

MEDIAN PLANTING for HEADLIGHT-GLARE SCREENING

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

HISTORY OF DEVELOPMENT

With the continual increase in the number of motor vehicles using our highways, our attention has been brought to the ever-growing need for planned median planting for headlight-glare screening.

Before 1949 it was believed undesirable to plant medians 10 feet or less in width because of certain maintenance problems. It was thought that weeding and cultivating shrub planting would prove dangerous to highway maintenance personnel and, since median planting might cause snow to drift across the traveled roadways, that it also would create a snow-removal problem during the winter months.

With the use of different snow-plowing procedure in New Jersey, it was found that planting the 16-foot median on US 1, Newark, did not create any new or additional snow-removal problems. On this same section of experimental planting a ground cover of vines was used in combination with a mixed planting of broad-leaf evergreen and shrubs which developed into an effective headlight-glare screen. The use of ground cover reduced considerably the need for cultivation and weeding. These early plantings were arranged in a continuous hedge or 15 degree-angle informal group plantings spaced 50 feet apart.

FUNCTIONAL USE OF PLANT MATERIALS

During the summer of 1954 experimental crash tests were run as part of a research project to determine the amount of impact certain plant material could absorb effectively. It was found that plantings of *Rosa multiflora* (Japanese rose) usually used for cattle fences and game conservation could stop a passenger car moving at 47 mph., causing very little damage to the passenger vehicle and no injury to the driver. Such plantings of shrub serve both a functional and safety purpose while improving the appearance of the highway.

PLANT MATERIALS REQUIREMENTS

Plant material for headlight-glare screen plantings must be $4\frac{1}{2}$ to 5 feet high when planted in order to be effective. If smaller plants are used, it will require 2 to 3 years of growing time before the plantings will serve their function of screening out the headlight glare from passenger vehicles, trucks, and buses which are traveling in opposing roadways.

In order to achieve the best year-round screening results, a combination planting of evergreens and deciduous shrubs should be selected. Some of the broad-leaf evergreens such as *Ilex crenata* (Japanese holly), *Ilex crenata rotundifolia*, *Ilex glabra* (inkberry), and *Ilex opaca* (American holly) are useful for this purpose.

Deciduous shrubs should be selected for their dense twiggy growth characteristics, tolerance to dry soil conditions, and resistance to the effect of fast-moving wind currents created by fast-traveling traffic. Some of the shrubs that have proved satisfactory under the above-mentioned conditions are *Crataegus coccinea* (thicket hawthorn), *Crataegus crusgalli* (cockspur thorn), *Myrica pennsylvanica* (northern bayberry), *Pyracanthos coccinea lalandi* (Laland firethorn), *Rosa multiflora* (Japanese rose), *Rosa rugosa* (red rugosa rose), *Viburnum opulus* (European cranberrybush), and *Viburnum prunifolium* (blackhaw).

ROADSIDE DEVELOPMENT 1956

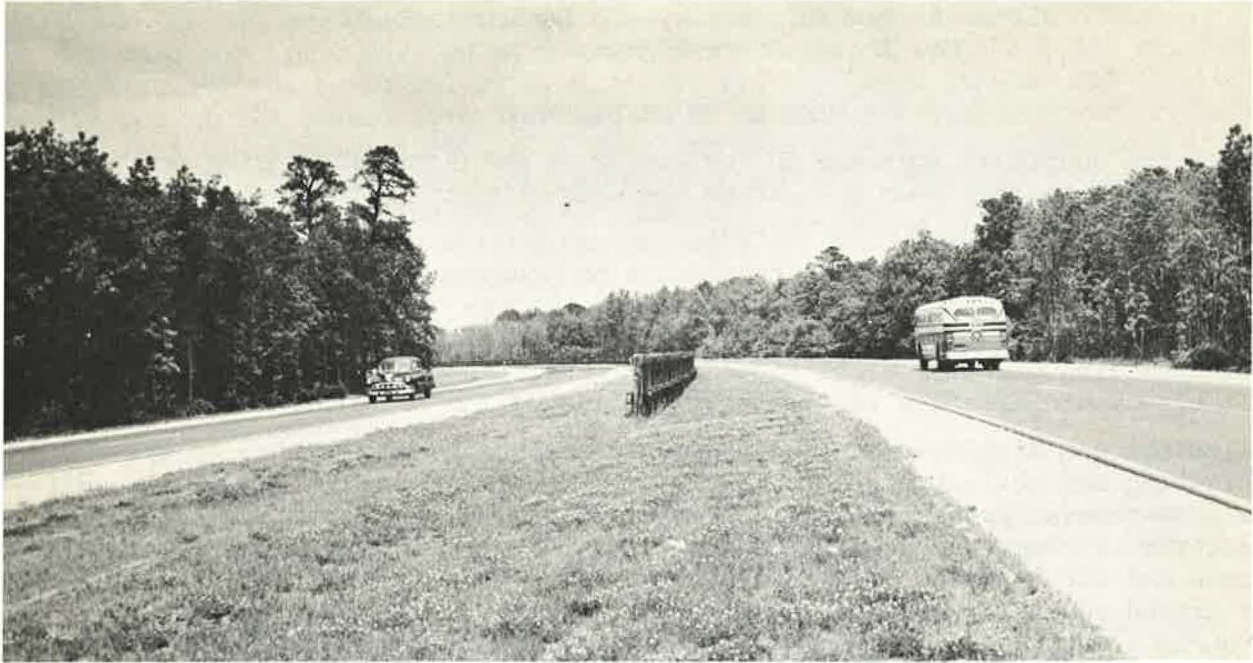


Figure 1. Back-to-back rough-sawn low timber guard rail with wooden baffles constructed to eliminate headlight glare on the Garden State Parkway.



Figure 2. Hall's honeysuckle growing on wire-mesh fence produces a thick dense semievergreen covering for screening headlight glare.



Figure 3. A *Rosa multiflora* hedge which was used in crash tests. The car used in the tests is the stock model Aero-Willys. (Connecticut State Police Photo furnished through courtesy of C. R. Burr & Co., Inc.)



Figure 4. The car just entering the *Rosa multiflora* Hedge, Traveling at 47 mph., the vehicle was stopped in 20 feet without injury or discomfort to occupants. (Connecticut State Police Photo furnished through courtesy of C. R. Burr & Co., Inc.)

ROADSIDE DEVELOPMENT 1956



Figure 5. *Crataegus crusgalli* (cockspur thorn) hedge in a narrow median on the Henry Hudson Parkway, Riverdale, N. Y., makes an effective headlight-glare screen and delineator of changing alignment.

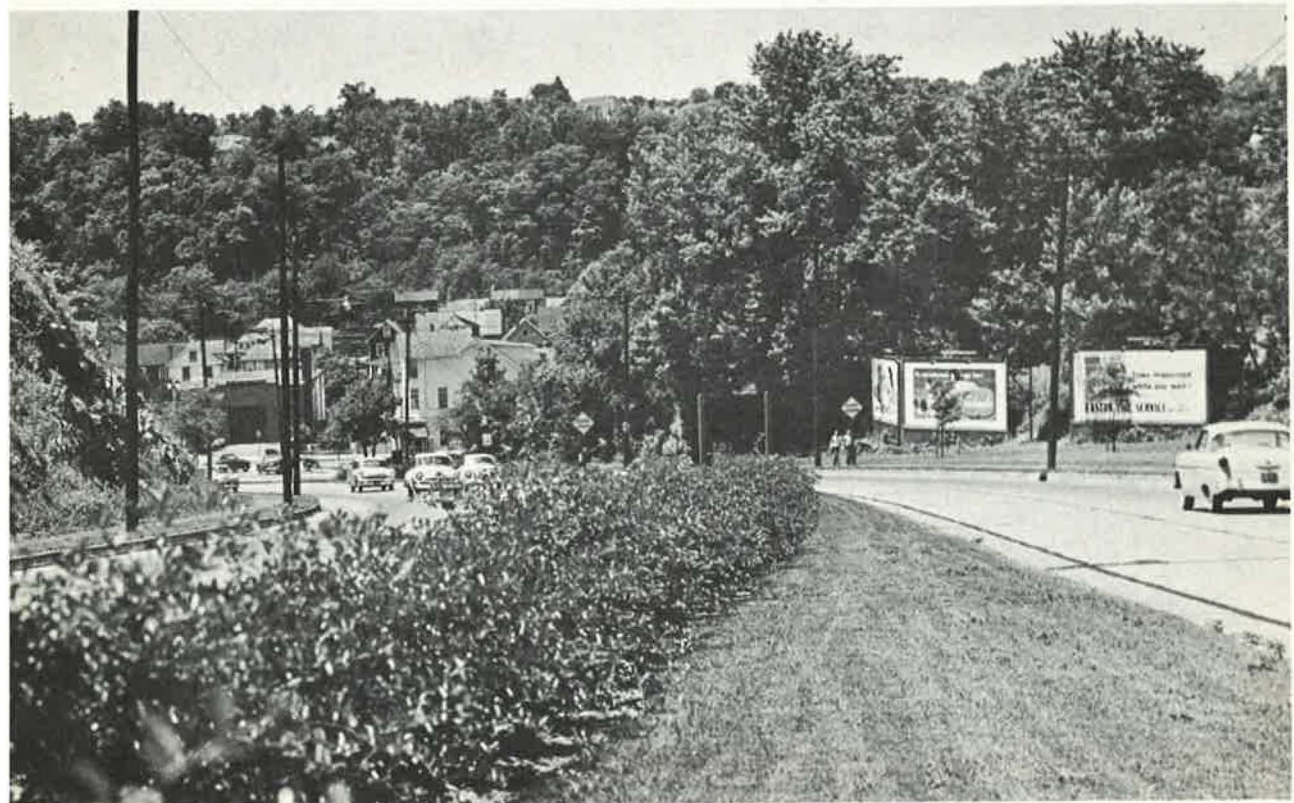


Figure 6. Median planting to screen headlight glare on New Jersey's Blue Star Memorial Highway (Photo by Leslie M. Keating).

TREATMENT OF NARROW MEDIAN

On the Garden State Parkway two types of treatment were used as a means of screening out motor-vehicle headlight glare:

The first method used consisted of back-to-back rough-sawn low timber guard rail fastened to 8-in.-by-8-in.-by-5-ft. precast concrete posts. Between the back-to-back rough-sawn low timber guard rail was erected a steel-wire hinge-joint (farm-type) fence 55 in. high. The fencing was fastened to 3-in. round red-cedar posts. Against the wire fence was planted a combination of Hall's honeysuckle (*Lonicera japonica halliana*) and Silvervine fleecflower (*Polygonum auberti*). The Hall's honeysuckle was selected because of its semievergreen character, and the Silvervine fleecflower was used because it would produce a rapid growth that would cover the wire-fence mesh with a thick foliage to help screen out the headlight glare of vehicles traveling in opposing lanes.

This type of median treatment cost \$6.75 per linear foot. This figure included the back-to-back guard rail, fencing, and planting.

The second method used consisted of back-to-back 6-by-8-in. rough-sawn low timber guard rail fastened to 8-in.-by-8-in.-by-7-ft.-9-in. concrete posts. Above the timber guard rail was constructed a series of wooden baffles measuring 1-in.-by-10-in.-by-2-ft.-9-in. for the purpose of eliminating headlight glare immediately. Against the structure were planted vines of Hall's honeysuckle and Silvervine fleecflower. Honeysuckle were planted 2 feet apart with a 5-ft. spacing for the fleecflower. Single strands of No. 10 galvanized steel wire were fastened 7 inches on center to the concrete post for supporting the growth of the vines. This type of headlight-glare eliminator has no doubt contributed toward the fine safety record established to date on the New Jersey Garden State Parkway.

NEED FOR FURTHER STUDY AND RESEARCH

- A. Varieties of plant material suitable for median plantings
 - 1. Deciduous types
 - 2. Evergreen types
- B. Study of growth characteristics
 - 1. Slow growing
 - 2. Dense growth
 - 3. Requiring little moisture and small growing space
- C. Maintenance requirements
 - 1. Will grow well with the minimum of maintenance

The use of plant material for headlight screening in highway medians offers many possibilities for research and experimentation. There are many questions remaining to be answered in connection with this important problem of highway planting for safety. Effective median plantings have great possibilities in contributing to the safety as well as improving the appearance of the highway.

REFERENCES

- 1. "Median Planting for Control of Headlight Glare in New Jersey," Robert S. Green, Highway Research Board, Report of Committee on Roadside Development, 1949.
- 2. "Study of Marginal and Median Tree and Shrub Plantings as Safety Barriers on Highways," Andrew J. White, Motor Vehicle Research, Inc., September 1953.

COMMENTS

L. H. Turka:

Crataegus crusgalli hedge in the median on the Henry Hudson Parkway, Riverdale, New York was planted in 1936. Hedge planted in narrow medians has presented some maintenance problems on this section of parkway.

Comment:

Crash tests were run at C. R. Burr & Company, Inc., Nursery, Manchester, Conn., in cooperation with the Connecticut State Police on June 14, 1954. Tests were made against barrier hedge plantings of Rosa multiflora and pink flowering shrub honeysuckle.

Robert T. Walker:

Have you any information concerning the comparative cost between the two types of back-to-back rough-sawn low timber guard rail.

Deakin:

The back-to-back rough-sawn low timber guard rail with red-cedar posts and fencing cost \$5.65 to \$6.00 per linear foot without vine planting, while the back-to-back rough-sawn low timber guard rail with wooden baffles cost \$6.00 per linear foot.

George B. Gordon:

No planting is necessary on wide medians. The best procedure is to study the road alignment in plan and also the conditions in the field to determine the need and locations of headlight-glare screen planting.