

**DeLorean Study Predicts**

## **Small Cars Without Airbags = More Deaths**

The national energy policy calling for a 40 per cent fuel economy improvement in cars by 1980 could result in a 40 per cent increase in highway deaths and injuries over the next ten years, according to a new study.

The study warned that prompt action must be taken to provide greater protection for drivers and passengers in the ever increasing number of smaller cars being put on the roads in the name of fuel conservation.

Allstate Insurance Co. released the study to the Department of Transportation and at a Federal Energy Administration hearing on motor vehicle goals beyond 1980. The Allstate-sponsored study was prepared by the John Z. DeLorean Corp. DeLorean is a former high-ranking General Motors executive.

DOT should issue a final passive restraint standard as soon as possible, Allstate Vice President Donald Schaffer said at the hearing. "The cost of delay is and will be socially intolerable," the study warned.

In May 1975, the National Highway Traffic Safety Administration held a round of hearings on its proposal that occupants be protected by passive (i.e. automatic) systems rather than the current active systems. A final passive restraint standard, however, may not be issued until well into 1976. (See *Status Report* Vol. 10, No. 11, June 18, 1975.)

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The DeLorean study predicted that compact and economy cars will account for 65 per cent of all sales by 1980. "All federal and state records reveal that proportionately more deaths and injuries occur to occupants of small cars than occur to occupants of large cars," Schaffer said.

### **FATALITY INCREASE PREDICTED**

"Fatalities in small cars will tend to grow from 41 per cent of automotive occupant deaths in 1975 to 69 per cent in 1985," if lap/shoulder belt systems and not air bags are the required occupant restraints, the study said. "Installation of air cushion restraints in all cars sold to the public after 1977 will reduce the total number of 1985 fatalities to 2.5 per cent under those experienced in 1975. This would be a savings of 69,000 lives in the next ten years," according to the study.

Delaying the introduction of front seat air bags as standard equipment for only three years would result in 37,600 needless deaths and more than \$18.6 billion in societal loss due to injuries and fatalities, the study warned.

"A three year investment of \$1.4 billion per year for early implementation of passive air cushion restraints will result in the \$18.6 billion return or nearly 350 per cent return on investment," the study calculated. "In the context of personal outlay . . . insurance company estimates of total premium savings resulting from health, accident, life and auto insurance discounts should reach \$2 billion annually with all cars equipped," the DeLorean study added.

Schaffer said the DeLorean study "dramatically contradicts" claims of air bag prices as high as \$300, which have been quoted by some automobile manufacturers, and "reveals that if air bags were installed as standard equipment in large volume production, they should cost the consumer no more than \$111.50 additional for full size six passenger cars (including \$58.50 for dealer and manufacturer profits) and no more than \$90 additional for the intermediate to compact size car (including \$48.50 for dealer and manufacturer profits)." These figures include the cost of front and rear seat lap belts, as well as tooling costs, he said.

"Making cars lighter to meet the government's energy goals also saves money for the manufacturer," Schaffer said. The DeLorean study put the savings at more than \$1 per pound. Schaffer suggested the manufacturers share some of the price savings with purchasers "by using part of the savings to install front seat air bags."

Mandatory belt use laws are not a solution by themselves, the DeLorean study found. "Widespread use of belts would have a significant (and cost-effective) beneficial overall effect on occupant injury," the study said. But even with mandatory laws, belt usage would be "inadequate to allow benefits or payoffs equal to those predicted for air cushion/lap belt systems."

## **NHTSA Denies Petition For Belt, Crash Test Rules**

For the second time the National Highway Traffic Safety Administration has denied petitions from the Center for Auto Safety that called on the agency to "establish injury criteria performance standards for active belt restraint systems" and require regular disclosure by manufacturers of their crash test data.

The center had renewed its request for the two actions following NHTSA's public meeting on passive restraints. The meeting "highlighted the importance and urgency of (the) two issues," the center said. (See *Status Report*, Vol. 10, No. 12, July 9, 1975.)

Denying both petitions, NHTSA Administrator James Gregory said it would be "somewhat premature at this time" for NHTSA to set injury criteria performance standards for safety belts while it is still undecided about future restraint requirements.

"Should we decide on something other than mandating passive restraint systems, or on an extended implementation schedule for them, then we would strongly consider injury criteria performance standards for active belt systems," Gregory told the center.

Gregory said that the center's suggestion that NHTSA "regularly acquire manufacturers' crash test data is an interesting one. However, we continue to believe that the routine reporting by all of the world's manufacturers on their test results would produce an unwieldy and virtually unmanageable file. We believe it is much more sensible to request such information, for a specific purpose, as needed . . . ."

## **Automakers Differ On Side Door Strength Standard**

General Motors has recommended a review of the federal safety standard for side door strength (FMVSS 214) claiming that the current standard "has inadvertently perpetuated designs that were not the most efficient means of providing occupant protection with the least weight and cost."

GM's contentions regarding the weight and cost of current designs are challenged, however, by research done by another automaker and a major steel company.

In a letter to the National Highway Traffic Safety Administration, GM argued that current federal requirements "presently restrict automobile designers in their efforts to provide other forms of protective side structure, because the tests were tailored around designs using a beam."

Insurance Institute for Highway Safety Researchers recently pointed out in a paper presented at the Fourth International Congress on Automotive Safety that, by statute, federal motor vehicle safety standards "must be specified in *minimum performance* and not design terms." Thus it is "left up to each manufacturer to choose designs to satisfy the requirements of federal motor vehicle safety standards and also to set the price the public must pay; the federal government has no role in choosing either the design or the price."

The federal safety standard that set performance requirements for side door strength went into effect on Jan. 1, 1973. The agency noted that the need for such a standard was demonstrated by studies reporting "that in side impacts the percentage of dangerous and fatal injuries increases sharply as the maximum depth of penetration increases, and that in fatal side collisions, most occupants die from side structures collapsing inward on them, rather than from their striking the door. To protect occupants from such hazards, a strong door structure is required, in conjunction with an effective restraint system and energy-absorbing material on the vehicle's interior surfaces," the agency said.

The test procedures for the standard were patterned after procedures developed by GM. GM had voluntarily introduced side door beams, to limit intrusion into the passenger compartment in side crashes, in some of its 1969 models.

GM's contentions on the weight and cost were challenged in a paper presented earlier this year before a Society of Automotive Engineers Congress. Researchers from Inland Steel Co. and Chrysler Corp. told the meeting that the system chosen by most manufacturers to meet the performance requirements of the federal safety standard uses "door intrusion beams located approximately at each door midline in

conjunction with reinforced body pillars, door hinges and door locks." They noted that the "original version of side door intrusion beams . . . added up to 50 pounds per automobile."

Although improved "technology and new beam designs have reduced door beam weight slightly . . . most commercially produced door beams are not as cost efficient as possible and still add excessively large amounts of weight to the car," the researchers said. They reported that door intrusion beams made of ultra high strength steel have been developed that "meet all the federal protection requirements while adding only 15 pounds to 20 pounds per vehicle" without a "cost penalty."

Earlier this year GM told a federal interagency task force (established by the Energy Resources Council to set motor vehicle goals beyond 1980) that the automaker was developing "new door designs with considerably less weight." A GM official told *Status Report* that the automaker is currently working on several new design concepts but that they are still in the testing and evaluation stage.

The Chrysler-Inland study is Society of Automotive Engineers paper 750222, "Development of Lightweight Door Intrusion Beams Utilizing an Ultra High Strength Steel." The IIHS paper "Evaluating Motor Vehicle Safety Performance Standards" can be obtained by writing to "Standards Evaluation," Insurance Institute for Highway Safety, Watergate Six Hundred, Washington, D.C. 20037.

### ***Dealer Proposes 'Ethical Car'***

An auto dealer who serves on the Department of Transportation's National Highway Safety Advisory Committee has suggested that the auto "industry and government set some parameters" for "a new type of family and personal car" – an "ethical car."

Gilbert E. Carmichael, president of Volkswagen and Chrysler dealerships in Mississippi, said at the Fourth International Congress on Automotive Safety that the "ethical car" should not:

- "Kill people;"
- "Waste metals and materials;"
- "Waste irreplaceable fuel or pollute the air;"
- "Weigh more than 2,000 pounds."

It should, he said:

- "Carry up to six passengers (for families);"
- "Have a small engine with 30 to 40 mile per gallon performance;"
- "Be incapable of speeds in excess of 65 miles per hour. One of the safest devices we might put on an automobile is a small engine with good performance in low ranges, but limited in its speed capacity."

Carmichael presently is Republican candidate for the governorship of Mississippi.

## Proper Role Of Benefit-Cost Analysis Examined

A National Highway Traffic Safety Administration economist has suggested that benefit-cost analysis be used for comparison and ranking of standards within the decision process, rather than for evaluating one specific standard because of fundamental disagreements that exist over the measurement of benefits and costs in dollar terms.

In a paper presented to the Fourth International Congress on Automotive Safety in July, Barbara Faigin, of NHTSA's Office of Program Planning, characterized as "personal views" her suggestions on the use of benefit-cost analysis. She emphasized that benefit-cost is only one of several criteria, including social and political factors, in "the final decision on whether to issue a standard."

Benefit-cost analysis should "never be the sole criterion for a decision on a safety measure," Faigin said. "It can be a useful tool in ranking safety programs . . . It should be continually kept in mind that cost-effectiveness analysis in terms of lives saved and injuries reduced is the most crucial part of standards evaluation. If the effectiveness of a proposed measure is not thoroughly and accurately measured, benefits calculations are meaningless." (Two studies published last year by the Insurance Institute for Highway Safety concluded that conventional benefit-cost analysis is an inadequate tool for determining the worth of a highway loss reduction measure. See *Status Report*, Vol. 9, No. 20, Nov. 11, 1974.)

Faigin listed several problems in benefit-cost analysis, such as the timing of costs and benefits. Some standards "may have a greater lag in benefits than others" but the "ultimate magnitude may outweigh any short-term disadvantage," she said. Faigin cited vehicle inspection as an example of a measure with "more rapid phase-in costs than benefits."

In other examples, such as school bus safety standards, Faigin said that "factors other than monetized benefits will be given substantial weight. This is because a monetized loss for children falls far short of their total emotional value and because the statistical 'average' would not be applicable."

### CALCULATION OF BENEFITS

"The major focus of the debate on benefits," Faigin said, "has been the dollar values that have emerged from the alternative calculations. There has been too little emphasis on the basic conceptual differences that led to different values."

Faigin pointed out the "widely varying values" for fatalities, ranging from the National Safety Council figure of \$60,000 (in 1973) to the Federal Aviation Administration's figure of \$500,000 (in 1970). The range in estimates is caused by different concepts and methods of calculating the loss, Faigin said. For example, the NSC figure includes only direct losses while the NHTSA figure of \$200,000 (in 1971) attempts to document the "total societal loss." NSC calculation of lost wages differs from NHTSA's.

Faigin advocated measuring "both benefits and costs . . . with a reasonable attempt at comprehensiveness" since "resource allocation decisions based on selective benefits may result in an under-utilization of funds for safety or in a misallocation of resources among safety alternatives."

"Property damage costs are the most directly measurable and 'hardest' economic costs," Faigin said. "If no attempt is made to make at least rough estimates of the less quantifiable costs, too much emphasis might be placed on property damage mitigation efforts."

Faigin is currently conducting a study of the societal costs of motor vehicle crashes that will revise and update the earlier NHTSA study published in 1972.

A limited number of copies of *Societal Costs of Motor Vehicle Accidents for Benefit-Cost Analysis: A Perspective on the Major Issues and Some Recent Findings* are available and can be obtained by writing to Barbara Faigin, NHTSA, Room 5212, 400 Seventh St., S.W., Washington, D.C. 20590. The paper will be included in *Proceedings of the Fourth International Congress on Automotive Safety*, available in November from William Marsh, Executive Secretary, NHTSA, Room 5215, 400 Seventh St., S.W., Washington, D.C. 20590.

## **Ford Appoints Safety Committee Members**

Eleven new members have been appointed by President Ford to serve on the Department of Transportation's National Highway Safety Advisory Committee. They will serve on the 38-member committee until March 15, 1978.

The new members are C. Alvin Bertel, Jr., chairman of the board, Dockside Commodity Terminals, Inc., Metairie, La.; Rupert A. Doan, judge, Hamilton County Municipal Court, Cincinnati, Ohio; Winfield Dunn, former governor of Tennessee, Nashville, Tenn.; Ralph V. Durham, director, safety and health department, International Brotherhood of Teamsters, Winston-Salem, N.C.; Robert J. Forman, vice president for safety, Greyhound Bus Lines., Paradise Valley, Ariz.; Norman R. Howard, Oregon State Senate, Portland, Ore.; Walter M. May, vice president, engineering and product, Mack Trucks, Inc., Bethlehem, Pa.; Jack McDonald, president, Jack McDonald Associates, Great Falls, Va.; Robert T. Monagan, Jr., president, California Manufacturers Assn., Sacramento, Calif.; Janet J. Rathe, executive secretary, Oregon Consumer League, Inc., Portland, Ore.; and Walter C. Wattles, president, Frank B. Hall and Co., Atlanta, Ga.

## **Small Population Key To DOT Incentive Grants**

The Governor's Highway Safety Coordinator of New Hampshire – the state, according to the Department of Transportation, that made the most significant fatality reduction in 1973 – has attributed that distinction to “a very unusually lucky year.”

In a letter to *Status Report*, Thomas Power, of New Hampshire's Highway Safety Agency, complained that DOT's criteria for singling out states by comparing one year's fatality rates with the previous four years' rates “results in distortion.”

(The Insurance Institute for Highway Safety previously pointed out that the present incentive grant plan is biased in favor of small states with erratic shifts in their fatality rates, and discriminates against those larger states with a more gradual, but steady decrease in highway fatalities. This was confirmed when DOT awarded \$13 million in incentive grants to 23 states and the District of Columbia which, as a group, accounted for only one-third of the country's total population and one-third of the nationwide total of highway fatalities. See *Status Report*, Vol. 10, No. 12, July 9, 1975.)

To correct this inequity, Powers proposed that, if DOT decides to award incentive grants again, they “be made on a basis of comparing the last five years with the previous five years, or the last three years with the previous three years. This would eliminate the ‘lucky year’ that every state experiences now and then.”

Computing the average fatality rates for the five years prior to 1973 compared to the five year period before that, IIHS researcher Leon Robertson found that small states would not have been rewarded

merely because of their size. Ten states out of 24 that averaged the most drastic declines in their five year fatality rates did not appear on DOT's list of incentive grant award-winning states. But the probability still remains, Robertson noted, that an average based on a small population over a small number of years would occasionally be substantially different from that of a state with a larger population.

Robertson pointed out, however, that "no award program based on rates per 100 million vehicle miles is necessarily rewarding states whose actions directed toward fatality reduction have been the most effective. Changes in population and vehicle densities, economic conditions and the like could account for some of the rate changes. A more rational approach would be to reward states that initiate and sustain programs of known effectiveness."

## **NTSB Releases Two N.J. Turnpike Reports**

The National Transportation Safety Board has released two reports resulting from its investigations of a series of New Jersey Turnpike crashes.

The first crash was initiated by a tire failure on a tractor trailer truck. Following the blowout, the truck crashed through a median barrier, hit a car and pushed that car into the front of a bus. Nine persons were killed and 11 injured.

NTSB recommended that Federal Motor Carrier Safety regulations be amended so that "all candidate drivers be familiar through formal training with such emergencies as front tire failures, brake fade, (and) jackknife situations."

The report also recommended that a current Federal Highway Administration research project titled, "Advanced Vehicle Protection Systems," be expedited "in order to provide data for design of new barrier construction and improvements to existing systems. Dynamic vehicle impact tests should be made using both intercity buses and heavy trucks." Current guardrail designs are adequate only for retaining or redirecting standard size autos, NTSB said.

### **SMOKE, FOG AND DELAY**

In its second report, NTSB examined a series of nine collisions occurring in a three and a half hour period one night on one stretch of the turnpike. The crashes involved 47 trucks, 18 cars and one bus. Nine persons were killed and 39 injured.

The report listed the probable cause of the crashes as reduced visibility due to smoke and fog. The smoke in the crash area was due to a fire burning in an abandoned dump. NTSB recommended that federal and state environmental agencies take actions to assure that abandoned dumps do not become "hazards to public health and safety."

NTSB also repeated its recommendation, made in 1972, to the National Highway Traffic Safety Administration, that federal safety standards relating to driver education "include more definitive information relative to reduced-visibility driving."

Copies of the full reports can be obtained by writing to the National Transportation Safety Board, Publications Section, Washington, D.C. 20594 and asking for reports NTSB-HAR-75-2 (Series of Multivehicle Collisions) and NTSB-HAR-75-3 (Truck/Auto/Greyhound Bus Collision).

## NHTSA Initiates Consumer Hotline

The National Highway Traffic Safety Administration will soon initiate an experimental telephone hotline, which it says will help collect "safety related consumer experience" on potential safety related vehicle defects.

Scheduled to begin in October, the one-year "pilot" project will be limited to Connecticut, Delaware, Maryland, North Carolina, New Jersey, West Virginia, Virginia, Pennsylvania, New York City, Long Island, N.Y.; Buffalo, N.Y.; and the southern half of Ohio. Consumers in these areas will be able to call NHTSA toll-free to report possible safety related defects or ask "questions concerning product recalls or defects or the defect history of a newly purchased used car," the agency said. (NHTSA has recently initiated a computer-based service listing vehicles involved in safety related recall campaigns which have uncorrected defects. See *Status Report*, Vol. 10, No. 13, July 30, 1975.) Gil Watson, NHTSA's director of consumer services, told *Status Report* that the agency estimated that approximately one-third of the country's vehicle population is concentrated in the area selected for the test project.

The hotline will be staffed by four operators and a supervisor. It has a \$125,000 budget. According to an agency press release, the project will be evaluated at the end of the 12-month period to determine "the quality of data . . . how it is used, and how great or small its impact . . ." At that time, NHTSA will decide whether to expand or discontinue the program, Watson said.

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### STATUS REPORT

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