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STATEWIDE TRANSPORTATION PLANNING: UPDATE ON CURRENT ISSUES AND RESEARCH

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CHAIRMAN'S COMMENTS

As Carol Keck, the coordinator of articles for this Transportation Research Circular, points out in her remarks elsewhere (see page 4) this is the first of several publications being developed by TRB Committee on Statewide Transportation Planning. Former readers of the Statewide Transportation Planning newsletter (October 1980) must excuse my taking this opportunity to replay now a few earlier themes that are still significant today. Among them is the changing and expanding role of statewide transportation planning--a very positive picture, overall.

- Decentralization of responsibility and decisionmaking to the states. This policy of the current federal administration means that state transportation agencies will increasingly make more of their own fund-allocation decisions. This is certain to increase the need for sound planning based on accurate information and responsiveness to the great variety of each state's needs.
- Greater management orientation of planning. The chief administrative officers of state transportation agencies are using planners to a greater extent in financial policy analysis, programming, and even in operations-research type studies of internal departmental operations.
- Greater communications role for planning. As noted in the article on Pennsylvania's planning methodology in this Circular, planning staffs are playing a much greater role than before in delivering facts on physical plans and financial needs to the legislature and the public.
- Computer revolution. The computer revolution is still going on! I suspect that its greatest effective increase in transportation agency productivity will take place in the next five years, as

more agencies put their data bases into "on-line" hard disk storage and couple this with staff-accessible terminals. (All this is by comparison with batch-processing types of computer use.) Use of microcomputers will also be a factor. Proper "care and feeding" of data bases will become increasingly important, and this requires a careful re-examination of the anti-data-collection policies of the 1970s.

A new theme: evidence obtained during the preparation of the NCHRP Synthesis Report on Statewide Transportation Planning indicates that at least 13 states have published statewide transportation plans since 1975. These include Arizona, Connecticut, Florida, Georgia, Hawaii, Iowa, Maryland, Minnesota, North Carolina, Rhode Island, Tennessee, and Washington. (Not included in this list are policy plans prepared by California and Wisconsin.) Most of the 13 states listed above published their plans in the years between 1978 and 1981.

Use of published plans as a means for regular communication to state legislatures and the public seems to be increasing. Connecticut, Iowa, Maryland, and Washington regularly revise their plans. Thus, plan publications is a lively, purposeful activity for a substantial number of states.

In general, then, we can see that statewide transportation planning is adapting well in response to changing needs and issues, and thereby is prospering.

The task of this Circular, like that of our Committee, is to foster change and improvements by expediting the transfer of improved ideas and techniques. Please give us a hand by bringing to our attention your news of progress.

Roger L. Creighton
Chairman, Committee for
Statewide Transportation
Planning

PLANNING PRODUCTIVITY

This Transportation Research Circular focuses on planning productivity--or how to increase it. This is a major concern of TRB Committee ALD03 and has led to the creation of the Subcommittee on Planning Productivity, chaired by Harvey Atchison.

The diminished financial resources available for most (or all) state department of transportation activities have prompted numerous efforts to increase coordination and cooperation among organizational units and their data-analysis capabilities. These efforts have ranged from major restructurings of state transportation departments and highway departments to the consolidation of computerized data files.

Actually, we are only now beginning to understand the ways in which the productivity of planning staff can be increased. One obvious means is through the increased use of computers--from main-frames to micros. A second way is through better and more

economic collection, storage, and updating of data, with zero duplication. Other approaches may include better staff organization, more discriminating choices about what to plan, and more carefully organized communications.

A few examples of attempts to increase statewide planning productivity are summarized here. They provide valuable guidance, insight, and ideas that other areas may find helpful.

The Penndot Approach

(The following material is excerpted from "Program Development and Management--Pennsylvania's Integrated, Organizational Approach" by Lee H. Bowser, Harvey Haack, and Thomas D. Larson, Pennsylvania Department of Transportation.)

...In an era of severely limited resources, top-level management must be intimately involved in the

programming process. To be effective, in a management sense, the programming, budgeting, and authorization process must be closely integrated. This becomes even more critical as the nation shifts from new highway construction to transportation system management....

...Pennsylvania's traditional approach to transportation programming was based on a county-by-county allocation of anticipated resources. These county-by-county allocations drove the capital program development process. Non-capital program development was scattered among various organizational units within the Department. Other than the 12 year forecast of available federal aid, there was almost a complete lack of financial planning. State funds were provided through bond financing....

(These conditions and an indication of serious concerns by the Pennsylvania Assembly about PennDOT's ability to carry out its appropriate role led the Department to reconsider and restructure its operation to be more effective in the areas of development and management.)

...In a bold organization restructuring, the Pennsylvania Department of Transportation shifted from its traditional, allocation approach of transportation programming to an integrated, organizational approach. This restructuring was accompanied by a parallel realignment of fiscal and systems management functions. Program priorities as well as key programmatic decisions are now made through the Program Management Committee chaired by the Secretary and comprised of the Department's nine top managers. Programs are developed by the newly created Center for Program Development and Management, which develops and presents options to the Program Management Committee. Fiscal implications are analyzed by the Center for Fiscal and Systems Management. The entire process is monitored and managed through computerized management information systems maintained through the Fiscal and Systems Management Center....

...In summary, the key to successful program development in Pennsylvania has been the Department's ability to bring together programming and budget functions at the very top level of management. Information and monitoring systems have been instituted that allow top management not only to be involved in decisionmaking but also in monitoring implementation. This is accomplished by active involvement of metropolitan and county planning organizations in the program development process and continuous liaison with the General Assembly.... The Department's integrated, organizational approach to programming has enabled Pennsylvania, within 20 months, to nearly double the amount of federal aid obligated to more than half a billion dollars. During this same period the Department focused limited resources toward restoration of its extensive existing highway system....

Finally, open, effective programming has been one of the key contributing factors to rebuilding the Department's credibility with the General Assembly. Two years ago a disenchanted General Assembly considered legislation to dissolve the Department of Transportation.... For the first time in a decade, the General Assembly, as a body, understands and endorses the Department's program, believes that it will actually be accomplished, and because of this has provided the revenues to finance it.

Minnesota Transportation Information System

Over the past seven years the Minnesota Department of Transportation (MnDOT) has worked to develop a large base of transportation data--the Transportation Information System (TIS). TIS has five subsystems of data files and analysis capabilities that can be accessed through a "user-friendly" language by dial-up terminals in both the MnDOT main and district offices.

The five TIS subsystems are (a) the roadway subsystem, which contains data such as road width, surface type and functional class, keyed to the nearest mile post; (b) the accident subsystem, which contains accident data, traffic signal and other intersection data; (c) the traffic subsystem, which contains estimated average annual traffic volumes, calculated from traffic counts made throughout the state; (d) the bridge subsystem, which contains physical information about all bridges in the state; and (e) the railroad subsystem, which contains data on railroad lines, stations, and grade crossings.

In the process of developing the TIS, many improvements in productivity occurred. In addition to decreasing turn-around time for the analyses of transportation data, the maintenance of duplicate data files was eliminated by integrating stand-alone systems into the TIS. Each TIS subsystem can be cross-referenced and analyzed by using data from other subsystems. For example, the bridge subsystem, recently converted into TIS, requires less maintenance of roadway and accident data since they are already part of the TIS. The Department is currently working on more completely integrating highway planning and management system data and sufficiency rating data into the TIS, as well as data on the pavement management system.

More information on TIS may be obtained from Robert Johns, Minnesota Department of Transportation, telephone 612-296-1262.

Mississippi Update

In 1980 the Mississippi legislature passed a bill to consolidate the functions of energy and transportation planning by establishing the Mississippi Energy and Transportation Board and the Mississippi Department of Energy and Transportation. The purpose of these two units is to coordinate all energy-related needs and transportation-related activities in Mississippi.

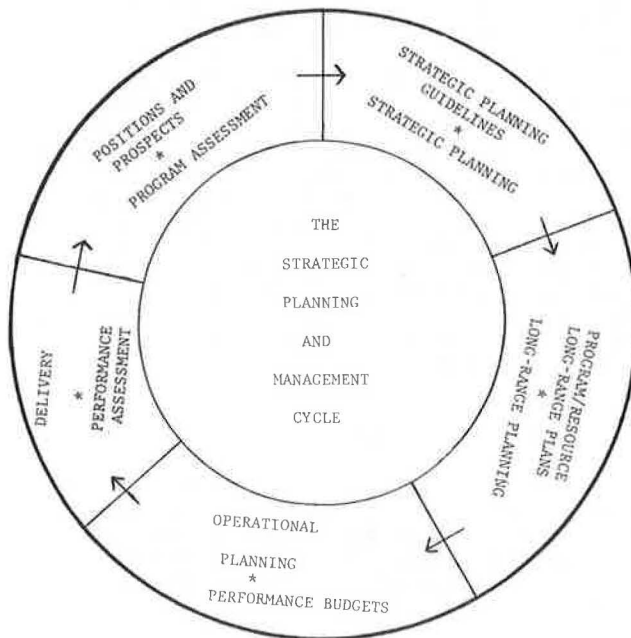
The bill also directed that a comprehensive intermodal transportation plan be developed in cooperation with the affected modal agencies. Such a plan was to be used by all state agencies in coordinating transportation activities. The intermodal plan is almost complete and will be presented to the 1983 legislature.

For more information on the Mississippi program, contact L.T. Livingston or Fred Wise, Mississippi Department of Energy and Transportation, telephone, 601-354-4733.

STRATEGIC MANAGEMENT AND PLANNING

(The following is excerpted from "Strategic Policy Development and Planning Process--Instruction Manual" and from "The Elements of a Strategic Style of Management." Both documents were prepared by the Ministry of Transportation and Communications, Downsview, Ontario, Canada.)

Figure 1. Relationships of components and products of strategic planning and management cycle, Ministry of Transportation and Communications.



NOTE FROM
CIRCULAR EDITOR

This Circular represents renewed efforts to widen the audience receiving information on statewide transportation planning. We are hopeful that this activity will both interest you and prompt you to assist us in terms of articles, descriptions of on-going projects, proposals for research, etc., that we can share with others in future issues. Please send material for consideration to me at the address given below.

I believe this Circular and others in the future can provide a valuable forum for sharing our ideas, and am appreciative of the opportunity to serve as coordinator of this effort. I am sure that together we can make this publication a welcome addition to the "statewide planning" community!

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Strategic planning, simply put, is the process of positioning the organization so that it can be of maximum effectiveness in the future. It deals with important issues and present decisions with long-range implications for the organization itself (as opposed to personal choices, and project matters, etc.)... The sole purpose of strategic planning is to ensure the delivery of the Ministry's [Ministry of Transportation and Communications, Ontario Province] products and services to the public. How efficiently these have been delivered, how effective they have been in achieving the Ministry's objectives, and what changes should be made to them in the future are the subject for the annual assessment process (see Figure 1).

The full strategic planning cycle takes place over an 18-month period. Consequently, more than one cycle is in progress during certain portions of the year.

The Ministry's "Instruction Manual" is directed to senior managers, policy and planning committee members, etc.--those responsible for the operation of the process. It is primarily concerned with inputs and outputs to the Policy Committee, not with the operation of the groups below them. "Provided that the subprocesses essential to the updating of the Ministry Strategic Plan occur at the appropriate time and provided the required information is presented in a form which permits aggregation on a Ministry basis, there is room for flexibility in the way in which individual programs organize subprocesses to best accommodate their particular nature and needs.

A strategic style of management must exist at all levels in the organization and between all levels if the total organization is to be effective and results-oriented. It cannot work--no management system can work--without timely and relevant information coming in from the environment and through the feedback loops... Strategic management is a "heads up" style of management. The flow of information is the lifeblood which transforms a dead, stultified bureaucracy into a vital organization.

Planning is how you create order and produce the results intended. A plan converts intentions into action by organizing and allocating resources (including time) to serve the stated objectives. It is also the means by which resources are obtained.

By identifying key performance indicators and building them into a plan, you can clearly establish measures of effectiveness and efficiency that will make assessment of your results both more meaningful and easier.

By going one step further to predict the desired results, a plan can be a useful instrument of controlling work and consumption of resources. In effect, it becomes a performance agreement--a promise to achieve certain results. While this does not guarantee success, it does provide a means to monitor results and check them against objectives. It provides a means and reference point from which to re-direct efforts which have been proven ineffective. Without good planning, it is impossible to have good control.

For more information on the Ministry's approach to strategic management and planning, contact C.A. Hennun, Highway Program Development Branch, Ministry of Transportation and Communications, Downsview, Ontario M3M1J8.

NOTES FROM CALTRANS

Travel Forecasting and Analysis Task Force

A task force of the California Department of Transportation (Caltrans) evaluated its travel forecasting and analysis function and concluded that improved efficiency would result from (a) a change to centralized functional management and (b) the establishment of a standardized methodology to be followed by all districts. This change would eliminate certain inconsistencies that have developed as a consequence of differing procedures used by the various districts. The variables selected will be based, however, on the particular needs of the geographic area under analysis.

Policy Direction Statement

In an effort to improve ongoing decisionmaking, as well as to give better direction for the preparation of the annual budget and the Proposed State Transportation Improvement Program, Caltrans developed the 1983-1984 Policy Direction Statement. This document covers administrative, highway, freight, public transportation, and aeronautic policies. On the basis of an action plan, meetings are being held on a departmentwide basis to improve each employee's knowledge of the policies that relate to his or her duties. It is anticipated this will increase productivity with respect to all departmental functions.

For more information, contact Ann Barkley, Chief, Division of Transportation Planning, Caltrans, telephone 916-445-7111.

WISCONSIN'S STATE HIGHWAY PLAN

Wisconsin will soon be completing work on the development of a long-range state highway plan. Several alternative plan directions are currently being formulated and evaluated. Some of the measures or analyses used in this evaluation are miles and costs of required improvements, financial resource projections, environmental and energy impacts, accident rate reduction, pavement condition, and improvement in congestion levels. Based on this evaluation, a recommended plan will be developed. Late this summer, public meetings will be held where citizen and special interest group comments on the recommended plan and alternatives will be solicited. A final plan, reflecting consideration of public comments, is expected to be adopted by the Wisconsin Department of Transportation by the end of 1982.

Methods used to develop this new state highway plan, which will have planning horizons of 1990 and year 2000, are considerably different from those used in the past. Previous highway planning efforts were based on a fairly stable view of the future social, economic, and demographic conditions. Forecasts of travel demand could safely and reasonably be expected to follow trends of the recent past. Most people today will agree that the view of the future is much more uncertain and unpredictable. Therefore, rather than relying on one set of assumptions about future conditions, four energy- and economy-driven scenarios were initially developed to form the basis for alternative plan development. These scenarios ranged from restrained energy availability and economic conditions, and consequent travel demand, to unrestrained energy availability and economic conditions, and consequent travel demand. Although these scenarios reflect a wide range of situations, there are those who believe that each has a reasonable chance of occurring. All scenarios are being used in the formulation of alternative plans, although a fifth and mostly likely scenario developed from a probability analysis will be given the most consideration in selecting a recommended plan.

Another important feature of this planning effort

is the close coordination of this activity with programming and budgeting of improvement projects. A computerized deficiency analysis logic was developed and applied to a segmented highway data base already developed for programming and budgeting functions. Several "needs" assessments were prepared by using variable deficiency threshold levels and improvement standards; each set of levels and standards was compatible with a particular energy- and economy-driven scenario. Segment-by-segment results were aggregated to the statewide level and are being used in alternative plan development, but the segment-specific results are being used in the improvement programming and budgeting process. This strong relation ensures that highway improvement decisions are guided by and are consistent with the long-range state highway plan.

For more detailed information on Wisconsin's state highway planning effort, contact George Cunderson, telephone 608-266-2972.

PAPERS AVAILABLE FROM FHWA

The following papers were prepared by the Office of Highway Planning, Federal Highway Administration, for its Statewide Financial Planning Seminar. They are available on request to Program Management Division, Planning and Programming Branch (HHP-15), Washington, D.C. 20590.

State Highway User Taxes: Historical Development and Current Trends (February 1982) contains information on taxation and fee changes from 1980 to 1981 and separate chapters that discuss registration fees, motor fuel taxes, heavy-truck taxes, and other funding sources such as revenue taxes.

General Principles of State Highway Finance and Taxation (November 1981) discusses the principles of bond financing and such topics as the ability of highway user taxes to produce adequate revenue, minimize administrative and compliance costs, relate taxes to services provided, provide a consistent revenue flow, and provide equitable treatment.

Highway Investment Practices and Trends (November 1981) is an abstract of the finance material in the 1981 Report to Congress, "The Status of the Nation's Highways: Condition and Performance."

Revenue Forecasting Techniques (November 1981) discusses some considerations in selecting a revenue forecast technique and illustrates four specific techniques (Maryland, Wisconsin, New Mexico, and NCHRP).

Cost-Allocation Studies (November 1981) provides a general introduction to cost-allocation study procedures and describes nine common user-cost-allocation methods.

Financial Planning for State Transportation Programs (June 1981) discusses the highway finance problem in terms of its components: declining revenues, increasing maintenance and improvement needs, and inflating costs.