

## Summary Remarks

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A most impressive aspect of the Workshop was the apparent general acceptance of the idea that we are in a process of rapid change in maintenance management. There was frequent comment on the growing pressures to establish program or performance budgeting systems. There was discussion of work measurements and standards, and of scheduling work to fit a plan.

While there is some confusion in terminology, it seems clear that maintenance budgets will, in the future, have to be based on measurable work quantities, such as cubic yards or tons of patching, and acres of mowing. Resources (labor, equipment, and materials) will then be allocated in the budget process to meet the work needs for patching, mowing, etc., based on standard productivity rates.

Associated with the change in budgeting are new guidelines for planning and scheduling work and more useful reporting systems for managers to use in evaluating performance and controlling work. At the present time, no highway agency seems fully to have established a performance budgeting system. Some are committed to so doing but are in preliminary stages of development.

A number of state highway departments, the city of Los Angeles, San Diego County and Ontario have developed productivity standards for principal work activities. Some of the departments have also developed level of service or quality standards and, on the basis of these, are able to establish work quantity standards. They are now engaged in implementing a management system which utilizes these standards for planning purposes—including development of a performance budget—and for work scheduling and reporting to provide an effective management control system.

From the discussions, it is obvious that the development of the new management system is a big task. It requires the development of new ways of measuring, planning, scheduling and reporting work. It requires training of supervisors in their new responsibilities. It requires the creation and development of a maintenance staff capability for planning that has not previously existed. The magnitude of the job and the personnel requirements associated with it seem to be of real concern to some highway agency representatives—which leads to discussion of how the problem is being met.

There are those who felt industrial engineers were essential to the work measurement and standard setting associated with the new system. Others felt that highway engineers could readily pick up the industrial engineering concepts involved and would be better because of their knowledge of highways. This question was not resolved at the Workshop. However, the experience in several agencies indicates highway engineers and technicians with aptitudes and interests in the systems approach can do the job, provided they get adequate orientation and training. Furthermore, their background and association with the highway work increases the likelihood of their being accepted by operating personnel.

A somewhat parallel question is where in the agency responsibility for development of a new system is placed. There was discussion of experience in which a unit outside of maintenance was responsible. This has some appeal where an agency already has a methods or systems division staffed with individuals specially qualified as systems analysts.

It appears, however, that best results will be attained where the maintenance division itself takes full responsibility both for analysis and implementation, augmenting its existing staff as needed to provide the additional capabilities required.

The general arrangement of the Workshop seems to have been good. However, as a group chairman, I had a feeling of ineffectiveness in bringing a wider expression of viewpoint from the group itself. Understandably, the immediate interest was in inter-

rogating the formal speech makers. And, this the group did, with specific reference to details not covered in the formal presentations or about which elaboration was desired.

The Workshop discussions may be presumed to have served an important function in concentrating attention on the significant changes now taking place in maintenance management. For those already engaged in establishing new management systems, it provided an opportunity for interchange of ideas. For those who have not yet undertaken projects, the Workshop gave some indication of the promise, the problems and the payoff of such an effort.