

REPORT OF COMMITTEE ON ROADSIDE DEVELOPMENT

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Today, as never before, our horizons are limitless. War has encompassed the world. While we are working for early ending of hostilities, we are planning for complete, worldwide, and permanent peace. Plans and preparation to take care of postwar problems and activities are now in the making, in advance of the time they will be needed; each project so designed that it will be complete in all details. One of the major parts of this postwar program will be highways planned for both permanency and utility, or what might be termed *COMPLETE HIGHWAYS*

The Committee on Roadside Development believes that the design of highways should be built-around the four basic qualities of utility, safety, beauty, and economy. Research and past experience have demonstrated that proven landscape or roadside development practices contribute to each of these qualities. This year we are focusing attention on basic principles of landscape design and practice which should be incorporated in postwar plans for all highway construction. The many interrelated factors to be considered in the building of a complete highway may be combined under four basic requirements

UTILITY is most important, for unless a highway is serving completely in a useful capacity, its value is limited. In the broader sense, utility means service, and as such includes provision for the handling of all types of traffic, with adequate safety-turnouts, waysides, parking facilities for school and commercial buses, service areas for the distribution of mail, gasoline, milk, and farm products, as well as elements that result in the enhancement of land values. Complete highway service and enhanced land values go together

SAFETY means orderly movement of vehicular and pedestrian traffic. The *complete highway* design should eliminate present and potential traffic hazards by keeping sight distance open on curves and at intersections, by flattening slopes so that traffic may leave the traveled way quickly and safely in emergen-

cies, and by preventing erosion from forming gullies or deepening ditches into veritable traps for motor vehicles. These and other hazards may be avoided by demonstrated roadside development methods

BEAUTY, an essential part of the *complete highway*, requires the harmonious integration of engineering, architectural, and landscape techniques. Conservation of stream shores, fine trees, weathered rock ledges, and similar natural features are essential to the attainment of beauty in the finished highway. A well-located highway with a streamlined, erosion-proof cross-section, and with well-designed structures in relation, has pleasing and long-lasting qualities which appeal to both the land owner and the motoring public

ECONOMY is the quality of providing maximum vehicular and driver service combined with safe design and pleasing appearance, at relatively low construction and maintenance costs. Since the unit costs of annual highway maintenance may be decreased through the integration of the basic principles of landscape design and practice, it is obvious that developed roadsides are an economy.

In referring to the *complete highway*, attention is not focused on the superhighway, the freeway, or the parkway, for the same basic qualities should be integrated into the design and construction of every road, whether it be local, county, state, inter-regional, or international.

The Committee's full report endeavors to answer the following questions

(1) Is it necessary to integrate landscape principles with reconnaissance and location in order to produce the *complete highway*? If so, how does this affect design, right-of-way, border control, and wayside development?

(2) What roadside practices should be integrated with initial construction of the *complete highway*, and how can this integration be best accomplished? How does the integration of landscape principles and practices in initial highway location and construction affect maintenance of the *complete highway*?

(3) What is the best way to "sell" the

¹ For the full report see *Roadside Development, 1948*, Highway Research Board.

taxpayer on the vital part that the developed roadside contributes to the construction and maintenance of the *complete highway*? How can we keep the public informed about the progress being made toward complete highway construction with all parts planned in harmony?

The following brief answers are summarized from the Committee report:

(1) It is necessary to integrate roadside principles in the production of *complete highways*. Basic landscape principles, to be fully effective and economically practicable, must

of soil, and of plant indicator types as revealed on airmaps by geologic formations and by existing vegetation, will aid in avoiding earth slides. The relation of the road to existing property improvements as clearly shown on aerial maps is also an aid in the determination of the right-of-way requirements and the extent of protective border control needed. The Committee on Roadside Development urges the use of aerial survey methods in order that landscape principles may be more completely integrated in the planned development of *complete highways*.

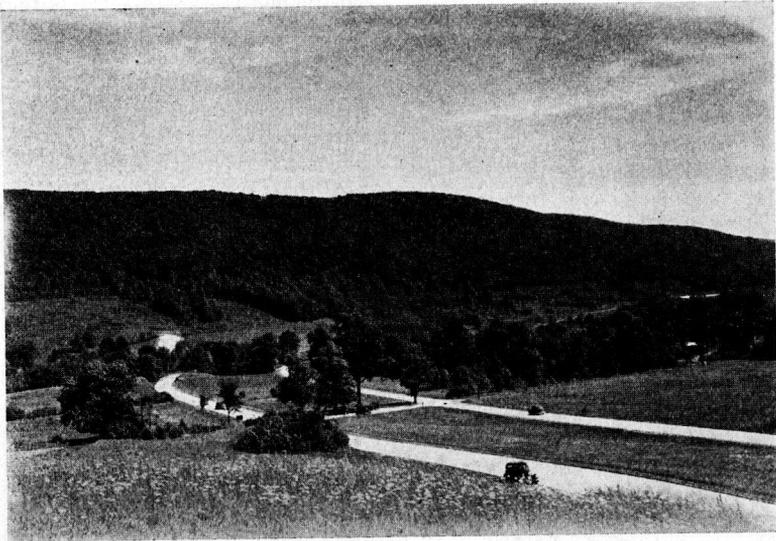


Figure 1. Integration of landscape principles as a part of complete highway development has been tried on a limited number of projects of advanced design. Landscape values should be considered in every road-building project, whether a limited-access highway or a secondary county road or city street.—Courtesy Public Roads Administration.

be applied throughout the several stages of highway development beginning with reconnaissance and route location. Aerial mapping with the new and improved equipment developed for war purposes will greatly facilitate this integration process. Not only can alternate highway routes be examined expeditiously, and the best route selected by aerial observation and mapping methods, but the highway right-of-way and sites for wayside developments can be systematically selected and acquired, in advance of construction.

These modern mapping methods will facilitate the conservation of woodlands, stream shores, and other topographic features during highway construction. Study of topography,

(2) While integration of landscape principles as a part of *complete highway* development has been tried on but relatively few projects of advanced design, enough has been done to demonstrate the value of such integration. Well-located highways with streamlined slopes protected by vegetation are not subject to erosion and associated drainage troubles. Flat slopes of the streamlined cross-section eliminate the need for guard-rail, reduce snowdrifting, and facilitate economical machine mowing and snow control. These modern measures have merged all parts together in construction and have decreased costs of maintenance wherever they have been effectively applied.

(3) The Committee on Roadside Develop-

ment advocates a progressively planned program to keep the taxpaying public in each State accurately informed about all these matters. Dramatize the logic, the extra service, the economy, the safety, and the personal satisfactions of complete highway design by:

Practical demonstrations and examples of *complete highway* development in the field, and by

News stories and illustrations of savings in man and machine hours in construction and maintenance of highways.

To the responsible public officials and administrators of highway programs, the Committee points out the vital need for:

1. Employment of landscape engineers with better technical training and higher educational qualifications; and
2. Better in-service training of field and office personnel.

It is now clear, after a decade of trial and error, that roadside development cannot be effective until landscape principles and roadside practices have been made an integral part of the *complete highway* design, not something applied as a decorative afterthought non-essential to the road as a utility. The time is past for resorting to piecemeal corrective measures at the end of construction or during maintenance operations. Piecemeal measures have been too costly on projects where no provision was made to incorporate roadside practices with initial construction.

The *complete highway* will be the product of a team of technicians with special training and experience in the engineering, soil science, architectural and landscape design techniques which have been developed, and to some degree perfected, on parkways and freeways in metropolitan areas. These outstanding examples of urban traffic facilities point the way for a wider adaptation of the principles of the *complete*

highway throughout the United States. While all post-war highways may not be parkways or freeways, they can be planned as advanced designs to utilize the important principles that obtain in parkway design.

The most effective way to include improved landscape principles in the integration of all phases of highway development lies in the education and training of the landscape engineer. Higher qualifications and standards of performance, and better in-service training are needed. The problem ahead requires not only a well coordinated landscape personnel, but, in a larger measure, an overall conception of the means and ends that we are looking for in the complete highway—a coordination of planning, construction, maintenance and research.

Preparing for the Post-War Period

We all look for a greatly increased volume of road building after the war, not only of the freeway type, but of every class of highway and road all over the country. Like most of the problems we will have to meet after the war, this one consists of details which cannot be definitely foreseen and decided upon, but we must lay down certain broad principles in advance.

Ten years or more ago, only parkways were planned with landscape architectural principles in mind, before another ten years have passed, if present trends continue, these values will be considered in road-building projects ranging from inter-regional highways to secondary county roads and local streets.

The year ahead is, therefore, one of crucial importance in the planning of highway programs. There is much that should and must be done in the field of highway planning and construction which has a direct bearing upon roadside development values and plans. One long-term objective must constantly be before us: The *complete highway*.