

ALASKA SURVEY OF SEAT BELT USE

2014

Alaska 2014 Survey of Seat Belt Use

National Occupant Protection Use Survey (NOPUS)

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ABSTRACT

This observational study assessed 2014 driver and front row outboard passenger seat belt use in Alaska. The National Highway Traffic Safety Administration (NHTSA) requires observational surveys to be completed annually in each state to determine the level of seat belt use for each state. In accordance with the NHTSA's Uniform Criteria for State Observational Surveys of Seat Belt Use as published in 2011, Alaska Injury Prevention Center (AIPC), under a grant from the Alaska Highway Safety Office, conducted seat belt observations for 2014. The 2014 observations took place from June 2-10, 2014 in the Anchorage, Fairbanks, Juneau, Kenai, and Matanuska-Susitna regions. Observation sites were selected according to the NHTSA's criteria based on data from the Alaska Fatality Analysis Reporting System and Alaska Department of Transportation & Public Facilities. Seat belt use was recorded for drivers and front seat outboard passengers in cars, trucks, SUVs and vans. A total of 33,766 observations were made, excluding unknowns ($n = 86$). The results of this study indicate that 88.4% of Alaska drivers and passengers were using a seat belt during the study period. This shows an increase in seat belt use compared to the 2013 observed rate of 86.1%.

INTRODUCTION

Seat belt use has been identified as an important measure in preventing motor vehicle crash related injuries and fatalities. In June 1984, the Alaska State Legislature passed law AS28.05.095 requiring children under six years old to be restrained in motor vehicles, with children under the age of four years old to be transported in a restraint complying with federal safety standards. In February of 1989, the State Legislature amended the provision to require the use of seat belts by all occupants. Alaska became a primary seat belt law enforcement state in May 2006.

The National Highway Traffic Safety Administration (NHTSA) requires that each state complete annual observational surveys to determine seat belt usage rates. Since 2004, AIPC has conducted these observational surveys under a grant from AHSO. In April of 2011, the NHTSA published a new Uniform Criteria for State Observational Surveys of Seat Belt Use in the Federal Register, Volume 76, Number 63. The Alaska observation plan as developed by Ron Perkins and Dr. Larry Cook was accepted by the NHTSA as fully compliant with the Uniform Criteria and was used for the implementation of the 2014 survey.

METHODS

Study Design

Five of Alaska's 28 boroughs were selected for inclusion in this study: Anchorage, Matanuska-Susitna, Kenai Peninsula, Fairbanks North Star, and Juneau boroughs. According to data averages from Alaska Fatality Analysis Reporting System (FARS) data, these five boroughs accounted for 85% of the passenger vehicle crash-related fatalities from 2005-2009.

After selecting boroughs for inclusions, Dr. Cook, the project statistician, selected observation sites from each borough using probability proportional to size. One third of the sites were selected from the "Arterials", 1/3 from the "Collectors", and 1/3 from the "Local Roads" in each borough. Dr. Cook also assigned a selection probability value for each sample site selected. The

Alaska DOT&PF then supplied the Latitude and Longitude fields for each sample site. This process resulted in the selection of 256 road segments.

To determine the Primary Sampling Units (PSUs) for Alaska, FARS data were obtained from Joanna Reed, the former FARS Analyst for AHSO. The Alaska FARS data were used as the vehicle type notation allowed for exclusion of ATV, motorcycle, bus, and snow machine deaths that occurred on state highways from the database.

Seat belt use was recorded for the drivers and outboard front seat passengers of passenger vehicles under 10,000 pounds that were travelling on the sample segment between the hours of 7:00 a.m. and 6 p.m. Children in child safety seats were excluded from this study. Trained observers observed traffic at each selected site for 45-minute periods.

Training

A total of six observers were hired and trained by Sylvia Craig to complete the seat belt observations. A training manual, developed by Ron Perkins, was given to each observer. In addition to the training manual, observers received a work schedule that included the days, times, locations, lanes, and traffic directions to be observed. Observers also received a detailed map for each site to reduce confusion.

The training covered each section of the manual and required completing observations at a roadway intersection. This ensured that each observer understood how to read the maps, determine the direction of traffic to be measured, where to perform the observations, and what to observe. Observers were encouraged to call AIPC with any discrepancies or questions, and were given instructions on what to do if a site could not be observed or if traffic was moving too quickly to accurately capture seat belt use. To ensure that observers were observing traffic at the correct locations and following protocol, AIPC made a total of 16 unannounced site visits during the observation period.

Data Collection

Each observer recorded seat belt use at five to eight predetermined road segment locations per day between June 2, 2014 and June 10, 2014. Observers collected data for 45-minute periods at each location. Random start times between 7:00 a.m. and 10:00 a.m. were selected for each day. Daily observation sites were grouped geographically to facilitate moving from one site to the next.

Observers used Olympus DM-620 digital recorders to record their observations. This was the eleventh year for using voice recorders to document seat belt usage rates. Using the digital recorders eliminates the need to look down while writing, as well as problems associated with writing in inclement weather. The observers recorded driver and outboard passenger seat belt use for passenger vehicles under 10,000 pounds travelling in the right most lane. Observations were only recorded for those vehicles traveling under 30 miles per hour to eliminate error. Additionally, observers recorded any comments they felt might be helpful when interpreting the data.

Data Analysis

After data collection was completed, Michelle Hess of Hess Transcriptions transcribed the voice recordings into an Excel workbook. Ron Perkins cleaned the dataset and collaborated with Dr. Cook to weight the observations according to the site's final probability of selection. In order to weight the observations, the average annual daily traffic volumes for each of the boroughs in the sample were considered and then traffic volumes for each stratum within the borough were calculated. Next, each site's probability of selection was calculated and observations then weighted accordingly. The overall seat belt use rate was calculated using weighted data. All other results reported were calculated using the raw dataset. AIPC analyzed the data using IBM SPSS Statistics Version 22. Frequency analyses were conducted for variables such as seat belt use, borough, seating position, and vehicle type. Crosstab analyses were performed to assess the relationship between vehicle type and borough to seat belt use.

RESULTS

Seat Belt Use

Raw frequencies for vehicle type, borough, and seating position are presented in Table 1. Excluding unknowns ($n = 86$), a total of 33,766 observations were made. Of those observations, 81.2% ($n = 27,410$) were drivers, with the remaining occupants as front seat outboard passengers. Approximately one third (33.2%) of observed vehicles were cars. SUVs and trucks made up 29.8% and 29.1% of the vehicles observed, respectively. Almost half (47.8%) of observations were made in the Municipality of Anchorage.

Table 1. Characteristics of Study Sample ($n = 33,766$)

Characteristic	Observed	
	<i>n</i>	%
Seating Position		
Driver	27,410	81.2
Passenger	6,356	18.8
Vehicle Type		
Car	11,205	33.2
SUV	10,065	29.8
Van	2,675	7.9
Truck	9,821	29.1
Borough		
Anchorage	16,128	47.8
Fairbanks North Star	6,861	20.3
Juneau	2,705	8.0
Kenai	3,445	10.2
Matanuska Susitna	4,627	13.7

Figure 1 shows the trend line for the total weighted seat belt use rate by year. Since beginning the observations, 2014 had the second highest weighted seat belt use rate at 88.4%. The standard error was determined to be 0.67%, well within the standard error of 2.5% as required by NHTSA guidelines. The highest weighted seat belt rate was observed in 2011 at 89.3%. It is important to

note that study methodologies have changed over the years to comply with NHTSA regulations and seat belt use rates from year to year may not be comparable. Alaska’s seat belt observations have been conducted using the same methodology since 2012.

Figure 1: Alaska Weighted Seat Belt Use Rates by Percent, 2002-2014

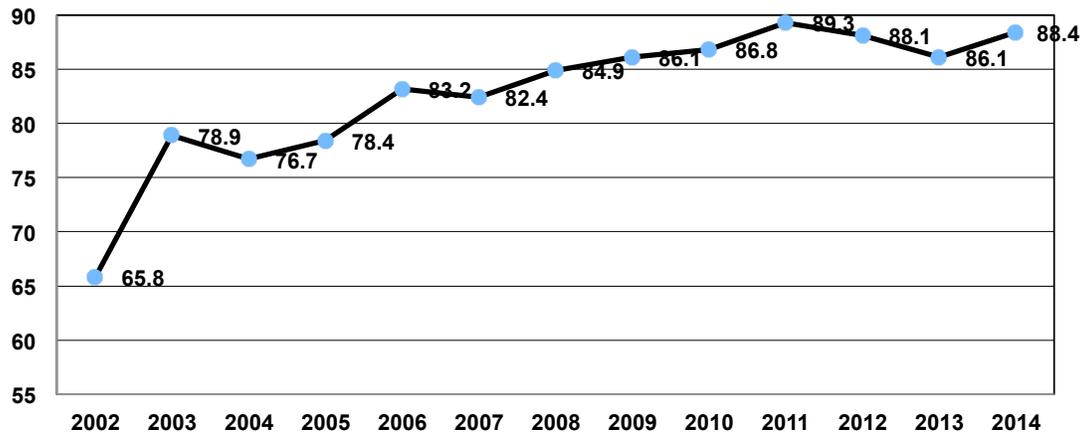


Table 2 displays crosstab results for raw seat belt use in Alaska by vehicle type between 2012 and 2014. SUV vehicle occupants had the greatest raw rate of observed seat belt use between 2012 and 2014. Truck occupants had the lowest rates of observed seat belt use across all three years during the same time period.

Table 2. Raw Seat Belt Use Rates in Alaska by Vehicle Type, 2012-2014

Vehicle Occupants	2014		2013		2012	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Car	10,116	90.3	10,655	89.9	8,768	89.0
SUV	9,244	91.8	11,063	91.4	9,193	90.7
Truck	8,259	84.1	9,822	83.7	8,299	83.0
Van	2,388	89.3	2,492	88.0	2,285	86.5

Raw seat belt use rates by borough between 2012 and 2014 are shown in Table 3. Seat belt use was observed to be the highest in Fairbanks with 92.0% (*n* = 6,309) of occupants observed wearing a seat belt. The region with the lowest seat belt use was the Kenai Borough at 85.2% (*n* = 847).

Table 4 provides the results for crosstab analyses of observed seat belt use using raw data by vehicle type and borough from 2012 to 2014. With an observed seat belt use rate of 95.6% (*n* = 1,512) in 2014, SUV occupants observed in the Fairbanks North Star region had the highest rate of restraint use by vehicle type and borough. Truck occupants in the Matanuska Susitna area were observed to have the lowest raw seat belt use rates at 81.4% (*n* = 1,122).

Table 3: Raw Seat Belt Use Rates for Vehicle Occupants in Alaska by Region, 2012-2014

Borough	2014		2013		2012	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Anchorage	14,376	89.1	15,354	89.1	11,070	92.2
Fairbanks	6,309	92.0	4,894	87.3	3,957	86.1
Juneau	2,316	85.6	3,321	85.2	3,674	80.1
Kenai	2,935	85.2	3,012	87.2	4,080	83.5
Matanuska Susitna	4,071	88.0	5,706	90.6	5,764	88.0

Table 4: Occupant Restraint Use by Vehicle Type and Borough, 2012-2014

Borough	2014		2013		2012	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Anchorage						
Car	4,883	90.7	5,381	90.9	3,967	93.4
SUV	5,141	91.6	5,048	91.2	3,543	94.1
Truck	3,433	84.0	3,911	84.5	2,754	88.7
Van	919	87.8	1,014	87.6	806	91.0
Fairbanks						
Car	2,183	93.1	1,056	87.8	952	87.4
SUV	1,512	95.6	1,838	91.2	1,426	89.7
Truck	2,095	88.4	1,648	82.6	1,316	81.7
Van	519	92.0	352	89.6	263	85.1
Juneau						
Car	773	87.3	1,400	87.8	1,212	81.3
SUV	717	90.5	1,391	90.6	1,260	86.5
Truck	507	76.6	1,054	76.9	847	71.9
Van	319	87.2	393	82.9	355	76.5
Kenai						
Car	686	81.8	1,089	87.5	982	86.4
SUV	847	89.3	1,061	89.6	1,224	85.9
Truck	1,102	83.4	1,398	84.3	1,505	79.7
Van	300	89.6	292	91.3	369	85.0
Matanuska Susitna						
Car	1,591	90.6	1,729	91.0	1,655	87.6
SUV	1,027	90.9	1,725	94.2	1,740	91.6
Truck	1,122	81.4	1,811	87.0	1,877	84.9
Van	331	91.2	441	90.4	492	89.6

Cell Phone Use

Observers were asked to record driver cell phone use. In 2014, 5.4% ($n = 1,475$) of drivers were observed using a cell phone. Driver cell phone use between 2009 and 2014 is shown in Table 5.

Table 5: Statewide Driver Cell Phone Use, 2009-2014

	2014	2013	2012	2011	2010	2009
% Of Cell Phone Use	5.4%	7.0%	6.5%	6.5%	5.1%	5.6%

Motorcycle Helmet Use

Surveyors recorded helmet use for motorcycle drivers. A total of 541 motorcycle drivers were observed, with 78.4% ($n = 424$) of drivers helmeted. Motorcycle helmet use rates from 2009 to present are presented in Table 6; motorcycle helmet use was not observed for 2013 and 2012. Findings from the past five years indicate that motorcycle helmet use has increased by almost 5 percentage points since 2009.

Table 6: Statewide Motorcyclist Helmet Use, 2009-2014

	2014	2013	2012	2011	2010	2009
% Helmet Use	78.4%	—	—	75.8%	74.6%	73.9%

Bicyclist Helmet Use

Starting in 2013, AIPC asked observers to also record helmet use for all visible bicyclists. In 2014, a total of 942 bicyclists were observed. Of those, 48.2% ($n = 454$) were helmeted. Comparatively, a total of 1,338 bicyclists were observed in 2013 with 46.1% ($n = 617$) helmeted. This study was not designed to observe bicyclists and as a result this finding may not be a valid measurement of helmet use across the state. However, it does provide some insight into bicycle helmet use across the state of Alaska.

DISCUSSION

The purpose of this study was to assess seat belt use for Alaska's drivers and front seat outboard passengers. Between 2011 and 2013, seat belt use rates declined from 89.3% to 86.1%. Alaska Injury Prevention Center is pleased to report that this downward trend has seemingly been reversed, with a seat belt use rate of 88.4% observed during the 2014 study period.

APPENDIX TO PART 1340

STATE SEAT BELT USE SURVEY REPORTING FORM

PART A: To be completed by the Governor's Highway Safety Representative (GR) or if applicable, the Coordinator of the State Highway Safety Office.

State: AK

Calendar Year of Survey: 2014

Statewide Seat Belt Use Rate: 88.4%

I hereby certify that:

- _____ has been designated by the Governor as the State's Highway Safety Representative (GR), and if applicable, the GR has delegated the authority to sign the certification in writing to _____, the Coordinator of the State Highway Safety Office.
- The reported Statewide seat belt use rate is based on a survey design that was approved by NHTSA, in writing, as conforming to the Uniform Criteria for State Observational Surveys of Seat Belt Use, 23 CFR Part 1340.
- The survey design has remained unchanged since the survey was approved by NHTSA.
- Lawrence J Cook, a qualified survey statistician, has reviewed the seat belt use rate reported above and information reported in Part B and has determined that they meet the Uniform Criteria for State Observational Surveys of Seat Belt Use, 23 CFR Part 1340 .

Tammy Kramer

Signature

9/16/2014

Date

TAMMY KRAMER

Printed name of signing official



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