

Improving Traffic Safety

Reducing Deaths and Injuries through Safer Streets

Despite the gains that have been made in traffic safety programs in the U.S. over the last several decades through a crackdown on drunk driving, increased seatbelt usage, and the more widespread use of airbags, traffic crashes are still the leading cause of death for Americans between the ages of 4 and 33. In 2001, 42,116 Americans were killed in traffic collisions, up slightly from the 41,945 killed in 2000. Of those killed in 2001, 4,955 were pedestrians and 728 were bicyclists. These tragic deaths occurred even as states failed to spend nearly \$1 billion in federal funds specifically allocated for improving traffic safety. The reauthorization of the nation's surface transportation funding bill, TEA-21 offers a significant new opportunity to improve traffic safety and save lives.

In 2001, 42,116 Americans were killed and 3 million injured in traffic collisions.

Traffic Fatalities

On average, nearly 15 out of every 100,000 Americans are killed in traffic collisions each year. Three million more are injured. Most of those killed are drivers or passengers, however pedestrians and bicyclists make up about 14 percent of all traffic deaths.

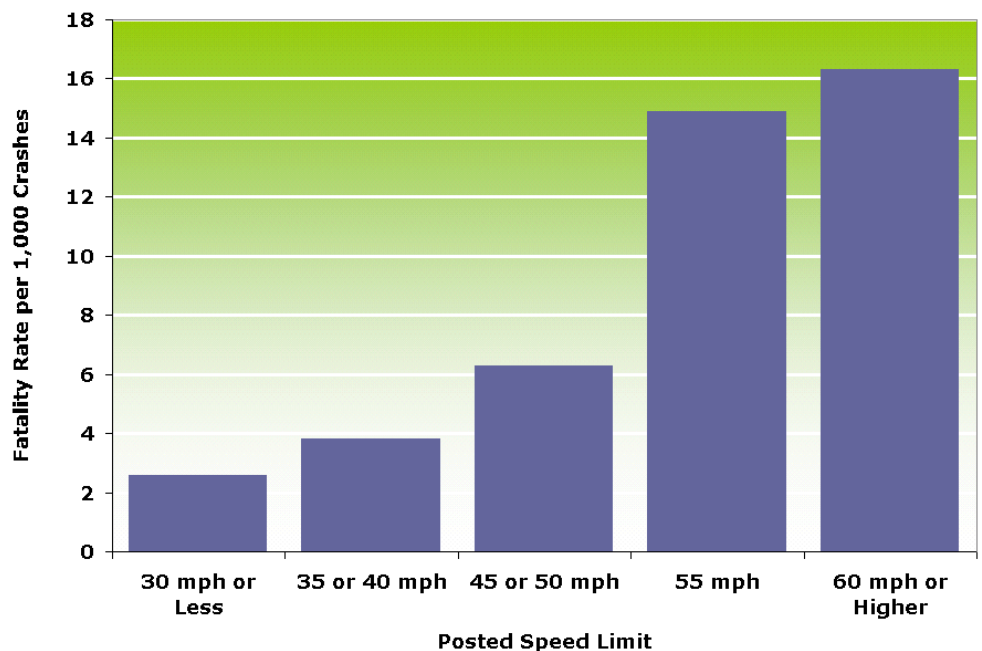
Some states are far more dangerous for those bicycling, walking, riding in, or driving a car. Wyoming, with 34 people killed in traffic accidents per 100,000 residents - more than twice the national average - is the most dangerous of any state in the nation. Mississippi ranks second with more than 30 traffic deaths per 100,000 residents.

States which are relatively safe for car drivers and passengers, may still be unsafe for the most vulnerable users of the transportation system - bicyclists and pedestrians. The state of Florida, for example, falls just about in the middle in its ranking for total traffic fatalities per 100,000 residents. But when pedestrians and bicyclists are broken out of those total numbers, Florida emerges as the most dangerous state in the country, with 3.73 bicyclists and pedestrians killed per 100,000 residents on an annual basis. This statistic is especially alarming given the 29 percent decline in bicycling and walking in that state over the last ten years.

Speed Kills

The National Highway Traffic Safety Administration (NHTSA) has determined that excessive speeding is a factor in nearly one-third of all traffic fatalities and that the most dangerous roads are those with posted speed limits of 60 mph or higher. Speeding in

Higher Travel Speeds Result in Higher Traffic Fatality Rates



residential areas is also a major cause of bicycle and pedestrian fatalities – chances of survival if hit by a vehicle traveling at 20 mph are 95 percent, yet drop to 50 percent at 30 mph and just 15 percent at 40 mph.

The Debate over Design

Engineers have traditionally responded to traffic safety concerns by proposing the construction of wider and straighter roads. However, recent studies have started to question whether bigger is really better. In fact, new research is suggesting just the opposite – that lower-cost techniques may be more effective and that traditional “safety improvements” such as larger and straighter roads with longer sight lines may actually lead to increases in fatalities and injuries because they encourage higher travel speeds. One study in particular (R. Noland), found that infrastructure improvements such as road widenings resulted in 1,700 additional deaths and 300,000 additional injuries.

Traffic fatalities per mile driven (VMT) have declined steadily over the past decade. But the reduction in fatalities has coincided with safer cars and trucks (i.e., airbags), increased seat belt use, and improved medical technology, particularly in emergency room care. These factors, along with demographic changes (fewer young people who tend to have much higher accident rates) and behavioral changes (declines in drunk driving) deserve much of the credit for reduced traffic deaths.

In cities and suburbs across the U.S., a new generation of traffic safety programs are combining a variety of approaches, all of which rethink traditional road design practices: a move to narrower streets, installation of landscaped medians, street trees, and on-street parking, the addition of bike lanes, pedestrian islands, new raised and lighted crosswalks, and in some cases a conversion from four travel lanes to two with dedicated turning pockets. All of these techniques have been found to curb speeding, reduce crash rates and improve traffic flow (Burden and Lagerwey).

The Institute for Transportation Engineers (ITE) recently acknowledged this turnaround in thinking by publishing a new manual on “traffic

calming” measures that can help reduce speeding in cities and suburbs. The Insurance Institute for Highway Safety (IIHS) has also recognized this shift in approach and recommends better traffic signal timing and visibility, improved pedestrian and bicycling facilities, installation of skid-resistant pavements, appropriate speed limits, and the use of traffic calming measures such as speed humps and roundabouts to boost safety. A study of roundabouts by IIHS found that they can reduce fatal crashes by as much as 90 percent, injury collisions by as much as 76 percent, and pedestrian crashes by 50 percent. A roundabout installed in Bradenton Beach, Florida, offers strong evidence of traffic calming’s effectiveness. Where there had previously been one pedestrian fatality per year at the site, in the nine years following installation of the roundabout there have been no reported crashes, let alone fatalities or injuries of motorists, pedestrians, or bicyclists.

Trends in Spending

Whether redesigning roads for safer speeds or pursuing other lower cost measures such as improved signalization, traffic calming, new roadway markings, signage and lowered speed limits, reducing traffic fatalities and injuries will require continuing investment and political will. Yet despite the more than 40,000 traffic deaths per year on the nation’s roadways, states’ spending behavior indicates that they have not made broader safety improvements a priority. Under TEA-21 and its predecessor, ISTEA, ten percent of a state’s Surface Transportation Program (STP) apportionment is reserved for safety programs. This includes significant funding for the elimination of hazardous railway-highway crossings, as well as funds for the identification and removal of other hazards, including those to bicyclists and pedestrians. Traffic calming is an eligible activity, and California’s innovative Safe Routes to School program, which improves walking and bicycling conditions near schools, is also funded through this program. Over the last ten years, states received \$4.8 billion dollars in federal funds under this program.

Unfortunately, a quirk in the federal transportation funding program allows states to

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underfund any of the apportioned programs, such as the STP safety program, while overspending on others. The Safety Program is one that states have chosen to underfund, letting nearly \$1 billion in federal funds specifically provided to improve traffic safety go unspent.*

Apart from the specific Safety Program, states may spend a significant portion of other federal transportation program funds on projects or facilities that improve safety for drivers, pedestrians and bicyclists. But even as lawmakers call for improving traffic safety, the portion of federal funds dedicated to these overall safety improvements from 1998 to 2001 (the first four years of spending under TEA-21) declined by nearly 20 percent from the previous period under ISTEA (1992 to 1997).

Conclusion

The upcoming reauthorization of TEA-21 offers an excellent opportunity to make improving traffic safety a real priority. Legislators working on the bill should close the loophole which allows states to spend federal funds intended for safety on other programs. Additional incentives should be put in place to encourage states to address safety concerns with less costly traffic calming measures and signalization improvements. Safe Routes to School, which makes it safer for children to walk or bicycle to school, should be adopted as a national program, and supported with federal funding. Finally, the Federal Highway Administration and the states should require a more rigorous analysis of expected safety benefits of roadway expansion before projects can be justified on that basis.

Sources:

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STPP Analysis of FHWA's Fiscal Management Information System (FMIS).

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United Kingdom Dept of Environment and Transportation. "Killing Speed and Saving Lives." London, England, 1997.

*For more information on this practice, see STPP's decoder, "The Transportation Funding Loophole: How states underfund federal programs," available at <http://www.transact.org>.

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Table 1. Traffic Deaths and Injuries, Safety Spending, and Estimated Cost of Traffic Deaths by State, Ranked by Safety Spending per Traffic Fatality.

Rank		STP-Safety Apportionments (1992-2001) (millions)	STP-Safety Obligation Rate (1992-2001) (millions)	Unobligated Balance* (millions)	Avg. Yearly Traffic Deaths (2000-2001)	Nonfatal Traffic Injuries (1997)	Estimated Yearly Cost of Traffic Fatalities**	Average Yearly Safety Spending per Traffic Fatality
1	Arizona	\$81.8	81.3%	\$19.6	1,042	68,255	\$2,813,400,000	\$9,653
2	Mississippi	\$63.7	100.0%	\$1.2	867	38,684	\$2,339,550,000	\$16,288
3	Iowa	\$72.5	77.8%	\$16.9	446	38,468	\$1,204,200,000	\$18,997
4	Kentucky	\$84.4	73.1%	\$28.2	833	56,387	\$2,247,750,000	\$19,251
5	Minnesota	N/A	N/A	\$16.6	597	46,064	\$1,610,550,000	\$19,423
6	South Dakota	\$42.9	71.3%	\$7.3	172	8,161	\$464,400,000	\$20,490
7	Florida	\$256.6	93.1%	\$25.2	3,005	243,320	\$8,113,500,000	\$22,096
8	Arkansas	\$66.1	64.3%	\$26.7	632	42,002	\$1,705,050,000	\$22,292
9	Texas	\$393.9	85.9%	\$70.8	3,752	347,808	\$10,129,050,000	\$23,583
10	Tennessee	\$107.1	89.8%	\$6.8	1,279	79,658	\$3,453,300,000	\$24,569
11	South Carolina	\$83.2	97.2%	\$4.1	1,062	59,047	\$2,867,400,000	\$28,683
12	Wisconsin	\$121.9	81.9%	\$26.4	781	63,165	\$2,108,700,000	\$29,049
13	New Mexico	\$60.6	51.1%	\$17.1	448	29,703	\$1,208,250,000	\$29,406
14	Utah	\$39.2	76.0%	\$10.4	333	30,950	\$897,750,000	\$30,046
15	Louisiana	\$75.3	72.9%	\$22.9	946	55,941	\$2,554,200,000	\$31,015
16	Massachusetts	\$81.6	25.8%	\$74.7	455	90,419	\$1,228,500,000	\$31,278
17	Nevada	\$41.3	78.3%	\$9.8	318	27,075	\$858,600,000	\$31,431
18	Colorado	\$73.1	85.9%	\$1.8	709	41,666	\$1,912,950,000	\$31,993
19	Missouri	\$105.4	72.4%	\$34.6	1,128	82,685	\$3,044,250,000	\$33,281
20	North Carolina	\$146.6	85.0%	\$27.6	1,544	152,397	\$4,167,450,000	\$35,170
21	Alabama	\$100.3	95.1%	\$9.2	995	49,287	\$2,686,500,000	\$35,642
22	Oklahoma	\$82.8	98.6%	\$6.5	663	52,096	\$1,790,100,000	\$38,011
23	Kansas	\$68.4	88.2%	\$8.0	478	31,656	\$1,289,250,000	\$40,984
24	North Dakota	\$40.4	69.1%	\$6.4	96	5,729	\$257,850,000	\$44,051
25	Idaho	\$43.1	65.7%	\$9.4	268	14,133	\$722,250,000	\$48,024
26	Wyoming	\$33.2	94.2%	\$2.8	169	6,390	\$456,300,000	\$55,488
27	Nebraska	\$51.3	84.2%	\$9.0	261	30,268	\$704,700,000	\$59,065
28	Washington	N/A	N/A	\$30.0	640	83,781	\$1,728,000,000	\$61,001
29	Pennsylvania	\$126.9	73.0%	\$45.7	1,525	139,089	\$4,117,500,000	\$61,464
30	California	\$431.8	84.4%	\$62.8	3,855	284,871	\$10,407,150,000	\$63,555
31	Georgia	\$170.8	81.8%	\$40.3	1,578	139,386	\$4,260,600,000	\$63,584
32	Oregon	\$59.0	67.7%	\$22.3	470	35,435	\$1,267,650,000	\$65,983
33	New Jersey	\$100.2	83.1%	\$28.2	739	127,894	\$1,995,300,000	\$67,053
34	Maryland	\$73.3	47.4%	\$36.9	624	47,894	\$1,684,800,000	\$68,117
35	Montana	\$50.9	82.4%	\$4.6	234	10,688	\$630,450,000	\$74,357
36	Michigan	\$148.0	68.7%	\$57.6	1,355	138,537	\$3,658,500,000	\$77,523
37	Ohio	\$166.7	103.3%	\$0.0	1,372	219,992	\$3,704,400,000	\$84,235
38	Virginia	\$107.8	65.6%	\$44.1	932	81,866	\$2,516,400,000	\$85,710
39	Maine	\$29.3	61.9%	\$8.5	181	17,663	\$487,350,000	\$87,504
40	West Virginia	\$40.9	69.5%	\$13.5	394	25,635	\$1,062,450,000	\$89,093
41	Delaware	\$27.9	92.8%	\$1.9	130	10,613	\$349,650,000	\$92,076
42	Illinois	\$195.0	102.5%	\$10.2	1,416	144,022	\$3,823,200,000	\$92,787
43	Alaska	\$94.1	72.9%	\$6.1	96	6,249	\$257,850,000	\$99,344
44	Indiana	\$127.6	82.2%	\$28.4	898	76,480	\$2,423,250,000	\$107,593
45	New Hampshire	\$29.5	77.0%	\$4.4	134	14,368	\$361,800,000	\$109,553
46	Hawaii	\$50.3	85.3%	\$2.3	136	10,996	\$367,200,000	\$136,421
47	New York	\$186.3	112.7%	\$6.1	1,504	285,731	\$4,060,800,000	\$148,578
48	Vermont	\$25.7	49.8%	\$14.2	84	3,309	\$226,800,000	\$176,106
49	Connecticut	\$80.0	78.0%	\$3.7	327	46,505	\$881,550,000	\$204,182
50	Rhode Island	\$26.4	74.8%	\$1.9	81	12,175	\$217,350,000	\$335,848
	United States	\$4,787.6	82.4%	\$984.8	42,031	1,761,146	\$113,482,350,000	\$53,288

*Unobligated Balance as of end of FY 2001, as reported by FHWA. May not equal apportionments less obligations due to transfers out of the STP Safety program.

**Based on cost of a fatality from FHWA's *Highway Cost Allocation Study*, 1997.