

Public-Private Sectors Exchange Information on Highway Pavement Research

The private sector, including vehicle manufacturers and national trade associations, has conducted considerable research on highway pavements. Government groups and their university allies have also explored this topic extensively. Traditionally, however, there has been little interaction between the privately and publicly sponsored research programs. Two recent initiatives have helped foster cooperation by allying the private sector with a university in one case and with government highway engineers in another.

National Center for Asphalt Technology

In September 1986, the National Asphalt Pavement Association Education Foundation and Auburn University signed a five-year cooperative agreement to create the National Center for Asphalt Technology. Work conducted at this facility is intended to enhance knowledge about hot-mix asphalt concrete pavement design and construction and provide training and information on state-of-the-art technology and management practices. Funding for the center comes from private sources, primarily pavement contractors. Substantial contributions have also been received, however, from equipment manufacturers, refiners and asphalt suppliers, aggregate suppliers, private foundations, and other interested groups. To date, the NAPA Education Foundation has received pledges of almost \$9 million for an income-producing endowment to support the NCAT program. Auburn University has supplied use of its facilities in Auburn, Alabama, and its faculty, as

well as a commitment from the university's administration to the success of NCAT.

The primary goal of the NCAT research program will be to find solutions to the two most significant performance problems of hot-mix asphalt pavements: stripping and rutting. To unravel the stripping problem, NCAT research will concentrate on understanding the basic mechanisms that produce stripping and the types of bonds that are the most stable at the moment that water is introduced into the mixture. The focus of the research on rutting is information collected from field studies that will be

used to determine why hot-mix asphalt pavements have failed by rutting when subjected to heavy axle loads. The NCAT researchers are enlisting state governments to help with the study by locating sites at which pavements built from the same materials rutted in one situation but not in another. State crews will trench and core the sample roadways, and NCAT will perform evaluations. The data from this nationwide study will then be assembled and analyzed for explanatory patterns.

In addition to serving as a research center, NCAT will operate as a clearinghouse for state-of-the-art informa-



Public and private sectors have recently begun to collaborate on research on asphalt concrete materials, such as those used in paving of ramp at I-95 and Washington beltway in Maryland.

tion on asphalt technology worldwide. To accomplish this informational mission, a newsletter was started to keep practitioners abreast of technology developments, an electronic library of asphalt technology study abstracts was created, and a referral list of U.S. asphalt technology experts was compiled.

Education is another of NCAT's objectives. Its current targets in this field are the preparation of a textbook on asphalt technology and the development of training courses for civil engineering professors who teach materials technology.

With Auburn University's physical plant and research personnel and the

private sector's funding and direction, NCAT should be able to point the way toward new solutions for asphalt engineering problems, in addition to serving as a source of learning and information. NCAT may well serve as a model for other private-public ventures to address specific research problems.

Information Exchange: Trucks and Pavements

A promising cooperative research endeavor between the trucking industry and state highway officials is developing. Previously, the trucking industry's primary research efforts focused on developing vehicles that meet industry productivity needs and driver requirements. The highways on which these vehicles operate was not a concern. Current travel and budget constraints have forced public agencies and private users alike to recognize the capacity limits of the existing highway system, as well as the need for preserving the U.S. highway investment.

The First International Symposium on Heavy Vehicle Weights and Dimensions, held June 1986 in Vancouver, Canada, marked the beginning of an increase in research information sharing between the trucking industry and those responsible for highway operation. Participants at this conference discussed vehicle stability and the impacts of trucks on pavements. The Vancouver symposium was soon followed in Australia by a conference on heavy vehicles, at which the principal focus was Australia's progress in integrating truck and road changes to improve productivity.

In 1988, the PACCAR Corporation, a U.S. truck manufacturer, invited researchers from state departments of transportation and universities to give presentations on the effect of truck loadings on the performance of pavements. Later that year, the Society of Automotive Engineers sponsored a session entitled "Where the Truck Meets the Road" at a meeting of trucking industry representatives and highway engineers in Indianapolis, Indiana. Then, in January 1989, a representative of the tire industry presented the results of his research on tire inflation pressures and pavement contact pressures to the Committee on Flexible Pavement Construction and Rehabilitation (A2F02) at the TRB Annual Meeting.

Plans are already in place to further develop these promising beginnings. In June, the Second International Symposium on Heavy Vehicle Weights and Dimensions, held in Kelowna, Canada, reexamined vehicle stability and truck impacts on pavements and also discussed safety, geometrics, productivity, and monitoring. Plans are under way to present a full session on the interaction of trucks and pavements at the 1990 TRB Annual Meeting. Further ventures between the trucking industry and highway officials seem almost certain.

These first efforts to exchange information among public, private, and academic researchers reveal that although the objectives and goals of the groups are different, exchanges can enhance all participants. In addressing complex issues, the growth in understanding offered by cooperative efforts in research may offer new approaches to old problems.



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