

**ALASKA OBSERVATIONAL SURVEYS  
OF SEAT BELT USE  
2012**

**Prepared by**

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**For the**

**Alaska Injury Prevention Center**

**Under contract with**

**The Alaska Highway Safety Office,  
Alaska Department of Transportation & Public Facilities**

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## EXECUTIVE SUMMARY

The National Highway Traffic Safety Administration (NHTSA) has issued new Uniform Criteria for State Observational Surveys of Seat Belt Use. The final rule was published in the Federal Register Vol. 76 No. 63, April 1, 2011, Rules and Regulations, pp. 18042 – 18059. The Alaska plan was accepted as fully compliant with the Uniform Criteria and was used for the implementation of Alaska’s 2012 seat belt surveys.

The Alaska Highway Safety Office (AHSO) provided a grant to the Alaska Injury Prevention Center (AIPC), who subcontracted with Ron Perkins to conduct the 2012 observational surveys of seat belt use in Alaska. The Alaska Highway Safety Office, with support from the National Highway Traffic Safety Administration (NHTSA), participates in nationwide observational surveys of occupant restraint usage on an annual basis. This report details the results of the observational surveys of vehicles and front seat occupants throughout Alaska.

The National Highway Traffic Safety Administration requires observational surveys to be completed annually in each state to determine the level of seat belt use. From 2004 - 2012, the Alaska Injury Prevention Center (AIPC), under the direction of Ron Perkins, conducted the observational surveys under a grant agreement with AHSO. Alaska became a primary seat belt law enforcement state in May 2006.

The five Boroughs that included 85% of the MV fatalities from 2005 – 2009 included:

- Anchorage Borough
- Matanuska-Susitna Borough
- Kenai Peninsula Borough
- Fairbanks North Star Borough
- Juneau Borough

The 2012 observations took place from June 4–13, 2012. Seat belt use was recorded for drivers and front seat outboard passengers in passenger cars, trucks, SUVs, and vans. A total of 33,111 vehicle occupants: 26,295 drivers and 6,816 outboard passengers were observed. Of the 33,111 occupants, seat belt use could not be determined for 487 or 1.5% of the total observations. Thirty-five percent (30%) of the observed vehicles were cars, 31% sport utility vehicles (SUV), 31% trucks, and 8% were vans.

Within each borough and functional class, stratum road segments were selected with probability proportional to size, with the measure of size being DVMT (Daily Vehicle Miles Travelled). The total share of occupants wearing seat belts for Alaska in 2012 (excluding “unknowns”) was **88.1 percent**. This is a 1.2 percentage point decrease over the observed rate in 2011. Usage rates by type of vehicle were also analyzed. Ninety (89.8%) percent of the front seat outboard “car” occupants were belted, 91% of SUVs, 88% of vans, and 84% of truck occupants were using seat belts during these observations. Truck occupants, once again, had the lowest rate for any of the vehicle categories.

## INTRODUCTION

### Background

In June 1984, the Alaska State Legislature passed a law (AS28.05.095) requiring Children ages six and under to be restrained while being transported in a motor vehicle. In addition, children under the age of four years are to be transported in a restraint that complies with federal safety standards. In February of 1989, the Legislature amended the provision to require the use of safety belts by all occupants. To be eligible for certain federal grants, states must document levels of compliance with seat belt laws, as Alaska does annually. Alaska became a primary seatbelt law enforcement state in May 2006.

The National Highway Traffic Safety Administration requires that observational surveys be completed annually in each state to determine the level of seat belt use. From 2004 - 2012, the Alaska Injury Prevention Center (AIPC) conducted the observational surveys under a grant from AHSO. The following report details the results of the observational surveys of seat belt use for Alaska in 2012.

## DATA COLLECTION

### Survey Design

Dr. Larry Cook was contracted by AIPC to help with the design of the surveys. Dr. Cook used a probability-based design to gather data and estimate the seat belt usage rates for the state of Alaska. All of the observations were completed in the month of June 2012. Our study design complies with criteria published in the Federal Register, Uniform Criteria for State Observational Surveys of Seat Belt Use, Vol. 76 No. 63, April 1, 2011, Rules and Regulations, pp. 18042 – 18059.

Alaska is composed of 28 Boroughs; 5 of which account for about 85 percent of the passenger vehicle crash-related fatalities according to Alaska Fatality Analysis Reporting System (FARS) data averages for the period 2005 to 2009. Therefore, we subsampled all 5 of these boroughs for inclusion in the survey.

The project Statistician (Dr. Cook) 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. The Statistician also assigned a selection probability value for each sample site selected. The Alaska DOT&PF then supplied us with 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, Fatality Analysis Reporting System Analyst, Alaska Highway Safety Office. The Alaska FARS data were used because the vehicle type notation allowed us to excluded ATV, motorcycle, bus, and snow machine deaths that occurred on state highways from the database.

All passenger vehicles with a gross vehicle weight up to 10,000 pounds were included in the survey. The target population was all drivers and right front seat passengers (excluding children in child safety seats) of these vehicles, travelling on the sample segment between the hours of 7 AM and 6 PM. The observation period for each selected road segment was 45 minutes.

Trained observers recorded shoulder belt use by drivers and outboard passengers at selected intersections, for forty-five minute periods, between 7:30 a.m. and 8:00 p.m. in June 2012.

### **Training**

The Contractor (Ron Perkins, MPH) individually trained each observer. A training manual was developed and given to each observer. The training covered each section of the manual and required field feedback from the observer to ensure understanding and implementation of the methodology. Several sites (a total of 14) were visited during the surveys to make sure the observer understood how to read the maps, determine the direction of traffic to be measured, where to perform the observations, and to determine the accuracy of the observations.

Each observer was given a work schedule which included the days, times, locations, lanes and traffic directions to be observed. A detailed map for each site was also included to reduce confusion. Observers were encouraged to call with any discrepancies or questions, and were given instructions on what to do if a site could not be observed. Unannounced visits were made to 14 of the sites for quality assurance.

This was the ninth year for using voice recorders to document seat belt usage rates. This method eliminates the need to look down while writing, and the problems associated with writing in inclement weather.

### **Observation Methodology**

Each observer recorded seat belt use at predetermined locations for five to eight, forty-five minute periods per shift. Random start times between 7am and 10 am were selected for each day. Daily observation sites were grouped geographically to facilitate moving from one site to the next.

Observers used an Olympus DM-520 digital recorder to record their observations. These recorders were a tremendous asset in facilitating the transcription process. The observers recorded information on each vehicle in the <10,000 lb. category. Observers were instructed on what to do if traffic was moving too quickly to record information on each vehicle, or if they couldn't observe at the specified site. Finally, observers recorded any comments they felt might be helpful when interpreting the data. Transcriptionist (Michelle Hess, Hess Transcriptions) was contracted to convert the voice recordings into an Excel spreadsheet.

## DATA ANALYSIS

After data collection and transcription were completed, Mr. Perkins analyzed the data using *SPSS 15*, with collaboration from Dr. Cook. *SPSS* is a program for managing data and performing statistical analyses and it is particularly adept at manipulating data sets with many cases and variables.

### Results

The surveyors observed a total of 33,111 vehicle occupants (26,295 drivers and 6,816 outboard passengers) in 2012. Thirty-five percent (30%) of the observed vehicles were cars, 31% sport utility vehicles (SUV), 31% trucks, and 8% were vans.

During the 2012 observation period in Alaska, the data (excluding “unknowns”) showed that 88.1 percent of the drivers and 88.8 percent of the outboard passengers were wearing seat belts. The total proportion of occupants wearing seat belts was **88.1 percent**. Trucks were the largest vehicle category (third largest in 2011) and had the lowest seat belt usage rate at 84%.

The following graph shows the trend line of seat belt use in Alaska from 2002 – 2012.

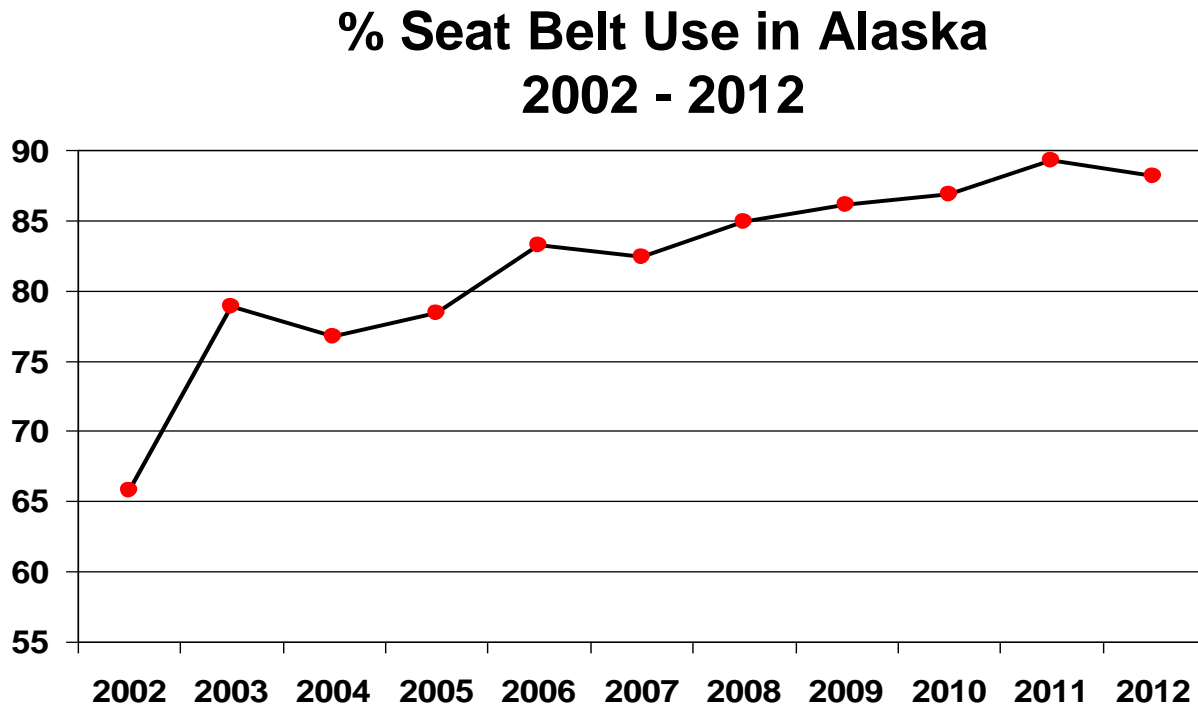


Table 1 shows the percent of drivers, passengers, and combined occupants who were wearing seat belts and the change across study years (weighted).

**Table 1: Seat belt Use in Alaska, 2006-2012**

		2012	2011	2010	2009	2008	2007	2006
All Vehicles	Share of Drivers Belted	.881	.893	.874	0.866	0.859	0.828	0.834
	Share of Passengers Belted	.888	.892	.846	0.841	0.812	0.810	0.825
	Share of Occupants Belted	<b>.881</b>	.893	.868	0.861	0.849	0.824	0.832
Cars	Share of Drivers Belted	.903	.906	.879	0.888	0.878	0.856	0.842
	Share of Passengers Belted	.890	.897	.852	0.854	0.801	0.828	0.829
	Share of Occupants Belted	<b>.898</b>	.904	.873	0.882	0.862	0.850	0.840
Vans	Share of Drivers Belted	.891	.899	.899	0.874	0.898	0.859	0.887
	Share of Passengers Belted	.864	.894	.869	0.879	0.864	0.841	0.881
	Share of Occupants Belted	<b>.881</b>	.895	.892	0.876	0.889	0.854	0.885
SUVs	Share of Drivers Belted	.914	.914	.898	0.883	0.883	0.854	0.869
	Share of Passengers Belted	.896	.919	.876	0.858	0.844	0.834	0.853
	Share of Occupants Belted	<b>.911</b>	.915	.894	0.879	0.874	0.850	0.865
Trucks	Share of Drivers Belted	.838	.850	.830	0.813	0.792	0.753	0.770
	Share of Passengers Belted	.829	.848	.789	0.782	0.764	0.742	0.761
	Share of Occupants Belted	<b>.835</b>	.850	0.806	0.787	0.750	0.768	0.714

Table 1 shows that the use of seat belts in “Vans” has decreased the most since the previous surveys.

According to federal guidelines, the reliability of the survey results should be within the 95 percent confidence interval. The **standard error was determined to be 0.0055**. The data were analyzed and found to be well within a standard error of 2.5 percentage points as required by NHTSA guidelines.

### Regional Differences

Survey results reflect restraint use by the driver and outboard passenger in a probability sample of vehicles drawn from the Boroughs with the greatest motor vehicle fatality rates in Alaska. The potential sample sites were selected from the Boroughs of Anchorage, Matanuska-Susitna, Juneau, Kenai Peninsula, and Fairbanks North Star.

Table 2 presents the share of drivers, passengers, and occupants who were wearing seat belts, sorted by region and the changes across years. The table presents data from 2006 through 2012.

**Table 2: Seat belt Use by Region**

<b>All Vehicles</b>		<b>2012</b>	<b>2011</b>	<b>2010</b>	<b>2009</b>	<b>2008</b>	<b>2007</b>	<b>2006</b>
All Regions	Drivers Belted	0.881	0.893	0.874	0.866	0.859	0.828	0.837
	Passengers Belted	0.888	0.892	0.846	0.841	0.812	0.810	0.832
	Share of Occupants	<b>0.881</b>	0.893	0.868	0.861	0.849	0.824	0.832
Anchorage	Drivers Belted	0.933	0.917	0.894	0.875	0.874	0.839	0.848
	Passengers Belted	0.905	0.917	0.861	0.853	0.828	0.808	0.838
	Share of Occupants	<b>0.926</b>	0.917	0.888	0.871	0.865	0.833	0.846
Fairbanks	Drivers Belted	0.869	0.867	0.844	0.855	0.841	0.822	0.820
	Passengers Belted	0.788	0.858	0.848	0.835	0.783	0.797	0.755
	Share of Occupants	<b>0.865</b>	0.865	0.845	0.851	0.828	0.817	0.807
Juneau	Drivers Belted	0.801	0.838	0.803	0.796	0.816	0.770	0.758
	Passengers Belted	0.808	0.864	0.767	0.769	0.814	0.770	0.684
	Share of Occupants	<b>0.802</b>	0.844	0.797	0.793	0.815	0.770	0.745
Kenai	Drivers Belted	0.829	0.809	0.842	0.849	0.756	0.729	0.785
	Passengers Belted	0.847	0.720	0.768	0.840	0.709	0.717	0.819
	Share of Occupants	<b>0.829</b>	0.788	0.823	0.847	0.745	0.726	0.793
MatSu	Drivers Belted	0.882	0.890	0.823	0.864	0.837	0.803	0.784
	Passengers Belted	0.893	0.924	0.809	0.791	0.795	0.893	0.890
	Share of Occupants	<b>0.884</b>	0.898	0.819	0.849	0.826	0.826	0.809

Table 2 shows seat belt use in Alaska has risen 5.9 percent from 2006 to 2012. Historically, the greatest annual increase was from 2002 to 2003, when seat belt use by all occupants rose by 20 percent. Anchorage had the highest seat belt use of any area in the state, while Juneau had the lowest. Fairbanks “passengers” had the lowest usage rate for all regions.

Table 3 presents the vehicles and the percentage of seat belt use by drivers and passengers in each borough sampled in 2012.

**Table 3: Occupant Restraint Use (%) by Vehicle Type & Borough - 2012**

	Area Wide	Anchorage	Fairbanks	Juneau	Kenai	Mat-Su
<b>ALL VEHICLES</b>						
Drivers Belted	88.1%	92.8	86.2	79.6	83.3	87.5
Passengers Belted	88.8%	89.7	85.5	81.7	84.2	89.6
% of Occupants Belted	<b>88.1%</b>	<b>92.6</b>	<b>86.1</b>	<b>79.6</b>	<b>83.5</b>	<b>87.7</b>
<b>CARS</b>						
Drivers Belted	90.3	93.7	87.8	80.5	86.1	87.1
Passengers Belted	89.0	92.2	85.7	84.3	87.4	89.1
% of Occupants Belted	<b>89.8</b>	<b>93.4</b>	<b>87.4</b>	<b>81.3</b>	<b>86.4</b>	<b>87.6</b>
<b>SUVs</b>						
Drivers Belted	91.4	94.7	89.9	86.6	86.1	91.2
Passengers Belted	89.6	91.6	89.3	86.5	85.3	92.9
% of Occupants Belted	<b>91.1</b>	<b>94.1</b>	<b>89.4</b>	<b>86.5</b>	<b>85.9</b>	<b>91.6</b>
<b>TRUCKS</b>						
Drivers Belted	83.8	89.6	81.8	71.2	79.4	84.2
Passengers Belted	82.9	84.0	81.1	75.0	80.5	87.1
% of Occupants Belted	<b>83.5</b>	<b>88.7</b>	<b>81.7</b>	<b>71.9</b>	<b>79.7</b>	<b>84.9</b>
<b>VANS</b>						
Drivers Belted	89.1	91.6	84.9	77.3	84.7	89.6
Passengers Belted	86.4	88.6	85.9	74.2	86.0	89.6
% of Occupants Belted	<b>88.1</b>	<b>91.0</b>	<b>85.1</b>	<b>76.5</b>	<b>85.0</b>	<b>89.6</b>

Table 3 shows that seat belt usage rates for the Kenai Borough improved in 2012, while the usage rates for Juneau decreased. Juneau's "truck" occupant restraint usage rates continue to lag behind most of the other communities in Alaska.

### Cell Phone Use

To establish a trend line, surveyors in all communities were asked to document cell phone use for the drivers of the vehicles. The observed cell phone usage rate for drivers in 2012 was 6.5%, which the same as 2011, and was up from 5.1% in the 2010. The observed usage rates by borough were: MatSu 11.7%, Kenai Peninsula 5.9%, Juneau 5.4%, Fairbanks 5.3%, and Anchorage 5.0%.

### Daytime Headlight Use

The use of daytime headlights on motor vehicles is a proven crash prevention strategy, so the frequency of their use was observed during the surveys. The rate of headlight use by borough was: Kenai 57.9%, Juneau 57.0%, MatSu 54.9%, Fairbanks 47.2% and



Anchorage 46.4%. Of the 25,882 vehicles observed, 51.3% had their headlights on during daylight hours, compared to 40.5% last year.

### **Conclusions**

The survey methodology for observing seat belt use changed in 2012 for the entire U.S. and territories. Alaska was one of the few states that had their new methodology approved by NHTSA. The overall observed seat belt usage rate for Alaska in 2012 decreased by 1.2 percentage points to the second highest level to date. The sampling methodology and statistical analyses used in this survey yielded results well within the parameters required by the Alaska Highway Safety Office and the National Highway Traffic Safety Administration.

SUV and car occupants were the leaders for seat belt usage this year and vans dropped by 3 percentage points. The lowest seat belt usage rates by vehicle were still truck occupants, with Kenai and Juneau being the lowest in the state, but Juneau was nearly 8 percentage points lower than Kenai this year.

The outboard front “passenger” rates were higher than for drivers in Anchorage and Fairbanks but lower than drivers in Juneau, Kenai, and MatSu. Overall, there were very slight decreases in seat belt use in every region. One possible explanation for the slight decreases may have been due to the mandatory inclusion of all commercial passenger vehicles under 10,000 pounds. Anecdotally, the surveyors were surprised to see many drivers and passengers in State owned vehicles not buckled.

Alaska has a Primary Seat Belt law, which should be enforced even more strictly with State workers. The federal funding for enforcement should target communities and vehicles where occupant restraint usage is the lowest.

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