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## PRESERVING THE INTERSTATE SYSTEM

Statement of
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Before the Subcommittee on Surface
Transportation
Committee on Public Works and
Transportation
United States House of Representatives

Mr. Chairman and Members of the Subcommittee:

I appreciate the opportunity to be here today to testify on our on-going work on federal and state efforts to preserve the Interstate Highway System. Although the Interstate system represents only 1 percent of all roads, Interstate routes carry 21 percent of the nations's vehicle traffic. Because the system has assumed a dominant and vital role in the nation's transportation network, preservation of the over $100 billion federal investment in Interstate construction must be ensured.

As requested by the committee, we reviewed the Interstate Resurfacing, Restoration, Rehabilitation, and Reconstruction (4R) program and the adequacy of Interstate maintenance efforts to slow pavement deterioration. In summary, we found the following:

-- In 1988, the Department of Transportation (DOT) classified 57 percent of the nation's Interstate pavement in good condition. The remaining 43 percent is classified as fair or poor which means that the ride on a significant percentage of the nation's premier highway system may be barely tolerable or worse.

-- Progress in adequately maintaining the Interstate system, a state-financed responsibility, has been mixed, in part because some states have not adequately funded Interstate

maintenance. In two of three states we visited, needed maintenance was not performed, since the resources devoted to maintenance were insufficient. Although Federal Highway Administration (FHWA) engineers identified maintenance problems, they did not always follow up to ensure that the state corrected maintenance deficiencies, even when some were safety-related.

-- In 1981, the scope of the Interstate 4R program was significantly broadened to allow funding for reconstruction, including lane widening. Although major lane widening was not initially expected to be a major component of the 4R program, states have increasingly used 4R funds to widen the Interstate in response to worsening congestion. If this trend continues, the 4R program will change from primarily a pavement preservation program to one that includes a large widening element. DOT estimates $4.7 billion to $6.1 billion will be needed annually in federal and state funds, of which about 50 percent will be used for Interstate widening. The other half would go primarily to preserve existing Interstate pavement.

Given the overall condition of the Interstate and increased funding needs, we are presenting some options that the Congress may wish to consider for re-aligning federal responsibilities and

funding the program to better ensure that the nation's investment in the Interstate System is adequately protected.

## EVOLUTION OF THE 4R PROGRAM

Responding to a need to preserve the Interstate system, the Federal-Aid Highway Act of 1976 established the Interstate Resurfacing, Restoration, and Rehabilitation (3R) program. This program provided federal funds to states for capital improvements that would generally extend the life of the pavement. The Federal-Aid Highway Act of 1981 added a fourth "R", reconstruction, as an eligible type of work. Reconstruction includes, but is not limited to, the addition of travel lanes (widening), and the construction and reconstruction of interchanges and overcrossings along existing Interstate routes. In addition, other types of projects became eligible in 1981, including repairing or replacing bridges and constructing bicycle, pedestrian, and equestrian trails, as well as fringe parking lots, sound barriers, and landscape plantings. All of these activities are eligible for 90 percent federal cost sharing. However, some projects have numerous beneficiaries, while others have a limited number of beneficiaries.

## CONDITION OF THE INTERSTATE PAVEMENT

FHWA classifies pavement into three broad categories--good, fair, and poor--according to roughness.

-- Good pavement provides a smooth ride, with little or no signs of deterioration.

-- Fair pavement may provide a barely tolerable ride at high speeds and has a number of surface defects.

-- Poor pavement produces an uncomfortable ride which requires reduced driving speeds and has excessive bumps, depressions, or holes, and needs resurfacing and/or reconstruction.

The amount of good pavement has decreased (see attachment I) from 62 percent in 1981 to 57 percent in 1988, while the amount of fair pavement has increased from 25 to 31 percent. Poor pavement has remained at about 12 percent between 1981 and 1988. The bottom line is that the ride on 43 percent of the nation's premier highway system may be barely tolerable or worse. Moreover, the outlook for improvement beyond this level is not encouraging because DOT's estimate of future needs are based on recent pavement conditions. For example, the Department's estimate of future 4R needs through 2005 is based on maintaining 1985 conditions. In 1985, about 41 percent of the pavement was rated in fair or poor condition. DOT has not established goals to improve conditions beyond the 1985 level.

Although the percentage of poor pavement has stabilized nationally, the percentage of poor pavement varies among individual states. In 1988, the percentage of poor pavement ranged from less than 2 percent in 13 states to over 25 percent in ten states. This difference can be caused by a variety of factors including the adequacy of routine maintenance, age of the pavement, the amount of traffic and load carried, and environmental effects (temperature and rainfall). According to the American Association of State Highway and Transportation Officials (AASHTO), the separate or interacting effects of these components are not clearly defined at present.

Deteriorated pavement results in societal costs such as traffic delays, increased fuel costs, decreased productivity, and the potential for increased accidents, injuries, and vehicle damage. For example, a 1988 report[1] estimated that in Michigan, driving on substandard roads was costing drivers about $480 million or about 11 percent of their total driving costs.

## MAINTENANCE OF THE INTERSTATE SYSTEM

Maintenance of the Interstate System is a state-financed responsibility. Some routine maintenance activities can slow deterioration. However, routine state maintenance can include many

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[1] An Analysis Of Current And Future Deterioration on Michigan's State, County And City Roads, The Road Information Program, Aug. 1988.

different activities, such as repairing crash barriers, fixing potholes, resealing pavement cracks, removing snow and ice, and painting bridges.

Maintenance activities that preserve pavement life, such as resealing joints, are cost-effective. However, these types of maintenance activities are not eligible for 4R funds. Yet if they were applied in a timely manner they could reduce or postpone the need for 4R funds. For example, a 1985 DOT-Office of the Inspector General report concluded that had routine maintenance been performed when needed in three states, planned 4R project costs of $88.3 million may have been reduced or deferred.

FHWA developed its Interstate Maintenance Guidelines in 1977 because of congressional concerns that portions of the Interstate System were prematurely aging due to inadequate and untimely maintenance. In 1987, FHWA revised its maintenance guidance to respond to concerns over unresolved maintenance deficiencies, insufficient follow-up inspections by FHWA field engineers, and FHWA's not requiring the states to take corrective action.

We judgmentally selected three states--California, Louisiana, and Michigan--to review the adequacy of state maintenance efforts. Two of the three states we reviewed were experiencing problems in adequately funding needed maintenance activities. FHWA frequently identified safety hazards as a common maintenance problem. At

least twenty-five percent of all deficiencies, including safety hazards, had not been resolved as called for by FHWA procedures.

Needed Maintenance Not Performed

Both Louisiana and Michigan did not perform all needed maintenance work, and thereby affected the structural integrity of the roadway. In Louisiana, state transportation officials told us that all needed maintenance had not been performed because of lack of funds. FHWA was aware of the problem as its Fiscal Year 1986 inspection reports revealed serious maintenance deficiencies. Their summary of Interstate maintenance inspections showed 39 different types of maintenance deficiencies including pavement blow-outs[2], poor skid-resistant surfaces, unsealed joints, ruts, and damaged guardrails, which potentially affect the structural integrity of the road and user safety. In addition, FHWA's analysis of state budget information showed that funding for maintenance supplies had declined by 34 percent over the past 3 years and the number of maintenance employees had been reduced by 23 percent in the past 18 months.

In 1987, FHWA concluded that Louisiana had not adequately maintained its Interstate highways. Consequently, FHWA suspended

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[2] Pavement blowouts are defined as the crushing and upward movement of concrete pavement at the joint area that causes the adjoining slabs to raise up, or in many cases shatter, becoming a safety hazard needing immediate attention.

approvals of certain agreements and authorizations, such as the approval of a consultant agreement for preliminary engineering and/or right-of-way authorizations. Responding to the threatened cutoff of future federal funds in 1987, the state channeled about $10 million to Interstate maintenance and over $11 million to provide needed maintenance on other Federal-aid highways. The state also began efforts to earmark revenues from the state gas tax towards highway maintenance. These state actions resulted in FHWA lifting the federal funding restriction. But, the earmarked revenue envisioned in 1987 did not materialize, and Louisiana proposed substantial reductions in its maintenance work. FHWA again responded by denying approval of certain authorizations. In June 1989, the passage of a gas tax amendment offered hope that the state would be better able to meet its maintenance needs. As a result, the federal funding restriction has been lifted.

In Michigan, the state did not perform all needed routine maintenance in the following areas: sealing pavement cracks and joints, painting bridges, and replacing or repairing damaged guardrails and right-of-way fences. A Michigan transportation official told us that not all needed maintenance work had been performed, much of which was related to the structural integrity of the roadway. FHWA was also aware of this needed work through inspections, but concluded that the overall maintenance effort was acceptable. State and FHWA officials also told us steps had been taken to partially correct the deficiencies. For instance, at

FHWA's request, Michigan has begun to do more bridge painting to prevent premature deterioration. However, a state official stated that maintenance funding is not expected to be sufficient to eliminate the maintenance backlog. In addition, this official told us that an increase in the state gas tax of about 2 cents per gallon for three years, for a total of 6 cents, would be needed to reduce the maintenance backlog. He did not expect an increase to be considered during this legislative session.

Deferral of needed maintenance work was not evident in California. A California state transportation official said that they were able to keep up with maintenance needs, and FHWA concurred. However, he cautioned that because of rising maintenance costs, the state may be hard-pressed to meet future maintenance needs. California is also trying to increase its gas tax.

Inadequate follow-up

FHWA documentation indicated no evidence of follow-up action for at least 25 percent of the deficiencies identified in Interstate maintenance inspection reports by staff engineers in Michigan and California during fiscal year 1989. Some of the deficiencies were safety related such as missing signs and signals, damaged guardrails, and illegal median crossings. In discussing the issue of follow-up, FHWA field managers indicated that they

were unaware of the insufficient follow-up. They stated that management review procedures would be implemented to assure that follow-up would be improved so that all deficiencies are resolved in a timely manner. For example, FHWA California division officials plan to utilize a computerized summary to identify unresolved deficiencies and determine the adequacy of follow-up action at monthly management meetings.

## LANE WIDENING ESTIMATED TO ACCOUNT FOR A LARGER SHARE OF FUTURE 4R FUNDS

According to DOT's biennial report to the Congress, funding requirements for the 4R program significantly exceed the current funding level of $2.8 billion a year. The Department estimates the program will need federal and state funds totaling $4.7 billion to $6.1 billion annually through the year 2005. If the federal cost-share remains at 90 percent, the required federal investment will be between $4.2 billion and $5.5 billion annually.

Widening the existing Interstate system must be addressed along with the important need to arrest pavement deterioration of the existing system. Reviewing the Department of Transportation's estimate of 4R funding needs, we observed that the funding estimate projects that states will need to spend about 50 percent of the 4R funds for major widening and the rest primarily for improving existing pavement.

As congestion on the Interstate worsens, expansion needs on the Interstate are expected to grow tremendously in the next several years. The 4R program may increasingly be used to respond to these needs. Therefore, the potential increase in widening activities could change what has been basically a pavement preservation program into a program that will also include a significant lane widening element. Specifically, if about 50 percent of 4R funds are spent for major Interstate widening, this spending would represent a significant departure from historical spending trends. In 1981, less than 1 percent of 4R funds was spent on major widening. In fiscal year 1989, 13 percent was spent on this activity.

The Department's estimate of future annual funding needs far outstrips the current 4R funding level of $2.8 billion per year. Furthermore, the Department estimates that lane widening of 11,000 to 15,000 additional Interstate miles is needed, but is not included in the $4.7 billion to $6.1 billion estimate because of right-of-way constraints. The Department makes reference to other transportation strategies, such as transit, compensating for the expected lane widening shortfall of 11,000 to 15,000 lane miles. However, no information is provided on the extent to which such alternative strategies could respond to this lane widening shortfall and at what costs.

OPTIONS MERITING CONSIDERATION

Mr. Chairman, almost half of the Nation's premier road highway system may be in barely tolerable or worse condition. Further, due to funding difficulties, some states have not performed needed maintenance to slow pavement deterioration and reduce 4R costs. In light of the Department's estimate of the need for a significant increase over current 4R funding levels, which will only hold the line at 1985 pavement conditions, program modifications need to be considered to more effectively use the 4R dollar.

As your subcommittee deliberates the reauthorization of highway programs, you may wish to consider:

-- establishing national goals for the maximum acceptable levels of poor and fair pavement;

-- redefining the range of activities eligible for 4R funding to encourage states to give more attention to maintenance activities directed at preserving the Interstate pavement or resolving safety-related deficiencies;

-- emphasizing Interstate priorities through maintaining the 90 percent federal cost share on those projects that have numerous beneficiaries, and decreasing the

cost share on those projects that have a limited number of beneficiaries; and

-- requiring an assessment of the extent to which alternative transportation strategies are expected to alleviate the expected shortfall in Interstate lane widening and associated costs.

Mr. Chairman, this concludes my testimony. I will be happy to answer any questions.