or to increased endorsement among the motorcyclists they encountered.

Whether or not motorcycles are being impounded, there is still a potential for the law to create general deterrence to riding unendorsed, among riders who are aware of it. It seems apparent that many motorcyclists in Washington are aware of the impoundment law, but many are not. A little more than half of the survey respondents in Seattle correctly answered that the law exists. Awareness may have come through the *Endorse Your Sport* motorcycle safety campaign, though the existence of the impoundment law is a relatively small portion of that

campaign and was not featured as prominently as other aspects of the campaign. Riders seemed to be relatively positive regarding the law. Most comments found on the Internet suggested the belief that the law is a reasonable way to encourage riders to become endorsed. Endorsement and training seem to go hand in hand in many riders' minds. It is not clear the extent to which riders surveyed in Seattle, or those expressing opinions on the Internet, represent riders' awareness and opinions across the State. It was suggested that riders in more rural parts of the State may be less aware of the law.

Time series-analyses, conducted to understand the effect of the law on crashes and endorsements, were hampered somewhat by economic factors that have apparently been a factor in reduced crashes of all types. These same economic factors have reportedly also reduced the number of riders in safety training classes across the country. When controlling for the economic effects on crashes and endorsements, the economic factors account for most of the change. Because the National economic downturn began at about the same time the impoundment law went into effect makes it very difficult to understand changes in crashes and endorsements that might have occurred due to the law. Analyses of riders taking training and endorsement rates were inconclusive. Analyses of numbers of riders taking safety training tests and licensing station tests suggest that both types increased significantly after the law. However, the combination of the two test types did not show a significant post-law increase. If there *had* been a significant increase in endorsement tests after the law, it would be reasonable to expect a significant increase in endorsements. Again, no such increase was found.

The significant post-law increase in the proportion of riders using safety training to become endorsed suggests that the law may have encouraged more riders to take motorcycle safety training classes. Much anecdotal information to support this notion came from discussions with State officials, law enforcement officers, and riders in Washington. If this is true, it is unclear why the endorsement rates in Washington did not increase significantly.

Following the implementation of the law, there was no significant reduction in overall motorcycle crashes. There was, however, a significant reduction in the proportion of crashes involving unendorsed riders. This might suggest a shift toward more endorsed riders in the population at large; however, neither new endorsement rates nor total endorsement rates appeared to be significantly affected by the law.

Background

An increase in the number of fatal motorcycle crashes in the United States, from 2,093 in 1997 to 4,750 in 2006 (NHTSA, 2012), was a cause of concern to riders, citizens, the National Highway Traffic Safety Administration (NHTSA), and others in the motorcycle safety community. This concern resulted in a search for ways to increase motorcycle safety and reduce motorcycle deaths and injuries. During the same period (1997–2006), the number of fatal motorcycle crashes in Washington State increased nearly 300%, from 27 in 1997 to 80 in 2006 (NHTSA, 2012). The upward trend in fatal motorcycle crashes in Washington resulted in the creation of the Governor's Task Force on Motorcycle Safety in 2006. The purpose of the task force was to address motorcycle safety issues in the State.

All 50 States plus the District of Columbia require motorcycle operators to have a specific license or endorsement; however, many people ride motorcycles without an endorsement³. The proportion of motorcyclists who ride without an endorsement is unknown and estimates vary. Of vehicle operators involved in fatal crashes, a greater proportion of motorcyclists (22%) than drivers of passenger vehicles (12%) were operating while not properly licensed in 2010 (NHTSA, 2011).⁴ Unendorsed motorcycle riders are overrepresented in crashes (Billheimer, 1993a; Peek-Asa & Kraus, 1996), and riding unendorsed is correlated with other risky-riding behaviors, such as speeding, riding unhelmeted, and riding under the influence of alcohol (Billheimer, 1993b; Kim, Boski, & Yamashita, 2002). The number of unendorsed riders and the correlation between unendorsed riding and unsafe riding resulted in recommendations at the national (NHTSA & Motorcycle Safety Foundation, 2000) and State levels (Washington Department of Licensing, 2006) to increase the number of riders who have been endorsed to ride a motorcycle.

This phenomenon mirrors research findings for drivers of four-wheeled vehicles, in which correlations have been found between various types of risky and/or unlawful behaviors (e.g., speeding, following too closely, driving while suspended, driving under the influence, driving unbelted, smoking cigarettes) (Bina, Graziano, & Bonino, 2006; Preusser, Williams, & Lund, 1987). When considering the relative safety of riding a motorcycle without the proper endorsement, it is important not to assume that riding unendorsed is causing risky behaviors that result in crashing, simply because riding unendorsed is correlated with those risky behaviors. If we contrived to put an endorsement on the license of every unendorsed rider, it seems unlikely that this alone would positively affect rider safety. Increasing endorsements does, however, hold promise for rider safety in two ways: (a) to become endorsed, the rider must show that he or she has some minimal skill and knowledge regarding safe motorcycle operation; and (b) many States allow riders to waive State licensing skill and/or knowledge tests if they have successfully

³ To operate a motorcycle legally, States may require what they term a "motorcycle license," or a driver's license with an added motorcycle "endorsement." People may also operate motorcycles with motorcycle-specific learner's permits. For this report, the term "endorsement" will refer to a motorcycle license or a driver's license with a motorcycle endorsement, but not to a motorcycle learner's permit.

⁴ For this statistic, improperly licensed drivers are those without a driver's license, and improperly licensed motorcyclists are those without a driver's license and/or without a motorcycle endorsement.

completed a motorcycle safety training class. Theoretically, safety training has the potential to render that person a safer rider.

Two studies involving focus group discussions with motorcyclists indicated that riders were greatly concerned about the security of their motorcycles and suggested that sanctions against impaired riding that involved impoundment of motorcycles might be a highly effective deterrent to impaired riding (Becker, McKnight, Nelkin, & Piper, 2003; Syner & Vegega, 2001). Thus, sanctions against unendorsed riding that involve motorcycle impoundment might elicit similar concern.

State and local governments have used vehicle-related sanctions (such as vehicle impoundment, forfeiture, and immobilization) to curb unsafe behavior related to the operation of motor vehicles. Their intention is to reduce unsafe driving, either through general deterrence, in which drivers avoid unsafe behavior to avoid losing access to a vehicle, or through specific deterrence, in which loss of access to a vehicle prevents drivers from driving unsafely. Vehicle-based sanctions have primarily been used in an effort to reduce alcohol-impaired driving and driving while suspended (DWS). Beirness, Simpson, Mayhew, and Jonah (1997) found that, after a vehicle impoundment law for DWS became effective, offenders had significantly lower re-offense rates. Crosby (1995) determined that drivers whose vehicles were seized under a program of vehicle forfeiture for driving while intoxicated (DWI) had, on average, about half as many rearrests than drivers whose vehicles were not seized. Vehicle impoundment for DWS offenders has been found to result in significant reductions in subsequent DWS convictions, convictions for other traffic offenses, and crashes (DeYoung, 1999). Voas, Tippetts, and Taylor (1998) found a reduction in repeat DWI offenses by multiple offenders both while their vehicles were impounded and after their vehicles had been returned to them.

To better understand and address issues negatively affecting motorcycle safety in Washington, the State Department of Licensing (DOL) created a motorcycle safety task force in early 2006. This task force included members of motorcycle rider groups and state agency representatives, including the public safety agencies, the Washington State Department of Transportation (WSDOT), and the Department of Health. One task force recommendation was to take steps to increase motorcycle endorsements. To further that goal, the Washington State legislature, in July 2007, changed the language in its vehicle code to clarify that its existing impoundment law for unlicensed drivers also applied to operators without a specially endorsed license. Before 2007, motorcycles and commercial vehicles could be impounded for operating without an endorsement, but the revision to the law made it unambiguous, specifically by stating that "... a police officer may take custody of a vehicle, at his or her discretion, and provide for its prompt removal to a place of safety ... upon determining that a person is operating a motor vehicle without a valid and, if required, a specially endorsed driver's license..." (Revised Code of Washington section 46.55.113; Washington State, 2009). This law potentially encourages law enforcement officers to impound motorcycles of unendorsed riders and, thus, to discourage unendorsed riding.

A problem with assuming that an impoundment law will encourage riders to become endorsed is that there is no guarantee that the law will be used or that the riding public will be aware of it. Voas et al. (2008) examined the use of laws involving sanctions against the vehicles of drinking drivers and those who drive while suspended. They found that laws providing for

impoundment often go unused for any one of several reasons. Law enforcement officers may feel that the law is unfair or that other penalties associated with the traffic stop are sufficient or both. The act of impounding the vehicle may result in increased work for the officer, including paperwork and arranging for transport of the vehicle. Once the vehicle is impounded, it may result in costs to the law enforcement agency that may not be recouped if the vehicle is never retrieved by the offender.

Washington is not the only State that allows law enforcement officers to tow motorcycles of riders found to be unendorsed. In general, law enforcement officers who discover an unendorsed rider may prevent the rider from riding away on the grounds that, legally, he or she cannot ride the motorcycle. This may result in the towing of the motorcycle. Because the motorcycle is stored in an impoundment lot until requirements are satisfied to retrieve it, it is essentially impounded. The extent to which this happens is unknown. This type of impoundment was the basis of a research study and public information campaign (the *Campaign to License America*) funded by NHTSA in the mid-1990s (Billheimer, 2001). The campaign was based on results of surveys and focus groups of law enforcement officers and motorcyclists in California, Ohio, Texas, and Virginia. Billheimer (2001) found that riders also reacted most strongly to messages that stressed legal penalties for riding without a license, particularly impoundment and fines. From a series of 20 posters, the poster deemed most effective depicted an unlicensed rider receiving a ticket and having his motorcycle towed. Consequently, the study team developed a wide range of campaign materials that stressed the legal penalties for unlicensed riding, particularly the threat of impoundment. Public information campaign materials developed from this research received nationwide distribution over the 3 years from 1994 through 1997.

Levels of unlicensed motorcyclist fatalities vary widely from State to State. Before the 2007 change in the vehicle code, roughly one-third of motorcycle fatalities in the State of Washington involved riders lacking a proper motorcycle endorsement (Porter & Turcott, 2009). The Washington law, effective on July 22, 2007, permits law enforcement officers to impound a vehicle if the operator lacks a validly endorsed license. Though this law affects all types of endorsements, including those of commercial vehicle operators, it certainly has the potential to affect the endorsement and crash rates of motorcyclists in Washington. Understanding the extent to which it has affected those rates was the primary objective of this project.

Methodology

Overview

To understand the effect that Washington's motorcycle impoundment law may have on the safety of the State's motorcyclists, we sought to understand:

- Any issues associated with the *implementation* of the law;
- *Awareness* of the law in the State;
- *Media outreach* efforts to make riders aware of the law;
- *Enforcement* of the law, in terms of prevalence of impoundment and citations issued under the law;
- Effects of the law on *endorsements*;
- Effects of the law on *riders taking safety training*, and
- Effects of the law on *crashes*.

Following is a brief description of the methods used to understand each of the listed issues:

- *Implementation Issues* – We conducted telephone discussions with State officials, law enforcement officials, impoundment lot representatives, and others familiar with motorcycle impoundment.
- *Awareness of the Law* – (a) To understand the extent to which rider groups are aware of the law and are communicating information about it to their members, we spoke with 11 representatives from 10 rider groups in the State. (b) To understand riders' reactions to the law, we searched for conversations about the law on the Internet. (c) We analyzed surveys containing questions regarding the law that were administered by representatives of the Washington Traffic Safety Commission (WTSC). These surveys were administered at a motorcycle show in Seattle, Washington, in December 2009.
- *Media Outreach* – (a) We collected information from a public relations firm used by Washington State to conduct a motorcycle safety public information campaign. (b) We conducted searches of the Internet and local media for references to the impoundment law. (c) We conducted a Lexis/Nexis search for coverage of the law by the news media in Washington.
- *Enforcement of the Law* – (a) We obtained data from the Washington State Patrol (WSP) concerning its use of motorcycle impoundment for unendorsed riders. (b) To understand the effects of the law on the number of citations being issued for unendorsed riding, we obtained and analyzed data from the Washington DOL on citations for operating a vehicle with an improper endorsement. (c) During our conversations with law enforcement officials in Washington, we attempted to understand the extent to which motorcycles are being impounded under the law.

- *Effects of the Impoundment Law on Endorsements* – (a) We obtained monthly totals of new endorsements since 2003 to conduct time-series analysis of the effects of the impoundment law on endorsements. (b) We obtained data, in the form of “snapshots” taken at 6-month intervals (in June and December from 2003 to 2009), on the total number of endorsed riders in the State. These data were included in time-series analyses.
- *Effects of the Impoundment Law on Riders Taking Safety Training* – To understand the effects of the law on riders who may be using training as a route to endorsement, we analyzed data from DOL on the number of individuals taking a test for a license at the DOL compared to those using waivers from training. These data may provide insight on the effect of the impoundment law on riders who seek training. Monthly totals of riders trained or registered for training would have been desirable, but were unavailable.
- *Effects of the Impoundment Law on Crashes* – We obtained crash data from the Washington Department of Transportation to determine the changes in motorcycle crash rates and compare motorcycle crashes with passenger vehicle crashes following implementation of the impoundment law. This was matched with data on endorsement status from DOL to analyze reported crashes involving endorsed versus unendorsed riders.

Additionally, telephone conversations intended to collect information primarily about one issue often provided information about others. For example, State officials provided information on media outreach activities, and law enforcement and towing-company representatives provided anecdotal information on riders' awareness of the law and changes in the types of riders taking training.

Types of Data and Analysis

In this section we will describe in detail the data collection and analysis methods used to understand the issues listed above. As noted previously, various types of data were collected and analyzed to understand the issues of interest. In some cases more than one type of data was collected to understand an issue. For example, information about riders' awareness of the impoundment law came from interviews with State officials, interviews with riders, and a survey of riders. Information about riders taking training came from interviews with State officials and State records of the type of test used to obtain endorsement. Because issues being examined were not matched to single methodologies used to understand them, it would be inefficient to describe methodologies on an issue-by-issue basis. Therefore the following discussion will describe methodologies on a method-by-method basis.

Interviews, Internet and News Media Searches

Much of the data collected for this project was qualitative, coming from interviews and Internet searches. This information was used to understand most of the issues of interest related to the impoundment law (e.g., implementation issues, awareness of the law, attitudes about the law, changes in riders taking training).

The information from interviews and Internet searches was reviewed and summarized, and common ideas noted, along with a sense as to the prevalence of certain opinions and beliefs. Because we spoke to relatively few people, who were not selected randomly, we cannot suggest that the proportions of respondents expressing any given opinion correspond to the proportions in the public at large. We report the type of person making statements (e.g., State officials, law enforcement officers, riders, rider group representatives) and the source (Internet discussion, interview), but we have not used names and, to some extent, have avoided attributing comments to specific persons, to provide them with as much anonymity as possible.

Interviews

Interviews were conducted with State officials, law enforcement officials, leaders of motorcycling clubs and representatives of towing companies. In some cases, potential interviewees were suggested by others. For example, most State officials were identified through conversations with other State officials and/or NHTSA's Regional office that represents Washington State. Telephone numbers for some law enforcement officials were provided by State officials. Others were contacted by identifying appropriate law enforcement agencies on the Internet, calling them, and asking to speak with someone familiar with impoundment of motorcycles under the law. Towing-company representatives were identified through local law enforcement officers. Leaders of rider groups were primarily identified by searching on the Internet for local chapters of large motorcycling organizations (e.g., Harley Owners Group, Gold Wing Road Riders Association, BMW Riders Association). In some cases, rider club representatives suggested other rider club representatives.

We engaged in discussions with eight law enforcement officials, three operators of towing and impoundment lots, 11 leaders from 10 motorcycling groups and five State officials. With the exception of motorcycle club leaders, most of those contacted agreed to participate in interviews. About half of the motorcycle club leaders we attempted to contact did not contact us back. It may be that these riders were less willing to participate in a research study than government, law enforcement and towing-company officials. Because these contacts were mostly made using e-mail addresses found on the Internet, the lack of response may indicate that e-mail is a less effective way to contact potential interviewees than telephone calls.

Interviews were conducted as open-ended conversations in which interviewees largely guided the conversation. Interviewers were aided by interview protocols that listed the topics to be covered and allowed them to keep track of which topics had been covered. Interview protocols for conversations with State and local officials, law enforcement officials, and rider group representatives appear in this report as Appendices A, B and C, respectively.

Discussions with State officials, law enforcement officers and towing-company representatives took place in February, March, August and November 2010. Discussions with representatives of riding groups were conducted in late June and early July 2010, and in December 2010 and January 2011.

Although those interviewed as motorcycle club leaders were approached because of their identification with motorcycling groups, three were also involved in activities such as assisting in writing the original impoundment legislation, running the State motorcycle safety program, and

working as a law enforcement officer. As such, some of their opinions could also be considered to be those of State officials and law enforcement. An advantage of including their opinions is that they can offer the perspective and knowledge of rank-and-file motorcyclists from Washington, while also being familiar with the official perspective. A disadvantage is that they may be too close to the official side, so arguably, they do not represent the typical rank-and-file rider. Attempts were made to contact other rider groups. The interviewees were those that responded to our requests for an interview.

Internet Searches

Internet searches used various combinations of the terms motorcycle, impound, and endorse (e.g., motorcycling, impoundment, endorsement). Searches concentrated on news articles, bulletin board posts, and blog posts, starting in the summer of 2006 and continuing to 2010, with special emphasis on the period from a year before to a year after implementation of the law.

News Media Search

A Lexis-Nexis search was performed for news articles in Washington State, from June 2006 until February 2010, with the primary focus on the year before and year after the law went into effect in July 2007. Searches included articles containing both “Motorcycl!” and “Impound!” (where exclamation marks are wildcards that stand for any character or string of characters), the phrase “Endorse Your Sport” (the slogan of the media awareness campaign), and “46.55.113” (the vehicle code containing the new law).

Reports of a Media Outreach Campaign

In December 2006, Washington DOL contracted with Desautel Hege Communications (DHC) to create a media campaign for the Washington Motorcycle Safety Program. The primary purpose of the campaign was to create an awareness of the increasing motorcyclist fatalities in Washington and to communicate the importance of motorcycle safety issues, such as motorists' awareness of riders, being alert and slowing down while riding, and riders becoming endorsed. DHC ran the campaign for three years, from 2006 until 2009. They collected statistics regarding campaign activities in three yearly reports. We reviewed these reports, summarized the activities and provided statistics for the first year of the campaign.

Rider Surveys

During this project, the WTSC conducted a survey of attendees at a motorcycle show in Seattle, Washington. The WTSC survey included questions to determine whether riders were aware of the motorcycle impoundment law and whether they considered it a reasonable way to encourage endorsement. The list of survey questions appears as Appendix D of this report. The survey was conducted at the International Motorcycle Show in Seattle on December 11-13, 2009.

Summary statistics have been provided on responses to questions on awareness of the law, familiarity with the media outreach campaign and opinions of the law. Additional analyses were conducted to identify relationships between variables. These consisted primarily of generating cross-tabulations for pairs of variables of interest. These cross-tabulations included

the adjusted, standardized residual for each cell. This statistic helped identify cases where numbers within a cell are statistically significantly underrepresented or overrepresented, compared to those that would be expected based on marginal totals.

Data from Washington State Enforcement, Crash and Licensing Records

Files containing data concerning impoundments, endorsements, citations, and crashes were collected from various Washington State agencies. Beginning and ending dates reflect when the data were available and considered reliable. Table 1 shows the beginning and ending dates for the various types of data obtained.

Table 1. Data Acquired From Washington State Agencies

Data type	Start	End	Type of data
Motorcycle impoundments	July 2007	April 2011	Monthly totals
Violations for improper endorsement	January 2003	December 2010	Monthly totals
New endorsements	January 2005	December 2010	Monthly totals
Total endorsements	January 2003	December 2010	Semiannual totals
WSDOT crash data	January 2003	October 2010	Individual crashes
Type of licensing test	January 2005	December 2010	Monthly totals
Motorcycle registrations	June 2003	December 2010	Semiannual totals

Because data for motorcycle impoundments were not recorded prior to the impoundment law, it was not possible to analyze them for changes after the law. We have included a discussion of the numbers of impoundments, and changes in those numbers, since the law went into effect. Additionally, because semiannual totals for endorsements do not lend themselves to use in time-series analysis over such a short time periods, figures for new endorsements were used to help estimate total endorsements for the months between the semiannual totals.

For analysis of crash data, motorcyclists’ endorsement status at the time of the crash was determined from DOL data files for all crashing motorcyclists and matched to the crash data file. It should be noted that, for about 25% of the motorcycle crash cases, it was not possible to determine endorsement status. DOL officials believe that cases for which endorsement status was missing were distributed randomly between the endorsed and unendorsed riders and that there is no reason to believe that results would be skewed due to the missing data.

To better understand the influence of the law on riders taking training, we had hoped to obtain monthly numbers of people registering for, and/or graduating from, motorcycle safety training classes. Those data were not available. We were, however able to examine data on the type of skill test used to obtain an endorsement, to look for any effects of the law on riders taking safety training as part of the endorsement process. In the majority of cases, applicants either took a motorcycle skill test at the licensing station, or used a waiver obtained by successfully completing motorcycle safety training. A small minority of applicants obtained endorsements through other means, such as having the test waived due to holding a valid motorcycle endorsement from another State. Only those applicants who took the license station test or the safety training test were used in the analysis.

Time-series analyses used ARIMA intervention models. The time-series approach allows researchers to account for other time-related factors (such as trends, drift, and seasonality) that may have affected the variables under study, as well as eliminating the effects of other unmeasured processes that can produce autocorrelation in a series over time. Of particular importance to this project were (a) seasonal effects, due to the pronounced seasonality of variables related to motorcycling (e.g., impoundments, crashes, training); (b) gasoline prices, due to the possibility that increased prices in the past few years may be encouraging the use of motorcycles; and (c) the economy, because multiple downturns in the economy since the late 1990s may have affected motorcycle sales, discretionary riding, and the perceived affordability of training. Monthly unemployment figures for the State of Washington were used as a measure of economic health over time.

We investigated the use of motorcycle registrations in Washington as a measure of exposure for analyses. In recent years, NHTSA has used registrations as a measure of exposure rather than using vehicle-miles-traveled (VMT) data, which is considered inaccurate for motorcycles by most transportation safety researchers. Registrations correlated negatively with crashes in Washington for significant portions of the time period analyzed, particularly after the current recession began in late 2008. Because registrations did not appear to be a reliable measure of exposure for these data, we did not use them to control for exposure as it would have unnecessarily complicated the analysis without providing any benefits.

National (FARS) motorcycle crashes with Washington crashes removed, and Oregon motorcycle crashes were considered for use as comparison data. Both experienced reductions of about the same magnitude as Washington in the period following the enactment of the law. The reduction was almost certainly a function of the same economic forces that were affecting Washington crash rates. Both National and Oregon crash data were used as comparison groups in the time-series analyses of Washington crashes.

Potential covariates considered included (a) unemployment figures for Washington, (b) National gasoline prices, and (c) Washington State passenger vehicle crashes. Unemployment figures correlated positively and significantly ($p = .040$) with Washington motorcycle crashes and with some of the other time series for secondary measures (endorsements, training, etc.) that we also analyzed. Neither gasoline prices nor Washington State passenger crashes correlated significantly with Washington motorcycle crashes or with other measures; they were therefore eliminated from our analyses. Ultimately, only unemployment figures were used as a covariate in all analyses. Changes in Washington State unemployment rates in the period after the law went into effect in July 2007 ultimately became a confounding factor which made it difficult to determine the extent to which the variables under study may have been affected by the law. Figure 1 shows the unemployment percentage in Washington from January 2003 to April 2011.

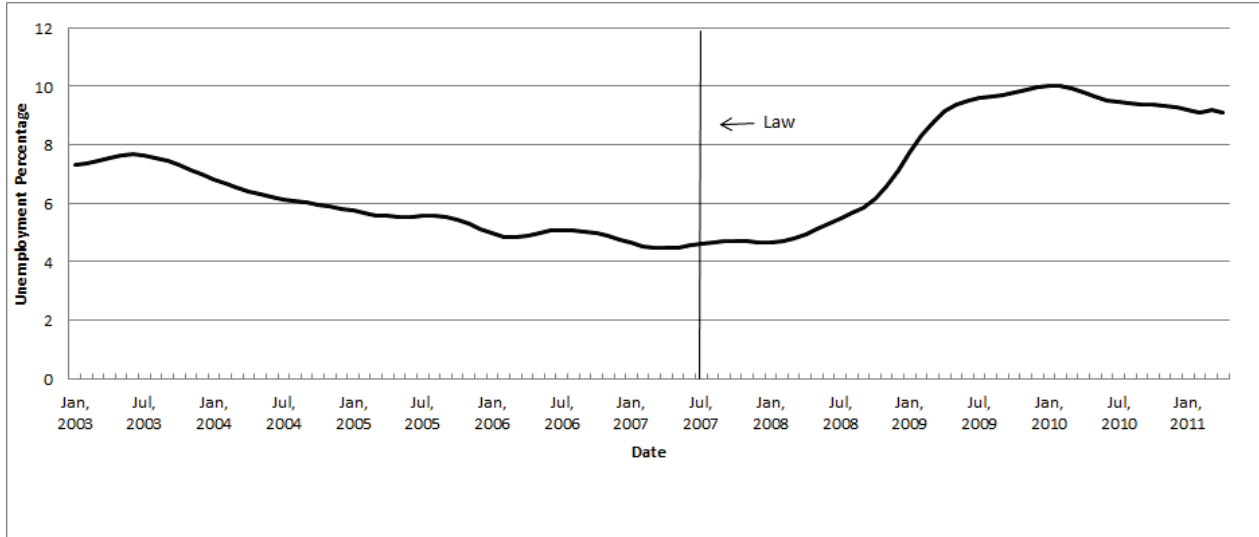


Figure 1. Unemployment Percentage

Results

This section of the report discusses the results of data collection and analysis. The discussion is organized by method of data collection, and includes the results of:

- Discussions with State officials, law enforcement officers, and towing-company representatives;
- Discussions with motorcycle club representatives;
- Information regarding media outreach activities;
- Internet discussions, Internet news articles, and print media news articles regarding the impoundment law;
- An awareness survey conducted by the WTSC; and
- Analyses of data related to citations, impoundment, endorsement, safety training and crashes.

Discussions With State Officials, Law Enforcement Officers, and Towing-Company Representatives

To understand implementation issues associated with the law and other issues about the law (such as awareness of and opinions about the law), we engaged in discussions with eight law enforcement officials, three operators of towing and impoundment lots, and various State officials. The purpose was to understand the extent to which the law is being used; how the impoundment process works; costs of impoundment to riders, law enforcement, and State agencies; and any unforeseen problems that resulted from the law. Interviewees also provided opinions regarding the effectiveness of the law. Officers based in the more populous areas on the west side of the State were more likely than officers in the more rural east side of the State to be aware of the law, to have impounded motorcycles under the law, and to consider it a useful tool for encouraging endorsement.

Interviewees included:

- Representatives of DOL, WSDOT, WTSC and WSP;
- Law enforcement officers from Island County Sheriff's Office, Lynnwood Police Department, Skagit County Sherriff's office, Tacoma Police Department, Spokane Police Department, Yakima Police Department, Ellensburg Police Department, and Walla Walla Police Department; and
- Towing-company representatives in Yakima, Burlington, and Mount Vernon, Washington.

Awareness

Discussions with State officials and law enforcement included their own awareness of the impoundment law, their perceptions of motorcyclists' awareness of the law, and any efforts made by governmental or law enforcement agencies to increase awareness. The primary outreach effort mentioned was the *Endorse Your Sport* campaign, described hereinafter. No law enforcement agencies appear to have created their own materials.

All law enforcement officials, except one, were aware of the law. They generally believed that most law enforcement officers were also aware of the law. Estimates of the number of officers who are aware of the law varied among interviewees. It was suggested that officers who are less familiar with the law are those who do not generally work traffic detail and those in rural areas. Similarly, the perceptions of rider awareness of the law varied, ranging from roughly half to most, with riders in rural areas and lone riders (as opposed to members of riding groups) being less aware of the law. Some law enforcement officers were aware of and participated in activities intended to raise awareness of the law. These occurred mostly in the western portion of the State.

Use of the Law

Early activities related to the law consisted primarily of increased traffic stops of motorcyclists and high-visibility law enforcement in areas of increased riding, such as at or en route to motorcycle rallies. These activities focused mainly on educational opportunities, e.g., giving warnings, discussions with riders, and distribution of WTSC *Endorse Your Sport* literature. Most activities occurred around the time the law went into effect, with reduced activity since then. Reasons suggested for this decline in activity level include reduced funding and a reduced sense of urgency, prompting enforcement efforts to return to the pre-law status quo.

Law enforcement officials discussed their impressions of the proportion of riders in Washington who are unendorsed. In general, officers were unsure. Some believed it was a large percentage. Officers based their understanding on the number of unendorsed riders they encounter but acknowledge that the number of riders they stop is small. Most riders they encounter do not behave in a way to warrant being stopped; this makes it difficult for law enforcement to learn how many are unendorsed overall and reduces the likelihood of detecting an unendorsed rider. Another barrier to sanctioning of unendorsed riding is a loophole in the law prior to 2011, which allowed riders to avoid endorsement by indefinitely renewing and operating with learner's permits.

Some officers expressed the belief that all or most unendorsed riders detected by their agencies are having their motorcycles impounded, but they are uncertain about what other agencies do. Other officers reported that their agency impounded very few motorcycles for improper endorsement. Most believed that officers should be allowed to use discretion in impounding motorcycles. It was suggested that laws resulting in impoundment of other types of vehicles have led to problems, such as overfilled impoundment lots, which may be causing some officers to be hesitant to impound motorcycles. Officers referred to a State Supreme Court ruling requiring them to find alternatives to impoundment if possible. Some officers stated that their

agencies have been specifically instructed to avoid impounding vehicles of any type, for any reason. Two officers suggested that it is inappropriate to impound motorcycles for riding while unendorsed, while not impounding cars for offenses such as driving while suspended, speeding, or driving without insurance. One officer stated that the negative effects of impoundment on the relationship between law enforcement and rider communities would outweigh any positive safety effects on endorsement rates. Officers in the eastern part of the State were more inclined to cite restrictions against impoundment as a disincentive to impound motorcycles.

Law enforcement officials believed it would be very difficult to determine the number of motorcycles impounded by their agencies and practically impossible to determine the proportion impounded of those eligible.

Process

The impoundment process normally starts with stopping a motorcyclist and determining that the rider is unendorsed. Some officers reported that they may give the rider the opportunity to call an endorsed rider to come ride the motorcycle away. If another rider cannot come to ride the motorcycle in 5 to 10 minutes, the motorcycle is impounded. Usually, another rider cannot be contacted and arrive in that short a period. One officer reported that his agency has a rule that the rider may not arrange to have a towing company take the motorcycle from the spot where it has been stopped because of safety and liability concerns. Riders may arrange to have the motorcycle towed from the impoundment lot, however. One officer reported hearing of cases in which, after the towing company had taken possession of a motorcycle, it was released to the owner in the field upon the arrival of an endorsed rider after an impoundment fee had been paid.

Once an officer determines the rider is unendorsed, the officer calls a towing company. Typically, the law enforcement agency has a rotating list of towing companies and calls the next company on the list. One officer said that the agency called one of two companies, depending on the location of the traffic stop within the jurisdiction. Officers explain to the rider that the motorcycle is being impounded, why it is being impounded, and the procedure for retrieving it from impoundment. Generally, the officer remains on the scene until the motorcycle has been towed to ensure it has been towed without being damaged. The officer may remain until he or she has determined that the rider can get to a safe location from the spot of the traffic stop.

Officers complete paperwork for impoundments. The forms are the same for motorcycles as for other vehicle impoundments, so the paperwork takes the same amount of time. Paperwork associated with impounding motorcycles is reported to be minimal. The overall time involved in having a motorcycle towed is also reported to be minimal and no different than for any other vehicle type. Motorcycles are towed to the same lots used for other types of vehicles. Officers did not describe any differences in the procedure if the rider was not the registered owner, though so few motorcycles are towed that the issue might not have arisen. Towing companies report that the amount of time to tow a motorcycle is not significantly longer than for a passenger vehicle.

Officers and towing companies reported that they normally use flatbed trucks and trailers to haul motorcycles, as opposed to suspending them in slings from booms. One towing-company representative expressed the belief that motorcycles can also be suspended from nylon straps

without damaging them. Both towing companies used special equipment to tow motorcycles. The companies expected to see an increase in the towing of motorcycles after the law was implemented. Towing-company representatives reported that motorcycle impoundments did increase for a time, but not as much as anticipated and not in a sustained fashion.

Proof of registered ownership is required to retrieve motorcycles. Officers were unsure of whether towing lots were requiring riders to show proof of endorsement to retrieve motorcycles and ride them away. Representatives of impoundment lots did not generally check to determine whether riders picking up motorcycles were endorsed. It should be noted that very few of the motorcycles they have handled were impounded for lack of endorsement.

Costs

Costs of towing and impoundment vary from area to area and are structured differently between companies. The costs appear to be no different for motorcycles than for other vehicles. Law enforcement officials were relatively certain that motorcycle impoundments do not result in costs to the law enforcement agencies or other governmental agencies. Although it was noted that impoundment of passenger vehicles has been problematic in the past, impounded motorcycles were often more valuable than impounded passenger vehicles of multiple DWI and DWS offenders, and motorcycles have been more valued by riders than are passenger vehicles by most drivers. This results in short stays in impoundment lots by motorcycles. This, together with the smaller size of motorcycles and impoundment of relatively few motorcycles, prevents motorcycles from contributing to overcrowded impoundment lots and unrecouped cost of impoundment for law enforcement and governmental agencies. No one interviewed was aware of motorcycles remaining impounded long enough to reach the maximum time of impoundment or to be sold.

Problems

Overall, the interviewees believed that the process is going smoothly and has not caused any unintended negative consequences. None of the law enforcement officials or towing-company representatives experienced a significant increase in their workload as a result of the law. This is partly because relatively few motorcycles are being impounded and partly because the process is not significantly different for motorcycles than for other vehicles. Without the law, towing companies would still need to be capable of towing motorcycles involved in crashes, which is currently much of their motorcycle-towing business. For the most part, law enforcement and towing-company representatives reported no complaints about the way in which motorcycles are treated. Most officers have the impression that people towing motorcycles are professional and are familiar with ways to tow motorcycles without damaging them, though one officer reported that about 4 of the 12 towing companies with which he was familiar did a poor job of towing motorcycles. Because towing companies are taken from a rotating list, officers cannot choose companies that do a good job. Towing companies reported that people may complain about having their vehicles towed, but motorcycle owners have been no more likely to complain than owners of other vehicle types. Notably, all three of the towing-company representatives interviewed are motorcyclists, which may affect how they approach towing motorcycles. One towing-company representative reported having purchased specialized equipment under the

belief that there would be a significant increase in the impoundment of motorcycles, but as mentioned, the increase was neither large enough nor long enough to offset the cost.

Effects of the Law

Other than during enforcement activities occurring shortly after the law became effective, there was no reported increase in the identification of unendorsed riders due to the law. Unendorsed riders are generally detected when they commit an infraction or become involved in a crash that brings them to the attention of law enforcement.

State officials and others familiar with training in Washington reported that there was an increase in demand for training around the time the law went into effect. There was a period during which the demand was greater than the availability of classes. After additional classes were made available, the number of people being trained reportedly increased before the economic downturn of 2008 resulted in decreased demand for training. Although this is anecdotal evidence, it bears mentioning, as the data on numbers of people registering for safety training were limited.

Anecdotal evidence also suggests that the law resulted in long-time riders without endorsements attending training as a path toward endorsement. Again, though the evidence is only anecdotal, we note that nearly all State officials and law enforcement officers with whom we spoke related stories of experienced riders registering for training to avoid impoundment. Towing-company representatives, through their connection to the rider community, had also heard these stories. A State official said, based on reports he had heard, that seasoned riders were taking the Basic Rider Course using the smaller motorcycles provided as part of the course rather than taking another course that would have been shorter and more appropriate for them but that would have required them to use their own motorcycles. This was reportedly because of the riders' concern that they might "drop" their own motorcycles while doing the low-speed maneuvers that are part of the test.

Discussions with Motorcycle Club Representatives

To understand riders' awareness of and opinions about the law, we engaged in discussions with 11 representatives of 10 key riding groups within the State. The discussions were intended to determine when the interviewees became aware of the law; what, if anything, their organizations did to raise awareness of the law among their membership; their personal opinions regarding the law's fairness and effectiveness; and their impression of their rider-members' opinions regarding the law.

Interviewees included:

- The director of the Lilac City Wings, Spokane Chapter of the Goldwing Touring Association;
- The founder of Bikes and Badges, a riding group primarily composed of law enforcement officers;

- The president of Washington Road Riders Association (WRRRA) (also a member of the Governor's Task Force on Motorcycle Safety);
- The director of the Tacoma Chapter of the Harley Owners' Group;
- The publisher of *SOUNDRider!*, an e-magazine for motorcyclists that reaches 60,000 riders monthly;
- The first officer of Northwest Road Riders Association;
- The manager of Team Ride West BMW;
- The president of Washington State BMW Riders Association;⁵
- The secretary of WRRRA (also a former head of motorcycle training for the Washington DOL);
- A member of the Yakima Chapter of the Harley Owners' Group; and
- The director of the Great Northwest chapter of the Harley Owners' Group.

Awareness

Interviewees discussed when and how they became aware of the law, their perceptions of its purpose, and what steps (if any) were taken to communicate information regarding the law to group members.

Awareness of the law was greatest in and around Seattle. Every interviewee who lived in the Seattle area had been aware of the impoundment law since its inception. Three had tracked it through the legislative process, and one of these three served on the Governor's Task Force on Motorcycle Safety that helped draft the bill. Those who were aware of the law were convinced that awareness was widespread. The interviewee who had been in charge of the Washington DOL when the law went into effect believed that riders who were unaware of the law probably lived in remote areas in the rural part of the State.

Although all interviewees were aware of the law, awareness seemed to come more slowly outside the Seattle area. The director of the Tacoma Harley Owners' Group first heard about it shortly after the law went into effect from an unendorsed rider who had been pulled over (and only received a warning). Similarly, the director of the Lilac City (Spokane) Wings did not hear about the law until mid-2008, when another rider told him about it.

Ironically, the interviewee who took the longest time to learn about the law was a law enforcement officer in rural Cowlitz County. The officer did not learn of the law until more than 2 years after its passage, when a video outlining its provisions was played for the patrolmen in his station house.

More than half of the interviewees said that their organizations passed along information on the impoundment law primarily at regular meetings. The director of the Great Northwest

⁵ Although the president declined to be interviewed by telephone, he polled his group regarding the issues and responded via e-mail.

Harley Owners' Group could not recall any specific communications efforts, but he did remember that there was interest in the bill among members. The secretary of WRRRA mentioned that the safety officer of their local chapter made the bill a topic of his regular meeting talks. The first officer of the Northwest Road Riders Association said that the law had been discussed in club meetings. Two of the interviewees spread the word on the bill well beyond their local organizations. The president of the WRRRA gave talks to other groups in neighboring States and at a National level, and the publisher of *SOUNDRider!* e-magazine ran articles on the bill as it progressed through the legislature and kept his monthly readership of 60,000 riders informed of the bill's contents.

Groups located outside the Seattle area were less likely to hear about the law through official channels and pass the word formally at group get-togethers. The Tacoma interviewee first learned of the law from another rider, but the first official word he heard came in 2009 from a WSP officer who observed 45 members of his group on a ride and addressed them when they stopped for a rest break. The officer first complimented them on being professional, respecting the rules of the road, and wearing proper gear, and then went on to acquaint them with the details of the impoundment law. The director of the Spokane Chapter of the Goldwing Touring Association said that his group had done nothing to inform its members about the law, but would in the future.

Another group outside Seattle that did not attempt to pass the word on the impoundment law along to its members was Bikes and Badges, a riding group based in Cowlitz County composed largely of law enforcement officers. The group's founder reported that the group meets to ride but does not meet regularly; hence, there is no regular forum for disseminating information. Regarding his perception of the general awareness of the law, the founder offered the opinion that people who are most likely to be aware of the law are probably already endorsed.

During this project, we also contacted a representative of the American Motorcyclist Association (AMA) who was familiar with the association's efforts to inform its membership of the impending legislation. He could find no record that the AMA had communicated news of the impending legislation to its membership in Washington.

Interviewees were clear on the purpose of the law, and all but one supported impoundment as an incentive to endorsement. Most were aware of the high percentage of unendorsed riders in the State's fatality statistics. The one interviewee who registered opposition to the law said that he thought it was reasonable for the State to require endorsement but felt that impoundment was going too far and that the threat of a ticket and fine should offer sufficient inducement. All interviewees except the single dissenter felt that there was near-unanimous support for the law within their groups. The director of the Great Northwest Harley Owners' Group echoed the sentiments of most interviewees when he said, "We support anything that helps make riders more competent."

Three of the interviewees noted that ABATE of Washington had initially opposed the legislation. The minutes of ABATE's January 2007 board of directors meeting confirm this opposition, and the president of the WRRRA reported that the local ABATE leader at the time the bill was being debated had testified against it. He noted, however, that subsequent ABATE

leadership has acknowledged the value of the law and that a senior officer of ABATE of Washington had announced on the group's Web site that he was taking the training program and obtaining his endorsement. According to the president of the WRRRA, who was also a member of the Governor's Task Force on Motorcycle Safety, the new ABATE leader "... offered a running account of his experience that was positive and inviting."

Endorsement

All interviewees had motorcycle endorsements and were familiar with the steps required to obtain an endorsement in the State of Washington, including the option of waiving the written and riding tests by successfully completing an approved rider course. Not only were the interviewees endorsed themselves, but only one could think of any unendorsed rider they knew personally. The director of the Tacoma Harley Owners' Group first heard about the impoundment law from an unendorsed rider who had been pulled over, but was only given a warning, reportedly because the law had only recently been enacted.

Interviewees who regularly organized group-riding events reported that they occasionally encountered unendorsed riders who showed up for group rides and had to be turned away. Two group leaders noted that insurance coverage for their groups' rides was predicated on the requirement that all riders be endorsed. One reported, however, that they often failed to check endorsements personally and observed that he himself had participated in group rides before getting his endorsement.

Most of the interviewees lumped unendorsed riders with showboating motorcyclists who "...do crazy stuff on highways," like "...going 120 miles per hour in tennis shorts and T-shirts" and give the sport a bad name. They felt that any law that tried to encourage training of this group through the endorsement process deserved support.

Impoundment

None of the interviewees knew anyone who had had their motorcycles impounded for lack of an endorsement, and most interviewees were unsure of the details of the impoundment process. The president of the Great Northwest Harley Owners' Group said that he had did not know how much it costs or how long it takes to retrieve an impounded motorcycle. The law enforcement officer who founded Bikes and Badges reported that his department had a longstanding policy against impoundment that predated the impoundment law and that he understood there was a 6-month grace period following the law's enactment when law enforcement officers issued warnings rather than impound the motorcycles of unendorsed riders. This conflicted with the report from the former head of motorcycle training for the DOL that the WSP impounded 15 to 20 motorcycles during the first month following the law's implementation as a means of getting the word out.

The majority of the interviewees had a general awareness of the broad issues surrounding the impoundment process. The former head of motorcycle training for the Washington DOL believed that the WSP used flatbed trucks rather than slings when taking custody of motorcycles. Other interviewees suggested that riders would be unhappy to see their motorcycles moved using a sling, and that there may be damage and liability issues associated with use of a sling that

would make towing companies hesitant to use them. No one knew the precise amount of the fine levied for riding without an endorsement, but everyone assumed it must be substantial because the minimum fine for a traffic violation in Washington State at the time of the interview (2010) was reportedly \$124.

Two of the interviewees were sure that the impounded motorcycle could only be reclaimed by an endorsed rider after paying an impoundment fee and storage charges. They understood, however, that the endorsed rider reclaiming the motorcycle need not be the owner of the motorcycle, but could be a friend or relative. Thus, the motorcycle's owner could repossess the motorcycle without actually obtaining an endorsement. This contradicts statements from towing-company representatives that the registered owner of the motorcycle must be present for it to be released, but that towing companies do not necessarily check for endorsements of people to whom motorcycles are released.

Effectiveness of the Law

Interviewees discussed their views regarding the effectiveness of the law, as well as their perceptions of the likelihood that an unendorsed rider would be caught, and if caught, the likelihood that their motorcycles would be impounded.

Perceived Effectiveness

One interviewee reported direct personal experience with the effectiveness of the law, in that he got his endorsement by taking a training class shortly after a fellow rider told him about the impoundment law. Others shared anecdotal evidence of the immediate effect of the impoundment law. The interviewee who was in charge of motorcycle training for Washington State at the time of the law's implementation reported an immediate jump in the demand for training and noted that the highway patrol impounded 15 to 20 motorcycles during the first month. Other interviewees echoed this observation that the demand for training increased. The wife of the director of the Tacoma Harley Owners' Group reported that half of those in her training class in 2007 were experienced riders steered there by the impoundment law. The interviewee who had served on the Governor's Task Force on Motorcycle Safety reported that the DOL offices were flooded with requests for endorsement when word of the law got out late in 2006, even before it became effective.

Likelihood of Getting Caught

Interviewees discussed the likelihood that an unendorsed rider would be caught following the law's implementation. Only one of the interviewees knew any unendorsed riders personally, but most agreed with the *SOUNDRider!* publisher's observation that the likelihood of being caught increased when riding unsafely. Members of the Washington State BMW Riders' Association echoed this observation and used it as an argument supporting impoundment, suggesting that riders who are most likely to be affected by the law are those already doing something illegal resulting in being stopped by law enforcement officers.

The lone law enforcement officer in the group of interviewees said that he did not see many motorcyclists being stopped in his rural county. He felt it was a useful law, but observed

that it was not enforced much in Cowlitz County. His own department has a policy against towing, but he did say that it would be nice to have the discretion to tow some riders.

The director of the Lilac City Wings observed that a rider's perception of the likelihood of being caught probably depended on whether the rider lived in a highly urbanized area. He noted that, in the Spokane area, it is possible to ride for several days without seeing a law enforcement officer, which is not true in the Seattle area. This distinction may help to explain why Seattle riders appeared to get the word on the law earlier than riders in outlying cities.

Likelihood of Being Towed if Stopped

Interviewees discussed the likelihood that an unendorsed rider stopped by law enforcement would actually have his motorcycle impounded. Answers to this question varied over the full spectrum of possibilities. The *SOUNDRider!* publisher said he thought impoundment should occur every time an unendorsed rider is stopped. The manager of Team Ride West BMW believed that unendorsed riders were not necessarily towed if they were stopped. Rather, some were given warnings. The director of the Great Northwest Harley Owners' Group felt that officers should ideally tow every time they encounter an unendorsed rider but he recognized that officers were human beings and situational ethics would apply, so a number of unendorsed riders might be let off with a warning. The first officer of the Northwest Road Riders' Association said that he had heard stories of impoundment at another rider's house but had no first-hand knowledge of any towed motorcycles. The director of the Lilac City Wings felt that the likelihood of being towed was "...a roll of the dice." But he added that "My luck's not that good, which is why I took training and got my endorsement." Three of the interviewees wondered whether law enforcement jurisdictions might incur liability if they let a rider take his motorcycle back onto the road after finding he was unendorsed.

At the other end of the spectrum, the director of the Tacoma Harley Owners' Group heard about the impoundment law from an unendorsed rider who had been pulled over but not towed soon after the law became effective. And a member of the Yakima Harley Owners' group felt that the law was "...strictly a scare tactic and isn't enforced much." He felt that the likelihood of being caught was low and the likelihood of being towed if caught was even lower. Instead of towing, he felt that a better option would be to give unendorsed riders a certain amount of time to get an endorsement license after being stopped and hit them with a substantial fine if they fail to do so.

Media Outreach Campaign

Washington State contracted with DHC to conduct a media outreach campaign using the phrase *Endorse Your Sport* as a slogan. Despite the use of the term "endorse," the campaign did not focus entirely on endorsement, and the fact that riders could have their motorcycles impounded was a relatively small part of the overall message. The campaign was aimed at 18- to 54-year-old males. To understand better the target audience's perceptions regarding these issues, DHC conducted two focus groups with motorcyclists and conducted in-person surveys with motorists at a recreational vehicle show in Spokane. Among the sentiments expressed by riders was the importance of creating an awareness of motorcycles and motorcycle safety among

drivers of passenger vehicles. Drivers of passenger vehicles expressed a desire for motorcyclists to "...pay attention and slow down."

A media campaign was created based on the findings of the focus group and knowledge of important motorcycling issues. The issues covered by campaign material included:

- Motorist awareness;
- Impaired riding;
- The importance of training;
- Common causes of crashes;
- Equipment violations; and
- The importance of endorsement and the impoundment law.

The campaign used television, radio, print media, and the Internet to communicate its message. The items developed included the following:

- A Web site (www.endorseyoursport.com) with links to information on getting endorsed, available training, becoming a motorcycle safety instructor, motorcycle safety-related announcements, a report from the Governor's Task Force on Motorcycle Safety, and the television advertisements developed for the campaign. The Web site does not appear to link directly to any Web page that mentions the impoundment law.
- A 30-second television advertisement that communicated (a) the need for motorists to be aware of motorcycles, (b) the need for riders to slow down and be alert to hazards, and (c) the need for riders to get training. In addition to television airplay, the ad was placed on www.youtube.com by both DHC and DOL and was accessible through endorseyoursport.com. Although the advertisement used the slogan *Endorse Your Sport*, it did not specifically mention getting endorsed or the impoundment law.
- A pamphlet that discussed laws governing equipment violations, rules of the road, and the importance of training and endorsement. This pamphlet did include a section on the impoundment law.
- A roll-call video for law enforcement agencies that discusses motorcycle safety statistics, impaired riding, unendorsed riding (including the impoundment law), and the importance of enforcing the laws to improve motorcycle safety.

The DHC staff successfully pitched stories to television, radio, and the news media. The resulting news stories discussed motorcycle crashes, motorcycle safety issues, and sometimes, the *Endorse Your Sport* campaign.

The DHC staff compiled statistics on the number of people who were exposed to the advertisements and news stories, the cost, and the value of the media exposure. The DHC representatives created reports containing statistics for the 3 years they were involved with the campaign (2007–2009), though the type of statistics provided were not entirely consistent across the years and do not lend themselves to presentation in tables in this report. The amount of

funding, types of activities conducted, and measured success of the campaign varied somewhat from year to year, but remained relatively high throughout all 3 years that DHC compiled statistics. Statistics from the first year of the program (2007) are provided as an example:

- Television public service announcement (PSA) exposure:
 - 408 spots aired as a result of \$40,000 in paid advertising;
 - 778 unpaid spots aired statewide, a value of \$83,205;
 - 1,123 PSAs aired statewide, equal to \$123,205 in advertising;
 - 75.3% of 18- to 54-year-old males, defined as the target audience of this campaign, viewed the PSA;
 - This audience had an average viewing frequency of 3.4 times; and
 - The television PSA created 4,328,597 impressions⁶ statewide.
- News stories on television:
 - 13 news stories, 7 of which aired on major news channels in Seattle; and
 - The total advertising value of these stories is \$18,290.39 and 458,006 impressions.
- News stories in newspapers:
 - 25 stories of varying lengths and content appeared in publications across the State;
 - The *Seattle Times* ran a front-page story with color photographs about a motorcycle crash involving a rider without an endorsement. The article was valued at \$58,800 and 232,090 impressions; and
 - 21 of 25 stories mentioned endorseyoursport.com, the Governor's Task Force on Motorcycle Safety report, or the statewide awareness campaign. The total advertisement value of these stories is \$97,489.02 and 820,650 impressions.
- Radio news stories:
 - A 1-minute interview with a State safety official was aired three times on a major Seattle channel;
 - An extended interview with the State safety official aired once on a major Spokane channel; and
 - The total value of all radio airtime was more than \$565.58.
- Internet exposure
 - Between May 1 and September 26, 2007, endorseyoursport.com received 5,817 visits, 84.5% of which were new visitors;

⁶ An "impression" is one viewing by one person. Three viewings by a single person or a single viewing by each of three people would be considered three impressions.

- Visitors viewed an average of 3.6 pages per visit;
- On average, visitors stayed for more than 2 minutes per visit;
- The “Improve Your Skills” and “Get an Endorsement” link were most popular among visitors, receiving 8% and 9% of the page views, respectively;
- The highest Web site traffic occurred in June, when 2,895 people visited the site; and
- Six days in June recorded more than 200 visits per day.

The *Endorse Your Sport* campaign appears to have been a reasonably well-planned and well-executed media outreach campaign, intended to communicate several important motorcycle safety-related messages to Washington motorcyclists and motorists. However, the importance of endorsed riding was only one of the messages communicated, and the motorcycle impoundment law appeared in only a small portion of the information ultimately presented.

Internet Discussion and News Articles

Internet News Articles and Bulletin Boards

Searches of the Internet provided an insight into Washington State motorcyclists' awareness of the law, steps taken to make riders aware of the law, and riders' opinions regarding the law.

News articles, blog posts, and bulletin board discussions regarding the law began around the end of 2006, when it was announced that the law would go into effect in the summer of 2007.

Discussions were found on multiple motorcycling bulletin boards. They appear to have been fairly heavy for a while after the announcement of the impending law. They then declined until shortly before the law became effective, at which time they increased for a few weeks. Many of the posts found were on the bulletin board at <http://PNWrider.com>.

After the announcement of the law, conversations mostly concerned the fact that the law was impending and opinions of the law. Some discussion involved misunderstandings of the law (e.g., some thought it was intended as a sanction against people riding off-road motorcycles on public roads without license plates). There were reports of having received notification of the impending law from rider clubs.

Most of the discussion was positive, reflecting the belief that the law is fair; that those who ride unendorsed deserve to have their motorcycles impounded and that those who are endorsed have nothing to worry about from the law. Often comments were accompanied by the opinion that all riders should seek training and that training was beneficial. Negative comments generally supported the importance of riders being endorsed and sanctions for riding unendorsed but expressed the belief that impounding motorcycles is unfair to motorcyclists and overly severe. Some comments suggested that ticketing and impoundment for riding unendorsed and, to some extent, the endorsement process itself was intended primarily as a source of revenue for State and local governments. A few people suggested that the purpose of the law was to allow

law enforcement officers to harass riders to discourage them from riding. This was a minority view, however. As the effective date for the law neared, these opinions continued to be expressed and were joined by posts reminding readers about impending implementation of the law and encouraging unendorsed riders to get endorsed.

Following implementation of the law, previously expressed comments were joined by discussion regarding enforcement, e.g., questions as to whether anyone had seen the law enforced and reports of the outcomes of traffic stops of riders. There were reports of motorcycles being impounded, and reports by riders who had been stopped for what appeared to have been an endorsement check. It was generally not possible to know whether the rider had been riding unendorsed, unlicensed, or committed some other infraction resulting in impoundment. Some of the riders stopped for “endorsement checks” complained that the law enforcement agencies were abusing their authority when stopping motorcyclists for little or no apparent cause. In general, however, the discussion about impoundments for unendorsed riding continued to support the belief that the riders deserved the impoundment. Other subjects of posts included discussion of whether the law would increase the number of riders who flee from the law enforcement to avoid being detected while riding without an endorsement, and the likely outcome of impoundments (e.g., number of motorcycles likely to be auctioned and joking suggestions that this would be a way to buy motorcycles inexpensively). Reports of impounded motorcycles prompted questions regarding how the motorcycles were being towed. Some discussants were concerned that motorcycles were being towed in a way to damage them, but no one stated that they had witnessed motorcycles being damaged by towing. One person posted that he worked for a towing company and had not seen an increase in impoundments. As with other sources of information in this project, there were multiple accounts of an increased number of seasoned riders attending training classes.

In April 2009, a poster to the PNWRiders bulletin board created a poll to ask how many participants in the bulletin board had motorcycle endorsements. Though not a scientific poll, it seems worthwhile to report the results. Of the 318 respondents, 310 provided serious responses. Of these, 95% reported having an endorsement, 5% planned to get endorsed, and less than 1% did not have an endorsement. It was suggested that the results were skewed toward endorsed riders, as unendorsed riders might be disinclined to report riding unendorsed due to a likely negative response.

News Web sites posting articles about the law often provided a comment page. These comments generally mirrored the comments on the bulletin boards already described (i.e., a majority believed the law was a reasonable way to encourage endorsed riding and that riders should be trained). A minority believed the law was unfair and/or represented an abuse of law enforcement authority.

Motorcycling Club Web Sites

A few references to the law were found on Web sites of motorcycling clubs. Usually, these were intended as helpful announcements to inform the clubs' membership about the law. Often they were accompanied by statements from club officials urging membership, and riders in general, to obtain endorsement and training if they had not already done so. One club had posted rules for group rides, taken from another group and modified slightly, which specifically stated

that unendorsed riders would not be allowed to participate in group rides. Reasons given include safety concerns and practical issues (e.g., disinclination to experience negative consequences of having a rider's motorcycle impounded during a group ride).

Print Media News Articles

A Lexis-Nexis search was conducted to identify references to the law. Of articles containing both Motorcycl! and Impound!, only one was about the motorcycle impoundment law. The article, "Motorcycles Booming but Rider Error Takes a Deadly Toll," was printed in the *Seattle Post-Intelligencer* on August 28, 2008, about a year after the law went into effect. It described the overall motorcycle safety problem, including increases in fatalities nationwide and in Washington; presented the statistics regarding crashes in Washington and Washington official's interest in addressing the problem; and contained a lengthy section on the benefits of training. A relatively short section covered the requirement for motorcycle and scooter riders to be endorsed and contained one sentence about the impoundment law and one sentence on the number of vehicles impounded under the law.

Of the articles containing the phrase "Endorse Your Sport," all were about motorcycle safety issues, including crashes, training, and motorist awareness. All mentioned the introduction of the *Endorse Your Sport* campaign that addressed motorcycle safety. None mentioned the impoundment law.

Rider Survey

A total of 708 respondents completed the WTSC's rider survey. Table 2 shows survey results for questions of interest to this study. Among other things, respondents were asked about their gender, their age, whether they ride a motorcycle, whether they have a motorcycle endorsement, the type of test used to get the endorsement, familiarity with the "Endorse Your Sport" campaign, awareness of the impoundment law, and opinion of the law. The full survey is included in Appendix D of this report.

Table 2. Rider Survey Results

Gender	Male 595 (84%)	Female 112 (15.8%)	No response 1 (0.1%)			
Age Group	<=20 10 (1.4%)	21-30 65 (9.2%)	31-40 109 (15.4%)	41-50 195 (27.5%)	51-60 234 (33.1)	61+ 90 (12.7%)
Rides a motorcycle	Yes 662 (93.5%)	No 43 (6.1%)	No response 3 (0.4%)			
Endorsed	Yes 642 (90.7)	No 60 (8.5)	Expired 3 (.04%)	No response 47 (6.6%)		

Type of test	Licensing station	Safety training	Both	No response
	305 (43.1%)	298 (42.1%)	58 (82%)	47 (6.6%)
Heard of "Endorse Your Sport"	Yes 301 (42.5%)	No 397 (56.1%)	No response 10 (1.4%)	
Does Impoundment Law exist?	Yes 396 (55.9%)	No 32 (4.5%)	Don't know 277 (39.1%)	No response 3 (0.4%)
Is Impoundment Law reasonable?	Yes 542 (63.8%)	No 182 (25.7%)	No opinion 67 (9.5%)	No response 7 (1.0%)

Fifty-six percent of respondents correctly said that the impoundment law was in place, 5% believed it was not, and 39% said they did not know the answer. Another way to look at this is that a little over half of the respondents knew about the law. Also worth noting is that 56% of respondents believed that it is reasonable to allow law enforcement officers to impound a motorcycle if the operator is riding without a valid endorsement, 26% believed it is not reasonable and 10% had no opinion on the issue.

We examined the relationship between some of the survey questions and the demographic information regarding gender and age. Some of the results are based on cross-tabulations using these age groups: 20 and younger, 21 to 30, 31 to 40, 41 to 50, 51 to 60, and 61 and older. In some cases, we correlated the actual age with responses on the survey questions. Only statistically significant results are discussed herein. Nonsignificant results are not reported here; therefore, any relationship between two variables not mentioned can be assumed to have been nonsignificant. Where p and r values are reported, results are based on correlations. Otherwise, results are based on adjusted, standardized residuals in cross-tabulations.

Awareness

Younger respondents were more likely to know about the existence of the law. Adjusted standardized residuals show 21- to 30-year-olds, compared to other age groups, were significantly overrepresented in answering "yes" and underrepresented in answering "don't know." When the question was recoded to reflect whether the response was correct (i.e., yes = "correct," no or don't know = "incorrect"), younger respondents were significantly more likely to answer the question correctly ($r = .094, p = .013$).

Riders with endorsements were significantly more likely than unendorsed riders to know about the impoundment law ($r = .084, p = .026$), as were those who had taken the test for their endorsement as part of safety training rather than at licensing stations ($r = .117, p = .004$). Sport bike riders were also significantly more likely to know about the law than not. There were no significant differences between knowing and not knowing the answer for other motorcycle types. Finally, there was a highly significant correlation between correctly answering the question about the law and reporting having heard the term "endorse your sport" ($r = .22, p < .001$).

Opinions Regarding Reasonableness of the Law

The variable for opinions as to the reasonableness of the law was recoded to eliminate cases where the respondent had no opinion or did not respond. The following discussion therefore involves only those respondents who expressed a yes or no opinion. Individuals who were significantly more likely to say the law was reasonable included:

- Those who were aware of the law ($r = .173, p < .001$);
- Those who took their licensing test through safety training rather than at the licensing station ($r = .152, p < .001$);
- Those who claimed to have heard the phrase “endorse your sport” ($r = .096, p = .016$); and
- Females ($r = .173, p < .001$).

Demographics

Following is our findings on the relationship between the respondents' age and gender and their survey responses. We did not analyze responses to the questions on the months in which they ride and where they might have heard the term “endorse your sport.”

- Males were significantly more likely than females to say that they rode a motorcycle.
- Riders aged 20 and younger were more likely than other age groups to say that they did not ride. (Note: There were only 10 respondents in this age group.)
- Of those who said that they did ride a motorcycle:
 - Males were significantly more likely than females to report being endorsed.
 - Males were significantly more likely than females to have taken tests at the licensing office, and females were significantly more likely than males to have been tested as part of safety training.
 - Age correlated with endorsement status, with older riders less likely to report being endorsed ($r = .166, p < .001$).
 - Age correlated with method of testing, with younger riders more likely to have been tested during safety training and older riders more likely to have been tested at a licensing station ($r = .190, p < .001$).
 - Riders aged 41 to 50 were more likely than other age groups to report having heard the term “endorse your sport.”

Enforcement of the Law

Citations for Unendorsed Riding

Figure 2 shows the number of citations issued in Washington for operating a motorcycle without a proper endorsement by month from January 2003 through December 2010. Time-

series analysis showed a nonsignificant 25.4% decrease in citations after the law ($t=1.84$; $p=.069$). Unemployment was not significantly correlated with citations.

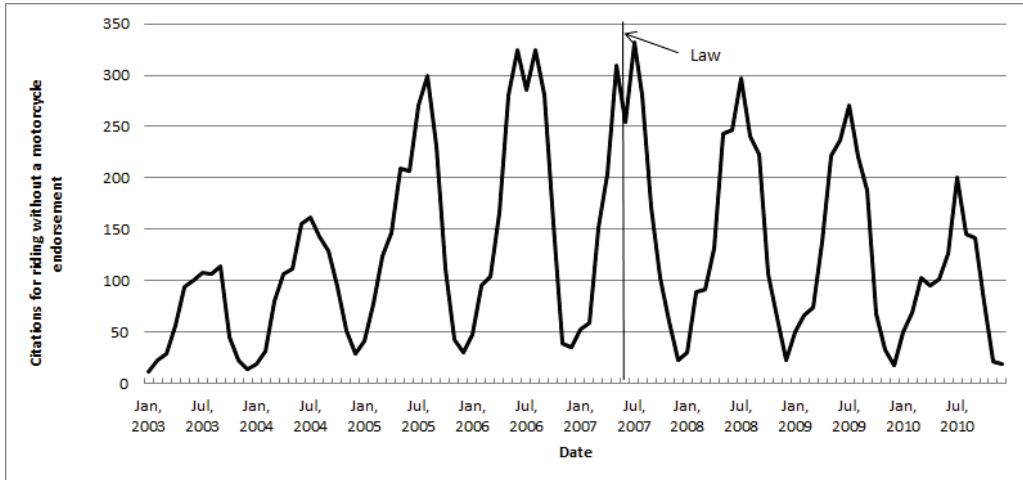


Figure 2. Citations for operating without a proper endorsement

Prevalence of Impoundment

Figure 3 shows the number of motorcycle impoundments by month since the law was enacted in July 2007. Because WSP did not begin compiling statistics on motorcycle impoundments until after the law was enacted, it was impossible to determine the effects of the law on motorcycle impoundments. However, the figures are useful in showing changes in the number of impoundments since the law became effective. From July 2007 through December 2009, impoundments remained at an average of 20 per month. The number of impoundments declined to an average of 10 per month in 2010. Impoundments remained low in the first 4 months of 2011. In discussions with a WSP representative, no clear reasons were known for the reduction in impoundments. Possible reasons suggested were an increase in the endorsement rate such that officers were no longer encountering unendorsed riders, or a relaxation of enforcement of the law as officers shift focus to other types of offenses over time.

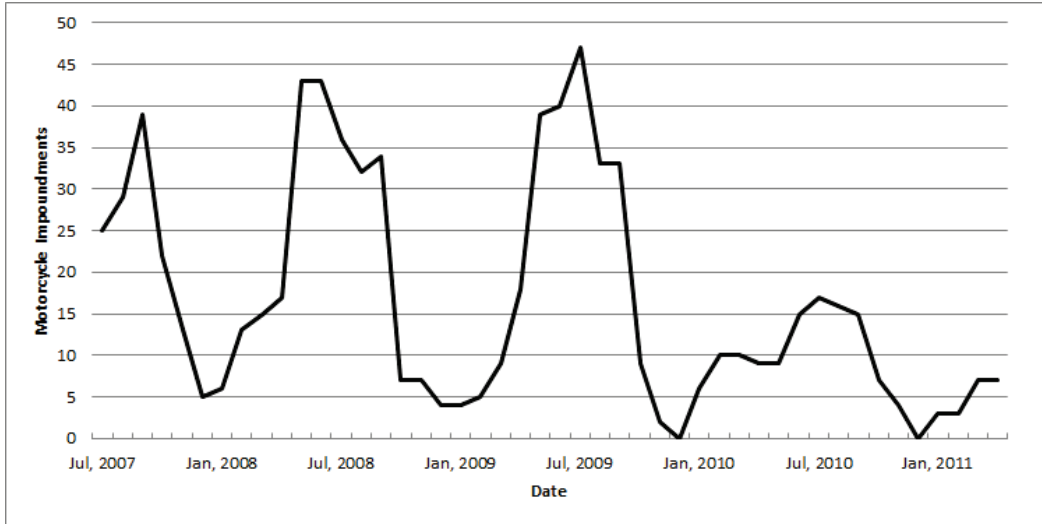


Figure 3. WSP motorcycle impoundments by month

Effects on Endorsements

Though total endorsements have increased steadily since 2005, analyses of total endorsements by month failed to show any effect of the law. Figure 4 shows new motorcycle endorsements in Washington from January 2005 through December 2010. Time-series analysis shows a 6.2% nonsignificant increase in new endorsements after the law was enacted ($t=0.87$; $p=.386$). Unemployment was significantly correlated with new endorsements, with more unemployment associated with fewer endorsements ($t=2.06$; $p=.044$). Theorizing that publicity about the law before it went into effect might have caused an increase in new endorsements before the law, an analysis was conducted setting January 2007 as the start date for the intervention period. This analysis found a nonsignificant increase in endorsements of 4% ($t=0.67$; $p=.503$).

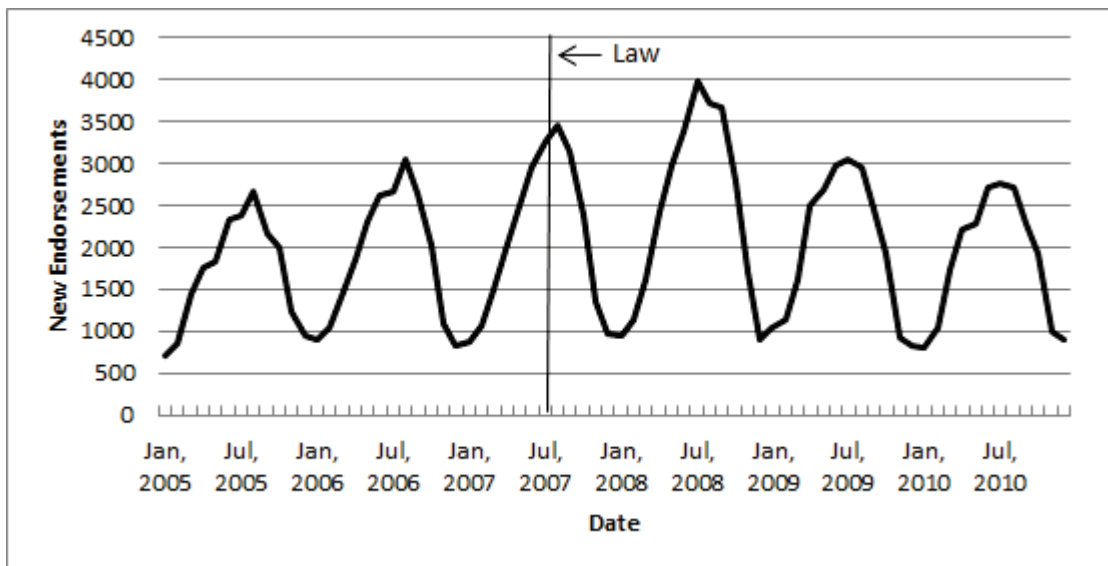


Figure 4. New endorsements by month

Riders Taking Training

To understand the changes in the number of riders taking training as a path to endorsement, we conducted a time-series analysis of changes in the type of test (waiver obtained through safety training versus licensing station) used to obtain an endorsement. After controlling for unemployment, there was a significant 27.3% increase in safety training tests taken ($t=4.78$, $p<.001$) and a significant 23.7% post-law increase in the number of tests taken at the licensing station ($t=2.84$; $p=.006$). Analyzing numbers of the two tests combined, two ARIMA models appear to be equally good in fitting the data.⁷ One found an 8.8% nonsignificant increase in endorsement tests taken ($t=1.15$; $p=.256$) and the other found a 12.3% nonsignificant increase ($t=1.44$; $p=.157$).

The finding of statistically significant effects in the same direction for the two individual groups, but not for the combination of the two groups, seems counterintuitive. Such a finding is rare but not impossible. One possible reason for this finding is a compounding of the noise in the residual series (i.e., higher error term). In other words, both groups changed significantly, but there was enough of a difference between the two groups in the *way* they changed that combining them obscured the effect. Another possible reason for the finding is that variance in the pre-law time period, combined with a relatively short 30-month pre-law period, resulted in volatility in the estimates of pre-law trends. These estimates can be highly sensitive to a few points in the early series, so as to produce widely differing projections into the post-intervention period. The difference in projections allowed the individual groups to show a significant effect of the intervention when separated, but not combined.

Examining the ratio of safety training to licensing station tests, time-series analysis finds a 10.8% increase ($t=2.40$; $p=.020$), suggesting a significant shift toward the use of safety training tests after the law. Figure 5 shows numbers of tests by type of test.

⁷ Total endorsement tests taken is a similar figure to the number of new endorsements reported in the previous section. Most riders in Washington obtain a new endorsement through waivers obtained from safety training or through tests at licensing stations.

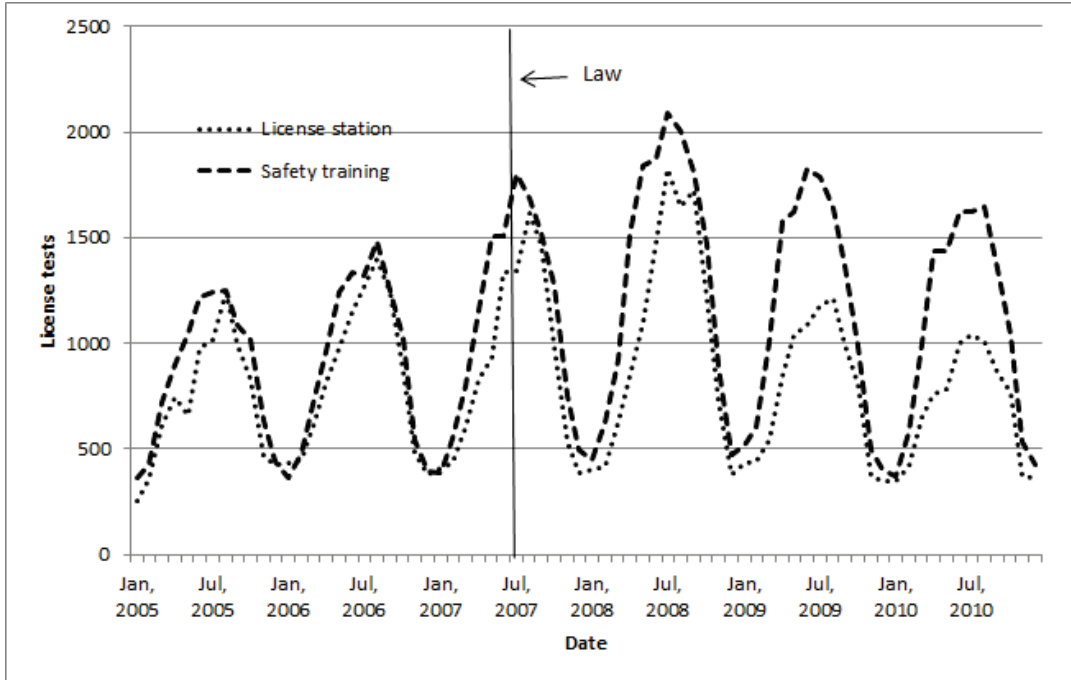


Figure 5. License tests by test type

Effects on Crashes

Figure 6 shows motorcycle crashes from January 2003 through October 2010. Time-series analysis indicates a nonsignificant reduction in motorcycle crashes following enactment of the law. Without controlling for the effects of the economy (unemployment), the reduction was 10.2% ($t=.127$; $p=.290$); however, the more appropriate analysis is to control for the effects of the economy, in which case the crash reduction is 1.6% ($t=.730$; $p=.945$).

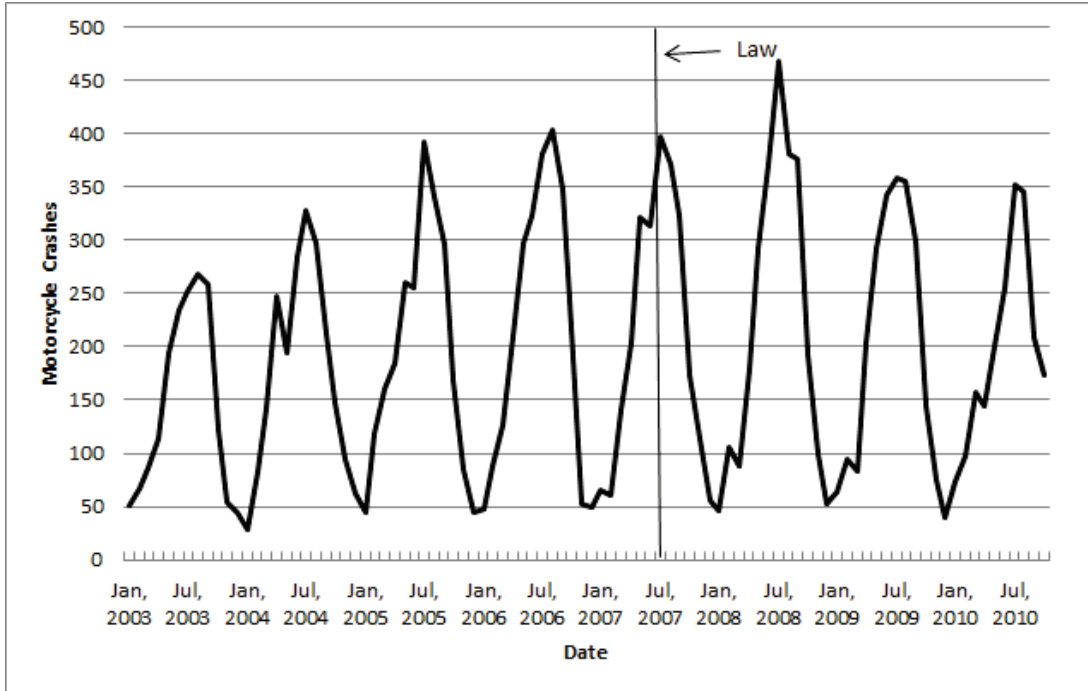


Figure 6. All Washington motorcycle crashes by month

Figure 7 separates Washington motorcycle crashes by endorsed and unendorsed riders. Time-series analysis found a significant 21.9% post-law reduction in the proportion of motorcycle crashes involving unendorsed riders ($t=5.40$; $p<.001$).

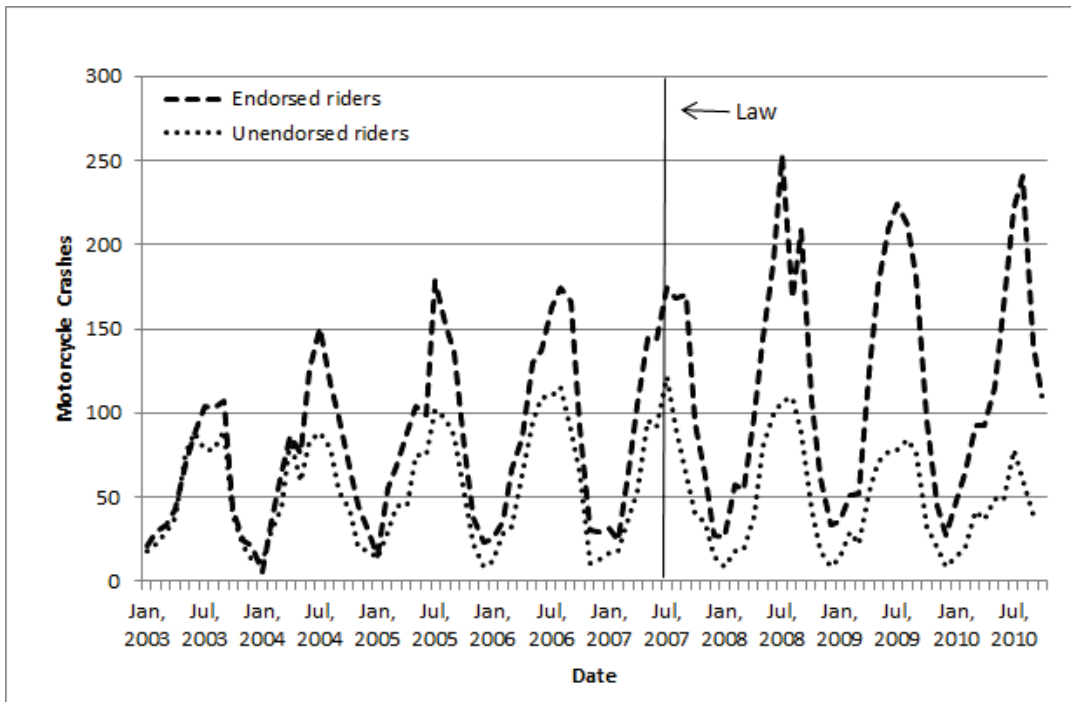


Figure 7. Crashes by endorsement status

Discussion

This section of the report will discuss the study's results as they apply to the individual issues of interest:

- *Implementation Issues;*
- *Awareness of the Law and Media Outreach;*
- *Enforcement of the Law;*
- *Effects of the Impoundment Law on Endorsements;*
- *Effects of the Impoundment Law on Riders Taking Training; and*
- *Effects of the Impoundment Law on Crashes.*

Implementation Issues

Interviews with law enforcement officers and towing-company representatives suggested that there are no unforeseen problems being caused by the impoundment law. This is partly because relatively few motorcycles are being impounded. When motorcycles are impounded, the process is not taking an inordinately long time for either law enforcement or towing and impoundment companies.

Unlike the inexpensive and relatively disposable cars often driven by multiple DWI or DWS offenders and abandoned to the impoundment lot, impounded motorcycles tend to be relatively expensive and prized by their owners. Motorcycles are therefore in impoundment lots for a short period and do not create costs for law enforcement agencies that must sell them but cannot recover the money owed on them.

Most law enforcement interviewees reported that motorcycles are being towed by knowledgeable people without damaging the motorcycles. Three towing-company representatives, all of whom were riders, reported that they and their staff are familiar with methods to tow motorcycles without damaging them. They report no complaints from riders related to damage to motorcycles due to towing. The closest thing to an unforeseen problem experienced by the towing companies is that they use specialized equipment to tow motorcycles, and the cost of acquiring this equipment exceeds the income from towing motorcycles under the impoundment law.

Officers in the western part of the State believed that most unendorsed riders who are detected are having their motorcycles impounded and that the reason so few are impounded is because of the unlikelihood of detecting unendorsed riders. Another possible reason given for the relatively small number of motorcycle impoundments is that impoundment is generally left to the discretion of the officer and not all officers are inclined to impound motorcycles. Officers in the more rural eastern part of the State all mentioned policies that discourage impoundment of vehicles, including motorcycles. Some officers consider the law a good tool, but not one they use in every circumstance. Others considered it unfair and a potentially negative influence on community relations. Officers described the increased interest in endorsement as being part of a

larger motorcycle safety campaign in which one of their key roles is to educate riders. Riders stopped for infractions, such as speeding or equipment violations, may be provided with information (verbal or written, e.g., pamphlets) on proper equipment, the importance of training and endorsement, and other basic aspects of motorcycle safety. Riders found riding unendorsed might be told about the importance of training and endorsement, informed of the impoundment law, and then released with a warning as part of this educational process.

Interviewees were uncertain of the requirements to retrieve a motorcycle from an impoundment lot, and it may be that they differ between jurisdictions and lots. It would appear that the primary concern is that the registered owner be present. It is not clear whether impoundment lot staff are always requiring proof of endorsement from the rider who rides the motorcycle away from the lot.

Awareness of the Law and Media Outreach

It is not certain how many riders are aware of the law. The interviewees' rough estimates varied widely. In general, the estimates ranged from 30% to "most." Results of the questionnaire given in Seattle showed that 56% of respondents correctly answered that the law allows motorcycles of unendorsed riders to be impounded. These riders may not be representative of all riders in Washington. Interviewees suggested that riders in rural areas or riders who are not part of a riding group are less likely to be aware of the law. Reinforcing this suggestion was the finding that interviewees—the riders, law enforcement officers, and towing-company staff—who were unfamiliar with the law were all from the eastern part of the State.

Survey results suggested that riders who were aware of the law were more likely to be younger and endorsed, and who took the license test as part of their safety training. Sport bike riders were more likely to be aware of the law than riders of other types of motorcycles. People aware of the law were more likely to be familiar with the term "Endorse Your Sport."

Riders have apparently learned about the law in multiple ways, including news, PSAs, and other information associated with the *Endorse Your Sport* campaign; traffic stops; communications within rider groups; and Internet discussion groups. Although people have certainly become aware of the law through the *Endorse Your Sport* materials and activities, the existence of the impoundment law is only a small part of the information presented by the campaign. It seems likely that much of the awareness of the law has come through communication among riders.

Enforcement of the Law

There was no significant effect of the law on citations for operating a motorcycle without proper endorsement. Perhaps this should not be surprising, given that the law concerned impoundment, not citations. On the other hand, if the law was part of an effort intended to encourage riders to become endorsed, one might expect increased citations to have been part of that same effort.

Interviews with law enforcement officials and towing-company representatives suggested that motorcycles were being impounded under the law, but not in great numbers. Data from the

WSP indicated that motorcycles were being impounded, though the rate of impoundments declined in 2010 to about half the previous rate. Statewide data on the number of impoundments would be difficult to obtain, and data on the number of motorcycles eligible for impoundment but not impounded appears to be practically unobtainable. When motorcycles are not impounded, it appears to be due to a combination of factors, including (a) the unlikelihood of detecting unendorsed riders, (b) the disinclination of law enforcement officers to impound motorcycles, and (c) the explicit instructions to law enforcement agencies to not impound vehicles. Interviews suggested that impoundments were more common immediately after the law became effective and that occasional increases may have occurred around the time of local high-visibility motorcycle safety activities.

Effects of the Impoundment Law on Endorsements

After controlling for effects of the economy, a statistically nonsignificant 6.2% increase in new endorsements was found. Shifting the post-intervention period earlier in time by 6 months to measure any effects of pre-law publicity resulted in a nonsignificant 4% increase in endorsements. There was also no significant increase in total endorsements after the law.

Interviews with State officials, law enforcement officials, and riders resulted in anecdotal evidence suggesting riders who had previously ridden without an endorsement obtained one because of the law. If that is true, there were apparently not enough endorsements obtained to significantly change endorsement rates.

Effects of the Impoundment Law on Riders Taking Training

A possible beneficial effect of the impoundment law on motorcycle safety in Washington would be realized if it encouraged more riders to attend motorcycle safety training in the process of acquiring their endorsements. Unfortunately, monthly figures were not available for applications to or attendance in Washington's motorcycle safety training classes. Insight into the potential effect of the law on increased training was available in the form of numbers of endorsement applicants using test waivers from safety training compared to those taking tests at licensing stations. Time-series analysis showed significant increases in both safety training (27.3%) and licensing station (23.7%) tests. However, combining the two tests resulted in a nonsignificant increase in numbers of endorsement tests. If the number of tests *did* increase significantly, we would expect the number of endorsements to increase significantly as well, but such was not the case.

The ratio of applicants taking safety-training tests to those taking licensing-station tests increased significantly by 10.8% after the law. This would tend to suggest that the law did encourage riders to seek training as a path to endorsement. However, if the goal of training was to become endorsed, we would expect to see an increase in endorsements. The fact that we did not suggests that the law is not driving more people to become endorsed, but that the *same* number of people are becoming endorsed and that something has made training more attractive than the license-station tests. One possibility is that previous wait times for classes have reportedly been eliminated. The lack of wait times has occurred partly because the demand for classes declined along with the economy. It is difficult to interpret the findings as suggesting that

training classes have become more attractive than testing at the licensing station, given the current National reductions in the demand for classes.

Nearly all of the interviewees for this project, including the State official in charge of the motorcycle safety training program when the law went into effect, law enforcement officers, riding-club representatives and towing-club representatives (who were also riders) told stories of an increase in the number of riders taking training because of the law. The stories often involved seasoned riders who attended training classes, stating specifically that the impoundment law and a desire to protect their motorcycle from impoundment was the force that caused them to attend training classes. State officials stated that an increased demand initially resulted in increased waiting times for classes. Wait times were subsequently reduced, first by an increase in the number of available classes, then by the general economic downturn that began in 2008 that apparently reduced the demand for motorcycle safety classes across the Nation.

Effects of the Impoundment Law on Crashes

After controlling for unemployment, a small (1.6%) but statistically nonsignificant reduction in crashes was found. Of interest is a significant 21.9% reduction in the proportion of crashes involving unendorsed riders after the law went into effect. This shift in crashes toward a more highly endorsed population might be taken as evidence of a shift in endorsement rates in the population at large, indicating that the law has been effective in causing unendorsed riders to become endorsed. This interpretation would seem to run counter to the lack of significant increases in the endorsement rate for the same period.

Another possible interpretation is that the law discouraged unendorsed riders from riding, thus limiting their exposure. However, if the shift was due to a reduction in crashes of unendorsed riders, we would likely have seen a significant reduction in overall crashes (unless it was obscured by the reduction deemed attributable to economic factors). A decline in unendorsed rider crashes, coupled with a corresponding increase in endorsed rider crashes, could cause this finding. It is difficult to understand, however, how the impoundment law could contribute to an increase in crashes of endorsed riders. A final possibility is that the law did increase endorsements, creating a shift in the proportion of endorsed riders in the motorcyclist population at large, but the increase was not detected by time-series analyses of endorsement rates.

Summary

Implementation of the law seems to have caused no problems for law enforcement agencies, local government, or towing companies. The lack of problems is partly because the effort required is relatively minimal and partly because not many motorcycles are being impounded. Primary reasons for not impounding motorcycles of unendorsed riders are the limited likelihood of detecting unendorsed riders, the limited willingness of law enforcement to impound motorcycles, and a policy of not impounding vehicles in some agencies. Estimates of the proportion of law enforcement officers who are aware of the law vary, but it is evident that not all officers are aware of it. Our finding suggests that law enforcement in more isolated parts of the State are less likely to know of the law. The actual number of impoundments across the State would be difficult to determine, as would the proportion of impoundments for those motorcycles that are eligible for impoundment. The one law enforcement agency, the WSP, we identified that keeps records of motorcycle impoundments has only kept records since the law went into effect (though motorcycles could theoretically have been impounded before implementation of the law), making it impossible to determine pre- and post-changes in impoundments. WSP records show that impoundments were relatively stable for the first 2.5 years after the law and then dropped by about half. It was suggested this may be due to a decreased focus on the law by officers or to increased endorsement among the motorcyclists they encountered.

Whether or not motorcycles are being impounded, there is still a potential for the law to create general deterrence to riding unendorsed, among riders who are aware of it. It seems apparent that many motorcyclists in Washington are aware of the impoundment law, but many are not. A little more than half of the survey respondents in Seattle correctly answered that the law exists; however, this also means that a little less than half were unaware or uncertain of the existence of the law. Awareness may have come through the *Endorse Your Sport* motorcycle safety campaign, though the existence of the impoundment law is a relatively small portion of that campaign and was not featured as prominently as other aspects of the campaign. Riders seemed to be relatively positive regarding the law. Most comments found on the Internet suggested the belief that the law is a reasonable way to encourage riders to become endorsed. Endorsement and training seem to go hand in hand in many riders' minds. It is not clear the extent to which riders surveyed in Seattle, or those expressing opinions on the Internet, represent riders' awareness and opinions across the State. It was suggested that riders in more rural parts of the State may be less aware of the law.

It appears that use of the law is not resulting in a large number of motorcycle impoundments. Reasons include a relatively small likelihood of detecting an unendorsed rider, the discretion of the law enforcement officer in impounding motorcycles, and conflicting policies that discourage impoundment.

Analyses of riders taking training and endorsement rates were inconclusive. Analysis of numbers of riders taking safety training tests and licensing station tests suggest that both types increased significantly after the law. However, the combination of the two test types did not show a significant post-law increase. If there *had* been a significant increase in endorsement tests

after the law, it would be reasonable to expect a significant increase in endorsements. Again, no such increase was found.

The significant post-law increase in the proportion of riders using safety training to become endorsed suggests that the law may have encouraged more riders to take motorcycle safety training classes. Much anecdotal information to support this notion came from discussions with State officials, law enforcement officers, and riders in Washington. If this is true, it is unclear why the endorsement rates in Washington did not increase significantly.

Time series-analyses, conducted to understand the effect of the law on crashes and endorsements, were hampered somewhat by economic factors that have apparently been a factor in reduced crashes of all types. These same economic factors have reportedly also reduced the number of riders in safety training classes across the country. When controlling for the economic effects on crashes and endorsements, the economic factors account for most of the change. Because the National economic downturn began at about the same time the impoundment law went into effect, it is very difficult to understand changes in crashes and endorsements that might have occurred due to the law.

Following the implementation of the law, there was no significant reduction in overall motorcycle crashes. There was, however, a significant reduction in the proportion of crashes involving unendorsed riders. This might suggest a shift toward more endorsed riders in the population at large; however, neither new endorsement rates nor total endorsement rates appeared to be significantly affected by the law.

References

- Becker, L. R., McKnight, A. S., Nelkin, V. S., & Piper, D. L. (2003). Drinking, riding, and prevention: A focus group study. (Report No. DOT HS 809 490). Washington, DC: National Highway Traffic Safety Administration.
- Beirness, D. J., Simpson, H. M., Mayhew, D. R., & Jonah, B. J. (1997). The impact of administrative license suspension and vehicle impoundment for DWI in Manitoba. In C. Mercier-Guyon (Ed.), *Proceedings of the 14th International Conference on Alcohol, Drugs and Traffic Safety* (pp. 919-925). Annecy, France: Centre d'Etudes et de Recherches en Medecine du Trafic.
- Billheimer, J. (2001, March 1-4). Research in Support of a Motorcycle Operator Licensing Campaign. *Human Element: International Motorcycle Safety Conference*. Orlando, FL.
- Billheimer, J. W. (1993a). The Unlicensed Motorcycle Rider in Fatality Statistics and Surveys, Technical Paper. Los Altos, CA: National Highway Traffic Safety Administration, SYSTAN Inc.
- Billheimer, J. W. (1993b). A Profile of California's Unlicensed Motorcycle Riders in Fatality Statistics and Surveys, Technical Paper. Los Altos, CA: California Department of Motor Vehicles, SYSTAN Inc.
- Bina, M., Graziano, F., & Bonino, S.. (2006). Risky driving and lifestyles in adolescence. *Accident Analysis & Prevention*, 38, 472-481.
- Crosby, I. B. (1995). *Portland's asset forfeiture program: The effectiveness of vehicle seizure in reducing rearrest among "problem" drunk drivers*. Portland, OR: Reed College Public Policy Workshop.
- DeYoung, D. J. (1999). An evaluation of the specific deterrent effects of vehicle impoundment on suspended, revoked, and unlicensed drivers in California. *Accident Analysis and Prevention*, 31, 45-53.
- Kim, K., Boski, J., & Yamashita, E. (2002). A typology of motorcycle crashes: Rider characteristics, environmental factors, and spatial patterns. *Transportation Research Record*, 1818, 47-53.
- NHTSA. (2012). Fatality Analysis Reporting System (FARS): Detailing the Factors Behind Traffic Fatalities on our Roads. Washington, DC.
- NHTSA & Motorcycle Safety Foundation. (2000). National Agenda for Motorcycle Safety. Washington, DC: National Highway Traffic Safety Administration. Available at <http://www.nhtsa.gov/people/injury/pedbimot/motorcycle/00-nht-212-motorcycle/toc.html>
- Peek-Asa, C., & Kraus, J. F. (1996). Alcohol Use, Driver, and Crash Characteristics Among Injured Motorcycle Drivers. *Journal of Trauma*, 41(6), 989-993.

- Porter, L., & Turcott, M. (2009). Transportation Commission: Motorcycle Safety Presentation. Washington Traffic Safety Commission: Olympia, WA. Retrieved from http://www.wstc.wa.gov/Meetings/AgendasMinutes/agendas/2009/Mar18/Mar18_BP8_MotorcycleSafetyPres2009.pdf
- Preusser, D. F., Williams, A. F., & Lund, A. K. (1987). The effect of New York's seat belt use law on teenage drivers. *Accident Analysis and Prevention*, 19(2), 73-80.
- Syner, J. W., & Vegega, M. E. (2001). Impaired Motorcycle Riding: What Motorcyclists Think About Alcohol and Motorcycling *Proceedings of the 2001 International Motorcycle Safety Conference*. Orlando, FL.
- Voas, R. B., McKnight, A. S., Falb, T., Fell, J. C., Stewart, K., & Sweedler, B. (2008). Update of Vehicle Sanction Laws and Their Application: Volume I - Summary. (Report No. DOT HS 811 028A). Washington, DC: National Highway Traffic Safety Administration.
- Voas, R. B., Tippetts, A. S., & Taylor, E. P. (1998). Temporary vehicle impoundment in Ohio: A replication and confirmation. *Accident Analysis and Prevention*, 30(5), 651-655.
- Washington Department of Licensing. (2006). Motorcycle Rider Safety Task Force, Final Report. Washington Department of Licensing.
- Washington State. (2009). Revised Code of Washington (RCW). Washington State, from <http://apps.leg.wa.gov/rcw/>

Appendix A.

Telephone Interview Protocol for State and Local Officials

Upon reaching the interviewee by phone, the interviewer should inform or remind the interviewee of the nature of the study and its goals.

Ask for permission to record the interview.

Telephone calls will take the form of open-ended discussions of various issues related to the motorcycle (MC) impoundment law. The interviews should touch upon all of the following issues with which the official is familiar:

Awareness

- The interviewee's awareness of the law
- Perception of awareness within government, law enforcement and rider communities
- Any awareness campaigns of which the interviewee is aware
- Other sources of information on awareness

Practice

- The proportion of unendorsed riders in Washington
- The extent to which unendorsed riders are being identified, reasons why and why not
- The extent to which MCs are being impounded, reasons why and why not
- Data available on numbers of riders eligible for, and actual impoundment
- Other sources of information on practice

Process

- Impoundment
 - Steps required to impound MC
 - Time required to impound MC
 - Paperwork/reporting required to impound MC
 - Differences between impounding MCs and other vehicles
 - The procedure if the rider is not the owner of the MC
 - MC impoundment locations
 - Method of transporting MCs

- Retrieval
 - Retrieval process
 - Persons qualified to retrieve MCs
 - Endorsement requirement for retrieval
 - Ramifications of offender not being owner
- Costs
 - To rider
 - To law enforcement agency
 - To jurisdiction (e.g., county, city)
 - To the State
- Time Limits
 - Limits to impoundment storage time
 - Disposition of the MCs beyond limit (e.g., sell)
- Problems
 - Steps unanticipated at time of legislation
 - Other problems
- Overall, impressions on MC impoundment procedure running smoothly?
- Other sources of information on the process of impoundment

Evaluation

Anecdotal evidence, actual data, and/or available reports on the effects of the law on:

- Identification of unendorsed riders
- Impoundment of motorcycles
- Endorsement rates
- Riders taking training
- Motorcycle crashes
- Motorcycle safety in general

Appendix B. Telephone Interview Protocol for Law Enforcement Officials

Upon reaching the interviewee by phone, the interviewer should inform or remind the interviewee of the nature of the study and its goals.

Ask for permission to record the interview.

Telephone calls will take the form of open-ended discussions of various issues related to the motorcycle (MC) impoundment law. The interviews should touch upon all of the following issues with which the official is familiar:

Enforcement of Endorsement Law

- Perception of problems caused by unendorsed riding – by participants, by others
- Proportions of riders stopped who are unendorsed – by participants, by others
- Proportions of these unendorsed riders ticketed – by participants, by others
- Proportion of these ticketed riders whose MC is impounded – by participants, by others

Reasons Given by Riders for Riding Unendorsed

- Unaware of endorsement requirement
- Don't see safety value of endorsement
- Don't think they'll get caught
- Not familiar with impoundment law
- Not familiar with other sanctions
- Believe they can have sanctions rescinded by getting endorsement
- Other

Purpose

- Perceptions as to the purpose of the law
- Perceptions regarding the safety value of endorsement
- Perceptions regarding awareness of impoundment law

Appropriateness

- Fairness of the law
- Possible better alternatives

Process

- Rationale for deciding whether to ticket and/or impound
- Impoundment
 - Steps required to impound MC
 - Time required to impound MC
 - Paperwork/reporting required to impound MC
 - Differences between impounding MCs and other vehicles
 - The procedure if the rider is not the owner of the MC
 - MC impoundment locations

- Method of transporting MCs
- Retrieval
 - Retrieval process
 - Persons qualified to retrieve MCs
 - Endorsement requirement for retrieval
 - Ramifications of offender not being owner
- Costs
 - To rider
 - To law enforcement agency
 - To jurisdiction (e.g., county, city)
 - To the State
- Time Limits
 - Limits to impoundment storage time
 - Disposition of the MCs beyond limit (e.g., sell)
- Problems
 - Steps unanticipated at time of legislation
 - Other problems
- Overall, impressions on MC impoundment procedure running smoothly?
- Other sources of information on the process of impoundment

Effectiveness of law

- Likely effect on numbers of MC stops
- Likely effect on ticketing
- Likely effect on endorsement rates
- Likely effect on training rates
- Likely effect on crash rates
- How to increase enforcement efforts

SUMMARY AND CLOSING

- Any final comments regarding subjects not already covered

Appendix C.

Telephone Interview Protocol for Rider Group Representatives

Upon reaching the interviewee by phone, the interviewer should inform or remind the interviewee of the nature of the study and its goals.

Ask for permission to record the interview.

Telephone calls will take the form of open-ended discussions of various issues related to the motorcycle (MC) impoundment law. The interviews should touch upon all of the following issues with which the official is familiar:

Awareness

- Interviewee's awareness of the law
 - When they became aware
 - How they became aware
- Awareness of members of Rider Group
 - When they became aware
 - How they became aware
 - Any communication efforts regarding the law on the part of the Rider Group to its members
- Awareness of Riders in General
 - When they became aware
 - How they became aware

Accuracy - Accuracy of interviewee's perceptions of the law, e.g., what it allows, who it covers

Purpose

- Perceptions as to the purpose of the law
- Perceptions regarding the safety value of endorsement
 - To the interviewee
 - To members
 - To non-members

Appropriateness

- Impressions of current endorsement rates
- Fairness of the law
- Possible better alternatives

Impoundment Process – interviewee's perceptions as to:

- Rationale for deciding which MCs are impounded
- How MCs are towed and stored
- How long they are impounded
- Requirements to get MCs back
- Costs to MC owner and/or rider
- Extent to which rider group members have same perceptions as interviewee

Endorsement Process – interviewee's perceptions or knowledge of:

- Testing – what's involved (e.g., skill and knowledge tests)
- Costs
- Availability of waivers through training
- Extent to which rider group members have same perceptions as interviewee

Effectiveness of law – interviewee's perceptions or knowledge of:

- Likelihood of getting caught
- Likelihood of being cited if stopped
- Likely effect on numbers of MC stops
- Likely effect on riders given tickets for riding unendorsed
- Possibility of forgiveness if license is obtained
- Likely motivation on riders to get endorsed
 - For interviewee
 - For rider group members
 - For non-members
- Likely effect on training rates

- Likely effect on crash rates
- Extent to which rider group members have same perceptions as interviewee

Training – interviewee's perceptions or knowledge of:

- Availability
- Value to interviewee
- Value to group members
- Value to non-members
- Cost
- Convenience
- Extent to which rider group members have same perceptions as interviewee

Appendix D. WTSC Rider Survey

1. Do you ride a motorcycle (includes 3-wheelers)? Yes No

2. Do you have a motorcycle endorsement? Yes No Expired

If yes, how did you qualify for your endorsement?

Took test at licensing office Attended training school

3. How many *registered* motorcycles do you own?

0 1 2 3 or more

4. What type of motorcycle do you ride *most frequently*?

Sport Cruiser Touring Scooter Dual sport Other

5. How many miles do you estimate that you rode this past year?

None <5,000 5,000-10,000 >10,000

6. What months do you usually ride? (Check all that apply)

Year-round Apr/May Jun/Jul/Aug Sep/Oct

7. Have you heard the term "Endorse Your Sport"? Yes No

If yes, where did you hear it? (Check all that apply)

TV Radio Website Friends

8. Does Washington law allow law enforcement to impound your motorcycle if you are riding without a valid endorsement?

Yes No Don't know

9. Is it reasonable to allow law enforcement to impound a motorcycle if the operator is riding without a valid endorsement?

Yes No No opinion

10. Please provide the following personal information:

Gender: ___Male ___Female

Age: _____

County of residence: _____

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