



# TRAFFIC SAFETY FACTS

## Research Note

DOT HS 811 691

November 2012

# Seat Belt Use in 2012—Overall Results

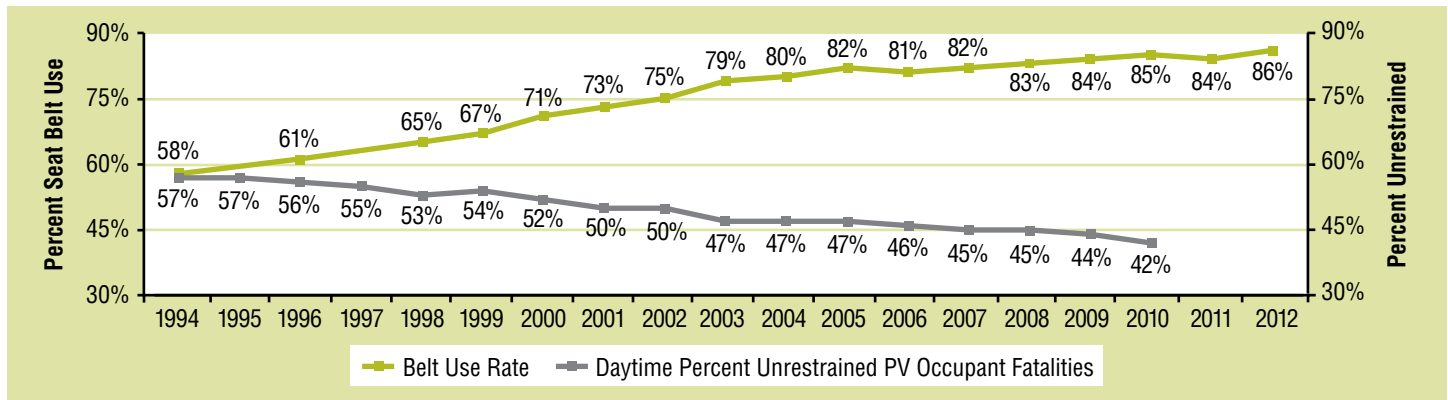
Seat belt use in 2012 reached 86 percent, a significant increase from 84 percent in 2011. This result is from the National Occupant Protection Use Survey (NOPUS), which is the only survey that provides nationwide probability-based observed data on seat belt use in the United States. The NOPUS is conducted annually by the National Center for Statistics and Analysis of the National Highway Traffic Safety Administration.

Seat belt use has shown an increasing trend since 1994, accompanied by a steady decline in the percentage<sup>1</sup> of unrestrained passenger vehicle (PV) occupant fatalities during daytime (Figure 1).

The 2012 survey also found the following:

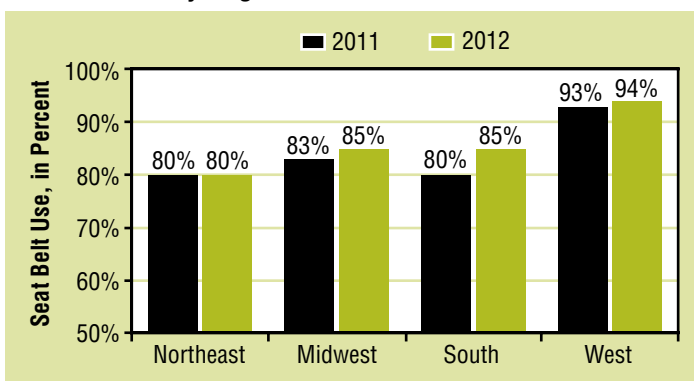
- Seat belt use for occupants in the South increased significantly from 80 percent in 2011 to 85 percent in 2012 (Figure 2).
- Seat belt use continued to be higher in the States in which vehicle occupants can be pulled over solely for not using seat belts (“primary law States”) as compared with the States with weaker enforcement laws (“secondary law States”) or without seat belt laws (Figure 3).
- Seat belt use increased significantly in 2012 as compared to 2011 among drivers, right-front passengers, occupants in primary law States as well as in secondary law States, occupants traveling during weekdays, and across occupants of all vehicle types (Table 1).

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



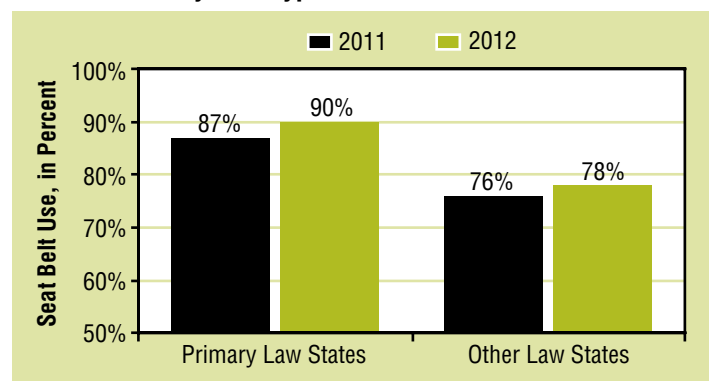
(Source: NOPUS and FARS)

Figure 2  
Seat Belt Use by Region



(Source: NOPUS)

Figure 3  
Seat Belt Use by Law Type



(Source: NOPUS)

<sup>1</sup>The 2011 and 2012 data on the percentage of unrestrained passenger vehicle occupant fatalities during daytime are not yet available.

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

Occupant Group <sup>1</sup>	2011		2012		2011 – 2012 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%		86%		2	<b>99%</b>
Drivers	84%	<b>100%</b>	87%	<b>100%</b>	3	<b>99%</b>
Right-Front Passengers	82%	<b>100%</b>	84%	<b>100%</b>	2	<b>92%</b>
Occupants in States With <sup>5</sup>						
Primary Enforcement Laws	87%	<b>100%</b>	90%	<b>100%</b>	3	<b>98%</b>
Secondary Enforcement Laws	76%	<b>100%</b>	78%	<b>100%</b>	2	<b>99%</b>
Occupants Traveling on						
Expressways	89%	<b>100%</b>	91%	<b>100%</b>	2	<b>95%</b>
Surface Streets	81%	<b>100%</b>	83%	<b>100%</b>	2	<b>96%</b>
Occupants Traveling in						
Fast Traffic	88%	<b>100%</b>	90%	<b>100%</b>	2	<b>94%</b>
Medium-Speed Traffic	83%	76%	84%	<b>99%</b>	1	48%
Slow Traffic	76%	<b>100%</b>	80%	<b>100%</b>	4	<b>96%</b>
Occupants Traveling in						
Heavy Traffic	87%	<b>100%</b>	89%	<b>100%</b>	2	<b>90%</b>
Moderately Dense Traffic	82%	<b>91%</b>	85%	90%	3	<b>95%</b>
Light Traffic	70%	<b>100%</b>	74%	<b>100%</b>	4	<b>98%</b>
Occupants Traveling Through						
Light Precipitation	84%	56%	86%	60%	2	70%
Light Fog	93%	<b>100%</b>	99%	<b>100%</b>	6	<b>100%</b>
Clear Weather Conditions	84%	69%	86%	<b>93%</b>	2	<b>97%</b>
Occupants in						
Passenger Cars	85%	<b>100%</b>	87%	<b>99%</b>	2	<b>98%</b>
Vans and SUVs	87%	<b>100%</b>	89%	<b>100%</b>	2	<b>96%</b>
Pickup Trucks	74%	<b>100%</b>	77%	<b>100%</b>	3	<b>95%</b>
Occupants in the						
Northeast	80%	88%	80%	<b>98%</b>	0	15%
Midwest	83%	69%	85%	75%	2	87%
South	80%	<b>95%</b>	85%	67%	5	<b>95%</b>
West	93%	<b>100%</b>	94%	<b>100%</b>	1	<b>100%</b>
Occupants in						
Urban Areas	85%	57%	86%	53%	1	48%
Suburban Areas	86%	<b>97%</b>	87%	<b>97%</b>	1	<b>91%</b>
Rural Areas	81%	<b>99%</b>	84%	<b>93%</b>	3	<b>97%</b>
Occupants Traveling During						
Weekdays	83%	<b>99%</b>	86%	<b>92%</b>	3	<b>99%</b>
Weekday Rush Hours	83%	64%	86%	65%	3	<b>98%</b>
Weekday Non-Rush Hours	83%	64%	85%	65%	2	<b>98%</b>
Weekends	86%	<b>99%</b>	87%	<b>92%</b>	1	84%

<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 the hours of 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 2012 use rate is different from the 2011 rate.

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

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	2011	2012	Percentage Change
Sites Observed	1,700	1,700	0%
Vehicles Observed	78,324	73,460	-6%
Occupants Observed*	99,320	93,008	-6%

\*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 traffic. In order to capture the true behavior of passenger vehicle occupants, the NOPUS observers do not stop vehicles or interview occupants. The 2012 NOPUS data was collected between June 4 and June 17, 2012, while the 2011 data was collected between June 6 and June 17, 2011.

The NOPUS uses a complex, multistage probability sample, statistical data editing, imputation of unknown values, and complex estimation procedures. The sample sites for the 2012 NOPUS were entirely from the 2006 NOPUS sample redesign without incorporating any sites from the old design. During the transitional years between 2006 and 2010, sample sites were chosen both from the new design and the old design. Prior to 2006, sample sites were from the old design only. Table 2 shows the observed sample sizes of the 2012 NOPUS Moving Traffic Survey. A total of 93,008 occupants were observed in the 73,460 vehicles at the 1,700 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 2011 and 2012 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	Kansas	Kentucky	Louisiana
Maine	Maryland	Michigan	Minnesota
Mississippi	New Jersey	New Mexico	New York
North Carolina	Oklahoma	Oregon	Rhode Island
South Carolina	Tennessee	Texas	Washington
Wisconsin			

\*States with laws in effect as of May 31, 2012.

## 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, 2012, primary laws were in effect in 32 States and the District of Columbia, 17 States had secondary laws, and 1 State (New Hampshire) effectively has no 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". The primary seat belt law in Rhode Island took effect on June 30, 2011.

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

A roadway is defined to have "fast traffic" if during the observation period the average speed of passenger vehicles that pass the observers exceeds 50 mph, with "medium-speed traffic" defined as 31 - 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 on the roadway during the observation period is greater than 5 per lane per mile, with "moderately dense traffic" defined as greater than 1 but less than or equal to 5 vehicles per lane per mile, and "light traffic" as less than or equal to 1 vehicle per lane per mile. Please note that this traffic density breakdown has been revised in the 2011 NOPUS to better capture the traffic patterns.

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, a statistician employed by Bowhead Systems Management, Inc., working with

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 2012.

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 2010 alone, seat belts saved an estimated 12,546 lives (Traffic Safety Facts: 2010 Data, NHTSA, DOT HS 811 619). 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 2012– Overall Results," for the latest data on these topics.

For citation purposes, the suggested APA format for this document is:

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