

# How We Can Improve Our Highway Administration

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My remarks on the subject of "How We Can Improve Our Highway Administration" will be confined to certain important areas where improvements can and must be effected if highway administration is to measure up to the responsibilities of today. To a large extent this discussion will be based upon observations and experience in Wisconsin, where the highway department has gone through a period of significant change and advancement in organization and administration during the past two years. The department has been completely and systematically reorganized under a plan adopted by the Commission, and the advancements are the culmination of a dynamic policy and systematic action taken by the Commission in pursuance of the objectives.

As background for this discussion it should be noted that the State Highway Commission consists of three full-time members appointed by the Governor, with the advice and consent of the Senate, for a term of six years. The Governor designates one of the members as chairman, and the Commission elects one of the members as vice chairman and the other as secretary. The Commission, with the approval of the Governor, appoints the State Highway Engineer. All other employees are appointed by the Commission pursuant to the civil service laws. Under the Commission's reorganization plan there are four staff divisions: administration, engineering, finance, and planning and research. The operating units or 10 district offices are under the direct supervision of the Commission.

Briefly, the organization plan may be called a plan of decentralization with centralized controls. Under this scheme the operating units (districts) have authority and responsibility to make decisions within definite limits approved by the Commission. In the central office, the staff divisions provide advice on research and planning, finance and accounting, engineering, personnel and management con-

sultation. In other words, the function of the central staff is to help the field districts do their job, not to do the job itself. The form of organization is a modified staff and line type in which the direct line of control runs from the Commission to the operating districts. In actual practice and for reasons of administrative and operating efficiency, the Commission has, however, delegated responsibility for control and supervision of the districts, within limits of approved policies and procedures, to the central staff divisions for operations and activities within their respective provinces.

### PLANNING

The keystone of any successful administrative system is planning. Unless there is a clear conception of essential needs and worthwhile objectives and clear-cut plans for accomplishing these objectives, there can be no progressive administration. Continuous and long-range planning provides the incentive and the basis for a sound and systematic approach and supplies a positive course of direction to highway administration. It produces better and quicker annual programs, resulting in a minimum waste of time, effort, and resources, fewer day-to-day crises, and less improvising in administration.

The value of advance planning is readily evident when one considers, for example, that on federal-aid projects an average of 21 months' time elapses from the date funds are authorized until the job gets under way. As a rule, urban projects take about again as long to the contract letting stage. Furthermore, if we merely take into account the delays encountered in dealing with other agencies, particularly cities, in advancing highway projects, the advantages of planning in advance are obvious.

In Wisconsin we feel that the most important improvement in the reorganization was the provision of a Division of Planning and Research which is charged with the responsibility for highway planning and programming. Our goal is program approval two years in advance and we are now approaching that goal. Advance planning and program approval have been helpful in setting up and meeting our organization requirements, have resulted in more effective use of personnel, and have permitted scheduling and earlier letting of projects to construction.

### ORGANIZATION

A second requirement for improved administration is the development and maintenance of a sound and clear-cut plan of organization through which management can work most easily and effectively to control the enterprise. A properly designed organization structure with

a logical grouping of functions and a minimum amount of subdivision permits an effective management job with a minimum administrative staff. By assuring that each member of the department has a definite assignment for which he is responsible, a good plan helps to utilize the full energies and capabilities of each individual employee and thus is an important factor in developing able people to their full potentialities.

Proper structure will facilitate management and prevent overlapping functions and duplication of effort. With the elimination of uncertainty about authorities and responsibilities and a clear understanding of the requirements, limitations, and relationships of his job, we are of the opinion that a man is best equipped to accomplish his job successfully. Moreover, with a clear understanding of the entire plan and purposes of the organization, members will have a better perspective of over-all operations, and knowledge of work being performed elsewhere in the organization will improve the work of each unit and contribute to better integration and coordination of activities.

### PERSONNEL

It has often been said that personnel make the organization and to some extent it is true. It should be noted, however, that the lower the competence of personnel, the more important it is that sound organization structure and principles are followed. Likewise, it is true that able performers perform even more ably if they are well organized.

It is, of course, axiomatic that highway administration can be improved by raising the caliber and performance of personnel. There are probably a number of ways in which this could be accomplished, but it is unlikely that success will be achieved unless a broad approach to the problem is taken. Reports still indicate that highway departments are having considerable difficulty in obtaining and retaining competent help, particularly engineers. It must be obvious by now that highway departments generally are not offering a very attractive package to prospective engineers. It is our experience that the proposed standard treatment "more salary" is not enough. Many other factors are involved which oftentimes outweigh mere salary considerations. The requisites seem to be the following:

1. Convincing evidence that highway work will challenge the skill, imagination, and knowledge of the engineer.
2. Progressive career programs, including hiring based on merit, protection against arbitrary dismissals, in-service training, and promotion from within.

3. Training programs designed to further the engineers' knowledge and fit them into the organization as quickly as possible.
4. Adequate pay based on duties and responsibilities with periodic pay raises guaranteed if job performance is satisfactory. Equal pay for equal work is essential.
5. Liberal sick leaves and vacations.
6. Retirement and other benefits.
7. Opportunity for professional recognition. Highway departments must recognize that the prestige of the engineer is keyed to the prestige of their engineering staff. Departments must insist on higher educational and professional standards for their engineering employees, if they expect to attract engineers.

It is well known that professional engineers with years of experience are holding sub-professional positions in highway departments. Many engineers falling into this category should be salvaged as rapidly as possible and moved into positions where their talent and skills can be used more profitably. To get the most out of our short supply of engineers, they will have to be used more and more in a supervisory capacity and supported to a much greater degree by technically-trained nonengineering personnel. Thus staffed, a single engineer can be expected to handle successfully two or more jobs rather than the traditional one job. Therein lies the greatest hope for extending and using effectively existing engineering manpower.

To make such use possible, it will be necessary to establish promptly a separate technical or vocational group into which qualified persons can be recruited and trained. This series should provide vocational opportunities with top pay equal to the lower professional engineering positions, but with similar advancement possibilities. Help of this kind can be recruited much more readily than engineers and they can be quickly trained to take over lesser assignments under engineering direction. This will make available a much larger reservoir of untapped manpower for the highway departments.

During recent years it has become increasingly clear than an efficient enterprise requires a great deal more attention to the management of manpower. In fact, it is probable that in no single field can management show a greater return for so little investment. Good employee relations pay off in dollars and cents. It has been said that where good morale exists, employees put their hearts into their work as well as their hands and brains. They enjoy their work and do it better and more efficiently, which means greater output and lower costs. Satisfied

employees also require less supervision. Highway administrators could profitably devote more time to this area of management.

It is the aim of any administrative system to accomplish all functions and responsibilities fully, effectively, and harmoniously. There must be effective coordination and control of results and close supervision of operations and activities. There should be no "sacred cows" in highway administration. Continuous study and effort must be directed to plan, stimulate, and develop improvement in methods and techniques, and to keep abreast of the best thought and practice to the end that outmoded and uneconomical methods are abandoned.

### OPERATING METHODS

There should be a searching examination of present operating methods. One of the reasons for lack of success in administration is the rather general willingness on the part of administrators to leave things as they are and live with a situation which is admittedly tough to change. This attitude is one of the major obstacles to effective administration.

Recently a far western state reported that unnecessary surveying, use of inefficient methods, tedious plotting and replotting of cross sections, and endless calculations to the third decimal were collectively considered the number one "time thief." In view of this it would seem advisable and extremely profitable to assign a staff engineer to study the methods being followed in the development and preparation of plans. This would be an effective method of overcoming old practices and resistance to new ideas and methods. In design work, greater use of standard plans and specifications would save time and manpower, and other plans could be simplified by reducing the amount of detail. Many short cuts could be worked out and adopted.

Latest developments in photogrammetric science have opened up broader fields of application in highway work, where its adoption and use have been slow. This new tool and its use should be explored in every possible way to reduce time, cost, and personnel required in design work. Several states have let to contract projects designed entirely from aerial contour maps. Only last week the Wisconsin Commission awarded a contract from photogrammetric work on twenty miles of the interstate system on U.S.H. 12 west of Eau Claire which provides that all plan and design work is to be developed from aerial maps. Great savings are possible in time and engineering manpower, which will then be available for other work.

In construction, two things suggest themselves. The award of larger contracts would require fewer engineers in the planning stage

and also in the supervision of the project. Spreading engineers over several jobs is also feasible, if nonengineering assistants with adequate training are provided.

### TRAINING

Despite the longstanding shortages of technical help, highway departments still have not used the training device to any appreciable extent. There has been too much reliance upon technical schools and colleges to provide them with the help needed. In Wisconsin, training of personnel has received top management's attention and, as a result, we have been able to institute some training programs designed to supply scarce technical help. Last year 40 persons were selected under civil service procedures for training as surveyors and were given a formal training course which was conducted in cooperation with the University of Wisconsin. These trainees shortly thereafter returned to the district offices to take up regular assignments. Although it should have been no surprise, we found that this training program accomplished just what it was intended to do. It provided quickly and at modest cost reasonably skilled personnel who have performed well and have relieved engineers of many tasks and duties.

Our training program for engineers has likewise exceeded expectations. Under it young graduates are enrolled immediately upon employment and subjected to an 18 months' carefully worked-out course of orientation and experience. The program began on March 1, 1953, and thus far 52 engineers have been enrolled. In the two years of its existence only seven engineers have quit. This impressive showing indicates clearly why we are sold on training. We have plans for additional training and at the moment are in the beginning of a draftsman-trainee program designed to overcome the shortage of such skills and thus further relieving engineers of this kind of work.

Our experience to date leads us to believe that training by highway departments is probably the only way to acquire skilled personnel. Training, however, should go beyond the mere purpose of supplying personnel where shortages exist. The highway service needs more capable employees of all kinds to discharge the mounting responsibilities. Training programs pointed toward improving administration within the department offer unexplored possibilities for bettering the quality of the highway service. Ultimately, the goal should be progressive training from induction of the employee through the various stages of advancement and reassignment to bring about the improvement in skills and abilities required by new policies and programs.

## PUBLIC RELATIONS

One of the real weaknesses in highway administration over the years has been in public information and reporting. Many of the misfortunes which have befallen highway departments in the past were not due so much to lack of accomplishment, but, in large part, to a lack of information and public understanding of the plans, goals, and accomplishments of the departments. The logical answer is more and better information about highway affairs by the departments themselves. They cannot continue to rely primarily on biennial or annual reports, which are accounts of the departments' accomplishments long after the fact.

The development of a favorable public understanding is peculiarly the administrator's job. This principle was followed in the Wisconsin organization plan, which recognizes the Commission, and particularly the chief administrative official, as the principal public relations officers. To carry out effectively the responsibilities in this area, there should be provided an adequately organized and equipped public information section to assist with the task of developing and maintaining good relations with the press, the various groups, and the general public, and in keeping them, as well as the organization, properly informed about highway problems and how they are being met. A public information section will permit coordination of activities which often are widely scattered and engaged in on a part-time basis by many staff engineers. The great savings in time and man power alone would justify the establishment of a public information section, not to mention the better and more adequate information to the public that would result.

## THE ADMINISTRATOR

Up to this point a number of ways to improve highway administration were suggested. One additional factor, however, is pertinent—the administrator himself. In the final analysis, he is the key to successful administration because he sets the goal, the pace, and the tone of the administration. Also, because highway organization is a human institution, and administration involves the leadership and management of men, the administrator has a tremendous influence on the confidence and stability of the organization. He must be a leader since he is responsible for making effective the efforts of his organization, and its performance depends largely upon his example and stimulation.

Mere technical knowledge is no longer sufficient qualification for an administrator. Nor will the unimaginative and run-of-the-mill administrator who wants to be told what to do before proceeding to do

it be equal to the task which lies ahead. Unquestionably, there must be developed positive and imaginative administrators equal to the responsibilities of the unparalleled highway development which the current interest and public demand portend. The role which highway departments will play in the greatly expanded activities of the future and the kind of administration the public will get depend upon how successful we are in producing administrators who will measure up to the challenging demand and responsibilities.