

Traffic Safety Facts

Research Note

DOT HS 811 140

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The Increase in Lives Saved, Injuries Prevented, and Cost Savings if Seat Belt Use Rose to at Least 90 Percent in All States

This note examines the potential increase in lives saved, injuries prevented, and cost savings that would be realized if seat belt use hypothetically rose to at least 90 percent in all States. Seat belts saved an estimated 15,147 lives in 2007, when the National Occupant Protection Use Survey (NOPUS) national belt use estimate was 82 percent. Table 1 provides details of the estimated benefits that would have been realized if the 38 States and the District of Columbia that, in 2007, had a seat belt use rate below 90 percent had been able to increase their 2007 seat belt use up to 90 percent. An estimated 1,652 additional lives would have been saved had this increase in seat belt use occurred, and nearly 40,000 more nonfatal injuries would have been prevented, resulting in additional cost savings of about \$5.2 billion dollars.

These benefit estimates have been generated by NHTSA's National Center for Statistics and Analysis (NCSA). The number of lives saved are estimates that

are calculated using the effectiveness of seat belts, and have been produced by NCSA each year since 1975. In 2008, the NOPUS belt use estimate increased to 83 percent. Lives saved estimates for 2008 will be available upon release of the Fatality Analysis Reporting System (FARS) Annual Report File for 2008.

The 1,652 additional lives saved in all 38 States and the District of Columbia resulting from the increase in seat belt use would represent an increase of 11 percent above the estimate of lives saved by seat belts (15,147) for 2007. Over 50 percent of the total benefits in lives saved (842 out of the total of 1,652 lives saved), non-fatal injuries saved (22,677 out of the total of 39,486 non-fatal injuries), and cost savings (\$3.0 billion out of the total of \$5.2 billion), seen from improving belt use in each State to 90 percent seat, would come from States that do not have primary seat belt laws at the time of this report, as shown in Table 1.

Table 1: Benefits of Hypothetical Increase in Seat Belt Use up to 90 Percent, Among States¹ With 2007 Seat Belt Use Below 90 Percent

States Covered	# of States	Additional Lives Saved	Additional Serious ² Injuries Prevented	Additional Minor ² Injuries Prevented	Additional Total Nonfatal Injuries Prevented	Additional Total Cost ³ Savings (in 2007 dollars)
All States Below 90 Percent	38 States and DC	1,652	22,372	17,114	39,486	\$5.2 billion
Non-Primary Law States ⁴ Below 90 Percent	22 States	842	12,804	9,873	22,677	\$3.0 billion

¹ Lives saved, injuries prevented, and cost savings in this table do not include States and Territories with 2007 seat belt use at 90 percent or higher. These 13 States and Territories include California (2007 belt use = 94.6 percent), Hawaii (97.6 percent), Illinois (90.1), Iowa (91.3), Maryland (93.1), Michigan (93.7), Nevada (92.2), New Jersey (91.4), New Mexico (91.5), Puerto Rico (92.7), Oregon (95.3), Texas (91.8), Washington (96.4). All these States except Nevada have Primary Seat Belt Laws.

² Serious injuries defined as MAIS 2-5. Minor injuries defined as MAIS 1.

³ Cost savings in Table 1 are rounded to the nearest 100 million dollars.

⁴ Maine passed a primary seat belt law during the 2007 year. Maine is not included in the category of non-primary law States.

Table 2 below displays the information from Table 1 individually for all States and the District of Columbia. The States without primary seat belt laws are *shaded*. The first column of Table 2 is the percentage point increase that would be required to push the seat belt use rate

up to 90 percent. The second column displays the seat belt use reported in 2007. The 13 States and Territories with seat belt use above 90 percent were not included in Table 2. The belt use of these 13 States and Territories is listed immediately below Table 2.

Table 2: Benefits of Hypothetical Increase in Seat Belt Use up to 90 Percent, Among States¹ With 2007 Seat Belt Use Below 90 Percent. States Without Primary Seat Belt Laws Are Shaded.

State	Percentage Point Increase to Reach 90%	2007 Seat Belt Use Rate ² (%)	Additional Lives Saved	Additional Serious ³ Injuries Saved	Additional Minor ³ Injuries Saved	Additional Total Nonfatal Injuries Saved	Additional Total Cost ⁴ Savings (in 2007 Dollars)
Alabama	7.7%	82.3	68	489	348	837	\$131,554,000
Alaska	7.6%	82.4	4	58	41	99	\$17,936,000
Arizona	9.1%	80.9	59	731	500	1,231	\$176,879,000
Arkansas	20.1%	69.9	82	856	675	1,531	\$178,930,000
Colorado	8.9%	81.1	32	407	280	687	\$111,164,000
Connecticut	4.2%	85.8	7	182	141	323	\$49,105,000
D.C.	2.9%	87.1	1	21	15	35	\$5,119,000
Delaware	3.4%	86.6	3	46	33	79	\$11,282,000
Florida ⁵	10.9%	79.1	184	2,580	1,931	4,511	\$605,472,000
Georgia	1.0%	89.0	13	189	126	315	\$43,848,000
Idaho	11.5%	78.5	20	181	124	305	\$47,729,000
Indiana	2.1%	87.9	15	194	126	320	\$42,973,000
Kansas	15.0%	75.0	44	446	337	783	\$115,336,000
Kentucky	18.2%	71.8	97	1,105	912	2,017	\$253,368,000
Louisiana	14.8%	75.2	98	1,387	1,054	2,442	\$274,347,000
Maine ⁶	10.2%	79.8	13	194	150	344	\$44,096,000
Massachusetts	21.3%	68.7	46	1,655	1,475	3,130	\$419,781,000
Minnesota	2.2%	87.8	15	175	123	298	\$48,985,000
Mississippi	18.2%	71.8	114	783	626	1,409	\$191,749,000
Missouri	12.8%	77.2	85	1,003	780	1,783	\$239,168,000
Montana	10.4%	79.6	21	159	112	271	\$42,471,000
Nebraska	11.3%	78.7	23	381	281	662	\$76,270,000
New Hampshire	26.2%	63.8	17	347	313	661	\$84,267,000
New York	6.5%	83.5	47	1,453	1,090	2,543	\$353,385,000
North Carolina	1.2%	88.8	15	244	169	413	\$50,199,000
North Dakota	7.8%	82.2	8	60	40	100	\$16,248,000
Ohio	8.4%	81.6	69	1,682	1,294	2,976	\$319,136,000
Oklahoma	6.9%	83.1	41	467	305	773	\$100,996,000
Pennsylvania	3.3%	86.7	33	480	359	839	\$110,927,000
Rhode Island	10.9%	79.1	4	93	78	171	\$21,825,000
South Carolina	15.5%	74.5	108	1,006	758	1,764	\$246,702,000
South Dakota	17.0%	73.0	16	136	99	235	\$36,369,000
Tennessee	9.8%	80.2	85	894	671	1,565	\$207,770,000
Utah	3.2%	86.6	7	105	65	170	\$21,701,000
Vermont	2.9%	87.1	1	7	5	12	\$2,633,000
Virginia	10.1%	79.9	72	1,093	807	1,901	\$262,219,000
West Virginia	0.4%	89.6	1	11	7	19	\$2,355,000
Wisconsin	14.7%	75.3	67	960	780	1,740	\$220,680,000
Wyoming	17.8%	72.2	18	111	81	192	\$36,665,000
United States Total			1,652	22,372	17,114	39,486	\$5,221,638,000
Non-Primary Law States			842	12,804	9,873	22,677	\$3,018,281,000

¹ States and Territories with 2007 seat belt use at 90 percent or higher are not included in this table. These 13 States and Territories include California (2007 seat belt use = 94.6 percent), Hawaii (97.6 percent), Illinois (90.1), Iowa (91.3), Maryland (93.1), Michigan (93.7), Puerto Rico (92.7), Nevada (92.2), New Jersey (91.4), New Mexico (91.5), Oregon (95.3), Texas (91.8), Washington (96.4). All these States and Territories except Nevada have primary seat belt laws.

² State belt use rates for 2007 in this table were first published in NHTSA report DOT HS 810 949.

³ Serious injuries defined as MAIS 2-5. Minor injuries defined as MAIS 1.

⁴ Cost Savings rounded to the nearest thousand dollars.

⁵ Florida's Primary Belt Law goes into effect June 30, 2009.

⁶ The citation phase for Maine's primary seat belt law went into effect April 1, 2008.

As shown in Table 2, 100 additional lives would have been saved in three States if seat belt use would have improved to 90 percent in 2007. These States are Florida (184 additional lives saved by this increase in seat belt use), Mississippi (114 additional lives saved), and South Carolina (108 additional lives saved). Two other States, Louisiana (98 additional lives saved) and Kentucky (97 additional lives saved) would have saved nearly 100 additional lives each. These five States alone would have saved a total of over 600 lives if their seat belt use had been at 90 percent.

An increase in seat belt use up to 90 percent would have saved in excess of \$200 million each in 11 States in 2007, including Florida (\$605 million), Massachusetts (\$420 million), New York (\$353 million), Ohio (\$319 million), Louisiana (\$274 million), Virginia (\$262 million), Kentucky (\$253 million), South Carolina (\$247 million), Missouri (\$239 million), Wisconsin (\$221 million), and Tennessee (\$208 million).

These estimates in additional total cost savings are based on the methodology of the NHTSA technical report titled “The Economic Impact of Motor Vehicle Crashes, 2000,” which can be viewed at <http://www-nrd.nhtsa.dot.gov/Pubs/809446.PDF>. The costs are inflation-adjusted to represent dollar values for the year 2007. The cost components include productivity losses, medical costs, rehabilitation costs, legal and court costs, emergency services (such as medical, police, and fire services), insurance administration costs, and the costs to employers. Values for more intangible consequences such as physical pain or lost quality of life are not included in this estimate.

If seat belt use had reached 100 percent, then a total of 5,024 lives would have been saved in 2007. Nearly one-

third (32.9%) of these 5,024 potential lives saved would be achieved with each State improving its seat belt use to 90 percent.

More information on 2007 lives saved estimates for each State can be viewed at <http://www-nrd.nhtsa.dot.gov/Pubs/811049.PDF>. This NHTSA document presents lives saved estimates for each State for child restraints, seat belts, frontal air bags, motorcycle helmets, and the minimum drinking age law.

While this Research Note focuses on the impact of improving seat belt use in each individual State up to 90 percent in 2007, Table 3 provides baseline estimates for lives saved and cost savings due to the *actual* seat belt use that was recorded for each State in 2007. This table includes States with 2007 seat belt use above 90 percent, as well as States with seat belt use below 90 percent. The total United States cost savings is \$74.4 billion, with \$21.6 billion coming from States that don't have a primary seat belt law. The total lives saved estimate is 15,147, with 4,401 lives saved in States that don't have a primary seat belt law.

The far right column in Table 3 is a subset of the lives saved in the 13 States and Territories with seat belt use in 2007 over 90 percent. This column shows the estimate for the number of lives saved in these 13 States and Territories that is due to seat belt use being above 90 percent. For example, 123 lives were saved in California (2007 seat belt use of 94.6%) due to their seat belt use being 4.6 percentage points above 90 percent. These 123 lives are a subset of the total number of 1,791 lives saved in California. A total of 301 lives were saved by these 13 States and Territories having seat belt use above the baseline of 90 percent in 2007.



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Table 3: Seat Belt Use Rate, Lives Saved and Total Cost Savings in 2007. States Without Primary Seat Belt Laws Are Shaded

State	2007 Seat Belt Use Rate (%)	Lives Saved	Total Cost Savings (in 2007 Dollars)	Lives Saved Due to Seat Belt Use Above 90 Percent
Alabama	82.3%	400	\$1,078,598,000	-
Alaska	82.4%	27	\$168,149,000	-
Arizona	80.9%	298	\$1,309,621,000	-
Arkansas	69.9%	219	\$561,521,000	-
California	94.6%	1,791	\$8,951,208,000	123
Colorado	81.1%	201	\$894,165,000	-
Connecticut	85.8%	101	\$924,160,000	-
D.C.	87.1%	10	\$142,804,000	-
Delaware	86.6%	49	\$260,185,000	-
Florida	79.1%	857	\$3,831,580,000	-
Georgia	89.0%	613	\$3,248,036,000	-
Hawaii	97.6%	45	\$255,446,000	6
Idaho	78.5%	86	\$268,348,000	-
Illinois	90.1%	436	\$2,626,535,000	1
Indiana	87.9%	377	\$1,535,449,000	-
Iowa	91.3%	184	\$825,412,000	5
Kansas	75.0%	160	\$510,146,000	-
Kentucky	71.8%	292	\$902,445,000	-
Louisiana	75.2%	308	\$1,206,394,000	-
Maine	79.8%	72	\$308,558,000	-
Maryland	93.1%	254	\$1,460,061,000	13
Massachusetts	68.7%	105	\$1,285,373,000	-
Michigan	93.7%	546	\$2,653,006,000	34
Minnesota	87.8%	210	\$943,176,000	-
Mississippi	71.8%	277	\$601,173,000	-
Missouri	77.2%	297	\$1,200,371,000	-
Montana	79.6%	72	\$234,146,000	-
Nebraska	78.7%	88	\$457,421,000	-
Nevada	92.2%	149	\$814,381,000	6
New Hampshire	63.8%	28	\$186,756,000	-
New Jersey	91.4%	250	\$2,806,822,000	6
New Mexico	91.5%	133	\$524,628,000	5
New York	83.5%	521	\$4,413,093,000	-
North Carolina	88.8%	729	\$3,294,655,000	-
North Dakota	82.2%	33	\$121,320,000	-
Ohio	81.6%	409	\$2,812,238,000	-
Oklahoma	83.1%	303	\$1,028,481,000	-
Oregon	95.3%	217	\$865,364,000	20
Pennsylvania	86.7%	412	\$2,385,554,000	-
Rhode Island	79.1%	15	\$142,043,000	-
South Carolina	74.5%	313	\$970,602,000	-
South Dakota	73.0%	36	\$120,065,000	-
Tennessee	80.2%	395	\$1,391,552,000	-
Texas	91.8%	1,622	\$7,754,239,000	48
Utah	86.8%	137	\$525,609,000	-
Vermont	87.1%	29	\$65,249,000	-
Virginia	79.9%	320	\$1,767,381,000	-
Washington	96.4%	264	\$2,050,317,000	29
West Virginia	89.6%	163	\$562,717,000	-
Wisconsin	75.3%	237	\$1,007,452,000	-
Wyoming	72.2%	59	\$131,415,000	-
Puerto Rico	92.1%	84	\$522,673,659	5
US Total (Excluding Puerto Rico)		15,147	\$74,385,419,000	301
Non-Primary-Law States		4,401	\$21,576,528,000	6