EFFICIENT ADMINISTRATION OF HIGHWAY FUNDS

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It has been said, "There are three things which make a nation great and prosperous: a fertile soil, a busy industry, and an easy conveyance for men and goods from place to place." In other words, the essential activities of a great and prosperous nation are agriculture, manufacture, and transportation; and both agriculture and manufacture are dependent on transportation for distribution.

The evolution of transportation has been a series of problems. The greatest problem facing the world today involves an adjustment between railway and highway transportation; and aviation has made such progress within the past few years as to become a factor in the problem demanding attention.

In the days of the horse-drawn vehicle, the dirt, gravel, or macadam road was adequate. Today, through the amazing development of motorized transportation equipment, a universal demand has arisen for constantly increasing expenditures on roads, not only for the roads of primary interstate and intercounty importance, but also for the intracounty service to the most remote rural sections—a demand which can only be tolerated because of its inception with the taxpayer himself.

Road construction, improvement, and maintenance, for which billions of dollars are being expended, has become the biggest business of this country, and a business through which, without careful and efficient administration of highway funds, tens of millions of dollars annually may be wasted and become of no benefit to the taxpayer.

A discussion of efficient administration of highway funds embraces every phase of the operation of a state or county highway organization, and is therefore a subject of greater magnitude and of more importance than is generally realized. The efficient administration of highway funds requires the organization and coordination of all activities coming within the scope of the road department's responsibilities; but as time does not permit a full discussion of all these matters, only those of major importance will be commented on.

An efficient organization is of prime importance. The states and counties present many variations in the forms of their highway commissions, which vary more in their relations than in their organization, usually taking one of two forms, either the commission of from three to fifteen men or the single commissioner. Upon the organization of the
Tennessee Highway Department in 1915, a six man commission was established. In 1919 the six man commission was abolished in favor of a three man commission. In 1923 the three man commission was abolished in favor of the single commissioner, a plan which has operated very successfully for the past eight years. After having served with both types, I favor the single executive form of commission, for several reasons, which I will not now state; but the type of commission is of minor importance, possibly only a matter of personal opinion, provided the commission realizes fully the responsibility imposed upon it and meets this responsibility honestly, efficiently and intelligently.

**IMPORTANCE OF TRAINED PERSONNEL**

The importance of the selection and training of the personnel of the department cannot be overestimated. It should be realized that an engineer's salary, whether he be chief engineer, resident engineer, inspector, or maintenance supervisor, can be lost many times over in the course of a year if the employee is ignorant or even careless in the handling of his work. It is therefore most economical thoroughly to investigate each applicant to determine his qualifications, both technically and morally, before offering employment, and after employment to carefully keep his service record so that at all times full knowledge of his qualifications may be available. I have found that this system will improve the type of service rendered by any except the most unusual type of man, as it makes the employee realize that his best efforts will be known and appreciated by his superiors.

Political pressure should be ignored, or effectively resisted, in the selection of the employees for the responsible positions; but every employee should be made to realize that his position is one of public service, requiring fair and impartial consideration of the demands of the people whose servant he is, and honest and intelligent action without fear or favor. Satisfactory public service requires tact and diplomacy, qualities which seldom mix with the technical training of the average engineer, but which are essential nevertheless for the engineer who is to occupy the position of division or district engineer, or a position superior thereto in a state road department. The same applies to the county engineer or supervisor for the county road organization. I have said many times, and sincerely, that I would prefer for a division engineer a combination of diplomacy and mediocre engineering ability, to a tactless but highly trained technician. The field engineer is the contact between the department and the public by whom the department is largely judged and supported, or not, as the case may be.

Efficient administration of highway funds also requires uniformity in the control of the organization in the handling
of the many problems confronting the highway administrator, the simple as well as the complex problems. It is therefore necessary to maintain a constant contact throughout the entire organization and to require the immediate response of all employees to orders and policies originating with the administrator. For this purpose, in a state organization frequent meetings of the division and district engineers are advisable, at least once each year. All construction engineers and maintenance supervisors should be assembled for a period of intensive study and instructions. In Tennessee during the past week (January 18th to 24th) such a school was held for all construction engineers and inspectors of the state highway department. The cost of this meeting was an excellent investment for the state, in that it has produced a coordination of effort and a morale otherwise impossible of attainment. A similar school will be held in February for maintenance employees.

In our efforts to improve our highway organizations for the purpose of obtaining more efficient administration of highway funds, the fact that the contractors employed on highway construction also form a vital part of these organizations is often overlooked; and some states have made no effort whatsoever to require the employment of only those contractors morally and financially capable of performing the work they contract to do. Highway funds cannot be economically and efficiently expended, nor can the requisite traffic service be rendered the public, when inefficient, unreliable, and irresponsible contractors are employed to perform the construction. Also, the most effective way to destroy an efficient engineering organization is to employ the class of contractor who must be forced by every means available to do the work he has contracted to do. Contractors should be rigidly pre-qualified, records of the experience had with them should be carefully kept, and proposals to those ineligible should be refused without hesitation. This policy will create a respect for the department and a standing with the responsible contractor from which both the state and the contractor will materially benefit.

In addition to the organization and personnel of the department, be it state or county, there are three major policies affecting the efficient administration of highway funds, which are listed as follows:

(1) Budgeting and administering of maintenance funds so as to provide adequate traffic service and to prevent depreciation in previous investment.

(2) Construction planning and management.

(3) The rendering of accounting and statistical reports to the highway administrator.
MAINTENANCE

Maintenance is the first obligation in the efficient administration of highway funds. It should be planned and executed with the greatest care. Maintenance methods and the results obtained should be studied for the purpose of bettering the results and lowering the costs. Traffic service, the only excuse for the operation of any road department, is dependent upon maintenance. Any bond issue for roads would not only be an unsound investment for the investor, but a criminal imposition on the taxpayer unless adequate provision be made for maintenance of the roads constructed. Maintenance should be budgeted and the funds required therefor set aside before any determination is made of the funds available for construction. But it is easy to waste funds in extravagant maintenance. Maintenance forces are composed largely of local men, many of whom are either ignorant or extravagant in the use of public funds. Maintenance forces are so scattered that proper supervision by capable employees may become wasteful; but as added mileage is improved and constructed, the department's work centers increasingly on maintenance, and, while the job becomes larger, it becomes easier to handle economically and efficiently. However, any road organization may reduce its maintenance expenditures by careful application to its maintenance problem.

As a further check on maintenance operations in Tennessee, we are now putting into effect a maintenance rating plan, under which two of our most capable engineers will become general maintenance inspectors, operating under direct instructions from the commissioner and with no contact, except through the commissioner or state highway engineer, with the maintenance division. We believe that the work of these inspectors will result in the proper adjustment of standards of maintenance and costs of maintenance to such an extent as to result in the most economical standard and cost.

CONSTRUCTION

Many inexcusable mistakes have been made in construction planning and management. Economical highway construction and proper traffic service depend upon the proper planning of the state highway program, and upon specifications and inspection which permit the exercise of every economy consistent with the results desired.

Tremendous financial losses, through unwarranted traffic interruption and because of investments in roads lying idle while other sections were being built, might have been avoided had proper consideration been given to highway construction planning and management.

Construction planning should provide:

The best possible service to traffic over completed or partially completed routes.
That the returns on the investment, in terms of traffic service, be simultaneous with the completion of each section or link.

A safeguard against closing to traffic expensively constructed roads because of lack of forethought in providing for some other controlling section.

The most economical plan to provide the desired results at the lowest possible cost.

For the planning, in many cases, of the ultimate standard and type, even if necessary to provide it stage by stage over a period of years.

Specifications and inspection uniformly interpreted and applied should permit:

The most economical construction practices possible.

The use of the most economical materials available which give the desired result.

The contractors use their own ingenuity and initiative in producing the required construction at the lowest cost, and that the “personal” requirements of the engineer and inspector should be entirely eliminated.

In construction planning it should be borne in mind that the cheapest initial cost to the state may not be the most economical from the standpoint of traffic, and again that traffic service is the primary purpose of the state or county road organization.

ACCOUNTING

The one permanent factor in the efficient administration of highway funds is in the submission of monthly fiscal and statistical accounting reports to the highway administrator.

The proper accounting methods and submission of accounting reports are of great advantage in expediting the following problems:

1. Control over the allotment of the anticipated annual income to projects, functions, and activities of the department.
2. Development of the annual program at such rates as to avoid maturity of accounts before income is collected.
3. Full control over construction and maintenance programs in regard to overexpenditure by subordinates.
4. Comparison of administrative costs incurred by districts or divisions.
5. A better control over the purchase and use of equipment and supplies.
6. Preparation of reports at monthly intervals, requiring a degree of teamwork among the various units of the organization which is rarely secured without this closure of accounts at regular intervals. Such reports when properly prepared provide the administrator with general financial statements, but they may be supported with such detailed statements as may be essential.
7. It may appear that an undue expense will be incurred in securing these data. While some additional expense is incurred at the outset, the monthly analysis of the work of the department with its progress of programs and deviations from programs enables the head of the department to develop a compact, smoothly functioning organization, and to defend his results against partisan criticism which too often is encountered.

The seven primary functions of accounting reports set out above express within themselves their value from the standpoint of efficient highway administration. A discussion of these benefits would be superfluous, except that some road officials may feel that the task and cost of obtaining accounting reports of such great value would be wasteful; and it is therefore my purpose to show three things, namely:

1. That the information provided by comprehensive accounting reports is required in the proper administration of the state highway department.
2. That the requisite accounting information may be procured without undue expense.
3. That the information may be furnished in such form that the highway administrator may obtain its essentials without becoming lost in a mass of details.

It is generally conceded to be a necessary evil, not without its occasional virtue, that political changes seriously affect the efficiency of the operations of a road or highway organization; but governors, legislatures, county courts, and state and county road officials are as a rule jealous of obtaining for themselves reputations for efficiency in government. It is therefore surprising that occasionally you find the official who is afraid to require a change, even for the better, because he fears the period of transition or because he thinks that the things good enough for his predecessor, who made a reasonably satisfactory showing, are good enough for him.

Such officials have no place in the progressive nation-wide movement for more and better roads, which requires that the efficient administration of road matters keep pace with the demands of the people expressed by taxes, appropriations, and bond issues for road purposes.

The enormity of the work and the confidence of the people in selecting their administrators places a solemn obligation on each road official to take advantage of every study which will better qualify him for more efficient administration of the department's problems. While personal experience may be the best teacher, it is entirely too slow and involves too many expensive mistakes to be depended upon by the highway administrator.

An adequate plan of fiscal, statistical, and cost accounting not only produces the most excellent tangible results in the operation of a highway department, but it also relieves the de-
partment head of the continuous mental strain caused by worry over the uncertainties—a type of mental anguish known to all highway commissioners.

In dealing with the necessity for adequate accounting information, it should be realized that these reports are necessary:

1. To eliminate the troublesome difference in the viewpoint of the supervising engineer, who feels that the only matter of importance is the doing of the job, and the highway administrator, who is equally interested in the proper reporting of the project as to extent of work done, its type, its cost, and the proper accounting for all funds involved.

2. To know that all accounts of the department are audited monthly, which is proof of the correctness of accounts and evidence of the proper functioning of the division of accounting.

3. For the moral effect on every employee who knows that his efficiency is being checked and recorded and that improper and extravagant handling of work will be detected and corrected within a period of thirty days.

4. To require that estimates on which budgets are based be carefully compiled and to draw immediate attention to all variations therefrom.

5. To place responsibility for all deviations from estimates and to permit and require the checking by competent supervisors of all material deviations therefrom.

6. To give the highway administrator complete control, with the minimum effort, of every dollar of funds provided for all phases of the work of the department.

7. To require that all changes in type, deviations from plan, and variations in estimate come to the attention of the highway administrator for personal examination and approval.

8. To relieve the highway administrator of any duties in connection with the work which is conforming in plan and cost with the plans and estimates which he has approved.

9. To permit proper analysis and comparison of both administrative and performance costs and thereby to detect extravagances and improper handling.

10. To control the allocation of all revenues to the specific work included in the budget and program.

11. To permit the development of the program at a rate not in excess of available revenues.

12. To eliminate overexpenditure, overplanning, and overpromising, not only by subordinates, but, most important, by the administrator himself.

13. To require economy in the use of equipment by requiring strict accounting and the proper charges for the use of every piece of equipment owned and operated by the department.

14. To prevent extravagant purchasing of equipment and
supplies by requiring the proper accounting for all equipment and supplies purchased.

15. To provide for the adjustment and enforcement of a program which will take into account all contingencies and emergencies in such a way that the administrator is never at a loss to know what is being done and what may be done.

It is further found that the division and field reports necessary for proper fiscal, statistical, and cost accounting promote, encourage, and require the coordination of the entire organization, and this produces better efficiency through closer co-operation. It should therefore be conceded that the benefits of accounting reports, including their preparation, submission, and proper use, are necessary in order that the highway administrator may be assured that every phase of the work under his direction is being efficiently and economically handled.

In many cases the present organization of the state or county highway department is the result of a year-to-year growth for the purpose of handling the year-to-year increase in duties and responsibilities which have been placed upon it. In very few cases has a department submitted to a thorough reorganization for the purpose of more efficiently administering its affairs. In the accounting phase of the work, ledgers have been added for this purpose and that purpose, without proper regard for the accounting problem as a whole and without a general revamping of the system for the purpose of handling the greater volume of work more efficiently. Many highway administrators receive various and sundry accounting reports, many of which are filed without even a casual analysis. Reports submitted and reviewed in such a way result in a loss of time for those preparing the reports, as well as a loss of time for the administrator, who receives from them no useful information.

The reorganization of an accounting system for a state highway department, or even a county road department, requires additional expense at the outset. But as soon as the system becomes operative, real economy should be obtained. However, the installation and operation of the system must be supervised by a person thoroughly familiar not only with accounting, but with every phase of the department's activities. Once organized, the preparation of all reports should become purely routine.

Accounting reports to the administrator are intended to serve as a basis for formulating executive decisions. It is therefore expedient that they be made in such form as to present accurate and comprehensive information with as little sacrifice of effort and time, and with as little delving into details as possible. To attain this end, executive reports must have the following characteristics:

- The information shall be summarized. All essentials must be included with the elimination of all possible details.
The report should be constructed so as to show variations between the estimated and actual cost. In cases of significant variations, the executive must receive explanations of the causes. Details are of value only for the purpose of explaining variations.

The report must show the financial condition of the department in summary form, supported by details of items comprising the various assets and liabilities.

Revenues should show sources and amounts. Expenditures should be shown by funds and purposes.

Statistical information should include the classes, types, and qualities of work performed. Cost accounting reports should include current costs, cost of past periods, and estimated costs, by classes and types.

The internal budget, a most important guide for the administrator, is necessary for the proper allocation of funds, and its observance and control is essential.

The highway administrator, be he state or county, owes to himself and to the people he is serving the most efficient and economical administration of highway funds within his power; and the best weapon available for defense against unfounded charges of partisan critics is obtained through adequate fiscal, statistical, and cost accounting reports.

THE COMMISSION'S RESPONSIBILITY TO TAXPAYERS
By Col. A. P. Melton, Member, Indiana State Highway Commission, Gary, Indiana

Many general policies, rules, and regulations are necessary for administering the affairs of so large an organization as the Indiana State Highway Commission. The tendency in all governmental bureaus, be they local, state, or national, is to try to provide ready-made solutions for the problems to be met. This results in an ever-increasing number of standards, regulations, and restrictions tending to make procedure more and more mechanical, to the end that rule and red tape, rather than merit, too often govern.

The very human desire for power and authority leads bureau heads to entrench themselves behind the wire entanglements of red tape and regulations which have official or semi-official status, to the extent that the creating power of such bureaus loses control of policies and methods of procedure. The bureau, therefore, grows into an autocratic dictatorship, frequently exercising far greater powers than any elected representative of the people would dare to assume.

Governmental bureaus are supposed to be outside of politics, that is, partisan politics; yet many of them are very successful in practical politics in that they hold on to the