Training for Traffic Technicians

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Types of Traffic Technicians

When we think about training traffic technicians, we must define the ground rules. That is—what is a traffic technician? What is the present supply and demand for traffic technicians? What training is presently available? What training can be provided? Actually there are two broad types of traffic technicians—the traffic technician who performs in direct support to the traffic engineer in traffic surveys, studies, and design, and the traffic signal technician whose duties are more specialized, and whose required training must be more intensive and must include electrical training and background.

The basic requirements of the first group are very similar to those of a construction, design, or maintenance highway technician, and with the addition of basic traffic training and interest in the field, any highway technician can become a good traffic technician.

In an article in March 1968, "Better Roads," the author, W. W. MacDougall, states, "A recent study made by educational institutions in the Atlanta, Georgia, area estimated that engineering organizations require four technicians for every professional engineer. Our experience in the Georgia State Highway Department indicates that the ratio should be in the neighborhood of eight to one."

In the Indiana State Highway Commission's Division of Traffic, the overall ratio of technicians to engineers is four to one in the central office and 10.4 to one in the total of all of the districts. This does not include traffic signal technicians.

Traffic Signal Technicians in Indiana

The number of traffic signal technicians should be dictated by the number of traffic signals within the respective jurisdictions. In the Indiana State Highway Commission, there are 29 traffic signal technicians responsible for the maintenance of 2,171 traffic signals on the state highway system. The ratio of signals per technician varies from a high of 145 signals per man to a low of 45 signals per man. These figures are not quite accurate because of traffic signal maintenance

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agreements in four of the districts. However, if the ratio of the two districts which have no maintenance agreements were applied to the remainder of the state highway system, a total of 49 signal technicians would be required. This is not too unrealistic considering that these technicians also supervise traffic signal construction contracts and are on call or on duty on a round-the-clock schedule. Salaries for these additional personnel could be provided from the contractual money presently being spent for traffic signal maintenance agreements, and at the same time provide a much more effective program of traffic signal maintenance and operation. This is, of course, predicated on the availability of qualified personnel.

TYPES OF TRAINING PROGRAMS NEEDED

In addition to the requirements of the State Highway Commission, it is easy to count the need for at least an additional 20 traffic signal technicians in cities throughout the state. In addition to this are the needs of contractors and suppliers. The training requirements then become twofold. First, are the in-service training needs for existing personnel, and second are the recruitment and training needs for additional personnel.

At present there is no formal in-service training program. However, there are three technicians in one district presently enrolled in electronic courses at night, at vocational schools under the Education Assistance Plan of the Indiana State Highway Commission. These men have enrolled on their own initiative and with no assurance of any immediate reward. Also the courses are not directly geared toward their field—they are basic electronics courses. There are no traffic signal applications.

TRAINING PROGRAM REQUIREMENTS

This is a beginning, but a program must be developed to provide training for both presently employed personnel and new recruits which is specifically designed for highway engineering technology. The following criteria must be established:

1. The courses should be established at existing centrally located vocational schools in the state.
2. The courses must be offered at night or at other than normal working hours, for presently employed personnel.
3. A minimum curriculum must be established with emphasis on mathematics, including algebra and trigonometry, drawing, surveying, highway engineering, and traffic engineering. For traffic
signal technicians the curriculum must include electrical and electronic courses, but must also include basic theory of traffic flow courses. The advanced electronic courses should be developed around traffic signal operation and circuitry.

4. The cost to the individual of the course must be held to a minimum. This can be done through the existing Educational Assistance Plan.

5. Incentive for participation must be provided in the form of promotions with salary increases after successful course completion. This should be established as a matter of policy as a part of the program. In fact, successful completion of the course could be a requirement, in lieu of long tenure, for promotion to some classifications.

6. Instructors for these courses should be regular vocational teachers, except for those technical courses such as surveying and theory of traffic flow. These instructors would no doubt have to be professional highway and traffic engineers.

7. Such a program should not be restricted to traffic technicians but should be developed for all highway technical personnel wishing to advance themselves.

RECRUITMENT AND THE EXISTING HIGHWAY TECHNICIAN PROGRAM

For recruitment and training of new personnel, we must at present rely upon the existing Highway Technician Program, which takes high school graduates through an eight-week intensive course consisting of 11 credit hours, including trigonometry, elementary surveying, route surveying, and graphics. The course will be offered this year at the Indianapolis, Fort Wayne, and Michigan City regional campuses and is specifically designed for construction technicians. The tuition is paid by the State Highway Commission, and the student is paid a salary of $330 per month while attending school if he agrees to remain with the commission after completion. Last year there were 34 successful graduates of the highway technician course and all are now employed by the Indiana State Highway Commission as Highway Technician I. Information regarding the Highway Technician Program is provided to all high schools with requests that it be brought to the attention of interested seniors. The state highway personnel director has indicated that it is possible that the Highway Technician Program might be expanded and developed to provide traffic technician training by the addition or substitution of traffic-oriented subjects.
RECRUITING FROM TECHNICAL INSTITUTES

Another area for recruiting traffic technicians, particularly traffic signal technicians, is the privately-operated technical institutes. In the Division of Traffic, we have at the present time two full-time traffic signal technicians who are graduates of a technical institute, and four half-time draftsmen who are attending a technical institute and are able to work on a co-operative basis. It is hoped that we will be able to retain some of these draftsmen after graduation.

We have found that the traffic signal technicians need additional and specialized traffic signal training to supplement their basic electrical and electronic training. With this in mind, we have made preliminary contacts with one technical institute regarding the possibility of incorporating traffic signal operation as part of their training. There is a possibility that we may be able to develop this idea further and thereby interest more young men in this field.

PURDUE SCHOOL OF TECHNOLOGY

The remaining area for procuring traffic technicians lies in the possible development of a co-operative program with the Purdue School of Technology. The activities of the School of Technology take place at each of Purdue's four campuses. The School of Technology has a Department of Civil Engineering Technology, and graduates from this two-year course would be particularly welcome as traffic technicians. The Division of Traffic has recently hired one full-time graduate with an Associate Degree in Electrical Engineering Technology and also with a Bachelor of Science Degree in Industrial Supervision. This man is working on highway lighting design and proving to be very valuable. The division also has two half-time students also doing lighting design. These men are also very capable employees.

It is recommended that this beginning be expanded by the development of a co-operative program with these students, particularly in civil engineering technology, similar to the existing co-operative program with civil engineering students, in an attempt to attract these more highly trained technicians.

SUMMARY

In summary, it must be stated that highway departments have long been recognized as excellent training grounds. They will continue to be just that unless they can become competitive with industry, and in the present economy the turnover will continue to accelerate. In other words it is highly impractical.