400.22 CALIFORNIA SIGN COMMITTEE
Pages 3+4



Directions for the Traveler

STATE OF CALIFORNIA · DEPARTMENT OF PUBLIC WORKS · DIVISION OF HIGHWAYS
ROBUR DIRECTVM SCIENTIA EST VIA FORTVNAE

Signposts

Directions for the Traveler Are Hundreds of Years Old

By GEORGE M. WEBB, Traffic Engineer

FOR HUNDREDS of years, signposts have guided the traveler on his way, whether a pilgrim traveling on foot or a motorist on an eight-lane freeway.

Ancient traffic signs are described in the 1954-55 winter issue of *Road International*. One relic of the past, nearly 300 years old, is located in England upon the Cotswolds at the intersection of the roads to Gloucester and Worcester. This is believed to be the oldest signpost in Britain. It is carefully preserved by the British highway authorities. Four iron arms point the ways to Worcester, to Oxford, to Warwick, and to Gloucester.

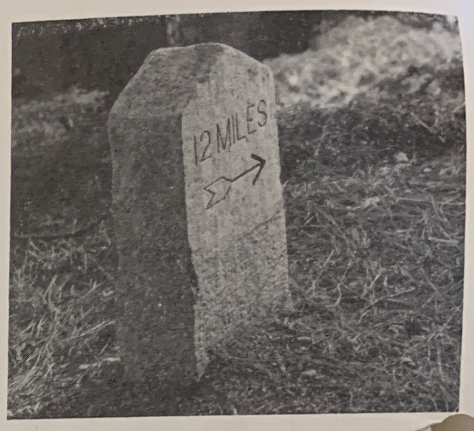
When a traveler wanted to know how far it was to any one of these towns, he consulted the side of the appropriate arm. It is known as the Cross-Hands.

Old milestones are also found in Britain which give distances and directional information to the traveler. The distances are given to towns with only the first letter of the place name. Some of the old milestones carried only the number. The traveler was expected to know where the roads led.

Pioneer Signs on US 50

Travelers along modern US 50 between Placerville and Lake Tahoe can still glimpse some of the stone mileposts on which have been engraved the distance easterly from Placerville. In Central Illinois, rural road markers of a generation ago consist of a map cast in iron, with the location of the particular marker indicated by a star. Thus, by careful and leisurely inspection, the traveler could determine his location and his route.

These signs of bygone days would be of little value with present-day speeds and traffic volumes. Today, traffic signs are recognized as an integral part of a modern highway—essential to its operation and to the safe, orderly, and smooth flow of traffic.



This marker on US 50 in El Dorado County sho the distance to Placerville

The Division of Highways continually studies and improves signing techniques to keep pace with the ever-increasing traffic demands and to provide California motorists with superior signing service. Signposting has changed throughout the years along with other highway features, but its purpose to guide the traveler remains the same as in olden times.

Auto Increased Travel

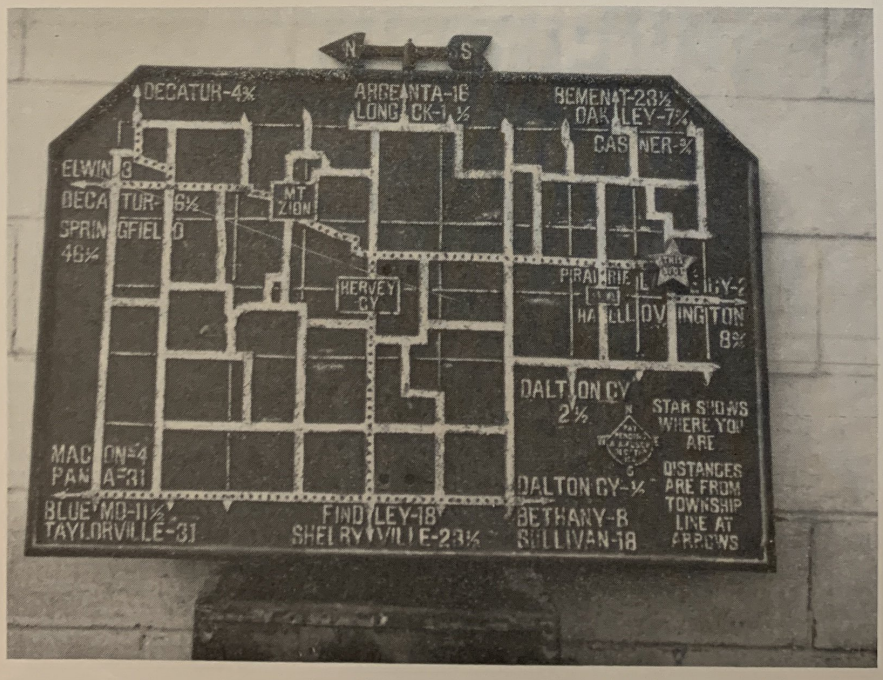
When the automobile came into popular use, people traveled farther and faster than ever before. Longer trips over new roads were commonplace, and there were more people using strange roads far from their homes. This increased travel, particularly travel for long distances, created a strong demand for legible signs. As highways and automobiles improved, speeds increased and so did the need for adequate highway signs that could be read from a moving car.

Types of Signs and Uniformity

There are three general types of traffic signs in use today:

1. *Warning* signs to caution drivers of the need for added alertness or reduction in speed;

Iron "map" served as guide to traveler in early days of motoring in Central Illinois (Photo courtesy of Macon County Road Department)



2. *Regulatory* signs to inform motorists of regulations governing movement;

3. *Guide* signs for guidance and directional information.

Obviously, traffic signs of all types should follow uniform standards and be placed in accordance with uniform practice so they will have the same meaning and require the same action on the part of motorists wherever encountered. State-wide uniformity on county roads, city streets, and state highways minimizes drivers' confusion and contributes materially to the safe, orderly, and expeditious movement of traffic.

National uniformity is likewise important. California follows the general standards of the Manual on Uniform Traffic Control Devices for Streets and Highways approved by the American Association of State Highway Officials, Institute of Traffic Engineers, and the National Committee on Uniform Traffic Laws and Ordinances. State-wide uniformity on county roads and city streets, as well as state highways, is encouraged by membership and active participation in the deliberations of the California Sign Committee, the Engineering Division of the Governor's Traffic Safety Conference, and other professional groups.

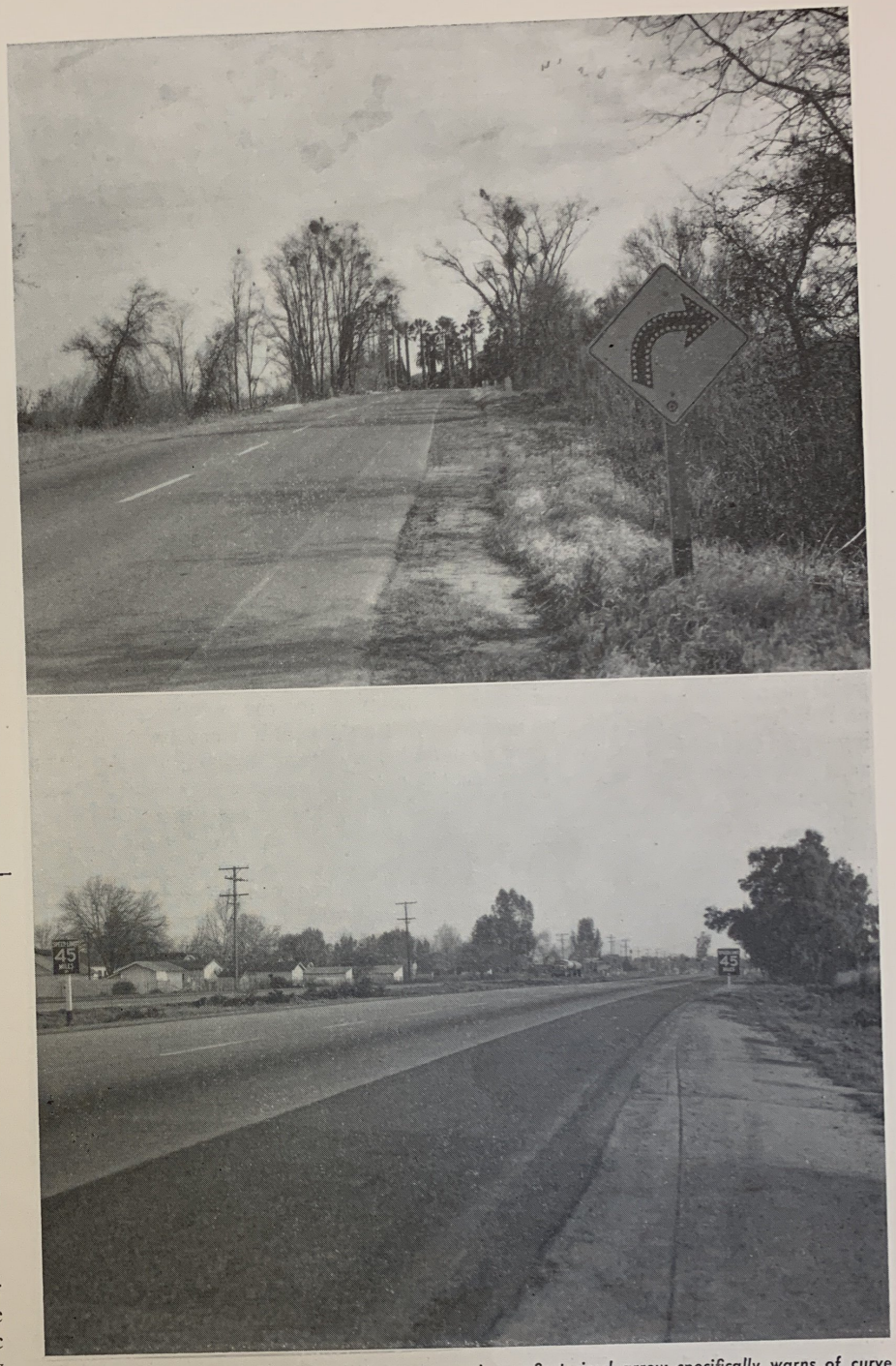
General Rules for Use of Signs

Signs are essential where special regulations apply, where unusual conditions are not self-evident, and to furnish directional information. They should be used wherever there is a real need but not profusely. Too many signs detract from the effectiveness of those necessary for safety and guidance.

Well-known rules of the road or general provisions of the Vehicle Code are not generally required on traffic signs. Drivers are expected to know the rules for safe operation of their vehicles, and a multiplicity of needless signs with long messages would be distracting and serve no useful purpose.

Guide Signs

Except for the foregoing general comments, this discussion is limited to guide signs. The function of guide signs, as the name implies, is to guide motorists along routes and to destinations of their choice, to inform motorists of intersecting routes, to direct to cities or towns, and, to a lesser extent, to furnish information and to identify locations not readily apparent.



UPPER—Diamond-shaped yellow sign indicates a warning; reflectorized arrow specifically warns of curve to right ahead. LOWER—Speed limit signs are most familiar examples of regulatory type sign.

The modern highway with adequate visibility and easy curvature to accommodate all normal driving speeds reduces the need for warning and regulatory signs. However, the increased width and higher speeds, and the necessity for making decisions far



Directional information is purpose of guide signs

in advance of turnoffs or intersections greatly increases the importance of the guide signs. This is particularly true on full freeways. Practically no warning signs are needed on freeways except on ramps and connections at interchanges.

Like the early day traveler, the motorist on present-day conventional highways takes advantage of familiar scenes, landmarks, buildings, and geographical features for information as to his whereabouts and the location of intersections and points where choice of direction is made; but the full freeways, with wider rights of way and no businesses or buildings of any kind fronting directly on the highway, present a sameness which may make identification of location difficult. This further brings out the need for guide signs of adequate legibility placed a considerable distance in advance of turnoffs.

It has been frequently said that directional signs were needed only for the infrequent user or the complete stranger on a highway. This is not true on the modern highway with access completely controlled and no intersections at grade. Even frequent users need signs to identify locations and turnoffs.

State-wide Problem

The extensive highway improvement program now under way in many cases removes traffic from congested business streets. This traffic is diverted to the newly constructed routes, generally freeways, which bypass the main business district. This makes the subject of adequate directional signing of great interest to many communities and areas throughout the State. The state-wide scope of the problem requires that it be treated on a uniform state-wide basis.

The state-wide signing practice of the Division of Highways has evolved through the years in meeting changing conditions, increased traffic, and the growth of communities along the expanding network of state highways.

California Sign Committee

Current state highway signing practice, while it is the responsibility of the Division of Highways, was not developed alone by this division. Much of it stems from the studies and consultations of the California Sign Committee which was organized to promote orderly, safe, and consistent signing throughout the State. Members of the Sign Committee are the State Division of Highways; California State Automobile Association; Automobile Club of Southern California; California Supervisors Association; League of California Cities; and Institute of Transportation and Traffic Engineering of the University of California. The individuals who represent these organizations on the committee are directly concerned with highway signing.

All matters pertaining to type, size, color, positioning, and use of signs are agreed upon after considerable study by this committee, and the several members observe these agreements very closely. Although this organization is advisory only, it has been very effective in securing uniformity on California roads, streets, and highways. Informal meetings of this committee are held as needed, generally several times a year.

Basic Principles and Standard Practice

Certain principles must be followed if signing is to achieve the best results in guidance and safety. One such principle is that the number of place names which can be used effectively on a single sign is distinctly limited. Except under very unusual conditions, the number should not exceed three. Drivers of vehicles moving at present-day speeds are unable to read a long list of place names and directional arrows. Neither can they stop or slow down without hazard to traffic.

A study by the Institute of Transportation and Traffic Engineering of the University of California indicated that the number of drivers' errors in reading signs increases sharply if the number of names on a sign exceeds three. This study also indicated that a dividing line between destinations in opposite directions is of great benefit in reducing drivers' errors in reading signs. As a result, it has now become standard practice of the Division of Highways to use the dividing line be-

This sign once guided travelers in Southern California, but would obviously be impossible to read and digest from a vehicle driving on a modern highway at normal speed



tween destinations on new standard directional signs or replacements.

Reassurance Signs

To reassure motorists that they are on the right road and to tell them how far it is to points along the route, reassurance guide signs are placed facing outbound traffic at the outskirts of cities or towns and just beyond principal highway junctions. These signs generally show (1) the next town, (2) the next county seat, road junction, or important city, and (3) the end of the route. All of the towns named are on the route being traveled. Where the road divides, locations in each direction may be shown, and cities designated as the termini may be alternated on the bottom line of successive signs. Distances are shown to the nearest mile for each destination.

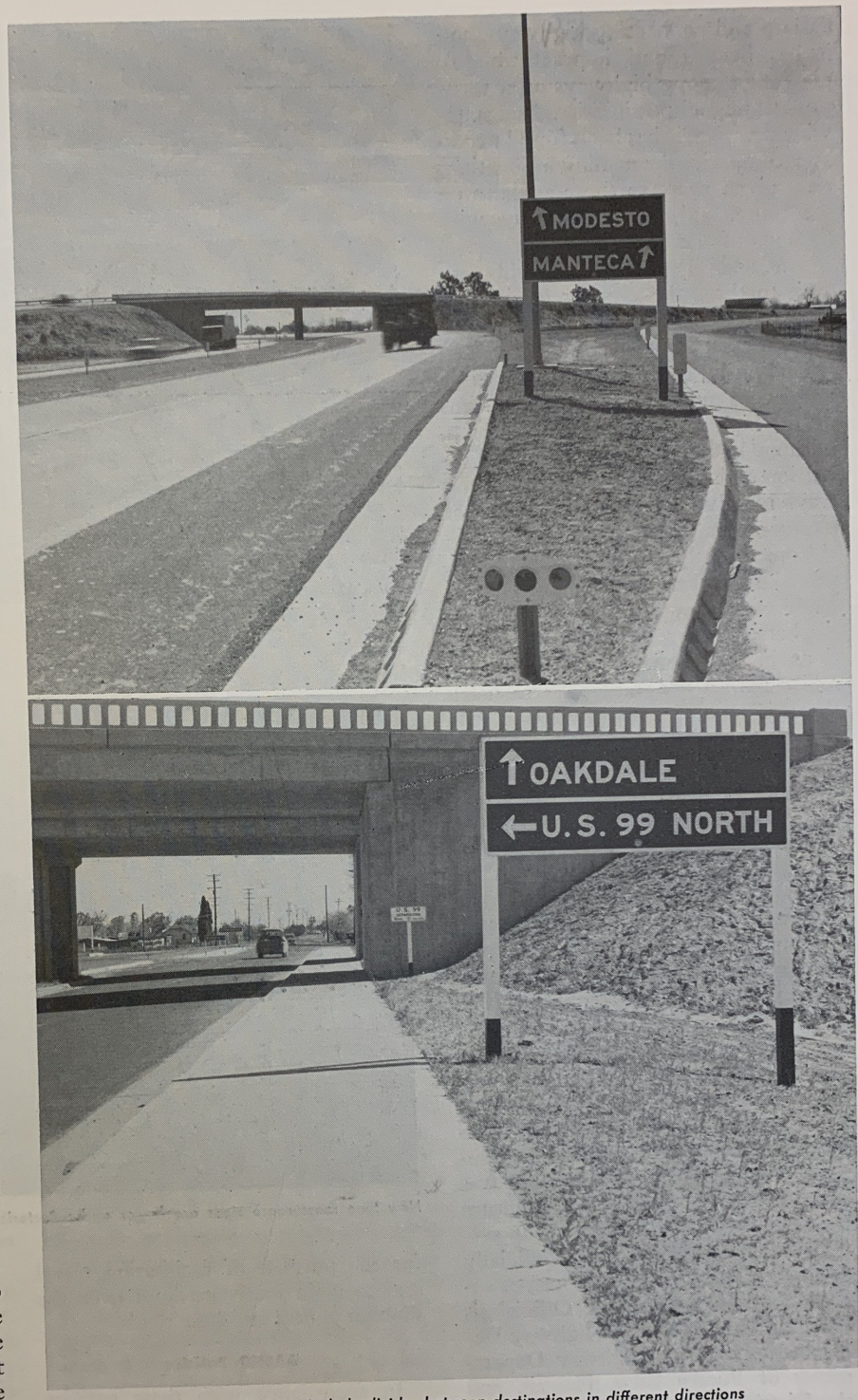
This reassurance sign does not need to be very prominent because it does not call for immediate action by the driver; but it must still be easy to read from a moving vehicle. The standards for this sign on freeways and major highways have recently been improved from plain five-inch letters to reflectorized six-inch letters. This makes for easy reading both day and night at highway speeds.

On high-standard roads, in particular, signs must be both located and proportioned so that motorists may recognize the messages, comprehend the meaning, make decisions, and direct their vehicles into the proper lane without a reduction in speed.

Tip to Freeway Motorists

When driving a freeway for the first time, a motorist should always consult a map to find out which exit will lead to his destination. A single exit in a metropolitan area generally leads to many city streets and destinations. Only the name of the street to which the ramp connects and one place name or route number can be shown on the sign; so the motorist must know the name of the exit where he wants to turn off. In other words, a driver must know in advance where he wants to go if he expects to get there without confusion or mistakes.

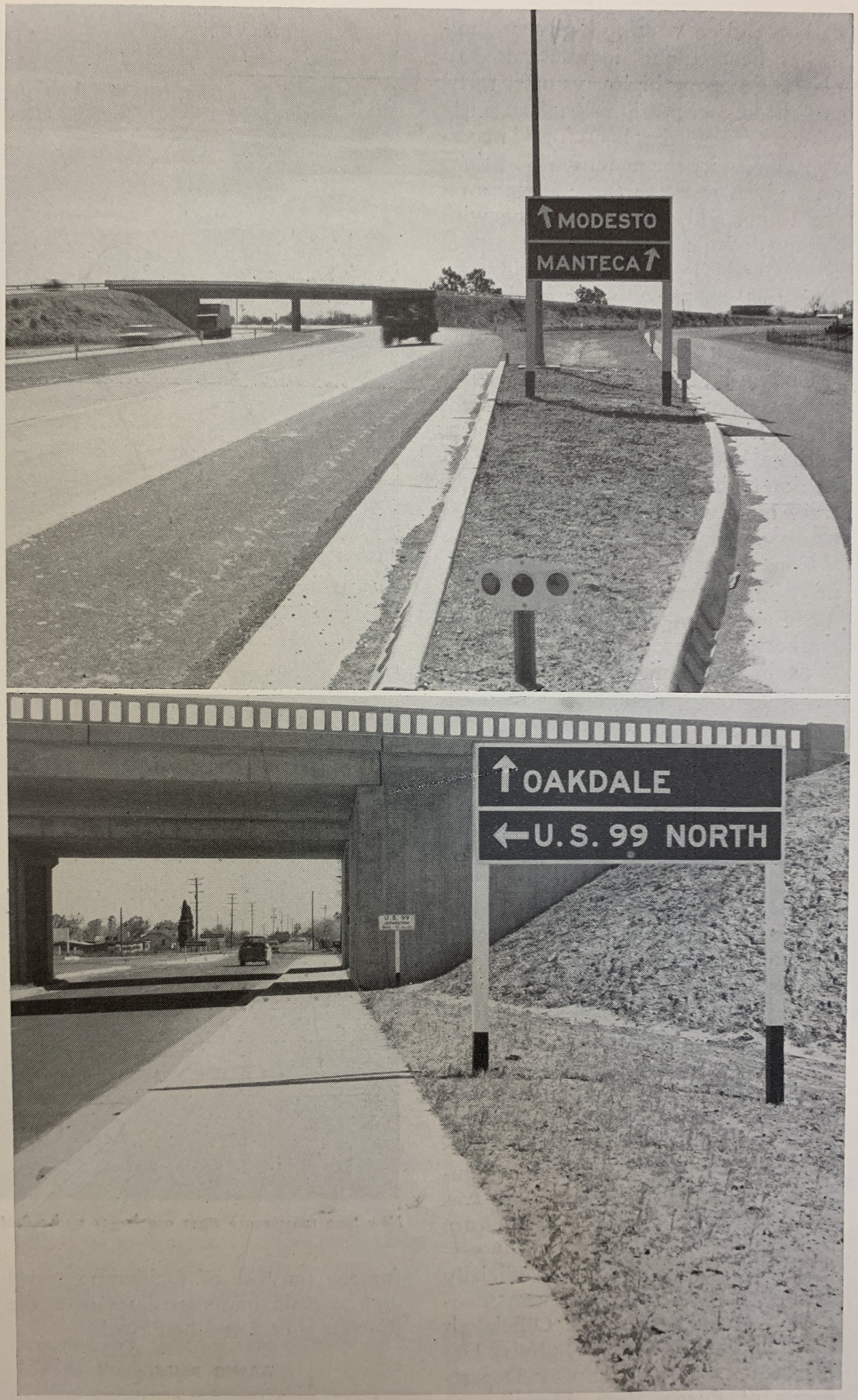
The main purpose of highway guide signs is to tell the motorist how to reach his destination by the shortest and most efficient route. Any message on a sign which would tend to influence the motorist's decision or to encourage him to turn off the highway at a particular road or area is not within the scope of proper highway signing.



Newer guide signs include divider between destinations in different directions

State and US Markers

On any route, there are nearly always a great number of possible desti-



Newer guide signs include divider between destinations in different directions



Directional information is purpose of guide signs

in advance of turnoffs or intersections

many cases removes traffic from con-

nations and connecting highways, and it has been found impracticable to place signs along highways or at turnoffs naming all possibilities. As a statewide practice, it has been found necessary to restrict the naming of locations on a given route to those actually on the route, and, in conformance with findings of the Institute of Transportation and Traffic Engineering, to limit to three the number of destinations on a single sign under all but the most exceptional conditions.

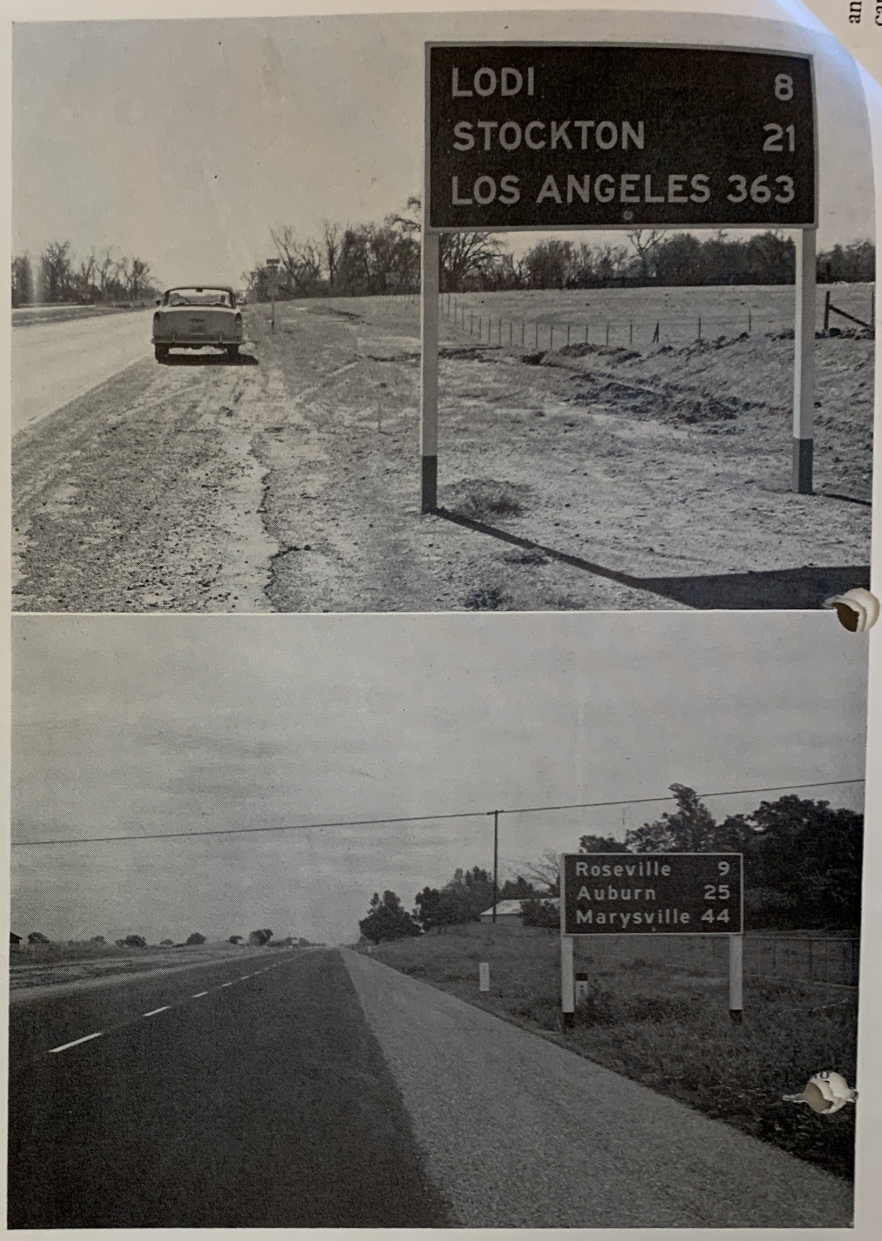
Obviously, it would be impossible to place a sufficient number of signs on the highways to enable a motorist, without knowledge of the general direction or local geography, to find his way merely by looking for place names on traffic signs.

Consequently, as a matter of primary guidance, considerable use is made of state and US highway route markers. Under present-day conditions in California, a motorist unfamiliar with a geographical area needs the assistance of a road map, and road maps are readily available. We believe that most motorists rely upon such assistance and that the route markers in use provide generally adequate directional information.

US Numbered Routes

The importance of a nation-wide system of numbered highways was recognized in the early 20's, and the American Association of State Highway Officials (AASHO) requested the Secretary of Agriculture, under whose offices the Bureau of Public Roads at that time operated, to name a committee for the purpose of formulating a plan or system of numbered highways. The association was asked by the Secretary of Agriculture to develop such a system. This system was developed and officially adopted in 1926. The American Association of State Highway Officials is made up of the 48 State Highway Departments and the Highway Departments of Puerto Rico, Hawaii, and the District of Columbia, and the US Bureau of Public Roads.

The selection of US sign routes and the assignment of numbers is a function of the Executive Committee of AASHO. Over the years, this committee has developed a set of policies



New type reassurance signs are larger and reflectorized for easy nighttime as well as daytime reading

for the purpose of facilitating travel on the main interstate lines over the shortest routes and best roads.

AASHO Policies

In accordance with these policies, it has been the practice of the Division of Highways to request that the best route from a traffic service standpoint be designated as the basic US route. Therefore, when a highway is reconstructed to higher standards on new alignment, either through or around a city or community, this new routing is signed as the basic numbered route.

Included in the established policies of AASHO is the provision that "No additional road shall be added to the US numbered road system, and no existing US road shall be extended except where there is a definite showing of an adequately improved highway carrying an established and necessary line of interstate traffic not otherwise provided for by existing US routes

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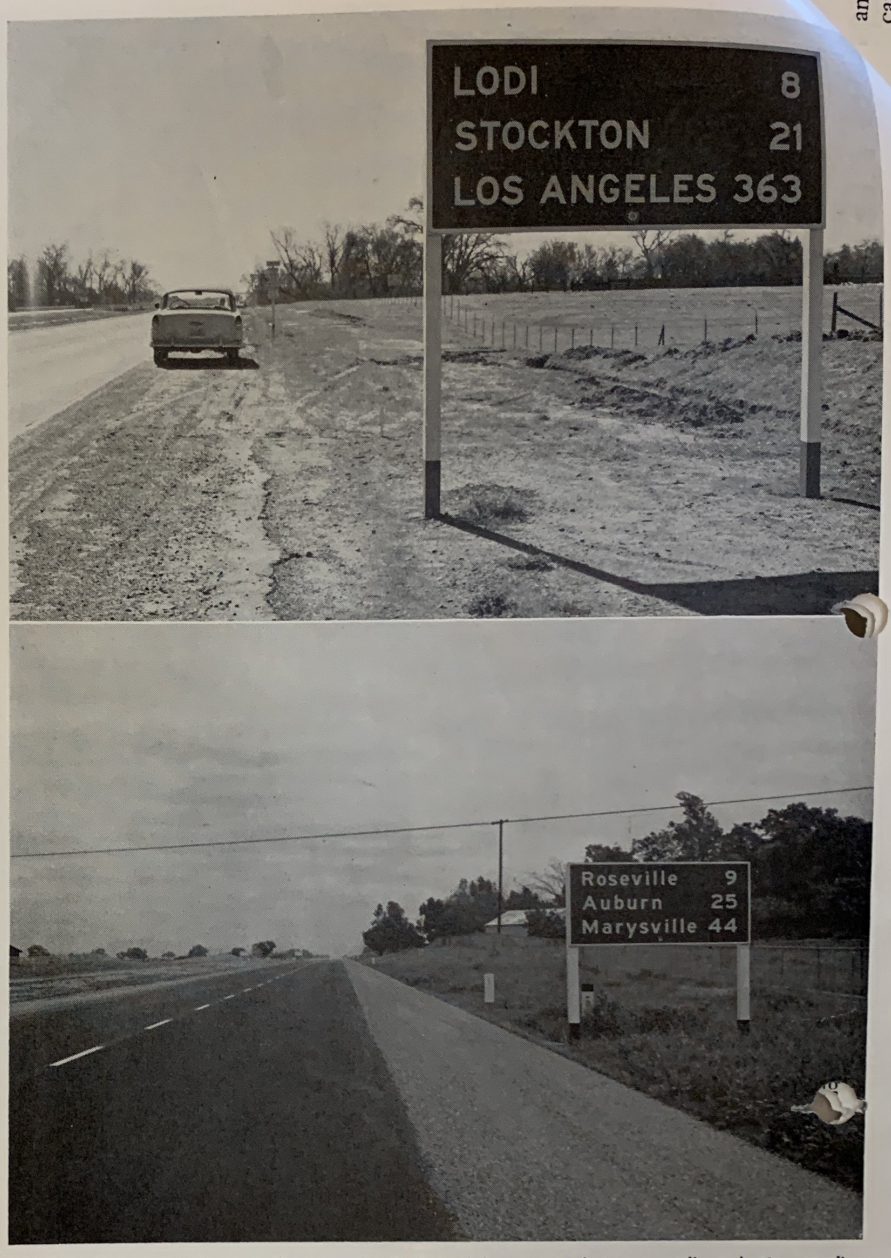
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and for which traffic adequate service cannot be provided by state route numbers.

"Extension of present US numbered routes may be made only when the proposed extension is in the general direction of the present route.

"Proposed extensions shall not be made when, to do so, it is necessary to duplicate US routes already established, unless the duplication is for a short distance and the routes then diverge, ending in different terminal points."

There is obvious need for these well-established policies because designation of inadequate routes not providing the best traffic service would discredit the entire system of US numbered routes. Also, extensive or unwarranted use of alternate or business routes would result in confusion and lack of confidence in numbered routes on the part of motorists.

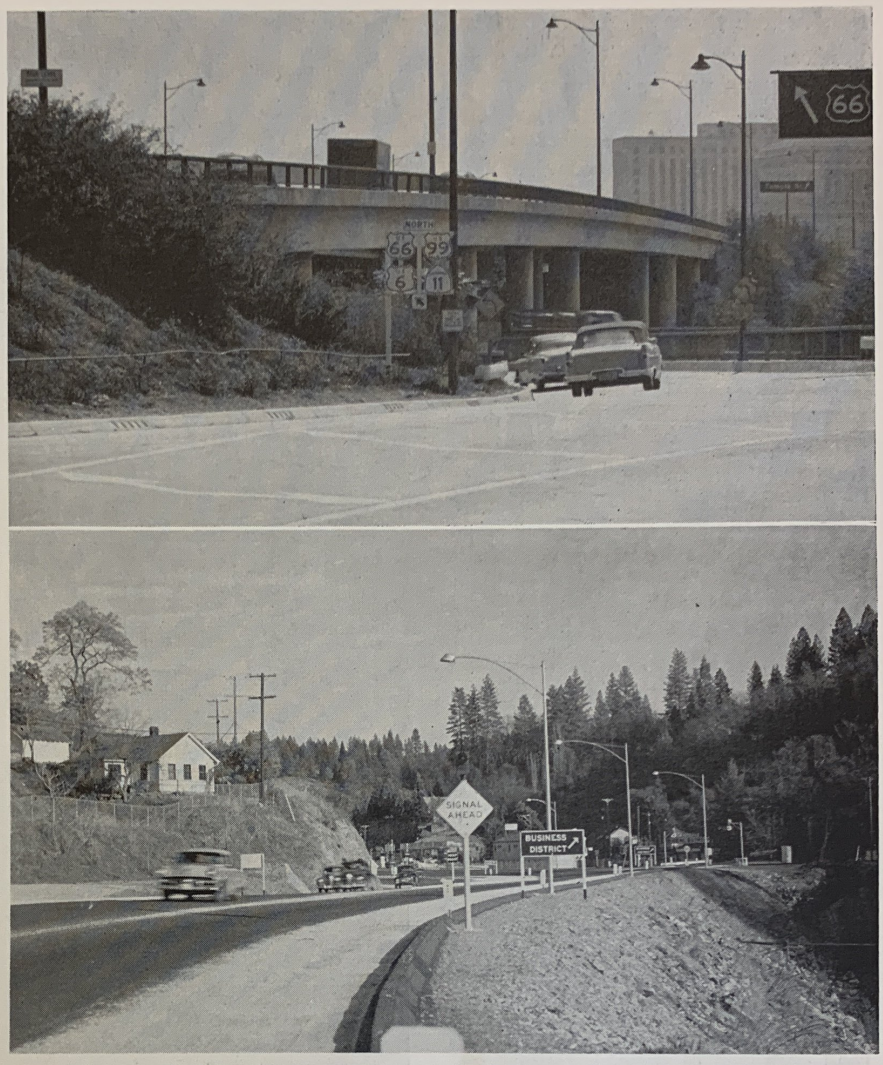
For the sake of uniformity, US sign route policies are also followed in the establishment of California state sign routes insofar as they apply.

The route numbers are used extensively by the makers of road maps. Businesses that cater to the traveler use route numbers to tie in the location of their businesses in their advertising.

Business Districts and Business Routes

With the extension of the freeway system with no businesses fronting directly on the highway, it becomes more and more important to designate to motorists where services normally required by the traveler may be found. On directional signs, this is accomplished by designations such as *central district*, *business district*, *downtown*, or *civic center*, and sometimes the name of a district or area within a city.

It is frequently found desirable to designate a "business" route on a section of former state highway which is relinquished when the community which it serves is bypassed by a new freeway. Proposed business routes must be submitted for approval to AASHO. These business routes are principally within the corporate limits of a city and provide the traveling public with the opportunity to travel through the business section.



UPPER—New type shields to indicate US and state-numbered routes are larger than before. LOWER—Motorists desiring to enter the business district are clearly notified which direction to take.

Business Route

In cases of this type where a business route would be of benefit to the motorist, and local authorities are in accord and agree to place and maintain the necessary signs, it is the division's practice to recommend approval to AASHO. When a business route is approved, all directional signs on the state highway directing to the business route are installed and maintained by the Division of Highways. The remaining signs on the business route are installed and maintained by the city or county.

The use of the business route is a convenient and logical way to direct a stranger so that he can easily find his way to the business section, transact his business, and then proceed to find his way back to the main highway by following the route shields.

The Division of Highways recognizes that the business centers of bypassed communities and along old routes provide needed services to the highway user, and every effort is made to give recognition to these business districts in a manner consistent with the principle of providing the best possible signing for all highway users.

Either overhead illuminated or reflectorized signs are installed where practicable at the connections with the road leading to the business district and the main highway. In addi-

tion, where there are other connections from the freeway to the business district, supplementary signing is also provided.

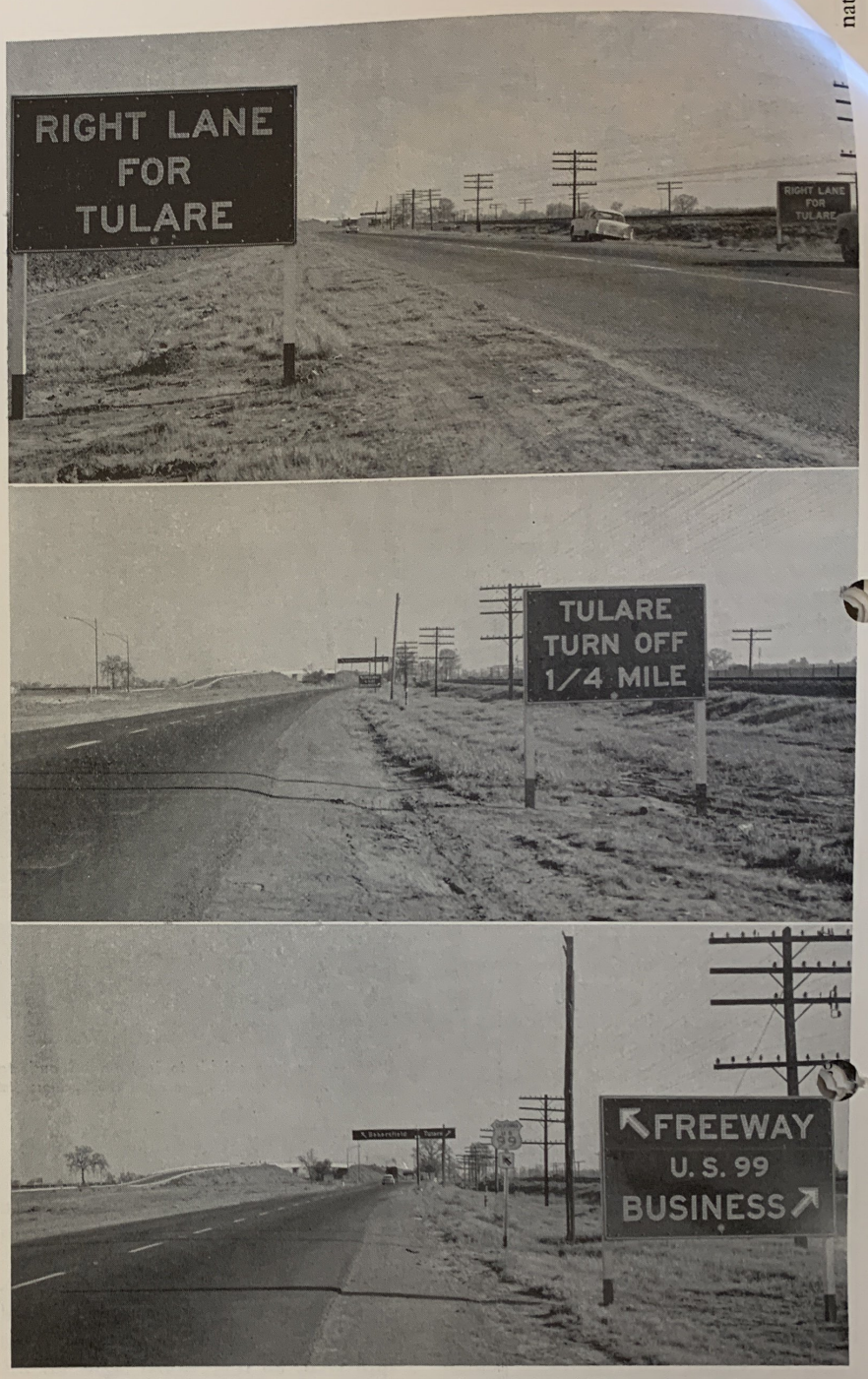
Frontage Roads and Roadside Business

When the construction of a new freeway separates developed property from the existing local road or street system and leaves no suitable connection to the freeway, it is frequently necessary to provide access to the property by construction of a local service road parallel to the freeway. This type of road is designated as a frontage road. In the case of new construction, they are parallel to the freeway. Often the old highway, or portions of the old highway, roughly parallel to the new freeway, will serve as a frontage road. Frontage roads have proven to be advantageous locations for businesses, especially those which provide necessary services for motorists.

The problem of providing adequate directional signs to roadside businesses on frontage roads or on old roads by-passed by construction of freeways developed about 1949. Signs with various wordings were considered, such as *roadside services*, *roadside business*, *roadside business area*, *roadside motels*, etc.

Roadside Business

A sign reading *roadside services* was considered satisfactory for locations where the business on the frontage road consisted of service stations, garages, etc., but would not convey the correct message for sleeping accommodations, restaurants, or roadside stands or other types of business. A sign reading *roadside motels* seemed to be too restricted for many locations. For example, sleeping accommodations might be had in hotels, inns, resorts, tourist cabins, or cottages. A broader term seemed necessary. The word *accommodations* was seriously considered but it was decided it was too long to place on a sign. A sign reading *roadside business* includes all types of services and accommodations and is consistent with our present signing practice of placing *business* signs with route markers to indicate business routes not on the main highway and providing direction to business districts.



Approaching a turnoff from a major rural freeway, the motorist is notified repeatedly of route to follow to by-pass or enter city

In 1951, signing to motel areas was discussed at a conference of the Motor Hotel Association of California. The practice of placing a reflectorized *frontage road* sign in advance of the intersection and a plain sign reading *roadside business* near the intersection was agreed upon.

One of the important factors in the development and use of the sign reading *roadside business* was that the use of a uniform standard sign to desig-

nate these businesses would soon cause it to become known by the public. Motorists, when they recognized such a sign, would know that roadside services were available.

A survey was made by the Division of Highways Right of Way Department on the effect of bypassing roadside business. Operators of motels, restaurants, etc., were contacted and appeared satisfied with the wording of the signs, but expressed concern regarding their placement and visibility. As a result of this survey, the signs are now being placed farther in advance of the intersection and the *roadside business* signs are reflectorized for night visibility.

As a further aid to motorists seeking roadside businesses, the *roadside business* signs are placed in the median as well as on the right shoulder on multi-lane divided highways, where the median is of sufficient width to accommodate the signs. One of the most important factors in the statewide use of uniform standard signs reading *roadside business* is that their continued and consistent use will further increase their effectiveness.

Metropolitan Freeway Signing

It is a long step from the first roads and streets used by automobiles to the present-day six- and eight-lane freeways in the large metropolitan areas. Likewise, it is a long step from the early signing to that which is now required on these freeways which carry tremendous traffic load.

It is a fact that the signing cannot be separated from the freeway because it is an integral part of it. Adequate signing is essential to completeness and satisfactory operation of the modern freeway. The high volumes carried by this type of facility greatly increase the signing requirements.

For example, volumes which preclude changing lanes at will on the approach to an exit make it necessary to provide much greater advance notice of the turnoff. There was a time when 50 feet in advance of an intersection was adequate. Later, the distance increased progressively to several hundred feet, to one-quarter mile, to one-half mile, and now one mile is considered a desirable distance for the first indication of a turnoff from a metropolitan freeway. This desirable distance is not always obtainable, due to limitations on design and the need for frequent connections to provide proper traffic service in highly developed areas.

Positive indications of the lane to use for different exits are very neces-



These signs for the information of motorists fall into the same category as the signs on the opposite page

sary. Drivers also need to know the approximate distance to the off-ramp they expect to use.

New System of Signing

After careful study of this problem by traffic engineers of the Division of Highways, a new system of signing has been devised for metropolitan freeways. The main features of this system of signing are:

1. In order to inform drivers of their general location and the distance to the exit which they are seeking, signs will be placed indicating the next three exits and the distance thereto in miles and tenths. A typical sign of this type is shown in *Figure 1.* These signs will be located as soon as practicable after passing an exit and, of course, would list the next three exits. As soon as an exit was passed, its name would be dropped from the top line and the second line would move up to the top position. A new exit name and distance would then be added on the bottom. The names for the exits would be street names, road names, route numbers, or any other name which best fits local conditions. These signs will be frequent reminders to motorists so that they will be prepared to turn off when they reach the exit that will take them to their destination.

Overhead Illuminated Signs

2. Overhead illuminated signs will be placed at exits in the gore; that is, in the triangular area between the turnoff and the main freeway lanes. These signs will carry the name of the off-ramp, positioned directly over the off-ramp with a vertical arrow pointing downward to the approximate center of the ramp. The other side of the sign will normally be over the outside freeway lane, and will carry the name of the next exit ahead, with an arrow pointing downward to the approximate center of the outside lane. This will give motorists the greatest possible advance notice of the proper lane to use for an exit without overlapping the preceding turnoff. *Figure 2.*

3. At intermediate locations between exits, sign bridges may be erected to carry the name of the next exit and other directional information for the guidance of motorists. With this system of signing, the names of all major exits will be indicated generally three times on overhead illuminated signs. *Figure 3.* It is a well-known facts that drivers, through inattention or distraction, frequently pass even a prominently-placed sign without comprehending it. The repetition of the exit names and lane indications should reduce this problem to the minimum. *Figure 4.*

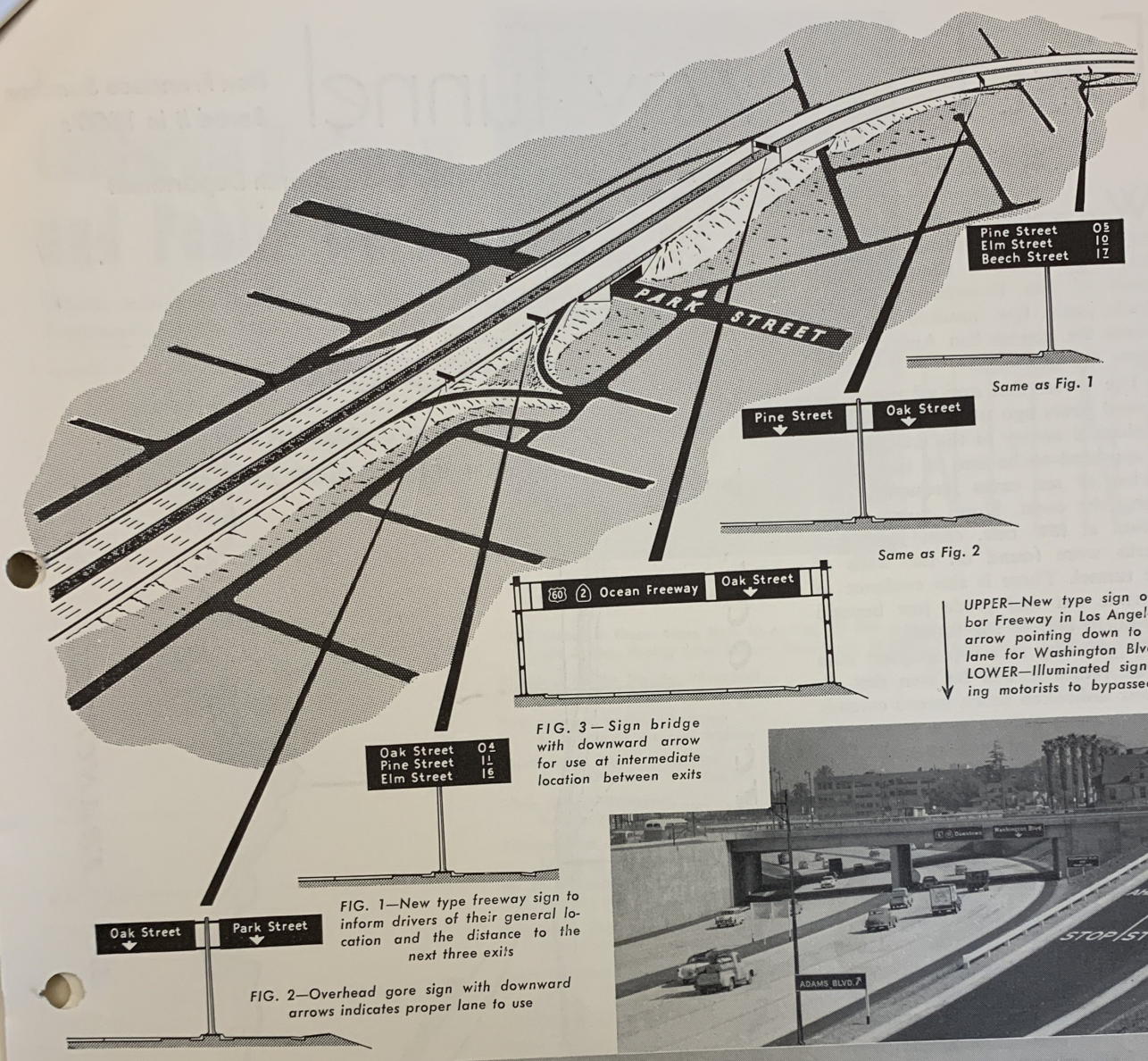


UPPER—"Frontage Road" sign is motorist's first indication of roadside business area ahead. LOWER—"Roadside Business" sign notifies traveler of where he may leave freeway to obtain desired services.

Highway designs, including signing, are continually being improved. It is not economical or practical to go back and revise all previous designs and installations whenever a new and better way of signing is developed. Consequently, the new signing described herein is, for the most part, only on the drawing boards, and will be seen only on new projects and at locations where the need is most urgent for the improved type of signing.

California has taken the lead in developing overhead illuminated freeway signs and rates high nationally in the field of traffic control. Uniformity, so vitally necessary for effective signing, is obtained by an up-to-date looseleaf manual setting forth uniform standards and policies for signs and other traffic control devices used on state highways. Uniformity and adequacy of signing on California county roads and city streets is, with a few exceptions, very good, largely through the activities of the California Sign Committee.

The driver must not be left out of the picture. The best signs in the world are no positive assurance that



Same as Fig. 1

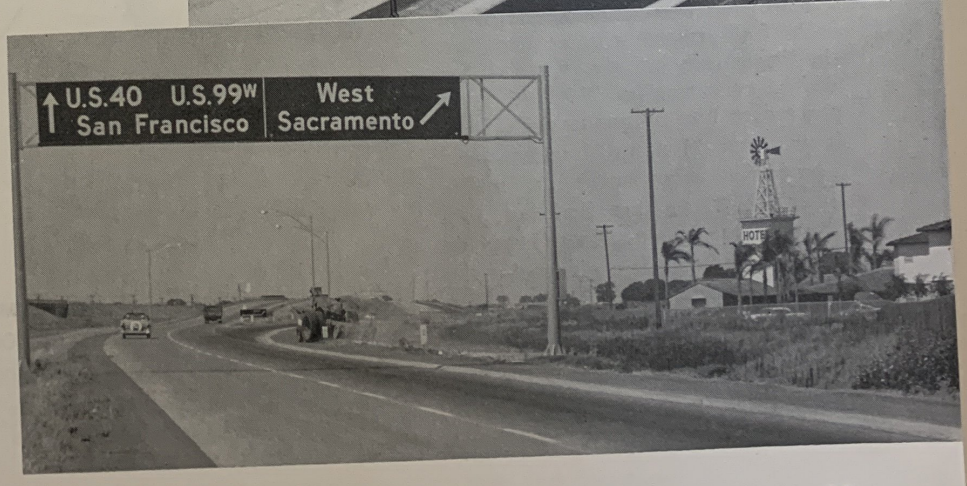
Same as Fig. 2

FIG. 1—New type freeway sign to inform drivers of their general location and the distance to the next three exits

FIG. 2—Overhead gore sign with downward arrows indicates proper lane to use

FIG. 3—Sign bridge with downward arrow for use at intermediate location between exits

UPPER—New type sign on Harbor Freeway in Los Angeles with arrow pointing down to proper lane for Washington Blvd. exit. LOWER—Illuminated sign directing motorists to bypassed area.



a few drivers won't make mistakes or take a wrong turn occasionally. Drivers must take their share of the responsibility. They should study a map when using a highway or a metropolitan freeway for the first time so they will know what routes to follow and where to turn off to reach their destination, and above all be alert and courteous, and follow the rules of the road at all times. Careful, competent driving, combined with safe highways and adequate traffic signs, will surely contribute substantially to smooth, orderly traffic flow.

First Highway Tunnel

Don Francisco Sánchez Bored It in 1800's

By E. D. DREW, Associate Engineer Geologist, Materials and Research Department

WHAT IS probably the oldest highway tunnel in California is located near Sign Route 1 about six miles south of San Francisco at Mussel Rock, just a few hundred feet from where the famous San Andreas Fault meets the ocean.

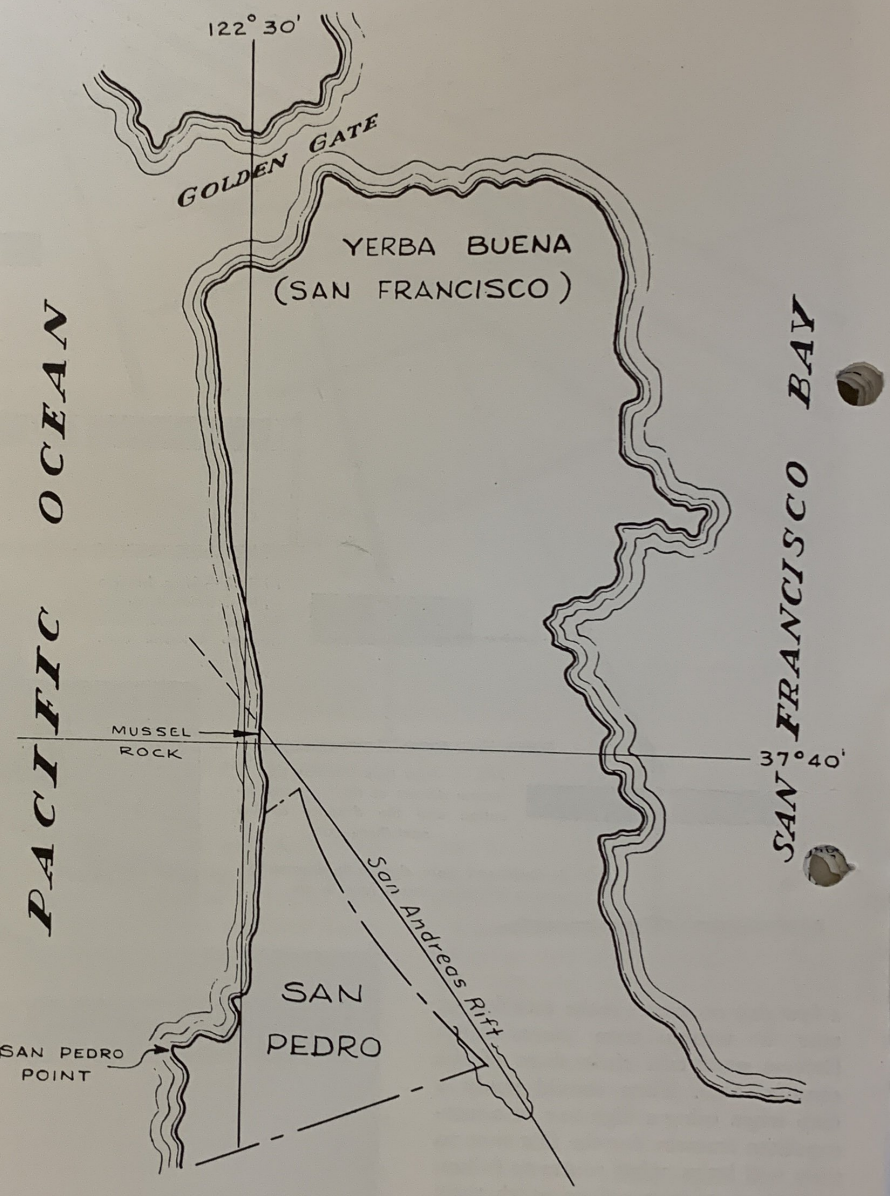
The writer first noticed the tunnel several years ago while engaged in a geological survey of the area. At first it appeared to be one of the natural arches or sea caves frequently seen along the coast. Upon closer examination at low tide, chisel and pick marks were found on the walls of the tunnel. There is also evidence of a crude cut and grade just beyond the north end of the tunnel.

By glancing at a topographic map or air photo it will be seen that an almost unbroken beach strand extends from Laguna Salada to a point near the Cliff House in San Francisco. The point of interruption is at Mussel Rock where for a short distance the beach is blocked by a high rock cliff.

History of Tunnel

In order to obtain some history of the tunnel, inquires were made of old-timers who were all in accord that the tunnel had been built many years ago by one of the California dons, probably Don Francisco Sánchez.

Don Francisco Sánchez, one of the early Californians, was at one time the hacendado of the Rancho San Pedro, consisting of 8,926.46 acres granted to him on January 26, 1839. It was from Montara Mountain, later a part of Rancho San Pedro, on October 28, 1769, that Sergeant José Ortega, under command of Gaspar de Portolá, first caught a glimpse of the northern coast and San Francisco Bay. Portolá at this time overlooked the significance of the discovery and recorded, "I saw nothing." Fr. Crespi, the spiritual guardian of the party, reported in his diary, "It is a very large and fine harbor. All his majesty's and Europe's navies could be sheltered here."



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LOCATION OF MUSSEL ROCK,
RANCHO SAN PEDRO AND YERBA BUENA.

The rancho is mentioned as early as March, 1793, when a Captain Brown of H. M. Navy stopped for a short

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Public Works Building
Twelfth and N Streets
Sacramento

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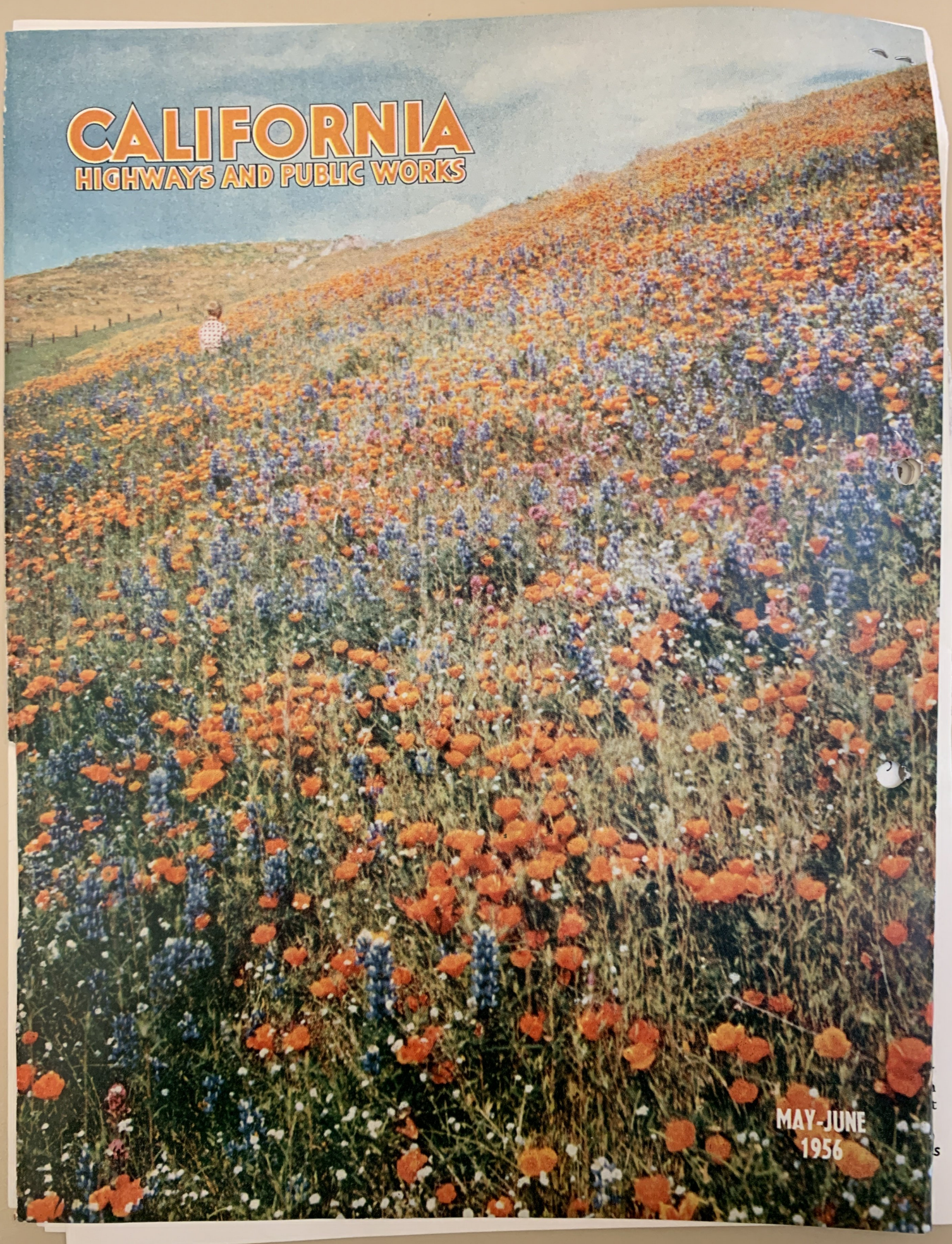
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