# DESIGN OF RURAL HIGHWAY LANDSCAPING

Oliver A. Deakin
Parkway and Landscape Engineer
New Jersey State Highway Department

In the location, design and construction of the new Interstate and Defense Highway System, many of the 41,000 miles of these highways will pass through undisturbed wooded areas, across fertile farm lands and along attractive rivers and lakes as they criss-cross the rural countryside of the United States.

Every effort should be made to apply all of the known principles of good landscape design to the development of the rural sections of these highways.

Statistics indicate that more and more people are spending a larger proportion of their lives traveling the highways of this country by motor vehicle. Consequently, the highway environment has a direct effect upon their way of thinking and standard of living. Motor vehicle registration in this country in 1957 was 67,135,546 according to the Bureau of Public Roads. Every day during 1957, about 650,000 persons in the United States started on a trip that involved being away from home overnight or going to a place at least 100 miles away. This information was disclosed by a report of the Census Bureau. Automobiles were used for 87 percent of all trips. The number of vehicles by the end of 1958 will approximate 68,398,000.

Many of the early park-roads are fine examples of rural highway landscaping. Roads within these park systems were located in such a manner as to fit the topography with the least disturbance and to provide the traveler with pleasing views in interesting sequence while guiding him safely to his destination.

During the period from 1922 to 1933 the application of landscape design principles and good engineering practice contributed to the location, design and construction of such outstanding highways as the controlled-access parkway system in Westchester County, the Long Island Parkway System and the Mount Vernon Memorial Highway in Virginia.

More recent examples of collaboration between the highway engineer and the landscape architect are the many fine miles of excellent National Parkways, such as the Blue Ridge, Natchez Trace, Foothills, Colonial, and Rock Creek and Potomac, that have been completed or are in the process of construction, and the proposed Federal-Aid Great River Road.

The Garden State Parkway and the Palisades Interstate Parkway are outstanding examples of two modern parkways completed more recently in New Jersey by the New Jersey State Highway Department, Palisades Interstate Park Commission, and the New Jersey Highway Authority. It has been said that the Garden State Parkway is a desirable prototype of the new interstate highway.

The landscape design of the rural sections of a modern highway is directly affected by the location of the new highway in relation to existing land use patterns, terrain, and natural landscape features.

The highway that follows a flowing curvilinear alignment consisting of a series of long flat curves connected by short tangents fits into the existing topography more easily. As a result, during construction it is possible to conserve more of the desirable natural landscape features, such as wooded areas, rock out crop-

pings, streams, and lake shores. Conservation of these same natural elements helps reduce the initial construction cost and ultimate maintenance expense. Areas on which the natural cover is retained are more economical to maintain than newly graded and seeded roadsides. Costly problems of soil erosion are reduced to a minimum by following this practice.

Figure 1. A flowing curvilinear highway alignment usually fits into the existing topography more easily. Conservation of existing tree growth creates a more interesting roadside which helps relieve the monotony of high-speed travel.

In many instances, the alignment of rural sections of the modern highway will pass through excellent native plant material that may be salvaged and moved economically to new locations as part of the over-all landscape treatment. Only plant material that is difficult to obtain from a commercial grower should be salvaged, because nursery grown stock is preferable.

The typical cross-section design adopted for interstate highways has a very important influence upon the utility, safety, beauty, and economy of the construction and maintenance of these highways. Desirable design standards are preferable to the use of minimum standards. Minimum design standards should be used only in special cases.

In rural sections of the Interstate System where acquisition is relatively cheap as compared with urban areas, wider rights-of-way should be acquired to allow for the design of a complete modern highway. The added space permits wide medians, adequate roadways, swale gutters, rounded intercepting ditches, drainage channels with 2:1 side slopes or flatter, flat rounded cut and fill slopes and protective buffer zone with attractive natural growth.

During acquisition of rights-of-way for these rural sections of controlled-

Figure 2. View of a fine stand of native mountain laurel preserved along N.J. Route 70 during construction. Such plant material may be salvaged and moved economically to new locations to help enhance the highway roadside.

access interstate routes, many sites for rest areas will be needed for the safety and convenience of the public. Adequate facilities for parking, drinking water, picnicking and sanitation should be provided. The maintenance cost of these areas is low in comparison with the service and safety rendered to each user. A design policy for "Safety Rest Areas Along the National System of Interstate and Defense Highways" was adopted April 30, 1958 by the American Association of State Highway Officials and the Bureau of Public Roads. Every effort should be made to select attractive sites for rest areas provided for the safety and enjoyment of the motoring public.

Functional roadside planting has many valuable uses in the design of the rural roadside landscape. Through long stretches of open country the planting of low growing trees, shade trees and pines add interest and relieve monotony. Well designed roadside plantings of vines, shrubs, and trees help stabilize high bridge approach fills. Large growing trees should be kept a minimum of 25 ft from edge of roadway pavement. Planting of native pines to serve as snow breaks has proven beneficial and economical in Minnesota and Wisconsin in controlling the drifting of snow as compared with erecting the usual slat-type snow fence. These same plantings help enhance the roadside and create interest through the open country.

At large interchanges, all native existing growth should be saved where possible. In these large areas, plant material may be used effectively to screen abutting commercial developments located along marginal roads. Planting for headlight glare reduction and traffic guidance on the main roadways and ramps increases safety and improves the appearance of the interchange. Slope plantings of vines and low growing plants reduce soil erosion and eliminate the need of frequent and costly mowings of grass.

Figure 3. US 130 in the vicinity of Heightstown, New Jersey where a well-designed roadside planting of native vines, shrubs, and trees helps stabilize this high bridge approach fill.

Cost of roadside planting through rural rolling country, with some vegetation left intact after construction, would be approximately $7,000 to $9,000 per mile. Where the highway passes through rougher terrain with high cuts and fills, erosion control planting and headlight glare screening would cost approximately $12,000 to $14,000 per mile. These figures will vary in different sections of the United States.

Landscape design of the rural highway, in order to be effective and complete, must begin with the location of the highway. Highway landscaping must be an integral part of the original highway concept.