

COMMITTEE ON STRENGTH AND DEFORMATION CHARACTERISTICS OF PAVEMENT SECTIONS

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As this workshop was originally conceived, its objective was a simple one: to develop or facilitate an interaction among three Highway Research Board committees that are involved with the improved design of pavement structures. Participation was subsequently expanded to include people who were not members of the three committees and who had some special interest in pavement problems or some special talent with respect thereto.

I am of the opinion that the extended, and sometimes heated, conversations at this workshop are evidence that the interaction objective was accomplished at least for the interim. Furthermore, I was impressed that the conversation included within it a great deal of communication inasmuch as each of us had an opportunity to be heard and each was listened to and, for the most part, understood.

Two other workshop objectives were subsequently added: to assess the current state of knowledge concerning pavement analysis and design and to list by priority the relevant research needs. We have largely accomplished these objectives, although, of course, we do not have complete accord among ourselves that the identification, documentation, and ranking of this information is optimal.

I would conclude, in any case, that regardless of whatever happens beyond this point the preliminary objectives of the workshop have been satisfied. However, we all hope that there may be additional continuing beneficial interaction as it concerns improved design and analysis of pavement systems.

It is interesting and perhaps necessary to conjecture what implications this workshop may have on the future activities of individual HRB committees. To examine this question requires that we first identify the functions of an HRB committee. Five of the seven stated functions of these committees relate to the initiation, conduct, evaluation, or implementation of research activities. Thus, the research function would seem to constitute almost the sole justification for the existence of these committees.

It is unfortunate, however, that the role is a passive one in that committees act largely in indirect ways rather than through direct participation and involvement as funding and contract agencies. In my opinion the most significant implications of this workshop will not be those for HRB committees but those for funding and contract agencies or for each of us as individual design professionals.

However, there are some direct implications for future committee activities, and let me briefly explore those that are possibly relevant for the Committee on Strength and Deformation Characteristics of Pavement Sections.

SCOPE OF COMMITTEE

There has been no indication that a shift in role or scope of this committee is required. Our role is reasonably well defined, with the possible exception of evaluating the response of in situ pavements to traffic loads, and any overlap with the activities of other committees is minimal.

INTERACTION WITH OTHER COMMITTEES

The nature of the pavement system is such that continued interaction among all HRB committees concerned with pavement analysis and design is essential. For example,

it is apparent that the technical aspects of nonlinear characterization will require a coordinated approach between those responsible for testing and those responsible for analysis. Furthermore, the research need to "determine applicability of linear theories to predict stresses, strains, deflections, and fatigue distress in pavements" will doubtlessly require close technical coordination and interaction. As a first step toward ensuring continued interaction, liaison representatives to other related committees have been appointed. However, additional means for ensuring that our heretofore disjointed activities are better integrated into a team effort need to be explored.

GUIDANCE FOR COMMITTEE DECISIONS

There is little doubt that the deliberations of the workshop will exert a profound influence on the thinking of the committee as we approach the tasks of further identifying our functions and planning for future activities. Several decisions currently facing the committee will be resolved in part through the broadened perspective created by the workshop.

DATA POLLUTION

One recurring thought that permeated the workshop was that a rather large storehouse of information exists that has yet to be assimilated in a meaningful way. One workshop attendee referred to this as "data pollution," a term connoting an undesirably high level or concentration of data. Our committee should try to ascertain if such dangerously high levels of unused or unavailable data exist and, if so, should try to take some action in this regard.

RESEARCH THAT CAN BE IMPLEMENTED

A number of subsystems within the pavement design framework that are now "technologically implemented" were identified at the workshop. The problem is, however, that these subsystems may not be "practically implemented" in that they may not be generally available to interested designers and may necessitate underlying assumptions about which designers have little knowledge. The HRB committees could make a significant contribution by explicitly defining the subsystems that can be implemented and by preparing directions for their implementation. A good illustration is the iterative, quasi-linear elastic analysis used by Monismith and others to estimate stress, strain, and displacement states within a pavement. The general consensus of workshop Group A participants was that this approach has a great deal of validity and utility. However, it requires that complex material behavior be approximated by a modulus and by Poisson's ratio. How best to obtain this characterization is a question that could well be answered by our committee in the form of interim guides that represent our best composite knowledge to date.

RESEARCH NEEDS

Also identified by the workshop participants was a list of research needs. The needs statements were by necessity most general, however, and their utility could be improved by additional definition and elucidation. Because the identification of research needs is one of the primary functions of HRB committees, our committee could provide a useful service in this regard.

INFORMATION GAP

The workshop illustrated once again that rather large information gaps still exist among the many groups and individuals of our profession. It is incumbent on all HRB committees to search continually for effective means of bridging these gaps.