

A SURVEY OF ROADSIDE DEVELOPMENT

By

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The landscape development of the highway which is generally termed roadside improvement has passed through the beautification state and has now entered upon a permanent phase involving a logical and lasting improvement of the right of way. The early efforts of a few pioneer States have grown into a nation-wide roadside improvement program as the result of federal interest and legislation.

The public support which made this possible has begun to develop a more definite and intelligent appreciation of the practical benefits to be received from well organized roadside improvement planning. The public is beginning to understand that it is not a problem of artificial beautification, but one of natural improvement of the highway right of way, as a functional part of its surroundings.

With the initiation of the public works highway emergency construction program in 1933, the responsibility for roadside accomplishment was definitely placed in the hands of the technical agencies of the States engaged in the administration of highway work. During the recent emergency programs, the several State highway departments have been gradually developing organizations to handle work of this character effectively, and have been testing possible methods and administrative practices. The progress of the nation-wide movement demonstrates the possibilities of organized effort when directed toward roadside improvement objectives.

In the 1935 annual report of the American Association of State Highway Officials the Roadside Planning and Development Committee reports that roadside improvement has now approached its proper place in all the State highway programs. In support of this contention considerable evidence is contained in the February, 1936, number of the "The Roadside Bulletin" published by the National Roadside Council. This attractive publication summarizes very effectively the recent accomplishments of the various States in the primary objective of "fitting the highway into the landscape". Also the July, 1936, copy of "American Highways", published quarterly by the American Association of State Highway Officials, contains a report of progress as represented in a comprehensive engineering survey of "Roadside Development" prepared from data collected by Mr. Luther M. Keith, Director of Roadside Development of Connecticut, by Wilfred Owen, Research Assistant, Highway Research Board.

There is no doubt that the experience of each State conducting a roadside improvement program will be very useful for comparison among adjoining States. Each State undoubtedly has made some contribution to this new movement, and the advantages of exchanging information are not likely to be limited to any one phase of the roadside improvement problem. The interchange and assembly of factual data on specific problems should be mutually helpful. The collection and assembly of detailed factual information is one of the definite purposes of the Highway Research Board, and the general distribution of compilations of this kind should be particularly valuable in the future programming of roadside improvement funds.

Perhaps at this point it would be well to outline a few of the larger or more general problems of highway policy which apply to roadside improvement. From an administrative point of view, a typical roadside program may, for convenience, be divided into:

1. Preparation of the state-wide program
2. Making field surveys and plans
3. Execution of the work

Program - A well balanced program is of course desirable in the expenditure of funds for object lesson purposes (as in the case with roadside improvement work at this time). The projects should be distributed geographically over the State with the definite idea in mind that in so far as possible each division or district engineer of the State Highway Department shall have a share in the responsibility for some particular portion or type of roadside work.

A good distribution as to type of projects as determined by their most prominent features should also be aimed for; i. e. town or city approach (formal) type, rural (informal) roadside type, soil erosion type, natural snow fence type, roadside park or overlook type, and so on, as the local conditions within each State may indicate.

Each of the general types of roadside treatment may also be divided into two kinds, according to the relative degree and cost of the work involved. The "intensive" or concentrated type of project is, of course, self-explanatory, as demonstrated by an expensive city approach improvement. The "extensive" or opposite type of work pertains to roadside improvement in which large areas are covered with relatively slight expenditure per unit of length. The "extensive" type of roadside is the typical rural roadside where the primary aim is to fit the highway into the surroundings, the merging area to include or take in all that which is visible to the driver.

From the landscape architectural standpoint, both the intensive and the extensive types may be further subdivided into "formal", "informal", and "conventional" (or transition) types of landscape design - i. e. the formal row plantings at city entrances, the informal groups and natural masses along the countryside, and the transition areas between the formal and the informal called the "conventional", in which the row planting gives way gradually and not suddenly to the irregular groups of trees of the rural roadside. This is comparable to the straight road in highway location as contrasted with the curved highway, the spiral easements in the curves being the "transitions" in this case.

A well-balanced program should also aim to distribute the roadside work over both old and new highway constructions. At the beginning of the emergency highway programs, the majority of the earlier roadside improvement projects were initiated by the States in connection with older construction. The demonstration value of more recent work of this character is indicated in the present trend toward the adoption by several States of the basic features of landscaping as an integral part of new highway construction. The practical economy of integrating as much as possible the non-seasonal items of work in regular highway contracts is being demonstrated in a few of the States. The inclusion of landscape grading, topsoiling and possible seeding on all new construction mileage as a highway policy is necessary if the highway system of a State is to render fullest service to the public. After the non-seasonal stages of the work leading up to the final planting have been performed, the seasonal operations of planting (and seeding) may then be best performed as a separate landscape planting contract. Even where the force account method is in use, the administrative division of operations into logical sequence and separation of the non-seasonal activities from those strictly seasonal in character will make for more effective administration of the highway programs.

For object lesson purposes then, a comprehensive program should be carefully balanced as to:

1. Geographic distribution
2. Featured types of projects
3. Relative costs per unit length
4. Distribution over old and new construction
5. Season and non-seasonal character of the work

Surveys and Plans - A general reconnaissance over each district or division of a State should be made in collaboration with the engineer in charge of the respective division for the purpose of setting up a tentative number of alternate projects from which a final selection would be made of those projects to be included in the roadside program.

Preliminary considerations concerning each project, such as the type of work to be featured, the intensity of the treatment on the basis of unit cost, the length of the project to be set up, and the relative possibilities of the project for development, should be analyzed and a priority of work tentatively determined and established so as to assure the selection of the most satisfactory project locations, all factors considered. A preliminary survey is then begun for those projects finally selected for the program.

Every possible consideration should be given to the matter of simplifying the plan and survey work so that the most practical and economical methods may be employed in the assembly of the necessary data. Station controls should first be established as a base line. Where the roadside work is in conjunction with regular highway construction as a part of the original contract, the engineer's reference stakes and plans may be used. If, however, the landscape construction work is a separate contract on an old highway, it is generally necessary for the field man to establish approximate controls on the ground. A motor vehicle odometer may be found convenient and sufficiently accurate for this purpose, marking the surfacing at regular intervals as desired. A diagrammatic or "graphic" chart, combining approved symbols, may be found satisfactory for use in connection with certain types of projects, such as the typical rural type where the work is not intensive in character.

Typical landscape sections and brief design notes on the plan sheets should show the relations of existing conditions along the roadside to the work proposed. Each item of work should be justified in the recorded plans. The peculiar conditions along a project which may affect landscape considerations should be indicated on the plan sheets and brief reasons given for each indicated proposal.

Execution of the Work - The work may be handled either by contract or force account, or by a combination of the two methods. Experience indicates that the basic stages of landscape work leading up to the final planting can be most economically handled as an incidental part of the regular highway contract; especially such items as landscape grading, slope rounding and transitions, topsoiling, conservation of trees and volunteer vegetation, soil preparation, and similar non-seasonal operations. The final planting, and possible seeding, in connection with comprehensive improvement projects, can best be handled separately as a special landscape planting contract after the general highway contract has been completed. It is believed desirable to segregate non-seasonal from seasonal activities for convenience in administering work of this character.

For the sake of economy and quality in the development of roadsides, it has proved desirable that landscape considerations be analyzed as far as possible before highway locations are made rather than after construction is completed. Under such a policy, it has been demonstrated

that many pleasing landscape features may be coordinated in the original design and integrated with the regular construction of a highway at little if any additional cost. The grading, topsoiling, and seeding of all new construction mileage should be a regular policy as soon as possible.

It has been found that the natural approach to roadside problems wherein the work is modified to fit various local conditions is more pleasing than the mechanical or rule of thumb standardized cross-section which make no allowance for varying conditions. Variation in cross-section is the essence of roadside charm and natural expression of highway character, in combination with ground cover planting. The streamlining of the cross-section of the roadway is known to be effective as a means of reducing soil erosion and the formation of snow drifts along highways. The typical rounding of slope intersections is now considered standard highway practice.

The preparation and introduction of landscape specification items in connection with regular highway construction contracts at an early date is held to be desirable especially for such non-seasonal or partially non-seasonal operations as: selective removal of trees, stripping and storing of topsoil, rounding of slopes, obliteration of old roads, roadside cleanup, replacing topsoil, furnishing and placing loamy topsoil, cutting, lifting and placing sod, seeding, tree well construction and tree root protection.

Planting should preferably be done as a separate contract at the proper season. The proper timing of planting operations is vitally important and cannot be overemphasized because of the tendency to plant too late in the season, with consequent unnecessary plant losses. Coordination of the schedules of operations should be carefully worked out so as to give the plant material every opportunity to live and survive.

A careful check of nursery supplies of desired plant stock is emphasized because of the frequent failures in obtaining proper stock. The present specification in use for the purchase of plant materials is recognized as somewhat unsatisfactory. Revision of this specification should be undertaken with the view of bringing it into harmony with latest practice, and a careful review of plant material specifications in collaboration with other organizations concerned should make it possible to submit an approved draft to the proper committee for appropriate action. Plant material specifications, like timber specifications, have been in a chaotic state for many years because of the inherent difficulties in securing a reasonable uniformity in a natural product subject to little or practically no control in the making. In cooperation with the various agencies interested in the production and use of trees and plants, the Committee could work out a method of grading plant material which will eliminate much of the confusion which exists and assure an increased use of better quality plants in roadside work.

In a similar way there is indicated a need for some reasonable uniformity in the units of measurement employed in connection with landscape operations. So many kinds of measurement make it almost impossible to compare costs of work in the different States. Instead of using acres in one case and square yards, square feet, or what have you in another, it is suggested that 1,000 sq. ft. units of area be adopted as far as possible. The decimal system has the merits of simplicity and convenience, because it fits the 50 and 100 ft. stationing so universally used in highway construction operations. Clearing, grubbing, topsoiling, seeding, sodding, roadside cleanup and so on, might utilize such a unit of measurement to advantage.

The research committees have many practical problems before them and have the opportunity of making a generous contribution to the organization of landscape objectives, the organization of programs, the organization of roadside projects, the organization of the administrative and field personnel to design and execute the work, the organization of standards and practices, and the organization of general policies as guides for future activities. There is a compelling need for a paralleling administrative advance as well as a technical engineering advance on a functional basis.

The landscape development of highways needs an organized method of approach that will make it possible to improve a large amount of roadside mileage at a reasonable cost. Properly conceived and designed, with a well-integrated and coordinated continuing policy of highway administration, construction, maintenance, and operation, the landscape development of highways can contribute its economic share to improving the quality of the national investment in transportation facilities. It will also mean increased pleasure and safety for the motorist, and at the same time furnish a tremendous amount of economic employment.