CSI®

Safety Belt Use in Maine 2002

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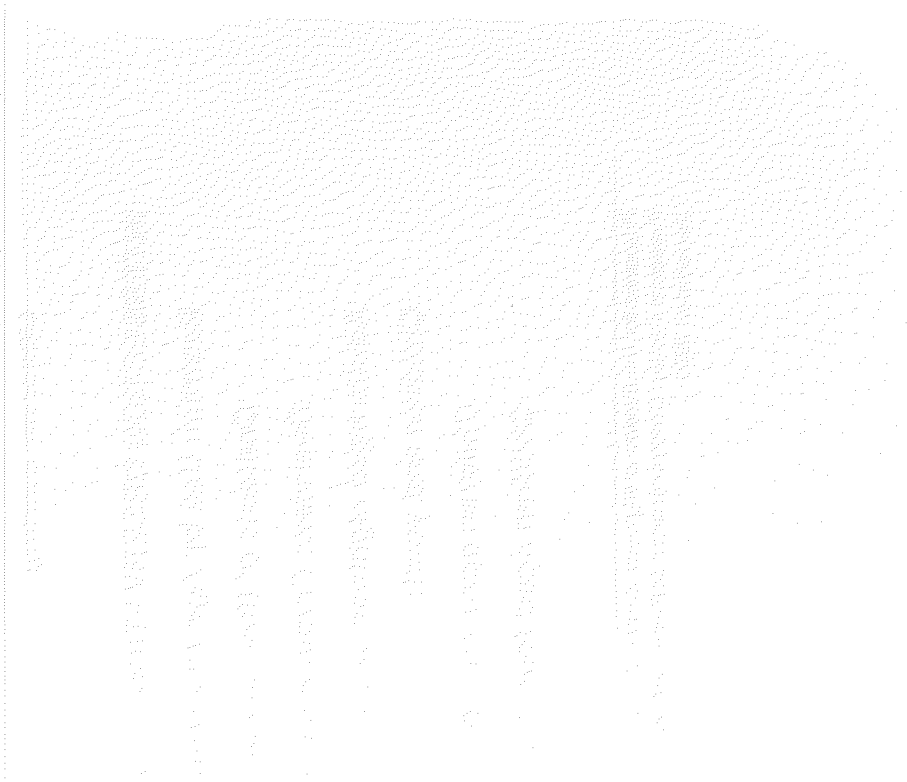

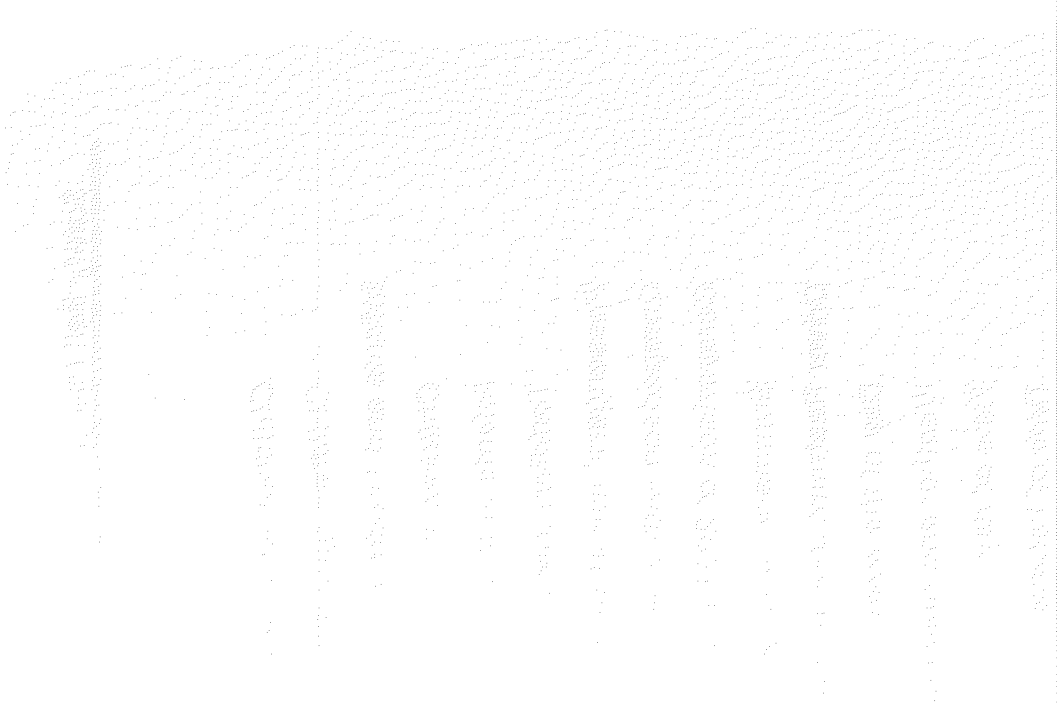

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Ash Bose, Communication Software, Inc

EXECUTIVE SUMMARY

Periodically the Maine Bureau of Highway Safety contracts for an observation study of safety belt, child safety seat and motorcycle helmet use to ascertain safety restraint use on Maine roads. The Bureau uses the information to document the extent of compliance with safety restraint laws, to determine the effectiveness of projects designed to increase seat belt and child safety seat use and to be able to target education and enforcement efforts to specific groups of motorists. Also, the Bureau would be eligible for additional federal funding from the National Highway Traffic Safety Administration (NHTSA) if Maine's usage rate either exceeds the national average or increases from the previous year.

Observations (the data collection phase of the study) were conducted in the early fall (mostly in September) at 160 randomly selected intersections throughout Maine. Observers, who visually check vehicles stopped at signaled intersections, record seat belt and child safety seat use. In 1998 NHTSA developed general criteria to standardize state belt use studies. As is allowable under the NHTSA guidelines, only the data collected in ten (10) counties is used to calculate the overall state use rate. Further, previous studies included observations of vehicle occupants in all seating positions in passenger vehicles (cars, sport utility vehicles, minivans and light duty trucks). Unlike previous years, only drivers and right front seat passengers were recorded in 2002. While comparisons with prior data are possible, some are more difficult and must be viewed in light of the different criteria. No commercial vehicles are included in any of the studies.

Research has found that lap/shoulder safety belts, when used, reduce the risk of fatal injury to front-seat passenger car occupants by 45% and the risk of moderate-to-critical injury by 50%. For light truck occupants, safety belts reduce the risk of fatal injury by 60% and moderate-to-critical injury by 65%.

Research on the effectiveness of child safety seats has found them to reduce fatal injury by 71% for infants (less than 1 year old) and by 54% for toddlers (1-4 years old) in passenger cars. For infants and toddlers in light trucks, the corresponding reductions are 58% and 59%, respectively.[1]

Nationally, in 2001, 31,910 occupants of passenger vehicles (cars, light trucks, vans, and utility vehicles) were killed in motor vehicle traffic crashes, 76% of the 42,116 traffic fatalities reported for the year. Among passenger vehicle occupants over 4 years old, safety belts saved an estimated 12,144 lives in 2001.[2]

In the absence of a mandatory use law for adults until early 1996, the rate at which motorists in Maine have worn their safety belts had been about half the national rate.[1] In November 1995, Maine voters narrowly approved a referendum question establishing a secondary enforcement law requiring all persons to wear safety belts, or, in the case of children and infants, be appropriately placed in child restraint devices (CRDs). The last observation study of safety belts and child restraint device use was conducted in the fall of 1998 - nearly three years after the mandatory law had been implemented.[2] This study is an observation study of safety belts, motorcycle helmets and child restraint devices use in the fall of 2002, nearly four years after the 1998 study.

Comparisons of the 2002 data with the 1998, 1997 and 1995 findings provide the Bureau of Highway Safety with the primary measure of the effect of changes in the law by showing the extent to which use rates have changed following implementation of the new law.

The research project was conducted by the Survey Research Lab of the CSI® Santa Rita Research Center, Communication Software, Inc., under a contract with the Bureau of Highway Safety, Department of Public Safety, State of Maine. All of the field observations, data processing, and preparation of this report were conducted by the CSI® Santa Rita Research Center staff.

The summary of the 2002 survey results is presented in the following tables:

Table A

Comparison of seat belt usage rates statewide:

Groups under observation	2002 Study	1998 Study
All Drivers (male and female) Seat Belt Use	59.2%	59.0%
Front Seat Occupants	59.2%	58.0%
Child Safety Restraint Use	69.8%	60.0%
Motorcycle Helmet Use	35.6%	NA

NOTE: The item marked NA was not reported in the 1998 report.

Types of intersections selected as primary observation sites.

Observations were recorded at one hundred-sixty (one hundred-twenty in 1998) different intersections from ten selected counties, known as Primary Sampling Units (PSU), both signalized and non-signalized, which were selected using a probability based sampling procedure. The sampling design was developed consistent with the new standardized guidelines from the National Highway Traffic Safety Administration (NHTSA). In all, observations of 20,810 passenger vehicles (6,110 in 1998) and the restraint use or nonuse of 28,055 (8,470 in 1998) front seat occupants were recorded.

Table B

Highest and lowest county seat belt usage rates for male and female:

Gender	2002 Highest Usage	2002 Lowest Usage
Male Driver	56.6% in Androscoggin	40.4% in Knox
Female Driver	76.8% in Cumberland	46.4% in Knox
Male Passenger	44.9% in Kennebec	24.4% in York
Female Passenger	69.1% in Hancock	53.1% in Knox

NOTE: There is no county data reported in the 1998 study.

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 intersections in a state, not just those selected for observation.

In 2002, CSI® implemented the probability based sampling methodology as prescribed by NHTSA. Our selection of PSU was dependent on the Daily Vehicle Miles Traveled (DVMT) for each county in the State. In 1998, data was collected from all sixteen counties. In the current study, CSI® collected data from ten selected PSUs, and performed analysis after weighting the data by the respective DVMT for each PSU.

Even though the number of PSUs in the 2002 study is different to that in the 1998 study, both designs are statistically valid and consistent with NHTSA procedure. As shown in Table A, the overall statewide driver seat belt use rate in 2002 is estimated to be 59.2%; and it appears that the statewide seat belt use rate did not change from the 1998 rate. The overall CRD use rate for all ages of children has gone up from 60% in 1998 to 69.8% in 2002. The motorcycle helmet use rate is estimated to be 35.6%.

Subgroup analyses. This report includes findings from many subgroups, such as for different age groups, type of car, and counties etc. We urge readers to keep in mind that many of these groups have very low numbers and, therefore, the point estimates of their use rates are much less precise than those for the entire sample.

INTERSECTION OBSERVATION STUDY FINDINGS

Overview: Compliance with the law. The overall restraint use was essentially unchanged from 1998 to 2002. However, by some measures (age, gender, etc.), we have identified some changes. The data gathered in the intersection observation study indicate 98.9% compliance with the law requiring child restraint devices for infants less than one year old; and 96.1% compliance for children aged three and under. The law requiring safety restraints for children aged four through ten is less frequently observed (79.3%), with 73.1% of the children

properly belted and 6.2% in CRDs. The seat belt use rate for children aged eleven through fourteen is found to be 60.8%.

Adults aged eighteen and over

Almost all occupants of passenger vehicles are now required to wear safety belts (there are a few exemptions). Over half (58.4%) of persons aged eighteen and over wore a safety belt in 2002, unchanged from 1998 and up from 47% in 1995. Adult men are still less likely to wear safety belts than adult women.

Children and youth

Children aged fifteen through seventeen. Since 1991, Maine law has required fifteen to eighteen year olds to use appropriate safety restraints; teens are well accustomed to the idea of wearing their seat belts.

The 2002 compliance rate for drivers 60.5%, compared to the 1998 rate of 43%, for fifteen through seventeen year olds is encouraging. The 2002 compliance rate for passengers for the same age group is 52.8%, which is comparable to the 1998 rate of 56%.

In the fifteen through seventeen age group, female drivers continue to be more likely to use their safety belts than males, 67.2% to 55.5% respectively. The 1998 compliance rate for female drivers was 44% and for male drivers was 42%. In previous studies, female drivers in this age category were much more likely to be belted than were male drivers: in 1997, 64% of the female drivers used their safety belts, but only 47% of the males used theirs. It appears that the drop in compliance rate as observed in 1998 is reversed in 2002.

Children aged eleven through fourteen. The percentage of eleven through fourteen-year-old children wearing safety belts is found to be 60.8%; and it has dropped from the 1998 rate of 71%[2]. This number had increased substantially since 1991, when only 29% were properly restrained.

The eleven through fourteen age group is important because it is they who will be driving in a few years, and who may be in a position to influence the use of safety belts by persons who are passengers in their vehicles. This group should be a target for safety belt education efforts in

2 In the 1998 study, observations were made for children seating in different positions in the car. The compliance rate in 1998 varies from 51% to 81% depending upon the position of the seat. Therefore, readers should be careful while comparing the 2002 results with the 1998 data.

the middle schools, junior highs, and high schools.

Children aged four through ten. Compliance with the "buckle up" requirement is significantly higher among children estimated to be aged four through ten than among those aged eleven through fourteen. Almost three-quarters, or (73.1%) of the four through ten year-olds wear their safety belts, and 6.2% were restrained in CRDs. This is higher than the 64% observed in 1998.

Toddlers aged one through three. Maine law requires children aged one through three years to be properly buckled in a CRD, whether or not they are traveling with their parents or legal guardians. Until 1991, the law allowed an exception for children traveling with persons who were not their parents or legal guardians and a CRD was not available, in which case they were to be properly secured by a seat belt, if one were available.

As with the entire "under four" age group, a high proportion (95.3%) of children aged one through three are properly restrained in CRDs, an increase from 89% in 1998.

Very few of the observed children in this age group were totally without restraint. A small number were held in the lap of another person, and children who were incorrectly secured in CRDs were marked as non-user.

Infants in their first year of age. All of the infants observed were found to be in CRDs, but 1.1% of them were incorrectly placed. Most frequently the incorrect placement meant that the devices were not facing backward, which is the safest position for infants.

Results for these two youngest age groups are very encouraging; for the vast majority of youngsters, efforts to comply with the law have been made. We wish to stress here, however, that all of these findings are based on very quick observations. While almost all of the children in CRDs appeared to be properly restrained, recent research has shown that many children are actually incorrectly secured and many CRDs are improperly attached to the car. For our study, detailed checking of CRD use was impossible; our results are limited to the *appearance* of correct or incorrect use.

Passengers' use of safety belts related to use by driver

As in the earlier studies, buckling up continues to be a friend-and-family affair. When drivers wear their safety belts, the other occupants of the vehicle (who are most likely family and

friends of the driver) are nearly three times more likely to be appropriately restrained than they are when the driver is not wearing a seat belt.

Comparison with other geographic areas

Maine's safety belt use relative to other states has improved modestly since 1995.[3] As of December 1995, Maine's use rate was 50%, the fifth lowest from the bottom of a list of all fifty states, the District of Columbia, and Puerto Rico. Maine's rate surpassed only those of Mississippi (46%), Oklahoma (46%), North Dakota (42%), and South Dakota (40%). By 1997, Maine's use rate had risen to number thirty-five on the list. At the time of this report, NHTSA had not yet released the current figures, so no new comparisons can be given.

Driver Restraint Use by Vehicle Characteristics

Size and type of vehicle. It is likely that selection of a vehicle and the propensity to buckle up or not are both related to age, lifestyle, and personality characteristics. The drivers with the highest rates of safety belt use are those who are driving sedans: 62.5% of them are buckled up. Drivers of SUV cars are next, with 61.6% wearing seat belts, followed by vans (61.6%). Drivers of pickup trucks have a 39.7% use rate.

Seat belt use by counties. As shown in Table B (page 6), there is a wide variation of seat belt use rates from county to county. For male drivers, the highest use rate of 56.6% was observed in Androscoggin, and the lowest use rate of 40.4% was observed in Knox. For female drivers, the highest use rate of 76.8% was observed in Cumberland, and the lowest use rate was observed in Knox. For male passengers, the highest rate of 44.9% was observed in Kennebec, and the lowest rate of 24.4% was observed in York. For female passengers, the highest use rate of 69.1% was observed in Hancock, and the lowest rate of 53.1% was observed in Knox.

Helmet use by motorcycle riders.

CSI field observers gathered data for 348 motorcycle riders for the 2002 study. The compliance rate of 35.6% was observed for the statewide project. There is no data available from the 1998 report to compare.

Summary

Safety restraint use rates in Maine for all ages remained steady at 59% from 1998 to 2002. The last study was conducted in the fall of 1998, two and a half years after the current mandatory safety belt law took effect. In 1995, the safety restraint use rate was 50%. Because there was little change in Maine's safety belt education programs between 1998 and 2002, it is likely that most of the increase from 1995 is a result of the impact of the current law.

Safety belt use among adults has increased markedly during the 90's, rising from 33% among those aged sixteen and over in 1991 to 58.4% among those eighteen and over in 2002 (it should be noted that these are not entirely comparable figures due to the different age groupings used in the 1991 study).

Infants and young children are much more likely to be secured in restraint devices or to wear safety belts than are older children. In the 2002 study, all of the infants observed were in child restraint devices, and 56% of elementary school-age children were wearing safety belts. From that age, however, usage varies, such that 61% of eleven to fourteen year olds use their belts while 60% of fifteen to seventeen year olds wear safety belts.

Many of these figures represent markedly higher levels of compliance with Maine's safety belt requirements from the earliest studies. Before the implementation of the mandatory use law, Maine ranked among the lowest 10% of states in terms of compliance with safe practice. While this ranking of states depends as much on the activities of the other states as upon what is done in Maine, it appears from the NHTSA data and the observations in Maine that most out-of-state motorists still use their safety belts more often than people from Maine.

Despite the steady overall rates from 1998 to 2002, there is cause for concern in the current data. According to NHTSA, the nationwide seat belt use rate, in 2002, is found to be 75%. The statewide seat belt use rate in Maine is lagging behind the national rate by almost 15%. Since the statewide use rate is influenced by the use rate in each PSU, the seat belt use campaign should be targeted at those counties with very low compliance rates. Further, since the majority of the front seat occupants are adults in the 18+ years age group, the campaign should focus on this age group. The seat belt use awareness programs, in particular, should be directed at males aged 18 and older in all rural counties.

INTRODUCTION

Research has found that lap/shoulder safety belts, when used, reduce the risk of fatal injury to front-seat passenger car occupants by 45% and the risk of moderate-to-critical injury by 50%. Average hospitalization costs were nearly $5,000 less for persons injured in crashes and hospitalized, if they were wearing their safety belts at the time of the crash. Nationally, about 75% of motorists use their safety belts according to the 2002 NHTSA report.[6]

In the absence of a mandatory use law for adults until early 1996, the rate at which motorists in Maine have worn their safety belts had been about half the national rate.[4] In November 1995, Maine voters narrowly approved a referendum question establishing a secondary enforcement law requiring all persons to wear safety belts, or, in the case of children and infants, be appropriately placed in child restraint devices (CRDs). The study reported here is an observation study of safety belts and child restraint device use conducted in the fall of 2002, nearly seven years after the current law had been implemented. Comparisons of these 2002 data with the 1998, 1997 and 1995 findings (and, in some instances, the 1991 data) provide the Bureau of Highway Safety with the primary measure of the effect of changes in the law, by showing the extent to which use rates have changed following implementation of the new law.

The research project was conducted by the Survey Research Lab of the CSI® Santa Rita Research Center, Communication Software, Inc., under a contract with the Bureau of Highway Safety, Department of Public Safety, State of Maine. All of the field observations, data processing, and preparation of this report were conducted by the CSI® Santa Rita Research Center staff.

The study was designed to determine the rate of safety restraint use in Maine as part of the development of an annual statewide comprehensive highway safety plan as required by the National Highway Traffic Safety Administration (NHTSA) and the Federal Highway Administration (FHWA) pursuant to the Federal Highway Safety Act of 1966. It incorporates the new standardized design requirements developed by NHTSA in an effort to ensure reliability and comparability of findings between each of the states.

METHODOLOGY

Selection of full-signaled intersections as observation sites.

Observation sites must afford opportunity for a reasonably representative flow of multi-purpose traffic, while allowing observers a safe viewing position as well as a clear vantage point in front of which vehicles pass slowly enough to permit careful observation and recording of a number of characteristics of the vehicles and all their occupants. For these reasons, full-signaled intersections, at which there is a red, yellow, and green traffic light at a crossroads where traffic comes to a full stop, were selected as observation sites.

At the full-signaled traffic sites, travel is likely to represent varied origins and destinations; is relatively heavier (which probably originally prompted the installation of the full set of signal lights); and the flow of traffic periodically comes to a full stop, usually allowing a clear view of occupants and time to record observations of multiple vehicles. Full-signaled intersections are also likely to have sidewalks, traffic islands, or other safe and raised surfaces from which observers may look down into vehicles.

Observers were instructed to start their observations with the second vehicle in line at the signal light, on the assumption that stopping for or running red lights is behavior that may be related to restraint use because it involves reluctance or willingness to take risks. Observers were to record data concerning as many passenger (non-commercial) vehicles as possible during the time the traffic was stopped for the light.

Selection of less congested intersections as observation sites. In addition to the sites described above, observations were made from a selection of rural non-signalized intersections to assure inclusion of travel with more rural origins and destinations. These intersections had stop signs rather than signal lights.

Sampling. The 2002 sampling methodology was approved by the National Highway Traffic Safety Administration (NHTSA). 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 ± 5%. This resulted in a final sample size of 160 intersections, compared to 120 selected in the 1998 study.

To achieve the proper distribution of types of traffic in the state, Maine's sixteen counties were divided into five regions, based on geographic and demographic similarities.

The regions were defined as:
South—Cumberland and York counties
West—Androscoggin, Franklin, and Oxford counties
North/Downeast—Aroostook and Washington counties
Central—Kennebec, Penobscot, Piscataquis, and Somerset counties
Coast—Hancock, Knox, Lincoln, Sagadahoc, and Waldo counties.

In accordance with NHTSA's recommendation, all controlled intersections (full-signal and stop sign) or all roadway segments in the selected counties in the State of Maine were eligible for sampling. A multi-stage area probability sample was adopted since it is the most efficient sampling approach.

First Stage: According to NHTSA's recommendation and published reference[3], we propose to consider all sixteen counties in the State of Maine in the sampling frame for selection of Primary Sampling Units (PSUs).

Having analyzed the data in Table C (page 15), we propose to observe seat belt use for drivers and passengers in ten (10) counties. These ten counties represent more than 85% of the total state population[4]. This proposed selection of counties meets the sampling criteria that sampling frame must include 85% of state's population. According to NHTSA guidelines for any state with sixteen counties, the sufficient number of selected PSUs could be ten (10) counties (Ref: Adele Derby, Safety Belt and Motorcycle Helmet Survey Guidelines, Federal Register, June 1992). Therefore, for computation of statewide seat belt use rate, we used only ten counties marked with an asterisk in Table C. Please note that these selected ten counties do cover the five geographic regions as documented in the 1998 report.

In addition to the selected ten PSUs, CSI sent observers to the other six counties to observe at a single intersection only. The data for these six counties are not used for statewide calculation.

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[3] Brick Michael and Josephina Lago, The design and implementation of an observational safety belt use survey, Journal of Safety Research, Vol. 19, pp. 87-98, 1988
[4]Source: Report published by Maine Department of Economic Security.

Table C

Probability based Selection of Ten Counties (PSU) based on the DVMT of each county and the geographic location within the State of Maine

County name	Daily VMT (MOS)[5]	% of Statewide DVMT	MOS Compared to SI	Selected = *	Rank by MOS	Geo. Region	Probability of Selection PSU
Cumberland	8,530,438.79	0.215228173	MOS>SI	*	1	South	1
York	5,729,624.69	0.144561925	MOS>SI	*	2	South	1
Penobscot	4,573,493.30	0.115392025	MOS>SI	*	3	Central	1
Kennebec	3,902,599.54	0.098464967	MOS>SI	*	4	Central	1
Androscoggin	2,471,069.77	0.062346597	MOS=SI	*	5	West	1
Aroostook	2,075,688.26	0.052370881	MOS~SI	*	6	North/ DownEast	1
Sub Total1 DVMT	**27,282,914.35**						
Hancock	1,958,312.95	0.04940943	MOS<SI	*	7	Coast	0.158548821
Somerset	1,858,408.87	0.046888789	MOS<SI	*	8	Central	0.150460392
Oxford	1,483,323.69	0.037425161	MOS<SI	*	9	West	0.120092767
Sagadahoc	1,250,031.99	0.031539069	MOS<SI		10	Coast	0.101205018
Washington	1,155,264.81	0.029148036	MOS<SI		11	North/ DownEast	0.093532483
Waldo	1,149,861.26	0.029011701	MOS<SI		12	Coast	0.093095001
Lincoln	1,036,375.29	0.026148381	MOS<SI		13	Coast	0.083906957
Knox	1,015,637.12	0.025625144	MOS<SI	*	14	Coast	0.082227954
Franklin	934,587.40	0.02358021	MOS<SI		15	West	0.075666011
Piscataquis	509,678.91	0.01285951	MOS<SI		16	Central	0.041264595
Sub Total2 DVMT	**12,351,482.29**						
Total State DVMT	**39,634,396.64**						
Sampling Interval (SI)	2,477,149.79						

Second stage: Intersections (both signalized and non-signalized) were then selected from each PSU by Simple Random Sampling (SRS) methodology.

5 MOS = Measure Of Size

Table D

Distribution of Selected Intersections for the 2002 Maine SBU Survey

County name selected as the PSU	Number of Signalized Intersections (sampled + non-sampled)	% of total	Number of intersection samples in each sampled county	Weight for each PSU
Cumberland	229	0.359497645	23	DVMT
Penobscot	86	0.135007849	21	DVMT
Androscoggin	84	0.131868132	21	DVMT
York	83	0.130298273	21	DVMT
Kennebec	57	0.089481947	15	DVMT
Aroostook	19	0.029827316	13	DVMT
Knox	18	0.028257457	13	DVMT
Somerset	13	0.020408163	11	DVMT
Oxford	12	0.018838305	11	DVMT
Hancock	11	0.017268446	11	DVMT
Franklin	7	0.010989011	1	NA
Sagadahoc	7	0.010989011	1	NA
Washington	4	0.006279435	1	NA
Waldo	3	0.004709576	1	NA
Lincoln	2	0.003139717	1	NA
Piscataquis	2	0.003139717	1	NA
	637		166	

Observations were conducted from a single vantage point at each of the one hundred sixty intersections. In all, observations of 20,810 passenger vehicles and the restraint use or nonuse of 28,055 occupants were recorded. A list of the towns and cities in which observations were made appears as Table 23.

Weighting. Consistent with NHTSA guidelines, the data were weighted by DVMT of respective PSUs to reflect the regional sampling design. The weighting simply adjusts the actual number of vehicles observed to reflect the expected number of vehicles, based on the traffic volume in the region where the intersection is located.

Observation times and days. Observations were made at one hundred sixty locations throughout the state for sixty 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 week. Intersections were randomly assigned to a day and time for observations, although consideration did have to be given for trips to locations that required lengthy travel times. Each day and time had an equal probability of selection.

The observation assignments were allocated across a schedule of time slots that began at 7:00 a.m. and ended at 6:00 p.m. on each of the seven days of the week. Observations were conducted from September 4 through October 15, 2002.

Observer training. Observers were trained using a study-specific training manual written for this project by CSI® Santa Rita Research Center, based upon a manual developed by the National Highway Traffic Safety Administration,[5] upon materials from the Transportation Research Institute at the University of Michigan[6]. The observers were trained to recognize vehicle types and sizes as well as driver and passenger gender, age group and restraint type. The training involved not only use of the written materials, videotapes and oral presentation, but also demonstrations and field practice.

INTERSECTION OBSERVATION STUDY FINDINGS

Restraint Use by Age and Gender

Contents of this section. This section of the report contains descriptions of the restraint use behavior of male and female adults and children of several age groups.

Where possible and appropriate, comparisons are made to the restraint use rates of similar demographic groups in the 1995, 1997 and 1998 studies (and, in some instances, the 1991 data). Those comparisons can address questions about changes in use rates that may have been prompted by changes in the law, by educational efforts targeted to specific age groups, or by the risk-taking behaviors characteristic of particular age groups.

Overview: Compliance with the law. The data gathered in the intersection observation study indicate substantial (96.1%), but not universal, compliance with the law requiring child restraint devices for children aged three and under. The law requiring safety belts for children aged four through seventeen is less frequently observed and usage rates declines as age increases. Children four through ten are properly secured 73.1% of the time. Just 60.8% of the children eleven through fourteen use safety belts and only 55.0% of the children fifteen through seventeen are to be properly restrained. Adult use is slightly higher at 59.2%.

Figure 1 (page 19) presents a summary of rates of appropriate use.

Figure 1
2002 Maine Safety Belt Use Observation Study

Summary, restraint use and nonuse
Number of observations and percent of use and nonuse, by age group

Number of observations

Presence/absence of restraint; restraint type

AGE[6] (Est.)	Lap or Lap/Shoulder Belt	No Restraint	CRD –Yes	CRD -No	Total
< 1 Year	0	0	**78**	1	79
1 thru 3	0	0	**412**	20	432
4 thru 10	521	148	**44**	0	713
11 thru 14	**206**	133	0	0	339
15 thru 17	**138**	113	0	0	251
18+	**15,334**	10,907	0	0	26,241
All Ages	**16,199**	11,301	**534**	21	28,055

Percentages

Presence/absence of restraint; restraint type

AGE (Est.)	Lap or Lap/Shoulder Belt	No Restraint	CRD_Yes	CRD_No	Total	
					By age group	By Restrained
< 1 Year	0.0%	0.0%	**98.9%**	1.1%	100.0%	**98.9%**
1 thru 3	0.0%	0.0%	**95.3%**	4.7%	100.0%	**95.3%**
4 thru 10	**73.1%**	20.8%	**6.2%**	0.0%	100.0%	**73.1%**
11 thru 14	**60.8%**	39.3%	0.0%	0.0%	100.0%	**60.8%**
15 thru 17	**55.0%**	45.0%	0.0%	0.0%	100.0%	**55.0%**
18+	**59.2%**	41.6%	0.0%	0.0%	100.0%	**58.4%**
All Ages	**58.4%**	40.8%	**69.8%**	30.2%	100.0%	**59.2%**

Adults aged eighteen and over

Prior to the current law, which became effective on December 27, 1995, persons aged nineteen and over were not required to wear safety belts. The law now applies to all adults. Over half (59.2%) of drivers aged eighteen and over wore a safety belt in 2002 (Table 2), the same as the reported rate in 1998 and much higher than the 47% observed in 1995.

Drivers aged eighteen and over are slightly more likely than their adult passengers to wear a belt (Table 2): while 59.2% of these drivers wear safety restraints, only 55.7% of all adult passengers wear theirs.

Adult men are still less likely to wear safety belts than are adult women (Tables 3 and 4). Just over half of male drivers (50.5%) wear safety belts, while over two-thirds (69.8%) of female drivers wear them. Approximately one-third of adult male right-front seat passengers wear a safety belt (40.0%), which is down from 46% in 1998. Nearly two-thirds of the adult female passengers (64.2%) in that seating position wear one, which is very close to 65% as observed in 1998.

Children and youth

Children aged four through seventeen. Like all other passengers, children aged four through seventeen at the time the observations were made (Fall, 2002) were required by Maine law to wear safety belts.

In this study, the observers were asked to distinguish within this age group between children 1) aged four through ten, 2) preteens and teens aged eleven through fourteen, and 3) older teenagers aged fifteen through seventeen. The observation results for children in these age groups are discussed below.

Children aged four through ten. Compliance with the "buckle up" requirement is significantly higher among children estimated to be aged four through ten than among those aged eleven through fourteen. About 73% of the four through ten year-olds wear their safety belts, and 6% in this age group are in child safety seats or booster seats for the youngest in this age group (Table 11). This represents a 19% increase over the 60% use rate observed in 1998.

Children aged eleven through fourteen. The percentage of eleven through fourteen year old children (Table 13), seated in the right front (passenger) seat, wearing safety belts in the 2002 study is found to be 60.8%, a significant drop from 71% in 1998. However, the 2002 rate is more than twice what it was in 1991, when only 29% were properly restrained. It is important to note that the comparable age group in the 1991 study was eleven through fifteen years, not fourteen. Further, the 1998 and earlier rates included children aged eleven through fourteen in all seating positions. By 1995, 65% of eleven through fourteen year olds were properly restrained; in 1997, the reported rate was 73%, slightly higher than for 1998.

The eleven through fourteen year age group is important because they will be driving in a few years and will be in a position to influence the use of safety belts by persons who are passengers in their vehicles. The drop in safety belt use rate in this group is an alarming sign. This group should be a target for safety belt education efforts in the middle schools, junior highs and high schools.

Children aged fifteen through seventeen. Only 60.5% of the fifteen to seventeen year olds (Table 14) observed in 2002 were properly restrained, compared to a rate of 43% in 1998, 58% in 1997 and 48% in 1995. In 1998, use rates for those in their late teens were considerably lower than those of people aged nineteen and over.

In the fifteen through seventeen age group, female drivers are more likely to use their safety belts than male drivers, 67.2% compared to 55.5%, (Table 15 and 16). As right front seat passengers in this age group were classified as "C" (Children) in the GANGA™ data collection tool, there is no gender specific data for passengers.

Infants and Toddlers

Children from birth through three years. Compliance with the law and with good practice in restraining their children is very high among parents of children in this age group. These infants and toddlers are required to be in child restraint devices, and about 96.1% of them are apparently properly restrained (Table 9), a significant increase from 1998 when the reported proper CRD restraint rate was 87% (88% in 1997). CSI field observers did record improper use of CRDs; but for data analysis, improper use is classified as "No CRD" since the total number of improper use is very small. Common improper uses of a CRD included not having children belted in, or not having the CRD attached to the car seat. In addition, some CRDs were placed

sideways in the seat, and some were held by another person.

In 1995, 82% of children from birth through three were properly riding in CRDs, and 8% were improperly buckled in CRDs. By 1997, these rates had increased to 88% and 8%. It is clear that parents are very concerned about the safety of their youngest children and, for the most part, are trying to comply with the law.

Infants in their first year of age. In 2002, all of these infants (N= 79, see Table 8) were found to be in CRDs. It should be pointed out, however, that of the infants who were observed to be in CRDs, 1.1% were not correctly placed (Table 8). The compliance rate is the same as that reported in 1998; however, the number of observations in 1998, for infants, was only eighteen. Therefore, the 1998 data is questionable. Most frequently the incorrect placement meant that the devices were not facing backward, which is the safest position for infants.

Toddlers aged one through three. The law requires children aged one through three to be properly restrained in a CRD, whether or not they are traveling with their parents or legal guardians.

As with the entire "under four" age group, a high proportion (95.3%) of children aged one through three are properly restrained in CRDs (see Table 10 and Figure 1), an increase from 87% in 1998. Four and seven tenths of a percent of the children in this age group were either incorrectly secured in a CRD or not secured at all. Some of those children were held in the lap of another person (see Table 10).

Passengers' use of safety belts related to use by driver

As in all prior studies, buckling up is a friend-and-family affair. When drivers wear their safety belts, the other occupants of the vehicle (who are most likely family and friends of the driver) are nearly three times more likely to be appropriately restrained than they are when the driver is not wearing a seat belt (Table 20).

Comparison with other geographic areas

While safety belt use in Maine has been steady at 59% since 1998, its rank went down from the middle of the list to the fifth lowest among all the states (see Table 22).[7] As of October 2002, Maine's 2002 use rate is higher than the 2001 rates in Arkansas (54.5%), Massachusetts (56.0%), North Dakota (57.9%) and West Virginia (52.3%). Comparison with 2002 use rates is

impossible because NHTSA had not released those rates at the time this report was prepared.

Comparison of 2002 with 1998, 1997 and 1995 Maine data

Five earlier studies in Maine have been conducted for the Bureau of Highway Safety of the Maine Department of Public Safety. The first was completed by Northeast Research for the School of Public Health of the Boston University Medical School,[89] and the last four studies, by the Edmund S. Muskie School of Public Service at the University of Southern Maine.[10] There are major differences between the 2002 study and previous studies. The earlier studies include restraint use or nonuse in all seating positions in the vehicle. Observations in all 16 counties were included in the statewide use calculations. In 2002, only drivers and right front seat passengers were included and the statewide rate is calculated using data from 10 counties.

The current 2002 study is the first study conducted by CSI® Santa Rita Research Center. The design of the study was developed according to NHTSA specifications. The ten counties were selected as Primary Sampling Units (PSU) based on the DVMT of each county. The methodology is similar to the 1998 study except the number of observational sites are one hundred sixty, and the data collection tool is a Palm® hand held device program called GANGA™. Because of this tool, CSI® was capable of collecting more than 20,000 observations in less than a six-week period.

The 1998 study was the fourth conducted by the Muskie School's Survey Research Center. Although there have been variations, each study has utilized similar methodologies. In each case, intersections were selected randomly with probability of selection proportional to traffic volume. The sampling, observer training, observation methods, and information collected in the 1998 study have undergone only minor changes from the earlier studies. The biggest change in 1998 involved the adoption of NHTSA's sampling design, which resulted in conducting observations at twice as many intersections, with a more representative distribution of locations and types of traffic than in earlier studies.

In 1995, 82% of children through age three were properly restrained, and children in the back seat were slightly more likely to be properly restrained than those in the front. By 1997, 88% of children through age three were correctly restrained; children in the back seat were much more likely to be properly restrained than were those in the front. In 1998, the same level of use was still being maintained. Those in the back seats continue to use CRDs at a higher rate than those in front. It may be that parents who make children buckle up are more likely than those who ignore restraints to place their children in safer seating positions. In 2002, 95% of children through age three were properly restrained. The 2002 results show this to be an area of some

considerable success.

In 1995, 70% of all children aged four through fourteen (72% of those aged four through ten and 65% of those eleven through fourteen) were properly restrained, a considerable increase over the 1991 figures. Use rates increased further in the 1997 study, with 76% of the four through fourteen year olds properly restrained (77% of the four through ten year olds and 73% of those eleven through fourteen). However, in 1998 there was a considerable drop in the four to ten age group, with only 60% of these youngsters correctly belted, while the rate for the eleven to fourteen year olds showed a slight drop to 71%. In 2002, the usage rate in the four to ten age group increased to 73%, and the rate for eleven to fourteen years old dropped to 60.8%.

Adult use of safety belts has steadily increased from 1995 to 1997, and then became stagnant. In 1995, 46% of drivers aged fifteen and over wore lap and shoulder belts; in 1997, 59% did so, and in 1998 61% buckled up. In 2002, we found 59.2% of drivers wore safety belts. In 1995, 51% of those fifteen and over in the passenger seat wore their belts; in 1997, 61% wore them. The figure drops in 1998 to 57%. In 2002, the passenger use rate in this age group dropped further to 55.6% (Table 5).

Summary: *Change from 1995 to 2002.* In 1995 and 1997, the trend had been towards increasing restraint use by virtually every measure (age, seating position, type of vehicle, etc.). Since 1998, however, the overall increase had ended and some significant declines have appeared. Usage rates for four to ten year olds have dropped by 21 percentage points; rates for fifteen to eighteen year olds have declined by 15 percentage points. Perhaps most importantly, the decreases noted in this report is consistent with the 1998 report where the first shift in what had been a steady pattern of increasing restraint use was reported. Age-related use rates will need to be watched in the future to determine if an ongoing change in attitudes and behaviors is beginning to develop.

Driver Restraint Use by Site and Vehicle Characteristics

In this portion of the report, only the driver's use of safety belts will be examined in detail. As described in the text above, the driver's use or nonuse of a safety belt is strongly related to the use or nonuse of restraints by others in the vehicle.

Day of the week. Observations were conducted on all days of the week, and while there

are variations in safety belt usage on the various days (Table 19), there is no readily explained 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 intersections varied. Use rates in 2002 are highest on Tuesday and Wednesday, and are relatively consistent across other days. In 1998, use rates were lowest on Wednesdays.

Weather and road conditions. Contrary to expectations, however, the highest usage rates were on the clear, sunny days (57.7%) and the lowest rates were on the rainy and cloudy days (46.7% and 56.6%, respectively). About 87% of all observations were conducted on clear days, 9% of the observation periods were cloudy and about 3% were rainy.

Time of day. Safety belt use is fairly consistent throughout the day, ranging from a high of 60% (11 AM to noon) to a low of 53% (8 AM to 9 AM), (Table 19). Use rates during the "rush hours" show 56.3% of drivers belted between 7 AM and 8 AM, and 58.6% from 5 PM to 6 PM.

Type of vehicle. There are some clear differences in driver safety belt use rates according to the type of vehicle the driver is operating (See Table 19). It is likely that selection of a vehicle and the propensity to buckle up or not are both related to age, lifestyle, and personality characteristics, so it is not surprising that these differences occur.

The drivers with the highest rates of safety belt use are those who are driving sedans: 62.5% of them are buckled up. Drivers of SUVs are next, with 61.6% wearing seat belts. Drivers of vans also have a 61.6% use rate. Least likely to wear safety belts are the drivers of pickup trucks: only 39.7% of these drivers comply with the law.

Urban and rural locations. In 2002 study, urban/rural was defined at the county level. Cumberland, York, Kennebec, Androscoggin, and Penobscot counties were classified as urban due to high DVMT and population.

Aroostook, Knox, Somerset, Oxford and Hancock were classified as rural counties. Sixty percent of urban adult occupants were properly restrained and 52% of those in rural areas were belted. However, the CRD use rate varied significantly from urban to rural counties; for all children the CRD use rate in urban counties was 76.9%, and the same for rural counties was 56.6% (Table 21).

Summary

Safety restraint use rates in Maine for all ages increased from 36% in 1991 to 50% in 1995 to 61% in 1997. In 1998, the overall rate declined slightly to 59%. In 2002, the overall rate remained at 59.2% for drivers, 55.8% for passengers, and 59.2% for front seat occupants. Much of the increase in the late nineties may be accounted for by the 1995 change in the law requiring safety belts for all vehicle occupants.

It is among adults that safety belt use has increased markedly from 33% among those aged sixteen and over in 1991, to 59% among those eighteen and over in 1997 through 2002.

Infants and young children are much more likely to be buckled in restraint devices or to wear safety belts than are older children. All of the infants observed in 2002 were in child restraint devices, although some were not properly placed. Use rates for four to ten year olds dropped off from 77% in 1997 to 73.0% in 2002 (Table 11). While the figure for eleven to fourteen year olds (Table 13) dropped from 73% in 1997 to 60.8% in 2002, the fifteen to seventeen year olds (Table 14) increased slightly, from the 58% recorded in 1997 to 60.5% in 2002. It is the findings for the four to ten and the eleven to fourteen age groups that raise the greatest concern in the 2002 study. Comparisons in the four to ten and eleven to fourteen age groups should be viewed in light of the fact that previous studies recorded occupants in all seating positions in the vehicle, whereas in 2002, only front seat occupants were observed.

In previous years, Maine had implemented changes in the seat belt law shortly before the observation studies began. During the period 1997-2002, there were no major changes. This may be the biggest explanation for the fact that there was little change in overall use rates during that time. Despite the overall levels, however, we now see some areas of declining use. It appears that more educational efforts, stronger enforcement and possibly further legislative action, may be necessary to ensure that Maine's trend towards greater safety in passenger vehicles will continue.

ENDNOTES

1. U. S. Department of Transportation, National Highway Traffic Safety Administration, *Traffic Safety Facts 2001, Occupant Protection*, DOT HS 809 474.

2. U. S. Department of Transportation, National Highway Traffic Safety Administration, *Traffic Safety Facts 2001, Occupant Protection*, DOT HS 809 474.

3. 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.

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5. U.S. Department of Transportation, National Highway Traffic Safety Administration, *Observed Safety Belt Use Rates Reported by States as of February 1998.* (1998). Washington, DC: Author.

6. U. S. Department of Transportation, National Highway Traffic Safety Administration, *Traffic Safety Facts 2001, Occupant Protection*, DOT HS 809 474.

7. 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.

8. Peter N. Ziegler, *Guidelines for Observing Child Safety Seat Use*, U.S. Department of Transportation, National Highway Traffic Safety Administration, undated (DOT HS 807 128).

9. Alexander C. Wagenaar, Fredrick M. Streff, Lisa J. Molnar, Karen L. Businski, Robert H. Schultz, *Factors Related to Nonuse of Seatbelts in Michigan*, The University of Michigan Transportation Research Institute, Ann Arbor, 1987; and Alexander C. Wagenaar, Lisa J. Molnar, Karen L. Businski, Lewis H. Margolis, *Correlates of Child Restraint Use*, The University of Michigan Transportation Research Institute, Ann Arbor, 1986.

10. U.S. Department of Transportation, National Highway Traffic Safety Administration, *Observed Safety Belt Use Rates Reported by States as of February 1998.* (1998). Washington, DC: Author.

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

12. 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.

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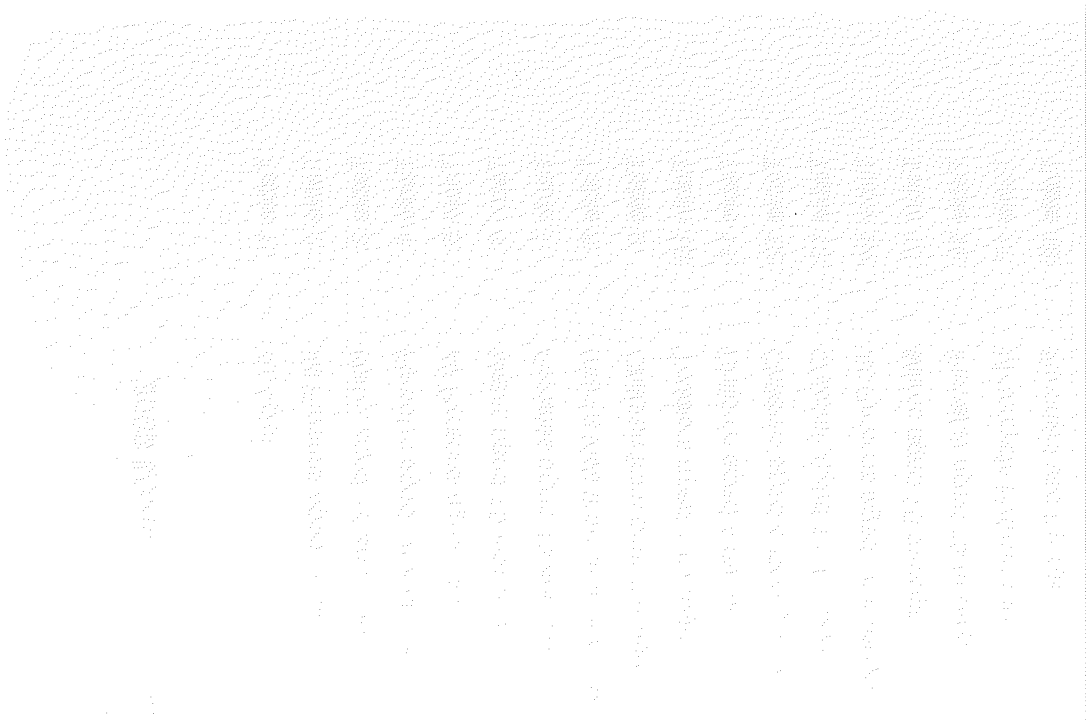

TABLE 1

Restraint Use in Passenger Vehicles
By seating Position
Statewide

Maine, 2002

All Ages

Driver		Passenger/Child	
Lap/Shoulder	59.2%	Lap/Shoulder	55.8%
No Restraint	40.8%	No Restraint	44.2%
N = 20,810		CRD - Yes	69.8%
		CRD - No	30.2%
		N = 7,245	

TABLE 2

Restraint Use in Passenger Vehicles
By seating position
Statewide

Maine, 2002

All Persons Aged 18 and Over

Driver		Passenger	
Lap/Shoulder	59.2%	Lap/Shoulder	55.7%
No Restraint	40.8%	No Restraint	44.3%
N = 20,734		N = 5,504	

TABLE 3

Restraint Use in Passenger Vehicles
By seating position
Statewide

Maine, 2002

Males Aged 18 and Over

Driver		Passenger	
Lap/Shoulder	50.5%	Lap/Shoulder	40.0%
No Restraint	49.5%	No Restraint	60.0%
N = 11,337		N = 1,914	

TABLE 4

Restraint Use in Passenger Vehicles
By seating position
Statewide

Maine, 2002

Females Aged 18 and Over

Driver		Passenger	
Lap/Shoulder	69.8%	Lap/Shoulder	64.2%
No Restraint	30.2%	No Restraint	35.8%
N = 9,397		N = 3,590	

TABLE 5

Restraint Use in Passenger Vehicles
By seating position
Statewide

Maine, 2002

All Persons Aged 15 and Over

Driver		Passenger	
Lap/Shoulder	59.2%	Lap/Shoulder	55.6%
No Restraint	40.8%	No Restraint	44.4%
N = 20,810		N = 5,679	

TABLE 6

Restraint Use in Passenger Vehicles
By seating position
Statewide

Maine, 2002

Males Aged 15 and Over

Driver		Passenger	
Lap/Shoulder	50.5%	Lap/Shoulder	41.0%
No Restraint	49.5%	No Restraint	59.0%
N = 11,379		N = 2,027	

TABLE 7

Restraint Use in Passenger Vehicles
By seating position
Statewide

Maine, 2002

Females Aged 15 and Over

Driver		Passenger	
Lap/Shoulder	69.8%	Lap/Shoulder	63.7%
No Restraint	30.2%	No Restraint	36.3%
N = 9,431		N = 3,652	

TABLE 8

Restraint Use in Passenger Vehicles
By seating position
Statewide

Maine, 2002

Infants Less Than 1 Year Old

Driver	Passenger/Child *	
NOT APPLICABLE	CRD – Yes	98.9%
	CRD – No	1.1%
N = Not available	N = 79	

* All children observed were in safety seats but 1.1% were used incorrectly and recorded as "No" per the statement on page 9, under "**Infants in their first year of age**".

TABLE 9

Restraint Use in Passenger Vehicles
By seating position
Statewide

Maine, 2002

Children From Birth through 3 Years

Driver	Passenger/Child	
NOT APPLICABLE	CRD - Yes	96.1%
	CRD - No	3.9%
N = Not available	N = 524	

TABLE 10

Restraint Use in Passenger Vehicles
By seating position
Statewide

Maine, 2002

Toddlers Aged 1 through 3 Years

Driver	Passenger/Child	
NOT APPLICABLE	CRD - Yes	95.3%
	CRD - No	4.7%
N = Not available	N = 432	

TABLE 11

Restraint Use in Passenger Vehicles
By seating position, Statewide

Maine, 2002

Children Aged 4 through 10

Driver	Passenger/Child	
NOT APPLICABLE	Lap/Shoulder	73.1%
	No Restraint	20.8%
	CRD - Yes	6.2%
	CRD - No	0.0%[1]
N = Not available	N = 713	

TABLE 12

Restraint Use in Passenger Vehicles
By seating position, Statewide

Maine, 2002

Children Aged 4 through 14

Driver	Passenger/Child	
NOT APPLICABLE	Lap/Shoulder	74.1%
	No Restraint	21.8%
	CRD – Yes	4.2%
	CRD – No	0.0%[1]
N = Not available	N = 1,052	

[1] Since it is impossible to tell whether unrestrained children in these age groups would have been in Lap/Shoulder Belt or in a CRD, we have shown all data for non-users in "No Restraint"

TABLE 13

Restraint Use in Passenger Vehicles
By seating position
Statewide

Maine, 2002

Children Aged 11 through 14

Driver	Passenger/Child	
NOT APPLICABLE	Lap/Shoulder	60.8%
	No Restraint	39.3%
N = Not available	N = 339	

TABLE 14

Restraint Use in Passenger Vehicles
By seating position
Statewide

Maine, 2002

All Persons Aged 15 through 17[1]

Driver		Passenger/Child	
Lap/Shoulder	60.5%	Lap/Shoulder	52.8%
No Restraint	39.5%	No Restraint	47.2%
N = 76		N = 175	

[1] In table 18, N = 76 + 175 = 251. This is because the driver and passenger data from this table has been combined in Table 18 to calculate front seat occupants for this age group.

TABLE 15

Restraint Use in Passenger Vehicles
By seating position
Statewide

Maine, 2002

Males Aged 15 through 17

Driver		Passenger/Child
Lap/Shoulder	55.5%	No separate data for male passengers in this age group
No Restraint	44.5%	
N = 40		N = Not available

TABLE 16

Restraint Use in Passenger Vehicles
By seating position
Statewide

Maine, 2002

Females Aged 15 through 17

Driver		Passenger/Child
Lap/Shoulder	67.2%	No separate data for female passengers in this age group
No Restraint	32.8%	
N = 36		N = Not available

TABLE 17

Motorcycle Helmet Use Statewide

Maine, 2002

All Persons

Wearing Helmet	35.6%
Not Wearing Helmet	64.4%
N = 348	

TABLE 18

Restraint Use in Passenger Vehicles By Age Statewide

Maine, 2002

AGE[1]	Lap or Lap/Shoulder Belt	No Restraint	CRD -Yes	CRD - No	Total	
					N	%
< 1 Year[2]	0.0%	0.0%	98.9%	1.1%	79	100
1 thru 3[2]	0.0%	0.0%	95.3%	4.7%	432	100
4 thru 10[2]	73.1%	20.8%	6.2%	0.0%[3]	713	100
4 thru 14[2]	74.1%	21.8%	4.2%	0.0%[3]	1052	100
11 thru 14[2]	60.8%	39.3%	0.0%	0.0%	339	100
15 thru 17[4]	55.0%	45.0%	0.0%	0.0%	251[5]	100
18+ [4]	58.4%	41.6%	0.0%	0.0%	26,241[5]	100
All Ages [4]	59.2%	40.8%	69.8%	30.2%	28,055[6]	100

[1] All age groups refer to both male and female.
[2] These age groups refer to passenger data only. Where applicable, Lap/shoulder and CRD users are split within the age group.
[3] Since it is impossible to tell whether unrestrained children in these age groups would have been in Lap/Shoulder Belt or in a CRD, we have used the **No Restraint** column to show all data for non-users.
[4] These age groups refer to front seat occupants, calculated by combining driver and front seat passenger data.
[5] These values of N = Driver + front seat Passenger
[6] Value calculated by adding number of Front Seat Occupants in Lap/Shoulder to number of Children in Lap/Shoulder and CRDs

TABLE 19

Percentage of Drivers Wearing Safety Belts Under Selected Conditions Statewide

NOTE: Data in the tables below is NOT weighted

Maine, 2002

Day of the Week		Percent of Drivers Wearing Safety Belts
Sunday	(N = 3,210)	52.3%
Monday	(N = 1,675)	52.5%
Tuesday	(N = 2,769)	60.3%
Wednesday	(N = 4,131)	63.2%
Thursday	(N = 2,403)	59.2%
Friday	(N = 1,329)	54.8%
Saturday	(N = 5,293)	54.3%

Road Conditions		
Dry	(N = 17,306)	57.7%
Wet	(N = 694)	46.7%

Weather[1]		
Sunny	(N = 17,306)	57.7%
Rain	(N = 694)	46.7%
Cloudy	(N = 1,873)	56.6%

[1] Observations of **Sunny** and **Dry**, **Wet** and **Rainy**, are recorded under the same category in CSI's system, therefore the numbers and percentages under these headings are the same. Other weather conditions such as "Sunny/Cloudy" and "Sunny/Cloudy/Windy", although they exist in our observation database, are not used in this table.

Table 19, continued

Time of Observation

7:00 – 8:00 am	(N = 700)	56.3%
8:00 – 9:00	(N = 1,381)	53.0%
9:00 – 10:00	(N = 1,684)	56.4%
10:00 – 11:00	(N = 1,377)	57.6%
11:00 – 12:00 pm	(N = 1,541)	60.0%
12:00 – 1:00	(N = 2,582)	56.6%
1:00 – 2:00	(N = 2,403)	56.3%
2:00 – 3:00	(N = 2,872)	55.3%
3:00 – 4:00	(N = 2,137)	54.7%
4:00 – 5:00	(N = 1,467)	56.5%
5:00 – 6:00	(N = 1,845)	58.6%
6:00 – 7:00 pm	(N = 821)	56.7%

Type of Vehicle

Car	(N = 11,278)	62.5%
SUV	(N = 2,846)	61.6%
Van	(N = 2,182)	61.6%
Truck	(N = 4,504)	39.7%
Motorcycle	(N = 348)	35.6%

TABLE 20

Passenger belt use/nonuse compared to Driver belt use/nonuse

NOTE: Data in this table is NOT weighted

Maine, 2002

When the driver IS wearing a belt

Driver	Passenger	
NOT APPLICABLE	Lap/Shoulder	78.7%
	No Restraint	21.3%
N = Not Applicable	N = 3,189	

When the driver is NOT wearing a belt

Driver	Passenger	
NOT APPLICABLE	Lap/Shoulder	23.2%
	No Restraint	76.8%
N = Not Applicable	N = 2,352	

TABLE 21

Restraint Use All Passengers, All Vehicles, All Ages Grouped by Urban and Rural Counties

Maine, 2002

RESTRAINT TYPE	URBAN[1]		RURAL[2]		STATEWIDE	
	N	%	N	%	N	%
Lap/Shoulder Belt	9,520	60.1%	5,722	52.1%	15,242	56.8%
No Lap/Shoulder Belt	6,330	39.9%	5,256	47.9%	11,586	43.2%
Lap/Shoulder Belt TOTAL	15,850	100.0%	10,978	100.0%	26,828	100.0%
CRD – Yes	609	76.9%	246	56.6%	855	69.7%
CRD – No	183	23.1%	189	43.5%	372	30.3%
CRD TOTAL	792	100.0%	435	100.0%	1,227	100.0%

1 URBAN: Observations in Cumberland, York, Kennebec, Androscoggin, and Penobscot counties.
2 RURAL: Observations in Aroostook, Knox, Somerset, Oxford and Hancock counties.

TABLE 22

Observed Safety Belt Use Rates Reported by States to NHTSA
As of October 2002

2000 and 2001 State Belt use Rates[1]					
State	**2000**	**2001**	**State**	**2000**	**2001**
Alabama	**70.6%**	**79.4%**[2]	Montana	75.6%	76.3%
Alaska	61.0%	62.6%	Nebraska	70.5%	70.2%
Arizona	75.2%	74.4%	Nevada	78.5%	74.5%
Arkansas	52.4%	54.5%	New Hampshire	–[4]	–[4]
California	**88.9%**	**91.1%**	New Jersey[3]	**74.2%**	**77.6%**
Colorado	65.1%	72.1%	New Mexico	**86.6%**	**87.8%**
Connecticut	**76.3%**	**78.0%**	New York	**77.3%**	**80.3%**
Delaware	66.1%	67.3%	North Carolina	**80.5%**	**82.7%**
District of Columbia	**82.6%**	**83.6%**	North Dakota	47.7%	57.9%
Florida	64.8%	69.5%	Ohio	65.3%	66.9%
Georgia	**73.6%**	**79.0%**	Oklahoma	**67.5%**	**67.9%**
Hawaii	**80.4%**	**82.5%**	Oregon	**83.6%**	**87.5%**
Idaho	58.6%	60.4%	Pennsylvania	70.7%	70.5%
Illinois	70.2%	71.4%	Rhode Island	64.4%	63.2%
Indiana	**62.1%**	**67.4%**	South Carolina	73.9%	69.6%
Iowa	**78.0%**	**80.9%**	South Dakota	53.4%	63.3%
Kansas	61.6%	60.8%	Tennessee	59.0%	68.3%
Kentucky	60.0%	61.5%	Texas	**76.6%**	**76.1%**
Louisiana	**68.2%**	**68.1%**	Utah	75.7%	77.8%
Maine	–[4]	–[4]	Vermont	61.6%	67.4%
Maryland	**85.0%**	**82.9%**	Virginia	69.9%	72.3%
Massachusetts	50.0%	56.0%	Washington	81.6%	82.6%
Michigan[5]	**83.5%**	**82.3%**	West Virginia	49.8%	52.3%
Minnesota	73.4%	73.9%	Wisconsin	65.4%	68.7%
Mississippi	50.4%	61.6%	Wyoming	66.8%	–[4]
Missouri	67.7%	67.9%	Puerto Rico	**87.0%**	**83.1%**

1 Source: NHTSA Research Note, DOT HS 809 501, October 2002.
Location: http://www-nrd.nhtsa.dot.gov/pdf/nrd-30/NCSA/RNotes/2002/809-501.pdf

2 Rates in primary enforcement states are 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.

3 Switched from secondary to primary enforcement in May 2000.

4 No rate reported

5 Switched from secondary to primary enforcement in April 2000.

TABLE 23
Maine 2002 Observation Sites List

1. Cumberland County (23)
1. Portland (13)
2. South Portland (5)
3. Scarborough (1)
4. Yarmouth (2)
5. Falmouth (2)

2. York (21)
1. Saco (7)
2. Biddeford (5)
3. Sanford (5)
4. Springvale (4)

3. Kennebec (15)
1. Augusta (7)
2. Waterville (3)
3. Winslow (5)

4. Androscoggin (21)
1. Auburn (8)
2. Lewiston (10)
3. Livermore Falls (3)

5. Penobscot (21)
1. Bangor (10)
2. Brewer (5)
3. Orono (1)
4. Newport (4)
5. Bradley (1)

6. Aroostook (13)
1. Houlton (5)
2. Caribou (5)
3. Presque Isle (3)

7. Knox (13)
1. Rockport (5)
2. Camden (6)
3. Warren (2)

8. Somerset (11)
1. Pittsfield (5)
2. Skowhegan (6)

9. Oxford (11)
1. South Paris (4)
2. Norway (4)
3. Waterford (1)
4. Buckfield (1)
5. West Paris (1)

10. Hancock (11)
1. Ellsworth (8)
2. Bucksport (2)
3. Orland (1)

History of Occupant Protection Laws

EFFECTIVE DATES	LAWS
9-19-97	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.
9-19-97	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.
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.
1-1-95	With the implementation of Tile 29A, the child safety seat law and seat belt law were combined into one law.
7-94	Driver made responsible for securing children under 4 years in a child safety seat.
10-13-93	Penalty changed from fine of $25 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 changed from fine of $25 for first violation and $200 for each subsequent violation for those 4 to 19 to traffic infraction (up to $500 fine).
9-29-87	Children aged 4 to 13 years must be secured in a child safety seat or safety belt.
9-30-89	Law expanded to include children 4 to 16 years.
10-9-91	Law expanded to include persons 4 to 19 years.
9-23-83	Children aged 0 to 4 years must be secured in a child safety seat.