Roadsides
THEIR USE AND PROTECTION
HIGHWAY RESEARCH BOARD
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1954

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2101 Constitution Avenue, Washington 25, D. C.
HIGHWAY RESEARCH BOARD
Special Report 17

Roadsides
THEIR USE AND PROTECTION

PRESENTED AT THE
Thirty-Second Annual Meeting
January 13-16, 1953

1954
Washington, D.C.
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A Symposium

ROADSIDES: THEIR USE AND PROTECTION

INTRODUCTION

Harold J. Neale, Chairman:

This is a Symposium on Roadsides—Their Use and Protection. Now I find that, according to Webster, the definition of a symposium is "a drinking party" which, in ancient Greece, took the form of a feast or social gathering at which there was free interchange of ideas. In this modern age and more specifically here, we use Webster's No. 2 definition of a symposium: "a conference at which a particular subject is discussed and opinions gathered."

As these charts that you see on the wall indicate, "Conservation, Not Exploitation" should be the watchword. (See pg. 2). The next chart (see pg. 3) concerns "Utility, Safety, Beauty, and Economy"—four things the Committee on Roadside Development has been stressing for many years. This Committee takes pride in the fact that it is responsible for coining the expression "The Complete Highway"—complete to serve the public, for service and utility, for safety, for economy, and for beauty.

We have a very able moderator who has been a member of another committee for several years and whose committee has worked with us and for us for the past six or eight years. It is very gratifying to me and other members of this Committee to have a man like Dr. David R. Levin take over one of our principal meetings.

Dr. David R. Levin, Moderator:

This is a symposium on Roadsides—Their Use and Protection. There is, as most of us know, an intimate relationship between the highway and its roadsides. The highway affects adjacent land uses, often stimulating their development; and, in turn, these land uses affect the movement of vehicles on the highway, often interfering with their safest and most efficient operation.

The purpose of this symposium is to isolate, if we possibly can, the conditions and consequences that result from the interaction of the highway and its roadsides, each upon the other; and, once having identified the problem, to seek those directions of betterment that will promote greater safety and facility of highway travel and, at the same time, improve the physical and functional character of the adjacent areas themselves. These two objectives are not inconsistent with each other; in fact, evidence aplenty is now being assembled to prove that those measures which improve the character of highway service will also improve the nature of the roadsides, and vice versa.

It is our good fortune to have assembled here what we consider to be an excellent and highly qualified panel of experts to start the ball rolling on this roadside symposium. This panel is highly diversified, as you can see. We have a highway designer from a progressive state; a traffic engineer of wide renown;
CONSERVATION

ROADSIDE PROTECTION in 1953 will help
I CLOSE THE GAP
HIGHWAY SAFETY BY PROTECTED ROADSIDES

II PROTECT HIGHWAY SAFETY
UNCONTROLLED RIBBON DEVELOPMENT REDUCES UTILITY

CONSERVATION OF HUMAN LIFE NEEDED
ELIMINATION OF POTENTIAL HAZARDS

KEEP SIGHT DISTANCE OPEN ON CURVES AND AT INTERSECTIONS

FEATURES OFF THE TRAVEL WAY AFFECT SAFETY ON THE HIGHWAY

FLATTEN SLOPES SO THAT IN EMERGENCIES TRAFFIC MAY LEAVE TRAVELED WAY QUICKLY AND SAFELY

PREVENT RUTTLES OR DEEP DITCHES FORMING TRAPS FOR MOTOR VEHICLES

IDEAL CONCEPT COMPLETE HIGHWAY
ROADSIDE PROTECTION in 1953 will help

III COMBINE BEST VEHICULAR AND DRIVER SERVICE WITH SAFETY AND PLEASING APPEARANCE

ENGINEERING ARCHITECTURAL AND LANDSCAPE TECHNIQUES

ROADSIDE ENCROACHMENTS HINDER HIGHWAY TRAVEL

SERVICE STATIONS

REDUCE HIGHWAY CAPACITY

REST AREAS

COMPLETE HIGHWAY SERVICE ENHANCED LAND VALUES 90-HAND-IN-HAND

PROPERTY VALUES SURROUNDING HIGHWAYS IMPROVE PUBLIC PRODUCTIVITY

A WELL LOCATED HIGHWAY WITH STREAM-LINED, EROSION-PROOF CROSS-SECTION WITH WELL DESIGNED BRIDGES AND OTHER STRUCTURES WITH PROTECTED ROADSIDES

APPEAL TO BOTH THE LAND OWNER AND THE MOTORING PUBLIC
ROADSIDE USE AND PROTECTION 1953

TYPICAL PROBLEMS IN STATES

UNSIGHTLY DUMPS

ANIMAL HAZARDS TO TRAFFIC
(Photos: Courtesy - Louisiana)

JUNK YARDS

PARKING
(Photos: Courtesy - New Mexico, Virginia, Louisiana)

LACK OF SPACE

DRIVER DISTRACTION AND CONFUSION
(Photos: Courtesy - Oregon, Nevada)

LACK OF BUILDING SETBACK

LACK OF CHANNELIZATION

PARKING OBSTRUCTIONS
(Photos: Courtesy - Nevada)

COMMERCIAL INTERESTS
(Photos: Courtesy - Virginia)
a distinguished lady who has urged roadside protection for many years, representing garden clubs and civic groups; a top official of the motorists' group, who has been in the forefront of the movement to obtain improvement of the highway corridors; and a planner who has been associated in a most practical way with the problems confronting us in this field.

By these various talents, then, we shall be enabled to view the problem of the roadsides, their use and protection, not only from one point of view but from many.

Though we have this excellent panel, I should not mislead you into believing that we believe it will have all the answers. As a matter of fact, as I glance into the audience, I note talent there too; I shall call upon you before this session is over, and hope that all of you will contribute. In this symposium, as in the field of highway modernization itself, we must pool all of our resources in an effort to obtain the wisest solutions.
ROADSIDES: THEIR USE AND PROTECTION

THE HIGHWAY DESIGNER'S VIEWPOINT

By Allan Lee
Engineer of Road Design
Maryland State Roads Commission

We believe that roadside development is rapidly becoming a sort of "second nature" to most highway design engineers; a thought which they hold uppermost in their minds during the growth, under their direction, of a set of basic survey notes into a facility which is functionally correct for the traffic and adjacent land use.

This attitude, however, has by no means been the chiefly prevailing one for a very extended period. It is no far stretch of the imagination to send our thoughts back to the period of a quarter-century ago, and this thought, in turn, sends us to the files to examine some of the plans made in the late twenties and early thirties. We find most of these plans consisting chiefly of a centerline, and a profile grade line. The highways built from these plans, although probably adequate for the traffic of that day, were noticeable, upon their completion, chiefly for the unsightly scars of construction; many projects were outstanding principally for their contrast to the surrounding landscape. Although we have no "then and now" slides to accompany this talk, I believe that most of us can readily bring to mind the meager roadside development of that day, and the contrast which many of our projects of today present, with their blending into the surrounding landscape, and the close attention paid to the utility and safety of the highway as well.

Although we have advanced far, I believe there is still some thought that roadside development should consist chiefly of a casual attempt at beautification. There is, of course, considerably more to the overall picture. When we think of the roadside as "a general term denoting the area adjoining the outer edge of the roadway, and also extensive areas between the roadways of a divided highway," then we readily see - as previously mentioned - that the question of roadside development is almost all-inclusive of the designer's problems in preparing his finished plans for the highway. Although "shoulders" are definitely not included in the above definition, we believe that in some locations the appearance of the shoulders is so intimately related to the other aspects of the project that they, too, might be included in the overall picture.

In further considering this problem from the design engineer's viewpoint, and in light of some of the problems which have been met, we have attempted to set down some definite divisions of the overall problem for detailed discussion. We would list as the number-one question "Right of Way", and number two "Access." These two highly important features of any highway design are certainly among the most important considerations for the attention of the design engineer. In addition, the following categories have suggested themselves: (3) The General Rural Location; (4) The General Urban Location; (5) Recreational Areas; (6) Commercial Channelization; and (7) Intersectional Channelization.
RIGHT-OF-WAY

It is impossible to overemphasize the importance of wide right-of-way — always in the case of new projects, and whenever possible in the case of rehabilitation of existing highways. We feel that every design engineer should do his utmost to sell the idea of wide right-of-way, if there are still authorities to whom such a selling is necessary. We believe that more highways have been completely outmoded because of lack of adequate right-of-way then from any other one cause. We have previously spoken of the projects of a quarter-century ago. If these projects, although crude in comparison to present-day standards, had been placed on a wide right-of-way, many of their defects could have been corrected during the intervening years, and much of the original investment could be salvaged. But with the narrow right-of-way prevalent in those days, residential, commercial, and industrial development has grown up practically "on top" of the traveled way, and betterment is economically precluded by the very value of this development, which only the highway itself has made possible.

In Maryland we have adopted a right-of-way width of 80 feet for important two-lane roads, and 150 to 200 feet for most divided highways. However, on one of our projects — the Baltimore-Washington Expressway — a right-of-way width of 400 feet was used. On the other hand, right-of-way width for divided highways in urban areas must often be reduced, due to land values, and sometimes widths as narrow as approximately 90 feet have been used.

In the rehabilitation of existing highways, the above standards are adhered to if possible, but in some cases right-of-way costs would be prohibitive and width must be held to a minimum.

ACCESS

The problem of handling access to the highway, both from intersecting roads and from adjacent property, is one most important to the safety of the highway and even to its useful life. We all know of many facilities which have become hazardous and obsolete due to uncontrolled access.

Maryland has been fortunate in recent years in having legislation authorizing the building of "Expressways" and "Controlled-Access Arterial Highways." Under both of these categories the State Roads Commission is authorized to deny, or rigidly control, access from abutting properties. Under the "Expressway" category, access directly from abutting property is never allowed, and the design engineer must closely study the pattern of all affected properties so that he can provide them access to the nearest existing public way by means of a service roadway usually parallel to the expressway. For the "Controlled-Access Arterial Highway" the access problem for abutting properties is usually handled exactly as for the "Expressway," but in some few cases it has been found necessary to grant large holdings one point of access. Obviously close cooperation with the Right-of-Way Division is necessary, as construction costs versus acquisition costs — for several methods of access handling — must be carefully weighed, one against the other. The problem of access from intersecting highways in the case of expressways is solved by the aid of a close study of the anticipated traffic when the new route is entirely completed. Points of access are usually several miles apart, except where the more highly developed, urban areas are approached. Usually every public road is granted access to the "Controlled-
Access Arterial Highway." For the expressway, all intersecting roads are separated from the grade of the main facility, while for the arterial highway only those of highest traffic density are separated, many intersecting roads being connected at grade. In the case of these latter grade connections, if a study of anticipated traffic and land use indicates a busy intersection in the future, then sufficient right-of-way is taken on the original design to allow for separation in the future.

Maryland also possesses recently enacted legislation which allows the State Roads Commission to designate certain definite points of access for commercial properties abutting on highways carrying 2,000 or more vehicles per day. This legislation will be most helpful in salvaging many highways, or congested portions of them, where commercial development has generated dangerous side friction.

This legislative authorization has already been used to advantage in a number of instances, but not yet to the extent which it is hoped will ensue in the coming years. We believe that the design engineers can readily see the benefit of such authority, and we recommend it for their close consideration.

THE GENERAL RURAL LOCATION

In connection with roadside development in the general rural location, I believe that most design engineers will now exert every effort to tie the new project into the surrounding landscape, so that the highway will gracefully blend with the existing terrain characteristics.

Many papers before this body have ably presented the general geometric design features, and we do not feel that they need repetition in detail. To summarize briefly, however, we lean toward turfed shoulders in rural areas, over well-stabilized coarse granular foundations. As previously stated, we realize that some will exclude shoulders from the general thought of roadside development. We believe all designers will subscribe to the use of the flattest slopes economically possible. Opinion is divided as to the necessity of topsoiling. Where it is readily available, we use 2 inches on slopes and 4 inches in turfed median areas. On slopes, care must be exercised to prevent segregation and washing away of the topsoil, either by blending with the underlying material, or serrating the slopes where blending is impossible.

Fairly heavy storms -- say of twenty-five years' frequency -- as well as present and anticipated land use must be considered in connection with cross drainage. Interception of drainage above the highway is important to prevent erosion, and drainage below the highway must be carefully handled, being very important in connection with right-of-way acquisition and good public relations. Median drainage should be analyzed so as to control the spread of water, and to govern the spacing of inlets.

An important roadside-development feature which must be considered in rural locations is the handling of portions of an existing route which is affected in many places by the new project. Where access is controlled, these existing routes, or portions thereof, can be handled along with the service roads. Where the new highway falls into the general uncontrolled rural category, each of these points of contact between the old and new route must be very carefully studied.
In general, the intersection should be revised, if necessary, so as to be generally close to a right angle, say 75 to 105 degrees. Off traffic from the new highway, of course, should be allowed access to the existing route at a much sharper angle.

In rural locations, as well as in all other locations, we must be ever alert to minimize conflict between roadside use and main roadway flows. Commercial and recreational areas should desirably have channelized lanes of entrance and exit, at such angles that off and on traffic will be easily guided from and to the main streams of through traffic. Acceleration and deceleration lanes are highly desirable but, in the case of commercial channelization particularly, we do not feel that they can always be developed.

THE GENERAL URBAN LOCATION

The urban project, which the writer pictures for brief discussion, is one where an existing two-lane highway radiates from an important city, and the land use has changed and is rapidly changing from a rural area into a highly commercialized one. The traffic count of 16,000 vehicles per day and the land use dictated a divided highway with curbs, storm water drainage, commercial and intersectional channelization. With the changing land use mentioned and the many commercial establishments along the route, it became apparent that definite points of ingress and egress to and from these commercial enterprises or their parking areas were absolutely necessary. Also it was not possible to think of an absolute ban on parking, so that the section decided upon was a divided highway, providing two 12-foot moving lanes and a 10-foot storage lane in each direction, a 10-foot curbed median, and storm-water drainage. We might say at the outset that we should like to have had a wider median than the one used, but available rights-of-way would not allow this. In connection with this project, every commercial establishment was closely studied, and definite points of entrance and exit were planned; in practically all cases the owner or operator of the establishment was contacted and satisfied before the plans were final. We cannot emphasize too strongly the importance of this commercial channelization in an area such as the one described, because we probably would have had an intolerable condition if haphazard points of ingress and egress were allowed. As recommended for rural locations, the angles of intersection of these entrances and exits were placed so as to blend with off and on traffic. In general, however, it is not possible to obtain as favorable angles of intersection as are obtained in rural areas, and the use of acceleration and deceleration lanes is usually not possible.

The drainage on a project such as this does not offer any unusual problems besides the usual urban drainage problem, the close study of the many small contributing areas, and the solution of the many points of conflict with other utilities. Spacing of inlets on such a project should always be governed by the spread of water from the curb, the roadway being so crowned that all of the drainage flows along the outside curb line. The drainage spread, of course, should be kept well within the storage lane, so that moving vehicles will not encounter this water during a heavy storm.

There is considerable left-turning at intersections in connection with this project, and even in the narrow median described we provided left-turning storage slots 7 feet wide, so as to eliminate, as far as possible, the blocking
of the intersection by left-turning vehicles. Although admittedly narrow, this median and the left-turning storage slots have worked quite well.

Channelized intersections also occur in connection with this project, and, I am sure, in connection with any one similar to it. This question of channelization, as mentioned above, will be discussed in a subsequent section.

I might say that if we had our choice of planning a similar project in an area not yet so densely developed, we would use a median not less than 16 feet wide, with the left-turn storage slots 12 feet wide. This, of course, would give better refuge for stored vehicles, and would also allow a fair area for pedestrian refuge. Other than this, we would find little reason to change any of our design features.

Such very important items as building setback, outdoor advertising signs, and ratio of parking space to store floor space in commercial areas are probably more the function of the local zoning authority than of the highway authority. However, if no zoning authority exists and it is possible for the highway authority to exercise such control, then we would say that it should, by all means, do so.

RECREATIONAL AREAS

The highway designer, during his preliminary office and field studies of the project, is in an excellent position to recommend suitable sites which will lend themselves to recreational development.

We believe that most highway engineers will not have to do the actual detail site planning. However, he will be able to see that these areas are so located that they will be well drained, will not impair the safety of the road, can be economically built - if grading is necessary - and at the same time fulfill the requirements of pleasing location and beautiful vistas.

One very important function which the design engineer can be on guard for, however, is to see that highway safety is built into these recreational areas. For anything more elaborate than a simple wayside stop, we would recommend the use of channelized entrance and exit lanes, and deceleration and acceleration lanes as well.

COMMERCIAL CHANNELIZATION

We have previously touched on the subject of commercial channelization while discussing access, rural location, and urban location. All of us, I know, are familiar with many examples of arteries which have become virtually choked by intense commercial development, with all its attendant evils of side friction, unlimited entrance and exit areas, and glaring signs closely adjacent to the traveled way. Unfortunately, we have one of the worst examples of this sort of highway between here and Baltimore.

If the design engineer has the authority, by suitable legislation or otherwise, to plan channelization of these areas, he is urged to study closely
each problem and endeavor to arrive at a satisfactory solution. Many examples of desirable details of such channelization have been published, and most of you have standards covering your needs.

In general, successful channelization of such establishments should consist of definitely delineated entrance and exit lanes, preferably curbed. These lanes should be so skewed that traffic can readily flow off of and on to the main highway so as easily to blend with the main streams of traffic. Although acceleration and deceleration lanes are desirable, they cannot always be used, particularly in urban locations where the commercial establishments and parking areas are likely to be closely spaced.

Definite islands should be constructed adjacent to these access lanes, so that only the lanes themselves will be available for entrance and exit. The islands are most effective when curbed. In urban locations, the front of the island may well be placed at the edge of the storage lane, while in rural locations it should be placed about 15 feet back from the edge of the traveled way, this amount of setback actually providing some opportunity for better traffic blending. In all cases, the back curbs of these islands should extend to the right-of-way line.

We do not feel that state highway funds should be expended for this channelization of commercial property, and we have had some measure of success, so far, in having the owner or local authority bear the cost. Here, again, is an opportunity for the design engineer to help develop an idea. We feel that when the advantages of this type of channelization become apparent to many owners, they will be quite willing to bear the cost of installation.

INTERSECTIONAL CHANNELIZATION

Special Report No. 5 of the Highway Research Board is titled "Channelization" and contains the following definition: "Channelization of intersections at grade is the separation, or regulation, of conflicting traffic movements into definite paths of travel, by the use of pavement markings, raised islands, or other suitable means to facilitate the safe and orderly movements of both vehicles and pedestrians." This aid to the safety of the highway, and to the free flow of traffic, is very definitely an important feature of roadside development.

We have not found that there are any universally accepted warrants for the use of intersectional channelization, and the design engineer must be on his guard not to use these treatments too frequently. Cooperation with the traffic department of the highway set-up is necessary, and all traffic movements, including particularly turning traffic, must be obtained. If there is some doubt as to present need of channelization, but the intersection appears that it may develop congestion in the future, then, by all means, enough right-of-way should be obtained originally to allow for subsequent channelization.

It is not considered necessary here to discuss in too close detail the actual channelization layout. These details are well covered in many special papers, especially in the A.A.S.H.O. pamphlets, and the Highway Research Board Report previously mentioned.

It is pertinent to mention a very few features which we have found de-
sirable in our experience. In the case of two-lane highways, abruptly placing a median with curbs should be avoided. We now lean toward medians which are flush or nearly so, and of a contrasting color. Also, for such channelizations of two-lane highways, the highway at the channelization and for a fair distance each side thereof should be expanded to dual-highway characteristics. Otherwise, instead of aiding the free flow of traffic, left-turning vehicles will probably choke the flow.

For divided highways, left-turn storage slots should be placed in the median.

Large islands in intersectional channelizations look well and are effective when turfed and provided with mountable curbs. When they are small, however, we now lean to islands of contrasting color, raised only about 4 inches above the adjacent pavement.

We have made no special mention of sidewalks, although, naturally, they will be included in the design, in certain areas, for the safety of pedestrians. In Maryland, our policy is not to build sidewalks with highway funds, and the walks are always paid for by local authorities.

Likewise, utilities - particularly poles and towers - have not been discussed in detail. Poles for parallel lines should be at the extreme limits of the right-of-way, and if the right-of-way is sufficiently wide, they will present no hazard to traffic. Overhead transverse crossings should desirably be 30 feet or more above the roadway, and the frequency of crossing should be strictly limited - say, not more than four to a mile.

It appears that the writer has sketched through most of the high points of highway design, excluding structural design of pavement, subsurface drainage, sub-base, and closely allied items. We feel that it is necessary to do this, because roadside development and almost the whole field of highway design are closely intertwined.

In his paper "Twenty Years of Roadside Development" presented before this body two years ago, Mr. Charles M. Upham stated, "Careful analysis has shown that roadside development is functional with highway safety and highway maintenance -". We would conclude our remarks with the thought that roadside development is likewise functional with highway design.
Like all persons concerned with the operations of the nation's highway transportation system, the traffic engineer has a deep concern in roadside development. His concern is perhaps most intimately related to the features of roadside development which affect the basic character of traffic performance. The traffic engineer recognizes the aesthetic values which are involved and he favors the full preservation of roadside beauty. However, it is not felt that the aesthetic qualities should be considered to the exclusion of business, economic, and traffic-performance qualities. Several observations and changes seem pertinent.

Over the years the concept of the average motorist has changed considerably insofar as automobile use is concerned. More than ever before, people think of automobile usage as a necessary activity; there is little driving for pleasure. This factor should of course be taken into account in designing, constructing, and maintaining routes of travel. The average motorist is primarily concerned in getting from a given origin to a given destination in as short a time as is compatible with safety. Speed studies made over long periods of time show little, if any, change in speed characteristics of a route when the flowers are in full bloom, when the fall leaves are in their height of beauty, or when the countryside is barren. Certainly this does not mean that motorists have become completely unaware of roadside culture and attractiveness. They like pleasant surroundings, but functional qualities of the roadway itself unquestionably supersede the aesthetic quality. If both qualities can be combined it is obviously very good, but if one has to be sacrificed then it should be the aesthetic. Questions of what can be afforded might become the determining factor.

The traffic engineer recognizes many potentials in roadside improvements. The screening of vehicles from view has many possibilities. Some very favorable results are being reported in reducing highway noises by roadside plantings. It is even being suggested that research is needed to determine whether or not the proper type of plantings on a median island can bring about a reduction in accidents—screening headlight glare, cushioning impacts, and delineation are some of the factors to be considered. It can probably be stated, then, that the traffic engineer is very keenly interested in all phases of highway beautification and highway plantings that have a clearly defined relationship to traffic operations.

Another area of roadside development which enters the discussion is that of roadside business. While not qualified to speak for the traffic-engineering profession, it is my feeling that there should be control over this business activity, but by "control" elimination of this method of marketing is not intended. Here again there seems to be a fundamental concept of road use. A traffic stream is an artery of great business potentials. In considering the extent to which enterprises should be prohibited, one must raise the question as to the
extent to which the traffic market can be tapped. In evaluations, the rights of individuals, the rights of business interests, and the rights of property owners present difficult issues. The general conclusion seems obvious: the proper control of roadside business to insure safety is needed, but such control does not imply prohibition of such business.

Actually, the traffic engineer and others need the results of much additional research before these questions can be conclusively answered. One study made might show that certain types of roadside development create great traffic hazards; another will suggest that certain development is essential to prevention of driving monotony and, therefore, acts as a safety influence. Actually, the proper mixture of the two approaches has not been suggested, much less proven.

In conclusion, it is my belief that the traffic engineer is properly concerned with roadside control and development but that he recognizes the need for much more extensive studies of the problems and factors involved before any conclusion can be reached. He wants to provide both safe and efficient traffic performance but he wants also to avoid undue expenses and improper infringement of individual rights.
ROADSIDES: THEIR USE AND PROTECTION

THE MOTORIST AND THE PUBLIC

By Burton W. Marsh, Director
Traffic Engineering and Safety Department
American Automobile Association

Far too little attention and emphasis have been given to the roadside and its importance in the overall highway program. Results of this relative neglect bedevil, irritate, and endanger highway users as well as frequently shocking their eyes and sensibilities. Moreover, results appear in very expensive wastes and inefficiencies in expenditures of highway funds. At a time when a huge and ever-widening gap exists between the roads we need and the roads we are able to build and maintain with resources presently devoted to road purposes, such wastefulness is intolerable.

It just doesn't make sense to expend large sums of highway-user tax funds in the construction of sorely needed major roads unless proper attention is given in advance to the roadside aspect of highway planning and design so that proper roadside decisions are made and put into effect which will prevent loss of major portions of the road's capacity, efficiency, safety, and convenience or enjoyability. Yet, failure to safeguard against such losses is an all-too-common occurrence.

Consider, for a moment, failure to acquire adequate width of right-of-way, which markedly affects roadside problems and measures for solution.

The statement on importance of adequate right-of-way width which has always most impressed me is that of H. S. Fairbank, Deputy Commissioner of Public Roads: "When shall we ever learn? Time after time, we find that 10 or 15 years after purchasing a right-of-way of inadequate width, we have to buy, at greatly increased cost, additional right-of-way or go to a new location."

"Failure to secure adequate right-of-way is perhaps the most serious basic fault in highway practice today."

Now, that statement was made several years ago — but I should be greatly surprised if it is not almost as true now as it was then.

Let us examine another startling example of failure to give proper emphasis to roadside fundamentals. It is crystal clear — or it should be — that the heavy-traffic main highways of America should be controlled-access expressways. Yet progress toward achieving that objective is maddeningly slow. Why — correct me if I'm wrong — some sixteen states still lack legal authority to control access, and the laws of some nine other states are deficient in some essential element. How strongly motorists want such highways now is clearly shown by toll-road developments.

A third and last example of failure to give proper emphasis to the roadside is in our lack of sensible, reasonable control over roadside structures, and inegress and agress points.
True, no controls of this sort can give us expressway results on the old-fashioned, horse-and-buggy, outmoded but ubiquitous type of main highway. Nevertheless, we have huge mileages of these roads, and it surely behooves us to take steps now — if we haven't taken them before — to assure maximum utility, capacity, safety, and pleasantness in their use.

Ride or drive on almost any main road, say from here to Baltimore, asking yourself all the way along if a great people, an intelligent civilization, a nation which prides itself on its progressiveness can possibly let such conditions continue on the heaviest traveled (or almost the heaviest traveled) major route in that nation. And, of course, that is but one example of what can be found, in varying degree, in so many places, along main routes. Yes, I'm talking about signs and billboards everywhere, entrances and exits seemingly continuously almost in places, and all the rest of the sorry picture.

Yes, the roadside is a vitally important integral part of the highway picture, and it must receive much, much, greater attention.

Fault — blame — those are not where our interest should be directed. We're all to blame. Certainly outstanding highway officials have for years been outspoken about these matters, while bedeviled and pressured by the public and by groups for more miles of roads, as against more long-range-value road policies.

Motorists — informed — want the good roads, the high-quality roads, and proper roadside measures.

There is urgent need for education — and we must get beyond talking to ourselves. You must devise ways to popularize your fine case to laymen.

* * * * * * *

Mr. Marsh then presented a summary of a recent survey made by the American Automobile Association. See Appendix C.
Is roadside beauty only soil deep? As a veteran "scenic sister" of the Garden Clubs and Roadside Councils, I share responsibility for the misconceptions that have arisen from ill-considered roadside-beautification projects. But the era of planting for the sake of planting is past. Civic leaders are increasingly aware of the complexity of the roadside problem. The roadside, as with every other aspect of the complete highway, should spell the successful blending of safety, utility, economy, and beauty; and the greatest of these is beauty---beauty that is not mere ornamentation but beauty in the broad sense that embodies all of these other factors.

The consideration of roadside beauty starts with the conception of the highway. Its achievement depends upon the degree with which the highway fits into the topography of the countryside. This truth has long been accepted in principle, but in practice too often modern technical skill is employed to overcome nature, not to work with it. No amount of embellishment can transform a yawning cut or the steep bank of a high fill into a thing of beauty. Beauty destroyed by the stripping of vegetation along the borders of the traveled way cannot easily be replaced. Disregard of the good earth has resulted in a similar lack of respect by the owners of adjacent property, in expensive maintenance, and in a needless toll of human lives. The parkway has proved the practicability of planning for beauty. When such planning is utilized in all road building, we shall have safer, more economical highways and more beautiful roadsides.

The landscape and maintenance men who have to cope with the highway after it is built realize the importance of planning for the roadside. But how can the construction engineer be reached? A modest though interesting attempt has been made in New Jersey.

At the request of the Blue Star Memorial Highway Committee of the National Council of State Garden Clubs, Professor Philip Elwood outlined a course on roadside development for civil-engineering schools. Its purpose was to bring to the future highway builder the principles of landscape design and the cultural implications of the highway. We still hope to see this plan materialize in its original form. Meanwhile, condensed into a series of four lectures by Oliver Deakin of the New Jersey State Highway Authority, it has been put into effect at Rutgers University and at Stevens Institute of Technology through the sponsorship of the New Jersey Roadside Council. Outstanding landscape architects and planning consultants have been engaged as lecturers. At Rutgers, the series, called The Spencer Miller, Jr., Lectures, has been given in conjunction with the Engineering School for three years; at Stevens, called the Horace Brown Lectures.

1/ In tribute to Spencer Miller, Jr., Highway Commissioner of New Jersey, 1942-1950.

2/ In tribute to Horace Brown, pioneer in obtaining roadside protective legislation in Vermont.
for two years. Judged by the response from both faculty and student, the approach is a sound one. It is a long-term educational program. So is the highway a long-term investment of the state.

It is in the field of education and public relations that the energies of civic organizations can be most effective. Mrs. William L. Lawton, during a quarter-century of pioneering as head of the National Roadside Council, demonstrated that there is a genuine and continuing interest in the protection of the American landscape. Mrs. Lawton's point of attack was the billboard menace. Her emphasis upon safety and zoning provided a pattern followed by Mrs. Cyril Fox in Pennsylvania and by others in states where exceptional progress has been made. Mrs. Lawton's surveys (printed in the "National Roadside Bulletin") have been a source of reference for officials as well as for laymen. Memorials, clean-up drives, and roadside plantings of the less experienced have served to awaken a local public interest. They remain, for the most part, oases in a spreading roadside blight. The vast potential of organized civic groups to promote good roadside practices is as yet untapped.

"Safety and Beauty Coast to Coast" are the watchwords of the Blue Star Memorial Highway. This project of the National Council of State Garden Clubs was conceived as a living memorial in tribute to those who served in the armed forces of World War II. Following a designated route along the interregional highways of the United States, each state is privileged to participate through the development of suitable memorials.

The Blue Star Memorial Highway, because of its national scope, brought to us forcibly the need of a program integrated with that of the highway departments of the nation. We found that not only were the sponsoring State Garden Club Federations, in many cases, unfamiliar with the manifold problems of roadside development and maintenance, but that there was a great diversity of thinking among the highway departments. Some departments were reluctant to cooperate in any way in the undertaking. Some had highly developed roadside programs; others were negligible. It is my earnest thesis that a plan at the national level be worked out for closer collaboration between official agencies and the voluntary groups who seek to preserve the beauty of our countryside.

Such a plan involves first the establishment of standards both of maintenance and of roadside practices which bear the stamp of official approval. These may have to be minimum standards. Once the start is made, the level of the standards will tend to increase. Great progress in this direction has been made in recent years through the research sponsored by the Highway Research Board and independent agencies. The interchange of ideas and information afforded by the Short Courses have resulted in far more unified thinking. On the popular side, the American Automobile Association has assembled findings in a handbook of Roadside Protection which is invaluable for groups seeking to organize. The next step is to provide the yardstick by which to operate. Secondly, such a plan involves the formation of a committee, or the recognition of a group already organized, to act as a clearing house—a medium whose function would be to keep abreast of new developments and policies and to disseminate the information to the groups who can utilize them.

The character of the current Model Mile contests, safety campaigns, and roadside-rest programs indicates that many state highway departments recognize
the public-relations value of these projects. If I may be permitted another illustration from my own state, I should like to cite the "Roadside Survey of Approval" conducted annually by the Garden Club of New Jersey. At a specified time, Garden Club surveyors cover the entire state highway system to list the commercial establishments which add to the attractiveness of the highway. A point system of judging is used, based on suitability, sign policy, maintenance, and landscaping. Those which are rated 85 percent or over are inspected by official representatives of the State Department of Health, Conservation, and Highways for conformity to governmental regulations. The certificate that the winners receive has become the hallmark of roadside enterprise. The Highway Department now furnishes every applicant for access to a highway with a set of the Garden Club standards. The State of New Jersey awarded the Garden Club its highest honor for this project in 1950.

The million miles of surfaced highways will continue to present a multitude of problems. Unknown miles of land will be taken for new highways. The urge to correct or to protect them will manifest itself in countless projects. If the standards for an educational program are widely assembled and properly channeled, the contribution of civic groups to roadside protection and beauty will be infinitely increased.
ROADSIDES: THEIR USE AND PROTECTION

FROM THE PLANNER'S VIEWPOINT

By Fred W. Tuemmier
Community Planning and Development Consultant
Hyattsville, Maryland

Today all major American cities and their surrounding suburban areas are suffering from a malady we might call "auto intoxication."

The automobile, which in the last half century has changed our economy, has also changed the pattern of our communities. Limited transportation facilities of a half-century ago necessitated compact urban centers, and travel to the fringe areas was limited to the clusters close to stations of suburban railroads or interurban trolley lines.

The development of the automobile and its increased use, not as a "Sunday-driving" pleasure vehicle but as a means of daily transportation, and the companion improvement and building of roads into hitherto inaccessible areas on the outskirts of cities have created a metropolitan pattern so commonplace that we have a cliche' to describe it - "urban sprawl."

It was natural, in the course of this outward expansion, that initially most of it would take place along and adjacent to existing roads radiating from the city. And it is understandable, too, that the first improvements to these roads bothered little with changes in alignment and grade and almost not at all with widening of right-of-way, or the control of access or marginal use. As a consequence, many of these roads, which today are still the main approaches to our cities, are cluttered with a mesalliance of uses such as gas stations; hot-dog and frozen-custard stands; souvenir shops; diners and other eating places of all variety and description; motels, trailer camps, and tourist courts, junk yards; wayside stands selling farm produce, cider, honey, hooked rugs, or what have you; the ubiquitous sign or billboard; and bars and taverns which a writer for Harper's magazine described several years ago as "neon-lighted dens of dreary mirth."

While it might have been expected that enterprising entrepreneurs would see in these roadways, carrying increasing thousands of people, desirable locations for peddling their wares, it is almost incredible that the last twenty years has seen so little in the way of successful effort to control and regulate roadside exploitation along new roads. Many of these have become almost as inadequate to carry safely and expeditiously the traffic for which they were designed as the roads they replaced. Why? -- mostly because of uncontrolled roadside use, frequency and poor location of access points, unregulated roadside parking and billboards. The only purpose of the last mentioned item is to take the eyes and attention of the motorist from his main job of operating a lethal vehicle in traffic to a fleeting consideration of his need for Burps' Beverage, Stale's Tasty Bread, or some other items not purchasable, perhaps, within 5 or 10 miles of the billboard.

Today, most state highway agencies are in the midst of or are embarking
on new programs for highway construction and improvement to try to catch up with the ever-mounting increase in motor-vehicle mileage and congestion. The State Roads Commission of Maryland, for example, is preparing to submit to its General Assembly a 12-year program estimated to cost 568 million dollars. Legislators will be asked to support this program and, if it passes, the motoring taxpayers will be required to pay for it through increases in the gasoline tax and motor-vehicle registration fees. According to the State Roads Commission, this program will provide for the construction of about 300 miles of new limited-access roads of the freeway and parkway type and the improvement and modernization of 3,150 miles of existing state roads. Let us consider for a moment what this program will mean in terms of highways having long-term service efficiency and safety value.

The right-of-way of a limited-access road is owned in fee by the state, and abutting property does not enjoy the right of light, air, and access as in the case of properties abutting the ordinary highway or street. Thus the limited-access highway can be devoted to the sole purpose of moving people and goods, unfettered by frequent access points to private property and uncluttered by billboards and other uses and distractions. This type of road is needed to handle the main streams of traffic entering a city or in bypassing or looping the congested areas. Its value is unimpaired except for normal wear and tear and, even if traffic volumes increase so as to exceed design capacity, extra lanes can be added within the wide right-of-way acquired in the first place.

But only a few of these million-dollar-a-mile roads can be built in any area. What about the efficient and safe handling of increasing volumes of traffic on other major routes - the 3,150 miles, for instance, in the Maryland system? It is here that the need for roadside protection and control comes in - and in my opinion the improvements and modernization of existing highways will to a great extent be nullified and much money wasted if there is not passed as companion legislation to the road improvement bill one which will give the State Roads Commission the authority to establish roadside protective areas or strips of reasonable width in which the location of access points, structures, billboards, and other uses can be regulated and controlled.

The purpose of such legislation would be to:

1. Maintain the maximum efficiency of highways as traffic-carrying facilities by retaining capacity thereon.

2. Reduce the number of hazards, thus lessening the tragic number of accidents, many of which occur at entrances and exits to roadside establishments or because of roadside distractions.

3. Safeguard the large investment in highways by maintaining marginal areas free from encroachment, thereby making future widenings less expensive and reducing the need for costly and disruptive relocation.

4. Promote orderly development in areas adjacent to the highway, thus protecting real and intangible values in these fringe sections.

Bills to accomplish these objectives have been introduced in several sessions of the Maryland General Assembly since 1941 but have failed of passage.
Why have they failed? For several reasons - first there was little public support, the only organized proponents of these bills being chiefly the representatives of garden clubs throughout the state, who stressed the protection of scenic areas, the enhancement of beauty, and other aesthetic considerations and values, instead of highway safety and efficiency. Second, the opposition, made up mostly of outdoor-advertising interests; oil companies; and roadside business associations, representing motels, restaurants, taverns, gas stations and the like, were well-organized, powerful and vocal, and conducted a campaign of misinformation which succeeded in arousing large sections of the rural population against the bills.

A new bill is in preparation for introduction at this session (1953) of the General Assembly but I fear it will have the fate of its predecessors unless a more vigorous campaign with strong public support is waged. This campaign must stress the four fundamental purposes of the legislation for, while aesthetic considerations and protection of the state's natural beauty and scenic values are important, they do not begin to match in strength the arguments for highway efficiency, safety, and the protection of the state's and the motor-vehicle-taxpayers' dollars.

Of course, the principal reason for failure of roadside protection bills is apathy — apathy on the part of citizens, unorganized, uninformed, and lacking understanding of the fact that their highway funds are often wasted because of too early functional obsolescence, that countless lives and millions of dollars in accident costs and property damage are being lost, and that the daily trip on the highway to and from work becomes an increasingly hazardous, nerve-wracking chore. And for what? — For the benefit of the few who profit from their ability to reach out on the crowded highway for their customers and patrons, and yearly thwart the efforts of highway traffic and safety engineers, planners, and others who try to plan, design, and build better and more functionally efficient and safe roads to accommodate vehicles designed and built to travel faster and faster in ever-growing numbers.

There are some bright spots in the picture, however. Several states, notably Wisconsin, California, Massachusetts, and Vermont, have passed roadside protective legislation. Many communities, particularly cities and suburban fringe areas, have comprehensive zoning regulations and ordinances by which all private land uses and the occupancy of land are regulated. A number of these ordinances have been overhauled or rewritten in recent years and cognizance has been taken of the special land-use problem resulting from high-traffic-volume roadways.

Another field in which attention can and should be given to roadside protection is that of subdivision control. Most cities, and counties adjacent to cities, require that before a plat of land subdivision is accepted for recording, it be reviewed and approved by a public agency having jurisdiction — usually the Planning Commission or city or county engineer.

Through subdivision regulations and subsequent dedication of land, areas for widening or improving alignment of highways can be planned and acquired, even to the extent of providing for service or frontage roads to serve areas bordering high-volume routes.

Some subdivision regulations provide a means for reserving entirely new routes — a paper prepared by Mr. LeRoy C. Moser, Right-of-Way Engineer of the
Maryland State Roads Commission to be presented to the Highway Research Board's Committee on Land Acquisition and Control of Highway Access and Adjacent Areas, describes the procedures employed in Montgomery and Prince George's Counties, Maryland, adjacent to the nation's capital.

Another method under subdivision control which has been tried experimentally but thus far has had little support deserves further consideration. I refer to the reverse frontage arrangement of lots along a main highway which are "backed in" to the traffic arteries instead of fronting on it. This land-planning device requires the introduction of a non-access strip from 25 to 50 feet in width between the rear lot lines and the road right-of-way. This strip is needed to prevent lot owners from building garages, car ports, or other entrance points along the rear lot line with direct access on the highway. In addition, the strip provides space for needed screen planting, fence, or wall to shield, on the one hand, from motorists' view the rears of houses and yards, and to protect, on the other, the "living area" of lots from intrusion of traffic and its companion noise and dust.

This reverse frontage arrangement, sponsored and promoted by FHA in recent years, has fallen into disfavor lately, due mainly to lack of maintenance of screen planting and to violation of the non-access provisions regarding the strip.

The non-access planting strip has much to recommend it, however, to both developers and state highway officials. From the developer's standpoint there is the advantage of having an interior street with lots fronting on both sides instead of one-sided development, as in the case of frontage or service roads, thus reducing the unit cost. Often shorter utility lines and house connections afford another saving. And finally there is the increased salability of a house which does not face on a heavily traveled thoroughfare.

The public and its highway agencies benefit from the fact that access to the main roadway must be provided at street intersections only. These can be well spaced and provision made for intervening streets to terminate at the interior parallel street which acts as a collector. Furthermore there are no marginal activities distracting to the motorist who has an unbroken view of screen planting. Roadside parking and even sidewalks can be eliminated along these roads since all access to properties and all pedestrian travel can be done from and on the parallel interior street. The success of the reverse frontage type of treatment depends, however, upon the willingness of the highway agency to assume fee ownership of the strip and to maintain and police it. In these days of high construction and maintenance costs, it seems to me that serious study should be given to this type of highway treatment. A comparison between costs of construction, service, and maintenance along typical sections of existing major highways and the estimated costs along highways with reverse frontage treatment would provide the basis for determining whether or not state or other highway agencies should encourage the reverse frontage scheme.

Thus, in conclusion, there is not one but several ways in which to meet the problem of roadside protection and control. Each has its particular sphere of application. The limited or controlled-access highway should be used for the routes having the heaviest traffic volumes in urban and suburban areas and on interurban arteries. Roadside regulations, sometimes called "highway strip zoning," is best employed along other major and secondary roads in rural sections
and in suburban communities lacking comprehensive zoning. Comprehensive zoning, embodying the roadside protection features, and the regulation of land through subdivision control are effectively employed in urban and suburban areas. All of these devices in combination offer the strongest assurance that our highways can be made safe and efficient and have a reasonably long life expectancy.
SUMMARY OF PANEL AND AUDIENCE DISCUSSION

The discussion session was started by a question as to whether some highways should not be designated as "pleasure roads"; that the charm has been taken out of roads because of congestion; and that with all of our heavy traffic, might it not be a good idea to plan separate roads for trucks and passenger cars. It was suggested, in answer, that, in the establishment of a new highway, it might be more efficient from many points of view to have separate lanes for trucks and for passenger cars. This presumes, of course, that the amount and character of the traffic justifies such treatment. We probably lack resources to do more than this at this time.

Following a question about adequate shoulders and adequate roadside areas, comments were made that it is desirable and even necessary to have adequate rights-of-way for proper control of vehicular and pedestrian traffic; for ingress and egress to our public highways; and for a proper design that would include all the essential elements of the cross section.

Another comment was that the difficulties encountered with Route 1, Baltimore-Washington Parkway, result from the fact that it was not designed wide enough to provide for the rapid development of transportation that has taken place; and that these mistakes may be made again in planning other highways.

Someone suggested that people are not interested in the attractiveness of the roads — only in getting to their destination in the shortest possible time. There was considerable disagreement with that point of view.

A questioner asked whether it would be possible to start a research project on the emotional factor affecting drivers under specific driving conditions, such as those on the Baltimore-Washington Parkway; the New Jersey Turnpike; and others. This would be a study contrasting driver reaction on multi-lane expressways, turnpikes, and highways with dense roadside encroachments.

In answer, it was suggested that it would require study by a psychologist; and that perhaps some college, university, or foundation would undertake such a study. Several agreed that there was need for a means to measure these effects on drivers.

The statement was made that a deplorable condition exists on U.S. 40, a modern highway along which the roadsides have not been protected. Perhaps a wider right-of-way would be necessary for this purpose. It was asserted that the same was true of Pulaski Highway; the right-of-way was not wide enough when built. If such a highway were to be built today, it would certainly have to be of the controlled-access variety. Also it was suggested that the new legislation in Maryland was a good start in the right direction, but that it was not a cure-all for everything.

Someone mentioned that Illinois has issued a booklet with standards applicable to entrances and exits to state roads. There is need for engineering standards in this field of regulation of access.

The next item of interest concerned the part that organizations can play in promoting desirable roadside-protection practices. It was recognized that until a civic organization has a policy and determines what it wishes to do, the
techniques of doing a certain thing will never materialize. The groundwork is for one organization to (1) determine what is needed for the community; (2) decide what the organization can do to help; (3) adopt its policy, such as to develop a program of newspaper articles, radio programs, television shorts, and to draft suggested legislation; (4) appoint committees; (5) contact newspapers and others to obtain publicity; (6) arrange for speakers to be available for other organizations; (7) integrate the work of cooperating organizations; (8) obtain the ear and interest of the congressional representatives in the district; (9) prepare all releases in such comprehensive a manner that each is clear and concise with perhaps only two ideas in it; and (10) see that someone gets to work and stays with it.

Pursuing the matter of the psychological effects of roadside clutter on the driver, someone suggested that it would be desirable to undertake research to determine the amount of driver distraction, if any, from objectionable lights, signs, and structures. Does a driver stop to read a sign in lights which flash on and off? Can a driver read these signs and keep his mind on the road and his safe driving at the same time? Also, what does the motoring public want in, or on, its highways?

A further statement was made, which was challenged by some, that a lack of stimulation along highways induces sleep. This was discussed and it appeared there is no known documented answer one way or the other.

The suggestion was made that the Eno Foundation be asked to undertake some sustained research on this subject in an effort to bring forth the answer.

Another comment indicated that an educational program should be started, to stimulate public interest in the preliminary planning for improved highways; to improve transportation; and to consider traffic noise, trucks, traffic, and off-the-road items such as "juke-box joints," taverns, and such that litter our highways, all of which might be called of community interest. If an educational program, started in one state and then taken up by most of the states, could show the public generally how America is throwing its money down the drain-pipe by careless littering of highways and lack of roadside protection, and also that this same money could be spent on building new protected highways, the public would cooperate. The matter of traffic routes, safety roads, esthetics of attractive roads, and the public's choice of road location should all be "spelled out" in findings of fact. It is worth while to get the matter to the public which is paying the bill because we cannot go on building new highways and then clutter them up with all kinds of display advertising, etc. It is time we found out the facts — that the really two important factors are safety and economy.

Discussion brought out the fact that sometimes engineers lean toward the thinking that safety is more important than esthetics; but that with harmonious planning, all of these qualities for a complete highway can be included, which would mean safety, economy, utility, and pleasing appearance. It was stated that the general public seems to have no respect whatever for what each has bought with his individual tax dollar in the way of highways, and that immediate education along this line is essential. The problem of adequate highways is a serious one and a personal one to each taxpayer. It was suggested that tenements visible along the roads should be cleaned up; that proper zoning should be instituted for new building; and education of the individual taxpayer be undertaken by cooperating organizations.
The matter of the use of highways by public utilities was brought out by another speaker from the floor. The question was asked if, in the design of highways, there is any provision made for the utilities; where they are to be put; or when they will be put in. When the highways are built, should the highway commission issue permits for the utilities? It was pointed out that the State cannot keep public utilities off right-of-way owned by the utilities. If the State obtains 200 feet or more of right-of-way, the utilities can be kept quite a distance from the roadway. It seems that the public will have to choose between public utilities and highway service. Some states are studying public-utility encroachments, sending out questionnaires, as to number of poles, annual maintenance, and information on zoning protection.

Another question was asked: What direct action is being taken by organizations to educate the legislators and chairmen of various organizations? The education of legislators seems vital because if they knew as much as they need to know about these highway problems, outside agencies and organizations would not have to carry the weight. It was admitted that this is a most important point, that many organizations have active legislative programs, and they get out and fight for their programs; talk it up everywhere the individual members go; and are doing quite a comprehensive job of furthering much needed legislation. However, it was brought out that each organization is independent and all of them do not always agree on concentrating on the same items. It is necessary to provide sufficient information, so that each group can choose for itself those items it wishes to sponsor, then work directly with its members and with its legislators from the particular district.

The matter of the roadside clean-up came in for further discussion. Since property outside the right-of-way is outside the jurisdiction of the highway commission, the means of educating the public on this subject were discussed. Also, the model mile was discussed.

The point was made that it is now necessary to set up certain standards and then explain the whole roadside-protection problem to the public. The facts should be "spelled out." Start by preparing a news program for small civic groups; then take it to other groups; make certain that it is in simple, understandable language; and then everyone in the group make it his personal business to sell that idea and get results. Visual charts showing proper widths of driveways necessary for commercial establishments on the roadside tell the property-owner why that width is necessary for his own protection. Prepare resolutions and circulate them for actual citizen signatures; take the problem to the pocketbook of every taxpayer by comparing expenditures with his tax dollar.

It was brought out that the best tool is pictures, drawings, and sketches of actual situations, and that if the local newspaper is notified of certain conditions, usually they will be glad to cooperate with a news story on the subject, with pictures.

Moderator Levin commented on the excellent participation by the audience during the discussion period and the many worth-while points developed. He thanked the panel members for their skillful presentations which had stimulated so much worthy discussion, and stated that he felt honored to have participated in a subject so close to his heart. He thanked the representatives of the
District of Columbia government who had so graciously provided the street corner Stop-and-Go, red and green light traffic signal, to regulate the time allotted each speaker and discussion period.
This is my last report or "swan song" as Chairman of Division III of this Roadside Development Committee. However, from my observations while traveling about over the splendid roads of this great and beautiful country, especially when approaching any town or city, I am depressed by the worsening roadside advertising situation. These impressions were verified last year by the response to my questionnaire which I reported briefly in the 1952 Committee Report.

The battle of the billboards and the roadside slums is far from won. We now need a more vigorous and sustained attack on the same group which indirectly brought this splendid committee into being more than twenty years ago. Even though the public taste and tolerance have greatly improved, there is still a great and continuing need for more public education and an improved appreciation of the great responsibility of the public for the general appearance of the roadsides of the world's finest system of modern highways.

Without repeating my report of last year, I might mention in passing that this committee has done a remarkable job of educating engineers and contractors all over the United States. The public indirectly has come to recognize the difference between good and poor design of alignments, shoulders, turnouts, vegetative cover, soil conservation, and many other problems.

Have our control and guidance of what has happened along the roadsides of our great system of highways measured up to the mechanical and engineering advances during that period? You, as individuals, can fill in your own answers.

This Committee has at least won the confidence of the highway engineers and contractors and has practically won the confidence and interest of the colleges and universities of the country. As witness, consider the increasing number of roadside short courses and educational articles appearing in the magazines and press throughout the country on various phases of the roadside problem.

I gladly give to my successors on this committee the task of carrying on this tremendous work of making and keeping our roadsides worthy of the great highway system and the natural and inspiring beauty of the U.S.A.
APPENDIX B

Material submitted by Mrs. Vance Hood

1. Copy of opinion delivered by Judge Brennan in case of United Advertising Corp. vs Borough of Raritan, N. J., in case involving municipal zoning ordinance, argued November 17, 1952. In course of handing down opinion, Judge Brennan said:

"It has long been settled that the unique nature of outdoor advertising and the nuisance fostered by billboards and similar outdoor advertising justifies the separate classification of such structures for the purposes of governmental regulation and restriction."

2. Spencer Miller, Jr., Lecture Series, February-April, 1952. Prospectus of series of lectures on landscape design and its relation to the modern highway, established by New Jersey Roadside Council and given at State University of New Jersey, New Brunswick, N. J.


4. New Jersey's Blue Star Drive. Folder describing project; available from Garden Club of New Jersey.
APPENDIX C
THE COMPLETE HIGHWAY AS THE PUBLIC WANTS IT
Highlights from a Survey Among 246 Motorists in 20 States for
Eleventh Annual Conference on Roadside Development
Columbus, Ohio
April 3, 1952

1. **Motorists want billboards restricted.** Practically all motorists voting (over 90%) favor restrictions against advertising signs on rural roads. The largest number (66%) desire sharp restrictions on most sections of rural roads with, however, provision for advertising signs in areas designated or zoned as commercial.

Four percent favored either doing nothing about advertising signs (1%) or permitting them wherever advertisers want them and property owners are willing that they be placed (3%).

One out of four (26%) favored restrictions only in relatively few places such as highly scenic areas or close to intersections.

Four percent had special and quite varying viewpoints which they stated.

2. **Motorists want their main highway divided!** For heavy main traffic arteries, among eleven listed items, the following were those most preferred—and voters were reminded that they have to help pay for all such items:

   a. Divided highways was the outstanding top preference.
   b. Controlled access, with express lanes, was second preference.
   c. Grade separations at all major traffic intersections received third rating.
   d. At least 10-ft.-wide stabilized shoulders and at least 12-ft.-wide express lanes rated next in order.

The need for further education, demonstration, and emphasis on roadside features was indicated. For, while in other questions motorists had stated their favor for wide rights-of-way, well-planned attractive roadsides, and scenic turnouts and rest areas, these items were less favored than the items listed above, and were also less favored than long sight distances, and acceleration and deceleration lanes. Local service roads were also toward the end of the preferences.

One way to appraise these preferences is that these "average motorists" tended rather naturally to give high preferences to those features which they can most readily see as directly aiding expeditious and safe travel. Thus, "wide rights-of-way free from pole lines and commercial structures" are understood by highway students to be of fundamental importance—but the average motorist more readily sees the advantage to him of, for example, divided highways.
3. **Inadequacies of road signs strongly criticized.**

   a. Three out of four motorists voting (76%) stated that route number signs in cities cannot be seen well enough at night, while one-half of the voters (47%) considered that such signs were too small anyway.

   b. Three out of five (56%) stated that there were too few route number signs in cities, but about the right number in rural areas (61%). However, two out of five (38%) thought there were too few even in rural areas.

   c. Over half (54%) considered route number signs in rural areas too hard to see at night.

   d. Two out of three (66%) thought warning and direction signs of about the right size, but half (50%) of the motorists voting wanted better night visibility.

4. **Motorists want ample road shoulders.** Almost all motorists (98%) consider ample shoulders of considerable or great importance—with two-thirds (63%) voting them of great importance. These figures are the more important because those polled were reminded that good shoulders cost money and that they help to pay for them.

5. **Wide rights-of-way for main roads favored.** Three out of four motorists want their state to obtain fairly wide (44%) or quite wide (31%) rights-of-way. Those voting were reminded that their road taxes help to pay for rights-of-way. One out of four would have wider rights-of-way obtained only where it seems certain that more travel lanes will be needed soon.

6. **Roadside planting meets motorist favor.** Five out of six motorists (83%) want their state to do either a modest or a considerable amount of roadside planting. Two out of three favored a modest amount. Voters were reminded that the cost of such planting comes in part from their road tax.

7. **Motorists want roadside scenic turnouts and rest areas.** Five out of six motorists (85%) considered roadside scenic turnouts and rest areas a good or very good idea. Almost one out of two (44%) considered these a very good idea — there should be more of them, well maintained. Only 3 percent considered these roadside areas a waste of tax money.

    Practically all motorists voting (97%) were familiar with roadside scenic turnouts and rest areas, and three out of four (74%) had used them.

8. **Motorists want protected parking in roadside areas.** Among items that may be provided in such roadside areas, the top vote was for "parking space physically separated from travel lanes." Next in preference was toilets, then picnic tables and containers for rubbish.
Benches and fireplaces practically tied for next preference. Drinking water came last.

In light of experience which often shows that such roadside areas become untidy, it would appear that more education and emphasis on cleaning up after use seem called for.

9. Motorists are markedly changing views on what they want in highways. Large changes are occurring in the attitude of the motoring public toward what they want in and alongside their highways. Two out of five rated these changes in attitude as "considerable," while an equal number rated them as "great." Only one out of five stated that no changes (1%) or few changes (18%) were occurring.

This is a highly encouraging indication of progressiveness among motorists as to what they want!

---0---

The above are viewpoints of "average motorists," not highway transportation specialists. While the sample is small, it is widely distributed — (among 20 states, see attached map). Voters in general were persons calling at AAA Automobile Clubs for touring information.

The motorists voting reported driving a wide range of miles per year. One-third (35%) estimated their annual mileage as 10,000 miles. One out of five (19%) gave 15,000 miles, while one out of six (15%) gave 5,000 to 9,000 miles. Thus, seven out of ten (70%) drove from 5,000 to 15,000 miles per year. Eight percent drove over 25,000 miles per year (one percent—60,000 miles) and eight percent drove 4,000 miles or less.

Half of the votes were for driving either "considerably" or "mostly" in rural areas. Of the driving in rural areas, two-thirds (65%) indicated that at least one-half was on main highways.

Persons cooperating in obtaining votes were requested to explain briefly the poll and the reason for it, and to answer any questions as to meaning which might arise.
REPLY FORM

On What The Motoring Public
Wants In Its Most Important Highways

NOTE: Pencilled-in Numbers and Percentages are a Summary from Replies of 246 "Average Motorists" from 20 States.

1. Some highways have ample shoulders (a shoulder is the space between the pavement and the drainage ditch) on which a car can be stopped or driven safely in an emergency. Others have very narrow shoulders, or shoulders which will not bear the weight of vehicles. It costs money to provide good shoulders, and you help to pay. How important do you consider ample shoulders? (Check one)

<table>
<thead>
<tr>
<th></th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>(2%)</td>
</tr>
<tr>
<td>87</td>
<td>(35%)</td>
</tr>
<tr>
<td>160</td>
<td>(63%)</td>
</tr>
</tbody>
</table>

2. A wide strip of land ("right-of-way"), from the property line on one side of the road to the property line on the other, is sometimes obtained to take care of future road widenings; to permit a wider dividing strip in the middle of the highway, flatter side slopes, and wider ditches; to keep pole lines and other objectionable features from being placed too close to the travel lanes. Remembering that your road taxes help to pay for these rights-of-way, what do you want your state's policy to be? (Check one)

|       | 
|-------|------------------------------------------------|
| 
| 1     | Obtaining any more than a narrow right-of-way seems unimportant to me. |
| 64    | (25%) Only in cases where it seems certain that more travel lanes will be needed soon, should wider right-of-way be obtained, at the outset. |
| 111   | (44%) I favor obtaining fairly wide rights-of-way. |
| 78    | (31%) I favor obtaining quite wide rights-of-way. |

3. In some places perennial flowers, flowering shrubs, bushes, or trees are planted on right-of-way strips owned by the state adjacent to roads, one major purpose being to make these roadsides more attractive to the traveler. How much such planting should your state do (remember that the cost of such planting comes in part from your road tax)? (Check one)

<table>
<thead>
<tr>
<th></th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>42</td>
<td>(17%) None</td>
</tr>
<tr>
<td>161</td>
<td>(65%) Modest Amount</td>
</tr>
<tr>
<td>45</td>
<td>(18%) Considerable</td>
</tr>
</tbody>
</table>
40. Increasingly, highway departments are providing, at selected points outside of municipalities, areas at the roadside in which drivers can park for a picnic lunch, to enjoy a view or to relax. Some of these areas have drinking water, some have toilets, some have picnic tables, fireplaces, benches.

Are you familiar with such roadside scenic turnouts and rest areas:

<table>
<thead>
<tr>
<th>240 (97%)</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 (3%)</td>
<td>No</td>
</tr>
</tbody>
</table>

Have you ever used such roadside areas?:

<table>
<thead>
<tr>
<th>185 (74%)</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>61 (26%)</td>
<td>No</td>
</tr>
</tbody>
</table>

What do you think of such roadside areas, for which some of your road taxes are used? (Check one)

<table>
<thead>
<tr>
<th>8 (3%)</th>
<th>A waste of tax money</th>
</tr>
</thead>
<tbody>
<tr>
<td>31 (12%)</td>
<td>Of little importance</td>
</tr>
<tr>
<td>123 (41%)</td>
<td>A good idea</td>
</tr>
<tr>
<td>1/0 (44%)</td>
<td>A very good idea, there should be more of them well maintained.</td>
</tr>
</tbody>
</table>

5. Among the items that may be provided in such roadside areas, which do you consider most important among the following, remembering that your road tax helps pay for them? (Rate items in order of your preference: #1 - most important, #2 - next, etc.)

<table>
<thead>
<tr>
<th>Average Rating</th>
<th>(223 Replies Received)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.61</td>
<td>Parking space physically separated from travel lanes</td>
</tr>
<tr>
<td>4.47</td>
<td>Benches</td>
</tr>
<tr>
<td>3.87</td>
<td>Picnic Tables</td>
</tr>
<tr>
<td>3.88</td>
<td>Containers for rubbish</td>
</tr>
<tr>
<td>3.18</td>
<td>Toilets</td>
</tr>
<tr>
<td>4.75</td>
<td>Drinking Water</td>
</tr>
<tr>
<td>4.55</td>
<td>Fireplaces</td>
</tr>
</tbody>
</table>

6. What do you think your state highway department should do about advertising signs along rural roads? (Check one)

<table>
<thead>
<tr>
<th>3 (1%)</th>
<th>Nothing</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 (3%)</td>
<td>Advertising signs should be permitted wherever advertisers want them and property owners are willing that they be placed.</td>
</tr>
<tr>
<td>64 (26%)</td>
<td>There should be restrictions against advertising signs, but only in relatively few places such as highly scenic areas, or close to intersections.</td>
</tr>
<tr>
<td>163 (66%)</td>
<td>There should be sharp restrictions against advertising signs on most sections of rural roads making, however, provision for their use in areas designated or zoned as commercial.</td>
</tr>
<tr>
<td>9 (4%)</td>
<td>Other (Please state your viewpoint)</td>
</tr>
<tr>
<td>--------------</td>
<td>----------</td>
</tr>
</tbody>
</table>
7. For heavy main-traffic arteries (remembering that you have to help pay for them), the following are the things I want most: (Rate items in order of your preference: #1 most important; #2 next, etc.)

<table>
<thead>
<tr>
<th>Average Rating</th>
<th>Item Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.34</td>
<td>Divided highways -- the traffic flow in the two directions being physically separated.</td>
</tr>
<tr>
<td>4.48</td>
<td>Lanes on which traffic can move expeditiously and uninterrupted (express lanes) by provisions of strips of land along each side of the road across which vehicles are not permitted to go (except at certain places selected by public authorities and appropriately designed).</td>
</tr>
<tr>
<td>4.73</td>
<td>Grade separations at all major-traffic intersections.</td>
</tr>
<tr>
<td>5.44</td>
<td>Lanes at least 12 feet wide for &quot;express&quot; movement.</td>
</tr>
<tr>
<td>5.55</td>
<td>Shoulders at least 10 feet wide and so constructed that in an emergency vehicles can move safely on them.</td>
</tr>
<tr>
<td>6.10</td>
<td>Long sight distances (so drivers can see the road far ahead).</td>
</tr>
<tr>
<td>6.12</td>
<td>Slowing-down and speeding-up lanes long enough for a driver to slow down for a right turn onto another road, and to pick up speed when entering from a side road before getting into the express traffic.</td>
</tr>
<tr>
<td>6.30</td>
<td>Wide rights-of-way free from pole lines and commercial structures.</td>
</tr>
<tr>
<td>6.60</td>
<td>Local service roads, separated from the express lanes, where needed to provide access to homes, etc.</td>
</tr>
<tr>
<td>8.85</td>
<td>Well-planned, attractive roadsides.</td>
</tr>
<tr>
<td>8.18</td>
<td>Scenic turnouts and rest areas.</td>
</tr>
<tr>
<td></td>
<td>Other feature (please describe).</td>
</tr>
</tbody>
</table>

8. A number of drivers report that they "get lost" while driving in unfamiliar areas due to inadequate signs. Remembering that your road tax helps pay for them, what are your views?

a. As to route number signs in cities, there are:

4 (2%) too many; 105 (42%) about right number; 138 (56%) too few.

b. As to route number signs in rural areas, there are:

3 (1%) too many; 147 (61%) about right number; 93 (38%) too few.

c. In cities, route number signs are:

14 (47%) too small; 126 (53%) about right size; 0 too big.

Can they be seen well enough at night? 55 (24%) Yes 172 (76%) No.
d. In rural areas, route number signs are:

- 47 (20%) too small; 185 (80%) about right size; 0 too big.

Can they be seen well enough at night? 107 (16%) Yes 126 (54%) No.

e. Warning and direction signs are:

- 76 (32%) too small; 164 (66%) about right size; 3 (1%) too big.

Can they be seen well enough at night? 113 (50%) Yes 113 (50%) No.

9. How much do you think that the attitude of the motoring public is changing toward what they want in and alongside their highways?

- 2 (1%) Ideas are not changing
- 42 (18%) A few changes are taking place
- 97 (40%) Considerable changes are occurring
- 99 (41%) We are greatly changing our ideas on what we want in our highways

A. I drive per year about:

<table>
<thead>
<tr>
<th>Mileage</th>
<th>Year Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>0-4000</td>
</tr>
<tr>
<td>37</td>
<td>5000-9000</td>
</tr>
<tr>
<td>85</td>
<td>10,000</td>
</tr>
<tr>
<td>46</td>
<td>15,000</td>
</tr>
<tr>
<td>21</td>
<td>20,000</td>
</tr>
<tr>
<td>20</td>
<td>25,000</td>
</tr>
<tr>
<td>11</td>
<td>30,000</td>
</tr>
<tr>
<td>3</td>
<td>35,000</td>
</tr>
<tr>
<td>2</td>
<td>40,000</td>
</tr>
<tr>
<td>0</td>
<td>45,000</td>
</tr>
<tr>
<td>0</td>
<td>50,000</td>
</tr>
<tr>
<td>0</td>
<td>55,000</td>
</tr>
<tr>
<td>2</td>
<td>60,000</td>
</tr>
</tbody>
</table>
B. Proportion of my driving in rural areas which is on main highways:

| 5  | 0-9% |
| 21 | 10-19% |
| 25 | 20% |
| 21 | 30% |
| 9  | 40% |
| 29 | 50% |
| 15 | 60% |
| 38 | 70% |
| 25 | 80% |
| 46 | 90% |
| 3  | 100% |

Burton W. Marsh  
American Automobile Association  
March 31, 1952
APPENDIX D

ROADSIDES: THEIR USE AND PROTECTION
(A panel and audience-participation discussion)

Issues

The highway affects the adjacent-land uses; and in turn these land uses affect the adjacent highway.

(The four factors significant to sound highway development: Safety, Utility, Economy, and Beauty.)

I. SAFETY - Features OFF the travel way affect safety ON the highway

(a) Wide right-of-way
(b) Entrances and exits
(c) Intersections
(d) Parking of vehicles (building setbacks)
(e) Signs, outdoor advertising, drive-in theatres, trees, roads, flashing lights, and other functional hazards
(f) Frontage roads

II. UTILITY ----- an important part of the inter-relationship of the highway and the roadside—both driver and vehicle services

(a) Commercial features—gas stations, restaurants, motels, etc.
(b) Pedestrian facilities—sidewalks, footwalks, steps, etc.
(c) Public utilities—pole lines, sewers, etc.
(d) Informational signs off the right-of-way, tourist information, etc.
(e) Uncontrolled ribbon development hinders highway travel and reduces highway capacity—cuts down its utility
(f) Parking turnouts and rest areas
(g) Airports and industrial establishments
(h) Functional highway design—raised median

III. ECONOMY ----- plays a significant role, considering the highway and the roadside

(a) Every needless stop and start, occasioned by roadside clutter, wastes gasoline, rubber, and is otherwise costly
(b) Development bordering the highway increases costs of, and often prevents, highway modernization. (Note Va. 20-year plan)
(c) Uncontrolled ribbon development increases maintenance costs
(d) Roadside clutter destroys natural landscape features
(e) Drainage problems are complicated by roadside ribbon development

IV. BEAUTY ----- an essential element in sound highway development

(a) Beauty, for a highway and its environs, consistent with safety, utility, and economy. The complete highway concept envisions safety, utility, economy, and beauty.
(b) Conservation and protection of natural landscape as viewed from the highway—saving of trees, wooded areas, etc. Taken altogether these are the essence of beauty in its purest form.
V. ENCOURAGING application of the memorial highway concept
(a) Involves more than the mere designation or posting of a facility as a memorial. Advance highway design required—constitutes a step toward obtaining a complete highway
(b) Silent Cross Memorial Highway in Wisconsin
(c) Blue Star Memorial Highway Development—origin, history, legislation, etc.
(d) Other memorial highways
(e) Standards applicable
(f) Future possibilities for furthering roadside protection
(g) Public support organizations
(h) Public relations features
(i) Special projects
(j) Legislation

VI. RELATIONSHIP between public utilities (installation and maintenance) and highway development
(a) Policy with respect to existing highways
(b) On new highways
(c) On expressways

VII. IMPROVED HIGHWAYS—benefit abutting property owners and communities
(a) Need for cooperation with abutters
(b) Public relations aspects
(c) California and Texas studies
(d) Relationship between highways and land use—development

VIII. TOURIST TRADE—Very important in its relation to modern highway development
(a) Data on tourist expenditures, by States
(b) Efforts to make State highway roadsides more attractive, etc.
(c) Highways

IX. EFFECTIVENESS OF PERMIT AND LICENSING SYSTEM, in control of roadsides
(a) Basic concept and extent of use
(b) Related to entrances and exits, control of vegetation, encroachments or structures, public utilities, etc.
(c) Recommendations for improvement of device

X. SIGNIFICANCE OF ALL THESE THINGS in terms of conservation of human and natural resources

XI. DEVICES—that assist in roadside protection
(a) Acquisition of wide rights-of-way
(b) Roadside zoning
(c) Reservation of lands for future rights-of-way
(d) Sponsoring model mile efforts
(e) Acquisition of easements
(f) Use of police power
**QUESTIONNAIRE FORM.**

<table>
<thead>
<tr>
<th>State: Recapitulation of Replies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name: Received from States</td>
</tr>
<tr>
<td>Date: December 1952</td>
</tr>
</tbody>
</table>

**QUESTIONNAIRE ROADSIDES: THEIR USE AND PROTECTION**

Please check mark each question below for Highway Research Board Committee on Roadside Development.

1.0 SETBACKS. — (Roadside buildings, gasoline pumps, and other structures)

(See ROADSIDE PROTECTION published by AAA in 1951, p. 55)

1.1 Does your State use the setback device in connection with public highways? YES 15 ; NO 14

1.2 How much setback is used? LESS than 15 ft. 11 ; 15-25 ft. 4 ; 25-35 ft. 1 ; 35-50 ft. 16 ; MORE than 50 ft. 2

1.3 How is the required setback in ft. measured? From the centerline? 2 ; From R/W boundary? 17

1.4 Where are setbacks used?

- On rural primary highways? 15 ; on urban highways? 10
- On existing highways? 14 ; on new locations? 14

1.5 Are setback requirements applied to all buildings or other structures adjacent to highways? YES 9 ; NO 10

1.6 Are the setbacks effective? YES 15 ; NO 2

1.7 Give EXAMPLES of Standards used: Too Varied for recapitulation

Illustrate in terms of specific highways and places;

2.0 ZONING. — (Land and buildings along Roadsides) (See pp. 52-63 AAA ref.)

2.1 Is zoning of highway roadsides used in any of the counties or other localities of the State? YES 16 ; NO 17

2.2 If zoning has been authorized, has it been effective in controlling undesirable ribbon development? YES 12 ; NO 6

2.3 Have roadside businesses been confined to designated sections of highway? YES 7 ; NO 17

2.4 Is appearance of roadside business buildings and structures regulated? YES 2 ; NO 24

2.5 Are billboards regulated under zoning? YES 15 ; NO 12

If so, please illustrate, naming specific highway locations, places, mileages, etc., where such zoning is effective.
QUESTIONNAIRE FORM - continued

3.0 PUBLIC UTILITIES. — (Pole lines, underground services, etc.)

3.1 What is the State's policy with respect to public utility installations?
   Is State policy the same with respect to:
   -- existing highways?        YES 31; NO —
   -- new highways?             YES 30; NO 1
   -- expressways?              YES 22; NO 5
   -- parkways?                 YES 19; NO 5

3.2 Are pole lines permitted on Right-of-way? — — — — — — — — — — — — — — — — YES 33; NO — —

3.3 Are poles placed under a system of licensing to meet certain standards established by highway department? YES 23; NO 8

3.4 Is a standard permit form used? — — — — — — — — — — — — — — — — — — — — — — — — YES 28; NO 5

3.5 Is the policy different with respect to different types of utilities? — — — — — — — — — — — — — — — — — — — — — — — — YES 1; NO 30
   If so, indicate the differences:___________________________________________

3.6 To what requirements must utilities conform? Requires Special analysis

3.7 What happens in case of highway widenings? Requires Special analysis

3.8 Does the State encounter any difficulties with utilities? YES 9; NO 20
   If so, in what way?___________________________________________________

4.0 PERMIT AND LICENSING SYSTEM. —

4.1 Are permits issued for anything connected with the roadsides? YES X; NO —
   -- Pole lines       YES 27; NO 4. —Billboards       YES 7; NO 23
   -- Private driveway entrances and exits       YES 31; NO 1
   -- Drainage       YES 24; NO 4. Tree and shrub plantings YES 23; NO 7
   -- Other (specify) Yes 14. No. —

4.2 Has permit system been effective for intended purposes? YES X; NO —
   If not, why not?___________________________________________________

Pole lines- YES 28; NO 1; Billboards- YES 8; NO 5;
Private driveway entrances and exits- YES 27; NO 2;
Drainage YES 26; NO 1; Tree and shrub planting, etc. YES 23; NO 3
OTHER Yes 6; No. —
QUESTIONNAIRE FORM - continued

4.3 Submit samples of permit forms used and indicate procedure for each:

Various forms of permits submitted:

Sample: UTAH "Pole Line Agreement and License"

"Pole Line Agreement and License" (for Licensee other than United States.)

4.4 What recommendations for improvement would you suggest? Requires special analysis

5.0 MISCELLANEOUS:

5.1 Are MODEL MILE or equivalent projects sponsored in your State?  YES  5; NO  26

5.2 If so, on what specific routes?  Requires special analysis

5.3 What are the results? Submit an adequate description of the effort?  Requires special analysis

5.4 Is there any other phase of roadside protection in your State upon which you may wish to comment, such as use of scenic easements, memorial routes, etc.?  Requires special analysis

NOTE: Completed Questionnaires received from 32 States, District of Columbia and Territory of Hawaii for a total of 34 replies of a possible 50.

Breakdown of Replies by BPR Field Divisions: (As of October 1952)

Div. I.  1 State of 8 replying  Div. VS.  2 States of 4 replying
Div. II. 5 States of 7 replying  Div. VI.  4 States of 4 replying
Div. III. 3 States of 7 replying  Div. VII.  3 States of 4 replying
Div. IV. 4 States of 4 replying  Div. VIII.  4 States of 4 replying
Div. VN. 4 States of 4 replying  Div. IX.  4 States of 4 replying

NOTE: If space above is insufficient for additional information you would suggest for Committee consideration in regard to the above or other questions, please attach extra pages as needed, with identification of items by number.