

## **TRANSPORTATION AND THE URBAN ENVIRONMENT**

W. N. Carey, Jr., Executive Director, Highway Research Board

In behalf of the Highway Research Board, I welcome you to this conference to design a research project statement on the impact of the Bay Area Rapid Transit (BART) system for the San Francisco metropolitan region. If there is any question as to why the Highway Research Board is participating in a conference related to rail transit, there are at least 3 answers. First, HRB is interested in and involved with transportation research, and this conference was considered necessary to outline a well-designed large research program. The interactions and interfaces of rail with highway and with the socioeconomic environment of the area, of course, make it impossible to isolate BART and undesirable to try. Second, HRB has been for many years deeply involved with public transit. In fact, its bylaws call for attention to "highway and urban transportation systems." Some 20 committees of the Board are directly concerned and many others are peripherally involved. At the 49th Annual Meeting of the Board in January 1970, some 10 to 15 percent of the programmed material related directly to public transportation. Third, more than 300 highway impact studies have been made, and their successes and failures should certainly be used as inputs to the development of techniques for this program.

A revolution is occurring in transportation planning, and this conference is a visible example of it. Next January the Highway Research Board will celebrate its 50th Anniversary. During the past half century transportation has made its most significant technological advances and perhaps has had the greatest impact on society of any of the technological developments of several centuries. A close competitor would be communications. The space program is glamorous, but it has not had nearly the impact on society that the development of the motor vehicle has. Because of this tremendous impact, especially on urban structure and life styles, transportation is being currently blamed for many of the ills of cities. We will all readily admit that it is a primary factor in pollution and that urban congestion is deplorable from many points of view. I think, though, that I speak for many transportation planners and administrators when I say that I am unwilling to be defensive about highways and other transportation systems. Although these systems do create problems, many of them serious, society cannot survive without them.

Ten years ago, Dean Boelter of UCLA told us at the National Academy of Sciences Woods Hole Transportation Conference that the movement of people and goods must be approached from a total system point of view. Planners now fully recognize that we can no longer give sole priority to a particular project or to a single transportation mode. In an urban area, of course, we need balance among the modes. It is naive to believe, however, that in balancing a transportation system we will substantially reverse current patterns of freight and people movement. Highway engineers have for some time recognized that highways must fit into the total environment and that they are needed to satisfy public demands for individual transportation. They recognize that highway transportation is a service industry responding to public demands and that social considerations rather than technological considerations will in great measure dictate the future development of highway networks.

For these reasons, transportation systems planners must be wary lest they design systems that will satisfy planning criteria and hardware concepts but that may frustrate public desires. Social and economic considerations warrant the upgrading of urban transit systems, and I think we all hope that Congress will appropriate sufficient funds on a long-term commitment basis to see this vital upgrading achieved. The \$3.1 billion approved by the Senate is a good start, and we hope the House will agree. It

is not realistic to believe, however, that high-capacity urban transit systems can be employed to replace the automobile and truck in urban areas. Corridor density, economic constraints, and transit limitations related to less than instantaneous demand response and low flexibility must be considered in the creation of new transit systems. In addition, problems of congestion in the city involve not only peak-hour commuter loading but also movement of freight and commodities in the city.

In trying to resolve urban transportation problems, perhaps we have been too concerned with hardware and not concerned enough with the problem of the basic relationship between transportation and the environment. During the first third of this century, our primary objective was the development of a minimum level of access. In the second third of the century, our primary concern has been on upgrading transportation systems to meet a tremendous increase in demand for travel and for reduction in travel times.

Advances in transportation technology have enabled the public to better satisfy its desire for greater mobility. Rail systems permitted the development of high-density corridors extending outward from central business districts of cities. People could live at considerable distances from their work and enjoy the amenities of less dense living and yet not increase their travel time to and from work. The automobile provided similar opportunities with additional elements of greater mobility and flexibility. It also made possible point-to-point delivery of persons and goods. There can be little doubt that transportation systems have helped shape the structure of cities. In fact, it is my belief that, in urban areas where land as a natural resource is not the controlling factor, accessibility is the key determinant of land use.

We are here to try to determine ways for assessing the impact of a new transportation system on the social and economic environment and on the ecology of the area through which it passes and on the larger region that it influences. BART is the first totally new rail system whose impacts we may evaluate, and I am sure these impacts will influence decisions regarding future installations in other cities, nationally and perhaps worldwide. In your deliberations, I hope you will keep in mind that perhaps we need to reevaluate criteria for determining transportation needs. Perhaps transportation planners should place less emphasis on developing systems to meet forecast demand based on existing travel patterns. Perhaps we should put more emphasis on using transportation systems to influence land use and the structuring of cities so as to shape our common life.

Henry David Thoreau, a century ago, asked the question, "Do men ride on railroads, or do railroads ride on men?" Should technology serve us, or we serve it? Our cities should be a reflection of our social consciousness. As you design a research project statement, I hope you will include the BART system's impacts not only on the economic and social elements but also on the people in the Bay Area, their life style and their living and working environment.