OPEN DISCUSSION on ROADSIDE DEVELOPMENT as RELATED to the INTERSTATE SYSTEM

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BRANT: The interest shown in the panel discussion on roadside problems on the Interstate Highway System at last year's meeting, plus the numerous questions received during 1957, has prompted the committee to program the same subject this year as an open-discussion period. It is hoped that all present will take an active part in making this discussion period one of interest and value. Several men in roadside development work, who are unable to attend, have sent written comments which will be presented during the discussion.

It is becoming apparent that one of the major roadside problems in the years ahead will be the maintenance of the extensive roadside areas of Interstate right-of-way, and this will be taken as the first discussion item.

A. E. HOLMES (By letter): During World War II and as a result of the labor shortage, many roadside acres of south Mississippi were naturally regenerated into pine timber for lack of annual cutting.

Much of this timber was left to grow along the roadsides. In 1955 observation as to improvement cuts was made for proper timber spacing. From this observation came a realization that many roadside acres required no mowing, erosion was controlled, timber would some day be of economic value, and highways were generally more pleasing to drive.

From this realization of value came an idea of programming natural regeneration, considering the roadside, acre for acre, with theory and terminology published as a guide for all Mississippi Highway personnel to follow in application, supported by a program to plant pine seedlings in areas desirable for naturalization but not favorable to natural regeneration.

It is planned to carry out a program of naturalization by planting areas of regeneration, by contract, on the Interstate Highway System. This system will increase roadside acreage by two-thirds, requiring extremely high maintenance for mowing alone.

The 690 miles of Interstate will produce approximately 20,700 roadside acres. It is estimated that an average of one-third of the right-of-way may be returned to natural vegetation. This would mean that 6,900 acres in the Mississippi highway system could be eliminated from maintenance, except for improvement cuts, which produce economic value.

Should not roadside acres become an asset rather than a liability?

The average mowing cost (based on 1953-1954 figures) is $115.14 per mile for paved surfaces. With 100 ft as the average right-of-way width and allowing 25 ft for surface, an average of 9.21 acres per mile may be expected, or a cost of $12.50 per acre on present standard types of highway. With 300 ft as the average right-of-way width and allowing 68 ft for surface, an average of 28.5 acres may be expected on Interstate standard highways. At $12.50 per acre, 28.5 acres per mile

Figure 1. Looking west on Mississippi Highway 30 near Pleasant Ridge Community. The area is hilly, with a highly erosible sandy soil. Pine seedlings were planted in hay mulch in January 1955. Photo was taken in May 1957.

will cost $356.25 per mile for mowing on the Interstate highways (based on 1953-1954 figures).

If one-third of the right-of-way mowing is eliminated by naturalization, a saving of $118.75 per mile per year may be expected—or on 690 miles of Interstate a saving of $81,937.50 per year —or in 10 years a saving of $819,375.00 may be expected.

BRANT: A booklet on this subject of "Naturalization of the Highway Right-of-Way" has been published by Mississippi.

H. E. OLSON (By letter): It has been estimated that the Interstate system will require over a million acres of right-of-way for the 41,000 miles. This is at the rate of 36 acres per mile of which 9 acres will be for the roadway and 27 acres for roadside, being 75 percent of the total right-of-way. On such an enormous setting for the roadway, great care will need to be exercised in the treatment of the roadsides so as to provide surroundings which are safe, comfortable, pleasing, free of monotony, and low in maintenance costs.

Timbered areas are a most economic maintenance factor as no mowing or erosion costs will be incurred along such tracts. A 300- to 400-ft width of right-of-way is recommended in forest areas so as to perpetuate the roadside forests. While only the central 80 to 120 ft are utilized in actual road construction, the remaining widths can be underbrushed and cleared of all dead and down timber thereby affording a permanent parkway on either side of the roadway, giving fire protection to abutting property, and providing areas for development such as parking areas, overlooks, historic markers, frontage drives, and similar areas.

It would be expedient as well as economical in the timbered sections of the northern states to use conifer seedlings, starting at profile grade along the back slopes and running to the right-of-way limits. In Minnesota, it has been found that a multiple planting of conifers serves as a definite control of drifting snow. Last year it cost over $300,000 to set up and remove the slat type of snow fence.

R. L. NICAR: Should there be selective thinning from the limits of construction to the edge of the right-of-way, or should there be a clean strip of 25 ft or so paralleling the edge of construction?

BRANT: Dead wood and danger trees should be removed from the entire right-of-way but selective thinning should be graduated, with most care being given to the front and ends of woodland facing the highway, and thinning decreasing in intensity back to the right-of-way line.

O. A. DEAKIN: It is advisable that the item of selective thinning be included in the contract. Each state must determine its own needs, but cleaning out of dead and dangerous trees has to be done. (New Jersey specifications for "Selective Thinning" are included in Appendix A.)

BRANT: We are planning to reforest or allow revegetation by natural means on many areas of Interstate right-of-way, much of which runs through woodland areas. In open country it seems logical to reduce mowing on steeper areas to once a year, thus reducing frequent mowing to medians and variable-width areas adjacent to the outside shoulders. It is felt, however, that to accomplish this it will be necessary to develop a maintenance "plan" to establish mowing limits, vistas, selective-cutting principles and limits, and a program of chemical control of weeds in unmowed areas. I believe that the National Park Service develops such maintenance plans for Parkway roadsides.

E. A. DISQUE: The National Park Service has been using land-use plans for more than 20 years on the Blue Ridge and Natchez Trace Parkways. The Blue Ridge Parkway, when completed, will traverse 477 miles of the scenic southern highlands of Virginia and North Carolina. The Natchez Trace Parkway, closely following a historic early travel way, slants for 450 miles across Tennessee, Alabama, and Mississippi.

Land-use plans have been made for every mile of roadside for these two parkways. The drawings show, among other things, roadside limits to which mowing may be done, areas that are to be left as fields or meadows, areas that may be cultivated or used as pasture under Special Use Permits, areas that are to revegetate into forests, as well as areas that are to be opened and then maintained as vistas. In some instances, the roadside land area affected may be quite small in size; in others it may be several acres in size and extend for many hundreds of feet along the roadways. Where vista clearing is concerned, the plans show the kind of vista, the limits to which clearing is to be done and maintained, and even individual trees that must be removed or planted, as the case may be. If the landscape development of a portion of the roadside has not yet been accomplished, the plans serve as a pattern for the creation of plans and specifications for work that may be done by contract, or as a guide for work that may be done with day-labor forces. When development has been completed, the plans aid the maintenance man in the work that he must do. The plans have been reduced in size so that they are convenient to use in the field, and they may be assembled in sets by sections of the parkway.

Prints of a typical land-use plan were included with the report that I presented at last year's committee meeting (see Committee on Roadside Development Annual Report 1957). Should anyone wish for detailed information or perhaps a print of a land-use plan, they may be obtained by writing to the Superintendent, Blue Ridge Parkway, Roanoke, Virginia, or to the Superintendent, Natchez Trace Parkway, Tupelo, Miss.

G. B. GORDON: On extensive roadside areas such as outer borders and interchanges, maintenance of closely mown lawn-type areas will often be unnecessary, particularly in wide open country at a distance from metropolitan population centers. Wherever mowing is discontinued on upper portions of steep slopes, native types of vegetation tend to come in by volunteer establishment. The upper slopes on the Shirley Memorial Highway near Washington show this process of growth as it appears three years or more after grading was completed and grass seed sown. It is believed that mowing on Interstate Highways in open country should be carefully planned and, as far as possible, limited to shoulders, drainageways, and a swath or two at the lower side of cuts and the upper parts of fills.

This type of maintenance of roadsides has demonstrated its value on the parkways in southern New York State where native growth has taken over a very beautiful series of rights-of-way. Except for occasional tree trimming and selective cutting

to open sight distances and fine views from the road, little if any maintenance is necessary on these "naturalized" roadsides.

Where natural growth is conserved or allowed to come in on the wide rights-of-way of controlled-access highways of the Interstate System, problems of screening of dumps, industrialized areas, billboards, and other unsightly features once visible from the traveled way will tend to disappear. Virginia has many highways along which the encouragement of natural growth along rights-of-way completely controlled by the highway authority has had these beneficial effects.

Preparation must be made, however, to do extensive roadside planting on Interstate Highways in urbanized areas where property values are high and where extensive residential development is the rule along highway borders. Well-designed planting will also be necessary within extensive interchanges, at bridges, and at other special areas along rural highways of the Interstate System.

W. L. HOTTENSTEIN: It must be remembered that not all the Interstate System will be through forested areas. It is not always possible just to let nature take its course.

N. M. WELLS: Maintenance on wide rights-of-way may be reduced, as was planned for the New York State Thruway where large areas beyond the ditch line were left unmowed to correspond with adjacent woodlands, swamps, and abandoned farmlands. This effect in combination with mowing the entire right-of-way in areas where adjacent fields were in pasture or cultivation created large-scale scenery in good relationship to the high speeds of the highway and reduced the mowing by at least 25 percent over long mileages.

M. H. ASTRUP (By letter): Grass cover versus trees, shrubs, or ground-cover plants, is primarily a problem of economics. Unquestionably grass is cheaper to establish and, dependent upon the location which could be a governing factor in the character of growth and maintenance required, it is probably cheaper to maintain. On the other hand, in urban locations where a lawn-type grass is maintained, the maintenance would not decrease in cost and would tend to increase with ever higher costs of labor, equipment, and materials. Conversely, shrubs and trees are more expensive in their initial cost than in the ensuing years required for their establishment. Normally, they do require water and the control of weeds or other vegetation inimical to their growth and to the result desired. There is every indication, however, that some of the new selective herbicides would greatly decrease the cost of the weeding phase of maintenance. The Oregon State Highway Department is now conducting experiments of this nature, and some of the local nurserymen have employed this means successfully to eliminate the germination of grasses and weeds without injury to their nursery stock. There are, of course, other considerations that enter into the choice of grass or other herbaceous or woody plants—for instance, the function of the planting. As on a median island, height is advantageous to accentuate the separation. This very well may counteract the greater initial expense.

The normal driver is more hesitant to cross a median planted with shrubs. Another consideration is the hazard to maintenance men in working in these locations. If a shrub or ground-cover plant can be successfully established and grown with a maximum period of three or four years' maintenance, it would appear to be an economy over the long run to choose this type of material. On the open highway the retention and augmentation of native vegetation is desirable both for appearance and for lowered maintenance cost.

Again, the character of the abutting lands must be considered, as it would be poor policy in public relations to plant trees which would rob an adjoining landowner's soil of fertility or reduce his crops. Conditions in this respect will vary throughout the country, but it seems to me that the predominant characteristics of the terrain and land use are satisfactory guides as to the type of planting, if any, employed on the right-of-way.

W. J. GARMHAUSEN: Ohio is anticipating maintaining the turf roadsides chemically. A change in seed mixtures has been made, in that hairy vetch and perennial ryegrass were deleted, Alsike clover and Kentucky bluegrass reduced, the fescues increased, and redtop added. On slopes, yellow-blossom sweet clover is substituted for the Alsike.

Since mowing operations will be kept to a minimum, the low-growing grasses are sown on the median strips, shoulders, roadway ditches, and other flat areas. Soil conditions will govern the seed mixtures and may result in using as high as 75 percent Kentucky 31 fescue in the mix.

It has been found that a fertilizer program following a herbicide spraying program, which has been carried on for the past seven years, maintained a heavy "legume" stand which included yellow-blossom sweet clover and hairy vetch.

K. A. STONEX: At the General Motors Proving Ground there is a private road system where, each year, we operate somewhat more than 10,000,000 miles on approximately 50 miles of improved roads. This gives a good opportunity to observe the causes of accidents and provides some opportunity to take constructive remedial steps.

On most of the system, traffic is one way only. While the accident record is good by public highway standards, it still leaves much to be desired.

Until recently, conventional standards with respect to roadside construction and development were followed, but we have come to believe that current design standards leave much to be desired.

Most of the accidents have been minor in nature, but many of them involved the car leaving the roadway for some reason or another. Mainly by good fortune, the roadside has been free of obstacles where vehicles have happened to leave the road, so that serious injury has been avoided.

After having observed quite a number of such instances through the course of years, the conclusion has been reached that safety considerations in the test work require that all roadside obstacles be eliminated. A policy has been adopted for new construction that the roadside must be clear for at least 100 ft from the edge of pavement; where obstacles cannot be eliminated, adequate guardrails should be installed. The slopes of the shoulders and banks should be no steeper than 6:1, and ditch bottoms should be rounded so that maximum security can be provided. A program has been embarked upon to bring existing roads up to this standard.

It is felt that portions of the Interstate System placed in operation near the Proving Ground are much more hazardous than the General Motors Proving Ground's road system in terms of roadside obstacles; it would be impossible to overemphasize the importance of eliminating roadside obstacles from all parts of the highway system.

At the 1957 meeting of the Institute of Traffic Engineers in Detroit, Charles M. Noble reminded the delegates that the AASHO Design Policies give minimum standards. He remarked that frequently the expenditure of only a few thousand dollars more per mile would ensure many more years of useful life of a facility, and he

urged engineers to design for permanence rather than merely to current minimum standards. It is hoped that the spirit of this advice may be realized in roadside development.

BRANT: The next item on the program is that of the latest developments in noise, fume, and dust abatement. I am very sorry that Wilbur Simonson cannot be here, as he has spearheaded the committee's study of this subject. Does anyone here have new information or other comments to make on this subject?

(No discussion resulted, but the subject is well covered in selected bibliographies on noise and fumes prepared by the Committee on Vehicle Characteristics and being published as HRB Bibliography 22.)

BRANT: The next item, that of roadside rests on the Interstate System, is one that is arousing a great amount of interest and quite a few questions, such as spacing, size, buffer areas, toilet facilities, lighting, heating, telephones, overnight stopping, fireplaces, and other picnic facilities. Information has been received from several states not represented here at this meeting, and this information will be read or abstracted as a way of starting the discussion on this subject.

ASTRUP (By letter): Basically, this is Oregon's roadside rest program along the Interstate System. The spacing varies from 30 to 40 miles, and wherever feasible they will be located opposite each other. It is believed that this will eliminate or greatly decrease any tendency to make unauthorized crossings of the highway and that it will reduce the cost of utilities and probably decrease the cost of maintenance.

The size of the areas chosen is dependent upon numerous factors, but an effort is being made to obtain a minimum of 4.3 acres in addition to the width of the right-of-way. This provides the minimum "buffer" strips between the developed facilities and abutting lands and the barest minimum for any future expansion of facilities. This contemplates an area parallel to the center line of the highway, 800 ft in length and 250 ft in width.

Oregon intends to employ a flush-type toilet facility throughout the Interstate System. A building has been designed and one unit which is as vandal-proof as possible has been constructed. It is of cement-block construction; there are no windows, and light is obtained from a skylight. All plumbing is contained in a central alley, which is insulated and heated by electricity. Electrical conduits have also been placed in the floor to furnish heat around the toilets and lavatory. It is believed that this will be sufficient to protect the fixtures from freezing in the western portion of the state. In the colder eastern sections the problem still has to be solved and probably the entire building will have to be heated. It is believed that these buildings cannot be closed during the winter months and the public service that they furnish discontinued.

The lighting of the parking area and the installation of telephones is being considered wherever this can be conveniently done. Lights are, of course, included both inside and outside the toilet buildings.

The policy in Oregon prohibits overnight camping. Again it is the writer's opinion that the facilities must be open 24 hours a day, but the distinction between overnight use and intermittent use during the night is extremely difficult for the State Police to determine. There is no reason why a motorist should not come into a rest area for rest and relaxation at any hour of the day or night. Possibly they will prove more valuable for night travelers, but the policing of them, both from the standpoint of public safety and the intended use of the area,

is likely to be a continuing problem which will require good common sense of law-enforcement officers.

Oregon does not intend to install fireplaces in their safety rest areas. The state does not wish to encourage day picnicking use, and neither the expense of installation or maintenance is considered justifiable for the concept of safety rest areas. In many places, under the conditions in Oregon, open fires or even controlled fireplaces would be hazardous during the dry summer period. It is also the writer's opinion that many people traveling on extended trips have adequate facilities with them if they wish to prepare a meal and that people on shorter trips would carry their own lunch, including drinks, and would not desire to stop long enough to cook a meal.

E. C. ECKERT (By letter): Current thinking is that rest areas should be provided at 25- to 40-mile intervals in a staggered pattern on both sides of divided highways, equivalent to 1- to 1½-hours driving time. Present thinking is that they should be located at the outside edge of the highway, not in the median. Along high-volume-traffic highways conditions may require rest areas at intermediate points between the above intervals. It is desirable to develop a master plan and to select locations during the route-location study period. It is also desirable to locate reasonably near larger urban centers along the approaching lane, but the rest area should however, be a sufficient distance from an area likely to be influenced by future urban expansion.

Current thinking is that an area should average 8 to 12 acres in size, depending on present and future anticipated traffic volume, and normally be rectangular in shape, having the long axis paralleling the highway of 1,200 to 1,500 ft and a depth of 200 to 300 ft.

The attitude of Michigan officials appears to be receptive to the modern flush-type-toilet facility. This is in keeping with the high-standard highway facility being built, i.e., divided-lane limited-access. It is recognized that this will involve assignment of a full-time caretaker of each rest area. Along heavily traveled highways it is believed essential that 24-hr service must be provided on a year-round schedule. The toilet building will include a heating plant as part of the equipment.

Telephone service is deemed very important for inclusion in the rest-area building. Lighting of the area is also essential. It is also believed desirable to provide a bulletin board in the building, giving information on food, lodging, and gasoline stations in the vicinity of the nearest interchange point.

It is believed that overnight use of roadside rests should not be permitted. It is felt that this would constitute competition with private businesses and would result in criticism and make for involved administrative problems. Under instances of an emergency nature there likely will be occasions where, in the interest of safety, cars and trailers may have to be allowed overnight privileges. However, policing agencies should be helpful in limiting this to parking of an acknowledged emergency nature.

OLSON (By letter): In locating roadside parking-area sites, where we wish to invite the motorist to stop and rest, advantage should be taken of overlooks affording outstanding views of oceanside, lakeshore, river frontage, natural rock outcropping, promontories, historic sites, and nicely wooded groves. Additional right-of-way at such points is essential so as to have absolute control of these areas. It is often possible that several of these natural landscape features can be incorporated in the development of a single parking-area site. Site possibilities

should also be considered where wide, attractive medians are available with sufficient length, breadth, and sight distance for a safe development.

It has been found that a paved parking area with paved approaches will usually cost up to two-thirds of the cost of the development of a site, so that the more diversified interests that a site will entertain, the more practical and economical it becomes. In this connection, a portion of a proposed parking-area site may well be adapted to include an interesting historic or geologic marker or pedestrian overlook.

A wide latitude should be given for intervals of spacing between parking areas, rather than have them at stated intervals of 25 or 30 miles. Some outstanding sites may be located only 10 or 15 miles apart while others may be located up to 40 miles, in which case a more extensive development should be planned with a capacity of 50 to 60 cars, whereas a 15- or 20-car capacity would probably suffice when the areas are quite close together.

The size of a parking area will be somewhat dependent upon the nature of the site. Usually 3 to 5 acres are ample for a good layout, which should include a paved off-road parking area for passenger cars with a definite section reserved for trucks, and with appropriate acceleration and deceleration speed-change lanes. Facilities should include toilets, drinking water, picnic tables, fireplaces, and refuse containers. If there are no existing shade trees on the site, a picnic shelter should be provided.

The writer feels that roadside parking areas will be one of the most important adjuncts to a freeway highway system in the interest of safety to the traveling public, in that these rest points will help to overcome driving fatigue, will serve as emergency stops, and can be recreational in scope as well as educational.

BRANT: In North Carolina the present standards provide for spacing of Interstate roadside rests at intervals of approximately 30 miles, with reasonable variations from this distance of course being necessary to find suitable sites. An area of approximately 4.5 acres outside normal right-of-way is planned for. Approximately 3 acres are to be developed initially, with the remainder serving as a buffer zone and available for future expansion. Separation of truck and car parking is advisable, with parking capacity varying according to estimated future traffic. It is planned to have drinking water and water-borne sewage disposal with concrete-block toilet buildings partially heated to prevent freezing. Picnic tables and a limited number of fireplaces or other cooking facilities will be provided. Overnight stops are not to be permitted. There will be lights inside the toilet building, but the extent of outside lighting has not yet been determined, nor has a decision been reached on telephone installation.

GARMHAUSEN: Roadside rest areas will be included in the design of Ohio's Interstate projects. The first step in the program to provide these areas is to establish a master plan locating all the roadside rests on the Interstate and primary roads in the state. The master plan approved by the Department of Highways located the areas at intervals of approximately 25 miles on each side of the divided highway.

A study of the aerial survey maps shows desirable locations, and an effort is made to have these as close to the proposed location as possible. A field check of the area will determine if the site is suitable, and a study of the alignment and cross-sections will determine if satisfactory grades can be established and maintained. A tolerance of 5 miles in either direction along the highway will be allowed to obtain the best location possible.

These areas will be located outside the normal right-of-way lines. They may not be placed opposite one another if location at staggered spots is feasible. Staggered areas should preferably be located so that the one on the right of directional traffic will be reached before the one on the left. Areas should be located away from traffic interchanges and from a municipality.

Consideration should be given to existing wooded areas for shade, with pleasant surroundings. Visibility to highway traffic for ingress and egress must be provided. The minimum length of the areas will be 500 ft and the depth 275 ft.

The acquisition of the site should be made at the same time as the roadway parcel. It is desirable that the parcels which include the roadside rest areas be purchased first, so that if for some reason another area need be selected the new area can be purchased along with the adjacent roadway.

The design of the geometric features shall be in general accord with the following:

The near edge of the parking areas shall be at least 100 ft from the outside edge of the travel lane. Parking facilities shall be provided for 12 trucks and 32 passenger cars. The paving of the ramps, terminals, and parking areas shall be in keeping with that used on the highway.

The design of structures shall be of the latest development, and the material used shall be of a permanent nature, or, if of wood, it shall be pressure-treated.

The area shall be fenced, and grass cover shall be provided for the portion of the area not paved.

As much "built-in maintenance" shall be included in the design as possible. All walks, table bases, grill and refuse bases shall be of concrete. Parking areas shall have a concrete curb to outline the area; no guard posts are to be used.

Shade trees shall be preserved or planted to secure a pleasing area. Plantings for screening purposes will be used where necessary. To discourage pedestrians and vehicles from crossing to the other lane, a planting is to be placed in the median and also in front of the parking area.

Park caretakers are to maintain the area, and these men will be trained in their duties. The enforcement of strict sanitary measures is necessary. The caretaker is the "key" to good park maintenance, and he must understand what his duties are and how to perform them and must have the necessary tools to do the job.

The purpose for providing these areas is to promote highway safety, provide necessary services for rest and relaxation, and provide a place where a tired driver may refresh himself.

MRS. VANCE HOOD: What about information centers in rest areas?

BRANT: In North Carolina, information stations in roadside rests at the state line have been considered, but no decision has been reached so far. One factor in opposition is that the operation of such a facility is not considered a highway commission function.

T. SLACK: The Department of Highways of Louisiana will probably allow the construction of information booths and buildings in or near rest areas at state lines on the Interstate System, if requested by the Department of Commerce and Industry of Louisiana which has jurisdiction over such booths. In this case, the buildings would have running water, toilet-facilities, telephones, and other items of convenience.

BRANT: A question is frequently asked about the advisability of building rest areas in a wide median area. A principal objection seems to be the turning movement from the left lane.

MR. PETERSON: (Remarks not recorded, but he stated that the Florida Turnpike has service and rest areas in the median.)

R. T. WALKER: It may be of interest to some of those not too familiar with the problem to know that a "Policy on Safety Rest Areas for the National System of Interstate and Defense Highways" has been prepared by the American Association of State Highway Officials Committee on Planning and Design Policies. It is hoped that this policy will be adopted by the states and approved by the Bureau of Public Roads this year. (Policy subsequently was adopted by AASHO.) I was particularly interested in what Mr. Deakin had to say about the location of rest areas in wide medians on the Garden State Parkway (a separate paper previously presented) and also to learn from Mr. Peterson of the Florida Turnpike Commission that they have safety rest areas within the median where ample space permitted. I would like to know what sort of accident record has been compiled on these two modern highways, particularly where high-speed traffic must slow down to pull off to the left and enter a speed-change lane or ramp. This is somewhat contrary to the normal traffic pattern, and many highway design engineers are opposed to safety rest areas in the median for this reason.

DEAKIN: No accident problem has been experienced with the location and construction of safety rest areas, service areas, and police barracks within the wide (400-ft) median on the Garden State Parkway. When adequate deceleration and acceleration lanes are provided, no traffic hazards are created.

New Jersey Highway Authority records indicate that no problem has been created by traffic leaving the high-speed lane on the left to enter a safety rest area or service facility located in the median on the parkway.

The accident record of the Garden State Parkway for the year 1957 is the safest in the country: death rate 1.3; injury rate 38.9 per 100,000,000 car miles; accident rate 65.1 per 100,000,000 car miles; vehicle miles driven 1,448,287,000 (this figure includes free traffic).

Fatalities: 19
Number of persons injured: 561
Reported accidents: 942

On weekends during the month of August 1957, traffic passing the Cheesequake Service Area amounted to 52,300 vehicles per 24-hr count. South of the Asbury Park Toll Plaza traffic was 42,300 vehicles for a 24-hr count. From these traffic figures one can readily see that a large number of vehicles passed the service facilities and roadside safety areas located on these sections of the parkway. No traffic incidents have been recorded concerning the ingress and egress from the service areas located in the wide median. No more problems have developed than occur when making a turn off to the right from the slow-speed lane.

PETERSON: (Not recorded, but the gist of his remarks was that the matter had been investigated carefully before rest areas were put in the median on the Florida Turnpike, that they were found to be more economical, that there has been no accident or incident on the Florida Turnpike, and that Kansas and Kentucky have rest areas in median.)

DISQUE: The use of the median for the development of public-use facilities is not without some precedent insofar as the Garden State and Sunshine State Parkways are concerned. If my memory serves me correctly, the older portions of the Taconic State Parkway, on the east side of the Hudson River in New York State, have public facilities located in the median.

GORDON: The question has been raised, in discussing national policy on Interstate Highways, whether rest areas can be combined with police buildings and maintenance structures, and whether such areas should be developed within wide medians of divided highways.

Maintenance and police buildings will probably best be located on side roads at major intersections or interchanges because of the need for routing police and maintenance vehicles on both sides of the median and in both directions of travel. If crossovers are provided in wide medians, it will be very difficult to prevent their use by the public, a development that will tend to become a hazard to traffic.

It would appear that in very wide medians, particularly where streams or other natural features occur within median areas of unusual width, some rest areas can be developed. Under usual driving conditions on divided highways, motorists appear to be accustomed to passing on both sides and to turning movement to both left and right. In fact, under usual urban highway conditions, ramps are often provided which require such turning movements. The policy will therefore contain examples of possible design of safety rest areas within wide medians.

COL. SIEGLE: It appears likely that the present session of Congress may pass legislation authorizing construction of public air-raid shelters or at least require that some definite planning for their ultimate construction be started.

The Bureau of Public Roads is presently doing some preliminary planning regarding highway shelters in order that any responsibility which may be placed on the Bureau may be efficiently and promptly discharged. If shelters are to be supplied for the citizenry of the nation that would be traveling on the highways at the time of attack, it appears logical and proper that shelters should be located, planned, and integrated into the highway system under somewhat the same standards that other AASHO features are handled.

On the basis of preliminary planning, it is believed that one of the best locations on the highways at which shelters could be constructed would be at the safety rest areas. These locations would provide safe access, parking, and other valuable features that would require duplication of effort and cost if other locations were selected to construct shelters.

It will be appreciated if the members of the Committee on Roadside Development will give this problem consideration along with other roadside planning activities.

BRANT: The subject of fencing, either complete or partial, of Interstate right-of-way to prevent encroachments or unauthorized access will now be taken up.

DISQUE: I do not believe that any design standards can be set up insofar as fencing along the Interstate System is concerned. The fencing should satisfy the requirements of its use and may be something quite special. Along the Blue Ridge and Natchez Trace Parkways sometimes a post and wire fence was used, sometimes a split-rail snake fence, dependent, in part, upon utility and upon scenic effect. The fences are sometimes placed within the construction prism, sometimes on the construction limits, sometimes well back from the roadside, but always within the right-of-way but not necessarily defining it.

The average width of right-of-way for these two parkways is 800 ft, or about 100 acres per mile in area. Much of this right-of-way is on agricultural or pasture land, or passes through forest. It would be costly to try to maintain so much of this acreage for so many hundred miles, particularly in farm country. The Service has placed fences where desired and required, according to the planned use of the right-of-way and as shown on the Land Use Plans and then, by Special Use Permit, has leased much of the land back to adjacent property owners to be cultivated or otherwise used by them for their benefit in accordance with the requirements of the plan and the permit. Maintenance of the leased areas is the responsibility of the lessee. In this manner, the Service is relieved of much of its maintenance costs. At the same time, the pattern of living and the way of life of the countryside through which the parkway travels is preserved or stabilized, and much has been added to the interest and variety of the roadside.

An instance where fencing of a special nature will be required is on that section of the Interstate proposed to cross North Dakota from east to west and pass through a portion of Theodore Roosevelt Memorial Park. Here, through the Park, the fence must be of a character that will enable it to keep a herd of buffalo off the Interstate right-of-way.

BRANT: The present information is that there are to be no encroachments on Interstate right-of-way, so the current study is to determine the extent of fencing on the control-of-access line and the advisability of omitting fencing under some topographic conditions such as swamps, mountainous topography, or woodlands.

SLACK: It is my understanding that all rights-of-way in Louisiana will be fenced wherever it is feasible to do so.

BRANT: At the Ohio Short Course on Roadside Development last autumn, I asked men from a number of states about this fencing matter. I do not have the list at hand, but I do recall that eight states had reached a policy decision to fence either the entire Interstate right-of-way or all of it except the most extreme topographic conditions.

WELLS: The policy in New York State is to erect fences on the property lines where they appear desirable. A chain-link type of fence will be used near schools and in built-up areas to prevent pedestrian crossings. A cattle-type fence will be used where livestock is pastured. No attempt will be made to prevent or hinder deer crossings.

BRANT: Time is running short, but we can at least start on the next program item, which is the relation of wire-using utilities to Interstate right-of-way.

SLACK: This subject has been discussed with officials, and as matters stand now it is my understanding that in Louisiana utility lines will not be allowed to parallel the rights-of-way with transmission lines. Utilities will be allowed crossovers and to occupy interchange areas where such occupancy is of service to the Department of Highways.

GORDON: It has been agreed that pole lines should not follow along the outer borders of Interstate highways in a direction parallel to the center line. Under no circumstances will such pole lines be permitted within medians. Where pole lines must cross Interstate Highways, it will often be possible, and always desirable, to pass such wire lines across through conduits installed within overpass or bridge structures.

BRANT: The information to date is at variance with several of the views expressed. Utility lines are paralleling Interstate Highways but entirely outside the right-of-way, and with no cutting or trimming of vegetation permitted on the right-of-way. Crossings are being engineered with some encroachments permitted, and on poles, since the handling of power lines in conduits is very difficult and the changing of open-wire telephone lines to cable and then back to open-wire construction brings on operational difficulties. It is felt that more leeway is needed in handling conflicts of existing lines than in the case of new utility lines, since the latter generally can be engineered initially to avoid encroachments. A set of principles to govern utility conflicts is being prepared and in doing so it is found that the Commission's participation in bimonthly meetings of the North Carolina Utilities Coordinating Committee is very helpful in getting the utility side as well as the highway side on the questions that arise.

DEAKIN: In New Jersey the handling of utilities is governed by the following section of the Freeway and Parkway Act.

Freeway and Parkway Act. Chapter 83 Laws of New Jersey 1945. Regulation of facilities: C 27:7A-7:

"7. The State Highway Commissioner shall also have authority to make reasonable regulations for the installation, construction, maintenance, repair, renewal and removal of tracks, pipes, mains, conduits, cables, wires, towers, poles and other equipment and appliances (herein called "facilities") of any public utility as defined in Section 27:7-1 of the Revised Statutes, in, on, along, over or under any such freeway or parkway. Whenever the State Highway Commissioner shall determine that it is necessary that any such facilities which now are, or hereafter may be, located in, on, along, over or under any such freeway or parkway should be relocated in such freeway or parkway, or should be removed from such freeway or parkway, the public utility owning or operating such facilities shall relocate or remove the same in accordance with the order of the State Highway Commissioner; provided, however, that the cost and expenses of such relocation or removal, including the cost of installing such facilities in a new location, or new locations, and the cost of any lands, or any rights or interests in lands, and any other rights, acquired to accomplish such relocation or removal, shall be paid by the State Highway Commissioner. In case of any such relocation of facilities, as aforesaid, the public utility owning or operating the same, its successors or assigns, may maintain and operate such facilities, with the necessary appurtenances, in the new location or new locations for as long a period, and upon the same terms and conditions, as it had the right to maintain and operate such facilities in their former location. Nor order of the State Highway Commissioner for the removal of such facilities from such freeway or parkway or the relocation thereof outside of such freeway or parkway shall be effective except as such order is approved by the Board of Public Utility Commissioners."

Under this Act, a policy for public utilities for freeways and parkways was drawn up, as follows:

POLICY FOR PUBLIC UTILITIES FOR FREEWAYS AND PARKWAYS.
(ORDER ISSUED MARCH 7, 1947 - SPENCER MILLER, JR.,
STATE HIGHWAY COMMISSIONER.)

"Approval is hereby given to and the following 'Public Utility Policy for Freeways and Parkways' of New Jersey is hereby adopted, as recommended by Charles M. Noble, State Highway Engineer:

1. All new utility facilities, both aerial and underground, located longitudinally with the highway, shall be excluded from permanent freeway and parkway rights-of way.

2. The Freeway and Parkway Acts provide that the State shall pay for the relocation of existing public utility facilities disturbed by freeway and parkway construction. This will not apply in cases where the disturbance is occasioned for the convenience of a contractor.

3. The following principles shall be applied in the relocation of existing public utility facilities. The Act stipulates renewal and removal of tracks, pipes, mains, conduits, cables, wires, towers, poles and other equipment and plants.

   (a) It is desired that utility crossings shall be made at grade-separation structures and not across the freeway and parkway between such separation structures.

   (b) Where it becomes necessary to locate utility crossings between grade separations or stream structures, such crossings shall be underground and manholes or points of access shall be located outside the permanent right-of-way of the freeway or parkway. (See (h) below for modification.) Cases requiring large or heavy structures to accommodate the utility facility under the freeway or parkway shall be subject to special study and individual decision.

   (c) Where the freeway or parkway passes over a street or highway with a grade-separation structure and when no traffic interchange is involved, it may be permissible to carry aerial utilities through on the under side of the structure provided the utility facilities are of minor character. (Minor character shall be construed generally to mean not more than a total of five (5) wires (cables).) In case of trolleys, both the trolley wire and aerial power transmission wires must pass under the structure. No poles shall be located in the street within the projected width of the ordinary right-of-way width of the freeway or parkway.

   (d) Where the freeway or parkway passes over an existing street or highway with a grade-separated structure when no traffic interchange is involved, and when no grade change on the existing street is involved, it may be permissible to permit existing aerial facilities to remain in place with such facilities passing under the freeway or parkway structure; provided the tops of the poles do not extend above the elevation of the freeway or parkway roadways. This is particularly applicable when the existing street is in a deep cut.

   (e) Where the freeway or parkway passes under a street or highway, the utility facilities shall be located underground at the beginning of the grade change and continue underground to the end of the grade change.

   (f) Where the freeway or parkway passes under a street or highway at such an elevation that little or no grade change is required on the street, no poles or other aerial facilities shall be permitted within the limits of the ordinary right-of-way width of the freeway or parkway.

   (g) No poles or other aerial facilities shall be located within the permanent right-of-way of the freeway or parkway or within traffic interchange areas. (See below for exception.)

   (h) Long distance high voltage transmission and heavy primary electric aerial facilities shall be the subject of special study and individual decision as

to disposition. Underground telephone and telegraph crossings, where the freeway or parkway is in a deep cut, shall be the subject of a special study and individual decision as to disposition.

(i) In designing bridges crossing the freeway or parkway, reasonable provision shall be made for the future expansion of utility facilities in order to safeguard the policy that utility facilities shall be underground now and in the future. No rental charges will be made to the utility company for such normal number of facilities.

(j) Gas and water facilities passing under freeway and parkway roadways shall be constructed of extra long-life materials not subject to leakage. Valves shall be installed on each side, outside of the permanent right-of-way limits. Traps, drips, blowoffs, etc. shall be located outside the right-of-way of the freeway and parkway when feasible. When not feasible, the matter shall be the subject of special study and individual decision.

(k) Stream crossing structures shall be utilized freely to carry water and gas mains under freeways and parkways, due regard being given to required waterway capacity; in which case no special provision for long-life leakproof pipe need be made.

(l) Where large water and oil pipe facilities are involved, special galleries of suitable design and size should be considered, having due regard to maintenance and replacement problems.

(m) Where the freeway or parkway crosses pipe facilities (water, gas, oil, gasoline, sewer) where no structure is involved and where the grade elevation of the utility is such that it need not be relocated, the utility shall be rehabilitated, if required, with long-life materials of adequate strength.

(n) Storm and sanitary sewers which pass under freeway or parkway roadways shall be constructed of materials of long-life and adequate strength.

(o) Where it has been determined as necessary for utility facilities to cross under a freeway or parkway (other than at bridges), the crossing shall be made as nearly normal to the freeway or parkway center line as possible. Long diagonal crossings are not desired.

(p) Existing facilities which cross the freeway or parkway right-of-way at a number of points within the same general area should be combined, so far as practicable, to reduce to a minimum the total number of crossings. This will involve payment by the State for relocation work at locations other than at the site of the freeway or parkway when it can be demonstrated that such combination of crossings is the preferable method.

(q) In relocating and rehabilitating utility facilities with new materials, utility companies shall make due monetary allowance to the State for the deteriorated value of the replaced materials.

This policy does not include matters associated with traffic signals and illumination for existing streets, freeways or parkways. This will be covered under separate regulations.

Special problems will be the subject of special study, consideration and individual decision."

NOTE: Policy for Public Utilities for Freeways and Parkways as adopted in 1947 by

Commissioner Spencer Miller, Jr., New Jersey State Highway Department for use in connection with freeway and parkway design and construction may serve as a helpful guide in preparing a similar policy for use in connection with the new Interstate System of Highways.

The New Jersey State Highway Department followed this policy when designing and constructing the Garden State Parkway and the freeways in New Jersey. At the present time, this policy may have been revised slightly. However, it might serve as a guide to other state highway departments which are just in the process of preparing a policy for public utilities in connection with the new Interstate Highway System.

WELLS: In New York no utility lines parallel to the highway will be permitted on the right-of-way but they may cross the highway. Crossings will preferably be at right angles. The cost of moving utilities which are owned by municipalities and certain other utilities which are affected by the construction will be reimbursed.

BRANT: It is with reluctance that I close this session without an opportunity to have a discussion on planting of trees and shrubs on Interstate Highways, but we are well past the scheduled adjournment time. Thank you all for your attendance, attention, and participation in this discussion of roadside development as related to the Interstate System of Highways.