

REMARKS BY DEPUTY FEDERAL HIGHWAY ADMINISTRATOR
JOHN S. HASSELL, JR., BEFORE THE NATIONAL RESEARCH
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It is indeed a pleasure for me to be here and to discuss highway maintenance and some of the challenges we are facing in this area. I want to thank the Transportation Research Board for holding this workshop and inviting me to speak to you today.

These are times of inflation and energy shortages, a combination that serves to make our efforts in the maintenance of our highway system a demanding task. We have been asked to carry out our goals of preserving the Nation's highway systems, and providing for their safe and efficient use, at the same time that we have been faced with reduced budgets and, in many cases, manpower reductions as well. The present decrease in motor fuel tax revenues, coupled with spiraling inflation, compounds the highway maintenance situation.

These are not new problems, by any means. Mr. Francis Turner, former Director of the Bureau of Public Roads, said to the Highway Research Board in 1968: "As in the past, there will in the future be just so much money available for highway purposes, and any dollar wasted on inefficient maintenance practices is a dollar deducted from the funds available for new facilities."

We have the same problems today. In fact, highway maintenance has now become a major issue and we are facing a highway program for the 80's that will be restructured to preserving the highways we already have.

FHWA's Interest in Highway Maintenance

Although legislative restraints prohibit the use of Federal funds for highway maintenance, the FHWA has a deep interest in seeing that the highways are properly maintained because of the tremendous Federal investment in construction of these roadways. Indeed, Title 23 states in Section 116, "It shall be the duty of the State highway department to maintain, or cause to be maintained, any project constructed under the provisions of this chapter . . ." and "If at anytime the Secretary shall find that any project constructed under the provisions of this chapter, . . ., is not being properly maintained, he shall call such fact to the attention of the State highway department. If within 90 days . . . such project has not been put in proper conditions of maintenance, the Secretary shall withhold approval of further projects of all types in the entire State . . ." Congress and the FHWA view maintenance very seriously.

The States have also shown their interest in the proper maintenance of the highways by placing increasing amounts of their funds into maintenance. The 1980 Highway Needs and Performance Study is finding that State disbursements for maintenance have kept pace with, and in many States, exceeded the rate of cost increases. In fact, maintenance is the one area of the highway program where expenditures have remained stable in constant dollars.

However, Congress is still very concerned and in the Surface Transportation Assistance Act of 1978 Congress required guidelines for Interstate Maintenance. As a result of the 1978 Highway Act, the FHWA has recently issued a regulation that requires State highway agencies to submit an initial plan to explain how they are going to manage their Interstate Maintenance program by July 25. These reports will include a discussion of the State's method of program management, including copies of operating documents, and a general description of the resources and activity levels the State intends to devote to meeting the stated objectives in each cited element.

The law also requires an annual certification by the State that it does have an Interstate Maintenance program and that its routes are being maintained in accordance with that program. Each year the State will be required to update its initial program and provide information to FHWA on: condition of interstate routes and deficiencies, maintenance priorities, maintenance budget and exceptions and/or revisions to the initial submission.

The regulation provides for sanction procedures whereby the Secretary of Transportation can reduce the State's Interstate apportionment by 10 percent for failure to certify as required or if it has been determined that the State is not adequately maintaining its Interstate routes in accordance with its own maintenance program.

Allow me to illustrate a few of the problems that we now face in the Interstate System which have major implications for maintenance.

The designated 42,500 mile Interstate System deteriorated from 1975 to 1980. During this period, pavement conditions changed from 4 percent of all mileage needing rehabilitation or reconstruction to 13 percent needing resurfacing and 13 percent of all bridges on the Interstate System are deficient. In addition, an average of 2,000 miles (or 4.7% of the

total system) is reaching its 20 year design age each year. Federal Interstate completion and Interstate 3R funds (including the Interstate 10 percent state match) now account for about 98 percent of all capital improvements on the Interstate System. This means that States are using virtually none of their other Federal (such as Primary System) or State-only funds for Interstate Resurfacing, Restoration, and Rehabilitation (I-3R) work. The updated pavement and bridge deck needs were estimated at \$20.1 billion (in 1979 dollars) for the 10-year study period in comparison to the previous estimate of \$18.5 billion (in 1975 dollars) for a 20-year period. Since the earlier study, in 1975, over \$500 million has been obligated for 3R projects. Overall, the study indicates an average annual need of about \$2.0 billion whereas the 1977 study showed an annual need of \$0.9 billion (in 1975 dollars).

With these conditions, the financial situation all Government agencies are facing and the congressional direction we have, I believe you can see why the FHWA is very concerned about maintenance.

However, much more than concern is needed if we are to address the highway maintenance problem. We have become increasingly aware of the need to properly manage the highway systems themselves. This need we have categorized under the title of Pavement Management (PM), and have divided it into six major categories: planning, design, construction, maintenance, pavement monitoring and research.

Effective PM involves the use of feedback of information on pavement performance, pavement maintenance, pavement rehabilitation activities, and the cost of providing and maintaining pavements. Our goal must be to improve the process of coordinating and managing all activities related to pavements to reduce the life-cycle cost for providing and maintaining pavements in a serviceable condition.

Most States have adopted the concept of maintenance management to improve the productivity in highway maintenance through effective planning, scheduling, reporting, monitoring, and budgeting of maintenance activities. The States have developed the tool to use this management philosophy either internally with their own forces or through the expertise of a consultant.

Ongoing and Future Activities

The FHWA has over the years participated, at the request of the States, in research to develop maintenance management systems in order to increase maintenance productivity and utilize resources more efficiently. An effective Federal/State relationship in the area of highway maintenance has resulted principally due to the States' and FHWA's keen interest in improved management and the cooperative attitude both agencies have.

We are fortunate in that so many State highway agencies recognize that pavement maintenance can significantly affect pavement performance. The maintenance required to keep a pavement above some planned serviceability threshold is a measure of the effectiveness of pavement management in programming, design and construction quality. In this vein, maintenance activities and expenditures provide essential feedback into the programming, design, and construction of new pavements. Maintenance must be carefully planned and implemented to include proper reporting and easy data retrieval.

One of our most meaningful contributions to the systematic management approach to highway maintenance

has been the introduction of the concept of Value Engineering. This concept is simply the systematic application of recognized techniques that identify the function of a product or service, establish a dollar value for that function, and reliably provide the necessary function at the lowest overall cost.

One of the major steps leading toward increased value-for-dollar maintenance techniques has been that of increased mechanization of maintenance in order to increase productivity. Multiple-use equipment has been introduced to reduce fleet sizes and it quickly became evident that keeping downtime to a minimum was the one way to ensure adequate return on investment.

Problems with downtime, which is actually maintenance time for the equipment, quickly gave rise to the equipment support system. Guided by input from the various State highway maintenance organizations, the FHWA awarded a research project concerning equipment management. The input from a dozen or so States was analyzed and a design manual for an equipment management system resulted.

On-site surveys of the equipment management and functions in 9 States included evaluation of existing systems and system elements and the documentation of management practices. Equipment managers and users at all levels were interviewed as part of the program to determine how to improve equipment management information and operations. On the basis of these surveys, common equipment management objectives, based on apparent levels of demand for equipment services, structures, or equipment cost, and opportunities for management improvement were established.

In other areas of maintenance research bridges, have come under detailed maintenance studies, and over the past 2 years we have been working with the AASHTO Highway Subcommittee on Maintenance in the development of a guide for bridge maintenance management. Its purpose is to provide a summary of current successful management techniques, bridge maintenance specifications and work standards that various State highway agencies use and it will provide guidance for all bridge maintenance personnel in managing the structure maintenance program. The concept of a preventive maintenance program for bridges is stressed in order to protect the costly capital investment.

As we have developed our maintenance management concept, we began to assist the States in promoting maintenance management through a program of process reviews for highway maintenance management. The objective of these process reviews is to evaluate the management process of the State highway agencies maintenance program to better understand the development of effective and adequate maintenance programs for highway facilities. To further demonstrate our interest in the management of highway maintenance by a systematic approach, FHWA headquarters and division offices have sent qualified representatives to various State highway departments to receive training in maintenance management with the intent of having these persons handle future process reviews.

Closing

I think you can see from what I have said that we in FHWA are vitally interested in all phases of this important subject--and these programs, and others that are planned, are but a part of our efforts to improve the maintenance management system and the quality of highway maintenance.

I am happy to note that the workshop will address

many major issues of highway maintenance and I wish you a full and complete program. I expect that many of you will contribute as much to the discussions as you learn and that all of you will benefit from the sessions.

I feel confident this workshop will give you insight into techniques to maintain the management system. There is a great need to preserve the system with refinements due to the shortage of precious highway dollars. The results of this workshop should help all States to accomplish better and more cost effective maintenance.