

These Digests are issued in the interest of providing an early awareness of the research results emanating from projects in the NCHRP. By making these results known as they are developed and prior to publication of the project report in the regular NCHRP series, it is hoped that the potential users of the research findings will be encouraged toward their early implementation in operating practices. Persons wanting to pursue the project subject matter in greater depth may obtain, on a loan basis, an uncorrected draft copy of the agency's report by request to the NCHRP Program Director, Highway Research Board, 2101 Constitution Ave., N.W., Washington, D.C. 20418

*Final Report*

## Budgeting for State Highway Departments

*An NCHRP staff digest of the essential findings from the final report on NCHRP Project 19-1, "Budgeting for State Highway Departments," by Ernst & Ernst, Management Consultants, Washington, D. C.*



### THE PROBLEM AND ITS SOLUTION

In the state highway field, budgeting is often considered in its broadest context to involve the entire management and decision-making process—from the field or district highway department organizational level to the state legislature and governor. In this context, and in view of the rapid growth in highway construction and maintenance activities, it is quite evident that state highway departments should use the most modern budgeting (management) techniques to maximize utilization of funds and resources. This is particularly important at this point in time, when changes in socio-economic values result in the need for a critical evaluation of the various needs for the expenditure of public funds. Although budgeting plans of varying types are used in state highway departments, techniques and procedures such as the innovative process of (PPBS) Program Planning and Budgeting System that are being used with increasing effectiveness by industry and commerce are not utilized to their fullest potential in the highway field.

The research undertaken in the general problem area of state highway budgeting had as its objectives to (1) analyze and classify characteristics of state highway department funding and organizational structures, (2) determine prerequisites for effective state highway budgeting, and (3) determine the feasibility of devising universal state highway budgeting procedures. The long-range objective of devising a framework for universal state highway budgeting systems and detailed documentation for implementing the procedures was intended to be authorized as a further study if determined to be realistically feasible during this initial work.

To gain an understanding of the organizational and procedural practices of state highway departments and their influence on budgeting, the Ernst & Ernst researchers made in-depth studies of current practices during visits to the highway departments of Kentucky, Nebraska, New York, Pennsylvania, and Texas. Emphasis during these visits



was on analysis of the budget cycle to determine the real factors that influence planning, programming, and budgeting in the department. Ten additional highway departments (Arizona, Connecticut, Illinois, Michigan, Minnesota, North Carolina, Ohio, Oregon, Virginia, and Washington) were visited for less extensive on-site analysis. Further information and understanding regarding the present status of budgetary practices was obtained from 30 replies to a questionnaire sent to the remaining 35 state highway departments. The large amount of information thus collected from a total of 45 states provided the data for analysis and evaluation during the balance of the study.

## FINDINGS

The characteristics that influence state highway budgeting in its broadest context are highway department organization, funding procedures, and budget preparation practices. At the time of the initial investigation the highway organization was a part of the Department of Transportation in only a few states, but others were considering this type of over-all organization and have since made the change. The typical highway agency, whether a separate entity or a part of a larger department, has a central office with bureaus or divisions responsible for specific activities such as planning, design, construction and maintenance, and districts that are largely responsible for field operations. Some states have strong central office authority; others de-centralize authority to the district level.

In all but a few states, selected state receipts are channeled into a dedicated highway fund from which all appropriations are made to the highway department. The remaining highway departments receive appropriations from the state general fund or both the general fund and a highway dedicated fund. Most states reported that unused highway funds can be carried forward into the next fiscal year. In some states debt financing is either limited or prohibited by state constitution. Some states have gained funding flexibility by establishing special authorities to secure debt financing for selected kinds of projects, such as toll roads and bridges.

Two types of financial management systems are in common use among governmental agencies. One emphasizes principally fund control; the other, resource management. All state highway departments use a fund control system, while an increasing number additionally employ at least some aspects of a resource management system.

The fund control concept is generally based on obligation accounting principles. Reporting classifications for budgeting and accounting purposes are structured by organizational unit, with detail by object of expenditure, such as supplies, salaries, and wages. Budget development usually is based on prior year expenditures, fund availability, and adjustment to recognize the impact of major projects or other factors. Budget control is exercised primarily by relating obligations to appropriations by organizational unit and object of expenditure.

The resource management concept has grown in popularity as a means of relating funding more closely to needs, for facilitating multiple-year planning, and for providing management with improved means to control application of resources. Budget development involves (1) setting departmental objectives, (2) establishing program categories compatible with the objectives, (3) conducting needs studies to determine what should be done to meet the objectives, (4) preparing a multi-year plan, and (5) preparing the detailed annual budget. The annual budget is classified by program and project within the program. Project amounts are supported by additional detail, such as project cost estimates or the types of data developed from a performance maintenance system. Budget control consists of comparing expenditures and accrued expenses on projects with budgeted amounts and summarizing these by programs.

The survey of state highway department budgetary processes indicates that the term "budget" has no uniform definition. It is used to mean operating budget, maintenance budget, administrative budget, construction budget, and any combination of these. Similarly, terms such as allocation, allotment, commitment, encumbrance, and authorization are not uniformly defined among the states.

Budget preparation is usually initiated at the central office level. Districts participate, but are restricted in their submissions because they are not provided with necessary information pertaining to work program plans, revenue estimates, and so forth. In general, they have lacked exposure to the budgetary development process.

Needs studies and/or long-range plans have been compiled and are maintained in all states, but are infrequently used as a basis for budget preparation or projection of resource requirements. Budgets are prepared by object of expense directly related to organizational units in all states, but are not generally tied in with work programs or project resource requirements. The budgets are not cost-based.

Several responses indicated that program budgets are prepared. Analysis revealed that only four states are oriented toward a Program Planning and Budgeting System (PPBS). There is little similarity in program definition. Five states said they are moving toward PPBS.

Most states replied that they are using project costing. Project costing is usually interpreted by the states, however, to mean the control which a project engineer uses to keep construction costs within an estimated figure. Project costing seldom includes dividing a project into its controllable elements and accumulating costs for each element.

Budget preparation also includes budgeting payments to municipalities and counties in about one-half of the states. Percentages of receipts and formulas are established by each state's legislature for the proration of these funds. Little or no control is exercised on the use of these funds by the municipalities and counties.

Written justification accompanies the budget submitted for approval at the several levels (highway budget group, highway department executive, highway commission, legislature, and governor). Usually this is not very detailed. At each level of approval the budget may be adjusted. Changes must be approved at the level corresponding to the breadth of the change; for example, a district engineer might be able to approve a change in his district's budget, but a change from one appropriation to another would require approval by the legislature or whatever authority approved the appropriation before the change.

Districts are customarily notified of the official budget by receiving an approved copy. Control reports showing budgeted amounts versus encumbered and/or expended amounts exist in most states. Some states omit encumbrances, and only a few include purchase requisition commitments. There are few automatic controls being used to prevent overcommitment and/or overexpenditure of the budget.

## APPLICATIONS

The study of current budgeting practices of state highway departments has revealed the following characteristics:

1. Budget amounts tend to be developed to correspond with anticipated available funds rather than with established needs and workloads.
2. Most states compile and control budgets on an object-of-expenditure basis by organizational unit rather than by program.
3. The district or field operations level does not, to a large degree, participate in actual budget preparation.

The further development of a standard budgetary procedure based on the resource management concept that incorporates work planning with financial planning, scheduling, and cost accounting is recommended in the report as a means toward the improvement of the financial planning functions within highway agencies. Many of



the elements necessary to accomplish cost-based performance budgeting are currently available in various highway departments.

Some of the benefits that could accrue from the adoption of a standard budgetary procedure by state highway departments are:

1. Such a procedure would result in standardization of terminology, resulting in highway departments being able to communicate more easily with each other and with other state agencies.
2. It would include full consideration of long-range highway needs compatible with other broad state programs and permit an evaluation of alternatives for accomplishment of over-all state goals.
3. It would provide the ideal framework for the performance budgeting system for highway maintenance management being developed by NCHRP Project 19-2(4).
4. It would provide a better basis for cost-benefit and performance analysis within and between states.

A number of the potential difficulties likely to be encountered during the implementation of a standard budgetary procedure are:

1. There would be significant increases in the quantity of data that must be handled in the financial planning process in many states. Computerized processing of the data would probably be necessary.
2. The development of a universal coding structure for budgetary operations would be required. Individual special interest requests could cause this to be cumbersome.
3. Accrual and authorization cost accounting techniques would need to be developed by most departments.
4. Budgetary and accounting forms and manuals will need extensive redesign.

It was concluded by the researchers that the conversion to and implementation of a standard budgetary procedure by all state highway departments would not be practical and attainable at this time. However, modifications and innovations of current procedures could be initiated, with emphasis on ultimate adoption of a more meaningful resource management type of budgeting system. A contribution could be made toward such a goal by the further development of a universal system to be used as a guide by highway departments during the evolutionary process.



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