

# Safety Belt Use in Maine 2011

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# EXECUTIVE SUMMARY

Since 1986, the Maine Bureau of Highway Safety has periodically had an observation study of safety belt use in Maine conducted to determine the level of compliance in the state. For the year 2011, the Survey Research Center (SRC) at the Muskie School of Public Service, University of Southern Maine, with assistance from the Preusser Research Group of Trumbull, Connecticut, conducted the study and produced this report of the findings. Research results from this study provide the official measure of belt use in Maine and provide valuable information regarding the success of the state's efforts to educate the public about the importance of safety belt use. Furthermore, increased seatbelt use can lead to additional funding from the National Highway Traffic Safety Administration (NHTSA).

In 2011, in order to obtain an accurate measure of change in use rates over time, observations were recorded at the same 120 sites as in previous years. In the vast majority of cases, observations were conducted on the same day of the week and at the same time of day as in recent years; frequently, the same observer went to the same site. A probability based sampling method was utilized to select the 120 segments to be observed. Among the locations chosen were sites on I-95, I-295, and the Maine Turnpike. As a result, all types of roads and traffic were observed. As in all prior studies, visual observations were made to determine the extent of use.

In addition, two new components of the observational study were introduced recently. An additional selection of 36 primarily rural road segments was chosen for observations. See "New Rural Sites" on page 17 for details of these findings. Also, motorcycle helmet use was recorded again in 2011. Results of those observations are reported in the "Motorcycle Helmet Use" section on page 20.

Beginning in April 2008, drivers of vehicles could be stopped and ticketed for not being properly belted (in previous years, the law required police to observe another infraction in order to stop a vehicle and issue a ticket for not using a seatbelt). This study is now the fourth to measure the impact of the new primary enforcement law and will provide comparisons between the baseline measures recorded three years ago and the current year.

For the past seven years and again this year, the observations were done immediately after a major campaign to raise awareness of Maine's seatbelt laws. Radio ads about seatbelt use received heavy air play in many parts of the state. In addition, many police departments conducted a coordinated and highly visible enforcement campaign. We have speculated in the past that these steps might temporarily lead to an increased use rate, at least during the time of the campaign and shortly after. Several steps have been taken to examine the extent of any possible "drop off" in use rates. In 2009 the full observation study was conducted again during the month of September. In addition, several "mini" studies of a sub-sample of

sites have been conducted each year during the month of April. In each case, the drop in use rates was found to be very modest (see "Safety Belt Use in Maine, September 2009" for more details).

In 1998 NHTSA developed new methods and standardized guidelines for measuring seat belt use. As a result, use rates can now be compared between states more accurately than was the case in the past. This study meets all of the applicable NHTSA criteria. It also follows the NHTSA guidelines regarding sample selection. Under these guidelines, sites selected must represent 85% of the state's population; in Maine, that requires sampling from the 10 counties with the highest population. See Table 11 for the list of counties studied.

**Road sections selected as observation sites.** Observations of seatbelt use were conducted at 120 sites from the 10 counties (see Table 11 for a full list of towns selected). Sites were selected following a probability-based sampling procedure developed by the Preusser Research Group and approved by NHTSA on July 26, 2004. Restraint use was recorded for 21,879 drivers and front seat passengers in 16,935 vehicles (in the 2010- study, 15,758 vehicles and 20,444 occupants were recorded).

*Sampling and estimating protocols.* In 1998, NHTSA began to institute new standardized sampling and estimating protocols for all states to follow in their safety belt use studies. These procedures were developed to ensure comparability among findings from state to state. The new estimation formulae are intended to provide each state with very precise estimates of their statewide belt use rates. These formulae provide a statistically sound method to calculate weights that will help adjust sample data to better reflect the volume and types of traffic found in all roads in a state, not just those selected for observation. Since 2004, Maine's sampling procedures have been based primarily on traffic data known as the Daily Vehicle Miles Traveled (DVMT) for each county in the State. These data provide a measure of the volume of traffic at each road segment in Maine.

One of the results of adopting new estimation methods is that the findings since 2004 are not entirely comparable to those from previous years. Different methods can produce different results, which is why NHTSA has adopted the new standardized methods. We support the use of the new estimation approach and NHTSA's efforts to bring consistency and uniformity to all of the states but remind readers that, because of these changes, results from this year's study are not quite equivalent to those conducted prior to 2004.

*Subgroup analyses.* This report includes findings from several subgroups, such as for different seating positions, type of vehicle, etc. We urge readers to keep in mind that some of these groups have lower numbers and, therefore, the point estimates of their use rates are less precise than those for the entire sample.

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### **OBSERVATION STUDY FINDINGS**

**Overview: Compliance with the law.** The overall restraint use decreased slightly in 2010, to 81.6%. We note, however, that this change is not statistically significant as the sampling methodology can be expected to produce estimates that range from a lower limit of 80.06% to 83.13%; the decrease of 0.4% is well within that range. In 2002, the statewide use rate was only 59%. By 2007, that rate had increased to 79.8%. This year, passengers have a higher use rate than drivers. Table A shows changes in the rates for drivers and passengers for the three most recent years.

# Table A

2010 2011 2009 **Occupants Observed** Study Study Study All Vehicle Occupants 81.6% 82.0% 82.6% All Drivers 81.2% 82.1% 82.7% All Front Passenger Seat Occupants 83.1% 81.5% 82.4%

Comparison of seat belt usage rates statewide:

*Gender differences.* Women in particular show substantial compliance with seatbelt laws. Table B shows gender differences for 2009, 2010, and 2011.

Gender	2011 Study	2010 Study	2009 Study
Male Driver	78.2%	79.6%	80.3%
Female Driver	86.2%	86.2%	86.3%
Male Passenger	76.1%	72.2%	74.4%
Female Passenger	87.0%	86.4%	86.1%

# Table B

Comparison of seat belt usage rates by gender:

**Passengers' use of safety belts related to use by driver.** As with prior studies, belt use of passengers is strongly correlated with the practices of the drivers. <u>When drivers use their safety belts, other occupants</u> of the vehicle (who are most likely friends or family of the driver) are more than two and a half times as likely to use their belts as they are when the driver is not using a belt (91.8% vs.34.9%).

*Comparison with other states.* While Maine's safety belt use has improved considerably since 1995, other states have increased their use as well<sup>1</sup>. As a result, the state remained near the bottom nationally until recent years. In 1995, Maine's rate of 50% was the fifth from the bottom of a list of all 50 states, the District of Colombia, and Puerto Rico. By 1997, Maine's use rate had risen only to number 35<sup>2</sup>. In 2010, only 14 states reported lower use rates than Maine. Because NHTSA has not yet released the 2011 use rates for all states, it is not possible to report where Maine now stands, but the state use rate in 2011 is more than 3 percentage points lower than the 2010 national average.

*Type of vehicle.* As has been the case in every study conducted in Maine, people in pickup trucks have the lowest use rates, at 71.4%. While this is a substantial increase from the 39.7% reported in 2002, it continues to be an area where considerable improvement is still possible. Cars, SUVs, and vans have use rates of 85.0%, 84.1%, and 83.5%, respectively.

### SUMMARY

Safety belt use in Maine has increased markedly since 1991, when only a third of people aged 16 and over were belted. (Another change in study methods should be noted here: In all of the studies conducted during the 1990s, information for all vehicle occupants, including children, was recorded, as well as the estimated age of each individual. Since 2004, children are no longer included for observations, nor is age estimated. See SRC's report "Child Safety Seat Use in Maine 2007" for details regarding recent safety seat and seat belt use among children in Maine.) Given that this year shows a slight decline from previous years, it is clear that some groups, particularly males, still have room for a great deal of improvement.

The impact of safety belt use is significant. Research published by NHTSA in 2008 stated that, when properly used, lap/shoulder safety belts reduce the risk of fatal injury to front-seat passenger car occupants by 45%; they reduce the risk of moderate-to-critical injury by 50%. The safety effect is even greater for light truck occupants, where safety belts reduce the risk of fatal injury by 60% and moderate-to-critical injury by 65%. The same study estimates that over 15,000 lives were saved by using safety belts in the year 2006.<sup>3</sup> It is research findings such as these that provide much of the impetus for continuing efforts to increase seatbelt use in Maine and the nation.

This year's study was conducted immediately after a major enforcement and publicity campaign meant to inform the public of the new seatbelt law, and to increase safety belt usage. The rest of this report describes how the 2011 study was implemented and presents the key findings. It also shows comparisons between 2011 and the previous two studies. The project was conducted thanks to a contract between the Bureau of Highway Safety, Department of Public Safety, State of Maine, and the Survey Research Center at the Muskie School of Public Service, University of Southern Maine (USM), along with a subcontract between USM and the Preusser Research Group in Trumbull, Connecticut.

Portland, Maine September 30, 2011

# INTRODUCTION

The impact of seatbelt use is substantial. Research reported by NHTSA in 2008 found that lap/shoulder belts reduce the risk of fatal injury to front-seat passenger car occupants by 45 percent and the risk of moderate-to-critical injury by 50 percent. Seat belts are even more effective for light-truck occupants, reducing the fatality risk by 60 percent and the moderate-to-critical injury risk by 65 percent. In 2006, seat belts saved the lives of an estimated 15,383 vehicle occupants age 5 and older.<sup>4</sup> Nationally, about 85% of all motorists now use their safety belts.<sup>5</sup>

Prior to 1996, when mandatory seatbelt laws for adults went into effect, Maine motorists used their seatbelts at a rate only about half of the national rate.<sup>6</sup> In November 1995, Maine voters narrowly approved a referendum establishing a secondary enforcement law requiring almost all people to wear safety belts or use child restraint devices. Since then, use rates in Maine have improved a great deal. The study here reports on results from an observation study conducted in 2011, three years after Maine's new primary enforcement law began to be implemented. (Although the new law went into effect on September 20, 2007, ticketing didn't begin until April 1, 2008, to allow time for the state to raise public awareness of the law.) The data contained in this report are used to provide the Bureau of Highway Safety and the National Highway Traffic Safety Administration the current use rates and a measure of changing use patterns over time.

The research project was conducted by the Survey Research Center of the Muskie School of Public Service at the University of Southern Maine, under a contract with the Maine Bureau of Highway Safety, Department of Public Safety, State of Maine. The study was designed to determine the rate of safety restraint use in Maine as part of the development of a statewide comprehensive highway safety plan as required by NHTSA. It incorporates the standardized design requirements developed by NHTSA in an effort to ensure reliability and comparability of findings between each of the states.

# METHODOLOGY

In 2004, a number of methodological changes were introduced in the observation study. These include the selection of road segments for observation, instead of controlled intersections; observation of moving vehicles, rather than stopped vehicles; observations on the Maine Turnpike and interstates; and the end of the practice of recording use for infants, children, and young teenagers (and the related practice of estimating ages of occupants). All of these changes have continued this year. While all previous studies have met NHTSA guidelines and represent the official state use rates, the effect of these changes means that direct comparisons may not be entirely accurate between studies conducted prior to 2004 and those conducted since. The following is a description of the changes that were implemented and their potential impact.

The biggest change in protocols in 2004 was that of sampling from all road segments on all types of roads rather than only selecting controlled intersections, as had been the practice up until 2004. It is possible that only recording cars and trucks at traffic signals is not representative of all traffic in the state. For instance, it may be that people traveling on roads with enough traffic to warrant a traffic signal are more likely to buckle up than those on less busy sections of roads. Or it might be that, where there are red lights to slow traffic down, people feel less need to use their belts. In either case, the presence of a traffic signal might affect use rates at each site; recording usage only at signalized intersections could affect the statewide measure of use. Similarly, including traffic on highways affects the results. A great deal of Maine's traffic is on the turnpike and interstates. Not including any of that traffic, which may have different use patterns, potentially impacted use rates measured. With the new protocols, the presence of traffic lights and absence of highway driving is no longer a factor in the estimates reported.

The next most significant change that took effect in 2004 was the observation of moving vehicles. Here it must be stated that recording use of occupants in moving cars and trucks is more difficult than observing stopped vehicles. There are several factors that make it harder—tinted windows, glare of sunlight, dark seatbelts on dark clothing, etc., not to mention the speed of cars on some roads. Several years of field experience, in Maine and in all of the other states, along with consistent training of observers, have found that these are barriers that can be overcome.

In addition to these methodological adjustments, another important factor is the highly advertised and visible awareness and enforcement campaign that was conducted immediately before the current study was begun. While this seems to have the effect of at least temporarily boosting people's likelihood of using safety belts, the September 2009 study that was conducted by the Muskie School and Preusser Research Group shortly after the campaign ended found the impact to be only a modest one.

**Road sections selected as observation sites.** Observation sites must allow the opportunity for a reasonably representative flow of multi-purpose traffic, while allowing observers a safe viewing position from which to observe and record belt use of occupants in each vehicle. Observers were given descriptions of the road segment to observe (e.g., "in Auburn, on Minot Avenue, between Heath Lane and Garfield Road"). They were also told which direction of traffic to observe. They then were able to find the most advantageous spot on the road segment from which to observe. They were instructed to only include vehicles that had actually passed through the first identifier of the description (in the example above, the intersection of Minot Avenue and Heath Lane). Observations were conducted from a single point on each segment. In all, observations of 16,935 passenger vehicles and the use or nonuse by 21,879 occupants was recorded. A list of the towns and cities selected appears as Table 11.

**Sampling.** The sites to be observed were selected by the Preusser Research Group of Trumbull, Conn. The sampling design was developed to ensure compliance with NHTSA's standardized guidelines. The sampling process was designed to provide a confidence level of 95% with an acceptable margin of error of plus or minus 3%. This resulted in a final sample size of 120 road segments. The probability of a road segment being selected was proportional to the traffic volume measured in average daily vehicle-miles traveled (DVMT) on each road segment, according to Maine Department of Transportation data. Again in 2011, the same 120 sites were observed as in 2004 through 2010.

*Weighting.* Consistent with NHTSA guidelines, the data were weighted to reflect the sampling design and the average traffic volume at the selected road segments. The weighting simply adjusts the actual number of vehicles observed to reflect the expected number of vehicles, based on the traffic volume where the segment is located, and combines the site data in a way that represents statewide traffic volumes.

**Observation times and days.** Observations were made at 120 locations throughout the state for 45 minutes each, on a structured schedule of observation times and days that would maximize the opportunity to study variations in restraint use by time and by day of the week. Road segments were randomly assigned to a day and time for observations, although consideration had to be given for trips to locations that required lengthy travel times. Each day and time had an equal probability of selection. All observations were done during daylight hours. Approximately 85% of the 2011 observations were done on the same day and time as the 2004 through 2010 observations. Those few that were done on a different day or time (due to weather, schedules, etc), were done at comparable times. For instance, a site that was observed in 2010 on a Tuesday morning could be done this year on a Wednesday or Thursday morning, but not on a Saturday morning, because travel patterns may be different on the weekend.

Many roads have two or more lanes of traffic in each direction. In those cases, the observation period was divided by the number of lanes, and each lane was observed for the proportional length of time. For

example, a road with three lanes would require that each lane be observed for 15 minutes (three lanes times 15 minutes each equals 45 minutes, the full observation period).

Observation assignments were made across a schedule of time slots that began at 7:00 a.m. and ended at 6:15 p.m. They were conducted from June 6 to June 25, 2011 (by design, the observations are scheduled to be completed before the Fourth of July holiday, as traffic patterns may be significantly different during that weekend).

**Observer training.** Observers were trained by Tara Casanova from the Preusser Research Group. They were trained to observe proper shoulder belt use (vs. improper or no use) of the driver and, if present, a right front seat passenger (infants were excluded). Observations were made for private passenger vehicles only. These were the same methods used in Maine in previous years and in numerous other seatbelt observation efforts. The training involved written material, oral presentation, and field practice. The field practice was conducted on Forest Avenue in Portland, near the SRC office. The practice observations were crucial. Results were reviewed and analyzed for accuracy and consistency; no observers were allowed to begin until their practice observations met training standards.

# **OBSERVATION STUDY FINDINGS**

**Overview: Compliance with the law.** The latest use figures show a very slight decline in the proportion of Maine's population buckling up, at 81.6% overall. Given that the drop in use was less than one percentage point, the rate can be considered to be essentially unchanged from last year. While the use of safety belts has improved considerably from earlier years, most states still have higher use rates.<sup>7</sup> In order to raise rates relative to other states, it seems likely that Maine will continue to require an on-going effort of education and enforcement.

*Gender differences.* The female use rate has been consistently higher than that of males; that pattern continues in 2011. While 86.5% of all female occupants were restrained; only 77.8% of males were using their seatbelts. The female use rate was essentially unchanged from 2010 but male use dropped by almost one percentage point (78.5% in 2010).

*Seating position.* In 2011, 81.2% of drivers were using seatbelts and 83.1% of passengers were using theirs. This reverses the pattern of the past two years in which drivers have had a higher rate of belt use than passengers.

**Urban/rural differences.** The belt use rate in urban counties (Androscoggin, Cumberland, Kennebec, Penobscot, and York) remains higher than in rural counties, at 84.8% and 82.7% respectively. The gap between the two areas has narrowed considerably, however, with a difference of only about 2 percentage points for the second year in a row. (Note: due to the statistical difficulties of weighting data by ten different counties, various road types, and traffic volume at all road segments, these data are not weighted). In a reflection of changing population patterns in the state, 62% of the segments selected were in the 5 urban counties. Due to the higher traffic volume in those areas, 74% of occupants observed were in urban counties, and 26% were in the rural counties.

*Type of vehicle.* There is one clear difference in driver safety belt use rates according to the type of vehicle the driver is operating. At 70.6%, drivers of pickup trucks have a considerably lower use rate than any of the other types of vehicles (see Table 7 for use rates of all occupants by vehicle type). It is likely that the selection of a vehicle and the decision of whether to buckle up or not are both related to gender, age, lifestyle and other factors, so this may not be a surprising finding; it certainly has been consistent over the years. With implementation of the primary enforcement law, however, drivers in pickup trucks had shown strong improvement, going from 68.6% in 2007 to the 74.5% mark in 2009 before dropping back each of the past 2 years.

Prepared for the Bureau of Highway Safety, Department of Public Safety, State of Maine; by Survey Research Center, Muskie School of Public Service, University of Southern Maine, Portland, Maine September, 2011 *Passenger use related to use by driver.* As in all prior studies, buckling up is a friend and family affair. When drivers use their safety belts, other occupants of the vehicle (who are most likely friends or family of the driver) are more than two and a half times as likely to use their belts as they are when the driver is not using a belt 91.8% vs. 34.9%; see Table 8.

*Comparison with other states.* While Maine's use rate has improved since 2002, other states have also improved.<sup>8</sup> The net result is that Maine is now in the middle of the range in national standings. As of this writing, NHTSA has not released 2011 rates, so Table 10 only reports changes in use rates from 2009 to 2010. Although final comparisons between states can not yet be made, the 2010 findings in Table 10 suggest that Maine will likely be near the middle or a little above when the state by state listing for 2011 is complete.

*Day of week.* Observations were conducted on all days of the week, and while there are slight variations in safety belt usage across the days (Table 7), there is no readily apparent pattern to the findings. The assignment of days and times of observation to the sites was systematic and unbiased, but the number of observations obtained on each day varied considerably because the traffic volume at the selected sites varied. Use rates are highest on Saturdays (86.8 %) and lowest on Wednesdays, at 83.0% (NOTE: these are based on unweighted data).

*Time of day.* Safety belt use varies throughout the day (Table 7). The highest rates are at 7:45 a.m. (87.3%), followed by 5:30 p.m. (87.2%) and 10:45 a.m. (85.7%). The lowest rates occur at 10:00 a.m. (78.2%) and 12:15 p.m., at 80.5%. Time of day rates have also varied from year to year.

*Weather and road conditions.* Good weather conditions prevailed throughout most of the study period. As a result, more observations were conducted in sunny and clear weather this year than in most years. Overall, 67.9% of vehicles were observed in sunny and clear weather and 28.0% while it was cloudy. The rest were done during rainy weather. There was some variation in use rates; sunny weather had 83.6% use but cloudy weather saw 85.4% use, while light rain had 87.2%. (see Table 7).

*Comparison of 2011 with 2010 and 2009 data.* Several studies in Maine have now been conducted for the Bureau of Highway Safety of the Maine Department of Public Safety. The first was done by Northeast Research for the School of Public Health of the Boston University Medical School.<sup>9</sup> The next four were conducted by the Muskie School's Survey Research Center.<sup>10</sup> The year 2002 study was completed by CSI<sup>®</sup> Santa Rita Research Center.<sup>11</sup>

The 2011 study is now the twelfth conducted by the Muskie School. As described in the Methodology section, there were a number of major changes in the study design that were implemented in 2004. In

addition, over the years other changes have been made, so direct comparisons between years may not be entirely appropriate.

In 2002, overall compliance stood at approximately 59%. At that time, the rate for people over 18 was also 59%. Beginning in 2004, only adults were recorded (although it is likely that some mid- to older-teens were inadvertently included). The rate for 2007 had increased to 80% and to 83% in 2008. In the three years since, Maine's use rate has dropped to the current 81.6%.

This year, passengers are again more likely to use their seatbelts than drivers, 83.1% and 81.2%, respectively. Previous trends had seen a higher use rate for passengers than drivers for several years, until 2008 when drivers surpassed passengers in use for two years.

A comparison of male drivers to female drivers over the three studies shows that the significant improvement among males has leveled off. For the year 2009, male drivers had a use rate of 79.4% and females had a rate of 86.4%. In 2010, the comparable figures were 79.6% for males and 86.2% for females. The current use rates of 78.2% for males and 86.2% for females demonstrate that the "gender gap" continues to exist.

### SUMMARY

During the early to mid-nineties, seatbelt use in Maine increased substantially. By 1997, however, that trend had ended. From then through 2002, there was no overall increase and even some declines in certain areas. The years of increase correspond to a time when a number of changes were made in seatbelt laws in the state—in 1989, the law was expanded to require all occupants age 4 to 19 to use restraints. In 1993, fines for violations were increased. And most importantly, in 1995, a statewide referendum requiring all adults 19 and older to use safety belts was passed. From 1995 through 2006, there were no major revisions to Maine's belt laws. With the implementation of the new primary enforcement law, Maine's safety belt use rates showed increases in some but not all categories.

It is important to note, however, that this year's study has again found slight declines in some important areas. Both overall use and use by males have declined slightly, for instance. The 2011 study was the fourth to measure the impact of the new primary enforcement law. Future studies may help to establish whether additional steps are necessary to ensure that Maine's level of safety in passenger vehicles will be improved and maintained.

# **NEW RURAL SITES**

For several years, NHTSA guidelines have allowed states to observe traffic in the counties that, collectively, make up 85% of the state's population. This policy is based on the understanding that the population and traffic volume of the remaining counties are so low that including them would have almost no effect on the overall rates. In the interest of efficiency, the guidelines take this fact into account.

In Maine, this has meant that Franklin, Lincoln, Piscataquis, Sagadahoc, Waldo, and Washington counties were not included for observations. In 2009, for the first time, a sample of sites was selected from these six counties for an independent examination of belt use in rural areas. That examination was continued in 2010 and 2011. We emphasize that these observations are separate from the official findings that were covered in the earlier sections of this report; those ten counties continue to make up the official belt use for the state of Maine.

PRG selected six sites in each of the six counties. The sampling process was designed to provide observation sites on each of the specified road types. All observations were conducted by the same Observers, following the same observation methods as for the full 120 sites that make up the official Maine belt use study. The following pages present key findings from the rural sites study.

# Table C

Occupants Observed	June 2011, statewide	June 2011, rural
All Vehicle Occupants	81.6%	78.5%
All Drivers	81.2%	77.5%
All Front Passenger Seat Occupants	83.1%	81.7%

Comparison of seat belt usage rates, statewide and rural

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# Table D

Gender	June 2011, statewide	June 2011, rural
Male Driver	78.2%	74.0%
Female Driver	86.2%	85.0%
Male Passenger	76.1%	72.6%
Female Passenger	87.0%	85.6%

Comparison of seat belt usage rates by gender:

# **RURAL OBSERVATION STUDY FINDINGS**

**Overview: Compliance with the law.** Vehicle occupants in rural areas buckle up less frequently than the statewide average, 78.5% overall, up from 75.8% in 2010. While we present both rural and statewide figures in the following tables, we wish to point out that some of the rural subgroups (female passengers, day of the week, etc) have very low numbers of observations and are thus subject to greater ranges of potential sampling error.

*Gender differences.* As in the state as a whole, seatbelt use among female vehicle occupants in rural locations is higher than that of males. While 85.4% of rural female occupants used their seatbelts, only 73.8% of rural male occupants did so. This shows a substantial increase among rural women from 2010, when 79.9% were using their seatbelts. The usage rate among rural male drivers (74.0%) was nine percentage points below that of rural female drivers (85.0%). An even greater disparity in usage was observed between male passengers (72.6%) and female passengers (85.6%) in rural locations.

*Seating position.* Seatbelt usage of passengers in rural locations was considerably higher than that of drivers, 81.7% and 77.5%, respectively.

*Type of vehicle.* As in the statewide study, pickup truck drivers in rural areas have the lowest rates of seatbelt use; at 62.7% (see Table 18).

Prepared for the Bureau of Highway Safety, Department of Public Safety, State of Maine; by Survey Research Center, Muskie School of Public Service, University of Southern Maine, Portland, Maine September, 2011 *Passenger use related to use by driver.* Similar to statewide trends, passengers in rural areas are more likely to buckle up if drivers do so. A majority of passengers (93.6%) were belted when the driver of their vehicle was also belted. When the driver was not belted, only 33.7% of passengers buckled up (see Table 19).

*Day of week.* Observations of seatbelt use in rural areas were conducted on all days of the week (see Table 18). Unlike the statewide study, usage rates varied significantly across days of the week, from an average of 86.1% on Thursdays to an average of 73.8% on Wednesdays. Again, the number of observations obtained on each day varied considerably due to traffic volume at the selected sites.

*Time of day.* Safety belt use varied throughout the day in the rural observations (Table 18). The highest rates were at 9:15 and 10:45 a.m. (87.2% each) and the lowest rates were at 10:00 a.m. (69.8%).

*Weather and road conditions.* Overall, 73.0% of vehicles in rural areas were observed in sunny and clear weather and 27.0%% while it was cloudy or raining. Rainy weather saw 81.2% use, sunny weather had 80.4% use, and cloudy weather was 77.9% use (see Table 18).

Overall, use rates in these rural counties increased nearly 3 percentage points from 2010. The current rate of 78.5% is more than 3 percentage points below the official state rate.

# MOTORCYCLE HELMET USE

This year marks the third time in as many years that we included observations of motorcycle helmet use. There was no sampling protocol specific to motorcycle traffic volume; rather, we simply included observations for all motorcycles seen at the sites that had been selected for the seatbelt use sample. This resulted in recording the helmet use and non-use of 646 drivers and 113 passengers. Tables E and F present the key findings.

# Table E

Comparison of motorcycle helmet usage rates statewide

Occupants Observed	June 2011
All Motorcycle Occupants	54.8% (N=759)
All Drivers	53.9% (N=646)
All Passengers	60.2% (N=113)

# Table F

Comparison of motorcycle helmet usage rates by gender:

Gender	June 2011
Male Driver	52.9% (N=612)
Female Driver	69.7% (N=33)
Male Passenger	100.0% (N=3)
Female Passenger	58.7% (N=109)

# **ENDNOTES**

<sup>1</sup> U.S. Department of Transportation, National Highway Traffic Safety Administration, *Traffic Safety Facts 2011, Research Note*, DOT HS 811 493.

<sup>2</sup> Al Leighton and Erika Ziller, *Safety Belt Use in Maine 1998*, Edmund S. Muskie Institute of Public Affairs, University of Southern Maine, prepared for the Bureau of Highway Safety, Department of Public Safety, State of Maine, April 1999.

<sup>3</sup> U.S. Department of Transportation, National Highway Traffic Safety Administration, 2006 Motor Vehicle Occupant Protection Facts, August 2008, DOT HS 810 654.

<sup>4</sup> U.S. Department of Transportation, National Highway Traffic Safety Administration, 2006 Motor Vehicle Occupant Protection Facts, August 2008, DOT HS 810 654.

<sup>5</sup> U.S. Department of Transportation, National Highway Traffic Safety Administration, *Traffic Safety Facts 2011, Research Note*, DOT HS 811 493.

<sup>6</sup> Al Leighton, Erika Ziller and Suzanne K. Hart, *Safety Belt Use in Maine 1995*, Edmund S. Muskie Institute of Public Affairs, University of Southern Maine, prepared for the Bureau of Highway Safety, Department of Public Safety, State of Maine, 1995; Suzanne K. Hart, *Child Restraint Device and Safety Belt Use in Maine*, 1991, Edmund S. Muskie Institute of Public Affairs, University of Southern Maine, prepared for the Bureau of Highway Safety, Department of Public Safety, State of Maine, August 1992; and Deidre Hungerford, David Kovenock, and James Sorg, *Maine Seat Belt Use Observation Study*, February, 1986: *Preliminary Summary*, Northeast Research, Orono, Maine, 1986.

<sup>7</sup> U.S. Department of Transportation, National Highway Traffic Safety Administration, *Traffic Safety Facts 20117, Research Note*, DOT HS 811 493.

<sup>8</sup> U.S. Department of Transportation, National Highway Traffic Safety Administration, *Traffic Safety Facts 2011, Research Note*, DOT HS 811 493.

<sup>9</sup> Deidre Hungerford, David Kovenock, and James Sorg, *Maine Seat Belt Use Observation Study*, February, 1986: *Preliminary Summary*, Northeast Research, Orono, Maine, 1986.

<sup>10</sup> Al Leighton, Erika Ziller and Suzanne K. Hart, *Safety Belt Use in Maine 1991, 1995, 1997, 1998*, Edmund S. Muskie Institute of Public Affairs, University of Southern Maine, prepared for the Bureau of Highway Safety, Department of Public Safety, State of Maine, 1992, 1995, 1997, 1999.

<sup>11</sup> Ash Bose, Safety Belt Use in Maine 2002, CSI Santa Rita Research Center, Communication Software, Inc., Arizona, December, 2002.

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### Restraint Use in Passenger Vehicles Statewide

### Maine, 2011

# All Persons

All Persons	
Lap/Shoulder	81.6%
No Restraint	18.4%
No. Vehicles = 16,935; No. Persons = 21,879	

### TABLE 2

### Restraint Use in Passenger Vehicles Statewide By Seating Position

### Maine, 2011

### All Persons

Driver		Passenger	
Lap/Shoulder	81.2%	Lap/Shoulder	83.1%
No Restraint	18.8%	No Restraint	16.9%
N = 16,935		N = 4,944	

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### Restraint Use in Passenger Vehicles Statewide

### Maine, 2011

### Males

All Males		
Lap/Shoulder	77.8%	
No Restraint	22.2%	
N = 11,755		

### TABLE 4

### Restraint Use in Passenger Vehicles Statewide By seating position

### Maine, 2011

### Males

Driver		Passenger	
Lap/Shoulder	78.2%	Lap/Shoulder	76.1%
No Restraint	21.8%	No Restraint	23.9%
N = 10,053		N = 1,702	

### Restraint Use in Passenger Vehicles Statewide

### Maine, 2011

### Females

All Females		
Lap/Shoulder	86.5%	
No Restraint	13.5%	
N = 10,069		

### TABLE 6

### Restraint Use in Passenger Vehicles Statewide By seating position

### Maine, 2011

### Females

Driver		Passenger		
Lap/Shoulder	86.2%	Lap/Shoulder	87.0%	
No Restraint	13.8%	No Restraint	13.0%	
N = 6,853		N = 3,216		

### Percentage of Drivers Wearing Safety Belts Under Selected Conditions Statewide

Maine, 2011

# **Type of Vehicle**

Vehicle Type		Belt Use
Car	(N =8,475)	85.0%
SUV	(N =3,996)	84.1%
Van	(N =1,327)	83.5%
Truck	(N =3,108)	71.4%

### Day of the Week

(Note: data in the rest of thi are not weighted)	s table	Percent of Drivers Wearing Safety Belts
Monday	(N = 2,391)	84.2%
Tuesday	(N = 2,242)	83.2%
Wednesday	(N =2,896)	83.0%
Thursday	(N = 2,543)	84.2%
Friday	(N = 2,528)	84.5%
Saturday	(N =2,411)	86.8%
Sunday	(N = 1,924)	83.7%

Table 7, cont'd		
Weather <sup>1</sup>		Percent of Drivers Wearing Safety Belts
Sunny/Clear	(N = 11,501)	83.6%
Raining	(N = 689)	87.2%
Cloudy	(N = 4,745)	85.4%
Fog	(N = 0)	
Wet/Not Raining	(N = 0)	

1 Observations of **Sunny/Clear** and **Cloudy** imply the roads are dry. **Raining** corresponds to light rain occurring during the observations (data are not collected in heavy rain) and thus the roads are wet.

Start Time of Observ	Percent of Drivers Wearing Safety Belts	
7:00 a.m.	(N = 906)	85.2%
7:45 a.m.	(N =1,426)	87.3%
8:30 a.m.	(N = 730)	82.1%
9:15 a.m.	(N = 787)	85.4%
10:00 a.m.	(N = 490)	78.2%
10:45 a.m.	(N = 982)	85.7%
11:30 a.m.	(N = 1,055)	83.6%
12:15 p.m.	(N = 816)	80.5%
1:00 p.m.	(N = 1,527)	85.2%
1:45 p.m.	(N = 1,470)	82.2%
2:30 p.m.	(N = 1,135)	83.1%
3:15 p.m.	(N = 1,520)	83.1%
4:00 p.m.	(N = 1,414)	83.6%
4:45 p.m.	(N = 1,092)	85.2%
5:30 p.m.	(N = 1,585)	87.2%

### Passenger belt use/nonuse compared to Driver belt use/nonuse NOTE: Data in this table are NOT weighted

Maine, 2011

### When the driver IS wearing a belt

Driver	Passenger	
	Lap/Shoulder	91.8%
	No Restraint	8.2%
N = Not Applicable	N = 4,305	

### When the driver is NOT wearing a belt

Driver	Passenger	
	Lap/Shoulder	34.9%
NOT AFFLICABLE	No Restraint	65.1%
N = Not Applicable	N = 639	

### Restraint Use All Occupants, All Vehicles Grouped by Observation Sites in Urban and Rural Counties NOTE: Data in this table are NOT weighted

RESTRAINT TYPE	URBAN		RURAL		STATEWIDE	
	N	%	N	%	N	%
Lap/Shoulder Belt	13,737	84.8	4,652	82.7	18,389	84.3
No Lap/Shoulder Belt	2,4 <mark>6</mark> 3	15.2	972	17.3	3,435	15.7
Lap/Shoulder Belt TOTAL	16,200	100.0	5,624	100.0	21,824	100.0

### Maine, 2011

Prepared for the Bureau of Highway Safety, Department of Public Safety, State of Maine; by Survey Research Center, Muskie School of Public Service, University of Southern Maine, Portland, Maine September, 2011

State	2009	2010	State	2009	2010
Alabama	90%	91%	Montana	79%	79%
Alaska	86%	87%	Nebraska	85%	84%
Arizona	81%	82%	Nevada	91%	93%
Arkansas	74%	78%	New Hampshire	69%	72%
California	95%	96%	New Jersey	93%	94%
Colorado	81%	83%	New Mexico	90%	90%
Connecticut	86%	88%	New York	88%	90%
Delaware	88%	91%	North Carolina	90%	90%
District of Columbia	93%	92%	North Dakota	82%	75%
Florida	85%	87%	Ohio	84%	84%
Georgia	89%	90%	Oklahoma	84%	86%
Hawaii	98%	98%	Oregon	97%	97%
Idaho	79%	78%	Pennsylvania	88%	86%
Illinois	92%	93%	Rhode Island	75%	78%
Indiana	93%	92%	South Carolina	82%	85%
lowa	93%	93%	South Dakota	72%	75%
Kansas	77%	82%	Tennessee	81%	87%
Kentucky	80%	80%	Texas	93%	94%
Louisiana	75%	76%	Utah	86%	89%
Maine	83%	82%	Vermont	85%	85%
Maryland	94%	95%	Virginia	82%	81%
Massachusetts	74%	74%	Washington	96%	98%
Michigan	98%	95%	West Virginia	87%	82%
Minnesota	90%	92%	Wisconsin	74%	79%
Mississippi	76%	81%	Wyoming	68%	79%
Missouri	77%	76%	Puerto Rico	92%	NA

# Observed Safety Belt Use Rates Reported by States to NHTSA 2009 and 2010

Source: U.S. Department of Transportation, National Highway Traffic Safety Administration, *Traffic Safety Facts, July 2011*, Research Note DOT HS 811 493.

Rates in states with primary belt enforcement laws appear in boldface.
 Primary Enforcement: Allows police to stop and cite motorists simply for not wearing seat belts.
 Secondary Enforcement: Motorists must be stopped for another reason in order to receive a seat belt citation.

### TABLE 11 Maine 2010 Observation Sites List

Prepared for the Bureau of Highway Safety, Department of Public Safety, State of Maine; by Survey Research Center, Muskie School of Public Service, University of Southern Maine, Portland, Maine September, 2011

### 1. Cumberland County (18)

- 1. Portland (4)
- 2. Freeport (3)
- 3. Westbrook (3)
- 4. South Portland (2)
- 5. Casco (1)
- 6. Cumberland (1)
- 7. Gray (1)
- 8. Raymond (1)
- 9. Scarborough (1)
- 10. Windham (1)

### 2. York (16)

- 1. Saco (3)
- 2. Biddeford (2)
- 3. Kittery (2)
- 4. North Berwick (2)
- 5. Wells (2)
- 6. Acton (1)
- 7. Eliot (1)
- 8. Lyman (1)
- 9. Sanford (1)
- 10. Shapleigh (1)

### 3. Penobscot (15)

- 1. Bangor (5)
- 2. Brewer (1)
- 3. Carmel (1)
- 4. Hermon (1)
- 5. Holden (1)
- 6. Howland (1)
- 7. Mattawamkeag (1)
- 8. Millinocket (1)
- 9. Old Town (1)
- 10. Orono (1)
- 11. Plymouth (1)

### 4. Kennebec (13)

- 1. Augusta (2)
- 2. Sidney (2)
- 3. Waterville (2)
- 4. China (1)
- 5. Hallowell (1)
- 6. Monmouth (1)
- 7. Oakland (1) 8. Pittston (1)
- 9. Readfield (1)
- 10. West Gardiner (1)

### 5. Androscoggin (12)

- 1. Auburn (3)
- 2. Lewiston (3)
- 3. Sabattus (3)
- 4. Livermore Falls (1)
- 5. Poland (1)
- 6. Turner (1)

### 6. Aroostook (12)

1. Caribou (3) 2. Ashland (1) 3. Fort Fairfield (1) 4. Hodgdon (1) 5. Limestone (1) 6. Masardis (1) 7. Sherman (1) 8. Van Buren (1) 9. Wade (1) 10. Woodland (1)

### 7. Hancock (9)

- 1. Bar Harbor (1)
- 2. Ellsworth (2)
- 3. Stonington (2)
- 4. Bucksport (1)
- 5. Dedham (1)
- 6. Deer Isle (1)
- 7. Township 28 (1)

### 8. Oxford (9)

- 1. Fryeburg (3)
- 2. Greenwood (1)
- 3. Hebron (1)
- 4. Norway (1)
- 5. Rumford (1)
- 6. Sumner (1)
- 7. West Paris (1)

### 9. Somerset (9)

- 1. Fairfield (2)
- 2. Anson (1)
- 3. Caratunk (1)
- 4. Harmony (1)
- 5. Madison (1)
- 6. Norridgewock (1)
- 7. Pittsfield (1)
- 8. Starks (1)

### 10.Knox (7)

- 1. Rockport (3)
- 2. Rockland (2)
- 3. S. Thomaston (1)
- 4. Thomaston (1)

### Restraint Use in Passenger Vehicles Rural

### Maine, June 2011

### **All Persons**

All Persons			
Lap/Shoulder	78.5%		
No Restraint	21.5%		
No. Vehicles = 3,321; No. Persons = 4,292			

### TABLE 13

### Restraint Use in Passenger Vehicles Rural By Seating Position

Maine, June 2011

### **All Persons**

Driver		Passenger		
Lap/Shoulder	77.5%	Lap/Shoulder	81.7%	
No Restraint	22.5%	No Restraint	18.3%	
N = 3,317		N = 975		

### Restraint Use in Passenger Vehicles Rural

### Maine, June 2011

### Males

All Males	
Lap/Shoulder	73.8%
No Restraint	26.2%
N = 2,390	

### TABLE 15

### Restraint Use in Passenger Vehicles Rural By seating position

### Maine, June 2011

### Males

Driver		Passenger			
Lap/Shoulder	74.0%	Lap/Shoulder	72.6%		
No Restraint	26.0%	No Restraint	27.4%		
N = 2,069		N = 321			

### Restraint Use in Passenger Vehicles Rural

### Maine, June 2011

### Females

All Females				
Lap/Shoulder	85.4%			
No Restraint	14.6%			
N = 1,902				

### TABLE 17

### Restraint Use in Passenger Vehicles Rural By Seating Position

### Maine, June 2011

# Females

Driver		Passenger			
Lap/Shoulder	85.0%	Lap/Shoulder	85.6%		
No Restraint	15.0%	No Restraint	14.4%		
N = 1,248		N = 654			

### Percentage of Drivers Wearing Safety Belts Under Selected Conditions Rural

Maine, June 2011

**Percent of Drivers** 

Wearing Safety Belts

# **Type of Vehicle**

Vehicle Type		Belt Use
Car	(N = 1,583)	80.1%
SUV	(N = 719)	82.2%
Van	(N = 265)	87.3%
Truck	(N = 750)	62.7%

### Table 18, cont'd

### Day of the Week

(Note: data in the rest of this table are not weighted)

Monday	(N = 137)	75.2%
Tuesday	(N = 820)	79.2%
Wednesday	(N = 252)	73.8%
Thursday	(N = 617)	86.1%
Friday	(N = 597)	82.4%
Saturday	(N = 602)	77.4%
Sunday	(N = 292)	78.1%

Weather <sup>2</sup>		Percent of Drivers Wearing Safety Belts
Sunny/Clear	(N =2,420 )	80.4%
Raining	(N = 346)	81.2%
Cloudy	(N = 551)	77.9%
Fog	(N = 0)	-
Wet/Not Raining	(N = 0)	-

<sup>2</sup> Observations of **Sunny/Clear** and **Cloudy** imply the roads are dry. **Raining** corresponds to light rain occurring during the observations (data are not collected in heavy rain) and thus the roads are wet.

Prepared for the Bureau of Highway Safety, Department of Public Safety, State of Maine; by Survey Research Center, Muskie School of Public Service, University of Southern Maine, Portland, Maine September, 2011

### Table 18, cont'd

Start Time of Obser	Percent of Drivers Wearing Safety Belts			
7:00 a.m.	(N = 226)	78.3%		
7:45 a.m.	(N = 172	79.7%		
8:30 a.m.	(N = 157)	80.9%		
9:15 a.m.	(N = 242)	87.2%		
10:00 a.m.	(N = 53)	69.8%		
10:45 a.m.	(N = 196)	87.2%		
11:30 a.m.	(N = 330)	82.7%		
12:15 p.m.	(N = 88)	75.0%		
1:00 p.m.	(N = 659)	83.9%		
1:45 p.m.	(N = 385)	73.8%		
2:30 p.m.	(N = 178)	83.7%		
3:15 p.m.	(N = 168)	70.2%		
4:00 p.m.	(N = 312)	75.3%		
4:45 p.m.	(N = 117)	79.5%		
5:30 p.m.	(N = 34)	70.6%		

### Passenger Belt Use/Nonuse Compared to Driver Belt Use/Nonuse Rural NOTE: Data in this table are NOT weighted

### Maine, June 2011

### When the driver IS wearing a belt

Driver	Passenger		
	Lap/Shoulder	93.6%	
NOT APPLICABLE	No Restraint	6.4%	
N = Not Applicable	N = 809		

### When the driver is NOT wearing a belt

Driver	Passenger		
	Lap/Shoulder	33.7%	
NOT AFFLICABLE	No Restraint	66.3%	
N = Not Applicable	N = 166		

### TABLE 20 Maine 2010 Observation Sites List Rural

### 1.Franklin County (6)

- 1. Wilton (2)
- 2. New Vineyard (1)
- 3. Jay (1)
- 4. Industry (1)
- 5. Chesterville (1)

### 2. Lincoln (6)

- 1. Wiscasset (1)
- 2. Boothbay Harbor (1)
- 3. Damariscotta (1)
- 4. Jefferson (1)
- 5. Bristol (1)
- 6. Waldoboro (1)

### 3. Piscataquis (6)

- 1. Milo (2)
- 2. Monson (1)
- 3. Greenville (1)
- 4. Parkman (1)
- 5. Willimantic (1)

### 4. Sagadahoc (6)

- 1. Bowdoinham (1)
- 2. Richmond (1)
- 3. Topsham (1) 4. Woolwich (1)
- 4. Woolwich ( 5. Bath (1)
- 6. Bowdoin (1)

### 5. Waldo (6)

- 1. Belfast (2)
- 2. Frankfort (1)
- 3. Searsport (1)
- 4. Liberty (1)
- 5. Unity (1)

## 6. Washington (6)

- 1. Jonesboro (1)
- 2. Calais (1)
- 3. East Machias (1)
- 4. Topsfield (1)
- 5. Perry (1)
- 6. Crawford (1)

### History of Occupant Protection Laws

EFFECTIVE <u>DATES</u>	LAWS
09-20-07	Primary enforcement law takes effect; ticketing began on April 1, 2008.
01-01-03	The operator is responsible for ensuring that a child (from 40 pounds but less than 80 pounds and less than 8 years of age) is properly secured in a federally approved child restraint system.
09-19-97	The operator is responsible for securing persons under age 18 in a safety belt/seat. Persons 18 years and older are responsible for securing themselves.
09-19-97	A law enforcement officer may take enforcement action against an operator or passenger 18 years or age or older who fails to wear a seat belt only if the officer detains the operator for a suspected violation of another law. The requirement that the operator must receive a fine for the other violation in order to be subject to a penalty for the seat belt violation has been deleted.
01-01-95	With the implementation of Title 29A, the child safety seat law and seat belt law were combined into one law.
12-27-95	A statewide referendum requiring adults 19 and older to use safety belts passed on 11-07-95. The law could be enforced only if the police officer had detained the operator of a motor vehicle for a suspected violation of another law.
07-94	Driver made responsible for securing children under 4 years in a child safety seat.
10-13-93	Penalty <u>changed from fine of \$25</u> for first violation and \$50 for each subsequent violation for those aged 0 to 4 to traffic infraction (up to \$500 fine).
10-13-93	Penalty <u>changed from fine of \$25</u> for first violation and \$200 for each subsequent violation for those 4 to 19 to traffic infraction (up to \$500 fine).
09-29-87	Children aged 4 to 13 years must be secured in a child safety seat or safety belt.
09-30-89	Law expanded to include children 4 to 16 years.
10-09-91	Law expanded to include persons 4 to 19 years.
09-23-83	Children aged 0 to 4 years must be secured in a child safety seat.

# **Maine Seat Belt Observation Form**

ITE	NUMBER:		SITE	:							
ют	S:										
DATE: DAY OF WEEK: WEATHER CONDITIONS 1 Clear / Sunny 4 Fog 2 Light Rain 5 Clear but We 3 Cloudy START TIME: (Observation period will last exactly 45 minutes)											
		DRIVE	ER	PASSE		iou y 4	, minuteo,	DRIVE	ER PASSENGER		
Veh.	Vehicle C = car T = truck S = suv	<b>Sex</b> M = male F = female	Use + = yes - = no	Sex M = male F = female	Use + = yes - = no	Veh.	Vehicle C = car T = truck S = suv	Sex M = male F = female	Use + = yes - = no	Sex M = male F = female	Use + = yes - = no
#	V = van	U = unsure	U = unsure	U = unsure	U = unsure	#	V = van	U = unsure	U = unsure	U = unsure	U = unsure
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3						38	0.7				
4						39	2				
5						40	02.				
6						41					
7		5		3	5	42	5		- 0	5 2	
8		19		9		43	2.				
9						44					
10						45	0.7				
11	9- 	5		2	4	46					
12						47	02				
13						48			_		
14	2.4					49	07				
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17	14	10		5		57	02.		10	80.04	
18						53		-			
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23					2	58					
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26				~		61					
27						62					
28				-		63					
29						64					
30						65	0				
31						66	2. <sup>17</sup>				
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33						68					
34				-		69	с).				

MAINE SEAT BELT SURVEY

FORM 2004

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