

# Traffic Safety Facts

## Research Note

# Seat Belt Use in 2007 — Overall Results

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Seat belt use in 2007 stood at 82 percent, a slight gain from 81 percent use in 2006. This result is from the National Occupant Protection Use Survey (NOPUS), which provides the only 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.

The 2007 survey also found the following:

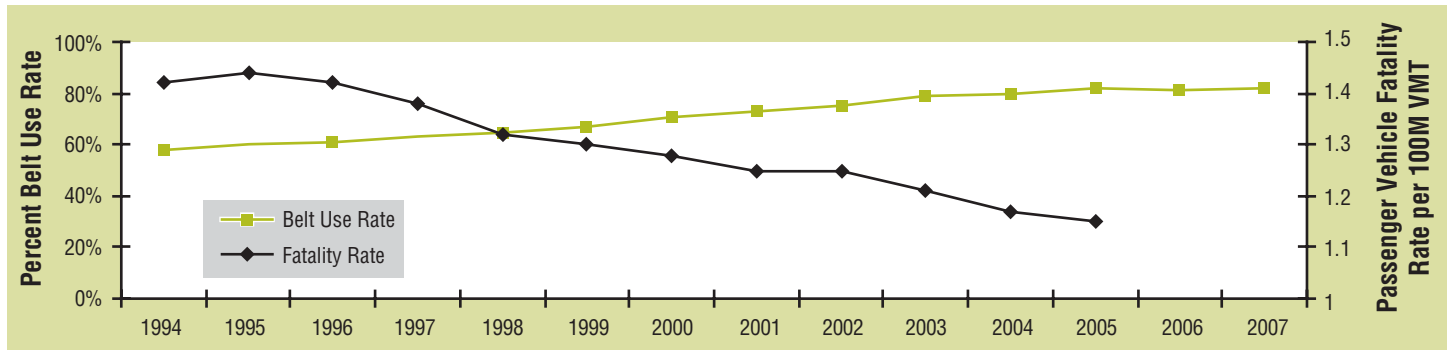
- Belt use in States in which motorists can be pulled over solely for not using seat belts rose 2 percentage points to

87 percent in 2007. There is now a 14-percentage-point difference between use in these States and those with weaker enforcement laws.

- Belt use in the West stood at 93 percent, and use jumped 4 percentage points in the Northeast, to 78 percent in 2007.

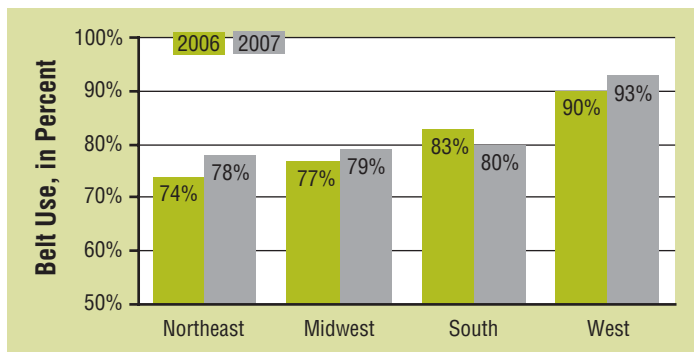
Seat belt use has risen steadily since NOPUS began collecting data in 1994, and this has been accompanied by a steady decline in passenger vehicle occupant fatalities per mile traveled.

### Seat Belt Use Versus Passenger Vehicle Occupant Fatality Rate, 1994-Present



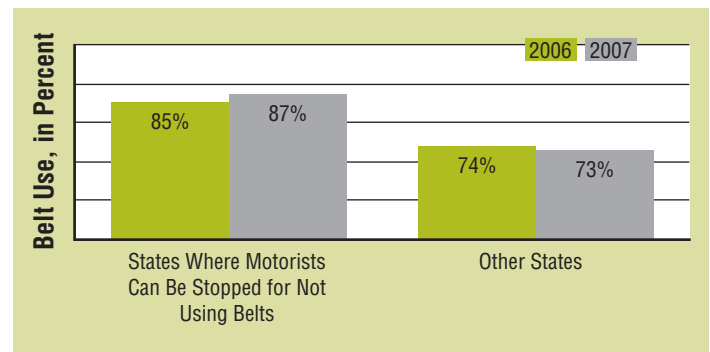
Source: NOPUS and FARS, NHTSA's National Center for Statistics and Analysis; FHWA

### Seat Belt Use by Geographic Region



Source: National Occupant Protection Use Survey, NHTSA's National Center for Statistics and Analysis, 2006, 2007

### Seat Belt Use by Ambient Enforcement Law



Source: National Occupant Protection Use Survey, NHTSA's National Center for Statistics and Analysis, 2006, 2007

## Seat Belt Use by Major Characteristics

Motorist Group <sup>1</sup>	2006		2007		2006-2007 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>	Conversion Rate <sup>5</sup>
All Motorists	81%		82%		1	75%	7%
Drivers	82%	97%	83%	100%	1	56%	5%
Right Front Passengers	78%	97%	81%	100%	3	97%	11%
Motorists in States with <sup>6</sup>							
Primary Enforcement Laws	85%	100%	87%	100%	2	93%	14%
Secondary Enforcement Laws	74%	100%	73%	100%	-1	47%	-4%
Motorists on							
Expressways	89%	100%	89%	100%	0	51%	-9%
Surface Streets	81%	100%	80%	100%	1	23%	-2%
Motorists Traveling in							
Fast Traffic	84%	92%	86%	100%	2	91%	15%
Medium Speed Traffic	83%	91%	82%	59%	-1	33%	-5%
Slow Traffic	79%	98%	78%	99%	-1	15%	-2%
Motorists Traveling in							
Heavy Traffic	96%	100%	84%	60%	-12	88%	-342%
Moderately Dense Traffic	85%	87%	81%	62%	-4	50%	-26%
Light Traffic	81%	93%	82%	58%	1	85%	8%
Motorists Traveling Through							
Light Precipitation	82%	74%	81%	72%	-1	33%	-8%
Light Fog	94%	100%	82%	51%	-12	98%	-195%
Clear Weather Conditions	81%	97%	83%	71%	2	92%	10%
Motorists in							
Passenger Cars	82%	86%	84%	100%	2	86%	10%
Vans & SUVs	84%	97%	86%	100%	2	99%	14%
Pickup Trucks	74%	100%	72%	100%	-2	62%	-7%
Motorists in the							
Northeast	74%	100%	78%	94%	4	99%	17%
Midwest	77%	96%	79%	94%	2	78%	9%
South	83%	89%	80%	82%	-3	89%	-16%
West	90%	100%	93%	100%	3	95%	34%
Motorists in							
Urban Areas	79%	70%	84%	68%	5	75%	22%
Suburban Areas	84%	99%	85%	100%	1	47%	5%
Rural Areas	78%	98%	78%	100%	0	26%	2%
Motorists Traveling During							
Weekdays	81%	63%	82%	98%	1	47%	4%
Weekday Rush Hours	83%	89%	83%	97%	0	20%	2%
Weekday Non-rush Hours	80%	89%	81%	97%	1	46%	5%
Weekends	82%	63%	84%	98%	2	89%	13%

<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 level of statistical confidence that use in the motorist group (e.g. motorists in urban areas) is higher or lower than use in the corresponding complementary motorist group (e.g., motorists in suburban and rural areas). Confidence levels that meet or exceed 90% are formatted in boldface type. Confidence levels are rounded to the nearest percentage point, and so levels reported as "100%" confidence are between 99.5% and 100.0%.

<sup>4</sup> The degree of statistical confidence that the 2007 use rate is different from the 2006 rate.

<sup>5</sup> The "conversion rate" is the percentage reduction in belt nonuse (calculation based on un-rounded rates). Negative conversion rates reflect a decrease in the estimated use rates.

<sup>6</sup> Use rates reflect the laws in effect at the time data were collected.

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 (NOPUS) is the only probability-based observational survey of seat belt use in the United States. The survey observes usage as it actually occurs at a random selection of roadway sites, and so provides the best tracking of the extent to which motorists in this country are buckling up.

### Sites, Vehicles, and Motorists Observed

Numbers of	2006	2007
Sites Observed	2,000	2,000
Vehicles Observed	126,000	133,000
Occupants Observed <sup>1</sup>	162,000	169,000

<sup>1</sup>Drivers and right-front passengers only.

The survey data is collected by sending trained observers to probabilistically sampled roadways, who observe vehicles between the hours of 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. Observers do not stop vehicles or interview occupants, so that the NOPUS captures the untainted behavior of motorists. The 2007 NOPUS data was collected between June 4 and June 25, while the 2006 data was collected between June 5 and June 26, 2006.

Because the NOPUS sites were chosen through probabilistic means, we can analyze the statistical significance of its results. Statistically significant increases in belt use between 2006 and 2007 are identified in the table “Seat belt Use by Major Characteristics” by having a result that is 90 percent or greater in the table’s column 7. Statistical confidence levels that use in a given motorist group, e.g., motorists in the Midwest, is higher or lower than in the complementary motorist group, e.g., motorists in the Northeast, South, and West, are provided in columns 3 and 5. Such comparisons are made within categories, such as road type, delineated by changes in row shading in the tables. The exception to this is the grouping “Motorists Traveling During ...,” in which weekdays are compared to weekends, and weekday rush hour to weekday non-rush hour.

The NOPUS uses a complex multistage probability sample, statistical data editing, imputation of unknown values, and complex estimation and variance estimation procedures. The 2007 survey results reflect the partial incorporation of a new set of probabilistically-designed observation sites. Specifically, like the 2006 survey, the 2007 survey used half of the observation sites from the survey years before 2006 and half of the sites from the newly designed sample of observation sites. Data from 2005 and prior years were obtained from the old observation sites only.

In order to better capture early commuters, the NOPUS began collecting data one hour earlier in 2007. NOPUS data collection now begins at 7 a.m., instead of 8 a.m. in the 2006

and prior surveys. The survey also changed its definitions of “weekday rush hour” in order to end the morning rush hour 30 minutes earlier. The definition of weekday rush hour in 2006 and prior survey years was that data collection at the site began before 10 a.m. or after 3:30 p.m. The definition used in 2007 is that data collection at the site began before 9:30 a.m. or after 3:30 p.m. Neither the new start time nor the new definition of rush hour appeared to have an appreciable impact on the survey results.

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.

### States With Primary Enforcement Seat Belt Laws<sup>1</sup>

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

<sup>1</sup>States with laws in effect as of June 30, 2007. Also includes DC. During the period July 1, 2006 – June 30, 2007, only in Kentucky did a primary law take effect. Since Maine’s primary law took effect on Sept 17, 2007, it is not included in this table. Under a primary enforcement law, motorists can be stopped and ticketed solely for not using seat belts.

## 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 motorists can be ticketed simply for not using their belts. Under a “secondary enforcement law” motorists must be stopped for another violation, such as an expired license tag, before being cited for belt nonuse. In June 2007, primary laws were in effect in 25 States and the District of Columbia, 24 States had secondary laws, and 1 State (New Hampshire) effectively has no belt law. (In New Hampshire, it is legal for motorists over age 18 to ride unbelted.) A primary enforcement law took effect in Kentucky in July 2006. No such law took effect in other States during the period July 1, 2006 – June 30, 2007. Maine’s primary enforcement seat belt law took effect on September 17, 2007 but no tickets will be written for violations until April 1, 2008.

The “conversion rate” is the percentage reduction in belt nonuse. This rate roughly reflects the percentage of belt nonusers in 2006 who were “converted” to using belts in 2007.

“Expressways” are defined to be roadways with limited access, while “surface streets” comprise all other roadways. “Rush hour” is defined to comprise the time periods 7 – 9:30 a.m. and 3:30 – 6 p.m. for the 2007 data, and 8 – 10 a.m. and 3:30 – 6 p.m. for the 2006 data.

A roadway is defined to have “fast traffic” if during the observation period the average speed of passenger vehicles that passed the observer(s) exceeded 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 per lane mile on the roadway during the observation period exceeded 45 vehicles per lane mile, with “moderately dense traffic” defined as 26 – 45 vehicles per lane per mile and “light traffic” having at most 25 vehicles per lane per 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

## For More Information

Detailed analyses of the data in this publication, as well as 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/CMSWeb/index.aspx> in 2008.

Seat belts are approximately 50 percent effective at preventing fatality and save approximately 15,000 lives each year. (Traffic Safety Facts: 2005 Data, NHTSA, DOT HS 810621). For more information on the campaign by NHTSA and the States to increase seat belt use, see [www.buckleupamerica.org](http://www.buckleupamerica.org).

The NOPUS also observes other types of restraints, such as child restraints and motorcycle helmets, and observes driver cell phone use. This publication is part of a series that presents overall results from the survey on these topics. Please see other notes in the series, such as “Motorcycle Helmet Use in 2007 – Overall Results,” for the latest data on these topics.



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