

INTRODUCTORY REMARKS—CHARGE TO PARTICIPANTS

C. G. Prah, General Construction Company

•IN THINKING about the things I should discuss with you to remain within bounds of my assigned subject it was obvious I should be guided generally by your program. It would have been pointless for me to take off in one direction and you in another. On the other hand, time does not, and should not, permit my discussion of each of the specific subjects to be covered by your speakers.

You are here to study and discuss many of the elements of managing highway maintenance organizations. There are many other facets of maintenance management that you will be unable to cover because of the relatively short time available. For my purposes I will consolidate the many elements of maintenance management into a few major ones which some management experts consider as covering the field. They are: Organization, Planning, Scheduling, Performance (or Directing), Control, and Management Reporting. Because of the alarming increase in highway maintenance costs and the resultant effect on the entire highway program of the various states, I will comment also on the budgeting phase of maintenance planning.

Before proceeding, I should emphasize that the major elements of maintenance management are closely related and somewhat overlapping, and each must be given adequate emphasis if a state maintenance engineer expects to manage his program adequately. As an example, he can develop a perfect plan for carrying out his maintenance program, but if it is not carried out properly with adequate follow-up, the plan is worthless.

ORGANIZATION

To comment on the first of the major elements of maintenance management, an adequate organizational structure is absolutely essential to the establishment of an efficient maintenance program. I speak principally of the key people in the organization, primarily those at headquarters. If the headquarters organization is comprised of people with adequate qualifications, ability, and disciplines, all of them with strong motivation, the remainder of the organization at the field level will evolve without difficulty. This applies whether you have a formalized maintenance management system or one which has evolved by trial and error over the years.

From my observation the headquarters staffs of many highway department maintenance organizations are inadequate, in both numbers and breadth of qualifications. This is not intended to include the maintenance engineers or the limited staffs they now have. However, I do think that maintenance engineers of many state highway departments have not fully recognized the magnitude of their responsibilities in setting up their headquarters maintenance organizations. In addition to a management-minded state maintenance engineer, I feel the maintenance division of every highway department should have a modest staff of highly qualified and motivated engineers, industrial engineers, management analysts, and other specialists.

It is my feeling that the expenditures for a fully adequate headquarters organization will pay off many times over in terms of better planning, budgeting, controls, and ability to analyze the performance of the field organization. This does not infer there should be overcentralization of functions and authority which are inherent in field maintenance organizations. On the other hand, it has been my observation that field maintenance organizations do not at present have sufficient guidance and control from headquarters. Once you recognize the importance of establishing a competent and fully staffed headquarters organization, I believe it is inevitable that a field organization will evolve which is better equipped to do the job at hand in a more efficient, economical, and uniform manner.

PLANNING

Going to the second element, planning, I am not referring in any way to the type of planning done by the planning division of a highway department. I am thinking of a planning staff to assist the state maintenance engineer in carrying out such functions as analyzing and defining the total maintenance job to be done, setting levels of maintenance, establishing some sort of performance guidelines or standards, performing the very important function of budgeting, establishing and scheduling training programs, analyzing performance, and a number of other important staff functions which are so necessary in assisting the maintenance engineer to manage his total maintenance program properly.

It is in the area of maintenance planning where there is a vital need for additional staffing, in both numbers and disciplines, in most highway departments. Again, additional staff at headquarters should not in any way detract from responsibilities assigned to field organizations for planning the work under their control. If the planning functions are properly carried out, it should be of great assistance in clarifying what is expected of the field organizations.

Undoubtedly more planning at headquarters will force the field to follow more closely uniform guidelines and procedures. Probably such additional control will be irritating to them at first, but in the long run problems will diminish. As a result, the maintenance engineer should be able to attain the type of control he must have over field operations in order to fully carry out his responsibilities.

BUDGETING

At this point I would like to insert a few remarks on the subject of budgeting because of its growing importance in the maintenance planning process. The cost of maintaining state highway systems is becoming very large and is taking an increasing part of each state's highway dollar. For this reason alone, I believe it is absolutely essential that maintenance organizations improve their budgeting processes.

From my previous experience in Washington State and after comparing notes with maintenance engineers from many other states, it is evident that most state highway maintenance budgets are essentially prepared by adding a percentage to the previous budget to cover increases in labor, equipment, and material costs. In other words, too much maintenance budgeting is being done on a historical basis rather than through analyses of the maintenance needs. Maintenance engineers are having difficulty justifying their increasing budget needs to their superiors, not to mention their state legislatures. From personal experience, legislators are taking a much harder look these days at the very large sums which are going into maintenance. I am sure they are going to look even harder in future years. Most or all of the funds being requested are probably essential to do an adequate maintenance job, but maintenance budgets are not being adequately prepared, justified, or presented.

In my view, it is highly essential that all state maintenance engineers devote a great deal more attention to analyzing their maintenance needs, and then put much more effort into preparing justifications and presentations to higher authorities. Having personally gone through several legislative sessions in Washington I believe I can speak with some authority in this area. I was deeply gratified recently to learn from Vern Dorsey that his maintenance management program has advanced to the point that he is now able to demonstrate to his departmental bosses and to the legislature where the funds he is requesting will be used and why they are needed.

SCHEDULING

Once you have planned an adequate maintenance program, or at least have planned the best possible program within budgetary limitations, the next step is to carry out the very important job of scheduling the work to best utilize available manpower and money. Although most of the detailed scheduling is inherently done by the field organizations, there is a great deal which can and should be contributed by the headquarters staff.

Obviously a substantial part of highway maintenance does not lend itself to scheduling, but there is a great deal more scheduling which can and should be done to improve the efficiency of most field organizations. It is my belief that careful scheduling of maintenance functions results in better performance and lower costs in terms of such things as equipment requirements, locations of maintenance installations, optimum size of crews, numbers of supervisors, and maximum utilization of maintenance personnel on a year-around basis.

What I am trying to say is that systematic scheduling of your state maintenance program is more than sending out a few guidelines and leaving the rest to the field organization. In my estimation, greater attention to scheduling highway maintenance is essential at all levels.

PERFORMANCE AND CONTROL

The two management elements of performance and control overlap considerably so I will combine them for the purposes of my remarks. We are all aware that the actual performance of highway maintenance is carried out by field crews. However, to insure that performance is carried out as intended, competent supervision and controls are necessary at all levels. It is not enough to rely completely on individual maintenance men, foremen, superintendents, or even district or division engineers to carry out the complete maintenance job in the manner in which the maintenance engineer intends it to be done.

You may feel my remarks in this regard are somewhat pontifical and idealistic. On the other hand, I invite any one of you who is or has been responsible for a highway maintenance organization, or a major segment of one, to recall the frequency of instances where lack of proper supervision, misinterpretation of orders, carelessness, poor communications, or some other avoidable shortcoming has resulted in poor results and reflected adversely on the competence of your maintenance organization. In other words, after the maintenance engineer has properly organized his people, planned the maintenance program, and otherwise provided the best possible wherewithal to get the job done, he cannot relax in the all-important phase of performance. To do so is to partially waste his previous efforts. All of us are aware of the spread-out nature of state highway maintenance organizations. This inherently makes the supervision and control of a state highway maintenance program extremely difficult. The maintenance engineer cannot afford to overlook giving this important phase of his responsibilities his closest personal attention.

MANAGEMENT REPORTING

Now I come to the last major element of maintenance management—management reporting. I am sure some maintenance engineers and probably most field supervisors consider reports to be an unnecessary evil. I disagree, particularly if the reports serve a useful purpose to the various levels of supervision. Obviously, then, one of the essential prerequisites of a reporting system is to spend time in developing meaningful report forms and insuring that they are properly prepared and submitted on a timely basis.

I have been emphasizing the difficulty of supervising, controlling, and obtaining uniform and efficient results in a highway maintenance organization. In my view, properly designed reports can be of invaluable assistance to the maintenance engineer and his key field supervisors in carrying out these difficult functions. This is an area where a competent headquarters staff of specialists can be of great assistance in not only developing report forms and setting up instructions for their preparation, but also condensing report information so as to provide the state maintenance engineer with concise and timely information on which to make management decisions.

WHAT IS A MAINTENANCE MANAGEMENT SYSTEM?

I suspect those of you who are scheduled to discuss reporting systems under Topic 1 this afternoon will have recognized that I have just discussed the major elements of a

complete maintenance management system. From my experience at the first HRB maintenance management workshop, and as chairman of the AASHO committee on maintenance and equipment for a period of time, I am aware that the speakers on Topic 1 represent states that have formalized maintenance management systems partially or fully installed. I understand several additional states have taken similar steps recently.

I must admit that slanting my remarks to comment upon the major elements of a maintenance management system is done with malice of forethought. I am convinced that the complexity of state highway maintenance programs, together with the large sums of money involved, make it absolutely essential that some type of formalized maintenance management program be adopted in each state if the maintenance engineer is to have a chance of doing his job properly. I believe it is generally true in most states that maintenance has not been given sufficient recognition by chief administrative officers of highway departments to the extent of supporting their maintenance engineer in getting adequate budgets and staffs. On the other hand, I feel that maintenance engineers may not have taken advantage of the many new management techniques that have been developed by others over the past 20 years to assist maintenance organizations in improving the efficiency of their operations.

Your workshop program clearly shows the many facets of highway maintenance that are being discussed at this maintenance management workshop. There are many more which time will not permit covering. Obviously, all of these subjects touch upon major elements or subelements of a maintenance management program. As you proceed with your discussions of various subjects, I urge you not to consider them as isolated problems on which you will merely compare notes, but that you consider them as parts of an overall maintenance management program. For instance, I note that "crew specialization" is one of the subjects for discussion. This is one of the many areas that affects maintenance organization, planning, scheduling, and control in that it automatically focuses attention on the composition, area of responsibility, and size of field maintenance crews.

WHAT IS FORMALIZED MAINTENANCE MANAGEMENT?

Simply stated, a formalized maintenance management system is comprised of analyzing the total maintenance job of a state highway department, then systematically establishing formalized procedures for carrying it out. Because of the magnitude of installing such a system, most states with such systems have obtained the services of consultants to guide them in doing the job. This has been advantageous for a number of reasons, probably the most important of which is the fact that most state highway organizations have not developed sufficient expertise in maintenance management techniques and find it next to impossible to approach the overall problem within their existing manpower resources.

The State of Washington is one of the states that availed itself of the services of a consultant to prepare a maintenance management program and to assist in getting it started. From that point on, however, it is up to the state maintenance engineer to follow up with the long and arduous task of installing the system and making it work. Not only is it a difficult task, but experience shows that any maintenance management system will literally take several years to produce all of the results anticipated.

Those states that have not chosen to get into formalized maintenance management systems possibly are not in a position to take such action or for one reason or another have chosen not to do so. If this is the case, I strongly urge them to examine closely the systems adopted by several of the states to determine the benefits to be derived. I am sure those states concerned will be more than happy to provide you with full information on their particular systems. Although I feel that the maintenance management system adopted in the State of Washington is one of the best, I am sure that other states may feel the same way about their systems.

SUMMARY

To review my remarks here today, your program committee asked me to provide a "Charge to Participants." Possibly in somewhat of a "sneaky" way I have promoted the

concept of formalized maintenance management systems in state highway departments. I have done this because I am convinced that all of the subjects you will discuss during workshop sessions are elements in a complex operation which must be approached systematically in order to fit them into a smoothly operating organization. During your deliberations I hope you will relate your discussions on each subject to the overall job of maintaining a state highway system. Exchanges of views and ideas on individual operations are helpful, but such discussions should not be permitted to preempt the limited time you have available for discussing the much broader purpose of this maintenance management workshop.