

# Why Roadside Development?

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## WHAT ROADSIDE DEVELOPMENT IS

The modern highway was evolved from the railroad and yet is altogether different from a railroad.

The railroad from the beginning prohibited persons who live adjacent to it from entering railroad property. Steep cuts and fills and high wire fencing all had a part in this purpose.

The highway from the beginning was meant for people who lived and worked beside it. They could and still do enter most highways at any point. Good livable homes are situated along highways. The shacks are along the railroad.

This basic character of a highway means that, unlike railroad, the highway must fit into the countryside, be free from visible scars of construction, be well drained, be easily maintained with modern equipment, be completely protected from erosion, be provided with a reasonable amount of shade, and, above all, be capable of safe and convenient use by the public from fence to fence. In other words, a highway must be much more than a mere traveled way providing service for vehicles. It must also be safe and convenient for use by drivers. Roadside development is another word for all these things.

Full consideration of roadside development should be given in widening and resurfacing old and war-torn roads, and in building new highways. We should bear in mind that surface courses normally occupy about one-fourth of the width of useful right-of-way. This means that three-fourths of the width of land for highway purposes will be left unprotected against washing and gullyng and possible undermining of pavements unless tested roadside improvement practices are incorporated in the construction work. Every office and field employee in highway work, therefore, has a share in sound roadside development and can help in

seeing to it that the practical advantages and service benefits of roadside development are realized in highway construction and maintenance programs. To do this, we must cease to act as if roadbed and roadside were separate problems. We must take action to combine them in a single construction program.

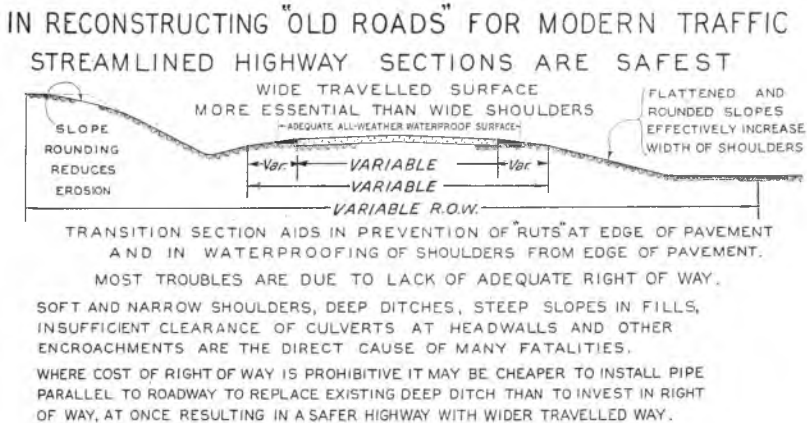


FIG. 1. In widening and resurfacing old and war-torn roads and in building new highways, roadbed and roadside are a single construction problem. (Photo by courtesy of Public Roads Administration.)

We know that the test of a sound highway building program is the ability of a county, city, or state safely to operate and maintain the system of roads and streets for which it is responsible. We know also that the objective of providing the public with all-year-round highway service calls for the soundest construction possible. Especially in times of blizzard and flood will hidden weaknesses in the highway structure be likely to show up and give trouble to the highway maintenance engineer. And, finally, we know that when highway builders pay more attention to the troubles of the maintenance engineer, and incorporate such experience in the plans for construction, we will have safer and more easily maintained highways. Unless roadside work is completed when the construction is turned over to maintenance, there is likely to be strain on the maintenance budget which may become excessive as the system of road mileage is increased.

What are some of the everyday difficulties of the highway maintenance engineer? How can costs of upkeep be kept down in local highway budgets? Why is it so vital that we give full consideration to roadside improvement in the initial stages of location and design, and have the basic work included in the plans and carried out as an integral part of construction?

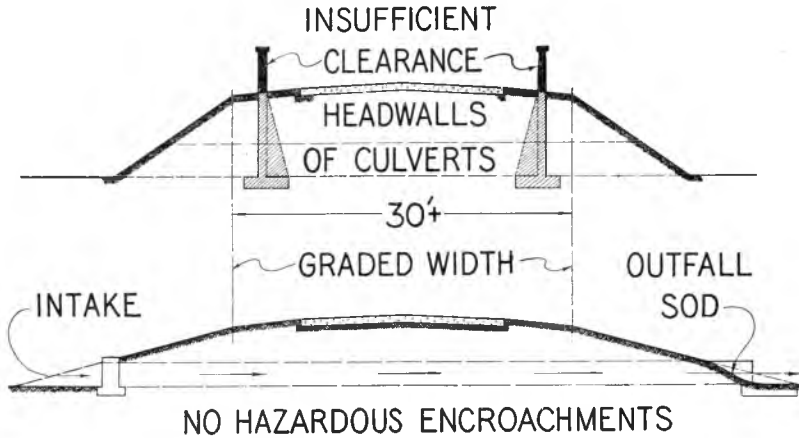


FIG. 2. Here is one way to improve highway safety on existing road mileage. (Photo by courtesy of Public Roads Administration.)

#### EROSION AND DRAINAGE—MAJOR MAINTENANCE PROBLEMS

We are all more or less familiar with the troubles of the maintenance engineer on the older sections of mileage making up the major portion of the road system under his care. The narrow cross section of our older roads with V-shaped ditches, steep slopes, and sharp edges at slope intersections was a natural carry over of railroad cross-section methods to early highway work. As a result today, the maintenance engineer is constantly trying to overcome: (1) sloughing of shoulders and side slopes and undermining and falling of fences at the tops of cuts; (2) plugging of pipes, clogging of culverts, and silting of ditches and drainage channels; and (3) hazards of projecting headwalls, guard rails, and other structures, and lack of pedestrian paths and footwalks. For erosion prevention and ease of maintenance, an improved cross-section has been developed with wide shoulders, rounded gutters, flattened slopes warped into the topography, and an adequate vegetative cover over all areas disturbed by construction.

#### FIVE IMPORTANT OBJECTIVES

Basic roadside improvement in new construction and reconstruction projects is the most effective and economical means of eliminating unnecessary erosion and drainage difficulties in highway maintenance. Furthermore, when carried out as an integral part of construction operations, sound roadside development:

1. Increases traffic safety by improvement in the cross-section and design of shoulders, gutters, and slopes, and of median areas of divided highways.

2. Provides needed traffic and driver services for the comfort and convenience of the public on areas off the traffic lanes by selection and development of sites for turnouts, scenic overlooks, and roadside parks.
3. Improves highway appearance, including architectural features of all structures and, by so doing, protects public investment in the highway as well as private and public investment in lands adjoining the highway.
4. Facilitates use of advanced types of construction equipment, thus eliminating much handwork and lowering unit costs of excavation operations.
5. Controls snow drifting on the highway and encourages use of power-operated mowing and snow-removal equipment, thereby reducing annual highway maintenance costs.

### COMPLETE HIGHWAY DEVELOPMENT

The objectives of highway safety, highway service, highway appearance, and highway construction and maintenance economy need to be given fullest consideration in the preliminary stages of highway location and design, and provisions need to be made for the inclusion of all basic

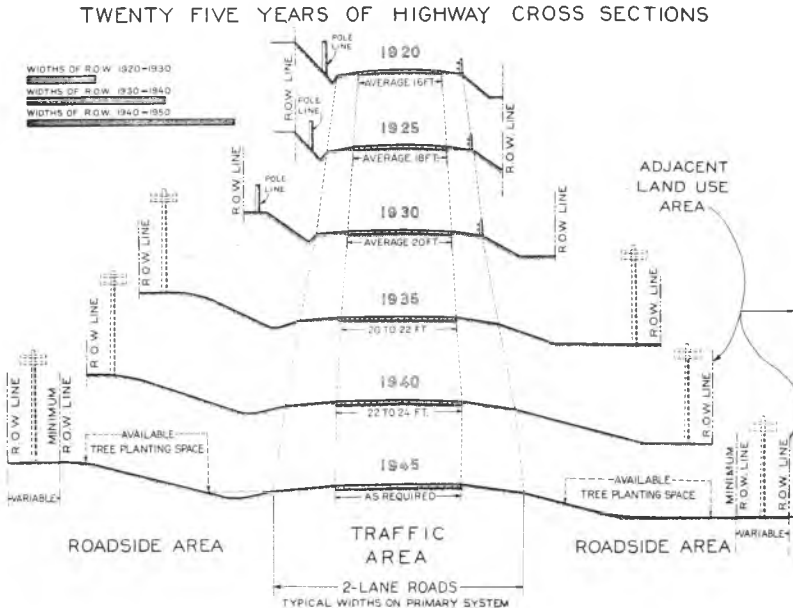


FIG. 3. Traffic surfaces cover only about one-fourth of the width of right-of-way on new primary highways. The other three-fourths is unsurfaced area subject to erosion unless tested roadside practices are specified and incorporated in the construction work. (Photo by courtesy of Public Roads Administration.)

work in the plans, specifications, and estimates for highway projects, if a complete highway improvement is to be attained at the lowest cost and turned over to the maintenance department intact. The coordination of roadbed and roadside construction and maintenance should result in even finer and more efficient highways than we have built in the past under separate operations. Both the highway organizations and the tax-paying public will benefit from a broadened policy of combined vehicle and driver services as economically justified by the amount and kind of traffic using them.

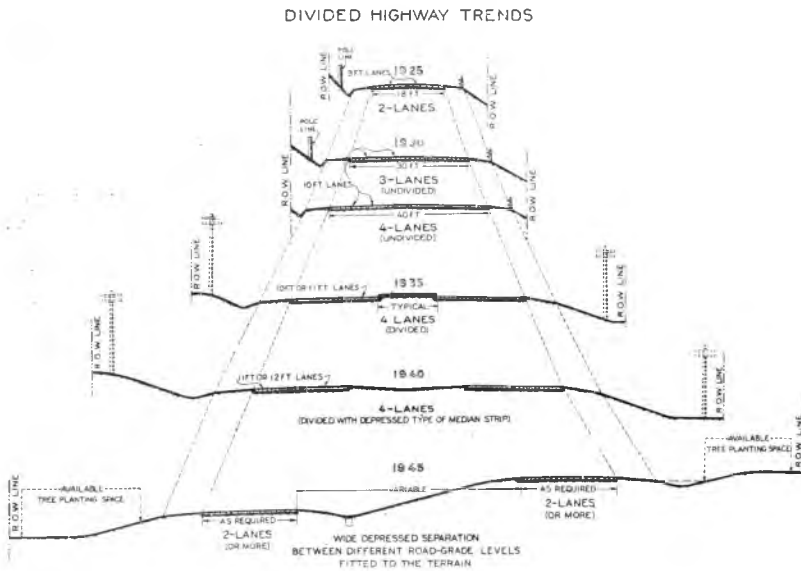


FIG. 4. Fullest flexibility in design of divided roadways by variation in width and form of separating median areas and in grading and treatment of roadside slopes will make travel safer and more interesting to the public. (Photo by courtesy of Public Roads Administration.)

### TEN BASIC CONSTRUCTION ITEMS

Experience has made it clear that the following ten basic construction items may be incorporated most effectively, and at lowest cost, as a "built-in" part of highway plans, specifications, and estimates:

1. Conservation and protection of major landscape features by adjustments in location before plans are prepared, including salvage of topsoil, sod, stone, and other local materials for use on the project. It is infinitely better when possible to preserve that which is available. Make the most of fine trees, strips of woodland, weathered rock outcrops, springs, shorelines, and natural sites suitable for wayside development.

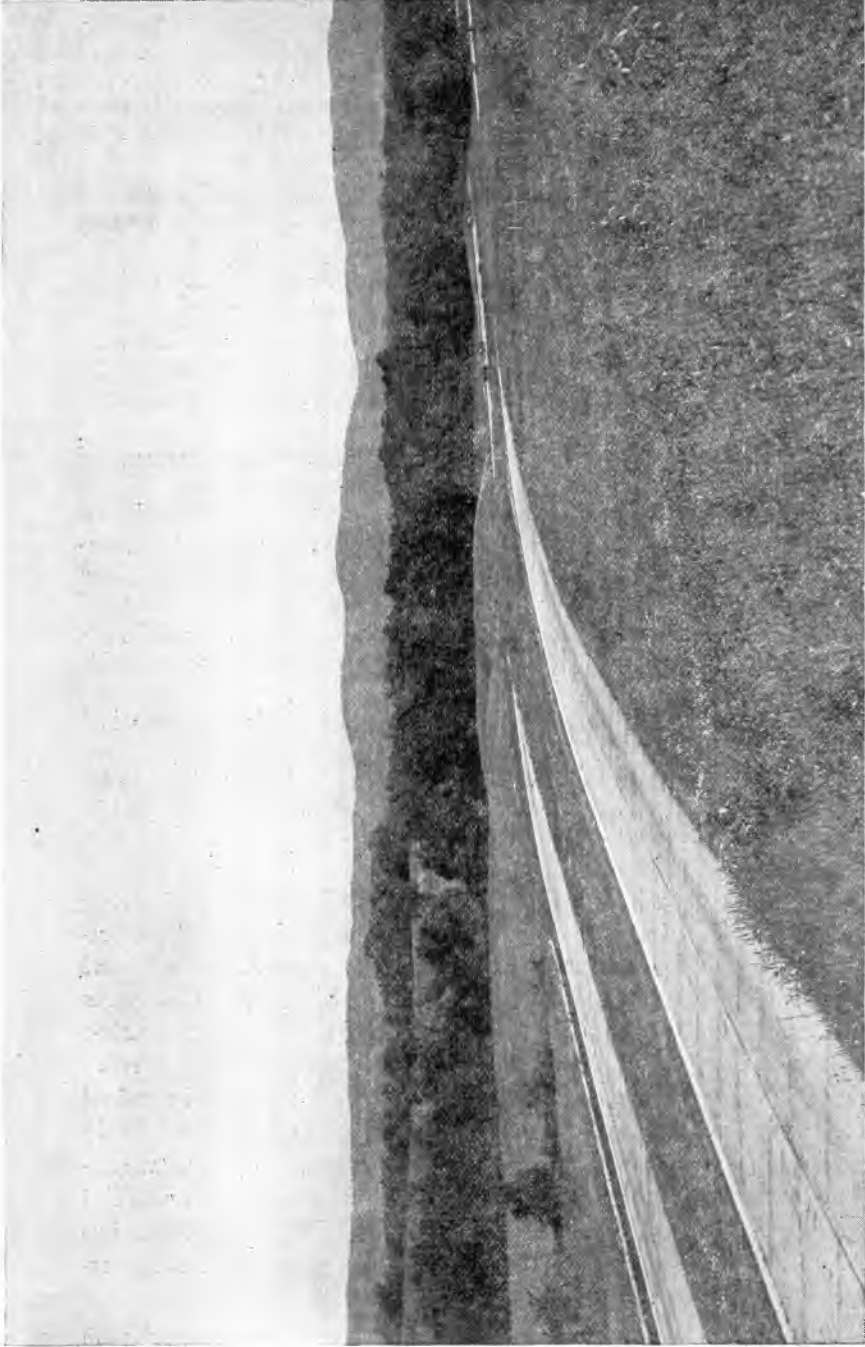


FIG. 5. Note variation in grading of median and roadside areas of this divided highway. (Photo by courtesy of Public Roads Administration.)

2. Grading and shaping of slope and drainage areas, and protection of all disturbed areas against erosion, including obliteration of abandoned roadways, structures, and borrow pits. What is important is the restoration of the roadsides to natural contour form, planted with the kinds of grass, vines, shrubs, and trees that existed there before the highway was built.
3. Shoulder surfacing and widening as required at mail boxes and bus stops, including provision of turnouts at scenic and other points where many motor vehicles tend to stop.
4. Construction of footwalks, paths, and other pedestrian facilities, including essential sidewalks and safety walks on bridges.
5. Development of selected safety and service turnout areas and waysides, including grading, drainage, surfacing of drives and parking spaces, installation of retaining walls, and water supply and sanitary facilities where required.
6. Construction of retaining walls, transplanting or replacement of fine trees, and related landscape development necessary because of damage to public or private property adjacent to the highway.
7. Planting of trees and other vegetation to facilitate maintenance operations, for traffic guidance, for screens and snowbreaks, and for other safety purposes.
8. Selective landscape thinning and cutting, tree pruning, roadside clean-up and related work, including opening-up of roadside views.
9. Final landscape development of safety and service turnouts and wayside parks.
10. Planting of trees and other vegetation to supplement planting for safety, erosion control, and screens and windbreaks as listed in **Item 6** above.

The need for, and desirability of, the above basic steps in highway landscape development will largely depend upon traffic conditions, prevailing use of adjacent lands, and upon local topography, soil, and climate, in each highway construction project. Landscape development will normally be much more intensive on high-type urban or suburban roads with heavy traffic than on lower-type highways with light traffic, at great distances from centers of population. Good judgment by trained professional landscape architects or landscape engineers, employed by the states, will go far toward rendering highway landscape development relatively low in cost and high in effectiveness. Commonsense teamwork of highway and landscape engineers from start to finish will make possible in each state the objectives of complete highway safety, service, appearance, and economy.

Highway departments are now busy on plans for the largest program of highway construction ever undertaken. The point to be remembered



Well rounded slopes and gutters for traffic safety and easy mowing.

Pole lines clear of shoulders and gutters

No borrow pits within sight of the road

PRESERVE TREES, SHORELINES, STREAMS, AND BEST SITES FOR WAYSIDES AND TURNOUTS, BY ADJUSTMENTS IN HIGHWAY LOCATION, AND CARE DURING GRADING AND CONSTRUCTION

Stop erosion on shoulders gutters and slopes by mulching and turfing immediately after grading

FIG. 6. We cannot have an efficient highway system without sound roadside development any more than we can have an effective system of roads without bridges. (Photo by courtesy of Public Roads Administration.)



in this work is that we cannot have an efficient highway system without sound roadside development any more than we can have an effective system of roads without bridges. Tomorrow's planes, trains, and buses will be streamlined, insulated, and air-conditioned. New truck and car designs will also include the latest service features. If highway construction is to keep in step with these developments, the practical answer is an all-purpose, balanced highway development "streamlined" and "erosion-proofed" for safe traffic service and low-cost maintenance.