



# Seat Belt Use in 2010—Overall Results

Seat belt use in 2010 reached 85 percent, a gain from 84 percent in 2009. This result is from the National Occupant Protection Use Survey (NOPUS) which is the only survey that provides nationwide probability-based observed data on seat belt use in the United States. The NOPUS is conducted annually by the National Center for Statistics and Analysis of the National Highway Traffic Safety Administration.

Seat belt use has been increasing steadily since 1994, accompanied by a steady decline in percent of unrestrained passenger vehicle occupant fatalities during daytime (Figure 1).

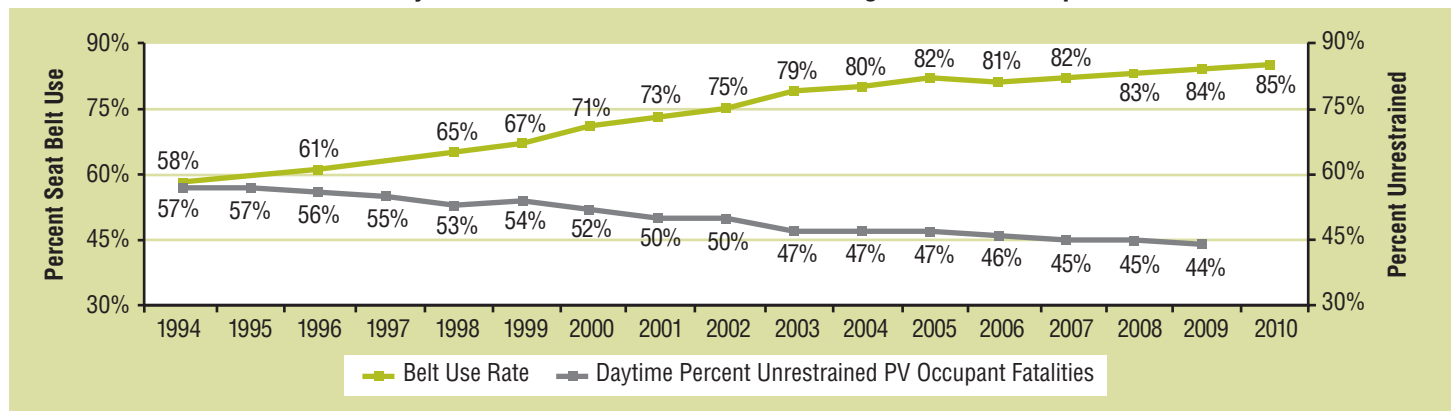
The 2010 survey also found the following:

- Seat belt use for occupants traveling during weekdays

increased significantly from 83 percent in 2009 to 85 percent in 2010 (Figure 2).

- Seat belt use continued to be higher in the States in which vehicle occupants can be pulled over solely for not using seat belts (“primary law States”) as compared with the States with weaker enforcement laws (“secondary law States”) or without seat belt laws (Figure 3).
- Seat belt use for occupants in rural areas increased significantly from 81 percent in 2009 to 83 percent in 2010 (Table 1).
- Seat belt use for occupants traveling on expressways increased significantly from 89 percent in 2009 to 91 percent in 2010 (Table 1).

Figure 1  
NOPUS Seat Belt Use Rate and Daytime Percent of Unrestrained Passenger Vehicle Occupant Fatalities



(Source: NOPUS and FARS)

Figure 2  
Seat Belt Use by Time of Week (Source: NOPUS)

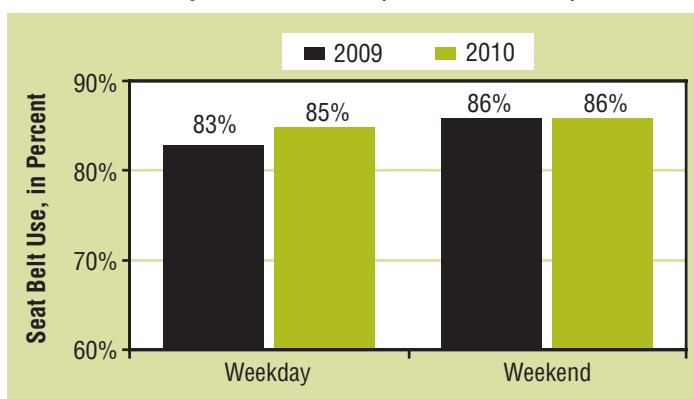


Figure 3  
Seat Belt Use by Law Type (Source: NOPUS)

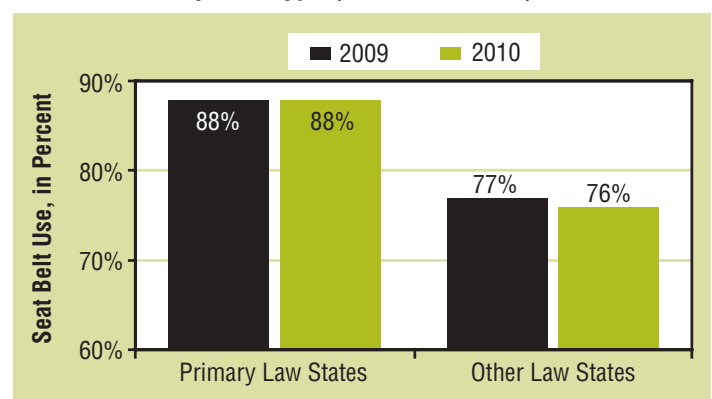


Table 1  
**Seat Belt Use by Major Characteristics**

Occupant Group <sup>1</sup>	2009		2010		2009 -2010 Change	
	Belt Use <sup>2</sup>	Confidence That Use Is High or Low in Group <sup>3</sup>	Belt Use <sup>2</sup>	Confidence That Use Is High or Low in Group <sup>3</sup>	Change in Percentage Points	Confidence in a Change in Use <sup>4</sup>
All Occupants	84%		85%		1	75%
Drivers	85%	<b>100%</b>	86%	<b>100%</b>	1	77%
Right-Front Passengers	82%	<b>100%</b>	83%	<b>100%</b>	1	55%
Occupants in States With <sup>5</sup>						
Primary Enforcement Laws	88%	<b>100%</b>	88%	<b>100%</b>	0	14%
Secondary Enforcement Laws	77%	<b>100%</b>	76%	<b>100%</b>	-1	36%
Occupants Traveling on						
Expressways	89%	<b>100%</b>	91%	<b>100%</b>	2	<b>93%</b>
Surface Streets	81%	<b>100%</b>	82%	<b>100%</b>	1	69%
Occupants Traveling in						
Fast Traffic	88%	<b>100%</b>	88%	<b>100%</b>	0	60%
Medium-Speed Traffic	83%	78%	85%	66%	2	79%
Slow Traffic	78%	<b>100%</b>	80%	<b>100%</b>	2	56%
Occupants Traveling in						
Heavy Traffic	92%	NA*	90%	81%	-2	NA*
Moderately Dense Traffic	83%	60%	92%	<b>100%</b>	9	<b>93%</b>
Light Traffic	84%	57%	85%	<b>100%</b>	1	62%
Occupants Traveling Through						
Light Precipitation	83%	78%	82%	<b>96%</b>	-1	28%
Light Fog	78%	<b>90%</b>	79%	78%	1	7%
Clear Weather Conditions	84%	85%	86%	<b>96%</b>	2	78%
Occupants in						
Passenger Cars	86%	<b>100%</b>	86%	<b>100%</b>	0	54%
Vans and SUVs	87%	<b>100%</b>	88%	<b>100%</b>	1	75%
Pickup Trucks	74%	<b>100%</b>	75%	<b>100%</b>	1	66%
Occupants in the						
Northeast	82%	81%	82%	89%	0	21%
Midwest	81%	<b>93%</b>	81%	<b>99%</b>	0	31%
South	82%	82%	84%	73%	2	60%
West	93%	<b>100%</b>	95%	<b>100%</b>	2	74%
Occupants in						
Urban Areas	83%	60%	81%	86%	-2	55%
Suburban Areas	86%	<b>100%</b>	87%	<b>100%</b>	1	69%
Rural Areas	81%	<b>100%</b>	83%	<b>99%</b>	2	<b>94%</b>
Occupants Traveling During						
Weekdays	83%	<b>99%</b>	85%	88%	2	<b>92%</b>
Weekday Rush Hours	84%	<b>96%</b>	86%	<b>98%</b>	2	<b>94%</b>
Weekday Non-Rush Hours	82%	<b>96%</b>	84%	<b>98%</b>	2	81%
Weekends	86%	<b>99%</b>	86%	88%	0	3%

<sup>1</sup> Drivers and right-front passengers of passenger vehicles with no commercial or government markings

<sup>2</sup> Use of shoulder belts observed between 7 a.m. and 6 p.m.

<sup>3</sup> The statistical confidence that use in the occupant group (e.g. occupants in urban areas) is higher or lower than use in the corresponding complementary occupant group (e.g., occupants in suburban and rural areas). Confidences that meet or exceed 90 percent are formatted in boldface type. Confidences are rounded to the nearest percentage point, and so confidences reported as "100 percent" are between 99.5 percent and 100.0 percent.

<sup>4</sup> The degree of statistical confidence that the 2010 use rate is different from the 2009 rate.

<sup>5</sup> Use rates reflect the laws in effect at the time data were collected.

**NA:** Estimates cannot be computed since all observations for this occupant group (occupants traveling in heavy traffic) were done in a single Primary Sampling Unit in 2009.

**Data Source:** National Occupant Protection Use Survey, National Highway Traffic Safety Administration, National Center for Statistics and Analysis

## Survey Methodology

The National Occupant Protection Use Survey is the only nationwide probability-based observational survey of seat belt use in the United States. The survey observes seat belt use as it actually occurs at randomly selected roadway sites, and thus provides the best tracking of the extent to which passenger vehicle occupants in this country are buckling up.

Table 2  
**Sites, Vehicles, and Occupants\* Observed**

Numbers of	2009	2010	Percentage Change
Sites Observed	1,823	1,783	-2%
Vehicles Observed	100,000	97,000	-3%
Occupants Observed*	127,000	124,000	-2%

\*Drivers and right-front passengers only.

The survey data is collected by sending trained observers to probabilistically sampled roadways, who observe passenger vehicles between 7 a.m. and 6 p.m. Observations are made either while standing at the roadside or, in the case of expressways, while riding in a vehicle in the traffic. In order to capture the true behavior of passenger vehicle occupants, the NOPUS observers do not stop vehicles or interview occupants. The 2010 NOPUS data was collected between June 7 and June 26, 2010, while the 2009 data was collected between June 1 and June 20, 2009.

The NOPUS uses a complex multistage probability sample, statistical data editing, imputation of unknown values, and complex estimation and variance estimation procedures. The 2010 NOPUS continued the transition to the newly designed sample of observation sites, which was implemented in 2006. The 2010 results reflect the partial incorporation of a set of observation sites from the new design (about 75%) and a set of the observation sites from the old design (about 25%). Data from 2005 and prior years was obtained from the old observation sites only. Table 2 shows the observed sample sizes of the 2010 NOPUS Moving Traffic Survey. A total of 124,000 occupants were observed in the 97,000 vehicles at the 1,783 data collection sites.

Because the NOPUS sites were selected probabilistically, we can analyze the statistical significance of its results. Statistically significant increases in seat belt use between 2009 and 2010 are identified in Table 1 by having a result that is 90 percent or greater in the table's column 7. Statistical confidences that use in a given occupant group, e.g., occupants in the Midwest, is higher or lower than in the complementary occupant group, e.g., occupants in the Northeast, South, and West, are provided in columns 3 and 5 of Table 1. Such comparisons are made within categories, such as road type, delineated by changes in row shading in the table. The exception to this is the grouping "Occupants Traveling During ...," in which weekdays are compared to weekends, and weekday rush hours to weekday non-rush hours.

Data collection, estimation, and variance estimation for the NOPUS are conducted by Westat, Inc., under the direction of the National Center for Statistics and Analysis in NHTSA under Federal contract number DTNH22-07-D-00057.

Table 3  
**States With Primary Enforcement Seat Belt Laws\***

Alabama	Alaska	Arkansas	California
Connecticut	Delaware	District of Columbia	Florida
Georgia	Hawaii	Illinois	Indiana
Iowa	Kentucky	Louisiana	Maine
Maryland	Michigan	Minnesota	Mississippi
New Jersey	New Mexico	New York	North Carolina
Oklahoma	Oregon	South Carolina	Tennessee
Texas	Washington	Wisconsin	

\*States with laws in effect as of May 31, 2010.  
The District of Columbia is included in the table.

## Definitions

Under NOPUS observation protocols, a driver or right-front passenger is considered "belted" if a shoulder belt appears to be across the front of the body.

A jurisdiction that can enforce traffic laws, such as a State or the District of Columbia, has a "primary enforcement law" if occupants can be ticketed simply for not using their seat belts. Under "secondary enforcement laws" occupants must be stopped for another violation, such as an expired license tag, before being cited for seat belt nonuse. As of May 31, 2010, primary laws were in effect in 30 States and the District of Columbia, 19 States had secondary laws, and 1 State (New Hampshire) effectively has no adult seat belt laws. (In New Hampshire, it is legal for occupants over age 18 to ride unbelted.) Table 3 provides a list of the States with "primary enforcement laws." Table 3 does not include Kansas because the effective date of its "primary enforcement law," June 10, 2010, is after the start of the 2010 NOPUS data collection period.

"Expressways" are defined to be roadways with limited access, while "surface streets" comprise all other roadways. "Rush hours" is defined to comprise the time periods 7 to 9:30 a.m. and 3:30 to 6 p.m.

A roadway is defined to have "fast traffic" if during the observation period the average speed of passenger vehicles that pass the observer exceeds 50 mph, with "medium-speed traffic" defined as 31 to 50 mph and "slow traffic" defined as 30 mph or slower.

A roadway is defined to have "heavy traffic" if the average number of vehicles per lane mile on the roadway during the observation period exceeds 45, with "moderately dense traffic" defined as 26 to 45 vehicles per lane mile and "light traffic" having at most 25 vehicles per lane mile.

The survey uses the following definitions of geographic regions, which are defined in terms of the States contained in the region below:

Northeast: CT, MA, ME, NH, NJ, NY, PA, RI, VT

Midwest: IA, KS, IL, IN, MI, MN, MO, ND, NE, OH, SD, WI

South: AL, AR, DC, DE, FL, GA, KY, LA, MD, MS, NC, OK, SC, TN, TX, VA, WV

West: AK, AZ, CA, CO, HI, ID, MT, NM, NV, OR, UT, WA, WY

Seat belt use rates reflect the State laws in effect at the time of data collection.

## For More Information

This Research Note was written by Timothy M. Pickrell, a mathematical statistician in the Mathematical Analysis Division, National Center for Statistics and Analysis, NHTSA, and by Tony Jianqiang Ye, mathematical statistician, a contractor working with the Mathematical Analysis Division, National Center for Statistics and Analysis, NHTSA. For

questions regarding the information presented in this document, please contact [timothy.pickrell@dot.gov](mailto:timothy.pickrell@dot.gov).

Additional data and information on the survey design and analysis procedures will be available in upcoming publications to be posted at the Web site <http://www-nrd.nhtsa.dot.gov/cats/index.aspx> in 2010.

Research has found that lap / shoulder seat belts, when used, reduce the risk of fatal injury to front-seat passenger car occupants by 45 percent and the risk of moderate-to-critical injury by 50 percent. In 2009 alone, seat belts saved an estimated 12,713 lives (Traffic Safety Facts: 2009 Data, NHTSA). For more information on the campaign by NHTSA and the States to increase seat belt use, see <http://www.nhtsa.gov/CIOT>.

The NOPUS also observes other types of restraints, such as child restraints and motorcycle helmets, and observes driver electronic device use. This publication is part of a series that presents overall results from the survey on these topics. Please refer to the upcoming research notes and technical reports in the series, such as "Motorcycle Helmet Use in 2010–Overall Results," for the latest data on these topics.



U.S. Department  
of Transportation  
**National Highway  
Traffic Safety  
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This research note and other general information on highway traffic safety may be accessed by Internet users at: [www-nrd.nhtsa.dot.gov/CATS/index.aspx](http://www-nrd.nhtsa.dot.gov/CATS/index.aspx)