

FOCUS ON NEW INITIATIVES IN TRANSPORTATION RESEARCH

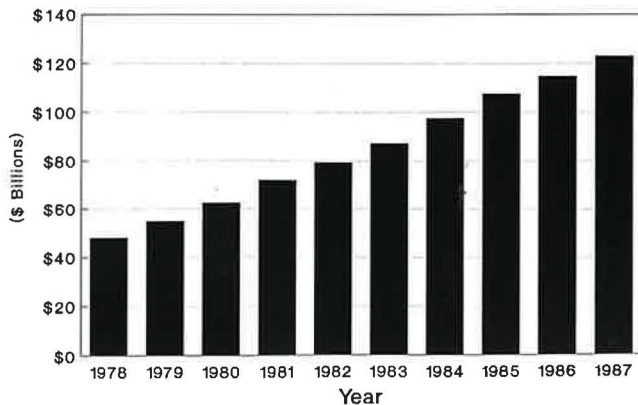


Introduction by Thomas B. Deen

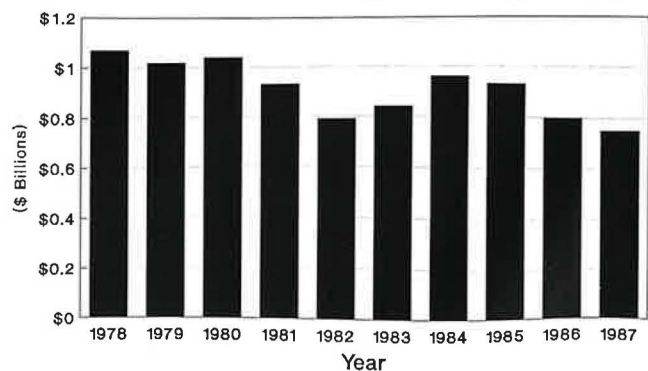
Research is vital to the continued strength of the U.S. economy and to the nation's role as a world leader. The importance of research has been reaffirmed by steady growth in funding of research and development during the 1980s—in 1985, funding surpassed \$100 billion. Increased federal support of R&D spending on national defense, and to a lesser extent on health and space programs, has helped fuel this growth. The private sector also stepped up R&D, in part because of more spending by de-

fense-related industries; industry now accounts for more than half of all R&D spending. Nevertheless, the United States lags Japan and some western European countries in the amount of resources it deploys for non-defense-related research. The United States devotes only 1.8 percent of its gross national product to nondefense-related research, whereas Japan and West Germany devote 2.8 percent and 2.5 percent, respectively, of their GNP to this type of research.

National R&D Expenditures



Federal R&D Funding for Transportation



Funding Transportation Research

Unfortunately, the transportation sector has not shared in the recent resurgence in R&D funding. Federal R&D funding for all transportation modes—air, highways, rail, public transit, water, and pipelines—has declined from more than \$1 billion in 1980 to an estimated \$750 million in 1987 (adjusted for inflation). Federal R&D funding for air transport and highways grew during this period, but research budgets for the other transportation modes were cut because of belt-tightening measures.

The primary source of funds for transportation research is the federal government and, to a lesser extent, private firms that conduct vehicle-related research for automobile and aircraft manufacturers and the supply industry. Government research typically deals with the use of public funds for the construction and operation of transportation facilities and systems, whereas industry research nearly always deals with a company's own product or products. Much of the information about private research budgets is proprietary. Despite the prominence of federal funding of transportation research, federal dollars for transportation research represent a meager 1.5 percent of all federal R&D spending.

When government expenditures on transportation research are compared with those of private industry, the inadequacy of current transportation research budgets is even more evident. Private firms with R&D budgets of more than \$1 million spend 3.5 percent of sales, on average, on nondefense research; high-tech businesses spend up to 7 percent. In comparison, federally funded research in the four major transportation modes—air, highways, rail, and public transit—together accounts for less than 1 percent of total expenses. And even this figure masks a much lower level of research spending on rail, highways, and public transit—less than 0.2 percent of total expenses.

Decentralization of the transportation industry is in part responsible for the

lack of a more well-defined and well-funded research program. The U.S. transportation sector is a multimodal conglomerate divided into many varied segments. In the public sector, every level of government has unique responsibilities for the delivery of transportation services. At the federal level, the role of government is mainly to give direction to national or regional objectives, provide funding support, and ensure the free and safe flow of people and goods. The federal government is not the primary owner and operator of transportation facilities, with the exceptions of the air traffic control system and waterway navigation. Lower levels of government have the responsibility of providing transportation facilities. States and counties plan, design, construct, and maintain the highway system; municipalities or other local governments usually maintain the street system, airports, and port facilities.

Recent Developments

In an era of little or no central control of the nation's transportation infrastructure, it is not surprising that research to support that infrastructure is broken into many different program functions, directions, and goals. Despite the fragmented nature of transportation research and the scarcity of federal research dollars, a number of major new research initiatives have been launched or are planned. These new research initiatives are the focus of this issue of *TR News*. They represent new funding for research or rechanneling of existing funding; they also include changes in organizations that elevate the position of research. Most of these projects are already under way, but a few are still in the planning phase. Thus, they appear as "ongoing" and "developing" research. Although the majority of the initiatives are public, a featured public-private collaboration on highway pavement research suggests the beginnings of a greater sharing of information between public agencies and industry. It should be noted that this issue does not include many

Ongoing Programs Supported by Government and Industry

Federal Highway Administration

Manages a research program and administers the Highway Institute and the Nationally Coordinated Program of Highway Research.

States

Each administers a highway research program partly financed from Highway Planning and Research funds, a mandatory set-aside of 1.5 percent of apportionments of federal highway funds to the states. All states pool a portion of their HP&R funds for a National Cooperative Highway Research Program through which common problems can be researched at a funding level not possible by individual states. In existence since 1962, this \$8 million annual program accounts for about 6 percent of national highway research.

Transportation Research Board

Serves as a clearinghouse for all modes of transportation research. Its activities include publishing, a field visit program, information services, special studies, and an annual meeting.

Other Government Agencies

Administer various transportation-related research programs. These agencies include the Department of Transportation (FHWA programs already discussed), the National Aeronautics and Space Administration, the Department of Agriculture, and the U.S. Army Corps of Engineers. Other agencies not normally associated with transportation, such as the Environmental Protection Agency, the Department of Energy, the Bureau of Indian Affairs (Department of the Interior), and the Agency on Aging, also conduct research on transportation-related issues.

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ongoing programs supported by government and private industry that have been in existence for several years. These programs are listed in the accompanying box.

The prospects for greater commitment to research are promising. National priorities are tilting away from defense and toward domestic problems; thus, opportunities to obtain more federal funding may be available to the transportation sector if a strong case can be made that these funds are needed and will be well spent. Many transportation officials have already recognized the need for a stronger national transportation research effort with a greater

commitment of funds. Policy documents drafted by national organizations that participated in the Transportation 2020 program include strong statements about the need for research; some endorse significantly expanded research programs. The research initiatives described in this issue of *TR News* demonstrate this new interest.

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ONGOING RESEARCH

Looking to the STRS for Transportation Research

During the past five years, a series of studies has been initiated to reassess the direction of transportation research programs. Funded by different administrations of the U.S. Department of Transportation and conducted by TRB, the objectives of these Strategic Transportation Research Studies are to critically examine research needs, recommend research priorities on the basis of expected payoffs and prospects for success, and devise a plan for funding and managing research.

Progress on three STRS projects is reviewed: the Strategic Highway Research Program, Transit STRS, and Highway Safety STRS. The first of these studies, SHRP, focused on research needs

for highways. Six research priorities were identified, and substantial new funding was earmarked for a five-year research program. Following SHRP's success, a similar effort was undertaken for public transportation research, transit STRS. A research agenda was identified, and funding sources and an organizational structure were recommended, but congressional action is needed to execute the program. The third project, highway safety STRS, has just been approved by the Federal Highway Administration and the National Highway Traffic Safety Administration. An 18-month study is planned to develop a strategic plan for highway safety research.