

Research Needs in the Behavioral Sciences Relative to Highway Planning

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● THE UNDERLYING problems of urban and transport systems impose rigorous restrictions on one's thinking; an increasingly delimited set of solutions to these problems is a necessary consequence of current social and economic trends. Solutions are becoming scarcer as the problems are aggravated. The role of planning is changing as society and its needs change. Human and community factors in planning are becoming recognized to a degree which they had not achieved before. Planning of highways is embracing new dimensions.

Highway engineers and planners are committed in increasing numbers to the consideration of social needs and uses of the highway. The social and cultural aspects of highway design have been introduced into statements of program and theory by leading highway engineers, and into highway engineering training curricula. The decision to introduce the social context of highway design is a systemic commitment. It is necessary to understand the nature of this commitment in terms of the research as well as training requirements in the social and behavioral sciences.

Harmer Davis has directed our attention to the changing conception of highway design and planning. In an earlier day highway planning was more or less the equivalent of physical design of isolated elements. Economic, social, and technological contexts of the isolated design elements which have today created the foundation for systems analysis were then unrecognized. Davis has called for highway planning and design which take into account the projected cumulations of scientific knowledge and the effect of these cumulations on our societal arrangements (1). This statement demands changes in research and education, with implications outside of engineering proper.

The role of the behavioral sciences in highway and urban research and planning may well be defined within these limits. Davis has suggested that a key criterion for planning and design is that of optimizing transportation services for the economy. The criterion in any planning operation is the optimization of services for the community. The economic argument is a necessary point of departure, but it is only a point of departure. In the ultimate context of design are people, their problems of living together and communicating with each other.

The engineer, then, has found his way to social considerations via the economy. Perloff (2) has created an architectonic conception of highway planning in its relation to regional planning. Here is posed a team activity, jointly concerned with physical, economic, political, and social problems. Not the least of the contextual factors in design is the educational process (3). How are these conceptions being carried out? What are the problems facing us?

By all odds the most important social factor that is changing is the urban population. Woodbury (4) has projected present urban growth trends in the United States into the future. Starting from a series of United States Bureau of the Census data from 1950-1956, he has looked 15 yr ahead to 1975. The prospect is, if anything, alarming; and if anything, Woodbury has, with scientific caution, understated the problem of urban growth. Urban society has so changed during the 1950's that the Bureau of the Census ceased the publication of its urban data in 1956, and intends to re-define and clarify the problem of urban size and growth only in the light of the 1960 census.

The engineer, the planner and the economist, then, have accomplished a crucial break-through. Thanks to their efforts, the highway in space — in social space — can be seen. Of all the behavioral sciences, the most relevant is that of human ecology, whose task it is to study problems of social space.

The lesson of ecology has been this chiefly: that man lives in communities, and that communities have forms. The question is, whose ends are served by these forms? There is no such thing as a "natural" community today. Communities are all either

well- or poorly-designed. The urban community of the present is a hodge-podge of neighborhoods more or less connected by systems of roads and utilities, in general by our communications net. Now the problem of total community living is being considered, although solutions are at best in the probing and groping stage. The recognition of the social context by the highway engineer and planner is a first step in the way to improved and progressive planning of communities of the future. Human ecology is passing from a descriptive to an analytical and prescriptive phase. The behavioral sciences can and must work out a body of ecological research undertakings to meet the engineer who has recognized the impact of his designs on society.

Although highway planning has proceeded along a developmental line from the stage of isolated design concerns, to the stage of systemic research, the same cannot be said of urban, suburban and town planning. These fields have tended to oscillate between two poles. At the one end, the role of social and economic factors has been minimized; at the other, total community planning has introduced as many social and cultural factors as possible. Perhaps at the present time, through the efforts of research in regional planning and education toward that end, an organic growth process has been introduced, which for the first time will prove to be irreversible, which will not give up its gains and will continue to plan in terms of the largest number of social variables possible, with a view to the wholeness of social life.

At present, planners have developed the concept of comprehensive planning, rethinking through to older conceptions and values of Geddes and Burnham.

A new spirit in education is accomplishing the change toward comprehensive planning. Engineering and planning curricula are now interacting more closely than formerly in universities and engineering schools. The U.S. Bureau of Public Roads has introduced human ecology into the advanced training of engineering internes as a standard matter. However, as Perloff has emphasized, education and research go hand in hand. The advances in education (5) must be accompanied by more imaginative and creative research.

One of the consequences of specialized and compartmentalized society is that the relevant groups in planning enterprises have grown apart and have ceased to communicate freely with each other.

If an era of comprehensive planning is to be entered the goals of that planning must be established. This follows logically from the nature of planning, which is a means of increasing control over activities and fortune. By planning, the vicissitudes of fortune and fortuitous circumstance are overcome. Both a goal and the means to achieve it are set forth. The goal of planning is some image of a future America. Research into this image of the future — the nature of the goal — is needed; this is the first task in ecology.

Two elements enter into this image: (a) physical and technological designs, and (b) social relations and patterns. America is not at one or all of these; it is much too large. There are numerous regions, which are roughly coterminous in anthropology with sub-cultures. Each will probably have a significantly different image of the future; this difference in future projections undoubtedly corresponds to important differences in contemporary practices and needs in different parts of the United States.

America has grown apart as a nation of sub-cultures; has grown apart as a nation of professionals and specialists. In any highway planning operation engineers, planners, and administrators are directly involved. In widening circles, there will be comptrollers and disbursers of the public funds, legislators concerned with transport problems, specialists in metropolitan expansion, administrators and legislators active in this area, as well as countless other groups. A powerful influence, both direct and indirect, on the conceptions of many of these groups, especially of the engineer and planner, is that of the educator. People are becoming more intensively aware of the importance of teaching and of curricula, not only in disseminating specific skills, but also in creating the general climate of development.

An image study must probe, not only into conceptions of the projected physical appearance of highways, but also into the social and cultural patterns that will embrace the physical design. Here the most vital distinction of all must be made. An image study is not merely a wishful projection into the future. What is needed is a sense of consequences: What will be the forms of life which will result from present trends and undertakings? What can be done to intervene in the process of filling out these patterns?

What is the community of the future to look like, and what is being done to realize this image? The clearer and sharper the focus on the image, the better are the chances of realizing it.

It is proposed that a series of three studies in ever widening circles be undertaken. Because of increasing specialization and compartmentalization, those who have most to do with the planning have moved apart. In the first and innermost circle, it is suggested that engineers, planners, administrators and educators recognize their mutual dependence. Their images are not identical, nor is it necessary that they be so. But each set of images must bear some relation to the others. In expressing their relationship, a mutual clarification can and will result; a sharper sense of direction in their realization will result; and this is "feedback" in the proper meaning of the term.

The task of the engineer and planner will be made easier, if the suggestion will be permitted, by closer knowledge of what is in the minds of the legislators and supervisors of public funds. And the decisions of supervisors and legislators will be made easier if they have a fuller understanding of the aims and a more detailed grasp of the means and techniques available to the engineers. The image study proposes to include these questions as well. This is the second ring in the series.

The outermost ring in the image study is the public, the users of the highways, the inhabitants of communities and regions. The image in the eye of the public is the most obscure because it lacks specialized training of the engineer and expert advice of the legislative committee. But planning in a democracy requires probing the public image as well as the others. With the research task goes the task of educating the public to its needs and responsibilities. Again, research and education go hand in hand. Education of the public may be accomplished through the mass media — newspapers, radio, television, magazines — and civic associations, public welfare and service organizations, and the school and university systems.

The motivation to inform the public about its future and to learn from the public is not solely negative, the fear of reprisal at the voting booth; there are positive virtues to be gained in working with the automobile drivers and public transport fare-payers. Better understanding of the public and its problems will make for better designs and better use of designs.

Thus, a dialogue starts within each circle, first among specialists. As they exchange views and clarify them, the legislative and supervisory authority makes its contribution. This is necessarily a second-phase operation, because these people are dependent for views and data on the first. Finally, the public must be brought in — an informed public.

There will necessarily be conflict among the different social groups; but it is certainly desirable to bring out the conflict than to permit it to lie dormant and emerge only after a plan has been committed.

The exploration of the image will have a side effect of considerable importance. If the concept of what is wanted in transport services becomes clearer, research may be initiated into the means of achieving the goal — not only scientific and technological, but social and cultural as well. Both are in need of comprehension, and with a high degree of urgency.

The task of the behavioral sciences in highway planning is not to tell engineers and planners what to do. It is rather to serve as a catalyst in the expression, realization and dissemination of ideas where the human community is concerned. The most direct and relevant contribution from the side of the behavioral sciences is the exploration of the image of the future of America as engineers and planners see it. Perhaps by this means a greater degree of control over the future can be gained. The purpose of planning is the increase of control. The alternative is chaos, wasteful expenditure, and impoverishment of the nation.

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