

Beautifying Highways Helps Make Them Safer

ANSON R. BERTRAND

How can a county save \$1 million in highway costs and yet come up with roadside beauty spots with high recreation potential? Washington County, Nebr., did it by replacing 200 wornout bridges with roadway dams; it was \$1 million cheaper to fill channels than to build bridges. Shelby County, Iowa, saved \$750,000 the same way.

Many new lakes are being created beside highways in other counties in Nebraska and Iowa and in Kansas counties, too. Roadway dams conserve water and often lead to moneymaking recreational enterprises, besides slashing highway construction costs in these areas. They are an outstanding example of putting research know-how on soils to work.

These new beauty spots are the result of cooperation between the State highway commissions, local landowners, and USDA's Soil Conservation Service. Highway engineers, using SCS and other data, found that soil and water runoff characteristics made roadway dams practicable.

Miles of oleanders line highways in California, Texas, and Florida. Here again, research played a role in selecting this flowering evergreen for a dual role: To beautify the highways and make them safer.

Beautiful highways are safer because they provide restful and scenic views that reduce the monotony of driving. A beautiful and safety-enhancing feature of modern highways is a wide

landscaped median. A median reduces headlight glare from oncoming traffic and provides a quieter, more pleasant ride with less distraction from surroundings. Such medians are numerous on our interstate highways.

An outstanding example of a median that is functional and beautiful may be seen on parts of Highway 95 in Virginia. Native evergreens and flowering plants were wisely selected for landscaping these medians. In a few places where the traffic lanes are widely separated, rest parks are provided in the median area.

When the United States Interstate System is completed, it will be a 41,000-mile network of the finest roads in the world. All roads—interstate, State, and secondary—require maintenance. Highway engineers have learned that maintenance of the traffic surface is impossible unless erosion is prevented on the road shoulders and backslopes. Experience has also shown that the best and most economical protection for roadsides is provided by living plants—grass, shrubs, and trees which incidentally provide beauty along the highways.

Public interest in beautiful roadways has been slowly increasing for about 30 years. Interest reached a new peak during the 1965 White House Conference on Natural Beauty. This confer-



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ence was a milestone in the history of American conservation.

The day after the conference closed, the President sent to Congress proposals for legislation to require the use of a portion of Federal highway funds for landscaping, beautification and recreation, and to eliminate outdoor advertising signs and junkyards along interstate highways.

That the conference spawned a new level of activity in roadside stabilization and beautification cannot be denied, but this new activity would not have been possible without the foundation provided by research and action programs of the past 30 years. One of the earliest studies of erosion control on roadsides was conducted by USDA's Forest Service in the Yazoo-Little Tallahatchie basin in Mississippi nearly 30 years ago. The Forest Service has also conducted education and demonstration programs to show lumbermen how to prevent erosion during logging operations.

Erosion control on roadsides is receiving major emphasis in small watersheds everywhere. An example is the Haynes Creek-Brushy Fork watershed, a Public Law 566 watershed in Georgia. The Soil Conservation Service assisted local people in stabilizing 52 miles of roadsides by planting grass, shrubs, and trees.

Highway departments in most States now employ agronomists and landscape architects to plan and promote roadside erosion control and beautification. Federal agencies such as the Soil Conservation Service, Bureau of Reclamation, Bureau of Public Lands, and National Park Service promote highway beautification. Plans for development and preservation of natural beauty, observable from highways, are an integral part of every conservation plan prepared by SCS.

Landscape preservation, including highway beauty, is of prime concern to river basin planning commissions and to area development and planning commissions throughout the country. Expressions by civic groups, garden clubs, church groups, PTA's, and

others have made it unmistakably clear that the general public wants erosion controlled and the roadsides made attractive and pleasant. The response by State highway departments and county road commissioners has been positive. These professional highway planners and supervisors are applying available knowledge and seeking new knowledge at a very accelerated pace.

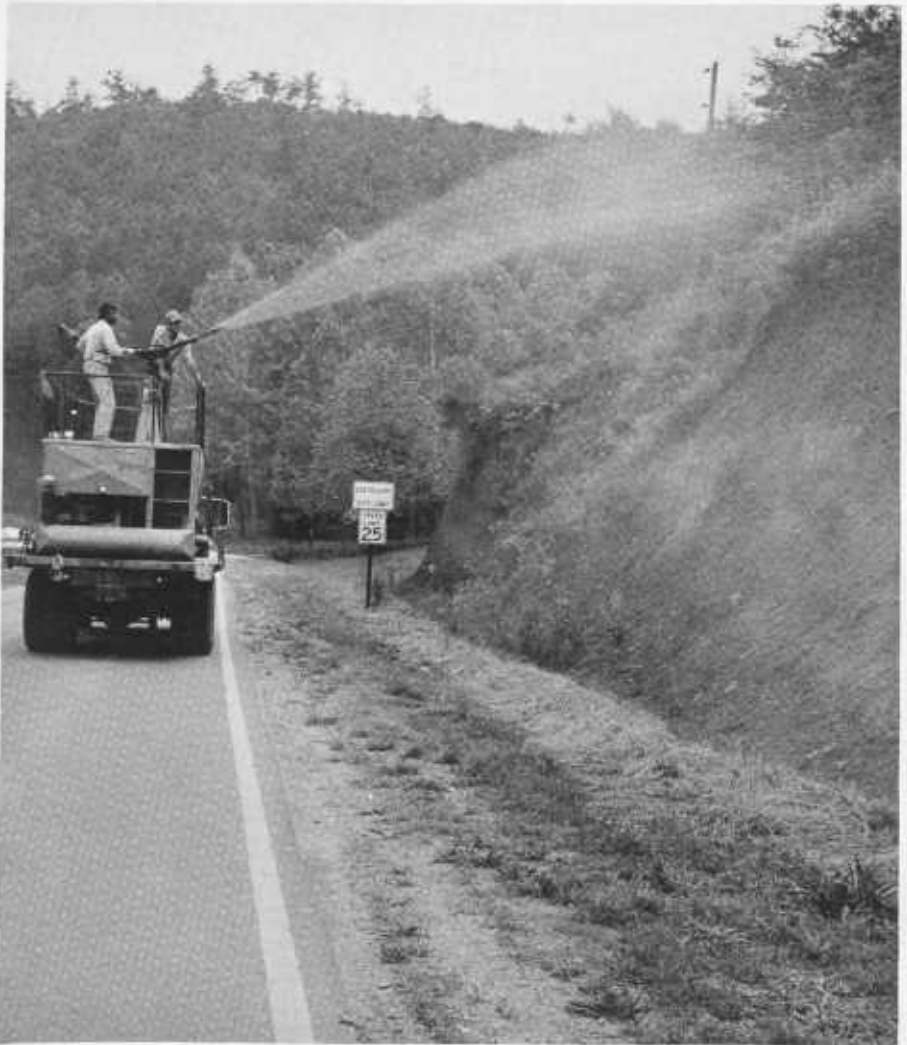
Highway engineers have three objectives in planning and construction of today's heavily traveled transportation arteries—greater safety, reduced maintenance costs, and general roadside attractiveness.

Natural beauty contributes strongly to this threefold objective.

Highway architects have learned to fit the highway to the landscape by disturbing the natural landscape as little as possible. A highway that fits naturally into its surroundings gives the user the feeling that he is a part of and belongs to the land. Interstate Highway 24, northwest of Chattanooga, Tenn., is a beautiful highway designed in such a way as to give the traveler a feeling of fitting into the hills while enjoying a panoramic view of the countryside. Landscape architects have learned to use plantings to outline hills and curves and introduce vertical and horizontal dimensions which tend to make driving safer.

Roadway designs require hundreds of bits of specific information for every mile of roadway. For example, they must have accurate and reliable information about the soil over which their road will pass. Soil surveys provided by USDA are used by highway planners in deciding on locations and engineering features and identifying problem areas along the route. They also use soil surveys to select locations that have beauty as well as utility. In this way, soil surveys reduce the number of soil borings needed, cut costs, and speed up highway planning.

From soil surveys, the design engineer may also secure information concerning physical and chemical characteristics of the soil material and its suitability for various uses. Physical



Mixture of lovegrass, sericea, fertilizer, and wood cellulose fiber mulch is sprayed on a steep roadbank in East Ellijay, Ga.

characteristics of the soil, including texture, structure, and arrangement of layers, determine the grades which must be established to provide side-walls in cuts and slopes in valley fills that are stable.

Research scientists studying the physical and mechanical properties have learned that some soil material is unsuitable for roadways because it shrinks and swells too much. They have learned that permeable material over-

lying dense clay or shale is susceptible to slippage, and cuts through hills must be designed to avoid this danger.

Highway designers use soil information to select suitable sources of surface soil and to locate rest and recreation areas. Roadside rest areas present many unique problems because they must be accessible, functional, and beautiful. The soil and its grass cover must be able to withstand heavy pedestrian traffic. The soil must con-

tain plant nutrients and have physical characteristics which prevent it from becoming soft and spongy during the rainy periods.

Establishing and maintaining grass, trees, and shrubs on highways is difficult and requires considerable knowledge and experience because soil and site conditions along highways vary more than natural conditions in the surrounding area. The environment in which plants must grow may be drastically different on slopes with different aspects.

A north-facing slope may freeze early in the fall and remain frozen until late spring, while the south-facing slope directly across the highway may be subjected to dozens of freeze-thaw cycles during one winter.

A slope with a westerly aspect will frequently be quite droughty and present a soil climate typical of conditions several hundred miles removed from the actual area. At the same time, the opposite slope with an easterly aspect may be shaded much of the

day, and the soil is often relatively moist and cool.

Problems of incorporation of lime and fertilizer in the soil and the placement of seed and mulch are numerous and challenge the ingenuity of research agricultural engineers. Engineers have developed many unique pieces of equipment for soil preparation, fertilizer application, seeding, mulch placement, shrub and tree planting, and mowing and trimming which lower the cost of roadside stabilization, beautification, and maintenance.

A widely-used piece of equipment mixes together, in a large tank, seed, fertilizer, water, fiber mulch material, and an adhesive. The mixture is then blown on hard-to-get-to roadbanks. In warm weather, only a few days are required before a green carpet of grass begins to emerge. Other interesting equipment includes such things as rotary tillers, mowers, and tree trimmers attached to long arms and operated by a person many feet from the working mechanism.

Creating a Big Industry to Save Small Towns

D. L. FASSNACHT

Natchitoches, near the Red River in western Louisiana, in many ways is typical of hundreds of southern towns. It is a quiet place. With a population of about 15,000, it has no urban crowding, midcity blight, or tenement living. Nearby are good hunting and fishing spots.

Natchitoches is a fine place to live and raise a family—if you can find a job, that is. If you can't, there's little choice but to pack your family off to

the big city where jobs are plentiful, even though the smog is thick and the living crowded.

Jobs are a little easier to find today in Natchitoches and 32 other towns from Maryland to Texas because of a new industry—the manufacture of southern pine plywood. In its 5-year existence, this industry has brought investments of over \$100 million and at least 6,000 permanent new jobs to small towns.