

Organization Planning and Management

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Highway organization planning and development and its purposes and accomplishment are discussed. Some principles to be observed and the conditions conducive to success are outlined and existing efforts are examined critically. Additionally, the paper deals with some of the management tools available for the direction and control of an organization. Also covered are the indicated needs in view of today's unprecedented expansion and ambitious planning, and in the interest of imaginative experimentation and new ways of doing things.

•THERE IS no need here to repeat the cliches about the scope of the highway program. But it is evident by now that it is severely testing the skill, imagination, and initiative of highway administrators and straining the capabilities and resources of their organizations. No serious thinking administrator could possibly conclude that the job can be done by blindly following and adhering to the settled concepts, techniques, and procedures of the past. In fact, reliance on so-called "time-tested principles and procedures" may have been somewhat of a pitfall.

The early and constant emphasis on the engineering and technical aspects of the highway production problem has tended to obscure the tremendously large and complex administrative and management implications of the program. Advance planning, sound organization and competent personnel, re-examination and adjustment of the administrative system to provide for scheduling and checking on performance, and the addition of more safeguards and controls are all parts of the job of planning and organizing to handle the increased responsibility involved.

Early and frequent exhortations by leading administrators, U. S. Bureau of Public Roads, AASHO, Congressional spokesmen, and others of the urgent need for examining organization, administrative methods, and procedures apparently got only scattered response and action by highway departments. In August 1962, the Federal Highway Administrator felt the need for again admonishing all State highway administrators to "consider organizational, administrative, procedural, and control changes, whenever it appears that they will be effective" as part of "a continuing effort to improve the efficiency, competence, and integrity of the highway program." All together these warnings may be taken as an indication that deficiencies were existent or incipient.

Many State highway officials have been trying to handle the greatest administrative challenge in highway history with a patched up and inadequately designed organization which very likely was inherited. Moreover, any ideas they may have had for modernizing and adjusting the organization plan perhaps had to be deferred in the face of the overwhelming need for getting the program under way or was abandoned because of apparent opposition to any change or because of the inconvenience or disruption presumed to result therefrom.

It is axiomatic that for an administrator to be successful he must have at his command an organization properly designed to accomplish the mission or purpose of the department as well as for top performance and effectiveness. Today's organization must also provide specialized services and skills and yet permit the administrator to exercise more effective control over the organization. Poor organization makes ad-

ministration more difficult. Highway departments would do well to follow the pattern in the business world of modernizing their organization to eliminate this unnecessary handicap to administration. Unless a department has undergone a recent overhauling to bring it up to requirements, it is probably time to consider reorganization seriously even though it may be somewhat disconcerting during a peak period of activity. However, the ultimate benefit in terms of output and performance will far outweigh the temporary disadvantages, slight disruptions, and inconvenience that a well-managed effort may cause.

REASONS FOR REORGANIZATION

Among the more impelling reasons for modernization or reorganization of a department are the following:

1. Organization is often deeply seated in tradition and past practice.
2. It is often a reflection of strong personalities and accommodation to temperamental problems.
3. In most cases organization represents a concession to previous personnel capabilities and limitations, and particularly to then existing available executive and management talent.
4. It may have been unduly affected by legal provisions which have not permitted development along logical and functional lines. Many States have statutory provisions that may handicap the design of the best form and arrangement.
5. In many cases organization structure has been copied from other States in the hope that because it has worked successfully elsewhere, it will likewise work in the State adopting the plan. There is a strong tendency to transplant patterns of organization which are common in highways, but in many cases patterns have been transplanted that are actually going out of date.
6. Organization planning and design frequently reflects amateurish and superficial efforts based on a study of other department organization charts rather than on real study and analysis of the needs of a department.
7. Purposes, functions, and objectives have changed materially over the years and organization changes have been made accordingly in a piecemeal manner, thus resulting in sprawling and uncoordinated organization.
8. Although objectives and purposes have multiplied, emphasis has shifted, and technology has been revolutionized, corresponding organization adjustments and arrangements have not been made. Tremendous technological change and advancement have occurred, but the basic organization and administrative systems are lagging. Highway departments are now in the big business class; outmoded, inadequate, and small business management and organization will not meet requirements.
9. There is a tendency to regard an organization plan as a more or less permanent fixture rather than the flexible arrangement it should be. Thus, organization has tended to remain static or subject to periodic grafts to the parent body which have caused incongruous and disproportionate offshoots.
10. Although this is not really a reason for reorganization, it should be noted that the belated interest and concern of highway officials and the lack of research has hampered progress, initiative, and experimentation in organization and management.

In the past the causes and occasions for reorganization of highway departments have been varied. In some cases changes in State government administration following the election of a governor who may have campaigned on a platform of highway reform have provided the impetus for reorganization of highway departments. An unfavorable or critical attitude toward the highway department and its administration and dissatisfaction with progress in the execution of improvements and programs have been factors in other States. Demands of the Legislatures for reforms in highway administration and the recommendations of interim highway study groups have also been instrumental in bringing about reorganizations. General government reform movements such as the "Little Hoover Commission" studies have recommended highway department reorganization as part of the general reorganization of State government. Politics has

also been a factor. In the past, and still to some extent today, every election results in changes in State highway administration and organization which, in effect, are reorganizations with new management and operating personnel.

Dissatisfaction on the part of administrators with the performance of their organizations has infrequently been the cause of modernization and reorganization of departments. Usually associated causes such as those mentioned previously have been the real determinants. In any case, such conditions as lack of coordination, evidence of buck-passing, abnormal delays and slow response in handling matters, difficulties of communication, and general inability to manage or control their organizations are the items most often given as evidence of the need for reorganization.

ORGANIZATION PLANNING

Organization planning is perhaps the most important tool for the direction, control, and management of a highway department, or, for that matter, any other enterprise. Simply stated, it is the process of arranging in a formal manner the personnel of an organization into logical, related, and manageable units or groups of people or skills in a way that these groups can work together effectively in accomplishing the purposes of the organization. A corollary requirement to make such arrangements work, however, is the assignment of commensurate responsibility and authority needed for the accomplishment of their obligations. This is, of course, an oversimplification of the problem which can be complex and difficult, particularly in the public service where seniority, civil service, employee and clientele groups, politics, administrative approval and review, among other considerations, may enter the picture.

The purpose of organization planning and design is to make it easier to manage as well as to foster cooperation, coordination, and the necessary interaction between people and organization units, and organization functions. In fact, effective organization planning should tend to force such interaction and make it automatic. In general, a plan should never be adopted unless it offers improved prospects for easier and more harmonious working relationships between people within an organization unit as well as with other units. If that is reasonably well achieved, the organization plan should lead to better and easier management on the part of all concerned. In examining a number of plans it has seemed that often the opposite effect was accomplished. So rigidly and so definitely were the functional and activity areas delineated that they appeared to constitute walls or fences between functions and units of the department. Such results usually come from plans contrived from the assorted ideas of the heads of the several units of the department. When each unit head is permitted to design the organization of his unit, the composite result is more likely to be a confection than a design. It is, therefore, necessary that any efforts toward organization planning are made with proper preparation and timeliness because the conditions existing at the time are important factors to success.

REQUISITE CONDITIONS

Certain conditions and a proper atmosphere are prerequisite for the successful accomplishment of organization planning. First of all, the administrator or administrative body must be thoroughly convinced of the need for organization reform. Unless he believes in the necessity for it, can outline the objectives for it, and can convince or persuade the top level staff of the need for it, the effort is either likely to miscarry or meet with indifference, cool reception, noncooperation, or sabotage. There is always resistance to change, especially because prerogatives, responsibilities, and prestige are involved; unless the chief executive can overcome opposition and sell each of the principals on the general objectives and the benefits which will accrue to each and the organization as a whole, the effort will start with a serious handicap. Moreover, without top support it is safe to predict that the plan will fail or fall short of expectations. Ultimately, the executive will have to enforce the necessary changes and they will be easier to effect if top-level support has been obtained previously. It should also be noted that considerable follow-up will be involved which requires their support and cooperation. So before attempting any reorganization it is necessary to

prepare a groundwork of understanding and sympathetic support of the principal unit heads, or at least the opposition to the idea of organization change should be minimized.

Support of the administrative or policy body is assumed. It is advisable to have at least tacit support of the Governor, the State personnel body and others who may be even remotely concerned. Public announcement of the intention to reorganize the department is generally advisable. Many, to their regret, have experienced the pressures, complaints, and general dissatisfaction which arise when a proposal for reorganization has not had proper advance preparation for understanding and acceptance.

Organization planning and design is a complex matter which should be directed and managed by someone familiar with organization techniques and procedures. Also, the individual directing the study must have full authority and strong support of the administrator. He will thus be in a better position for getting the cooperation of the key personnel. It is very desirable that the administrator and the organization planner become as familiar as possible with the technical phases and the several steps involved, as well as with the progress of the plan. There must be follow-through, and continuous direction and implementation must be provided, if organization planning is to be successfully accomplished. No plan is self-executing.

Most highway departments do not have specialized skills in organization and management although such services are badly needed. In view of the current concern with these matters, the creation of a unit in the department to deal with the growing problems in this area would be advantageous. Suggested duties and responsibilities are outlined in Appendix A.

The use of a committee for the direction or accomplishment of organization is not recommended. Such committees, usually composed of top personnel, are not necessarily selected because of their interest or competence in the field. They have strong feelings and ideas about organization and how it should be managed and arranged, although their notions may not be too well supported by fact or logic. Because most top men are strong personalities, it is not difficult to conclude that the product of such a group could at best be a compromise of conflicting ideas and opinions--not a logical design. A committee may be useful, however, in reviewing proposals and in getting organization understanding and acceptance of proposed changes.

If a department does not have available a person skilled in organization matters but wishes to undertake organization reform, it would be best to seek outside counsel and advice on the study and assistance with the planning and installation of the plan.

ANALYSIS AND PLANNING PROCEDURE

Because we are dealing with a whole, whether it may be the entire organization or a major part thereof, it is advisable to start at the top by defining the objectives and purposes of the department or organization unit. It may seem academic or perhaps unnecessary to mention this simple rule, but often there may be more involved than meets the eye. Departments derive their authority and responsibilities from statutory provisions, legislative resolution, executive direction, administrative definition, custom, etc. Each State has different provisions and uses its own peculiar language in defining them. In some States more general language is used, whereas in others it is more detailed and specifically defines the purposes. Moreover, State enabling legislation is periodically revised, added to, and otherwise supplemented over the years with additional responsibilities, or modifications to meet changing needs. In short, the mission or objectives of a department are continually changing, and under the circumstances they may become unclear, uncertain, or obscured. Therefore, in organization planning it is important that statutory provisions and intent, resolutions and actions of the Commission, policy, tradition, and such items be examined as a basis for setting forth clearly and definitely the apparent objectives of the department.

Having determined the objectives and purposes of the organization, one can proceed with more assurance with the design of the organization into major functions or divisions and specification of the objectives and requisite activities. This and the previous step constitute the basic framework from which the organization structure is designed and separated into manageable units of logically grouped activities. At this point a

functional organization can be prepared summarizing the various grouping of activities and providing the general guidelines for structuring the organization.

Following the functional determination, the organization planner or analyst can consider the positions heading the major functions. It is advisable to learn as much as possible about the operation and functioning of the present organization as a basis for reshaping it into the proposed components and subdivision of the functions. In analyzing the principal positions, a questionnaire is usually used to elicit needed information. The kind of information required for proper analysis and rearrangement of functions, responsibilities, and relationships can be seen from an examination of the inquiries in Appendix B.

Advance preparation for the circulation and explanation of the questionnaire is necessary so that its purpose is clearly understood and to assure the cooperation of the principals concerned. Although it is desirable that the head of each unit participate in the process, each subordinate should supply the information on the substantive matters involved without consultation with his superior. Each should present his own independent answers to the inquiries inasmuch as the concern here is in determining how things are in reality and not as someone presumes them to be, or as some memorandum or directive indicates they should be. Generally, it is wise to follow up the questionnaire with a personal interview to clarify, verify, and obtain additional information on important points disclosed, as well as to check areas of seeming conflict, duplication, and overlapping. Moreover, the analyst, with the aid of the questionnaire, is in a good position to pursue leads of significance and get information from a person orally that he may have hesitated to provide in writing.

In any event, the analyst can now assemble the returns by the several levels of management and principal components and examine them critically for such things as duplicated, overlapping, neglected, and unnecessary activities. Other deficiencies such as conflicting authority, too many subordinates or bosses and similar items undoubtedly will appear. Equipped with this knowledge, the analyst can begin the preparation of revised statements of activities to fulfill the stated objectives of each major organizational component and the grouping or separation of such activities into manageable units as a basis for completing the structural organization chart. The standard criteria or combining similar and related activities, separating activities whenever required for internal check and control, relationships, number of levels, lines of communication, etc., will apply in making these determinations.

Organizational planning should be approached with an open mind with respect to the ultimate functional division and structural arrangement. Advance commitment to a particular rearrangement to accomplish some definite but limited purpose, or any accommodation to a peculiar condition or situation may be detrimental. Such changes, usually superficial and inadequate, merely compound the difficulties and provoke dissatisfaction; they usually result in confusion about authority and responsibilities.

The long-term consequences of any moves should be carefully considered because unwise and expedient adjustments have a way of haunting the scene and plaguing the administrator. In general, the best approach is to think in terms of the ultimate as well as the immediate goals so that when the opportunity and conditions for making changes are favorable, they can be made promptly and with the least disruption. Any plan should take into account eventual expansion and growth, and it should have flexibility for accommodating to the needs without a complete overhaul of the plan.

ORGANIZATION PRINCIPLES

In the planning and design of an organization one must constantly keep in mind the basic well-known organization principles which can be found in any textbook on administration. The items in such lists may vary somewhat, but in the main they are about as stated by Trickett (1), with some modification by the author as follows:

1. The organization should be built around the main functions, and not around an individual or group of individuals.
2. Functions should be arranged to promote balance in the organization, avoiding duplicated and overlapping functions, neglect of essential and overemphasis of non-essential activities.

3. Executive responsibilities and authority should be clearly defined so that the proper point of decision can be quickly determined.

4. Responsibilities should have commensurate authority specifically set forth, including the limits thereof.

5. Authority should be explicitly delegated and fixed close to the point where action occurs; thus, coordination and decision-making can take place at the lowest level possible.

6. The form of the organization should be such to permit each executive to exercise maximum initiative within the limits of his delegated authority.

7. Whenever possible, line functions should be separated from staff functions and adequate provision made for important staff activities.

8. The organization should be flexible and easily adjustable to changing external and internal conditions; the possibility of expansion and contraction should be inherent in the plan.

9. Each executive should have a minimum number of major subordinates reporting directly to him; most authorities suggest that this "span of control" should be limited to five to seven subordinates.

10. Each member of the organization should know to whom he reports and who reports to him. Many readers will probably think this principle so self-evident that it should not be stated here, yet it is one of the most frequently violated principles.

11. The number of levels of authority should be kept at a minimum; the greater the number of management levels, the longer is the "chain of command" with consequent increased time for instructions and information to travel up and down within the organization.

12. The organization should be kept as simple as possible. Again, this is one of the frequently violated principles.

This list may not be all-inclusive, and the reader may recall others that merit consideration, but it does include the principal ones.

A few pertinent observations may be in order here. In the preceding list, delegation of authority is mentioned or implied in several of the stated principles. It is futile to outline any organization plan unless delegation of authority as proposed is accomplished. Delegation of authority is considered the essence of management. It is the basic process by which an organization is built. In the process, a superior assigns his subordinate part of his responsibility as well as commensurate authority for performance. Unless authority also is delegated, there is, in fact, no delegation at all (2).

A frequent failure of management is that many superiors do not delegate enough authority and tend to hold on to their entire assignment. They simply cannot let go of work and authority, or be convinced that anyone else will do work right or as well as they can do it. But whatever the causes, failures in delegation of authority are at the base of much organization deficiency and malfunctioning.

A common misconception is that delegation of authority removes responsibility for performance from the delegating person or superior. On the contrary, the accountability for performance cannot be shifted. Under no condition should it be possible to delegate or relinquish a superior's overall responsibility for results or any portion of his accountability. Failure to understand and follow this principle is one of the more serious organizational shortcomings. If more attention were given to assuring real accountability in an organization plan, performance would be greatly improved; therefore, the plan and its management should be devised to make accountability for performance a salient feature.

This observer would like to add his emphatic support of the last principle listed. There is a marked tendency to overorganize both vertically and horizontally so that a cumbersome, sprawling, and difficult to manage organization results. However, when attempts are made to correct such situations the organization units are often recombined under too few functional divisions. Although a complex organization may be needed, it need not be of intricate design or structure, nor should it be cluttered with subdivisions merely for the sake of symmetry in design.

In designing an organization, the first concern should be with logical grouping of

functions in accordance with principles and objectives. With that as a beginning any subsequent accommodations and compromises with principles as may be dictated by the realities of specific conditions, situations, and personnel can be made more easily and with the least amount of wrenching of the plan. The reorganization device is a very convenient and useful method of handling or bypassing organization or administrative obstacles and particularly personnel in key positions who may be bottlenecks or otherwise deficient, and the designer should not pass up the opportunity for bringing about the needed changes.

TYPES OF ORGANIZATION

The organization planner should be familiar with the several types of organization which have been used and developed in highway administration. Although opinion may differ on the subject, in general, four distinct types are identifiable: line, functional, line and staff, and a more recent development, a hybrid staff and line form (3). The line type is the simplest and perhaps the best understood. In this type, as the name implies, there is only one direct line of authority running from the top position to the operating units of the organization. Such an arrangement was common when highway departments were small and the activities relatively simple. This type apparently has outlived its usefulness, although vestiges still persist in some highway organizations.

In the functional type there usually is a group of specialists in top positions under the chief administrator. This type emerged in response to a need for specialized knowledge and skills as the technology developed, as for example, in construction and design. Under this scheme each position or member comprising this group exercised direct control over the operating units (districts or field activity) but only on matters within his specialty. Whereas this arrangement did permit direct supervision and control by specialists and other advantages such as education and training of field forces in the process, it introduced troublesome problems of coordination and management, and encouraged more or less autonomous internal empires. Perhaps the chief fault of this kind of organization is that an operating unit, such as a district, had as many superiors to whom it was accountable as there were specialists in the top group. This condition conflicted with the principle that no one should be accountable to more than one boss.

The line and staff type of organization made its appearance in more recent years in highway administration and was adapted from business experience, particularly in larger corporations. When highway activities got more complex and extensive, department heads could not be expected to be competent in all technical and specialized matters, and it was necessary that they be supplied with a staff of experts in the various phases or functions to furnish the necessary advice and guidance. In theory, such staff were to study, report, and advise the administrator directly who in turn would issue the orders and instructions downward through the direct line of control and supervise their execution by the operating units. Line units were the principle executing and operating components of the organization.

As the enterprise became even larger and more complex, it soon became apparent that the line and staff type needed further modification to provide the administrator with the specialized skills and assistance he needed to manage and control his organization effectively. An altered form emerged in which the staff and line groups have about the same relative position in the organization, except that the staff units which were originally advisory were now invested with administrative duties. Because of the need for his attention to outside affairs and the impracticability of direct issuance of all orders, instructions, and personal supervision of compliance with them, it was necessary for the administrator to delegate such authority to staff units to act in matters within their province.

Under this plan the staff units exercise functional guidance over the operating units on matters within their provinces. Policies and procedures are recommended to the administrator and, if approved, the staff man furnishes the operating units with technical and specialized advice and assistance in the application of the policy and procedures. Operating heads are still fully responsible for execution; they are not subject

to the orders, control, or supervision of staff men. Although under guidance of staff men, they remain accountable only to the administrator. This arrangement assures that the operating head has only one person to whom he reports. To the reader this method may seem theoretical and somewhat contradictory, but it is not difficult to accomplish in practice.

This type of modified line and staff organization has many advantages over the pure form, particularly in that it is well adapted to provide the kind of staff help the administrator needs to manage and control his organization. It also permits help and guidance of a specialized kind to operating personnel more or less directly without destroying the line of authority, or violating the principle that each person have only one superior to whom he is accountable. This type of organization was adopted by Wisconsin a number of years ago and has operated successfully (4). It is especially adaptable to a decentralized system of administration.

MANAGEMENT GUIDES

In highway organizations examined over the years, we have found no clear-cut and complete statements to guide the operations and activities of the principal components and their heads. Assignments usually were vague and indefinite and did not set forth adequately the function; authority and responsibilities merely rested on tradition, past practice, or a verbal statement. Under such conditions only confusion, uncertainty, duplication, and poor performance can result.

In any new or revised organization plan it is always wise to reduce the management requirements to writing. For all top positions at the management level a guide should be prepared setting forth the functions, responsibilities, authority and relationships so that each member has a permanent source of clear understanding of his position, and instructions and guidance in the objectives and cooperative relationships for which he is responsible. Certainly, a man is better equipped and more able to do his job successfully and can more fully use his energies and capabilities if he has no worries about authority and responsibility and no confusion about the requirements of his position.

With such guides available for reference and study, men in top positions can gain a broader knowledge and better understanding of their place in the organization. By referring to the established guides, conflicts between individuals can be readily resolved, and thus it is possible to handle disputes over authority and responsibilities promptly. Such guides have many other valuable uses, e.g., in training an understudy or a replacement.

To an executive or administrator, a management guide will be useful in maintaining control over his organization and the personnel complements. It will facilitate study of organization problems because the source and cause of failure can be more easily located and the necessary adjustments can be made properly. Not only do management guides tend to make organization more uniform and understandable, but they make changes easier to effect. Finally, they are one of the best means of achieving and maintaining a sound plan of organization.

In the business world, and particularly in large corporations, it is common practice to commit organization plans to writing for all to see and work by. A guide of this kind which is worthy of study is that developed as an organization and administrative aid by the Standard Oil Company of California (5). A sample guide modeled after their form and adapted to a top position in a State highway department is included as Appendix B. The sample may be somewhat outdated, but it will give the reader a good idea of what a position guide should be and also the principal features thereof.

MANAGEMENT CONTROL

The administrator or executive who does not understand management control will have difficulty in achieving efficient and effective management of his organization. Frequently control is confused with certain devices of management, namely, objectives, plans, policies, organization charts, procedures and similar items. Although they are

principal parts of an administrative system and important factors in any control system, these items are not controls or even a means for control of an organization.

In general, objectives define what an organization is trying to do or accomplish. Plans and programs are related to objectives in that they propose how the objectives will be reached, set up a time schedule for reaching them, and provide positive direction for doing so. Policy may be defined as a statement of an organization's intention to perform in a certain way under specified circumstances. It reflects a general decision expressed as a guiding principle to assist executing officials in discharging responsibilities consistently and equitably. An organization chart is merely a first step in giving and defining an assignment and establishing accountability to a superior. Again, these elements may be indispensable to efficient management, but they are not controls.

Control is really checking and determining whether suitable progress is being made toward objectives and whether plans and schedules are being observed. It is also checking to see whether an assignment is being carried out as intended. Adherence to policies should not and cannot be taken for granted—it must be verified. Control then should depend on information with respect to these and similar items reaching the administrator regularly and in useful form so that, if necessary, he may act quickly and properly to bring about needed adjustments and correct deviations from the planned course. Without verification of the situation there is no basis for control or perhaps no control (6). Control of the kind suggested here is still in its infancy in the highway field. Some efforts along these lines are being made with the use of the computer and automated data processing, but these tools have not been fully developed to benefit management in terms of constant improvement in the quality, quantity, and cost of the product and services to the public.

In industry, electronic technology has evolved information handling tools that will, according to Dr. Elmer W. Engstrom, President of the Radio Corporation of America, alter the historic processes of business management. He believes "their growing use will multiply the effective control of top management over all aspects of the business, and will alter, or may even reverse, the trend toward decentralization." He foresees "with the wider application of the new technology, fundamental changes in the structure of large business enterprises together with greater control over several organizations."

Dr. Engstrom further stated, "The new electronic information handling systems now offer practical means for unified planning, control, and paperwork processing to a degree which has never before been attainable, even for the most diverse and far-flung business" and that "few opportunities before us equal in their potential significance the new technology of electronic aids to management."

MANAGEMENT AUDITS

Once an organization plan has been devised and put into operation, there is usually little or nothing done to check on how well it is meeting expectations, its performance, acceptance, and the compliance with the new system. Generally, it is presumed that with the issuance of the order putting the new plan into effect, the accompanying policy and procedure statements will automatically insure that it is being uniformly understood and interpreted, and that all will soon adjust and perform reasonably well in accordance therewith. As logical as this assumption may be, however, it is nevertheless unfounded because it relies essentially on custom and trust in the integrity and responsiveness of employees to whom responsibilities have been subdelegated. In less complex situations such confidence may be sufficient, but modern highway administration demands more than traditional assumptions; it needs verification that things are really as they seem. The administrator needs the assurance that only a management audit can provide.

Periodic checks should be made of organization performance through the use of reports, performance schedules, comparisons, and audits of operations. These are some of the methods used to assure accountability for performance which, in the author's opinion, is the most neglected part of management. If a real effort were made to hold persons accountable for their delegated responsibilities and performance, there would be fewer failures to meet deadlines and production schedules. Highway

administrators have and do use reports, administrative review, field visit, and consultation to some extent to check on their organization and its performance, but these efforts usually are only occasional, inadequate, and lack follow-through. It would seem that at the present state of organization and administration maturity, the development of a systematized method of checking performance as a basis for timely corrective action by the administrator would be beneficial.

Because the administrator cannot delegate or relinquish his responsibility for results, or any portion of his accountability, he must be sure of his management. He needs more than the customary paper support and an occasional visit and consultation to be certain that things are being done properly, effectively, and consistently in accord with established policy and procedure. Administrators may feel a lack of knowledge or even authority to make management audits, or be reluctant to check up on the performance of skilled, experienced, and trusted managers, but they can hardly divorce themselves from the responsibility of determining if the ends are being achieved.

Management audits should be done by a division or organization unit not concerned with the operations and activities to assure neutral review and appraisal. Responsibility for the audits should not be placed with the internal auditors of the finance or accounting division. The organization and management unit proposed earlier would seem well suited to performing audits, but if the administrator is uncertain about the capabilities and skill of such staff to do an audit properly and objectively, it would be to his advantage to rely on outside services. In any event, each field office and major division should be periodically subject to a management audit on a complete, partial, or sampling basis without advance warning, and in accordance with prescribed criteria and procedures to ascertain the quality, adequacy, and consonance of operations with policy and procedure.

The results of management audits would, of course, be useful to the administrator in the management and control of his organization, but the benefits go beyond assurance of adequate operation and performance. They would likely disclose situations where skillful operation and management were superb, or where superior performance is producing results better than anticipated. Thus, attention could be directed to such cases as a means for encouraging similar performance in other parts of the organization or in other activities. The audits would also show where, for example, additional men or skills may be needed to insure adequate supervision and inspection. From results of such examination of current practice, suitable standards could emerge for making present methods more productive.

STANDARDS AND CRITERIA

Organization and management standards and criteria for State highway departments are not specifically spelled out in law or regulations. For example, Federal regulations merely require that as a condition for receiving funds, a State must have an adequate organization, which requirement, but itself and without further definition, is not a very useful criterion. Such a general provision was satisfactory when Federal-State cooperative road building was in its infancy, but after a half century of experience it should be possible to define better and more specifically the organization and management requirements for achieving the intent and purposes of uniformity and performance of the Federal-aid Act.

New standards appear to be called for which can be set forth as a guide and yardstick of organizational and managerial adequacy and competence. The absence of such standards unquestionably has hampered progress in the organization and management area because the States have not had the benefit of accepted standards for determining how they stood relatively, wherein they may be deficient, and where and how improvements could be made to bring their organizations and performance up to accepted standards.

In general, such criteria would include measures of management, administration, objectives, organization, control, personnel, resources, reputation, and performance. This list is not exclusive and other similar factors could be included, but the list of items is at least indicative of the kind of things that should make up the criteria. It

would appear that something of this kind is contemplated under the cooperative research project on highway management and performance mentioned later in this paper.

It should be noted that the good results and performance of the past were not assured simply by making money available under Federal legislation. Rather, it was the imposition and encouragement of certain standards of achievement which led to steadily improved performance on the part of the States. Eventually some more specific and objective criteria related to performance will have to be developed which will have to be met by the States as a condition for eligibility for funds.

MANAGEMENT DEVELOPMENT

When a reorganization plan is adopted and put into effect, often the general attitude is that the purpose has been accomplished and the administrator and top personnel can now direct their attention to other pressing matters. In such an environment and without the necessary follow-through, the many advantages of the reorganization are likely to be lost. No plan is self-executing; it still needs a complement of skilled and competent personnel, especially at the management level, and continued leadership and control of the administrator to make it function properly. Perhaps the most important job facing management is that of providing for, if not insuring, its succession by striving for the sound development of top-level personnel who are ready, capable, and have the necessary qualifications of leadership to take over new and vacated positions as required. In no other way can the highway service be assured of uninterrupted top performance. One observer summed up the situation thusly: "as everyone knows, there is unquestionably a serious shortage of engineering and technical manpower, but the real deficiency is in the management and executive talents" (7).

The organization survey will have disclosed important information with respect to existing and potential management skills. Accordingly, the administrator should make preparations for the development of an adequate supply of managerial talent with the skill, acumen, self-confidence, education and training which the lofty levels of tomorrow obviously require. Under any good plan of organization a so-called management group or class should be set up roughly restricted to the three top levels of the organization. This group should constitute the select personnel from which future executives and managers must come and, therefore, great care should be exercised in picking the entrants into this class. Eligibles must have supervisory potential, suitable personality traits and attitudes, and in other ways measure up to the qualifying standards.

Highway departments are probably aware of the shortcomings of their management development efforts. Even though a passable job is being done in providing practice in the art of management, it is evident to them that practice without some background and knowledge of management theory leaves something to be desired. Because department management personnel must necessarily come from the engineering class and few have had any formal education in personnel, organization, administration, public relations and related subjects, there appears to be no alternative but to make up this deficiency by supplementing the engineers' practical and technical training with at least a minimum of education and training in organization and management principles and theory.

The AASHO-NHUC management conferences have pioneered in this field by providing an introduction to management training; much credit is due this endeavor for stimulating interest and promoting activity in this area. Under consideration and in the planning and implementation stages is a much more comprehensive executive training course sponsored by AASHO, the U. S. Bureau of Public Roads, and the Automotive Safety Foundation, which should fill a big need and provide a way for highway departments to give executive and management training to top personnel. Both of these efforts deserve the support and participation of the departments. Furthermore, the States' efforts should be designed to complement and supplement these programs.

NEED FOR RESEARCH

A great deal more research in organization and management needs to be encouraged and accomplished. Research has been infrequent as indicated by the minimal literature

of the Highway Research Board in this area in comparison with reported research in traffic, construction, materials, and related engineering fields. In the past few years, however, notable interest and support have developed in management research and considerable progress has been made. The Highway Research Review (8) reports a continuing study in highway management, practices, and performance sponsored by State highway departments, U. S. Bureau of Public Roads, local highway departments, and the Highway Research Board:

The objectives of this project are to improve administrative efficiency, productivity, and effectiveness of highway operations at all levels of government by making surveys and studies, both general and specific of (1) measurement and evaluation of organization structure and management productivity for use in developing principles and criteria for sound organization and management practices, (2) development of criteria to measure the effectiveness of such management functions as organizing, planning, directing, and staffing, and (3) the study of specific highway agency functions to improve management performance.

This project was started in 1958 and is continuing.

Another significant research undertaking (8) is a county highway administrative study started in 1956 and sponsored by the Automotive Safety Foundation, National Association of County Officials, and the U. S. Bureau of Public Roads. Its purpose is as follows:

To investigate means to improve county highway administration, to study the principles of effective county organization and operation, to produce a management guide and manual of functions and procedures, and to establish within the National Association of County Engineers in the form of a Central Project Development Committee with an Advisory Council and appropriate committees to continue study and improvement in this field.

Through this mechanism and formula many manuals have been completed and are available for reference and guidance (9). This project and its products have been and will continue to be an extremely valuable contribution to the advancement of county road management.

Early in 1963, the U. S. Bureau of Public Roads also disclosed a plan for major research study on highway department management which has as its purpose assisting the States in improving their administration and management. The use of 1½ percent money is now permitted, and this should be a powerful stimulant to such research activities.

The research record is not impressive, and much more needs to be done. Robert F. Baker has succinctly stated the need for and the possible benefits of management research as follows:

There are many opportunities to improve highway administrative procedures and organization, with the twin objectives of cost savings and more efficient management of highway operations. ... Nationwide, the State highway departments are spending at the rate of \$235 million a year (excluding preliminary engineering) on administration alone, and fuller application of modern management should yield substantial savings. The value of greater efficiency and demonstrable savings might be expected to equal 10% of administrative costs, an annual savings of nearly \$25 million. (10)

CONCLUSION

Some of the problems, conditions, needs, and principles involved in organization planning and management have been presented here. A method of achieving a sound plan has been outlined; some suggestions and guides for controlling an organization and ways of determining its effectiveness have been offered. Organizational and operat-

ing efficiency should not be the sole purpose of an organization plan. It should be emphasized that efficiency usually has to do with means; effectiveness is concerned with ends. Because an organization achieves smoothness of operation does not necessarily mean that it is effectively carrying out the aims and purposes. Confusion and misunderstanding about the difference is at the base of some of the present highway management difficulties.

The immediate and long-term consequences of adopting an organization plan must be carefully considered. Likewise, a plan should take into account eventual expansion and growth possibilities and have the flexibility to accommodate these needs easily. It is not enough to shift activities and persons and offices. Any changes should be accompanied by a clear-cut realignment of functions and activities and reassignment of responsibility and commensurate authority so that there can be no misunderstanding or confusion about the changes and their intent.

Sound organizational planning offers great possibilities for fostering a career service with better than average advancement opportunities. It must, however, be geared to progressive personnel and promotional policies to fit the improved advancement opportunities that a good plan will provide. A good plan will also be useful in management training and development. These are important factors in attracting and holding competent personnel.

In view of today's unprecedented expansion and ambitious planning and in the interest of imaginative experimentation and new ways of doing things, research, management development, and criteria of organization and management adequacy and competence loom as the most needed items and probably as the most productive areas.

Great progress is evident in highway engineering techniques and processes, and rapid advances have been made with the aid of electronic devices, photogrammetry, data plotters, and similar automated systems. In the area of organization and management, however, advancement has been less impressive. Although there is a growing awareness of the need for improvement, at this time when the competence, integrity, and performance of highway management is being questioned and subjected to searching scrutiny, a great deal more effort needs to be applied in bringing about changes and reform through self-examination and initiative of the highway departments themselves.

On the other hand, the current interest and concern with administrative and organization matters is encouraging. Many more things are being committed to writing and the resultant policy statements, guides, manuals, procedures, etc., have advanced the cause of more effective management. Education and knowledge in management has increased, and there is a more general appreciation of management theory and practice and what they can do in terms of production and quality of services. A more reflective and analytical approach to organization and management problems appears to be developing and that is all to the good. Top management also seems to be spending more time in studying and reading serious management literature. The response to highway management conferences suggests the existence of an unsatisfied desire on the part of key personnel for knowledge, education, and training in the art of management.

In this decade highway departments have been called on to exceed the achievements of the past four decades in less than one-half the time. In the next 20 years we are likely to see even greater demand for highway services, and we will need able men to attain these goals and make the most of the years ahead. Highway departments now desperately need trained and trainable employees, and, moreover, the need will grow. Whereas a considerable number may be expected to come from the colleges, it is probable that the bulk of them are already in the ranks of the employees. They must, however, have help in finding their proper niche quickly in the increasingly complex enterprise. Highway departments must do everything that can reasonably be done in the way of education and training to advance their progress and development; in fact, it is the departments' responsibility to do so.

Management seminars and training courses should not only be continued but also expanded into more comprehensive courses designed for top management education and training and they should be more specifically oriented to highway administration and management problems. Such courses should be more intensive and of sufficient

duration to permit adequate coverage of the important areas with which top men are concerned and provide guidance in these areas. The problems of administration and management of the highway service are similar to those found in the field of business and general public administration, and the same principles may apply. However, there are enough dissimilarities, differences in philosophies and purposes, and public interest implications to warrant the development of a specific management philosophy based on new concepts and considerations which take into account important background changes and trends.

Research in organization and management is lagging badly in comparison with the efforts in other fields, and it needs stimulation and acceleration. Study and research in this area needs to be approached with an iconoclastic attitude, healthy skepticism, and irreverent scrutiny of practice and custom. A first and most useful product would be the development of criteria of organization and management adequacy and competence to provide the practitioner with yardsticks for measuring and evaluating his own organization, its management and performance. Such standards would also provide incentives for improvement, as well as proper guidance and encouragement for experimentation under the do-it-yourself kind of approach which has characterized highway management in the past. The eventual goal of research should be toward achieving organization and management based on study, fact and principle, and less on past practice and tradition.

Any department which has aspirations for top performance and distinction must set forth objectives, develop standards, provide for supervision and evaluation of its production and services, and provide for regular upgrading by keeping abreast of developments. It must also see to it that the equipment, management and engineering procedures, and the skilled personnel for making continual improvement are always available. Only the highway administrator can provide the initiative, incentives, and leadership required, and he will find sound organization planning a most useful tool in the direction, control, and management of a department seeking these goals.

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Appendix A

GUIDE FOR CHIEF OF ORGANIZATION AND MANAGEMENT, ADMINISTRATION DIVISION*

Function

As a staff member of management, the Chief of Organization and Management as head of the Organization and Management Section of the Administration Division is charged with advising the Director and furnishing functional guidance to the organizational components by advising and assisting in the development, maintenance, and improvement of plans of management, including organization structures and complements, functions, responsibilities, authorities, relationships, systems and procedures; by developing sound plans and practices for budget administration; and by controlling space utilization, building construction and remodeling contracts, and building leases.

Responsibility and Authority

Within the limits of Commission policies and control procedures, and the approved program and policies of the Division, the Chief of the Organization and Management Section is responsible for and has commensurate authority to accomplish the fulfillment of the duties set forth in the following. He may delegate to members of his Section appropriate portions of his responsibilities, together with proportionate authority for their fulfillment, but he may not delegate or relinquish his overall responsibility for results or any portion of his accountability.

Operations and Activities.

1. He will participate in developing a suitable organization plan, conduct studies to determine its adequacy, and assist in formulating, or receive and recommend for approval proposals for changes.
2. He will assist in the definition and clarification of functions, responsibilities, authority, and relationships of each new or altered management position, and will prepare or assist in preparing management guides incorporating these factors.
3. He will review the management guides periodically and will formulate, or receive and recommend for approval, proposals for changes in the guides to maintain them in a current state.
4. He will publish the official organizational charts for the Commission.
5. He will formulate or receive, edit, and recommend proposals for policies, and keep the policy file in a current state.
6. He will coordinate and assist in the development of policy and procedure manuals.
7. He will conduct studies of departmental operations, systems and procedures, and make appropriate recommendations for improvement.
8. He will administer the records management program of the Commission, develop standards and controls for forms, reports and publications, inspect files, and make recommendations relating to the retention and disposition of records.
9. He will review and coordinate all matters pertaining to space needs, utilization, and assignment, building construction and remodeling contracts, and building leases, and make recommendations thereon.
10. He will supervise the budget function of the Commission, including the coordination and preparation of the biennial budget for Commission review and approval, and will make recommendations regarding the application of budget controls.

*Source: Wisconsin State Highway Commission, revised June 11, 1963.

Organization and Personnel of His Section.

1. He will recommend changes in the basic structure and complement of his Section.
2. He will recommend employees or outside personnel for positions within his approved basic organization.
3. He will recommend promotion, demotion, or release of personnel.
4. He will approve vacations, sick and personal leaves, except his own.
5. He will prepare the necessary job and position descriptions.

Finances of His Section.—He will advise and assist the Director in the preparation of the annual budget, will administer the funds allotted under the approved budget, or any other approved expenditure program, and will administer approved fiscal procedures.

Relationships

The Chief of the Organization and Management Section will observe and conduct the following relationships. He may delegate portions of the conduct of such relationships to members of his Section, but may not delegate his overall responsibility or accountability for their proper conduct.

Director.

1. He is accountable to the Director for the fulfillment of his function, responsibilities and authority, and relationships, and for their proper interpretation.
2. He will relieve the Director of Administrative detail as outlined previously or as directed by the Director.

Other Staff Divisions and Districts.—As directed or requested, he will advise and assist the heads of Staff Divisions and District Engineers in the fulfillment of their functions on matters within his province, but in so doing he will not assume, nor will he be delegated any function, responsibility, authority or relationship belonging to any other member of management.

Government.—He will conduct such relationships with representatives of government as are necessary to the accomplishment of his function.

Public.—He will conduct such relationships with members of the public as are necessary to the accomplishment of his function, but in such cases he will act only as a representative of the Director.

Appendix B

ORGANIZATIONAL ANALYSIS PROCEDURE

The analysis deals primarily with functions, responsibilities, authority, and relationships. A functional statement should be prepared indicating functions and responsibilities of the position. This statement should be confined to essentials and should be as brief as the required detail permits.

To insure reasonable uniformity and comparability the information should be organized in accordance with the outline below:

- A. Functions and responsibilities: (An itemized listing is preferable)
- B. Existing lines of authority: Indicate by name and title your immediate superior or superiors, and the subordinate who is in charge in your absence.
- C. Extent of authority:
 1. For major functions and responsibilities only, i. e., whether recommendatory, advisory, or final.
 2. Over appointment, promotion, demotion, etc., of employees.
 3. For expansion or contraction of activities.
 4. In relations with outsiders.
 5. For delegation of responsibility and authority.

D. Relationships:

1. Principal contacts within the organization, both central office and field (indicate very briefly the extent of these working relationships and their nature, i.e., whether assigned, customary, or by choice).
2. Membership on departmental, coordinating, or similar committees or activities.
3. Principal contacts outside the organization (indicate with whom, frequency, nature).

E. Subdivision of work and staff supervised:

1. Indicate major subdivisions of the unit.
2. Specify number of persons in each subdivision by class of employee, i.e., engineers, draftsmen, and clerks.

F. Do you have adequate authority to permit handling of assigned activities? What additional assignments of responsibilities and authorities do you feel are needed? What specific suggestions do you have for improving operations of your unit internally, and with other affected units?