

# Role and Progress of the Landscape Engineer in a Highway Organization

HOWARD S. IVES, Commissioner, Connecticut State Highway Department

•A VERY HOT, glaring sunny afternoon makes one appreciate the complete and refreshing temperature change made possible by the delightful shade from the trees along sections of Connecticut highways. The aesthetic enhancement of this environment had been achieved by the thoughtful consideration and accomplishments of people many years ago. These tree-lined avenues were planted before the turn of the century as a result of the foresight of the late John H. MacDonald, Connecticut's first State Highway Commissioner.

Such thoughtful early work is evident throughout many parts of the country. Trees were planted along highways and byways, on village greens and within parklands to make possible today's enjoyment of the functional beauty and the environmental comfort of this landscape treatment. So, too, through the generations that followed, thoughtful citizens and public officials continued this traditional effort. This type of planting perhaps represents the first consideration of landscape development along the country's highway system.

In the early 1920's, the Board of County Road Commissioners of Wayne County, Mich., gave considerable attention to the landscape development of the highway system under its jurisdiction, and an organization to undertake this work was formed. Thirty years ago, in a book entitled "Roadsides, The Front Yard of the Nation," J. M. Bennett wrote, "Roadsides constitute the front yard of every community and because of this, if for no other reason, they should be developed and maintained in a manner befitting such a distinction. Everyone is benefited by an intelligent, economical and progressive public policy and the improvement of the roadsides is important." He also stated, "that the maximum in comfort and attractiveness cannot be obtained for the traveling public without the mutual improvement of both roadways and roadsides is obvious, and in this respect, roadside development plays a most important part."

Bennett recommended that in order to achieve these objectives that "the best procedure at the present time appears to be the employment (in every highway department) of landscape foresters or men who not only have training and experience in landscape design and civil engineering, but who also have training and experience of a practical nature involving the actual planting and maintenance of trees and vegetation."

During this same period, the Parkway Commission of Westchester County, N. Y., developed a system of roads that are today an integral part of the countryside. These parkways continue to handle tremendous volumes of traffic as well as bringing delight and comfort to thousands of daily users. The abutting property owners also have found that locations adjacent to these highways have been desirable sections in which to reside. Such work is evident in other sections of the country and may be found in the Mount Vernon Memorial Highway along the Potomac River. The thoughtful consideration of making highway systems an integral part of the landscape was started by pioneers who gave superb examples that are still being followed.

On January 1, 1926, the Connecticut State Highway Department started its first organized landscape work with the employment of a technically-trained engineer-forester. At that time, an informal beginning in Connecticut consisted mostly of planting trees, careful maintenance of existing trees, and the conservation of natural vegetation. After enactment of laws giving the Highway Department authority to carry out this type of work, a preliminary landscape development unit was organized on July 1,

1927. The responsibilities for all vegetative maintenance within the roadsides of State highways were turned over to this unit. During the years that followed, a great deal of effort was placed on improving the roadsides and intersection areas, the continued planting of appropriate shade trees, and the general enhancement of the highway system. At that time, it was known more or less as beautification, or "window dressing" which brought to the attention of the public the values of aesthetics.

Numerous other States also formed units within their departments, and trained personnel were appointed to carry out the objectives of roadside improvement or roadside development. This became, therefore, a national feature and the Highway Research Board and the American Association of State Highway Officials recognized the importance of these activities. Representatives met in the early 1930's and formulated and published a definition of roadside development, which is still appropriate: "Roadside development must conserve, enhance and effectively display the natural beauty of the landscape through which the highway passes, as well as provide maximum safety, utility, economy, and recreation facilities by means of proper location, design, construction and maintenance of the highway."

During these early years of organization, the practical aspects of the establishment, maintenance and control of vegetation were considered the principal functional matters. Many efficiencies and economic practices with materials and equipment have been developed by this group that now are recognized as standard performance. The development of the method of hydraulic seeding and fertilizing for turf establishment is just one example of the efficient methods that has been successfully accomplished. Today establishment of turf cover for erosion control is possible at one-third pre-World War II costs for the same unit of measurement, and under the most adverse soil conditions in very rugged terrain. This, and other important features, is the result of landscape engineers working collaboratively in a highway organization and cooperating with private industry.

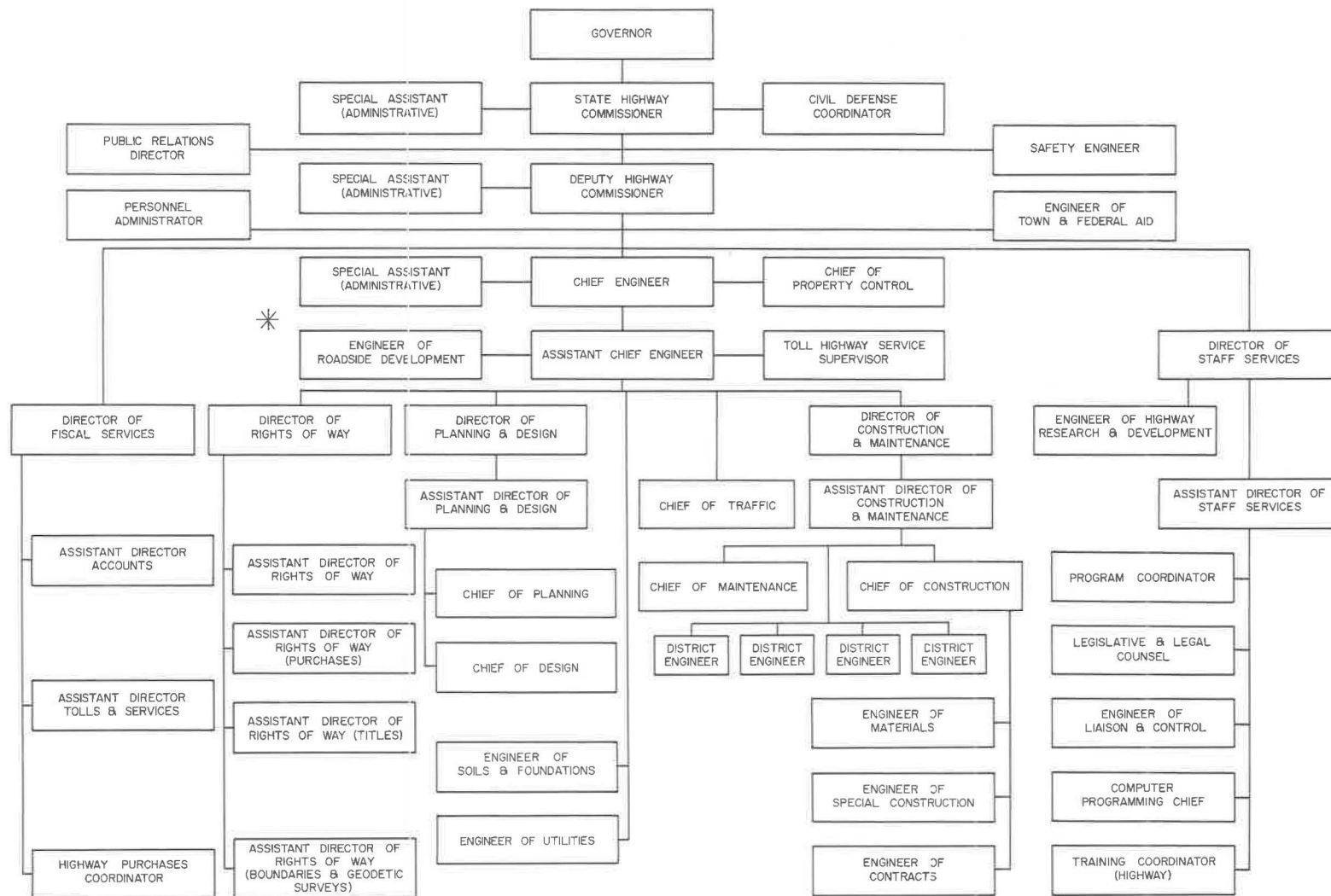
In the early 1940's, during World War II years, with more and more attention being given to the roadsides as an integral part of highway systems, the definition of the "complete highway" was formulated. This is one that embodies safety, utility, economy of operation, and beauty for the service of transportation. Today, work with such factors in the programs on the tremendous system of Interstate and Defense highways reflects on what the "complete highway" must be. These are but a few examples of the beginnings of roadside development and the importance of trained landscape engineers in a highway organization.

Education and communication have been important factors in the work of landscape development. Last October, the Ohio Roadside Development Short Course held its twenty-first meeting. The Short Course is one of the most important contributions to the nation's road system, because it brings together so many interested and well-informed people with appropriate exchange of improved methods and ideas. This organized effort has come of age and the Short Course is now an annual highlight.

It also has inspired work of a similar nature in other sections of the country—meetings with important, valuable, pertinent and educational subjects on the agenda from which the highway administrator and the highway user benefit.

The role of the landscape engineering staff is becoming more and more important to the highway administrator, the man responsible for the complete operation of the highway system for the service of transportation. The staff in that position must be versatile, capable, and familiar with the many intricate items essential to the activities in such an organization. A few illustrations and examples are cited as follows:

1. Planning, location, and design of highways.
2. Construction activities.
3. Safety factors.
4. Maintenance techniques.
5. Conservation of existing landscape features, land values, and historical objects and sites.
6. Planting and its functional as well as aesthetic values.
7. Fiscal and business features.
8. Public relations and all the ramifications that are required to serve effectively



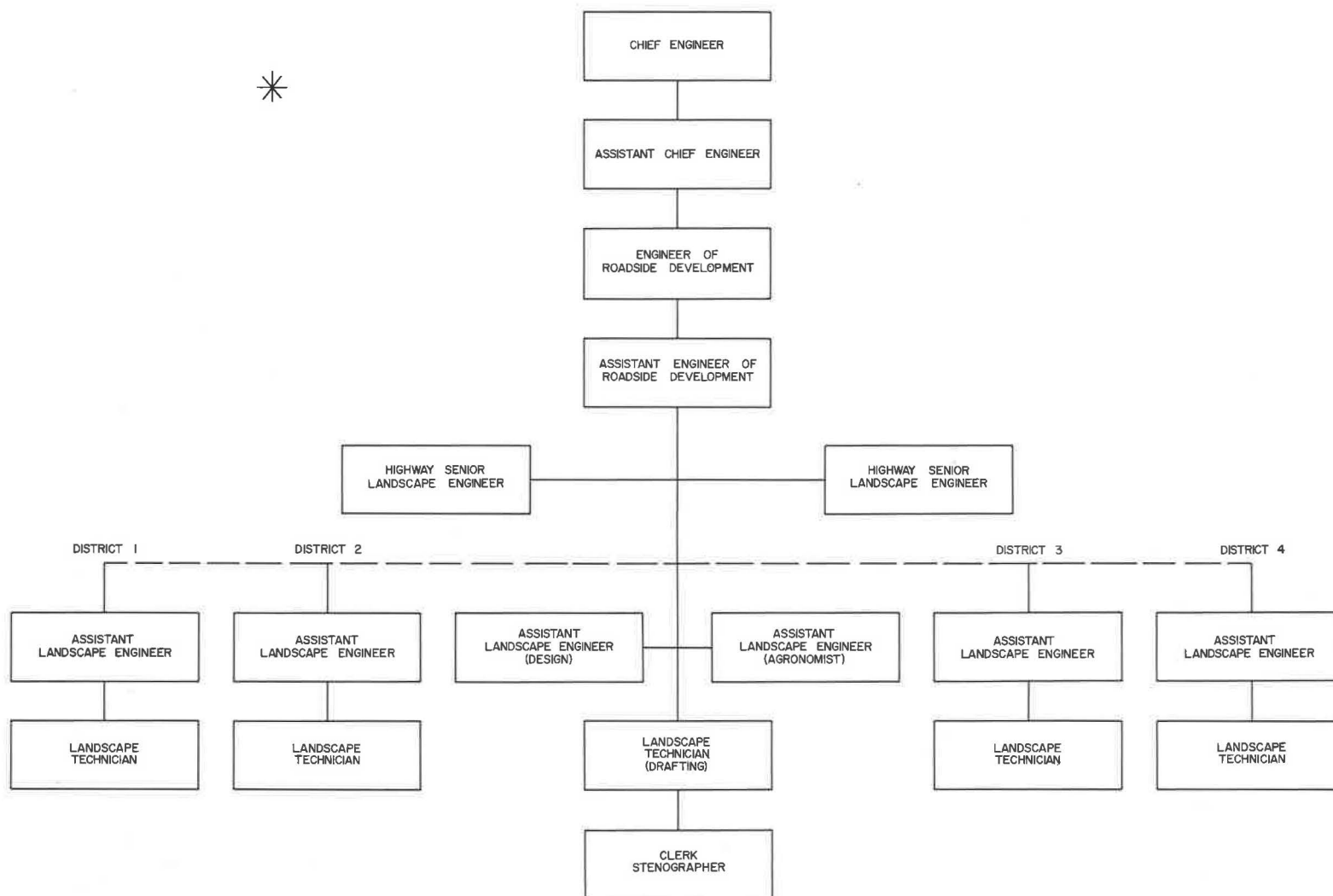


Figure 1. Organization chart for Connecticut State Highway Department and details for Roadside Development.

the highway user, deal with the abutting property owners, and carry on complete communications with other State agencies and public organizations.

At the meeting of the Operating Committee on Roadside Development of the American Association of State Highway Officials in July of 1960, various objectives were formulated. It was considered, first and foremost, necessary to bring to the attention of every highway administrator, the importance of roadside development (landscape development) as an integral part of each and every highway organization. At the committee meetings held in Detroit in 1960, a theme was developed that would incorporate trained personnel into every organization to work collaboratively with the civil engineers and other personnel to develop highways. Many of the States had organizations listed under maintenance; others under design; and one or two had the units in their proper category. After careful study the location of these landscape units was recommended to be placed near a top administrative official in the highway organization to permit collaborative work with the planning engineer, the design engineer, the construction engineer and the maintenance engineer. Each of these engineers, responsible for separate phases of highway activities, could benefit by the technical qualifications of a landscape engineer. Also, at that time, a check list was sent to every highway administrator and suggested organizational charts were issued. At this time appropriate recognition has been given in numerous States. Many have formed such units; others have increased the responsibilities of the landscape units; and in several others, who had appropriate organizations, the units have been more completely staffed by competent, technically-trained personnel with salaries adjusted and commensurate with the responsibilities of their positions.

Such reports indicate progress. However, this progress can be hindered unless competent, technically-trained personnel are found to staff such units within a highway organization. It is essential, in order to benefit each and every highway administrator, that this personnel be versatile and have an adequate educational background.

Figure 1 is a result of a national survey, which has been put into effect in the Connecticut Highway Department. It illustrates where the landscape engineer, with his staff, may work most effectively in a highway organization to carry on the many and varied activities required. The position has been placed where it is an arm of the chief engineer, an important staff unit with prestige and with a free flow of communications to all other segments of the department--planning design, construction and maintenance, as well as public relations and all the other sections necessary to administer the intricate operations of a highway organization. There are direct communications between the headquarter's office and the field personnel connected with roadside development. In turn, these men are in close contact with all the operating units on the district level. Now, more than ever, there is complete collaboration among all units of the department. Men trained in landscape engineering are actively participating from the inception of the projects, and they are carrying through into maintenance operations.

This indicates that the landscape engineer is receiving deserved recognition, and some progress is being made. However, there is still a long road ahead and it will be necessary to continue to try to convince the top officials of every highway organization that such units are important and essential parts of every department. No matter how dedicatedly and devotedly every man in landscape work serves his State and Nation, it is still not enough. Action, and the results of that action, cannot be achieved until proper authority and prestige is given the landscape engineer. The top official in each highway department must be made aware of the total values of landscape engineering.

A concerted and vigorous effort will be made during 1963 for more progress and recognition of the landscape engineer by every top highway official. In order to develop the highway system, through both urban and rural areas, with safety, utility, economy and beauty, it is necessary that the landscape engineer be an active part of every highway organization, working collaboratively with every other segment. With such personnel the responsible highway administrator may develop a system of roads that will be a credit to the Nation.