

Transportation Efficiency Act of 1991 (ISTEA), (Pub. L. 102-240; 105 Stat. 1914; Dec. 18, 1991).<sup>2</sup> Much of this funding is being spent on performing capital improvements and maintaining existing roads, since comparatively few new roads are being built.

At the same time, traffic volumes continue to grow and create more congestion. As vehicle travel continues to increase significantly faster than miles of roadway, we have a growing congestion problem that is exacerbated by work zones. From 1980 to 1999, the U.S. experienced a 76 percent increase in total vehicle-miles traveled, while total lane miles of public roads increased only by 1 percent.<sup>3</sup> Congestion affects normal vehicular movement including that of cars, trucks, and buses, and is frustrating and costly to both individuals and businesses. Studies indicate that over the years, "extremely" or "severely" congested highway miles more than doubled from 1982 to 1997, while uncongested miles dropped by almost half. The Texas Transportation Institute (TTI) estimated that the cost of congestion was approximately \$78 billion in 1999. The combination of heavier traffic volumes passing through a road network with more work zones increases the operational and safety impacts of those work zones on the road network. Recent analysis shows that of this congestion, work zones on freeways cause an estimated 24 percent of nonrecurring delay, resulting in lost capacity of 60 million vehicles per day (VPD) in the summer, and that of 64 million VPD in the winter.<sup>4</sup> According to FHWA estimates, about 12.8 percent of the National Highway System is under construction at any time during the summer roadwork season, leading to 3,110 work zones.<sup>5</sup>

<sup>2</sup> Statement of Vincent F. Schimmoller, Deputy Executive Director, FHWA, USDOT, Before The House Committee on Transportation and Infrastructure, Subcommittee on Highways and Transit, Hearing on Work Zone Safety, July 24, 2001. An electronic copy of this statement may be obtained at: <http://www.house.gov/transportation/press/press2001/release100.html>.

<sup>3</sup> "Status of the Nation's Highways, Bridges, and Transit: Conditions & Performance (C&P) Report to Congress," FHWA, 1999. A copy of this report may be obtained electronically at: <http://www.fhwa.dot.gov/policy/1999cpr/>.

<sup>4</sup> "Temporary Losses of Capacity Study," FHWA, November 5, 2001. A copy of this report may be obtained by writing the FHWA Office of Highway Operations, at 400 7th Street, SW., HOP, Washington, DC 20590.

<sup>5</sup> Interim results from an FHWA study entitled, "Snapshot of Peak Summer Work Zone Activity." This study is currently underway and is expected to be completed in June 2003. Copies of the final report may be obtained electronically at <http://www.ops.fhwa.dot.gov/wz/workzone.htm> or by writing the FHWA Office of Highway Operations, at 400 7th Street, SW., HOP, Washington, DC 20590.

Work zones continue to have adverse impacts on traveler and worker safety. Work zone fatalities reached a high of 1,079 in 2001,<sup>6</sup> while over 40,000 people were injured in work zone related crashes in the same year.<sup>7</sup> From 1997 to 2001, over 4,000 people were killed in work zone crashes, with over 220,000 injured; and about 300 workers died in road construction activities during the same time frame, as indicated by the Bureau of Labor Statistics' Census of Fatal Occupational Injuries.<sup>8</sup>

Over the years, highway professionals have devised and implemented several strategies and innovative practices for minimizing the disruption caused by work zones, while ensuring successful project delivery. For example, more work is done during night time to minimize the impacts of work zones on the traveling public by avoiding work during the more heavily traveled daytime hours. However, the current and expected level of investment activity in highway infrastructure (a significant portion of which is for maintenance and reconstruction of existing roadways) implies that increasingly, work will be done under traffic. In 1997, 47.6 percent of highway capital outlay was spent on system preservation (resurfacing, restoration, rehabilitation, reconstruction).

In addition to increased road construction, growing traffic, and increases in crashes, public frustration with work zones indicates that more effort is required to meet the needs and expectations of the American public. The results of a recent FHWA nationwide survey, reported in "Moving Ahead: The American Public Speaks on Roadways and Transportation in Communities,"<sup>9</sup> illustrate the American public's frustration with work zones. Work zones were cited as second only to poor traffic flow in causing traveler dissatisfaction. The top three improvements indicated by the public as a "great help" to improve roadways and transportation are related to roadway repairs and work zones. They

<sup>6</sup> The statistics on work zone crashes for the year 2002 were not officially available at the time this NPRM was drafted.

<sup>7</sup> Fatal Analysis Reporting System (FARS) maintained by the NHTSA. More information is available electronically at: <http://www-fars.nhtsa.dot.gov/>.

<sup>8</sup> The Bureau of Labor Statistics' Census of Fatal Occupational injuries is available electronically at <http://www.bls.gov/iif/oshcfoi1.htm>.

<sup>9</sup> The results of the survey are available in "Moving Ahead: The American Public Speaks on Roadways and Transportation in Communities," FHWA Publication No. FHWA-OP-01-017, 2000. A copy of this publication is available electronically on the FHWA Web page at: <http://www.fhwa.dot.gov/reports/movingahead.htm>.

are: (a) More durable paving materials (67 percent); (b) repairs made during non-rush hours (66 percent); and (c) reducing repair time (52 percent). The use of better traffic signs showing expected roadwork, and better guide signs for re-routing traffic to avoid roadwork, were also cited as being of "great help," by 40 percent and 35 percent of the respondents, respectively. Many travelers indicated a preference to have the road closed completely for moderate durations in exchange for long-lasting repairs. About 67 percent of respondents expressed support for one-week long road closures, and 37 percent expressed support for one-month long road closures; while 16 percent of respondents expressed support for a three-month closing, and 10 percent or fewer would support longer closings (six months to a year).

Further, the contracting industry is under pressure to expedite construction and minimize disruption by reducing their work hours, compressing their schedules and shifts, and increasing night work. They have expressed concerns that these pressures affect worker safety, reduce productivity, and may compromise quality. Therefore, a balance must be achieved between construction needs and the safety and mobility needs of the traveling public.

While safety and mobility are two distinct challenges posed by the circumstances faced on highways, it is important to realize that both these elements are closely tied to one another. Studies and data analyses over time indicate that as congestion builds, crash rates increase; and as crashes increase, more congestion occurs. Therefore, it is important to develop comprehensive mitigation measures that alleviate the impacts of work zones and ultimately improve transportation safety and mobility.

#### *Legislative and Regulatory History*

Section 1051 of ISTEA required the Secretary of Transportation (Secretary) to develop and implement a highway work zone safety program to improve work zone safety at highway construction sites by enhancing the quality and effectiveness of traffic control devices, safety appurtenances, traffic control plans, and bidding practices for traffic control devices and services. The FHWA implemented this provision of ISTEA through non-regulatory action, by publishing a notice in the **Federal Register** on October 24, 1995 (60 FR 54562). (Hereinafter referred to as "the notice.")

The purpose of this notice was to establish the National Highway Work Zone Safety Program (NHWZSP) to