

## LAND USE TREATMENT PLAN AS RELATED TO MAINTENANCE

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In every region of the United States, men and machines are engaged in the biggest construction program of all times—the development and improvement of a highway system that affects everyone.

Two quite obvious effects are these: highway facilities may be used for pleasure and business and they will have to be paid for. Less obvious effects are that these facilities must be maintained in order to continue in use and that this also must be paid for. It may be pointed out that the development of this vast system of highways requires vast acreages of land for rights-of-way—land that must be taken out of agricultural production or some other useful function. This same land must be maintained as part of the highway facility; generally, it has no other useful purpose. A large portion of these rights-of-way is required for the roadway—the pavement, median, shoulders and ditches. The remaining land is the roadside—the cuts, fills, and areas adjacent to them. Although the roadsides do not contribute directly to the movement of traffic, they are an integral part of the development of any traffic facility because they influence such factors as safety, insulation, rest and recreation, and aesthetics.

It can be shown by a few simple figures that the cost of roadside maintenance is a burden that increases with each newly completed or improved mile of road. According to a table published by the Bureau of Public Roads describing the status of the Federal-Aid Highway Program as of December 31, 1957, there were 38,263 mi of road work either programmed, advertised, or under contract (1). It is estimated that this mileage includes about 536,000 acres of roadsides. Six months later, June 30, 1958, the Bureau of Public Roads revealed that the Federal-Aid Highway Program totaled 51,800 mi. Of this mileage about 726,000 acres are in roadsides, reflecting an increase of 190,000 acres in roadside acquired during six months of Federal-Aid Program activity. By way of information, it is estimated that the 41,000 mi of the Interstate System of Highways include some 738,000 acres of roadsides. Thus, 93,000 mi of roads now programmed, advertised or under contract will involve more than  $1\frac{1}{2}$  million roadside acres. This is no small ranch, even by Texas standards.

Those who are actively engaged in highway maintenance work are well acquainted with the most up-to-date construction practices intended to simplify and reduce maintenance problems and costs. Undoubtedly, considerable knowledge of this work has been acquired through experience, observation, exchanging information on present day techniques and the use of modern equipment and newly developed materials. In the performance of this work, with regard to roadsides particularly, "know-how" on seeding, mulching, and other factors of slope stabilization and erosion control should be used, as should be proper machinery, herbicides and fertilizers for management of turf on shoulders, cuts and fills; and accepted principles of planting and selective cutting of vegetation for traffic safety, highway use, and roadside appearance should be applied. These and other factors of roadside maintenance have been the subjects of many papers and reports made available through the various offices and committees of the Highway Research Board. Much has been published in pro-

professional and trade magazines and journals; and much more learned by direct correspondence between the curious and the informed. Everyone involved is alert and eager to learn of additional or better methods of performing roadside maintenance to reduce costs and improve service.

In this connection, there are three devices in use today by an agency of the Federal Government that may be of value to other agencies or organizations responsible for the building and maintenance of roads.

Nearly 30 years ago, the National Park Service of the Department of the Interior began the design and development of a number of National Parkways in the Eastern United States. A National Parkway has as its principal feature a road intended and designed for noncommercial traffic, with full or partial control of access, located within a park or within a wide right-of-way of park-like character. These National Parkways are unique in that they require a right-of-way averaging from 800 to 1,000 ft in width for two fundamental purposes: to provide insulation and protection from the commercial development and nuisances that often infest and destroy ordinary highways, and to conserve the landscape and other values of the scenic corridor in which the parkway is located.

Assuming that a normal width of land is required for pavement, shoulders and ditches, it is apparent that most of the remainder of the right-of-way becomes roadside. These wide roadsides are developed by the National Park Service to display, as advantageously as possible, the existing or natural characteristics of the region traversed. The roadside is made a part of the pattern of forest and field, of agricultural practices and of the way of life of the people on the farms and in the communities nearby. Proper consideration is given to objects or areas of special interest or value; exhibiting such things as Indian mounds, historic or military sites, natural phenomena, or local and regional provincialisms.

Although a large part of these roadsides require special maintenance because of their special character, by far the greater portion is in cropland and needs only normal maintenance to preserve the rural scene and other existing conditions. Because of the many acres of cropland within wide rights-of-way, roadside maintenance is a chore of considerable proportion. More than this, the crops supported by these lands are of some importance to the livelihood of adjacent farmers from whom the rights-of-way were acquired.

The National Park Service pondered ways and means by which some of this cropland could be handled to yield a benefit to the farmer, retain scenic values so important to the parkways and at the same time reduce the costs of maintenance. Landscape architects, agronomists, foresters, and engineers who studied the matter came up with three devices.

The first of these devices is a "scenic easement." A rural scenic easement is an interest in or servitude over agricultural or forest land adjoining a parkway under which the owner of the land continues to own it and use it, but, for an agreed upon fee, surrenders his right to change the manner of use of his land. Such an easement does not permit the land to be used by the parkway for any purpose without the consent of the owner. It permits the owner to continue to cultivate and use the land for pasture or other normal farming pursuits, but restrains him from erecting billboards or from changing its manner of use, say from agricultural to residential or commercial. The intention of a rural scenic easement is to secure a strip of land to protect the scenic values of the parkway without taking valuable farm land out of production, and to retain the basic rural elements of cultivated field and well-tended pasture without adding to parkway maintenance costs. A case in point is the Blue Ridge Parkway extending for 477 mi through the Southern Highlands

of Virginia and North Carolina. To the 800-ft average width of rights-of-way have been added 177 scenic easements totaling 1,468 acres. Approximately 94 percent of this acreage is in grassland. The average annual cost per acre per year for maintaining grassland on the Parkway is \$4.50; thus, the scenic easement device saves the Parkway \$6,100 every year.

A second type of scenic easement could be an "urban scenic easement." This could be an interest in or servitude over land in urban areas, or future urban areas, under which the owner would surrender his right to use the land for purposes that would not be in keeping with the scenic or aesthetic character of the parkway. For example, he would not be permitted to use the land for outdoor advertising, junk yards, dumps, open excavations and quarries, cheap roadside businesses, or some industrial or commercial uses that might be associated with unpleasant odors or appearances. The purpose of such an easement could be to prevent the development of scenic nuisances rather than to stabilize the urban scene.

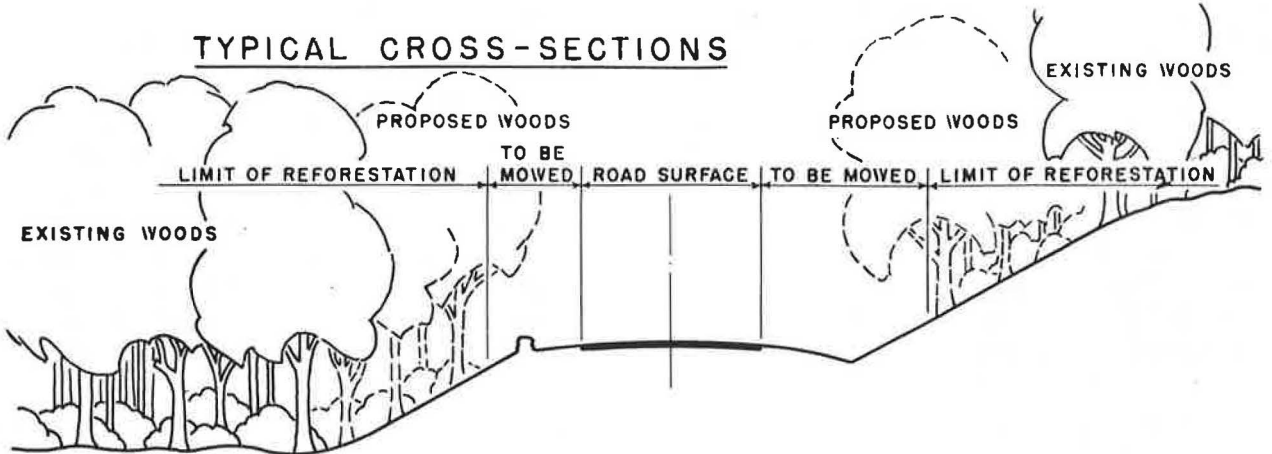
For roads other than national parkways—for county, state, or interstate road systems—the enactment of scenic easement laws may be well worth while as a means of effecting savings in roadside maintenance programs. This applies particularly to roads through urban areas where rights-of-way must be narrow because of high land values, but where it is desirable to stabilize existing conditions, protect roadside values and establish some control of access. A number of states have laws permitting the acquisition of scenic easements for specific roads; such as Virginia and North Carolina for the Blue Ridge Parkway; and Tennessee, Alabama, and Mississippi for the Natchez Trace Parkway. Apparently, only the State of Wisconsin has a scenic easement law that is general in nature.

A second device now employed by the National Park Service is the "Special Use Permit." This is a document, often with a plan attached, that describes the conditions permitting an abutting property owner to use a specified portion of the roadside right-of-way for agricultural purposes in conformance with specified land-use practices intended to maintain the values of the land. In this way, valuable farm land is fertilized, cropped, mowed, or forested, and kept in production for the benefit of the grantee of the permit. At the same time the desired character of the land at certain locations is perpetuated and roadside values are protected. The grantor of the permit not only is relieved of the cost of maintaining the land, but generally realizes a small fee from the farmer who is permitted to use the land. Again using the Blue Ridge Parkway as an example, in 1958 there were 4,628 acres of roadside under Special Use Permits. Of this acreage, 94 percent is in grassland. At an average annual cost per acre of \$4.50, Special Use Permits saved the Parkway \$19,600 in roadside maintenance costs in 1958.

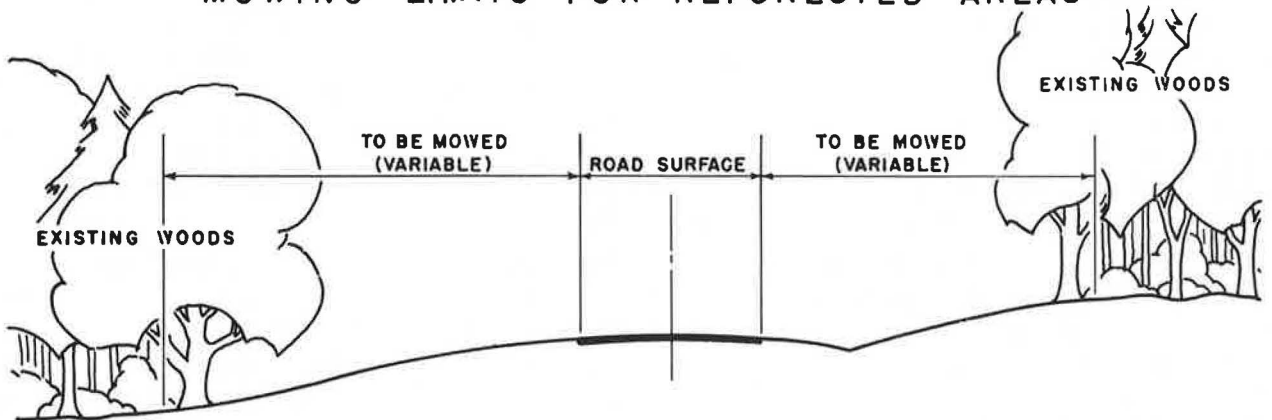
It is suggested that state or county laws authorizing special-use permits could be of value to those agencies responsible for the maintenance of road systems. This device could be particularly useful on county, state, or interstate roads where rights-of-way are generous and the nature of the countryside is essentially agricultural.

The third device conceived and used by the National Park Service is the Land Use Plan (Figs. 1 and 2). This is a set of drawings prepared by landscape architects and engineers of the Service, following the "as constructed" plans of the Bureau of Public Roads in those instances where the Bureau has acted as construction agent for the Service. As used on the Blue Ridge Parkway, these drawings show the alignment of the road and the location of all its improvements—ditches, drainageways, structures, walls and incidental roads. Rights-of-way lines are shown, and within and outside these boundaries the use of the land is described. Areas that are outside the rights-of-way but controlled by scenic easements are identi-

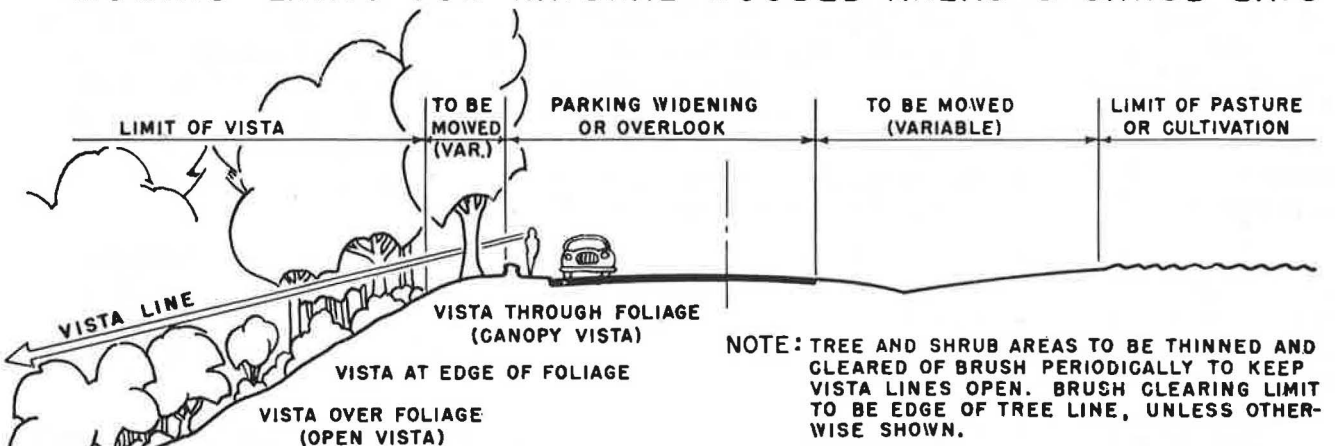
### TYPICAL CROSS-SECTIONS



### MOWING LIMITS FOR REFORESTED AREAS



### MOWING LIMITS FOR NATURAL WOODED AREAS & SHRUB BAYS

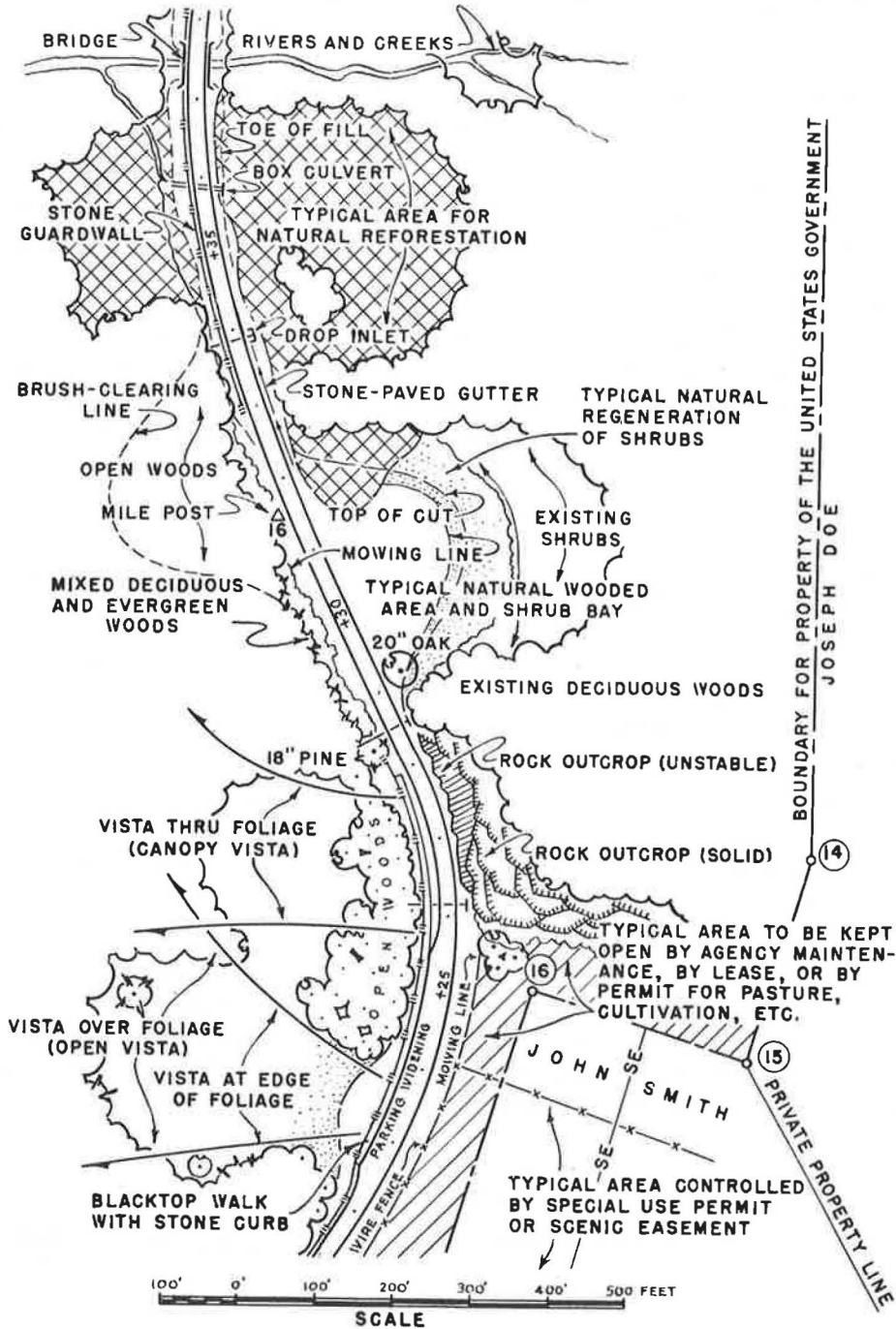


### MOWING AND CUTTING LIMITS FOR VISTAS AND LEASED AREAS



Figure 1.

**PLAN INTERPRETATION**



U. S. DEPARTMENT OF THE INTERIOR  
 NATIONAL PARK SERVICE  
 PORTION OF PROPOSED  
**ROADS AND TRAILS MAINTENANCE PLAN**

Figure 2.

fied on the drawing by dimension, owner's name, and kind of easement. Areas within the rights-of-way controlled by special use permit also are identified. Physical limits of permit areas are shown: fences, ditches, streams, edges of woods, faces of rock outcroppings, tops of cuts, toes of fills, etc. Within the defined limits, the land use is shown by symbol, such as reforestation, cropping, or pasturing. If under cultivation permit, the kind of crop is specified. Showing the permit number on the drawing aids maintenance personnel in relating the plan to the permit specifications for fertilization, erosion control, or other treatment, and for determining whether or not the lessee is complying with the requirements of the permit. Maintenance of the leased areas is the responsibility of the lessee. The land use plans also show types of vegetation, such as woods, shrub bays, and grass, and indicate the limits to which these types are to be allowed to regenerate or are to be contained. Some individual plants of outstanding size or character are located and identified. Vistas or other sites where the vegetation is to be given special management are clearly shown and the manner of treatment described. The plans should include all data that is considered to be of value to maintenance personnel in portraying the present and ultimate status of the roadsides. They should assist in helping to plan and program day-to-day and season-to-season practices so that maintenance operations may be regulated, simplified, and made less costly.

For the parkways administered by the National Park Service, land use plans are drawn to a scale of 1 in. = 100 ft. Lines are made fairly heavy and letters large. The plans are then reduced to  $\frac{1}{4}$  size and bound in sets by 10- to 15-mi sections of parkway. These reduced plans are still clearly legible and at the same time small enough so that they may be rolled up and carried in the pocket of the maintenance supervisor, maintenance foreman, or operator of a mowing machine. Through the use of the plans, less direct supervision is required, there is faster progress of the work to be done, and there is much less likelihood of error in the field.

Although there are no figures available to support the contention, the National Park Service believes that land use plans for the parkways have reduced maintenance costs, contributed to better and faster maintenance operations, and produced a more constant and attractive roadside picture.

Scenic easements, special use permits, and land use plans have been used successfully along the parkways administered by the National Park Service for nearly 30 years. There is every indication that they will continue in use. Although many of the problems of the parkways may be special in nature, it may well be that from the experiences of the Service with regard to roadside maintenance practices something of value may be found for roadways of other systems, whether they be county, state, or interstate.

#### REFERENCE

1. Public Roads, A Journal of Highway Research, Vol. 29, No. 12 (Feb. 1958).