TRANSPORTATION SAFETY ISSUES EXAMINED IN TRB POLICY STUDIES

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U.S. LEGISLATIVE AND EXECUTIVE agencies have long relied on advice from the National Academy of Sciences, the parent organization of the Transportation Research Board, when public policy issues arise that require evaluation of the risk to human health and well-being. Beginning in 1982, Congress began turning to TRB regularly for advice on the consequences to safety of changes in national transportation policy. In the Surface Transportation Assistance Act of 1982, Congress requested studies on three controversial safety issues: the 55-mph speed limit; twin trailer trucks; and practices for upgrading design when highways are resurfaced, restored, or rehabilitated (see accompanying box for results of completed policy studies).

In these studies, the consequences to safety of changes in policy were of utmost concern. What would happen if Congress allowed states to increase speed limits? Would allowing twin trailer trucks on the highways decrease safety for motorists? What would be the benefits of upgrading design of rural highways when they are scheduled for repair? Individual studies had been conducted on these issues but showed conflicting results, and, given the lack of data on key questions, the consequences of change were difficult to discern.

TRB, one of the nine major units of the National Research Council, conducts policy studies in a distinct manner. In order to address complex, often divisive issues, the National Research Council appoints committees of scientists, engineers, and other experts from the public and private sectors to serve as volunteers on study committees. These committees assess alternative policies and, when appropriate, rely on their judgment to recommend policies that

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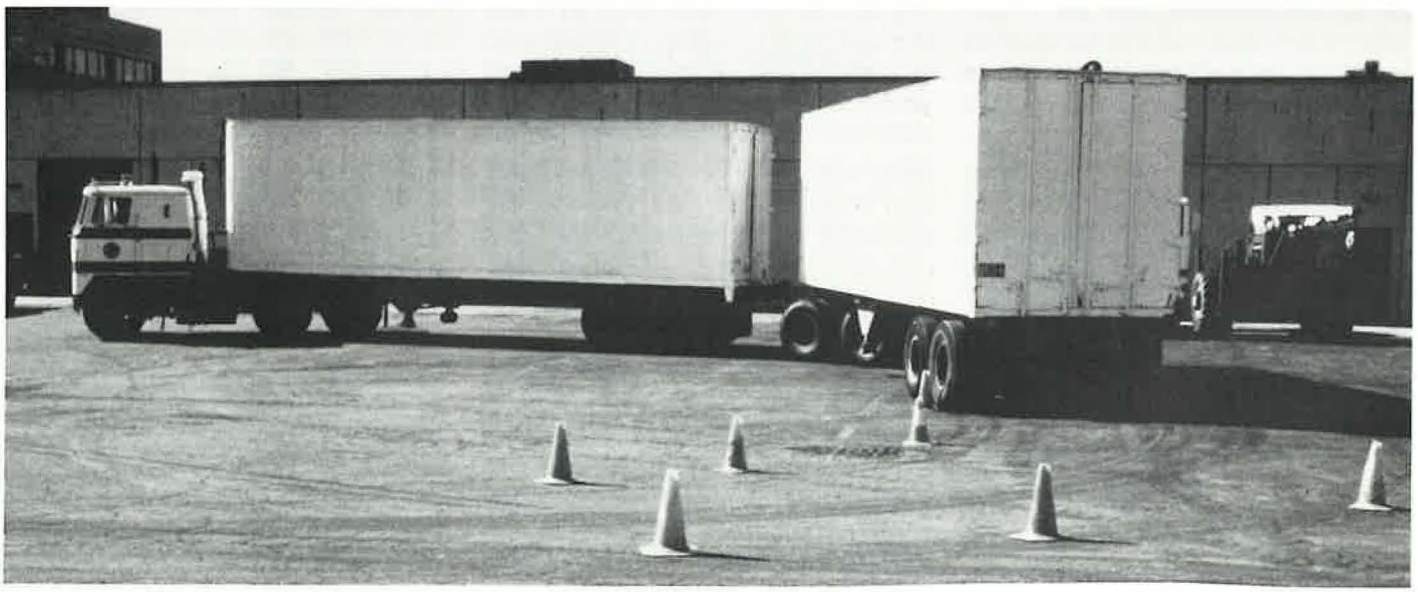
will best serve the interest of the nation.

In transportation safety issues, policy changes often involve a mix of safety, mobility, and infrastructure costs and benefits. To ensure that issues are treated accurately and fairly, study committees are appointed representing a balance of points of view. TRB policy study committees bring together the nation's best scientists, engineers, and practitioners; their task is to examine existing problems and recommend appropriate solutions. The work of these committees is supported by TRB's policy studies staff, and their reports are subjected to thorough peer review to ensure that the findings and recommendations are unbiased, complete, fair, and responsive to the committee's charge.

After the successful completion of the first round of policy studies, Congress asked TRB for advice on other transportation safety issues. In 1986 Congress requested a study examining appropriate blood alcohol limits for drivers of commercial vehicles. The Surface Transportation and Uniform Relocation Assistance Act of 1987 contained several more requests. Separate studies were requested to deal with federal policy on heavy truck access to the designated network of truck highways and the effects of changing truck weight limits. Safety is a major issue in all these studies, which will be completed in 1989. Congress also requested a study on school bus safety, which should be completed in early 1989 (see box on page 6).

Not all policy studies conducted by TRB are for Congress. The American Association of State Highway and Transportation Officials requested and funded a study on the feasibility of redesigning heavy trucks to reduce pavement wear.



Prototype of one possible Turner truck configuration undergoing a demonstration of cornering ability at the University of Michigan. Analysis of handling and stability of Turner trucks is being performed at the university in support of TRB's Turner Proposal study.

In exchange for adding more axles, truckers would be permitted more gross vehicle weight. The handling and safety characteristics of these vehicles, however, are a major issue. (See box on page 6 for details of ongoing studies.)

TRB's policy studies group recently completed a study requested by the National Transportation Safety Board on the adequacy of public policy for land use near pipelines carrying natural gas, petroleum products, and other hazardous liquids. More information about this study, *Pipelines and Public Safety*, is presented on page 9 of this issue.

Some studies have been initiated by TRB. In 1986 the Board began a study on the safety and mobility needs of older persons (which Congress requested formally in 1987 legislation). The findings and recommendations of this report, *Transportation in an Aging Society*, are reported in the article on page 7 of this issue. After conducting

Completed Policy Studies by TRB

Since legislation of the Surface Transportation Assistance Act of 1982, TRB has completed the policy studies on transportation safety for Congress published in the reports listed below:

Special Report 204: 55: A Decade of Experience, 1984. Study Committee Chairman: Alan Altshuler, J. F. Kennedy School of Government, Harvard University. Study findings were presented to Congress in November 1984. The committee found that the 55-mph speed limit saves 2,000 to 4,000 lives each year and averts thousands of injuries. The committee also noted that the law imposes considerable cost in travel time on motorists and that compliance with the law is slipping. The study is considered an authoritative source on the safety benefits of the 55-mph speed limit and had a direct effect on Congress's decision to retain the speed limit on the majority of highways to which it applies. The committee's estimates of the benefits and costs of changes to speed limit policy on rural Interstate highways were relied on extensively in Congress during House and Senate debates.

Special Report 211: Twin Trailer Trucks: Effects on Highways and Highway Safety, 1986. Study Committee Chairman: Kenneth Heathington, University of Tennessee. The study committee found that increased use of twin trailer trucks would have little overall effect on highway safety because a reduction in miles of truck travel would approximately offset the small possible increase in accident involvement per mile traveled. The study has been recognized as a model for truck impact studies.

Special Report 214: Designing Safer Roads: Practices for Resurfacing, Restoration, and Rehabilitation, 1987. Study Committee Cochairmen: Peter Koltnow, American Trucking Associations, Inc., former chairman of TRB's Executive Committee; and Herbert Richardson, Texas A&M University System, chairman of the 1988 TRB Executive Committee. The committee urged highway agencies to give more deliberate attention to safety throughout the process of selecting, designing, and constructing highway rehabilitation projects. The report also provides guidelines on improvements likely to be cost effective to safety. Many of the recommendations have been accepted by the Federal Highway Administration as national policy, and the study is being adopted as a basic reference by state and local highway engineers.

Special Report 216: Zero Alcohol and Other Options. Limits for Truck and Bus Drivers, 1987. Study Committee Chairman: M. W. (Bud) Perrine, Boston University, director of the university's Alcohol Research Unit. The study committee found that consumption of any amount of alcohol on the job by drivers of commercial vehicles is inappropriate for the workplace and incompatible with traffic safety. The committee recommended sharply reduced blood alcohol limits for commercial drivers and increased penalties for violators. The recommendations were endorsed by the Federal Highway Administration in regulations adopted in October 1988.

Special Report 218: Transportation in an Aging Society: Improving Mobility and Safety for Older Persons, Volumes 1 and 2, 1988. Study Committee Chairman: James Malfetti, Columbia University. The study committee reviewed the design and operation of the nation's surface transportation system and recommended steps to improve the mobility and safety of older persons. Recommendations were made to improve highway design and operation, vehicular crash protection, and driver licensing practices. High-priority research needs were also identified.

Special Report 219: Pipelines and Public Safety: Damage Prevention, Land Use, and Emergency Preparedness, 1988. Study Committee Chairman: John Fuller, University of Iowa. The study committee reviewed a variety of approaches taken by government and industry to reduce intrusion on pipelines and mitigate the impact of pipeline accidents. The committee made recommendations for strengthening private and public practices to enhance public safety.

the study on twin trailer trucks, TRB's Executive Committee recognized the need to improve the quality of accident and travel data and developed a study on truck safety data needs.

TRB expects to undertake more studies on safety during 1989. A study examining trends in airline passenger service and safety since deregulation has just received funding from the National Research Council and the Sloan Foundation. A study to identify priority highway safety research will be funded jointly by the Federal Highway Administration and the National Highway Traffic Safety Administration. Finally, TRB may be asked to perform a study of appropriate blood alcohol limits for all motor vehicle drivers, requested by Congress in the Omnibus Drug Bill of 1988.

The safety benefits of the 55-mph speed limit led Congress to retain the limit on the majority of highways to which the law applies.

Ongoing Studies by TRB

Study to Identify Measures That May Improve the Safety of School Bus Transportation. Study Committee Chairman: Charley Wootan, Texas Transportation Institute. The committee is examining alternative policies to improve school bus safety. The committee's findings are expected to be published in early 1989. TRB Study Director: Lindsay Griffin.

Study of Relationships Between Vehicle Configuration and Highway Design. Study Committee Chairman: Michael Walton, University of Texas at Austin. The committee is examining the "Turner Proposal" for alternative designs for heavy trucks that would allow vehicles to carry heavier loads if they distributed the vehicle weight on more axles. Redistributing the load could reduce pavement damage in spite of the heavier total weight of the truck. The stability and safety of alternative designs for heavier vehicles is one of the major issues being examined. TRB Study Director: Joseph Morris.

Truck Access Study. Study Committee Chairman: Roland Ouellette, Eno Foundation for Transportation, Inc. The committee is examining policies for access provisions to the designated network of truck highways. The safety consequences of allowing longer and heavier combination trucks to use roads and highways that link to the designated network is a key issue being considered. TRB Study Director: Nan Humphrey.

Truck Weight Study. TRB Study Committee Chairman: Lester Hoel, University of Virginia. The committee is examining various issues regarding motor vehicle weight regulation. The consequences of current "grandfather" provisions and of changes to the current bridge formula will be studied. The safety margin in bridge design is a central concern of the committee. TRB Study Director: Harry Cohen.

Study of Truck Safety Data Needs. TRB Study Committee Chairman: Wayne Muri, Missouri Highway and Transportation Department. The committee will define the requirements for nationwide truck safety data collection and information processing, propose improvements to current data systems, and recommend arrangements for implementing and overseeing the needed data activities. TRB Study Directors: Joseph Morris and Ted Chira-Chavala.