

Alaska 2017 Survey of Seat Belt Use

An Observational Study of Seat Belt Use

Prepared by
Alaska Injury Prevention Center

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ABSTRACT

This observational study assessed 2017 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 2017. The 2017 observations took place from August 7-16, 2017 in the Anchorage, Juneau, Kenai, and Matanuska-Susitna regions. The observations in the Fairbanks North Star Borough took place September 5-11, 2017. 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. A total of 44,739 vehicles were observed during the 2017 study period. Seat belt use was recorded for drivers and front seat outboard passengers in cars, trucks, SUVs and vans. There were 56,015 occupants observed, excluding unknowns ($n = 172$). The results of this study indicate that 90.1% of Alaska drivers and passengers were using a seat belt during the study period.

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. AIPC has conducted these observational surveys under a grant from AHSO since 2004. 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 in 2017 and was used for the implementation of the 2017 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. These boroughs accounted for 85% of the motor vehicle fatalities recorded in the state of Alaska. Road segments were classified by functional class as "Arterials," "Collectors," or "Local" roads and then sample sites were selected.

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 five 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.

Data Collection

Each observer recorded seat belt use at three to eight predetermined road segment locations per day between August 7, 2017 and August 16, 2017. The Fairbanks North Star Borough observations were conducted September 5-11, 2017. 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 and DM-720 digital recorders to record their observations. 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 two right most lanes, where there were two lanes of traffic. If there was only one lane of traffic at the site, the observer recorded seat belts use for just the one lane of traffic. Observations were only recorded for those vehicles traveling under approximately 30 miles per hour to eliminate error. Additionally, observers recorded any comments they felt might be helpful when interpreting the data.

Alternate Observation Dates

At the onset of the study, all observations were to be completed August 7-16, 2017. Due to personnel problems, the Fairbanks North Star Borough observations were conducted September 5-11, 2017.

Alternate Site Selection

Observers are trained on what to do in case they are unable to observe traffic at the prescribed location. Observation employees were provided with the following instructions for selecting alternate sites:

In case of construction or some other hazard that makes it unwise or impossible to observe at the specified location, you will go in the “opposite” direction than the traffic you are measuring to find the next available intersection. This will be the traffic that would have been using the original location if it hadn’t been closed.

Alternate sites were selected in Anchorage and Fairbanks at site numbers 47, 92, 93, 94, 122, and 151 due to construction. Alternate site selections are noted in Part B of the Appendix included within this report.

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 ($n = 172$), a total of 56,015 vehicle occupants were observed. Of those observations, 79.9% ($n = 44,739$) were drivers and 20.1% ($n = 11,276$) were passengers. Over one third (32.7%) of the 44,739 observed vehicles were cars. SUVs and trucks made up 29.9% and 29.9% of the vehicles observed, respectively. Over half (54.1%) of all vehicles observed were located in the Municipality of Anchorage.

Table 1. Characteristics of 2017 Study Sample ($n = 44,739$ Vehicles, $n = 56,015$ occupants)

Characteristic	Observed	
	<i>n</i>	%
Seating Position		
Driver	44,739	79.9
Passenger	11,276	20.1
Vehicle Type		
Car	14,639	32.7
SUV	13,363	29.9
Truck	13,361	29.9
Van	3,375	7.5
Borough		
Anchorage	23,813	53.2
Fairbanks North Star	6,501	14.5
Juneau	2,127	4.8
Kenai	6,544	14.6
Matanuska Susitna	5,754	12.9

Figure 1 shows the trend line for the total weighted seat belt use rate by year since 2007. 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. New sites were selected in 2017 per NHTSA's protocol. The 2017 weighted seat belt rate was measured at 90.1%. The standard error was determined to be 0.61%, well within the standard error of 2.5% as required by NHTSA guidelines.

Figure 1: Alaska Weighted Seat Belt Use Rates by Percent, 2007-2017

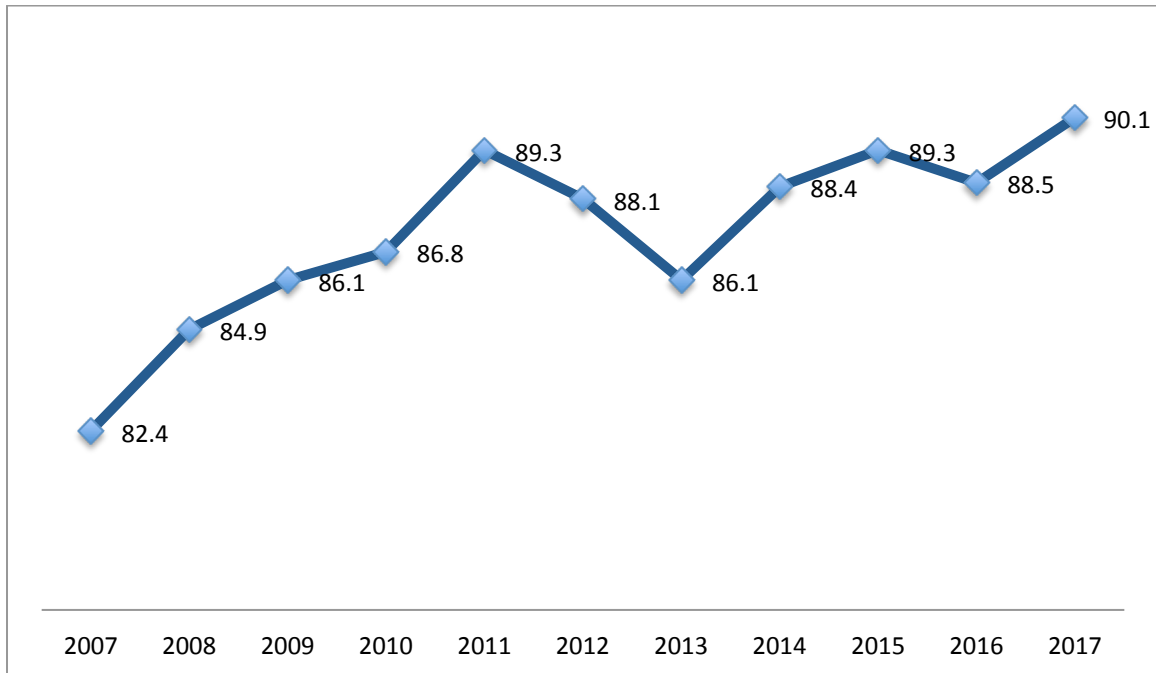


Table 2 displays crosstab results for raw seat belt use in Alaska by vehicle type between 2014 and 2017. SUV vehicle occupants had the greatest raw rate of observed seat belt use between 2014 and 2017. Truck occupants had the lowest rates of observed seat belt use across all four years during the same time period.

Table 2. Raw Seat Belt Use Rates in Alaska by Vehicle Type, 2014-2017

Vehicle Occupants	2017		2016		2015		2014	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Car	16,419	91.6	12,052	90.6	10,974	91.0	10,116	90.3
SUV	15,657	92.4	12,940	91.7	9,472	91.1	9,244	91.8
Truck	14,306	86.6	12,454	86.3	8,564	84.9	8,259	84.1
Van	4,012	90.2	3,265	88.5	2,430	89.5	2,388	89.3

Raw seat belt use rates by borough between 2014 and 2017 are shown in Table 3. Seat belt use was observed to be the highest in the Matanuska Susitna borough with 93.4% ($n = 6,639$) of occupants observed wearing a seat belt. The Juneau borough had the lowest seat belt use rate at 86.6%.

Table 3. Raw Seat Belt Use Rates for Vehicle Occupants in Alaska by Region, 2014-2017

Borough	2017		2016		2015		2014	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Anchorage	26,427	90.1	22,013	89.4	16,677	90.6	14,376	89.1
Fairbanks	7,005	88.5	6,099	89.0	5,846	91.9	6,309	92.0
Juneau	2,268	86.6	3,495	86.9	3,061	90.0	2,316	85.6
Kenai	8,055	90.7	2,566	81.3	1,774	82.6	2,935	85.2
Matanuska Susitna	6,639	93.4	6,538	95.0	4,082	82.5	4,071	88.0

Table 4 provides the results for crosstab analyses of observed seat belt use using raw data by vehicle type and borough from 2014 to 2017. With an observed seat belt use rate of 94.7% ($n = 1,875$) in 2017, SUV occupants observed in the Matanuska Susitna area had the highest rate of restraint use by vehicle type and borough. Truck occupants in the Juneau borough were observed to have the lowest raw seat belt use rates at 77.9% ($n = 555$).

Table 4. Raw Seat Belt Use Rates by Vehicle Type and Borough, 2014-2017

Borough	2017		2016		2015		2014	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Anchorage								
Car	9,727	91.3	6,081	89.9	6,013	92.0	4,883	90.7
SUV	8,185	91.7	7,865	91.5	5,457	92.0	5,141	91.6
Truck	6,416	86.5	6,301	86.8	3,914	86.7	3,433	84.0
Van	2,099	90.4	1,766	87.7	1,293	90.9	919	87.8
Fairbanks								
Car	1,854	90.7	2,326	91.1	2,302	93.6	2,183	93.1
SUV	2,410	92.4	1,266	90.5	1,139	96.2	1,512	95.6
Truck	2,265	83.5	2,080	85.4	1,992	87.8	2,095	88.4
Van	476	86.7	427	91.6	413	92.4	519	92.0
Juneau								
Car	744	91.1	1,093	88.5	977	91.3	773	87.3
SUV	776	91.1	1,138	91.0	1,082	92.2	717	90.5
Truck	555	77.9	941	81.9	721	85.0	507	76.6
Van	193	80.8	323	83.0	281	90.9	319	87.2
Kenai								
Car	2,099	92.0	596	86.4	445	81.1	686	81.8
SUV	2,411	93.3	774	85.0	559	87.6	847	89.3
Truck	2,837	87.3	969	75.7	642	79.2	1,102	83.4
Van	708	92.2	227	82.8	128	85.9	300	89.6
Matanuska Susitna								
Car	1,995	93.7	1,956	95.1	1,237	85.1	1,591	90.6
SUV	1,875	94.7	1,897	96.5	1,235	84.4	1,027	90.9
Truck	2,233	91.9	2,163	93.5	1,295	78.9	1,122	81.4
Van	536	94.0	522	95.6	2,430	89.5	331	91.2

Cell Phone Use

Observers were asked to record driver cell phone use. For the 2017 observation period, cell phone use was defined as a driver holding their phone to their ear while driving, or visibly manipulating a hand-held device while driving. In 2017, 5.1% ($n = 2,326$) of drivers were observed using a cell phone. Of drivers using a cell phone, 593 or 1.3% of cell phone users were observed to be visibly manipulating a hand-held device, or texting. Driver cell phone use between 2011 and 2017 is shown in Table 5.

Table 5: Statewide Driver Cell Phone Use, 2011-2017

	2017	2016	2015	2014	2013	2012	2011
% Of Cell Phone Use	5.1%	7.4%	3.6%	5.4%	7.0%	6.5%	6.5%

SUMMARY

This observational study assessed 2017 driver and front row outboard passenger seat belt use in Alaska. A total of 44,739 vehicles were observed during the 2017 study period. Seat belt use was recorded for drivers and front seat outboard passengers in cars, trucks, SUVs and vans. There were 56,015 occupants observed, excluding unknowns ($n = 172$). The results of this study found that 90.1% of Alaska drivers and passengers were using a seat belt during the study period. This is the highest rate of seat belt use observed within the state of Alaska.