

# CALIFORNIA highways

and public works

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NOVEMBER / DECEMBER 1966



annual  
report  
issue





# Letters of Transmittal

December 19, 1966

MR. JOHN ERRECA  
Director of Public Works  
State of California

Dear Sir:

I am submitting herewith for your approval and transmittal to the Governor, the 20th Annual Report of the Division of Highways for the fiscal year ending June 30, 1966. The report was prepared in compliance with Section 143 of the Streets and Highways Code.

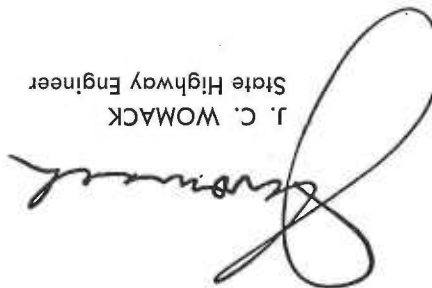
As before, the text portion of the report with accompanying illustrations is being published as the November-December issue of *California Highways and Public Works* magazine. Detailed financial statements, tables and contract statistics will appear in a supplement which will be available to anyone on request.

Although a large portion of the past fiscal year's highway program continued to be devoted to completion of the interstate system, significant progress was also made in implementing the state's Freeway and Expressway Act of 1959. Of the 12,500 route miles decreed by the Legislature, 7,323 (59 percent) now have been adopted by the California Highway Commission and 4,240 (34 percent) have been built or are under construction.

Following completion of a comprehensive inventory of accident concentration locations on the entire state highway system, plans are now going ahead to correct 1,700 locations at a cost of \$30,000,000 plus an additional \$6,500,000 in September 1, 1969. It is estimated that there will be 4,800 fewer accidents per year when all projects are completed.

Respectfully,

J. C. WOMACK  
State Highway Engineer



My Dear Governor:

EDMUND G. BROWN  
Governor of California

December 20, 1966

I am pleased to submit to you the 20th Annual Report of the Division of Highways.

Done in a shorter, more popularized form, this year's report, I believe, still presents the highlights of how the nation's most populous state is meeting and overcoming the challenge of an ever increasing traffic demand by moving ahead in the construction of what is undoubtedly the world's finest highway and freeway system.

Totalling some 14,215 miles at the end of the fiscal year, the state highway system included 1,945 miles of freeways. Though comprising only 2 percent of the state's paved driving surfaces, these freeways carry a quarter of the state's traffic load and have proved three times as safe to drive upon as conventional highways.

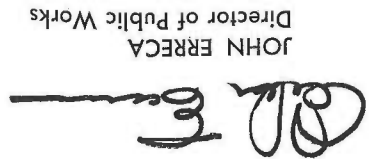
Significant progress was also made in completing our share (2,165 miles) of the federal interstate system. Approximately \$1,602,365,000 has been spent, in completing 922 miles and in putting under construction or budgeting another 512 miles. Most of this mileage is in highly urbanized areas where right-of-way and construction costs are high. The bulk of the system remaining to be built is in rural areas where construction normally presents fewer problems and proceeds much more rapidly at much less cost.

Excellent progress also was made in the state's safety road-side rest program with 31 completed, 12 under construction and 89 more programmed.

More and more emphasis is being placed on the "complete" highway, a total package of function, safety and aesthetics. The division initiated a comprehensive educational program for its personnel to reemphasize the importance of aesthetics in the location and design of highways.

Respectfully,

JOHN ERRECA  
Director of Public Works



# CALIFORNIA highways and public works

VOLUME 45

NOVEMBER-DECEMBER 1966

NOS. 11-12

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CALENDAR OF MEETINGS	2
CALIFORNIA HIGHWAYS-1966	3
OPERATIONS	7
CONSTRUCTION PROGRESS	10
PLANNING	13
DESIGN	20
BRIDGES—THE NEW LOOK	24
ADMINISTRATION	28
LEGAL	30
RIGHT OF WAY	31
FISCAL MANAGEMENT	32
BUDGET	34

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Cover design by Bill Metzler.  
Color layouts by Chock Jong.

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### CALENDAR OF MEETINGS California Highway Commission JULY 1, 1965, TO JUNE 30, 1966

The California Highway Commission has six members, appointed by the Governor for a four-year term without pay. The Transportation Agency Administrator is ex officio member and chairman. The commission meets each month to allocate highway funds and hold public hearings. During the year Franklin S. Payne resigned, and the Governor appointed Alexander H. Pope as his replacement.

Joseph C. Hougheling



Robert B. Bradford



Roger S. Woolley



Alexander H. Pope



Abraham Kofman



William S. Whitehurst



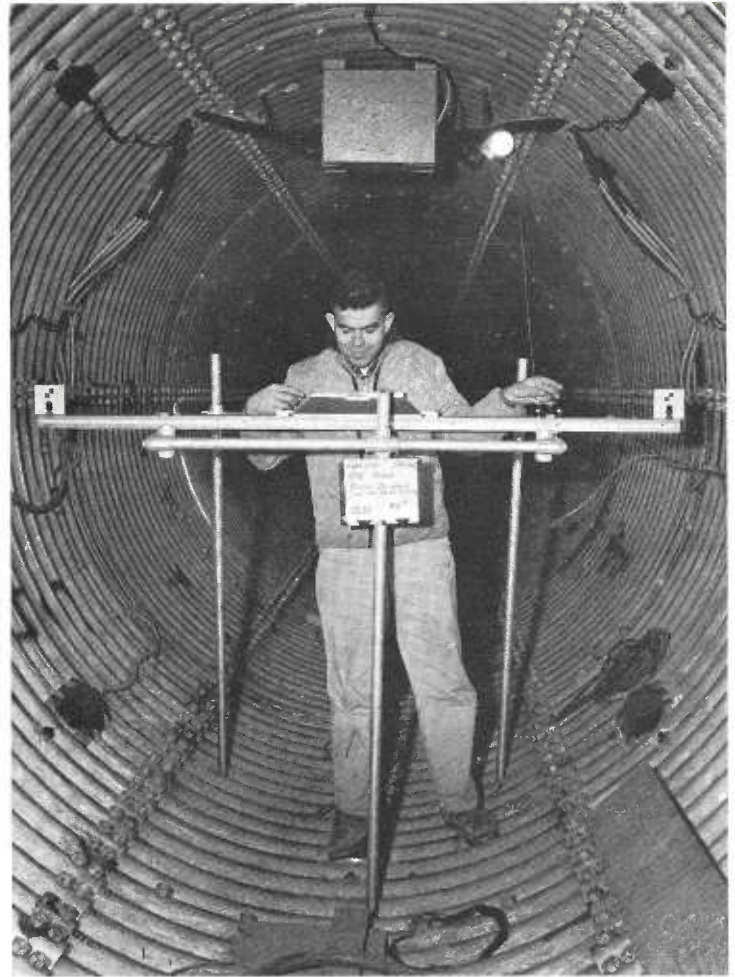
Franklin S. Payne

James A. Guthrie  
Died August 23, 1966

- July 15, 1965 Newport Beach Aerial and ground inspection of future freeway locations in Orange County.
- July 21 Sacramento
- July 22, 23 Bijou Inspection of State highway needs in Sacramento and El Dorado counties and a meeting with State of Nevada Highway Board concerning highway problems in the Lake Tahoe area.
- August 13 Los Angeles Public hearing on the location of the Route 42 (Century) Freeway between Sepulveda Boulevard and Central Avenue.
- August 18, 19 San Francisco Redding Inspection of State highways in Shasta County.
- September 16 Beverly Hills Public hearing on the location of the Route 2 (Beverly Hills) Freeway between the Interstate 405 (San Diego) Freeway and Ardmore Avenue in Los Angeles.
- September 22, 23 Sacramento Santa Rosa Meeting with legislators and representatives of the Redwood Empire Association re State highway needs in the northern coastal counties.
- October 20, 21 San Diego Regular monthly business meeting including adoption of the State Highway Budget for the 1966-67 fiscal year.
- November 3 Los Angeles Meeting with Governor Edmund G. Brown re state highway program and problems.
- November 4 Los Angeles Meeting with Board of Directors of the Southern California Rapid Transit District re cooperation in coordinating development of the rapid transit system with the freeway system.
- November 17 Sacramento
- December 15 Sacramento
- January 19, 1966 Sacramento
- February 16 Sacramento
- March 11 Portland, Oregon Meeting with State Highway Commissions of Oregon and Washington re problems of mutual interest, including relationships of highways and State parks, and the financing of interstate freeways and other highways.
- March 15 Sacramento Meeting with legislators, local officials and members of the Greater Eureka Chamber of Commerce re highway progress in Humboldt County.
- March 16 Sacramento Upland Meeting with legislators, local officials and members of the Foothill Freeway Association re freeway development.
- April 20 San Jose Meeting with the board of supervisors and technical staff re the county's expressway program, followed by a helicopter inspection of these expressways and state highways in Santa Clara County.
- April 21 Sacramento Bishop Public hearing on the location of the US 395 Freeway between 1.7 miles south of Warm Springs Road and the Mono county line, and on the location of the Route 6 Freeway between US 395 and 0.3 mile north of Dixon Lane.
- May 18, 19 Los Angeles Woodland Hills Public hearing on the location of the Route 64 (Malibu-Whittall) Freeway in its entirety between Route 1 near Malibu Beach and the Interstate 5 (Golden State) Freeway in San Fernando Valley.
- June 22 Sacramento Los Banos Highway inspection and dedication of a section of the Interstate 5 (Westside) Freeway west of Los Banos.
- June 23



# California Highways 1966



Setting up a reference length bar for photographically measuring culvert distortion under 167-foot-high fill at Apple Canyon, Los Angeles County.

At the close of the fiscal year (June 30, 1966) 14,215 miles of California state highways were in operation. This complex was augmented by 150,034 miles of city streets, county roads and miscellaneous thoroughfares.

They were in constant use by the 11,333,337 automobiles, trucks and buses licensed with the California Department of Motor Vehicles, and at peak times an additional 3,000,000 vehicles registered in other states joined the traffic flow.

They traveled more than 90,000,000,000 vehicle-miles—a daily average equal to 500 round trips to the moon. Of this amount, one-fourth was carried by the world's busiest network of its kind, the 1,945 miles of freeways incorporated into the state high-

way system. Yet these very busy miles made up less than 2 percent of the state's paved driving surfaces.

The remainder of the state highway system accounted for another quarter of the miles driven, thus relieving city streets, county roads and similar non-state thoroughfares of 50 percent of the traffic.

#### Freeway System

This performance by the freeway system shows that progress is being made in fulfilling the intents of the Freeway and Expressway Act of 1959. When signed into law, the act was designed to connect all county seats and major population centers with modern traffic carriers, and it was assumed that the system could not be completed prior to 1980. At that future

time, it will constitute approximately 10 percent of the paved highways, roads and streets in California but will carry 60 percent of the traffic.

Progress made to date toward this goal can be measured by the miles of route adopted by the California Highway Commission and the miles built or under construction by the Division of Highways. Of the entire 12,500 route miles decreed by the Legislature, 7,323 (59 percent) have been adopted by the commission and 4,240 (35 percent) have been built or are under construction by the division.

The system has 10,400 rural miles, and 2,100 urban miles.

A review of the history of freeway construction in California reveals its constantly accelerating rate.

Following construction of the state's first freeway (the Arroyo Seco, now Pasadena, Freeway in Los Angeles) in 1939, completed multilane freeway mileage had only increased to 22 by the end of World War II. However, by 1950 it had jumped to 229, by 1956, when construction on the federal interstate system was started, the state total had grown to 673. The present total now stands at 2,622, with another 688 miles under construction or budgeted.

**Interstate**

The highway construction program in each of the 50 states is strongly influenced by the federal government's national system of interstate and defense highways. This network, which upon completion is expected to carry more than 20 percent of all vehicle traffic in the United States, will on its way to completion at the close of the fiscal year. Over 21,500 miles of the ultimate 41,000-mile network were open to traffic and construction was under way on an additional 6,310 miles.

The interstate is designed to handle traffic needs anticipated for 20 years from now, and the entire system is scheduled for completion by 1974. Its construction was authorized by Congress under the Federal Aid Highway Act of 1956. Approximately 90 percent of the funds it requires are derived from federal excise taxes that are levied on highway users. The remainder is provided by the state on all construction that takes place within its geographic boundaries.

In California, approximately \$1,602,365,000 has been spent, obligated or budgeted to date to pay for interstate construction. The state's share of the total interstate system is 2,165 miles. Of that amount, 922 miles are complete, 512 under construction or budgeted for construction, and routes for the remainder have been adopted. Although it appears that California is slightly behind schedule in completing its share of the interstate, the opposite is true; for the bulk of that which remains to be built is in rural areas where construction normally presents fewer problems and proceeds much more quickly than in urban locations, where the Division of Highways concentrated its initial efforts.




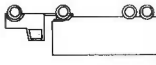




# SOURCES OF STATE HIGHWAY REVENUE 1966-1967

<sup>1/</sup> Transferred to the Land and Water Conservation Fund pursuant to Title II, Sec. 202, Public Law 88-578, effective January 1, 1965.

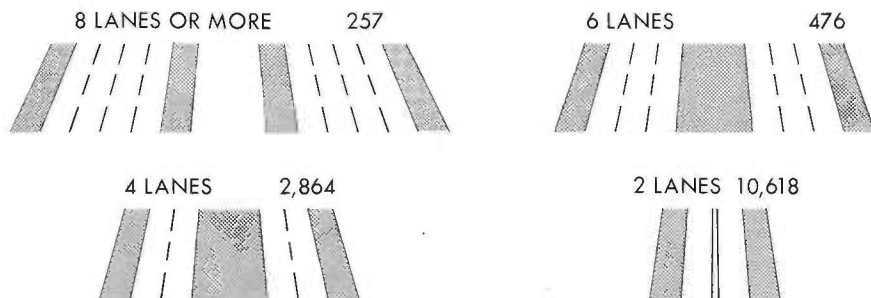
THREE MONTHS ENDED		JUNE 30, 1966	
FISCAL YEAR		7/1/65 TO 6/30/66	
Balance at beginning of period	87,796	284,858	
<b>INCOME:</b>			
Motor-fuel taxes (net after refunds)	723,130	2,874,237	28,000
Less motor-boat fuel revenue <sup>1/</sup>	2,600		
Net for highways	720,530	2,846,237	
Trucks, buses, and trailers	111,564	441,969	
Tires, tubes and tread rubber	134,617	496,614	
Vehicle use	16,705	101,983	
Parts and accessories, trucks and buses	5,000	7,000	
Lubricating oil (net after refunds)	17,500	23,000	
<b>TOTAL EXCISE REVENUES</b>	1,005,916	3,916,803	
Interest earned	2,494	7,983	
Advances from General Fund	-	70,000	
Less repayment of advances	-	70,000	
<b>TOTAL INCOME</b>	1,008,410	3,924,786	
<b>DISBURSEMENTS:</b>			
For highways	853,511	3,966,271	678
Interest on advances from General Fund	-		
<b>TOTAL DISBURSEMENTS</b>	853,511	3,966,949	
Balance at end of period	853,511	242,695	

(Thousands of Dollars)

## STATUS OF THE FEDERAL HIGHWAY TRUST FUND



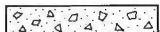
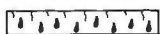
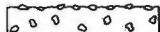
MOTOR VEHICLE FUEL TAX	397,498,000	
MOTOR VEHICLE REGISTR. FEES	99,753,000	
USE FUEL TAX	31,100,000	
TRANSPORTATION TAX	15,700,000	
INTEREST ON INVESTMENTS	3,000,000	
INTEREST ON CONDEMNATION DEP.	1,000,000	
FEDERAL AID	347,922,680	
OUTDOOR ADVERTISING	142,000	
<b>TOTAL</b>	<b>\$896,115,680</b>	

## BREAKDOWNS ON MILEAGE IN OPERATION JUNE 30, 1966 MILEAGE BY NUMBER OF LANES



**TOTAL MILEAGE 14,215**

## BREAKDOWNS ON MILEAGE IN OPERATION JUNE 30, 1966 MILEAGE BY TYPES OF SURFACE

ASPHALT SURFACE		7" OR MORE BASE & SURFACE	<b>9,061</b>
ASPHALT SURFACE		LESS THAN 7" BASE & SURFACE	<b>2,294</b>
CONCRETE			<b>1,842</b>
OILED EARTH			<b>987</b>
UNPAVED			<b>31</b>
<b>TOTAL</b>			<b>14,215</b>

Overall supervision of interstate construction at the national level is vested in the Department of Commerce, which in turn has placed primary responsibility in the Federal Bureau of Public Roads. In California, the Department of Public Works and the Division of Highways serve in like capacities at State level.

### Safety Roadside Rests

Considerable progress was made in the safety roadside rest program, and at the end of the fiscal year 31 were open to the public. Included in this group were 11, previously under the jurisdiction of the Division of Beaches and Parks, that were scheduled for renovation. An additional 12 were un-

der construction and 89 others programmed for construction.

A substantial number of those in the programming stage will be located along interstate routes in pairs to accommodate traffic from both directions. Among the facilities they will offer are parking spaces for 20 to 35 automobiles, plus 8 to 14 trucks and truck-trailer combinations. Restrooms, drinking fountains, picnic tables, paved walkways and lighting are featured in design plans.

### Scenic Highways

The state scenic highway system, comprising over 6,000 miles of state highway, was established by the Legislature in 1963. The goal of this pro-

gram is the protection and conservation of scenic corridors through local control of land use along the scenic route. Workshop sessions have been held in all districts to assist local agencies to complete the qualifications needed for official designation of a highway as a scenic highway.

These procedures pertain principally to the area beyond the right-of-way. The division has also instituted sound aesthetic practices to be employed within the right-of-way of all highways, including scenic highways.

Additional emphasis has been placed on the "complete" highway which is a total package of function, safety and aesthetics. In line with the approach, the division initiated a comprehensive educational program to reemphasize the importance of aesthetics in the location and design of highways. Training sessions and seminars were held throughout the state as a part of this educational program.

The Aesthetic Committee is composed of the Principal Landscape Architect, Engineer of Design, and Bridge Planning Engineer. Weekly meetings of this committee have acted as a forum in which new design ideas are brought out, and established techniques are reexamined. Counterparts of the Aesthetics Committee have been established in each district to perform a similar function at the district level.

Aesthetic reviews in the field, which were initially conducted only on scenic highways, are now being conducted on all highways. Alternate routes are reviewed before adoption and two further reviews are made as the design work progresses.

### Administration

The Division of Highways is administered by the State Highway Engineer, whose position is included in the civil service system. In addition to the State Highway Engineer's headquarters staff, there are 11 district highway engineers who under the direction of the State Highway Engineer, administer the 11 highway districts into which the state is divided. (For detailed information on the Division of Highways organization, see the official roster inside the back cover.)



ALL CALIFORNIA INTERSTATE MILEAGE ALREADY ADOPTED

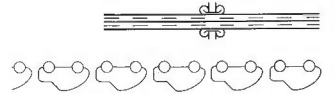
Although California is slightly behind the national average in completion of its interstate routes, it is because most of the state's expensive urban freeways have been spent on the traffic problems.

41,000	TOTAL U.S. INTERSTATE MILEAGE	
21,000	TOTAL COMPLETED U.S. INTERSTATE	
53%	OPEN TO TRAFFIC	
39%	FULL OR ACCEPTABLE STANDARD	
2,165	TOTAL CALIFORNIA INTERSTATE	
922	TOTAL COMPLETED CALIFORNIA INTERSTATE	
1,602,365,000	CALIFORNIA INTERSTATE FUNDS EXPENDED OR BUDGETED	



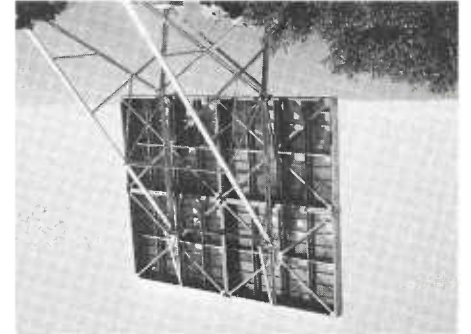
# INTERSTATE

41,000	TOTAL U.S. INTERSTATE MILEAGE	
21,000	TOTAL COMPLETED U.S. INTERSTATE	



3,746	PROFESSIONAL ENGINEERING	
4,604	ENGINEERING TECHNICIANS	
4,499	MAINTENANCE	
5,008	CLERICAL ADMINISTRATIVE ACCOUNTING, ALL OTHER	

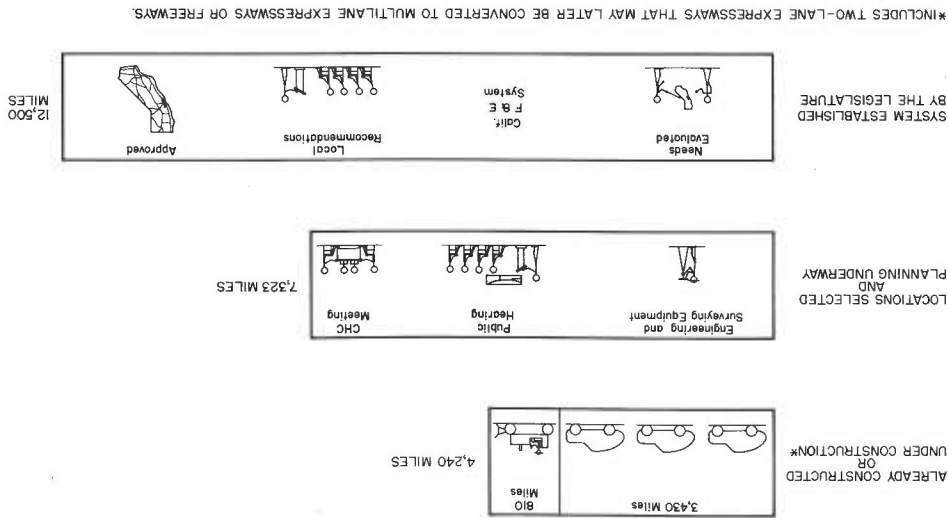
# DIVISION OF HIGHWAYS EMPLOYEES



RICHOOCHETING RADIO SIGNALS—Like Chinese demons, FM radio signals can only travel in straight lines. So, in order to bounce them down to the new Kyburz maintenance station on Highway 50 at the bottom of the rugged South Fork of the American River Canyon, the Division of Highways had to build a passive repeater on the top of Alder Ridge in El Dorado County. All equipment and construction materials, including cement, were flown in by helicopter. In photo above a helicopter lowers a section of the 16-by-20-foot repeater panel on to the ridge. Photo located out of sight down in the canyon beyond.



STATUS OF FREEWAY AND EXPRESSWAY DEVELOPMENT (MILEAGE) JUNE 30, 1966



# • Operations

## CONSTRUCTION

Currently, the highway construction program includes about 320 active contracts totaling more than \$600,000,000. A major portion of this amount is devoted to interstate and defense highway projects in order to complete the system in accordance with the federal deadline in the early 1970's.

By districts, the current construction funds are allocated as follows:

District 1	\$26,321,000
2	30,298,000
3	53,758,000
4	108,586,000
5	33,265,000
6	40,194,000
7	171,023,000
8	24,501,000
9	4,029,000
10	33,526,000
11	82,651,000
	<hr/>
	\$608,152,000



Contractor's crew shown above is completing the asphalt shoulders on a new freeway, only one of the many lesser tasks necessary before a new section can be opened.

## MAINTENANCE

At the end of the 1966 fiscal year, the Division of Highways employed about 4,500 maintenance personnel working out of 317 maintenance stations to care for 14,215 miles of state highways. Total expenditure for maintenance during the year exceeded \$56,390,000.

The above figures include personnel and costs to maintain and improve the landscaping on the state highway system. This included the maintenance of an increasing number of roadside rest areas throughout the state, which by the end of the reporting period totalled close to 30. (See page 14.)

Right: A cutter, similar to a lawn edger in purpose, has been developed by the State Division of Highways to trim vegetation from the curbing alongside highways. The machine can clear from three to five miles of roadside per hour, compared with one mile a day accomplished by a man on foot.



The Materials and Research Department serves the highway building program in several ways: It tests materials to determine their potential quality, and manufactured articles to determine their compliance with specifications; provides inspection service at fabrication shops and manufacturing plants to insure the soundness of structural members and other manufactured items supplied for bridge and highway use; develops and maintains testing standards; investigates new materials, products and methods to determine their worth for highway use; initiates and performs research on testing methods and uses of materials; develops new methods of evaluating materials or quality of work; cooperates with other departments in providing technical services for research projects; supervises the record sampling and testing program; and trains certain division personnel in the use and testing of materials.

Much of the department's work is done in collaboration with other headquarters units or with the districts. The laboratories in the various districts perform some 35 different preliminary and construction control tests on soils, aggregates and paving materials, providing immediate control of materials as they enter the work and reduce time lags and costs associated with transporting test samples from remote locations, as well as insure that only quality material enters the work.

Since its start in 1912 in a small frame building, the Materials and Research Department has grown to a stature commanding respect among highway engineers all over the world. Each year hundreds of visitors come to the "Lab" from all over the U.S. and other parts of the world, to spend a few hours or a few days there. In 1966 there were 56 visitors from 24 foreign countries, of which 49 were engineers, 4 were university professors, and 3 were engineering students.

In each of the various sections, an almost innumerable number of tests are made every year to determine

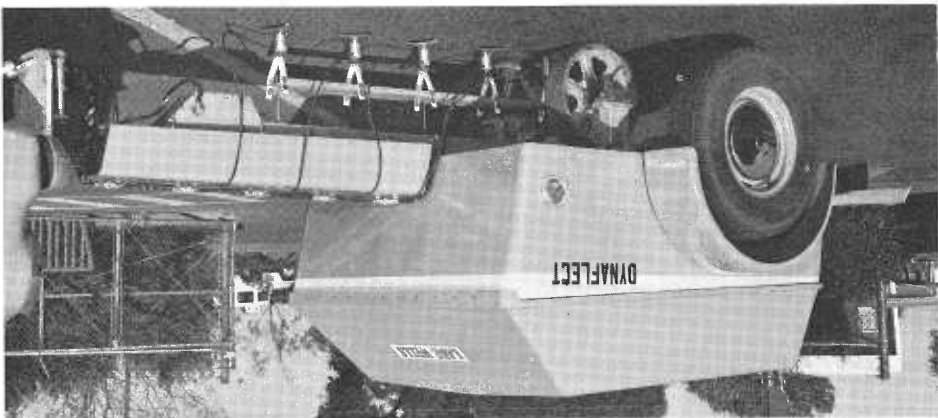
**Scope of Work**

quality of materials, as well as suitability of workmanship, on many sections of highway. The Foundation Section alone made thousands of such routine tests as permeability, compressibility, and consolidation of soils. Hundreds of other tests ranged from projects on high fill study, to deep bors to determine the suitability of subterranean materials to bear a highway. All of the information collected by this unit contributes greatly to the smooth riding qualities of a completed highway.

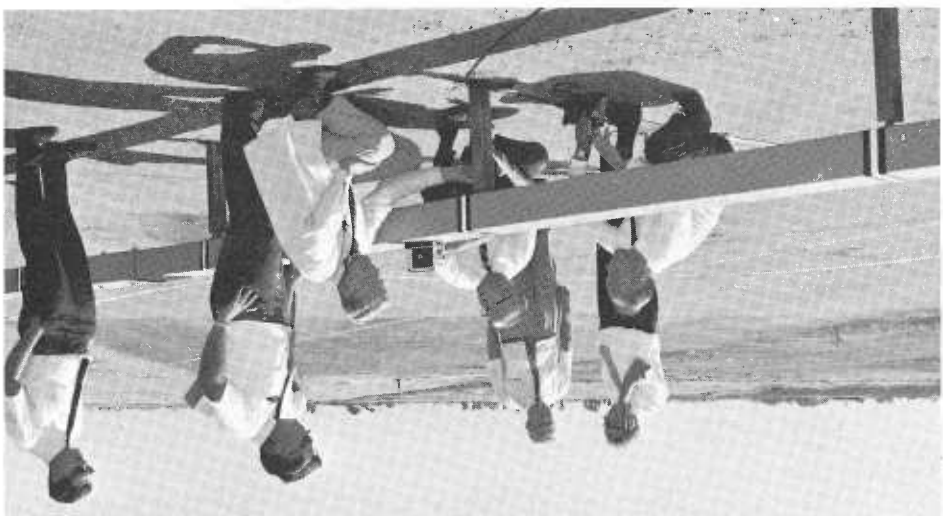
In the same area of endeavor the Pavement Unit studies the makeup and quality of surfacing materials. Its tests run into the tens of thousands each year, and not only are concerned with smooth riding qualities of the

roadbed, but also its ability to withstand wear. Paving thickness varies with the type of highway. Generally it is not economical to pave as thickly on a highly travelled two-lane highway as would be necessary on an eight lane urban freeway expected to bear heavy truck traffic. The paving requirements for the particular job are set forth in the contract, along with a multitude of other requirements which bind the contractor to a definite standard of quality.

The Concrete Section functions primarily for checking the adherence of contractors to the specifications set up in the contract. Cores are drilled from the pavement to be sure the required thickness is achieved. About



Above: Materials and research engineers show a visiting German delegation a box beam median barrier on field test location. Below: Commercial instrument for measuring the supporting strength of roads for traffic loads.



**MATERIALS AND RESEARCH**



4,200 cores per year are obtained for this purpose.

As a watch dog of these requirements, the Concrete Section made tests for compressive strength on 8,300 concrete cylinders primarily from bridge jobs. Over 400 samples of sand were tested for mortar strength. Another heavy output was nearly 4,000 tests of concrete aggregate samples for sodium sulfate soundness, in other words, resistance to weathering.

The range of materials tested in the Chemistry Laboratory is staggering. One of the heaviest was 1,500 tests of

zinc coatings on steels, but close runners-up were tests on paints, cements, soils, water, and thermoplastic traffic line paints. Other materials tested thoroughly were such things as epoxy adhesives, soil sterilants, porcelainized enamels on signs, joint sealants, and wood preservatives. This unit also did more than 300 tests for non-Division of Highway agencies.

About 50,000 inspections and tests were made in the past year on commercial plants manufacturing structural materials, primarily those more commonly used ones such as steel,

prestressed concrete, and various kinds of pipe. Also included were such things as more than million board feet of timber, both treated and untreated; more than a million lineal feet of guardrail; various kinds of electrical conduit, and over 400,000 square feet of expansion joint material.

Special research projects involved the expenditure of \$1,170,300 for 132 projects. These were in the fields of highway safety, improvement of design, improvement of materials, methods of testing, basic research, and development of equipment.

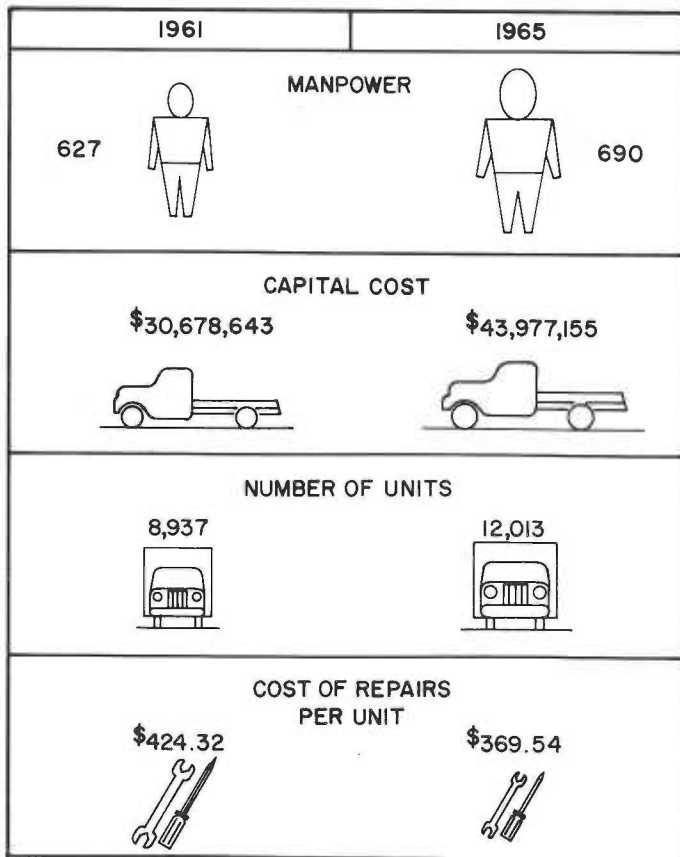
## EQUIPMENT

As a service agency to the Division of Highways, the Equipment Department repairs and maintains all rental equipment used by the Division of Highways.

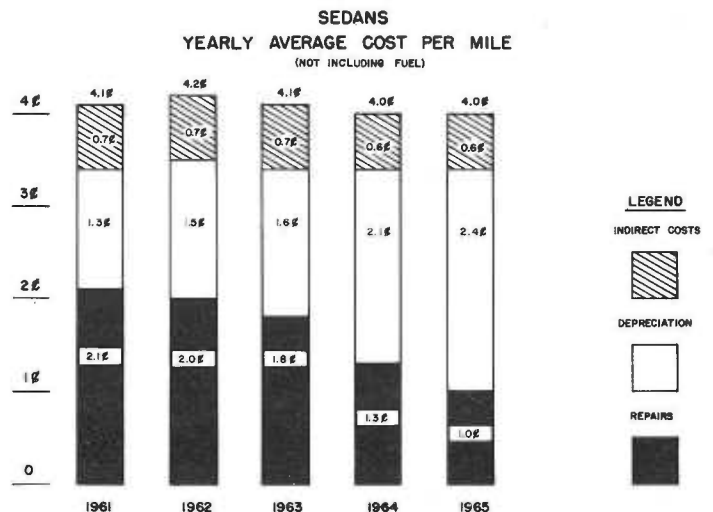
The Equipment Department manufactures and constructs specialized

equipment utilizing skill, craftsmanship, modern materials and techniques comparable to those employed in industry. In addition, many modifications to existing units are made to increase their capabilities by using

similar methods. This capability has provided considerable savings in costs and has provided various operating units of the Division of Highways equipment that meets their specific needs.



Left: Chart shows increasing efficiency of equipment shop over four years despite growing number of lane-miles of highway. Below: Continued improvement is also apparent in costs of operating sedans for official business.



# Construction Progress

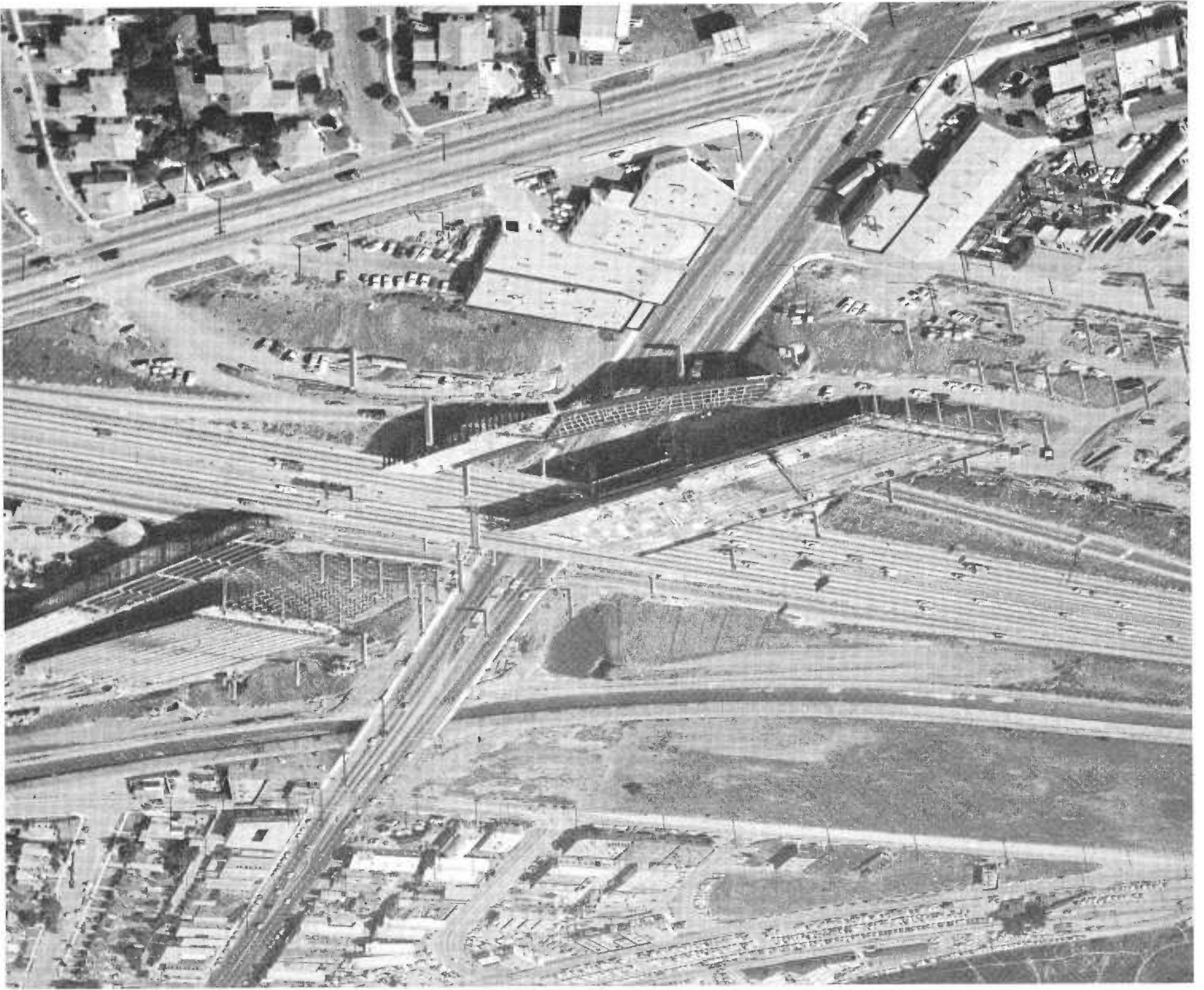
This is not a listing of all construction jobs completed during the fiscal year. It includes some of the more important, some of the more costly, and some jobs that simply are typical of many others. Several counties are not mentioned, but this is not because their state highways lack importance. Future reports will list projects located within their borders for state law provides that a minimum of \$4,000,000 must be spent on state and Sierra, where \$3,000,000 must be spent.

County	Project Description	Estimated Cost	Estimated Miles
Alameda	Interstate 580	\$13,110,000	4.5
Alameda, Contra Costa	I-580 and I-680	5,843,600	3.1
Alameda	I-580	6,128,400	2.9
Alameda	I-580	1,504,000	1.3
Alameda	I-580	4,844,500	1.3
Alameda	I-580	5,843,600	3.1
Amador	Rte. 88	1,766,400	8.7
Amador	Rte. 124	1,956,300	5.6
Amador	Rte. 99	2,484,600	8.6
Calaveras	Rte. 4	1,746,500	5.6
Colusa	Rte. 45	29,500	
Contra Costa	I-680	36,500	
Contra Costa	US 101	3,476,400	1.1
Contra Costa	Rte. 199	1,856,100	1.8
Contra Costa	Rte. 199	1,330,400	2.4
Contra Costa	US 50	5,029,400	6.6
Contra Costa	Rte. 41	3,189,300	0.8
Contra Costa	I-5	5,451,500	11.0
Humboldt	Rte. 299	6,959,600	4.6
Humboldt	US 101	2,897,400	2.6
Humboldt	Rte. 36	1,166,700	2.2
Humboldt	Rte. 96	1,151,800	1.8
Humboldt	Rte. 299	1,050,100	4.1
Humboldt	Rte. 36	1,040,800	
Humboldt	US 101	1,628,600	5.0
Imperial	Rte. 111	2,273,600	8.4
Inyo	Rte. 168	964,200	7.4
Kern	Rte. 99	2,749,600	16.0
Kern	Rte. 58	1,708,000	7.9
Lassen	US 395	131,500	15.1
Los Angeles	I-605	27,458,500	9.5
Los Angeles	Rte. 60	9,265,000	3.9
Los Angeles	Rte. 1	9,107,700	3.6
Los Angeles	Rte. 14	5,830,000	7.9
Los Angeles	US 101	1,716,000	2.1
Los Angeles	Rte. 131	568,200	1.4
Alameda	Eight-lane MacArthur Freeway in Oakland between 0.25 mile west of Buell Street and the east city limit near Durant Avenue		4.5
Alameda	Right-lane MacArthur Freeway between 0.3 mile east of Sybil Avenue and just east of 173rd Avenue in San Leandro		2.9
Alameda	Construct the First Street Interchange near Livermore and the Tassajara Road Interchange at the north city limit of Pleasanton		1.3
Alameda	Right-lane Grove-Shafter Freeway between 0.4 mile west of the Warren Boulevard Freeway (Rte. 13) in Oakland and the Caldecott Tunnel in Berkeley		1.3
Alameda	Six-lane freeway on I-680 between 0.4 mile south of the I-580 Freeway and one mile north of the Alameda-Contra Costa county line near Dublin, and widen one-half mile of the I-580 Freeway to eight lanes on each side of the interchange with I-680		3.1
Alameda	Two-lane expressway on the Carson Pass Highway between 2.5 miles east of Corral Flat and 2.5 miles west of the Alpine county line		8.7
Alameda	Two-lane expressway between 2.4 miles north of Lone and Route 16		5.6
Alameda	Four-lane freeway between 0.6 mile south of Centerline Road and Sierra Vista Way, in and near Chico		8.6
Alameda	Widen Ebbetts Pass Highway between Gannus Meadow and 2.5 miles west of the Alpine county line		5.6
Alameda	Realign a curve on the Colusa-Hamilton City Highway, about 1.9 miles north of Colusa		
Alameda	Revise the southbound on-ramp near Escobar Street, in and near Martinez		
Alameda	US 101	3,476,400	1.1
Alameda	Two-lane expressway on the Redwood Highway between Klamath South Bank Road and Rte. 169 in Klamath River		1.8
Alameda	Repair flood damage on portions of the Redwood Highway between 6.2 and 16.4 miles north of Gasquet		2.4
Alameda	US 50	5,029,400	6.6
Alameda	Right-lane South Fresno Viaduct Freeway between Rte. 99 and Van Ness Avenue in Fresno		0.8
Alameda	I-5	5,451,500	11.0
Alameda	Four-lane freeway between one mile north of Artois and the Tehama county line		11.0
Alameda	Four-lane Blue Lake Freeway between 0.2 mile west of Mad River and Blue Lake		4.6
Alameda	Four-lane freeway on the Redwood Highway between Dean Creek and 3.4 miles south of Phillipsville		2.6
Alameda	Replace a flood-destroyed bridge across the Del River and construct approaches, between 2.2 and 3.0 miles south of Scotia		2.2
Alameda	Repair storm damage between 6.8 miles east of Carlotia and 2.2 miles west of Bridgeville		2.2
Alameda	Repair storm damage between 6.0 miles north of Willow Creek and 4.0 miles south of Weitchpec		1.8
Alameda	Two-lane expressway between Green Point and 2.2 miles east of Redwood Creek, about 1.5 miles east of Blue Lake		4.1
Alameda	Replace two flood-destroyed bridges across the Van Duzen River, between 7.8 and 16.1 miles east of Carlotia		11.0
Alameda	US 101	1,628,600	5.0
Alameda	Four-lane freeway on the Redwood Highway between 0.9 mile south of the Humboldt-Del Norte county line and 0.2 mile north of Route 169 in Klamath		5.0
Alameda	Rte. 111	2,273,600	8.4
Alameda	Four-lane expressway from Birch Street in Caldecott north to the Interstate 8 Freeway, and improve the existing highway from this point to existing Route 8		8.4
Alameda	Rte. 168	964,200	7.4
Alameda	Reconstruct and widen to six and eight lanes between 1.5 and 3.1 miles south of Bakersfield		16.0
Alameda	Pave to complete four-lane freeway between 0.2 mile east of Keene and 0.8 mile west of the Tehachapi Overhead		7.9
Alameda	Resurface between Johnstonville and 3.9 miles north of Litchfield		15.1
Alameda	Right-lane San Gabriel River Freeway between 183rd Street in Dairy Valley and 0.3 mile north of Whittier Boulevard in Whittier		9.5
Alameda	Right-lane Pomona Freeway between the Santa Ana Freeway (I-5) and Third Street in East Los Angeles, and between Atlantic Boulevard in Monterey Park and Markland Drive in Montebello		3.9
Alameda	I-10 and Rte. 1	9,107,700	3.6
Alameda	Santa Monica Freeway as eight-lane Interstate 10 between Sawtelle Boulevard in Los Angeles and Lincoln Boulevard in Santa Monica, and as six- and four-lane Route 1 from this point to the west portal of the Santa Monica Tunnel		3.6
Alameda	Rte. 14	5,830,000	7.9
Alameda	Right-lane Antelope Valley Freeway between 0.5 mile west of Red Rover Mine Road and 0.5 mile north of Angeles Forest Highway, about 4.0 miles south of Palmdale		7.9
Alameda	US 101	1,716,000	2.1
Alameda	Convert the Ventura Freeway from four-lane expressway to eight-lane freeway between 0.3 mile west of Las Virgenes Road and 0.4 mile southeast of the Chesebro Road Overcrossing in the Agoura area, just east of the Ventura county line		2.1
Alameda	Widen Tiburon Boulevard to a four-lane divided highway between Blackfield Drive and 0.7 mile west of San Rafael Avenue in Tiburon		1.4

Mendocino	US 101	Four-lane Ukiah Bypass Freeway between Robinson Creek and 0.2 mile north of North State Street near Ukiah	5.5	2,986,800
Merced	I-5	Four-lane Westside Freeway between 0.2 mile south of Rte. 32, about 6 miles west of Los Banos, and 1.8 miles south of the Stanislaus county line	8.6	5,269,300
Modoc	Rte. 299	Resurface 3.9 miles east of US 395, about 5.0 miles northeast of Alturas, and realign an additional 4.0 miles farther easterly	7.9	1,068,900
Mono	Rte. 120	Two-lane Tioga Pass Expressway between 8.6 and 10.6 miles west of Lee Vining	2.0	1,608,600
Monterey	US 101	Four-lane Salinas Bypass Freeway between 0.3 mile south of North Main Street in Salinas and 0.2 mile north of Espinosa Road	4.1	3,073,400
	Rte. 68	Construct a bridge across the Salinas River and construct a portion of an interchange at relocated Reservation Road (Federal Aid Secondary Route 659), about 3 miles south of Salinas	1.3	1,638,300
Orange	I-405	Eight-lane San Diego Freeway between Newland Street in Garden Grove and 0.6 mile east of Bolsa Chica Road in Westminster	3.7	8,917,194
	Rte. 22	Six-lane Garden Grove Freeway between Newland Street and 0.1 mile east of Harbor Boulevard in Garden Grove	3.5	8,094,000
	Rte. 22	Six-lane Garden Grove Freeway between 0.5 mile east of Bolsa Chica Road and 0.2 mile southeast of Garden Grove Boulevard near Golden West Street in Westminster	2.2	2,405,600
	I-5	Reconstruct the Katella Avenue Interchange on the Santa Ana Freeway in Anaheim		1,088,100
Placer	Rte. 49	Construct channelization and install traffic signals and highway lighting on Auburn-Grass Valley Road at Palm Avenue in Auburn		70,200
Plumas	Rte. 70	Two-lane Feather River Expressway between 1.5 miles east of Sloat Road and 1.8 miles west of its junction with Route 89 at Blairsden	4.6	1,893,500
Riverside	I-10	Four-lane freeway between 10.3 miles west and 4.5 miles east of Cottonwood Springs Road, between 13 and 28 miles east of Indio	14.8	4,823,400
	I-10	Construct an interchange and overhead at Date Palm Drive, about 4.0 miles west of Thousand Palms		1,005,300
	US 395	Six-lane freeway between the University of California at Riverside and Route 60	6.0	3,683,400
Sacramento, El Dorado	US 50	Four-lane freeway between Folsom Junction in Sacramento County and 2.2 miles east of the Sacramento county line	8.4	4,696,600
Sacramento	Rte. 99, I-80	Eight-lane freeway on Route 99 between Second Avenue and W-X Streets, continuing as the Interstate 80 Freeway between 29th and 30th streets to 0.1 mile north of A Street in Sacramento	1.3	7,312,800
	I-5	Initial two-lane Westside Expressway of future four-lane freeway between Route 99 at San Juan Road and the Sacramento River at Elkhorn, serving the future Metropolitan (Natomas) Airport.	4.8	1,369,200
San Benito	Rte. 180	Two-lane expressway between 2.0 miles south of Hollister and Tres Pinos	3.6	653,700
San Bernardino	I-15	Four-lane freeway between Cronese Valley and 2.0 miles east of Baker	17.9	6,916,900
	I-15	Convert the four-lane Barstow Expressway to six-lane freeway between Phelan Road and Palmdale Road in Victorville	7.3	2,911,100
	I-40	Four-lane freeway between one mile east of Route 31 in Barstow and 2.5 miles east of Daggett	9.8	5,329,200
	I-10	Widen the San Bernardino Freeway from four to eight lanes between 0.1 mile west of Etiwanda Avenue and 0.3 mile west of Riverside Avenue near Rialto, and construct a safety roadside rest for westbound traffic	8.6	1,420,300
	Rte. 18	Construct the Crestline Interchange with Route 138 on the Rim of the World Drive		2,207,200
	Rte. 18	Four-lane Rim of the World Drive Expressway between 5.9 miles north of San Bernardino's city limit and Panorama Point.	1.8	1,156,700
San Diego	I-8	Four-lane freeway between East Main Street in El Cajon and 4.0 miles west of Alpine	7.2	6,700,500
	US 395	Construct four-lane Escondido Freeway and grade an additional four lanes between 0.6 mile south of Pomerado-Miramar Road near the U.S. Naval Air Station, Miramar, and 1.4 miles north of Poway Road west of Poway	6.0	6,290,500
	I-5	Eight-lane freeway between 0.2 mile south of National City and 8th Street in National City	1.8	2,517,100
	I-5	Four- and eight-lane freeway viaduct connecting the Crosstown Freeway at Maple Street with the Pacific Coast Highway near Washington Street in San Diego	1.2	3,664,000
	I-5	Eight-lane freeway between 4.3 miles north of Balboa Avenue and Old Miramar Road in San Diego	1.4	2,557,500
	I-5	Pave to complete eight-lane freeway between 0.6 mile south of Carmel Valley Road in San Diego and 0.4 mile north of Via De La Valle near Del Mar	4.3	2,297,900
	I-5	Eight-lane freeway between 0.1 mile south of San Marcos Road near Encinitas and 4.4 miles south of Route 78 in Carlsbad	5.4	4,898,600
	Rte. 67	Four- and six-lane Lakeside Freeway between 1.5 miles north of Interstate 8 and 1.8 miles north of Santee	2.6	1,476,300
San Francisco	I-280	Six-lane Southern Freeway Extension as a one- and two-level viaduct between Newcomb Avenue and 0.8 mile north of Army Street	0.9	5,918,100
San Joaquin	I-580	Four-lane freeway between 3.8 miles southeast of the Alameda county line and Chrisman Road, about six miles west of Vernalis	7.5	4,159,400
San Luis Obispo, Monterey	US 101	Four-lane freeway between 0.9 mile north of San Miguel, San Luis Obispo County, and 1.6 miles north of Gate 1, Camp Roberts, Monterey County	4.8	2,746,000
San Mateo	US 101	Widen the Bayshore Freeway from six to eight lanes between Whipple Avenue in Redwood City and Broadway in Burlingame	4.7	1,248,600
Santa Barbara	US 101	Pave through Gaviota Pass between Gaviota and 0.1 mile north of Nojoqui Creek	6.5	407,100
Santa Clara	Rte. 85	Four-lane Stevens Creek Freeway between 0.1 mile south of Homestead Road in Cupertino and the Bayshore Freeway (US 101) in Mountain View	5.5	7,214,600
	US 101	Convert from expressway to freeway between 0.6 mile south of Tully Road and Coyote Creek in and near San Jose	2.6	1,404,200
Santa Cruz	Rte. 1	Reconstruct and resurface Mission Street between Green and Riggs Streets in Santa Cruz	0.5	117,300
Shasta	I-5 & Rte. 44	Grade and structures for 12.3 miles of four-lane Interstate 5 Freeway between Riverside Avenue north of Anderson and two miles north of Redding; and construct 1.9 miles of four-lane Route 44 Freeway between Market Street in Redding and Hilltop Road, east of that city	14.2	8,578,700
	I-5	Widen the Pit River Bridge and its southern approach		1,120,800
Sierra	Rte. 49	Reconstruct portions between 1.3 miles west of the North Yuba River Bridge and Salmon Creek		1,024,700
Siskiyou	I-5	Four-lane freeway between the Oregon state line and 1.5 miles southerly	1.5	2,181,800
	Rte. 96	Reconstruct portions of the Klamath River Highway and install drainage facilities between Happy Camp and Interstate 5, about 10 miles north of Yreka		1,055,400



San Diego-Marina Freeway Interchange construction. Marina-Slauson Freeway, Route 90, will cross the San Diego Freeway at Jefferson Boulevard north of the Los Angeles International Airport.



Solano	I-80	7.1	5,765,300	Convert four-lane expressway to eight-lane freeway between 0.5 mile north of Route 12 in Fairfield and 0.1 mile southwest of Vacaville
Sonoma	US 101	1.1	1,264,000	Four-lane freeway on the Redwood Highway in and near Santa Rosa between 0.1 mile south of Edwards Avenue and Russell Avenue
Stanislaus	Rte. 99	8.3	7,738,600	Four- and six-lane freeway between 1.5 miles south of Ceres and 2.4 miles north of Modesto
Sutter	Rte. 20	1.1	297,200	Widen the Colusa Highway from two to four lanes between Harter Road and Route 99 near the west city limit of Yuba City
Tehama	I-5	19.6	12,469,600	Four-lane freeway between Corning Road near Corning and 0.6 mile north of Red Bluff
Trinity	Rte. 299	2.1	367,400	Construct truck passing lanes between 2.9 and 5.0 miles east of Douglas City
Tulare	Rte. 198	11.5	6,776,200	Four-lane freeway between 0.3 mile west of West Main Street in Visalia and County Road 164, and four-lane expressway from this point to 0.3 mile east of Route 69, northeast of Exeter
Tuolumne	Rte. 108	3.0	1,193,600	Two-lane Sonora Pass Expressway between Hunt's Camp and Twain Harte
Ventura	Rte. 126	8.5	7,618,800	Four-lane freeway between Wells Road and 0.7 mile east of Santa Paula
	US 101		1,098,000	Convert from expressway to freeway in Thousand Oaks between 0.4 mile west of Triunfo Road and 1.2 miles east of Moorpark Road

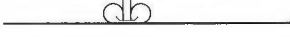

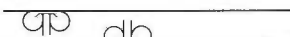
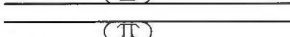
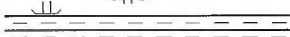
# • Planning

To serve Californians in the multitude of activities of over 18 million people, the State Legislature has established a highway system of approximately 16,600 miles. This state highway system, in conjunction with nearly 150,000 miles of local roads and streets, provides the traffic service network for the 9 million plus California motor vehicles that traveled more than 90 billion vehicle-miles in 1965.

With the growth of our state highway system in recent decades, it became evident that a prime network of specially designed highways was needed to meet future travel demands. In recognition of this need, the State Legislature in 1959 established the "California Freeway and Expressway System." This is a master plan of key highways within the overall highway program. The system, comprising 12,500 miles of freeways and expressways, is planned so it links all major recreational, agricultural, industrial, and population areas. Control of access along the many routes of this system will preserve its effectiveness for many years. The accompanying chart shows the present status of freeway and expressway development.

## ADVANCE PLANNING

### TOTAL NUMBER MILES IN CALIFORNIA JUNE 30, 1966

(STATE HIGHWAY SYSTEM & ALL OTHER)	164,248
TOTAL MILEAGE STATE HIGHWAY SYSTEM	16,598
TOTAL MILEAGE IN OPERATION JUNE 30, 1966 (INCLUDES FREEWAY, EXPRESSWAY, CONVENTIONAL)	14,215
 MILES FREEWAY & EXPRESSWAY AUTHORIZED	12,500
 MILES FREEWAY ADOPTED	7,323
 MILES FREEWAY COMPLETED AND IN USE	1,945
 MULTI-LANE EXPRESSWAY AND IN USE	676
 MILES TWO LANE EXPRESSWAY AND IN USE	808
REMAINDER OF STATE HIGHWAY SYSTEM IN USE (CONVENTIONAL TWO OR MORE LANES)	10,786

## LANDSCAPE ARCHITECTURE

The Division of Highways' staff of professional landscape architects administers a variety of beautification programs designed to enhance the motorist's pleasure in driving.

### Highway Planting

Landscape Architecture design and drafting teams prepare plans, specifications and estimates for projects ranging from small tree planting jobs to landscaped urban interchanges costing \$700,000 or more. \$6.4 million was budgeted for these projects in 1965-66.

### Federal Beautification Programs

The Federal Highway Beautification Act of 1965 provided federal general funds for outdoor advertising and junkyard control and for the acquisition and development of scenic areas adjacent to highways.

The Landscape Architecture Department has general responsibility for administration of these programs in conjunction with Right of Way, Design, and Urban Planning. During 1966 an inventory was taken of all signs and junkyards visible from federal-aid highways; an estimate was

made of the costs of controlling signs and junkyards; a statewide master plan was made for the acquisition and development of scenic areas, with an estimate of costs; a study was made of areas to be landscaped within the right-of-way, with estimated costs; 14 junkyards were screened by planting within the right-of-way, and preparations were made to screen 200 more in the next year; also completed with these funds were 34 planting projects, construction of 6 vista points and 19 right-of-way acquisitions for vista points and roadside rests.



Although there has been a general decline in accident rates over the past years, the substantial increase in vehicle-miles of travel has resulted in an increase in accidents and fatalities. There is also an increasing awareness by the public of the human suffering and economic loss associated with traffic accidents. This has been brought into focus by the recent enactment of the Federal Traffic Safety Act of 1966. Undoubtedly a point has been reached where more time, more effort and more money must be spent to reduce accidents.

The California Division of Highways has used electronic data-processing methods for many years to provide statewide summaries of accident data. Only recently has the computer been applied to the problem of identifying, comparing, and analyzing spot

**Computer Processing of Accidents**

Computers can handle an increasing volume of work at reasonable costs. The California Highway Patrol and city police departments provide copies of all state highway accident reports to the Division of Highways. The accident reports are forwarded to Headquarters Traffic Department, where coder-interpreters pick off information from nearly 120,000 accident reports annually. This information is placed on data-processing tapes for later use.

California has established a mile-posting system, accurate to the nearest 1/100 of a mile, which provides for the accurate location of all accidents. Markers are spaced from 2/10 to 5/10 of a mile apart in urban areas and at one-mile increments in rural

areas. In addition, all structures are marked with milepost markers. The approximate cost to install this system on the existing 14,215 miles of the state highway system was \$400,000. In addition, there is now a pilot study of milepost markers on the 5,000 ramps of the state highway system, costing approximately \$100,000. To have an effective surveillance system it is necessary to know precisely where ramp accidents occur. The accidents listed are grouped into three parts.

A. The first part shows each milepost location where there is one or more accidents.

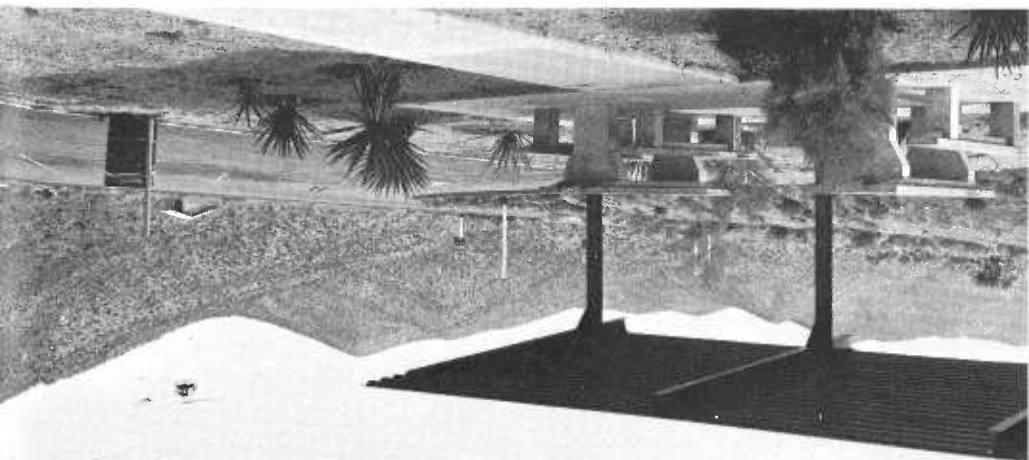
B. The second part shows cumulative numbers of accidents from the beginning milepost within each county route.

**TRAFFIC**

DISTRICT	COUNTY	ROUTE	LOCATION	TRAFFIC DIRECTION
2	Fumas	36	E. of Chester	Both
3	Glenn	5	2 MI. S. of Artois, near Willows	Southbound
3	Kern	5	2.4 MI. N. of LA City Limits	Southbound
6	Los Angeles	5	3.3 MI. N. of LA Co. Line, Lebec	Northbound
7	Inyo	395	10 MI. N. of Independence	Both
9	Kern	395	Near Inyokern	Both
9	Inyo	395	10 MI. N. of Independence	Southbound
10	Stanislaus	5	0.9 MI. S. of San Joaquin County Line	Northbound
10	Stanislaus	5	0.9 MI. S. of San Joaquin County Line	Southbound
11	Riverstone	10	Cactus City, 18 MI. E. of Indio	Westbound
11	Riverstone	10	Cactus City, 18 MI. E. of Indio	Eastbound
11	San Diego	5	At La Costa interchange	Both
1	Mendocino	101	At Moss Cove, 10.5 MI. S. of Laytonville	Southbound
1	Mendocino	101	At Irvine Lodge, 7.9 MI. S. of Laytonville	Northbound
1	Mendocino	101	At Empire Camp, 2.6 MI. S. of Cummings Post Office	Northbound
2	Lassen	395	7.7 MI. N. of Millford	Both
2	Lassen	395	4.8 MI. N. of Madeline	Both
2	Fumas	70	1.5 MI. W. of Rio, 89 near Keddle	Both
2	Fumas	70	6.5 MI. E. of Quincy	Both
2	Shasta	44	3.2 MI. E. of Shingletown	Both
2	Shasta	299	3.9 MI. E. of Montgomery Creek	Both
2	Modoc	299	8.9 MI. NE of Adin	Both
2	Trinity	299	5.0 MI. E. of Weaverville	Both
2	Siskiyou	37	21.8 MI. N. of Weed, Grass Lake	Both
3	Butte	70	0.1 MI. E. of West Branch Bridge	Both
3	Yuba-Sierra	20	4.1 MI. E. of Washington Junction, Alpha Omega	Both
3	Yuba-Sierra	49	Yuba-Sierra Co. line	Eastbound
3	Placer	80	Near Gold Run	Westbound
4	San Luis Obispo	280	N. of Crystal Springs Rd. overlooking S.F. Reservoir	Northbound
5	San Luis Obispo	46	At Cholame Valley Rd. near Cholame	Both
5	Monterey	101	2.5 MI. North of Camp Roberts	Northbound
5	Santa Barbara	101	0.6 MI. S. of Gavilota Tunnel	Northbound
5	Santa Barbara	101	0.6 MI. S. of Gavilota Tunnel	Southbound
9	Kern	14	At Red Rock Canyon	Both
9	Mono	395	2.2 MI. N. of Casa Diablo	Both
9	Inyo	395	At Haiwee, 10.5 MI. S. of Olancha	Both

**SAFETY ROADSIDE RESTS UNDER CONSTRUCTION**

Above, roadside rest on a desert highway is one of many now being provided in state's accelerated program. See below.



**Roadside Rests**

Traffic counts and special studies undertaken during the year indicate that public acceptance and use of roadside rest areas is much greater than had been anticipated in some areas—6-9 percent of passing traffic stops at the rest. This has amounted to as much as 700 vehicles per day. Consequently, larger rest areas are being designed for heavily traveled highways and the program is being stepped up to provide more rest areas.

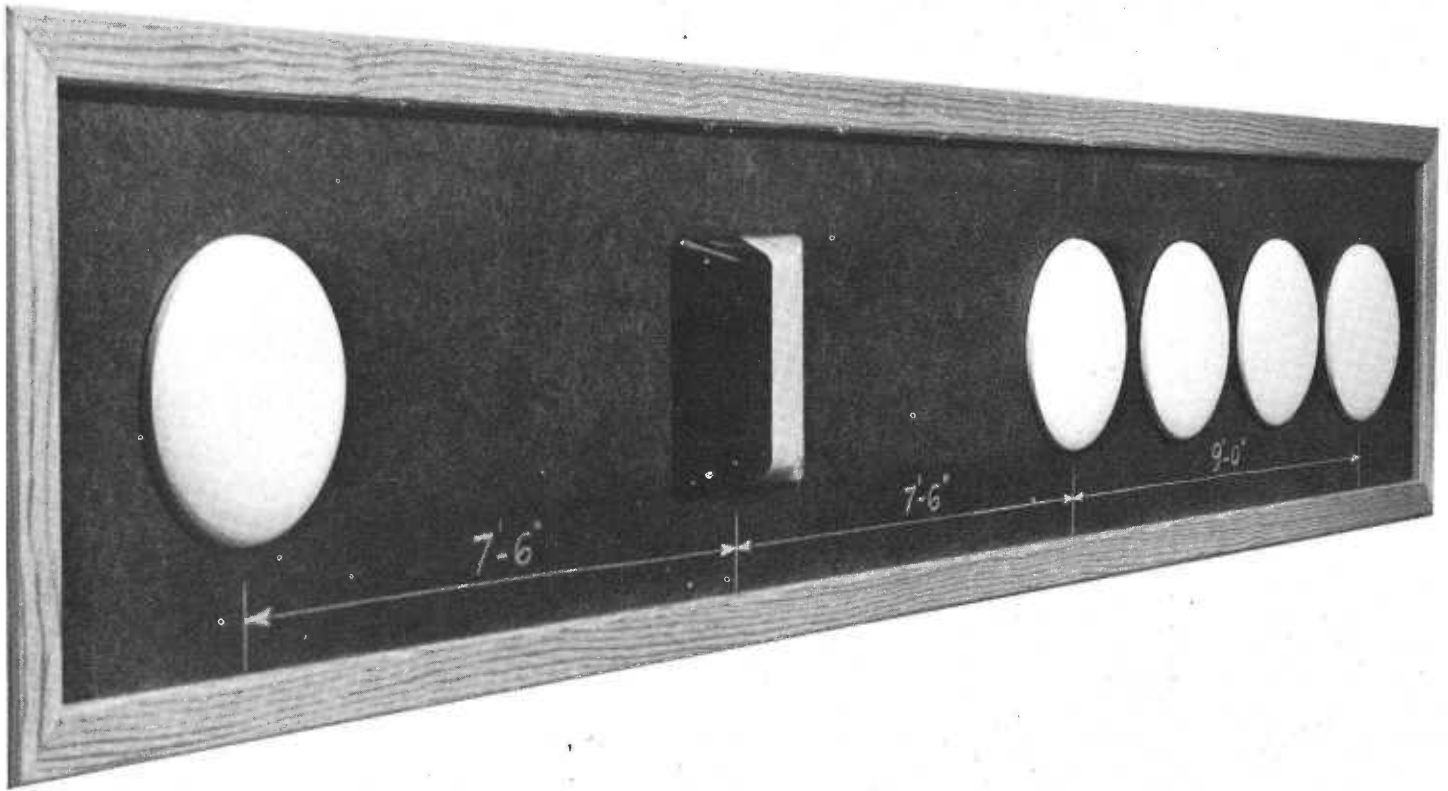
**Highway Nursery**

Administration of the highways nursery at Davis became a function of this department in July 1966.

**Other Activities**

During the past year a report was prepared for submission to the Legislature describing the beautification program and defining the criteria for acquisition of scenic areas as required by AB 51. Because of the great public interest in highway beautification, many demands have been made upon the landscape architect for reports, papers, participation in conferences and appearances at public meetings. Notable among these was the Governor's Conference on Beauty, held in Los Angeles in January 1966.





Model shows arrangement of reflectorized pavement markers adopted for California highways during reporting year. Sequence is 4 white "button" types spread over 9 feet of paving, with a 7½-foot gap, then a reflecting "prism" type marker, which shows white to oncoming traffic, and red to wrong-way drivers.

C. The third part shows concentrations of three or more accidents within any single "floating" tenth-mile increment. The computer determines the tenth-mile increment which has the greatest number of accidents. In addition, the prevalent type of accident (rear-end, turning, broadside, etc.) for each concentration is listed. This tells where the concentrations are by milepost, how big they are, and a rough idea of the type of accident problem.

A second print-out is a quarterly accident concentration listing. This tabulation compares the relative severity of the different accident locations.

There has been a program of spot safety improvements on existing highways for many years. These improvements range in cost from a few hundred dollars to as much as \$1,000,000

each, and include the complete field of traffic engineering techniques and traffic control devices. Some \$7,000,000 to \$8,000,000 on some 300 such safety improvement projects is spent each year. These do not include the numerous improvements in signing, striping, and many of the minor safety improvements which are done by state maintenance forces.

Recently completed is a comprehensive inventory of the entire state highway system to identify and devise solutions for all accident concentration locations. This inventory was completed under requirements of the Bureau of Public Roads, and illustrates the usefulness of the surveillance tabulations. The traffic engineers studied the tabulations and accident records and made field investigations at locations that have been having five or

more total accidents per year. From this study and investigation, improvement projects were proposed at all locations where reduction or elimination of the accident problem was considered feasible.

A priority program has now been scheduled based on this evaluation process. Plans are going ahead to correct about 1,700 locations at a cost of \$30,000,000 in state and federal funds with an additional \$6,500,000 in cooperative funds from local jurisdictions. In line with policies of the Bureau of Public Roads, these 1,700 projects will be completed by September 1, 1969. It is estimated that there will be 4,800 fewer accidents per year when all projects are completed in 1969. Expenditures for all safety improvement projects under this new program will increase by about 50 percent

over average expenditures of the past few years.

An analysis of 500 "before and after" reports now under way indicates an overall reduction in accidents of about 23 percent. Of course, not all safety improvement projects showed an accident reduction, and the amount of improvement varied not only by the type of improvement but from project to project.

With the advent of the new generation of computers embodying real-time, direct access concepts, there will be a time when it will be possible literally to press a button and almost immediately receive complete accident histories, along with traffic and site information, for any location desired.

**The California Traffic Count Program**

The State of California has a continuous program for counting highway traffic. Since 1960, portable mechanical traffic counters actuated by an impulse on a rubber pneumatic hose stretched across the road have been used to obtain traffic counts. Traffic is counted annually at over 16,000 locations on California's 14,215-mile state highway network.

Currently underway is a feasibility study of a combined telemeter-micro-wave data acquisition and traffic control network which will gather count data from about 200 key locations in all parts of California. The network will be controlled by a central command and operating system which will perpetually monitor the progress of vehicles at network locations.

**Electrical**

In a continuing program to make highways safer, division engineers look for methods of reducing the number of fixed objects on freeways and to make safer those which are required.

A recent change in highway lighting design provides higher and wider spaced lighting poles (40 feet instead of 30) thus reducing the total number of poles. In addition a longer luminaire mast is provided so the poles can be located farther from the traveled way (18 feet instead of 12). Perhaps more significant is the provision of a cast aluminum base which dynamic tests have proven will break when hit

by a car and allow the pole to roll over the top of the vehicle. This prevents the damage and injury which results when a vehicle collides with a fixed steel pole.

The findings of the Traffic Department's study of accidents involving fixed objects indicate that the frequency of accidents involving fixed objects in the gore location is approximately four times that of similar fixed objects mounted off the shoulder or in the median.

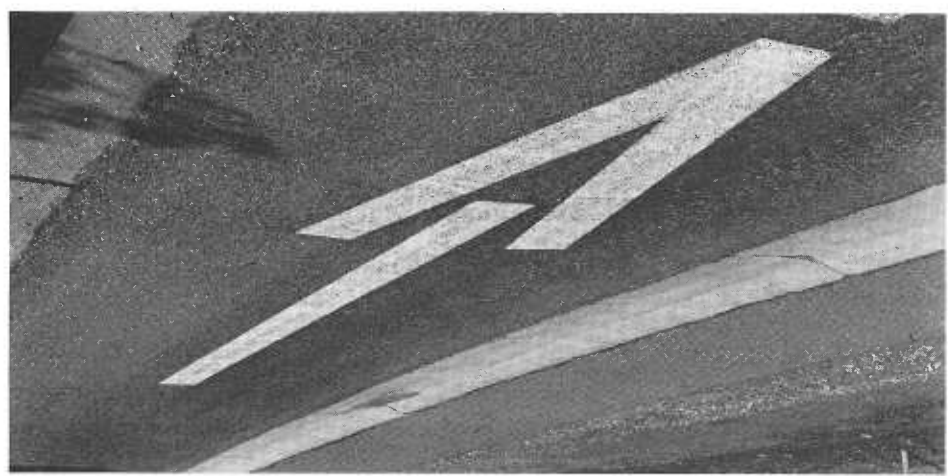
**Signing**

Steel post signs will no longer be installed in freeway gores. Where overhead signing is needed it will be the practice to install the sign directing to the exit as a left-hand cantilever 100 feet to 150 feet ahead of the gore. Where the signing would also include a message over the freeway, this message will be installed on an overcrossing structure where possible, or on a second left-hand cantilever usually a minimum distance of 500 feet beyond the first cantilever sign. This second cantilever should be combined with an existing fixed object wherever possible.

**Traffic Markers**

The traffic stripe has recently been termed a fair weather friend. Everyone is aware that the traffic line is lost under moderate to heavy rainfall, particularly during the hours of darkness. This has become a more serious matter with the development of multilane

Also during the reporting year, pavement arrows were changed to the new type to give better visibility.



In 1954 the late Dr. E. D. Bots of the Materials and Research Department of the California Division of Highways developed a type of raised button or dot as a substitute for the painted white line. The original dots and wedges were made with reflective concrete. However the concrete did not prove as durable as the polyester or epoxy-type resin plastic markers now being used.

The first use of these raised markers was the placement of reflective wedges in lieu of stripe on three miles of northbound lanes of the Route 99 Freeway near Sacramento as an experimental installation. Although these wedges were widely spaced by present standards, they effectively guided traffic for some 10 years. Widening of the highway in 1965 required their removal.

The 1961 State of California Assembly adopted a resolution that the Division of Highways, Department of Motor Vehicles and the California Highway Patrol make a study of lane dividers for the purpose of devising methods and materials which would retain highway markings at night during periods of bad weather. The Materials and Research Department of the Division of Highways installed many test sections using various types of raised lines or markers.

Subsequently the state made several installations, first of reflective dots at three-foot centers to simulate the lane line, and later with reflective wedges. Also used were yellow wedges to supplement the yellow line at problem locations. Primarily, because of the disappointing appearance of full-beaded markers as a daylight line, composite dots and wedges were developed which have a plain plastic top but use the beads on those edges of the marker which are at the best angle to reflect the light from the headlights. Although still making some installations of markers in lieu of stripe, the state program during the last few years has been primarily to supplement the painted line with beaded or partially beaded markers in the gap. Many miles of such supplemental markers were installed, particularly in the heavier rainfall areas of the northerly coast counties.

As a result a circular letter issued December 3, 1965, stated:

"Raised pavement markers shall be used in lieu of painted lane lines on all future multi-lane freeways, expressways, and two-lane rural highways in areas that do not involve snow removal. They should be included as a contract item in future projects. Change orders shall be submitted immediately on all current state highway contracts, where conditions permit".

Further experiments are being made with yellow markers to supplement yellow barrier lines, but these barrier and semibarrier lines as painted lines will be retained for the time being.

In the high mountain areas where snowplows operate frequently it has been impossible to retain a painted line during the winter season. In 1964 a one-mile section in each direction on Interstate 80 was provided with plain and reflective markers set in drilled holes flush with the pavement surface. This insert marker did provide a reasonably effective line under these difficult conditions.

#### Reduced Visibility (Fog) Study

Senate Resolution 33 (1963 session) requested the Transportation Agency to determine possible means of warning motorists of the need to drive with greater caution during periods of reduced visibility.

A joint effort of the Department of Motor Vehicles, the California High-

Way Patrol, the Institute of Transportation and Traffic Engineering and the Division of Highways was launched to implement the Senate resolution.

Generally, drivers were found to accommodate to reduced visibility by voluntarily reducing their speeds about five miles per hour. Additional moderate reductions were observed when electric speed limit signs were displayed in daylight under moderate traffic conditions. Some changes were also noted when Highway Patrol units were deployed. AM radio appeals during "fog alerts" were found ineffective in causing a change, either because the appeals were ignored or were not heard in quantity sufficient to do a "selling job."

#### Reporting Highway Accidents

This study showed that 49 percent of all accidents on the state highway system are reported. One hundred percent of the fatal accidents, 93 percent of the injury accidents and 38 percent of the property-damage-only accidents were reported. On roads patrolled by the California Highway Patrol 54 percent of the accidents were reported, whereas 39 percent were reported on streets under the jurisdiction of city police departments. The study also showed that

only 18 percent of single-vehicle accidents were reported, but that 53 percent of the accidents involving two or more vehicles were reported. Somewhat surprisingly, only 47 percent of the accidents occurring in the daytime were reported, while 67 percent occurring at night were investigated and reported by the police.

#### Relating Highway Elements to Accidents

Highway safety is affected by standards of design. Experience has demonstrated that access control, flat curves, gentle grades, adequate sight distance, freedom from fixed objects, gradual changes, flat side slopes, etc., help reduce accidents.

Improvements in each of the many design elements will be related to accident rates and numbers. All geometric features known or suspected to affect safety will be studied. Since the study encompasses a large and complex field, it will be a continuing study divided into many subprojects for convenience of analysis.

Compiling of a roadway inventory has progressed to the point where all the field and office work to code the geometry has been completed on approximately 1,500 miles of freeway. The next step is to program data for computer analysis and put the inventory on computer tape.

Below: Overall view of test area on Route 5 in Kern County, showing diagonal and longitudinal scoring of a portland cement concrete pavement for improving its skid resistance.





The Bay Area Transportation Study Commission, its data collection virtually completed, has made substantial progress toward decision making on the final plan alternatives it must submit to the Governor and the Legislature by 1968.

From the standpoint of the nearly 4,000,000 people who now live and work in the nine bay area counties included in the survey, there is now a firm foundation from which to realize a return on the \$4,500,000 invested in the study.

Created in 1963 by legislation introduced by State Senator "J" Eugene McAteer of San Francisco, the commission is made up of 37 members representing various federal, state and local agencies of government. It is financed from contributions of the United States Department of Commerce (Bureau of Public Roads); the U.S. Housing and Urban Development Department; the Association of Bay Area Governments; the State Division of Highways and the Bay Area Rapid Transit District.

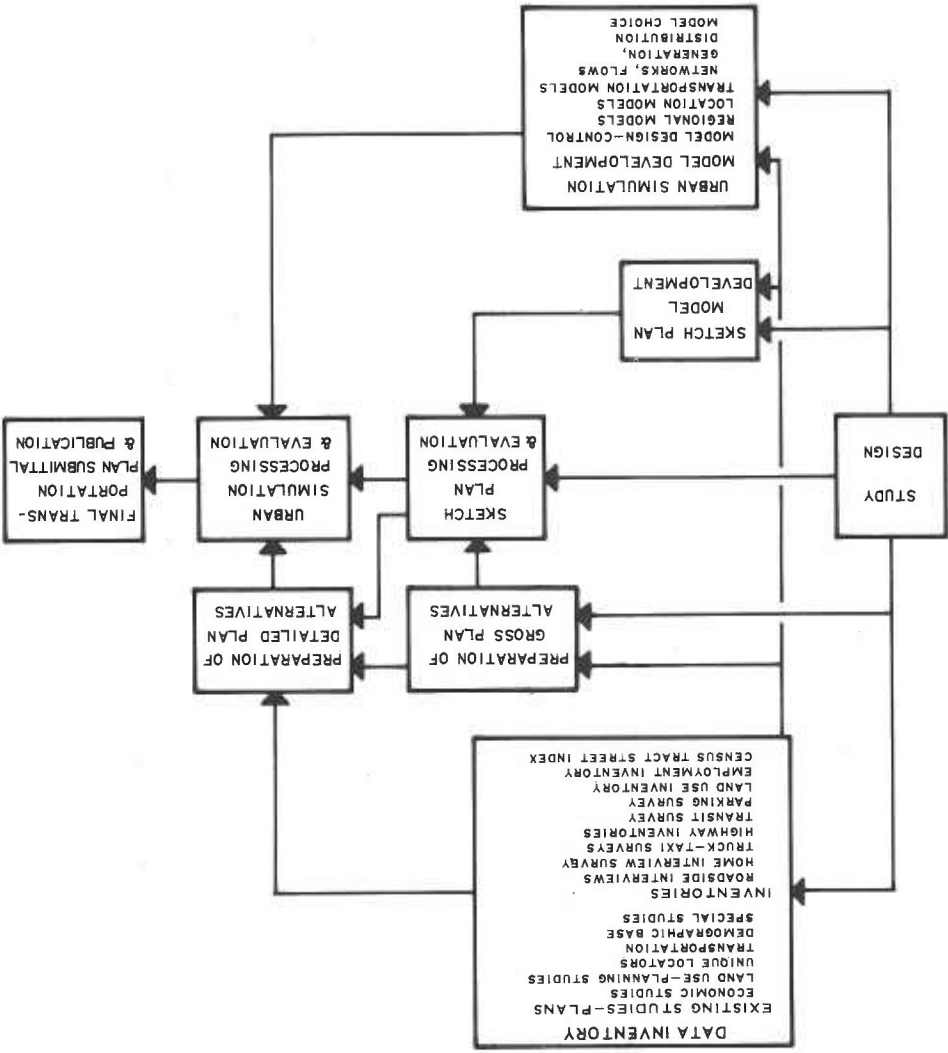
For residents of the area—and to the hundreds of thousands of people for whom the bay area is a traffic "corridor"—the direct benefit will be in the commission's recommendations for a balanced, regional transportation plan. This planning must provide for moving people and goods within and through the bay region, in the period of the 1980's and beyond, when population forecasts indicate more than 7,000,000 persons will be living there. Through use of computers, the commission will analyze its data, obtained by thousands of interviews with motorists, householders and business concerns, to obtain prospective plan choices which offer the greatest possibilities from the point of cost, convenience and traffic service. The same general planning criteria will be applied to proposed choices of transportation facilities.

A distinctive feature of the commission, and one that is expected to play a strong role in gaining public acceptance for the commission's work is the inclusion in the group of numerous members of boards of super-

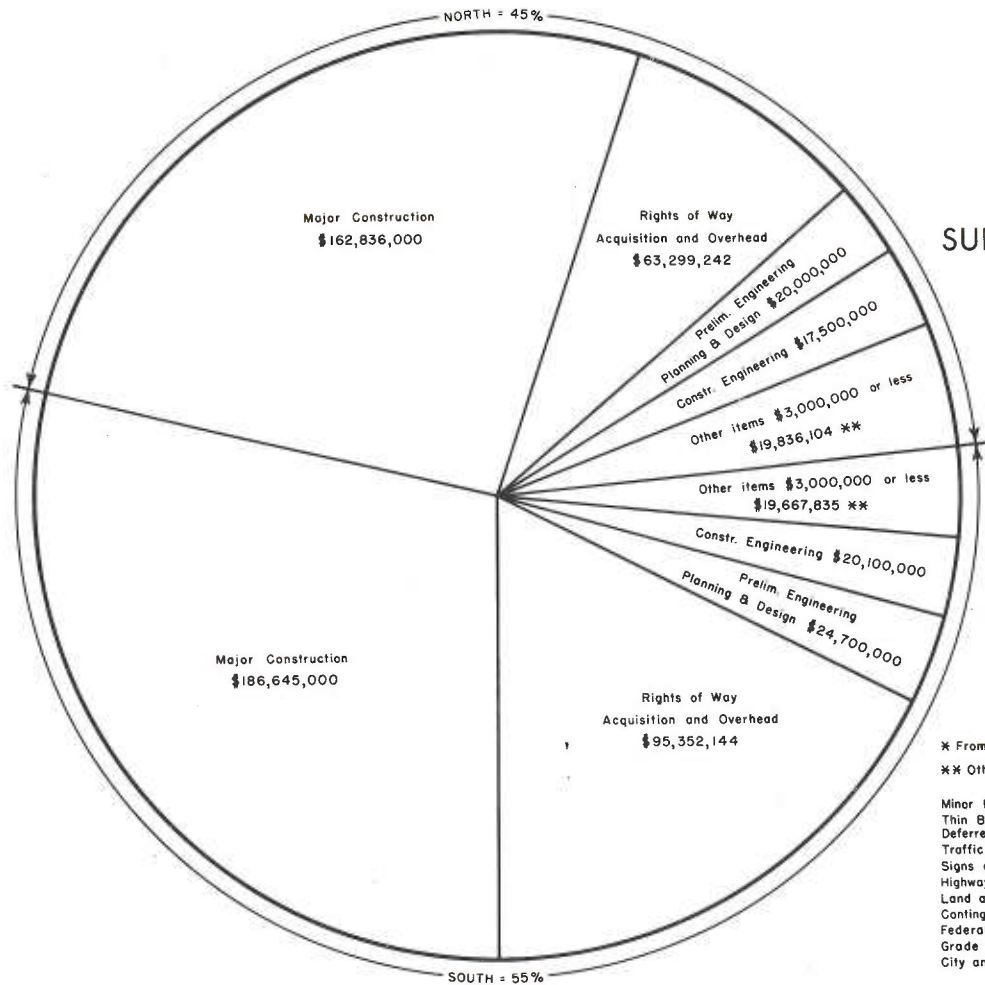
## URBAN PLANNING

visors and city councils within its ranks, as well as business, labor and civic leaders. In addition to the commission itself, there is a citizens advisory committee of 50 members. The bay area transportation study is one of nine similar studies in California. It is, however, the only one with a commission established by state legislation. The status of the other studies ranges from those just being organized to those which have been operating continuously for nearly 10 years. These studies in the urbanized areas include nearly 90 percent of the state's population.

The chart below diagrams the normal flow of current transportation studies beginning with massive collection of data followed by technical analysis and culminating in submission of a transportation plan. Modern-day analytic procedures are subject to extremely rapid development, especially because they are closely related to the swift advancement of computer technology.



## PROGRAMS AND BUDGETS



### 1965/66 F.Y. BUDGET SUBJECT TO NORTH-SOUTH SPLIT

Total Subject to Split \$629,936,325 \*

\* From State Highway Budget adopted by C.H.C. 10/29/64

\*\* Other items \$3,000,000 or less consists of:

	NORTH	SOUTH
Minor Improvement and Betterment	\$ 650,000	\$ 350,000
Thin Blanket Program and Deferred Seal Coats	2,700,000	1,800,000
Traffic Safety Projects	1,000,000	2,000,000
Signs and Striping	2,100,000	2,400,000
Highway Planning	1,000,000	2,000,000
Land and Buildings	2,000,000	3,000,000
Contingencies	3,000,000	3,000,000
Federal Aid Secondary Matching	2,890,604	1,216,835
Grade Separations	2,250,000	2,750,000
City and County Urban Extensions	2,245,500	1,151,000
<b>TOTAL</b>	<b>\$19,836,104</b>	<b>\$19,667,835</b>

Comptroller John Burrill (right) congratulates Sam Zivkovich (left) and Tom Hawkinson for their maximum \$150 award received from their joint merit award suggestion. Their suggestion was that federal highway reimbursement funds be picked up in San Francisco and immediately deposited in a bank rather than go through normal channels for transmittal to Sacramento which might take anywhere from a day to a week. The extra interest computed daily on the more than \$300,000,000 dollars handled yearly will bring into the state an additional \$160,000 a year. Upon proof of total savings to the State Highway Fund through this practice, the suggesters may receive the highest single award ever made by the State Merit Award Board. Highest single award to date was \$11,808 awarded in 1959 to Andrew Schoellkopf of the Division of Highways.



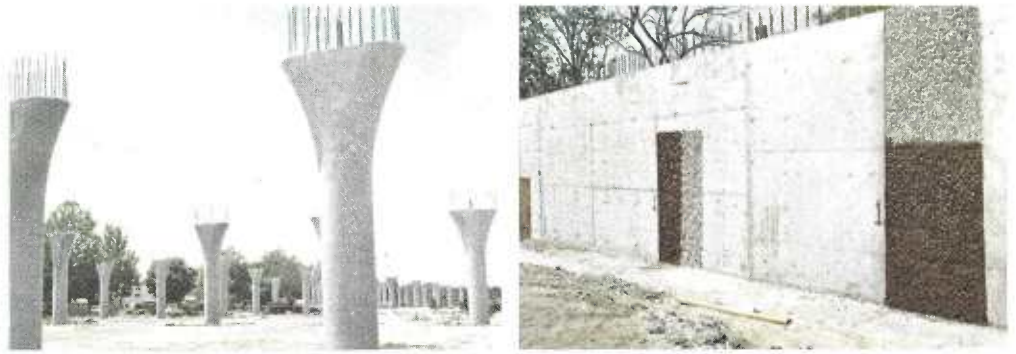




**DESIGN**



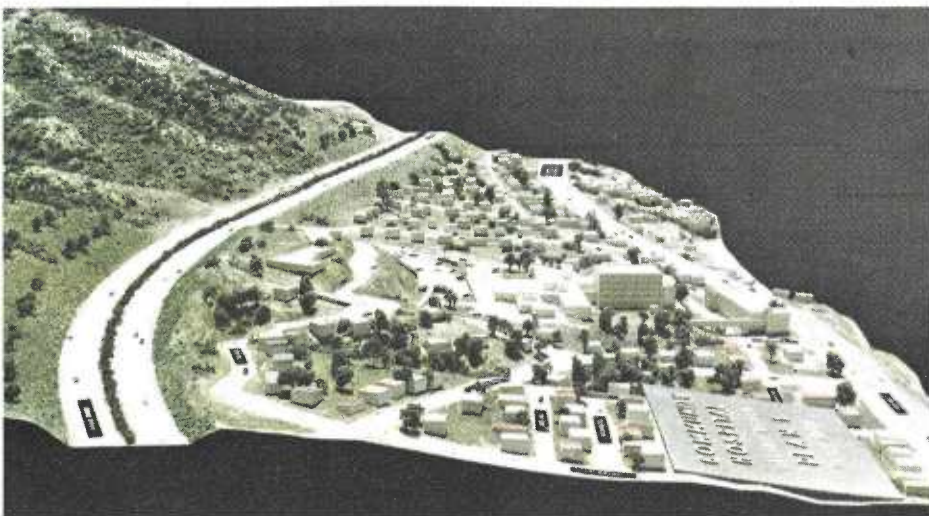
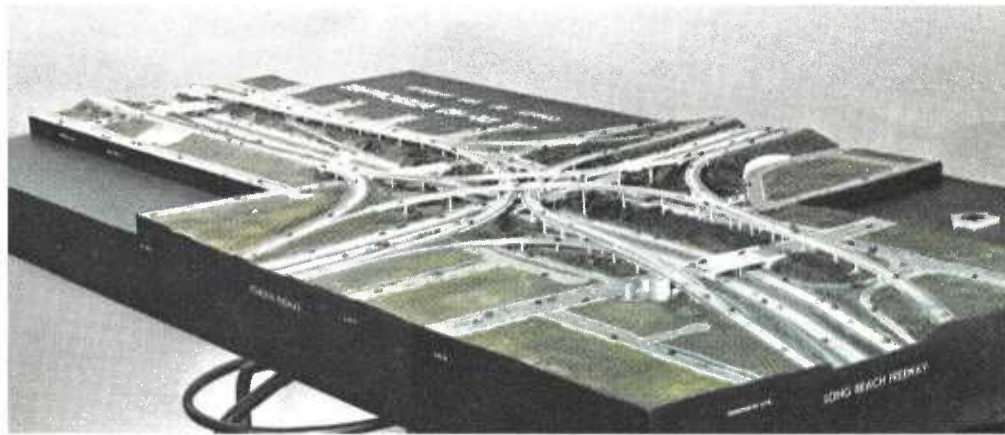
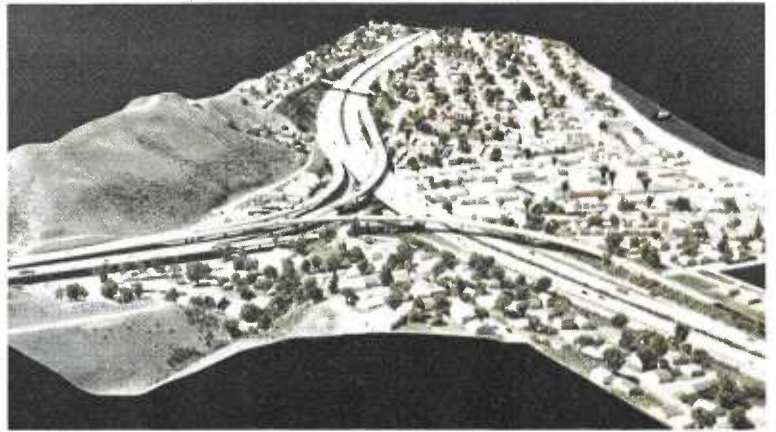




*Above: Two examples of variations in design being used in current construction jobs in the Sacramento area. Since urban design involves the pedestrian's view as well as that of the motorist, new ideas such as these are being incorporated into structures to make them more pleasing in the city landscape.*

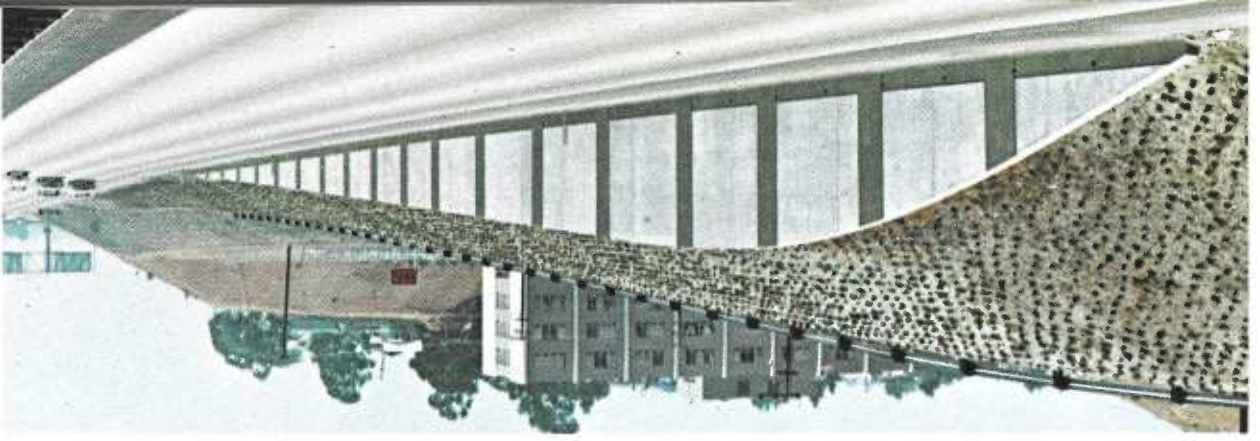
Modern highway design recognizes the need to serve traffic with safety while preserving the amenities of the environment. The designer who today is using all the modern mechanical tools such as computers, photogrammetry, and electronic measuring devices, must still be sensitive to the factors which make up the environment.

The pictures on these four pages illustrate the variety of situations which may be encountered, as well as some of the methods used in reaching satisfying solutions. It must be kept in mind that environment can mean city streets and slow moving pedestrians, a quiet residential area, or the vast open spaces of the mountains and desert.

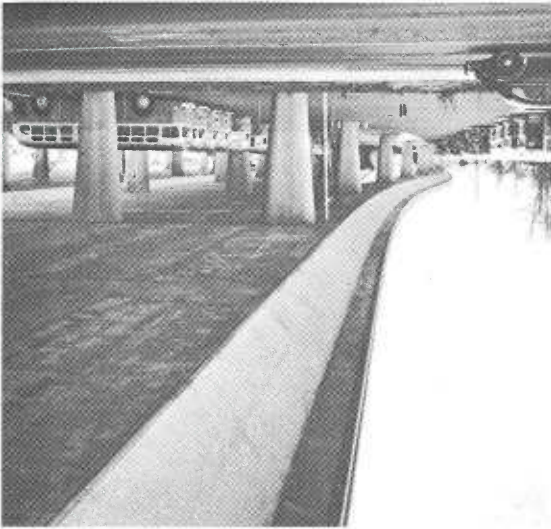


*Above and left: Models of this type are constructed so that geometrics of traffic service, physical relationship to adjacent property, highway safety and aesthetic impact may be studied during design of a project.*





Above: Artists rendition of an interchange between two freeways. Sketches of this type are prepared for study purposes to show how the freeways will fit into the community. Above right: A good multiple use of the freeway right-of-way is illustrated by this elevated structure with parking beneath it. Below: Retaining wall receives aesthetic treatment on Interstate 580 in Alameda County. The rounded top of the wall and the color contrast treatment provide a pleasing diversion for what might have been a large blank wall. As landscaping plants grow, effect will be enhanced.



Above: Safety and traffic expedition are both served by the freeway which handles traffic at high speed which would otherwise hopelessly clog the adjacent city streets. Note how landscaping separates freeway from residential area. Right: Route 99 through the City of Chico in Butte County. Bidwell Park is in the center of the picture. The viaduct through the park provides continuity for full enjoyment of this large park.







*Above: Interstate Route 15 in San Bernardino County. The highway location is well matched to the terrain.*

*Below: Split level design on Interstate 80 in Nevada County. Native vegetation has been retained in the median. The majesty that is the high Sierra is more easily enjoyed through the use of this free flowing alignment leading the traveler over Donner Summit.*





California's bridges are taking on a new look. Throughout the nation, highway aesthetics have become a major interest. Here in California the demand for better looking highways has been received with considerable pleasure. Although our designers have been striving for years to achieve the best in structure appearance, the budget for beautification has never been very large. Now, with the new aesthetic impetus, money is available to improve the appearance of structures. Many new ideas have been on the drawing boards for several years. This year many of these plans went to contract and the public began to see some stimulating new designs.

The new look in bridges employs form, texture, and color. All of these have been used to advantage to create more exciting structures. For example, many bridge girders are being given sloping sides getting away from the structurally efficient but not always pleasing square corners. Besides a more interesting look, this keeps the girder faces in shadow most of the time, and the sloping faces minimize the apparent depth of the girders. In some cases the corners have been completely eliminated so the structure achieves a lighter look.

The first structure built on the Juhipero Serra Freeway south of San Francisco near San Jose was given a continuously curved profile across the underside of the bridge, and the effect is of extreme thinness and lightness. The Fort Sutter Viaduct in Sacramento has sloping sides on the girders. There are many other designs now in progress with variations of these themes.

Variety in the design of the supports is another innovation. Getting away from the traditional and more economical plain round, square or rectangular columns, the new columns may be tapered or shaped, rounded, oval or multisided. With these curves and tapers, the structures take on a dynamic feeling. Those being built in Sacramento illustrate this in a striking manner.

Textures are being widely used to break up plain faces and add interest. A variety of textures are being used on bridge piers to add interest to otherwise plain faces. Retaining walls, notorious for their long plain glaring faces, are being given intermittent panels of texture to interrupt the monotony. These run the gamut from

*Above: This structure combines a liberal use of rubble masonry in abutment retaining walls, with heavily textured abutment and pier faces, sloping girder sides and an anodized aluminum railing. (Farrington Road Overcrossing in Monterey County.) Below: Sloping sides on the girders, tapered columns and long sweeping lines combine to give grace to this section of elevated freeway. Beneath is a huge area which may be used for a variety of purposes. (Fort Sutter Viaduct in Sacramento.)*



# BRIDGES -

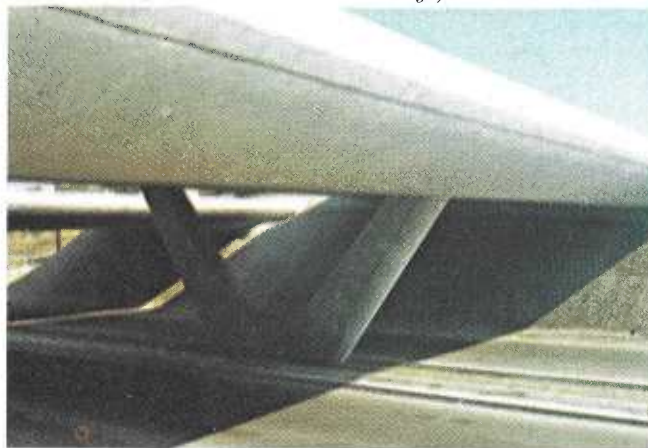


# THE NEW LOOK



*Above left: To add interest to long areas of retaining wall face, exposed aggregate panels were specified. The exposed pebbles are about 50 percent white, with the remainder ranging from light gray to black. (Fort Sutter Viaduct in Sacramento.) Above right: Here an interesting texture relieves what would have been a plain smooth face of concrete on these bridge piers. (The American River Bridge at Sacramento.)*

*Below left: The most extreme example of curved steel girders on a major structure built to date. This ramp describes a full 180° in curved steel. (Pioneer Memorial Bridge Approach Ramps in West Sacramento.) Below right: One of the new designs on the Junipero Serra Freeway. The continuously curving cross-section minimizes the depth of the superstructure. (Mora Drive Overcrossing in Santa Clara County.)*



light textures cast into the concrete, as was done in some of the walls in Oakland, to interspersed panels of rubble masonry or rock-lined planting niches, as in Nevada City. Colored panels help to interrupt monotony. A color may in itself add life to an otherwise drab structure. California has for some time been painting the steel bridges a dark green. In an effort to make the colors more compatible with their surroundings, new colors in the golden tan range are being tried, for matching California's golden hills. They blend remarkably in areas where for nine months of the year dry grass dominates the landscape. The first of these new colors was put on a bridge in the San Bernardino area and more are planned throughout the state.

Appearance and aesthetics are emotional things, and people's tastes vary. Hence, every effort is made to strike a middle ground. Bridges will be in service for many years, and it is important that the designs not follow any faddish trend which may make them look out of place in some future design age. Every new design tried opens a new vista and an opportunity for greater improvement.

Some of the ideas have not gone far enough. Some were possibly applied too enthusiastically. Some of the textures applied to walls were not deep enough, and more contrast is needed for a good effect. Some textures applied to walls were used too extensively so that the texture itself became monotonous. Future installations will be made more interesting by interspersing the textures.

A structure worthy of comment is the San Mateo Creek Bridge, now nearing completion on the Junipero Serra Freeway south of San Francisco at the Crystal Springs Dam. In an especially attractive location, this 1,700-foot bridge, crossing a canyon 250 feet deep, has been designed to complement the beautiful site. The concept was a light, open structure which would cross the deep canyon with a minimum of distracting detail and be an asset to the environment. As the steel girders creep across the tall gothic piers to meet high in the center span, the dream of the designer is rapidly taking shape.

With approximately 500 bridges being built during the year, at any given time there are a number of interesting ones under construction. One extensive complex of struc-



tures is the group forming a four-level interchange between two freeways (Routes 90 and 405) in Los Angeles. Costing some \$15 million for the entire interchange, half of the cost is in the structures. The first unit is now being built. The necessity of maintaining traffic through the work has required many construction innovations.

Another challenging design problem was solved this year with the opening of the Crestline Interchange high on the mountainside above San Bernardino. Notched into the precipitous slopes and using five very sizable sidehill viaducts, an interchange has been built in an almost impossible location to separate the traffic on a four-lane heavily traveled route to the mountain recreation areas.

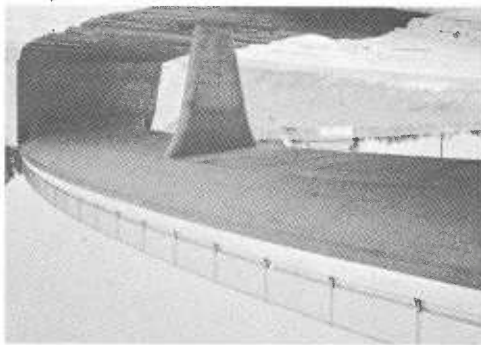
Probably one of the best measures of California's success in meeting the challenge of better looking structures is the continual year-by-year series of awards won in national contests seeking outstanding bridge aesthetics. Each year the steel industry sponsors two different contests. California has consistently received awards almost every year. In 1965, in one contest, four of an available 18 prizes came to California. In 1966 there were two awards in this countrywide competition. Awards have also been won in the concrete bridge field in national competition. Another item of pride was that men from the California Bridge Department carried away six of the 13 available prizes in a worldwide competition for steel bridge design. California is well staffed to meet the aesthetic challenge.

Safety, too, is a prime consideration in bridge design. During the past year, the policy was definitely set that wherever possible bridge columns and piers would not be placed near the right shoulder of a freeway where they could be hit. This requires some longer spans and the removal of these fixed objects which have spelled destruction to some vehicles out of control. As a result, a great majority of the separation structures are being designed as two-span rather than four-span bridges to eliminate two supporting piers. These longer spans also look better.

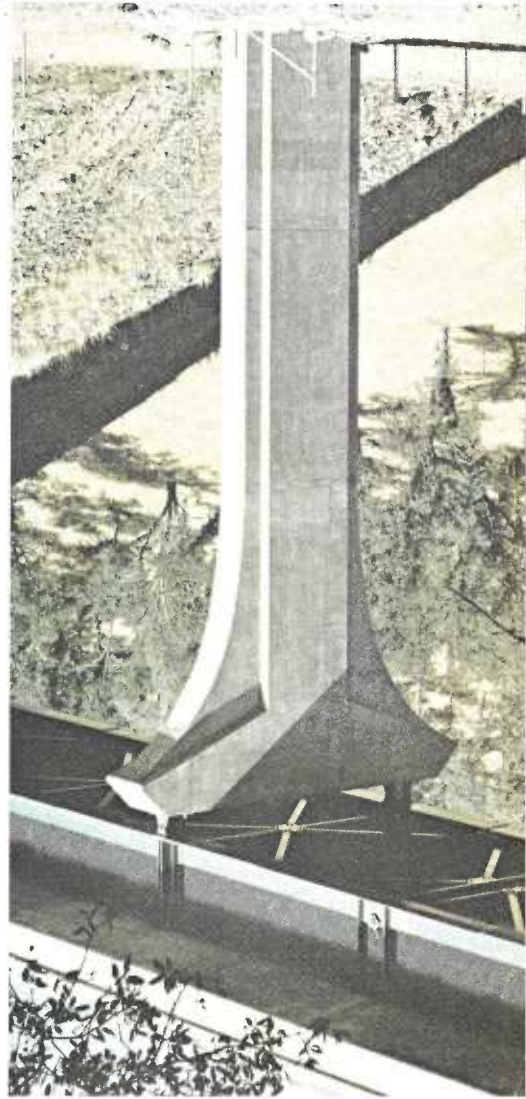
The bridge railing has come in for much comment both pro and con. While admitting that the primary function of a railing is to keep a

*Left: An imaginative pier design lends character to this simple steel girder structure. (Dry Creek Bridge in Amador County.)*

*Serra designs in which the superstructure is shaped to minimize the effect of its depth and the unique pier design adds interest. (Magdalena Avenue Undercrossing in San Clara County.)*



*Below: A precast and prestressed concrete bridge which won an award in a national prestressed concrete competition. Its trim, simple lines give it exceptional grace as it carries the highway over a deep canyon. (Los Penasquitos Creek Bridge in San Diego County.)*





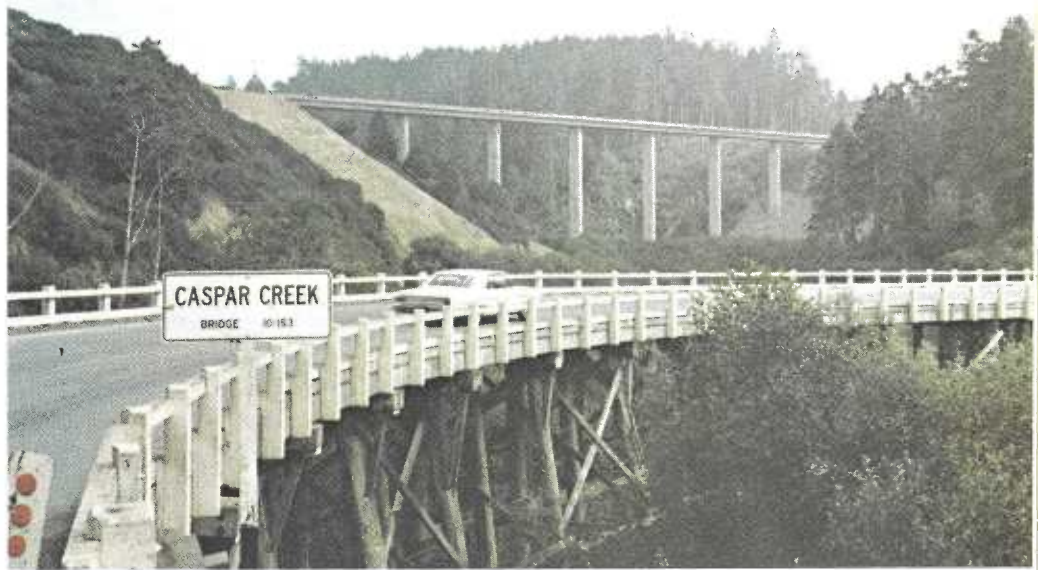
vehicle from running off the bridge, many people also wanted to be able to see out across the country. To meet this criticism, a new steel rail was designed with only two horizontal members and no curbing. The visibility was excellent. Oddly enough, it turned out to be too good. After some of this railing was installed high on a mountainside near San Bernardino, it was found the visibility was so good that travelers looked through into thin air beyond, became uneasy and invariably moved over away from the rail. It was obvious that they wanted visibility out but they did not want to see through down near the deck where they got a sensation of great height. So, another design has been worked out combining the best features of both railings. A low concrete parapet is surmounted by a single rectangular tube only two inches thick. The view down is blocked by the parapet, which also is very effective as a collision barrier. The view out is almost unobstructed by the two-inch tube. This railing will see wide application and will provide the maximum visibility with complete safety.

Vertical clearance under structures has also received considerable study this year—both the permanent clearance and the clearance during construction. Falsework clearance is especially critical. With the longer spans being built, falsework is essential. Yet, in many locations, traffic is so heavy that an impairment of the available clearance even during the construction period presents problems. Although the legal height limit is 13' 6", higher permit loads or loads of illegal height often hit the falsework, occasionally with disastrous results. As a general thing it has been established that falsework will be at least 14' 0" and preferably 14' 6" clear. Although this may in some cases necessitate raising the approach grades somewhat, the safety during construction is considered to be of paramount importance. Horizontal clearance is also being studied with an eye to achieving the safest possible arrangement commensurate with the cost and construction requirements.

Bridge designing and construction has shown a steady increase. Currently the bridge budget runs about \$120,000,000 for more than 500 bridges each year. A continuing budget of this sort requires turning out plans for two bridges and completing the construction of two bridges each working day.



*A welded steel girder structure which won a steel contest award in 1966 for its clean, simple lines. (Willow Creek Bridge in Humboldt County.)*



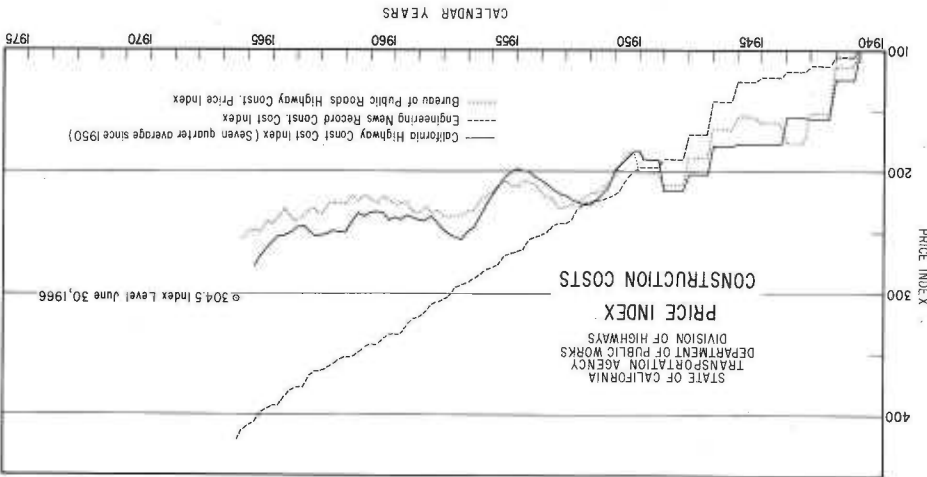
*Above: The clean lines of the new concrete structure on its high, slim, rounded piers contrasts with the old sharply curved timber trestle which carried the traffic for past years (Caspar Creek Bridge on the Mendocino Coast.) Below: A high level, welded steel plate girder bridge which gracefully carries as many as 10 lanes of traffic over the Sacramento River. Although built on a huge scale, its lines reduce to a thin ribbon. (Pioneer Memorial Bridge in Sacramento.)*





# Administration

## OFFICE ENGINEERS



**First Official Highway Map**

The first California Official Highway Map to be printed by the Office of State Printing is being prepared by a newly created cartographic section which is using the most modern facilities and techniques of engraving and photolithography.

A small department of only four people had to start from scratch and within 11 months do the necessary research, learn the scribbling techniques and create some 38 overlays and the relief background.

The map is designed in such a way that the Supplement to the Annual Report and the Freeway and Expressway Progress maps can be created through the use of selected overlays, eliminates duplication of effort and provides high quality cartographic materials for these needs.

This method also has a considerable potential through which other state departments may improve the quality of their published maps at a lower cost, by the selection of desired overlays and preparation of necessary new ones.

Finally, an effective retrieval file system has been set up for collection and dissemination of information for future issues of the map.

Contracts awarded during the year have been arranged in eight value ranges as shown in the accompanying "Contract Value Range" table:

### Construction Cost Index

The California Highway Construction Index reflects changes in highway construction costs. The index is founded on weighted average contract prices for seven principal construction items, all referred to the base year of 1940 with a value of 100. The accompanying graph shows a comparison between the California Index, the Engineering News-Record Construction Cost Index. The latter two indices are based on nationwide construction costs. The California Index is plotted on an average basis which smooths out fluctuations.

### Prequalification of Contractors

Prequalification is required of all contractors who desire to bid on state highway projects estimated to cost more than \$50,000. The prequalification rating, representing the maximum bidding capacity for each of the several types of work which a bidder is capable, is established from a review of each contractor's statement of experience and financial condition.

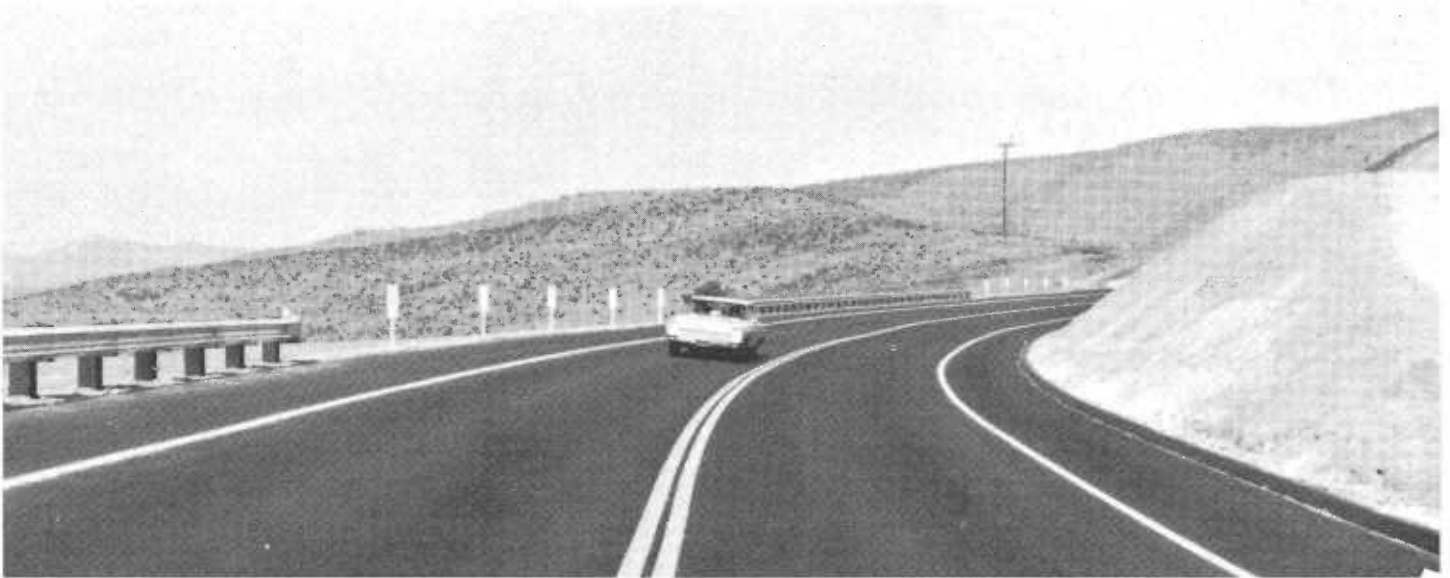
On June 30, 1966, there were 812 contractors prequalified to bid on the various types of state highway construction, with a combined bidding capacity of \$2,826,260,000. The following tabulation gives the number of contractors prequalified on June 30, 1966, arranged by the several brackets of bid ratings:

Rating	Number of contractors
\$10,000,000 and over	91
5,000,000 to \$10,000,000	163
2,500,000 to 5,000,000	248
1,500,000 to 2,500,000	316
1,000,000 to 1,500,000	405
500,000 to 1,000,000	515
250,000 to 500,000	683
100,000 to 250,000	773
50,000 to 100,000	812

### CONTRACT VALUE RANGE

Contract Value Range	Number of Projects	Value of projects
Under \$50,000	279	\$5,625,188
50,000 to \$100,000	68	4,713,557
100,000 to 250,000	118	19,312,943
250,000 to 500,000	55	19,768,939
500,000 to 1,000,000	31	22,019,294
1,000,000 to 2,500,000	36	55,190,523
2,500,000 to 5,000,000	19	67,701,061
Over \$5,000,000	25	183,174,030
<b>Total</b>	<b>631</b>	<b>\$377,505,535</b>

# Financial Aid for City-County Roads



Above: Senate Bill 380 enacted a few days before the beginning of the fiscal year, clarified and extended the provisions of the Collier-Unruh Local Transportation Development Act so as to benefit the cities and counties which were having trouble providing the local matching funds required.

Below: View of Route 70 in Marysville, with new median dividers and traffic storage lanes under construction. This is a typical improvement being made in many major arteries in California cities.





# • Legal

The most significant legal development in recent years is the imposition upon the state of liability for dangerous conditions of public property. This permits suits against the state for money damages as a result of death, injuries to persons or property.

Prior to the 1961 decision in *Muskopf v. Comring Hospital District*, 55 Cal. 2d 211, the defense of sovereign immunity protected the state from liability in most cases involving governmental activities, including accidents caused by the planning, construction and maintenance of state highways. The *Muskopf* decision removed this defense but its effect was delayed for two years by the Legislature, i.e., actions against the state could not proceed to trial until on and after September 20, 1963.

As a result, the state has now had approximately three years of experience in operating under the legislation which was enacted in 1963. This legislation permits actions to be brought against the state under certain circumstances and subject to various defenses and immunities in the law. For the first year from September 20, 1963, to September 20, 1964, the state was covered by liability insurance. Thereafter, the state has been self-insured except for accidents arising from the operation of state vehicles which is still covered by insurance.

During this three-year period, the experience of the Department of Public Works, in general, has been good. The number of claims filed with the State Board of Control has increased considerably over prior years. For example, for the 1965-1966 fiscal year, a total of 510 claims were filed, which is more than 40 claims a month. The aggregate amount of the claims filed was \$41,044,681. The board allowed 69 claims (approximately 14 percent of the total filed) in the aggregate amount of \$76,091.

A substantial majority of the claims filed with the board terminate upon being denied. However, an increasing



Sometimes, in difficult legal cases involving property and right-of-way, it is necessary to build scale models to show the problem.

number of claimants whose claims are denied elect to proceed against the state in court. Some of these actions are favorably disposed of without trial on the basis of the defenses and immunities in the new law. On the other hand, a number of actions have been settled prior to trial where the state appeared to have liability. Of the 15 or 20 cases which have actually proceeded to trial, a judgment was rendered against the state in only one case to date.

The most important single case tried involved a suit by a number of property owners in Del Norte County for damages alleged to be in excess of one million dollars as a result of the December 1964 storm, one of the severest in California history. The entire town of Klamath was virtually destroyed and it was claimed that a partially completed new highway bridge and the old Bear Bridge, built in 1926, increased the property damage. After a lengthy trial, involving hundreds of exhibits and testimony by many lay and expert witnesses, the trial judge ruled that the state bridges did not cause any of the damage.

# • Right of Way

## Community Values

"Attitudes Toward Transportation: Their Nature and Effect" is the title of a current sociological research project which, it is hoped, will help the Right of Way Department more accurately identify the values held important by a community. The study, being conducted under contract by a psychological research organization, deals with underlying basic attitudes held by representative segments of a community rather than with their opinions, which have been found to be notoriously changeable. The results will be used in studies which lead to the selection of new highway routes by the California Highway Commission and will give the Division of Highways' planning staff one more important device by which to measure the potential public acceptance of their transportation solutions prior to the point of final decision.

## Community Benefits

A second study, being conducted under contract by a real estate research firm, is expected to assist the Right of Way Department in the decisions which must be made regarding the potential multiple uses of right-of-way airspace. Social and economic factors, in addition to engineering and technical considerations, weigh heavily in selection of sites for airspace development and the study will bring together the components which will enable maximum benefits to the community, as well as to the motorist, to be realized.

## Beautification

Divisionwide training courses in aesthetics, as related to highway design and construction, were held during the year and Right of Way agents were members of participating interdisciplinary teams. The courses served as background for the beginning of work on beautification programs which will be implemented during 1966-67. The selection and purchase of scenic easement strips adjacent to state highways in the federal-aid inter-

state and primary systems are among new responsibilities which will be assumed. Purchase of strips to allow screening of junkyards or purchase of the junkyards themselves, in case screening is not possible, is another new beautification responsibility. A study was also started to examine the problem of justly compensating sign-board owners and landowners, who would be affected, in anticipation of state conforming legislation which will be considered in 1967.

## Family, Business and Farm Relocation Assistance

At the beginning of the fiscal year the State Legislature authorized the Division of Highways to compensate, within limits, families, business and farm owners and tenants for costs incurred in moving their personal property when displaced by right-of-way clearance. The payments are in addition to relocation advice and assistance which has been provided for some years. Three thousand payments totaling \$737,000 were made to displacees during this first year of operation of the program.

## Program Accomplishment

Capital expenditures of \$197,640,000 were made by the Right of Way Department during the year. The program increase over 1964-65 was 17

percent. Of this amount, \$180,518,000 were spent for highway rights-of-way. During the year, 9,261 parcels of land were purchased including 303 by contested court action and 8,958 by negotiated settlement. The incidence of court actions, at 3.3 percent, is consistent with historic rates experienced under the long established policy of negotiations founded in equity for the public and affected owners.

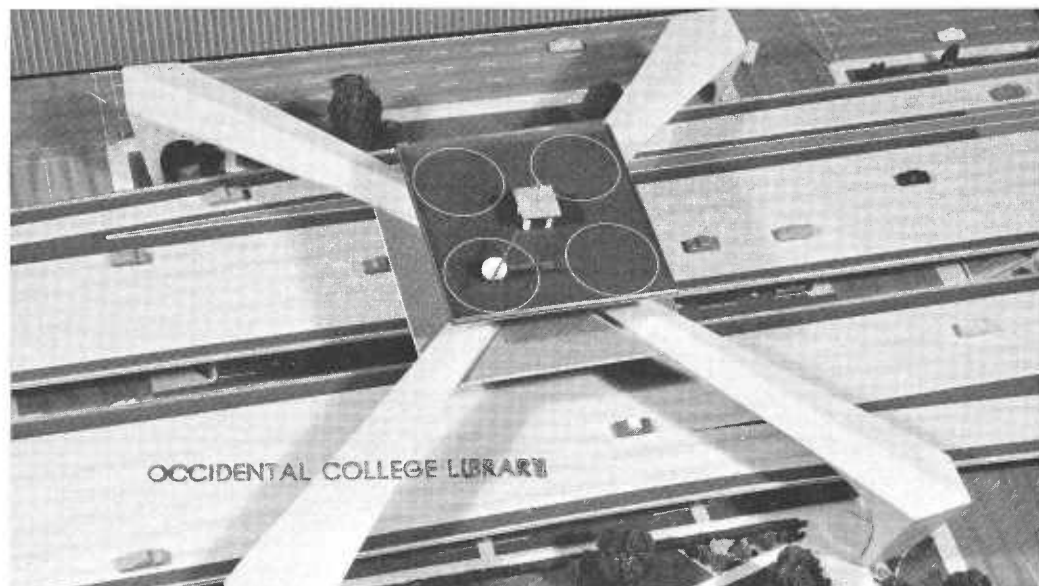
Obligations to relocate utility facilities outside highway rights-of-way amounted to \$15,509,000 during the year and 858 separate agreements were entered with affected utility companies.

Also during the year \$5,089,000 were returned to the State Highway Fund from the rental of 4,318 units during the interim period between right-of-way purchase and clearance for construction. Clearance (the sale of improvements) and sales of remainder parcels returned another \$11,528,000 to the fund. These property management activities brought in a return sufficient to pay 80 percent of the total costs of operation of the Right of Way Department.

## Other Programs

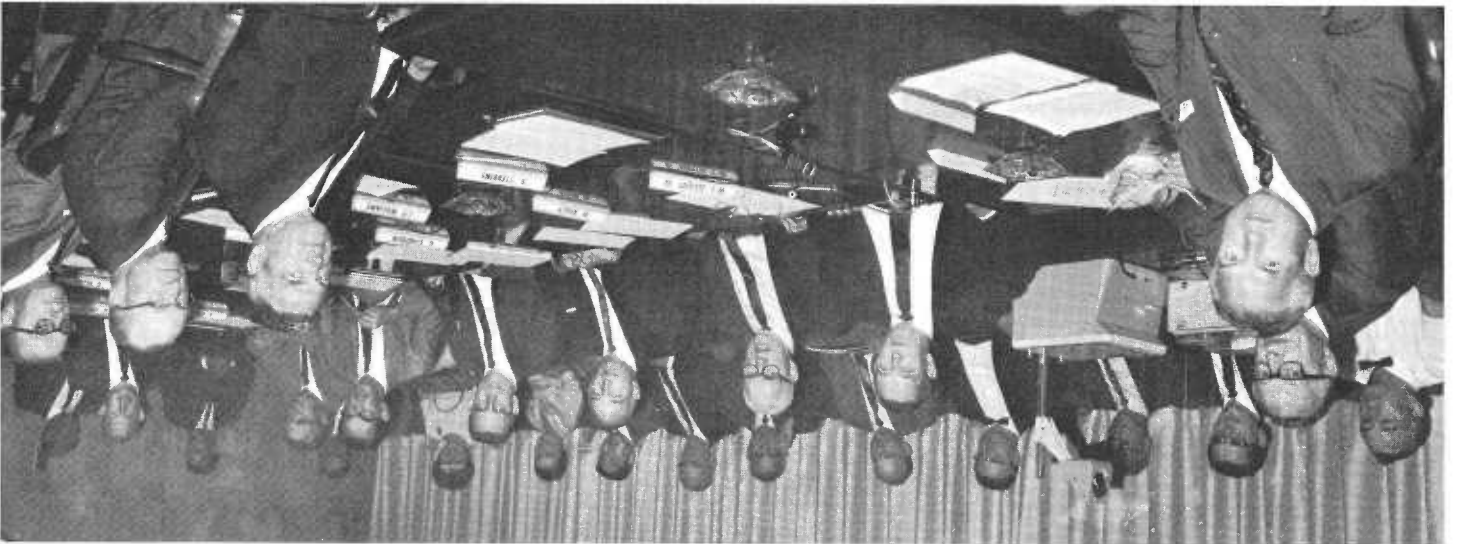
For the California Water Project 728 parcels valued at \$10,727,000 were appraised and purchased and for other state agencies and non-right-of-way uses for the Division of Highways 193 parcels costing \$1,441,000 were purchased by the Right of Way Department.

Below: Perhaps a little far out today, a freeway-spanning restaurant and heliport such as the one shown in this model may be a practical future method to conserve vital space in urban areas.





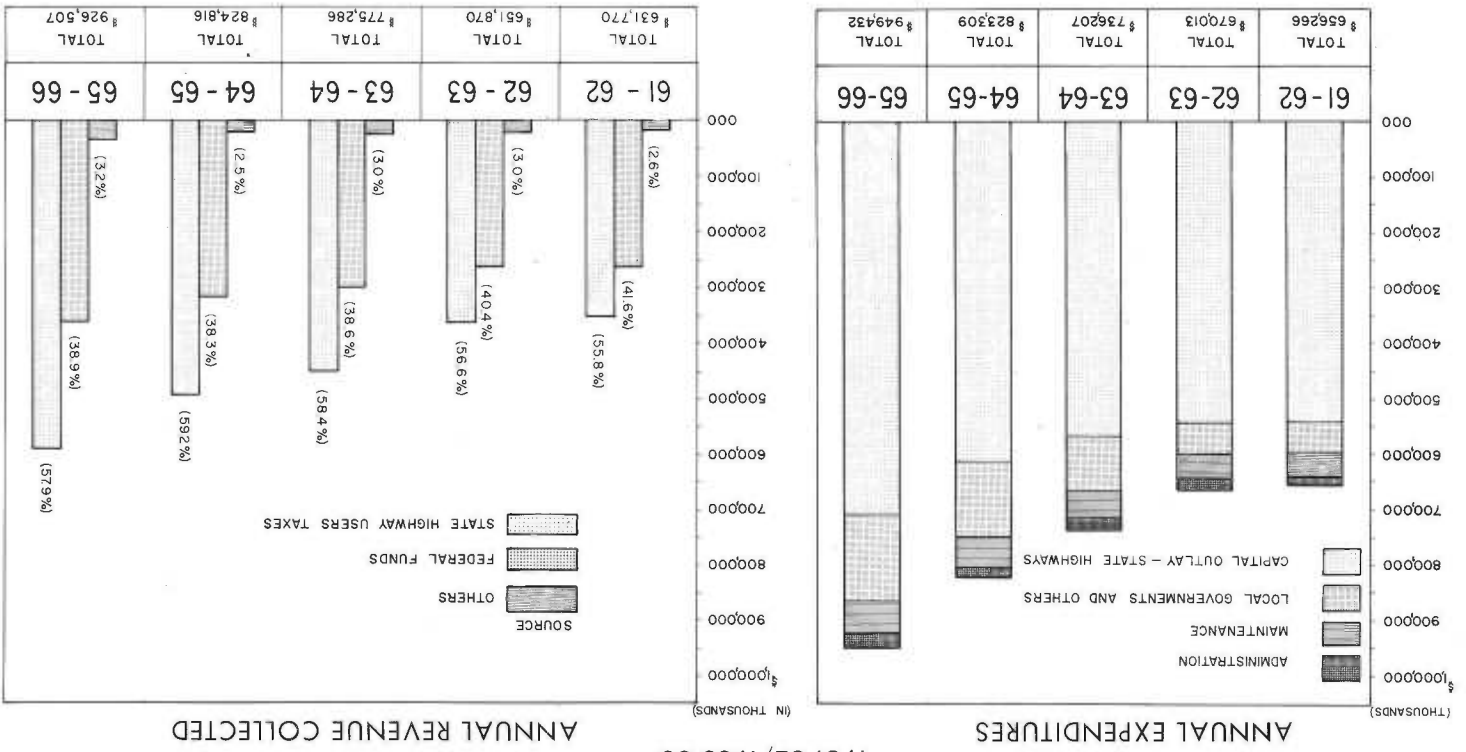
# •Fiscal Management



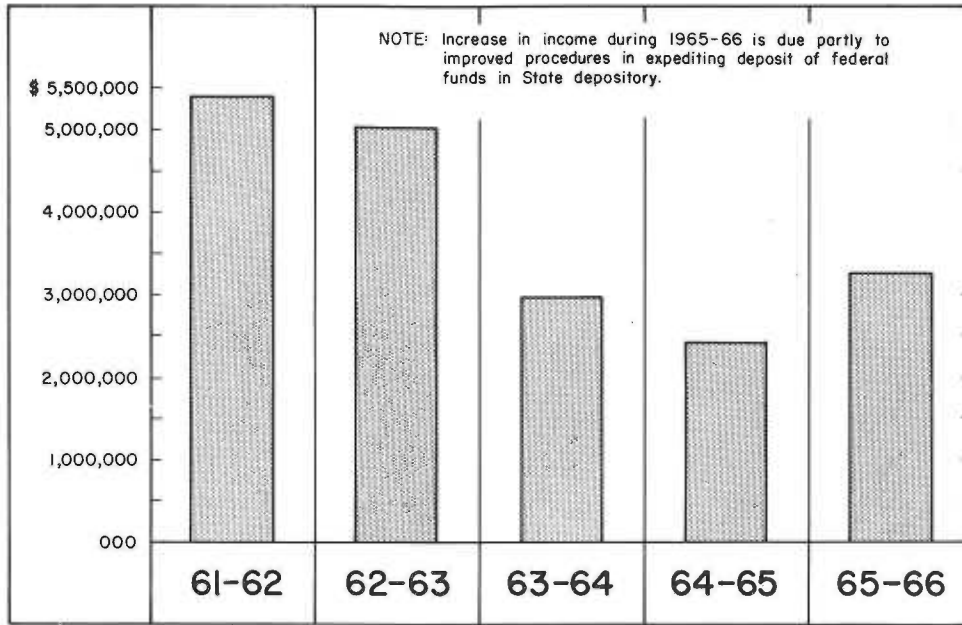
Periodically the accounting officers from the various district offices are called in to Sacramento Headquarters for briefing and training in improved procedures. At front far left is Comptroller John Burrill, directly behind him Deputy Comptroller Andrew Schoellkopf.

## STATE HIGHWAY FUND

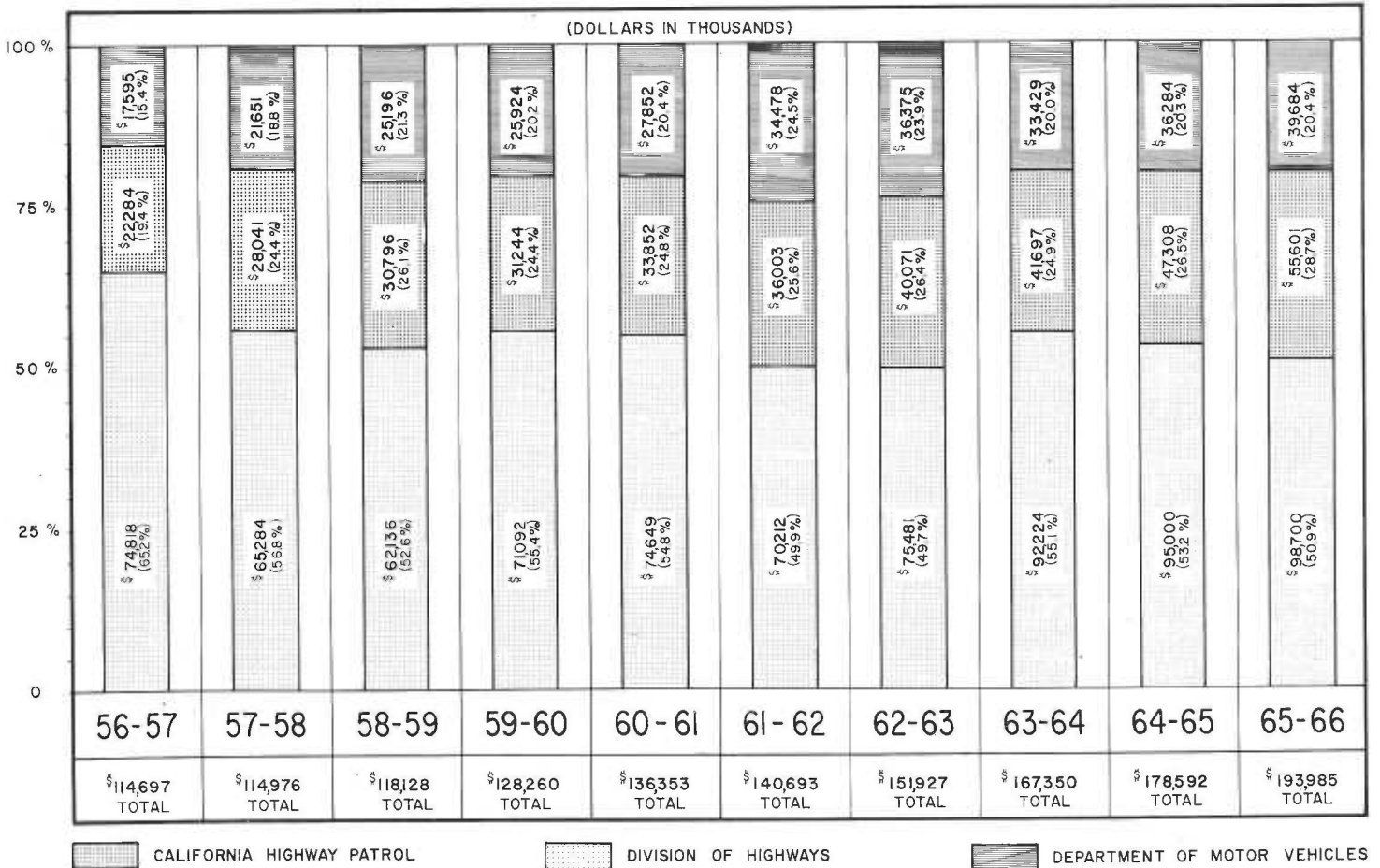
1961-62/1965-66



**STATE HIGHWAY FUND  
INTEREST EARNED ON TEMPORARY INVESTMENTS  
1961-62                      1965-66**



**DIVISION OF HIGHWAYS  
ANNUAL DISTRIBUTION OF MOTOR VEHICLE LICENCE FEES  
1956-57 — 1965-66**







# 1967-68

# Highway Budget

Bradford said that the rate at which highway projects can be awarded by the Department of Public Works is dependent upon the rate at which cash actually is received in this fund.

### Non-State-Highway Items

A third budget segment totaling \$160,646,239 was allocated for functions not under state highway jurisdiction.

The largest non-state-highway items are \$78,900,000 for construction and rights-of-way for streets and roads on the select system of cities and counties as established by the 1963 Legislature, and \$55,000,000 for improvements and maintenance work on city streets.

The other such items are \$8,512,739 in federal aid for county roads on the federal aid secondary system, and \$4,200,000 in state funds to counties for use in matching these federal funds; \$5,000,000 in state funds to help finance railroad grade separation projects on local streets and roads; \$133,500 in state funds to pay part of the cost of extending federal aid secondary county roads into urban areas; \$3,890,000 for maintenance of state-owned toll bridges; \$1,500,000 in engineering funds for cities; and \$190,000 for administration of the Outdoor Advertising Act.

The total estimated revenue from all state sources is \$544,090,000. It will derive from \$411,960,000 in gasoline taxes, \$76,000,000 in motor vehicle fees, \$33,540,000 in taxes on diesel fuel, \$17,900,000 in taxes on for-hire vehicles, \$4,000,000 in interest, \$500,000 from leases, and \$190,000 in outdoor advertising fees.

recent federal law must be accomplished by 1973.

As in previous years, the commission approved some projects which are only partly financed in the 1967-68 budget, but which under current federal and state procedures can be placed under contract in their entirety with the assurance that the balance will be included in the next fiscal year budget.

It also allocated \$160,925,800 to finance the balance of projects which were approved in the 1966-67 budget. In addition to the construction items, the commission budgeted \$96,880,000 for state highway purposes other than construction, including \$54,580,000 for maintenance; \$19,920,000 for administration, including \$500,000 for insurance and payment of tort claims and judgments; \$8,660,000 for maintenance of landscaping, functional planning and safety road side rests; \$5,000,000 for buildings and land; \$3,860,000 for highway research and development; \$1,310,000 for honor camps; \$3,500,000 for equipment; and \$50,000 for legislative claims.

In submitting the budget to Governor Edmund G. Brown, Robert B. Bradford, chairman of the commission and Administrator of the Transportation Agency, cautioned against comparing it with the state highway budget for the current fiscal year. "Such a comparison would be meaningless at this time," he said, "because the new budget includes for the first time accrual funds.

"This means that many millions of dollars, although in the state's pipeline, will not be received as cash in the State Highway Fund during the coming fiscal year."

The California Highway Commission budgeted \$673,046,761 for state highway construction purposes, including rights-of-way and engineering, for the 1967-68 fiscal year.

The new budget contains \$457,984,000 for major construction and improvement (including engineering); \$190,421,961 for rights-of-way; plus other amounts for contingencies, resurfacing programs, signs and striping, highway planning studies and minor improvements.

A total of \$4,000,000 has been earmarked in the new budget for traffic safety and operational improvement projects in the \$5,000-\$50,000 bracket, particularly at points of accident concentration. These range from easing curves, installing or modifying signals, constructing left-turn storage lanes, applying anti-skid treatment to the road surface, providing truck climbing lanes, and many more.

State Highway Engineer J. C. Womack had told the commission that more costly and extensive projects for accident reduction, such as replacing narrow bridges, installing median barriers on freeways, and improving highway alignment through rugged terrain, as well as the most important measure of all for accident reduction, the replacing of conventional highways with access-controlled freeways, will be financed out of general construction funds.

Major construction effort in the new budget continues on California's 2,165-mile share of the national system of interstate and defense highways. The budget contains \$386,483,000 in federal funds, of which \$327,766,000 is included for the completion of this system, which by

# 1967-68 State Highway Budget by Region, Counties

NOTE 1—The term "freeway" means a multilane divided highway with full access control, no crossings at grade, no stop lights and no left-turn movements. An "expressway" may have the same access control as the freeway but may permit left turns and crossings at grade at some intersections which may or may not be signalized. "Two-lane expressways" are two-lane highways with access control, and are usually planned for future expansion to four lanes.

NOTE 2—Projects which overlap county lines are listed in both counties.

NOTE 3—Construction contracts financed in this new budget may be awarded beginning January 1967; right-of-way funds may not be spent until July 1, 1967, the start of the fiscal year.

NOTE 4—Questions concerning individual items can best be answered by your Division of Highways district office.

## SAN DIEGO AND IMPERIAL COUNTIES

### Imperial County

Extend the four-lane Interstate 8 Freeway, now completed or under construction between 20 miles west and 10 miles east of the Imperial-San Diego county line, another 19.7 miles easterly to construction in progress between south of Seeley and El Centro. The project includes constructing interchanges at Route 98, Imperial Highway and Drew Road, and bridges across the South Fork of Coyote Wash and the Westside Main Canal. Estimated cost, \$8,000,000, of which \$3,850,000 will be budgeted in the 1968-69 fiscal year.

Construct a safety roadside rest for eastbound traffic south of the Interstate 8 Freeway at Sand Hills, east of El Centro, and revise the existing roadside rest in the median to serve westbound traffic. Estimated cost, \$255,000.

Rights-of-way on various state highway routes—\$712,000.

### San Diego County

\$9,400,000 to complete the financing for constructing the first unit of the Interstate 805 Freeway in San Diego between 0.2 mile north of Home Avenue and the Interstate 8 Freeway, a distance of 3.6 miles. The project includes constructing interchanges at Wabash Boulevard, University Avenue and El Cajon Boulevard, and a partial interchange at Madison Avenue. Estimated cost, \$11,000,000, of which \$1,600,000 had been budgeted in the 1966-67 fiscal year.

\$6,781,000 to complete the financing for constructing an interchange between the eight-lane Interstate 5 and Interstate 8 Freeways and the four-lane Route 209 and future Route 109 Freeways, just west of Pacific Coast Highway (US 101) and south of the San Diego River in San Diego. The project includes constructing paired Interstate 5 Freeway bridges across the San Diego River and an interchange between Interstate 8 and Morena Boulevard. Estimated cost, \$11,781,000, of which \$5,000,000 had been budgeted in the 1966-67 fiscal year.

\$3,587,000 to complete the financing for extending the eight-lane Interstate 5 Freeway, now under construction between Oceanside and south of San Clemente, another 8.9 miles northerly to 0.2 mile north of the San Diego-Orange county line, with an interchange at Basilone Road. This project, together with others completed, under construction or budgeted, will provide full freeway from San Ysidro near the Mexican border to northern Los Angeles County. Estimated cost, \$8,587,000, of which \$5,000,000 had been budgeted in the 1966-67 fiscal year.

\$4,000,000 to complete the financing for constructing the eight-lane Interstate 5 Freeway between Tecolote Creek and 0.5 mile north of Balboa Avenue in San Diego. The project includes constructing interchanges at Claremont Boulevard and Balboa Avenue and extending Claremont Boulevard easterly to Morena Boulevard. Estimated cost, \$5,490,000, of which the state will pay \$5,000,000 (\$1,000,000 had been budgeted in the 1966-67 fiscal year) and the city the balance.

Landscape the Interstate 5 Freeway between 0.2 mile south of Palm Street and Old Town Viaduct in San Diego, a distance of 2.2 miles, and landscape and tree and functional planting on an additional 12.4 miles between 0.4 mile north of Balboa Avenue and Via de la Lalle near Del Mar. Estimated cost, \$1,308,000.

\$5,000,000 to complete the financing for extending the four-lane Interstate 8 Freeway 5.6 miles easterly to 2.5 miles east of Alpine, and constructing interchanges at Tavern Road and the west junction of Willows Road. Estimated cost, \$7,000,000, of which \$2,000,000 had been budgeted in the 1966-67 fiscal year.

Extend the previously budgeted four-lane Interstate 8 Freeway 3.5 miles easterly to six miles east of Alpine, with an interchange at the east junction of Willows Road. Estimated cost, \$3,000,000.

Widen Fairmount Avenue Bridge and portions of the ramps and weaving lanes of

the Interstate 8 Freeway at the Fairmount Avenue Interchange in San Diego. Estimated cost, \$310,000.

Extend the four-lane US 395 Freeway 4.4 miles northerly to 0.4 mile north of the south city limit of Escondido. The project includes constructing interchanges at Pomarado Road-Highland Valley Road and at Sunset Drive-Felicita Road, a bridge across Lake Hodges, and a map inspection stop just south of Green Valley Creek. Estimated cost, \$3,700,000.

Construct an interchange on the US 395 Expressway with Kearney Villa Road near Camp Elliott to provide traffic movement to Murphy Canyon Road (Route 103). Murphy Canyon Road eventually will be extended to US 395. Estimated cost, \$495,000.

Widen and realign 1.3 miles of Route 94 near Three Springs Ranch, approximately four miles southeast of Potrero. Estimated cost, \$220,000.

Reconstruct portions of the shoulders of Route 67 between 3.4 miles south of Ramona and Route 78 at Ramona, and on Route 78 from this point to Route 79 at Santa Ysabel, a total distance of 12 miles. The project includes widening a bridge on Route 78 across Hatfield Creek, approximately 2.5 miles east of Ramona. Estimated cost, \$200,000.

Grade and pave to reconstruct and widen Friars Road and Friars Road Extension (Federal Aid Secondary Route 731) as an urban extension project between US 395 in San Diego and Mission Gorge Road, 2.7 miles easterly, to serve the multipurpose stadium now under construction. After widening the existing two-lane facility, the road will carry four lanes of traffic under normal circumstances, but can carry eight lanes with varying numbers of lanes for peak directional flow during stadium activities. Estimated cost, \$2,060,000, of which the state will pay \$1,000,000, and the city and county the balance.

Rights-of-way on various state highway routes—\$19,456,000.

## RIVERSIDE AND SAN BERNARDINO COUNTIES

### Riverside County

\$3,666,000 to complete the financing for extending the 24-mile four-lane Interstate 10 Freeway east of Indio another 20.6 miles to construction in progress between east of Desert Center and 18 miles west of Blythe. This budgeted project includes constructing a pair of safety roadside rests at Cactus City and interchanges at Eagle Mountain and Rice Roads. Estimated cost, \$7,041,000, of which the state will pay \$6,766,000 (\$3,-

100,000 of which had been budgeted in the 1966-67 fiscal year) and the Kaiser Railroad the balance as its share of the cost of constructing a freeway crossing of its tracks.

Install facilities at the eastbound and westbound safety rest areas on the Interstate 10 Freeway at Cactus City. Estimated cost, \$135,000.

Tree and functional planting on the Interstate 10 Freeway between Redlands in San Bernardino County and Beaumont in

Riverside County, a distance of approximately 11.8 miles. Estimated cost, \$75,000. (Also listed in San Bernardino County.)

Convert US 395 from a two- to a four-lane expressway by constructing new lanes for northbound traffic and using the existing facility for southbound, between one mile north of Temecula and 3.1 miles northerly, and on an additional 1.8 miles to about one mile south of Sun City. The project includes constructing bridges across Santa



Extend the eight-lane Interstate 5 Freeway construction in progress at the summit of the Five Mile Grade 5.8 miles southerly to a previously budgeted section extending south of Castaic. The project includes construction of Castaic Creek, widening the bridge across the river, and interchanges at Irwindale, Vernon and Azusa Avenues. Estimated cost, \$8,810,000, of which \$3,410,000 will be budgeted in the 1968-69 fiscal year.

Construct 2.8 miles of the eight-lane Interstate 210 Freeway between the west bank of the San Gabriel River in Irwindale and 0.3 mile east of Azusa Avenue (Route 39) in Azusa. The project includes constructing a bridge across the river, and interchanges at Irwindale, Vernon and Azusa Avenues. Estimated cost, \$8,810,000, of which \$3,410,000 will be budgeted in the 1968-69 fiscal year.

\$445,000 to complete the financing for constructing the eight-lane Interstate 210 (Foot Hill) Freeway between Santa Anita Avenue in Arcadia and Highland Avenue in Duarte, a distance of four miles. The project includes constructing interchanges at Santa Anita Avenue, Huntington Drive, Myrtle Avenue, Mountain Avenue and Buena Vista Street. Estimated cost, \$13,-

Extend the eight-lane Interstate 5 Freeway construction in progress at the summit of the Five Mile Grade 5.8 miles southerly to a previously budgeted section extending south of Castaic. The project includes construction of Castaic Creek, widening the bridge across Palomas Wash. Estimated cost, \$12,500,000, of which \$5,500,000 will be budgeted in the 1968-69 fiscal year.

\$1,800,000 to complete the financing for extending the above eight-lane Interstate 5 Freeway project 4.1 miles southerly to Castaic Creek, south of Castaic, with interchanges at Parker Road, Hasley Canyon Road, and a bridge across Castaic Creek. Estimated cost, \$5,400,000, of which \$3,600,000 had been budgeted in the 1966-67 fiscal year.

**Los Angeles County**

Extend the eight-lane Interstate 5 Freeway construction in progress at the summit of the Five Mile Grade 5.8 miles southerly to a previously budgeted section extending south of Castaic. The project includes construction of Castaic Creek, widening the bridge across Palomas Wash. Estimated cost, \$12,500,000, of which \$5,500,000 will be budgeted in the 1968-69 fiscal year.

\$1,800,000 to complete the financing for extending the above eight-lane Interstate 5 Freeway project 4.1 miles southerly to Castaic Creek, south of Castaic, with interchanges at Parker Road, Hasley Canyon Road, and a bridge across Castaic Creek. Estimated cost, \$5,400,000, of which \$3,600,000 had been budgeted in the 1966-67 fiscal year.

**San Bernardino County**

\$18,900,000 to complete the financing for Freeway on new alignment between Devore and Route 138 at Cajon, a distance of 10.3 miles. The project includes constructing an interchange with the future Route 31 Freeway (Devore Cutoff) and the first unit of 1.8 miles of this freeway southerly from the interchange. Estimated cost, \$23,900,000, of which \$5,000,000 had been budgeted in the 1966-67 fiscal year.

\$18,100,000 to complete the financing for constructing the four-lane Interstate 40 Freeway between 2.5 miles east of Daguerre and 11 miles east of Newberry, a distance of 20.8 miles, with interchanges at Airport Road, the existing highway at Newberry, and Fort Cady Road, and seven bridges across washes. Estimated cost \$7,810,000, of which \$6,000,000 had been budgeted in the 1966-67 fiscal year.

**LOS ANGELES REGION**

Extend the previously budgeted eight-lane Interstate 5 Freeway 1.7 miles easterly from Route 91 Freeway 1.7 miles easterly from the balance.

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Extend the previously budgeted eight-lane Interstate 5 Freeway 1.7 miles easterly from Route 91 Freeway 1.7 miles easterly from the balance.

Grade portions and install drainage structures for the future four- and six-lane Antelope Valley Freeway (Route 14) between San Fernando Road and just north of the Santa Clara River, a distance of about six miles, southeast of Newhall, and widen the existing route (Sierra Highway) from three and four lanes to four lanes divided on improved alignment with left-turn lanes, between San Fernando Road and 0.2 mile north of Placerita Canyon Road, a distance of about 1.6 miles. Estimated cost, \$3,300,000.

Extend the widening described in the above project on existing Route 14 (Sierra Highway) another 1.5 miles northeasterly, connecting to a previously financed widening project for the 1.9 miles between Friendly Valley Road and Solemint. Estimated cost, \$400,000, of which the state will pay \$150,000, and the county the balance.

Landscape the Santa Monica Freeway (Interstate 10) between Lincoln Boulevard in Santa Monica and Sawtelle Boulevard in Los Angeles, and the Route 1 Freeway between the Santa Monica Freeway and Fourth Street in Santa Monica, a total distance of 3.7 miles. Estimated cost, \$500,000.

Reconstruct the westbound lanes of the San Bernardino Freeway (Interstate 10) on improved alignment to ease a curve between 0.3 mile and 0.7 mile west of Atlantic Boulevard in Alhambra. Estimated cost, \$470,000.

Install a median barrier at various locations on the Santa Ana (Interstate 5), Pasadena (Route 11), Hollywood (US 101) and Ventura (US 101) Freeways in and near Los Angeles. Estimated cost, \$500,000.

Install a median barrier on the Interstate 405 (San Diego) Freeway between 0.4 mile southeast of the Los Angeles county line and Harbor Boulevard in Costa Mesa, and on the Interstate 605 (San Gabriel River) Freeway between the Interstate 405 Freeway in Orange County and 183rd Street in Dairy Valley, Los Angeles County, a total distance of 18.3 miles. Estimated cost, \$410,000. (Also listed in Orange County.)

Landscape the San Diego Freeway (Interstate 405) between Alameda Street and the Los Angeles River near Long Beach, and the Long Beach Freeway (Route 7) through the area of the interchange between the two freeways. Estimated cost, \$480,000.

Widen the truck scales and improve drainage on the San Diego Freeway (Interstate 405) between 0.2 mile south of Avalon Boulevard and Main Street, east of Torrance. Estimated cost, \$130,000.

Landscape the Interstate 605 (San Gabriel River) Freeway between Cecelia Street in Downey and Whittier Boulevard in Whittier, and the Interstate 5 (Santa Ana) Freeway through the area of the interchange between the two freeways and at the Shoemaker Avenue Overcrossing in Norwalk. Estimated cost, \$720,000.

Widen Western Avenue (Route 213) to four lanes divided between Palo Verdes Drive near Lomita and Redondela Drive, 0.8 mile southerly. Estimated cost, \$310,000, of which the state will pay \$155,000, and the county the balance.

Widen Lincoln Boulevard (Route 1) and improve drainage between 83rd Street in Los Angeles and 0.5 mile northerly. Esti-

ated cost, \$265,000, of which the state will pay \$140,000, and the city the balance.

Modify traffic signals and highway lighting and install left-turn lanes at 17 intersections on Santa Monica Boulevard (Route 2) between Centinela Avenue and Moreno Drive in Los Angeles. Estimated cost, \$170,000 of which the state will pay \$100,000, and the city the balance.

Widen Alvarado Street (Route 2) at the Hollywood Freeway (US 101) and modify traffic signals and highway lighting at that location and at the intersections of Alvarado Street with Kent Street, Montana Street and Glendale Boulevard in Los Angeles. Estimated cost, \$110,000, of which the state will pay \$80,000, and the city the balance.

Modify traffic signals and construct left-turn lanes on Foothill Boulevard in Claremont between Towne Avenue and Indian Hill Boulevard. Estimated cost, \$135,000, of which the state will pay \$75,000, and the city the balance.

Grade and pave to reconstruct and widen South Street (Federal Aid Secondary Route 737) from two to four lanes as an urban extension project between the San Gabriel River in Artesia and Carmentia Avenue in Dairy Valley, a distance of 3.3 miles. Estimated cost, \$1,230,000, of which the State will pay \$615,000; Dairy Valley, \$499,000; and Artesia, \$116,000.

Rights-of-way on various state highway routes—\$60,553,000.

#### Orange County

Extend the Interstate 405 (San Diego) Freeway from 0.2 mile northwest of Jamboree Road, northeast of the Orange County Airport, southeasterly to the Interstate 5 (Santa Ana) Freeway, a distance of 6.6 miles, and construct the four-lane Route 133 (Laguna Canyon Road) Freeway 1.6 miles southerly from the Interstate 5 Interchange to 0.2 mile north of Laguna Canyon Road. The Interstate 405 Freeway will have eight lanes southeasterly to Route 133 and six lanes to Interstate 5. The project includes constructing interchanges at Jamboree Road, Culver Drive, Jeffrey Road, the Route 133 Freeway, Valencia Avenue, and the Interstate 5 Freeway, and bridges across San Diego Creek Channel and San Diego Creek. Estimated cost \$12,500,000, of which \$5,500,000 will be budgeted in the 1968-69 fiscal year. Completing the sections under construction or previously budgeted at the western end of this project will complete the Interstate 405 Freeway in its entirety as a bypass west and south of the Los Angeles metropolitan area between Interstate 5 in the San Fernando Valley and Interstate 5 northwest of El Toro.

\$1,100,000 to complete the financing for extending the eight-lane Interstate 405 (San Diego) Freeway 2.2 miles southeasterly from Harbor Boulevard in Costa Mesa to Bristol Street. The project includes constructing interchanges at Fairview Road and Bristol Street. Estimated cost, \$5,600,000, of which \$4,500,000 had been budgeted in the 1966-67 fiscal year.

Landscape the Interstate 405 (San Diego) Freeway between 0.5 mile east of Bolsa Chica Road and Beach Boulevard (Route 39) in Westminster, a distance of 3.5 miles. Estimated cost, \$520,000.

Landscape the Interstate 405 (San Diego) Freeway between 0.4 mile west of Los Alamitos Boulevard at the north city limit of Seal Beach and 0.5 mile east of Bolsa Chica Road in Westminster, a distance of three miles, and the Route 22 (Garden Grove) Freeway between Interstate 405 and 0.7 mile easterly, also at the north city limit of Seal Beach. The project includes constructing a landscape maintenance building on the south side of Interstate 405 at Bolsa Chica Road. Estimated cost, \$450,000.

Install a median barrier on the Interstate 405 (San Diego) Freeway between 0.4 mile southeast of the Los Angeles county line and Harbor Boulevard in Costa Mesa, and on the Interstate 605 (San Gabriel River) Freeway between the Interstate 405 Freeway in Orange County and 183rd Street in Dairy Valley, Los Angeles County, a total distance of 18.3 miles. Estimated cost, \$410,000. (Also listed in Los Angeles County.)

Construct the eight-lane Route 91 (Artesia) Freeway between 0.4 mile west of Valley View Street in Buena Park and 0.4 mile east of the Interstate 5 (Santa Ana) Freeway in Fullerton, a distance of three miles. The project includes constructing interchanges at Knott Avenue and Beach Boulevard (Route 39), and portions of the interchange with Interstate 5. Estimated cost, \$10,000,000.

Extend the previously budgeted eight-lane Route 91 Freeway 1.7 miles easterly from Artesia Boulevard in Dairy Valley, Los Angeles County, to 0.2 mile west of Valley View Street in Buena Park, Orange County. The project includes construction of interchanges at 183rd Street-Carmenita Avenue and Walker Street, and a partial interchange at Orangethorpe Avenue. Estimated cost, \$5,200,000 of which \$1,000,000 will be budgeted in the 1968-69 fiscal year. (Also listed in Los Angeles County.)

Pave the median, install a median barrier, and modify signing and lighting on the Route 91 (Riverside) Freeway between the Interstate 5 (Santa Ana) Freeway and Lemon Street at the west city limit of Anaheim, and install headlight glare shields from this point to the Route 55 (Newport) Freeway in Anaheim. Estimated cost, \$400,000.

\$7,216,000 to complete the financing for widening the Interstate 5 Freeway from four to eight lanes between Route 1 south of San Juan Capistrano and the Interstate 405 (San Diego) Freeway northwest of El Toro, and to six lanes from this point northwesterly to the Route 133 (Laguna Canyon Road) Freeway, a distance of 16.4 miles. Estimated cost, \$12,716,000, of which \$5,500,000 had been budgeted in the 1966-67 fiscal year.

Construct the eight-lane Route 57 (Orange) Freeway from Orangethorpe Avenue in Placentia to 0.1 mile north of Nutwood Avenue in Fullerton, a distance of 1.4 miles. Estimated cost, \$5,050,000.

Widen Pacific Coast Highway (Route 1) between one mile north of 23rd Street in Huntington Beach and Warner Avenue, 2.8 miles northerly, and install channelization. Estimated cost, \$420,000.

Widen Beach Boulevard (Route 39) and install traffic signals, highway lighting and



### CENTRAL COASTAL COUNTIES PROJECTS

Katella Avenue (Federal Aid Secondary Route 826) in Los Alamitos from two to four lanes as an urban extension project with a distance of one mile. Estimated cost, \$109,000, to be shared equally by the state and city.

Rights-of-way on various state highway routes—\$5,185,000.

distance of one mile. Estimated cost, \$325,000, of which the state will pay \$285,000, and the city the balance.

Landscaping the Route 55 (Newport) Freeway at the Fairhaven and Laveta Avenue overcrossings, and the Route 22 (Garden Grove) Freeway at Meats Avenue in Orange. Estimated cost, \$60,000.

Grade and pave to reconstruct and widen

Street and Grand Avenue in Buena Park, a signs and highway lighting between Ninth Boulevard (Route 39) and install traffic signals and highway lighting between Ninth Street and Grand Avenue in Buena Park, a

channelization between Yorktown Street in Huntington Beach and Hill Avenue in Westminster, a distance of three miles. Estimated cost, \$216,000, of which the state will pay \$120,000, and the two cities the balance.

Reconstruct portions and resurface Beach Boulevard (Route 39) and install traffic signs and highway lighting between Ninth Street and Grand Avenue in Buena Park, a

#### Monterey County

\$3,250,000 to complete the financing for constructing a four-lane freeway on Route 1 between Viejo Road at the south city limit of Monterey and Fort Ord, a distance of 6.7 miles, with interchanges at Munras Avenue, Agujito Road, Route 68, Casa Verde Avenue, Del Monte Avenue, Humboldt Street and Fremont Street. Estimated cost, \$10,650,000, of which \$7,400,000 had been budgeted in the 1966-67 fiscal year.

Replace the existing narrow timber bridge across Pfeiffer Canyon on Route 1, about 1.1 miles south of Big Sur, with a wider concrete structure, and reconstruct approaches. Estimated cost, \$370,000.

Extend Humboldt Street from Roberts Avenue to Del Monte Avenue at Canyon Del Rey Road in Seaside to provide traffic service from Del Monte Avenue to the Route 1 Freeway, now under construction through that city. The project includes a crossing at grade of the Southern Pacific Company's tracks. Estimated cost, \$100,000.

\$1,750,000 to complete the financing for constructing a four-lane freeway on US 101 between one mile south of King City and one mile north of the Salinas River, a distance of 3.1 miles, as a bypass of King City. The project includes constructing interchanges at First Street, Canal Street, Broadway and Jolon Road, and replacing a narrow steel bridge carrying southbound traffic across the Salinas River with a wider concrete structure. Estimated cost, \$4,250,000, of which \$2,500,000 had been budgeted in the 1966-67 fiscal year.

Tree and functional planting on the Route 68 Freeway between 0.5-mile south of Reservation Road and 0.2 mile north of Foster Road near Salinas, a distance of 2.3 miles. Estimated cost, \$60,000.

Rights-of-way on various state highway routes—\$1,186,000.

#### San Benito County

Rights-of-way on various state highway routes—\$243,000.

### SAN FRANCISCO BAY REGION

#### Alameda County

\$10,974,000 to complete the financing for constructing the eight-lane Route 24 (Grove-Shafter) Freeway in Oakland between South of 27th Street and north of 51st Street, a distance of 1.8 miles. The project includes constructing interchanges at 27th Street, Interstate 580, Grove Street and 52nd Street, and provision in the median for trains of the Bay Area Rapid Transit District. Estimated cost, \$23,131,000.

#### San Luis Obispo County

Construct portions of four-lane US 101 on improved alignment between 2.5 miles north of San Luis Obispo and two miles northerly to ease seven curves. Estimated cost, \$1,200,000.

Rights-of-way on various state highway routes—\$400,000.

#### Santa Barbara County

Construct an interchange on US 101 and Company's tracks at Los Carneros Road, about seven miles west of Santa Barbara. Estimated cost, \$1,050,000, of which the state will pay \$630,000, and the county the balance.

Convert the four-lane US 101 Expressway to a six-lane freeway between 0.5 mile south of the Ventura county line and 0.7 mile north of Route 150 in Santa Barbara County, a distance of 1.3 miles. The project includes constructing an interchange with Route 150 and an overhead across the relocated Southern Pacific Company's tracks. Estimated cost, \$6,880,000, of which \$2,600,000 will be budgeted in the 1968-69 fiscal year. (Also listed in Santa Barbara County.)

Construct a weighing facility for east-bound trucks on the Ventura Freeway (US 101) near Las Posas Road, west of Camarillo. Estimated cost, \$300,000.

Extend the six-lane Route 118 Freeway (now under construction through Santa Susana Pass to Kuehner Drive in Simi Valley) another 3.3 miles westerly to Tapo Canyon Road. The project includes completing the interchange at Kuehner Drive and constructing interchanges at Stearns Street, Yosemite Street and Tapo Canyon Road. Estimated cost, \$5,600,000, of which \$2,600,000 will be budgeted in the 1968-69 fiscal year.

\$1,100,000 to complete the financing for extending the four-lane Route 33 Freeway another 3.2 miles northerly to 0.4 mile north of Castas Vista Road with interchanges at Canada Larga and Castas Vista Road and an overhead across the Southern Pacific Company's tracks north of Ventura. Estimated cost, \$4,800,000, of which \$3,700,000 had been budgeted in the 1966-67 fiscal year.

Widen Vineyard Avenue (Route 232) from two to four lanes between Central Avenue, north of Oxnard, and 0.6 mile northerly. Estimated cost, \$200,000.

Install traffic signals, highway lighting and channelization on East Fifth Street (Route 34) between Rose Avenue, at the east city limit of Oxnard, and Las Posas Road, south of Camarillo. Estimated cost, \$130,000, of which the state will pay \$100,000 and the county the balance.

Rights-of-way on various state highway routes—\$5,853,000.

#### Ventura County

Construct the four-lane Route 23 Freeway between Hillcrest Drive in Thousand Oaks and Tierra Rejada Road, 6.7 miles northerly, with interchanges at Hillcrest Drive, Janss Road, Avenue de Las Arboles, Olsen Road, McCrea Road and Tierra Rejada Road. Estimated cost, \$10,000,000, of which \$5,485,000 will be budgeted in the 1968-69 fiscal year.

Rights-of-way on various state highway routes—\$2,230,000.

Grade and pave to reconstruct and widen Hollister Avenue (Federal Aid Secondary Route 1181) in Santa Barbara from two to four lanes as an urban extension project between La Patera Lane and 0.1 mile west of Fairview Avenue, a distance of 0.6 mile. Estimated cost, \$176,000, of which the state will pay \$83,000 and the city the balance.

Rights-of-way on various state highway routes—\$2,230,000.

764, of which \$5,875,000 in state highway funds had been budgeted in the 1966-67 fiscal year, \$6,245,902 will be contributed by the Bay Area Rapid Transit District, and \$36,862 will be paid by the Alameda County Flood Control and Water Conservation District.

Extend eight-lane construction in progress on the Route 24 (Grove-Shafter) Freeway another 1.9 miles easterly to 0.2 mile east of Golden Gate Avenue in Oakland.

way between 0.5 mile east of the Warren Boulevard Freeway (Route 13) in Oakland, Alameda County, and 0.4 mile west of the Orinda Interchange in Orinda, Contra Costa County, a distance of 2.4 miles. Estimated cost, \$179,000. (Also listed in Contra Costa County.)

\$9,700,000 to complete the financing for extending the eight-lane Interstate 580 Freeway from construction in progress (at the interchange of Interstate Routes 580 and 205 west of the San Joaquin county line) through Altamont Pass to 0.5 mile east of Vasco Road near Livermore, a distance of 8.5 miles. The project includes constructing interchanges at Grant Line Road, North Flynn Road and Greenville Road. It also involves grading for a roadside rest at the Grant Line Road Interchange, and constructing truck stop facilities at the North Flynn Road Interchange. Estimated cost, \$14,700,000, of which \$5,000,000 had been budgeted in the 1966-67 fiscal year.

Reconstruct and resurface portions of MacArthur Boulevard (Route 580) between Joaquin Avenue in San Leandro and Park Boulevard in Oakland prior to relinquishment to the two cities. MacArthur Boulevard has been superseded as a state highway by the construction of the Interstate 580 (MacArthur) Freeway. Estimated cost, \$210,000.

Widen the Nimitz Freeway (Route 17) from four to six lanes between 0.1 mile north of Alvarado-Niles Road in Union City and 0.5 mile south of Tennyson Road in Hayward. The project includes constructing an interchange at Industrial Parkway and installing truck weighing facilities at that location. Estimated cost, \$1,945,000, of which the state will pay \$1,775,000, and Hayward the balance.

Reconstruct the base and resurface portions of Route 17 between Interstate 80 at the El Cerrito Overhead in Albany, Alameda County, and the Richmond-San Rafael Bridge in Richmond, Contra Costa County. Estimated cost, \$400,000. (Also listed in Contra Costa County.)

Install a median barrier on six miles of the Interstate 80 Freeway between the El Cerrito Overhead in Albany, Alameda County, and County Road 20 in Contra Costa County. Estimated cost, \$300,000. (Also listed in Contra Costa County.)

Resurface portions of Mission Boulevard (Route 185) between Jackson Street (Route 92) and Ashland Avenue in Hayward. Estimated cost, \$125,000.

Grade and pave to reconstruct and widen Hesperian Boulevard (Federal Aid Secondary Route 1017) from two to six lanes as an urban extension project between Via Mercado and West Sunset Boulevard north of Hayward, a distance of 0.9 mile. Estimated cost, \$600,000, to be shared equally by the state and county.

Rights-of-way on various state highway routes—\$3,867,000.

#### Contra Costa County

Reconstruct the base and resurface portions of Route 17 between Interstate 80 at the El Cerrito Overhead in Albany, Alameda County, and the Richmond-San Rafael Bridge in Richmond, Contra Costa County. Estimated cost, \$400,000. (Also listed in Alameda County.)

Install a median barrier on six miles of the Interstate 80 Freeway between the

El Cerrito Overhead in Albany, Alameda County, and County Road 20 in Contra Costa County. Estimated cost, \$300,000. (Also listed in Alameda County.)

Install lighting on the Interstate 80 Freeway bridges across Carquinez Strait and guard railing on the west bridge. Estimated cost, \$258,000. (Also listed in Solano County.)

Tree and functional planting and construction of a landscape storage building on the Interstate 680 Freeway between one mile north of the Alameda county line and Sycamore Valley Road south of Danville, a distance of 5.5 miles. Estimated cost, \$180,000.

Landscape portions of the Route 24 Freeway between 0.5 mile east of the Warren Boulevard Freeway (Route 13) in Oakland, Alameda County, and 0.4 mile west of the Orinda Interchange in Orinda, Contra Costa County, a distance of 2.4 miles. Estimated cost, \$179,000. (Also listed in Alameda County.)

Rights-of-way on various state highway routes \$1,228,000.

#### Marin County

Resurface portions of the six-lane US 101 Freeway between Corte Madera Creek and the San Rafael Viaduct in San Rafael, a distance of two miles. Estimated cost, \$230,000.

Widen the US 101 Freeway by adding a southbound lane between the Golden Gate Bridge and 1.3 miles northerly. Estimated cost, \$180,000.

Landscape the US 101 Freeway between 0.4 mile south and 0.8 mile north of Tamalpais Drive Interchange in Corte Madera. Estimated cost, \$80,000.

Rights-of-way on various state highway routes—\$1,306,000.

#### Napa County

Resurface and construct shoulders on Route 29 between Route 128 at Rutherford and 3.8 miles northwesterly. Estimated cost, \$280,000.

Landscape the Route 29 Freeway between Napa Creek and 0.5 mile south of Trancas Street in Napa, a distance of 0.8 mile. Estimated cost, \$90,000.

Reconstruct and widen Route 128 on improved alignment at two locations between 9.5 and 9.8 miles east of Route 29 near Rutherford. Estimated cost, \$100,000.

Rights-of-way on various state highway routes—\$295,000.

#### San Francisco County

\$55,000 as the state's share of the cost of developing a park in the vicinity of the Clay and Washington Street ramps to the Embarcadero (Route 480) Freeway, based on the cost of landscaping these ramps.

Widen the Bayshore Freeway (US 101) from six to eight lanes between San Bruno Avenue near San Bruno and Third Street in San Francisco, a distance of 6.7 miles, and revise the directional signing. The project includes widening a bridge across Colma Creek, the Colma and Candlestick Road Undercrossings, and three overheads across railroad tracks. Estimated cost, \$3,200,000. (Also listed in San Mateo County.)

Right-of-way on various state highway routes—\$11,177,000.

#### San Mateo County

Construct 6.2 miles of the eight-lane Interstate 280 Freeway between 0.1 mile

northeast of Woodside Road (Route 114) in Woodside, San Mateo County, and 0.5 mile south of Page Mill Road in Santa Clara County, linking sections completed, under construction or budgeted between Raymundo Drive in Woodside and Los Gatos-Santa Cruz Road (Route 17) in San Jose. The project includes construction of interchanges at Page Mill Road, Alpine Road and Sand Hill Road and bridges across Los Trancos and San Francisquito Creeks. Estimated cost, \$9,600,000, of which \$5,600,000 will be budgeted in the 1968-69 fiscal year. (Also listed in Santa Clara County.)

\$3,675,000 to complete the financing for constructing 5.7 miles of the Interstate 280 Freeway connecting the freeway bridge across San Mateo Creek, now under construction, with construction in progress between Larkspur Drive in Millbrae and San Bruno Avenue in San Bruno. The project includes constructing a temporary connection between the bridge and Skyline Boulevard (Route 35) at Bunker Hill Drive, and interchanges at Hayne Road, Trousdale Drive, Millbrae Avenue-Hillcrest Boulevard, and Larkspur Drive, and a safety roadside rest for northbound traffic just north of the bridge. Estimated cost, \$8,575,000, of which \$4,900,000 had been budgeted in the 1966-67 fiscal year.

\$1,760,000 to complete the financing for constructing 2.5 miles of the eight-lane Interstate 280 Freeway between 0.1 mile south of Woodside Road (Route 114) and 0.1 mile north of Raymundo Drive at Canada Road in Woodside. The project includes constructing an interchange at Woodside Road and another at Farm Hill Boulevard to serve the future South County Campus of the College of San Mateo. Estimated cost, \$6,140,000, of which \$4,380,000 had been budgeted in the 1966-67 fiscal year.

\$2,177,300 to complete the financing for extending the Route 92 (19th Avenue) Freeway, 2.3 miles westerly to the site of an interchange with the future Interstate 280 Freeway at Ralston Avenue west of Belmont, with interchanges at West Hillsdale Boulevard, Monterey Street Extended, and Ralston Avenue-Polhemus Road, and for constructing 2.1 miles of this freeway on Brewer Island between east of Marina Lagoon and the San Mateo-Hayward Bridge, with an interchange at Foster City Boulevard. Route 92 traffic will use 19th Avenue between the eastern end of the existing freeway at Grant Street and South Norfolk Street pending future freeway construction. The project includes construction of a temporary connection to South Norfolk Street in San Mateo, including a bridge which will serve a future frontage road across Marina Lagoon. Also included is the addition of ramps on the nearby Bayshore (US 101) Freeway at East Hillsdale Boulevard in San Mateo. Estimated cost, \$6,677,300, of which \$4,500,000 had been budgeted in the 1966-67 fiscal year.

Widen the Bayshore Freeway (US 101) from six to eight lanes between San Bruno Avenue near San Bruno and Third Street in San Francisco, a distance of 6.7 miles, and revise the directional signing. The project includes widening a bridge across Colma Creek, the Colma and Candlestick Road undercrossings, and three overheads across railroad tracks. Estimated cost, \$3,200,000. (Also listed in San Francisco County.)



Resurface and reconstruct the failed sections of the six-lane Bayshore Freeway (US 101) between 0.2 mile south of the Harbor Boulevard Interchange and Britan Avenue in Redwood City, a distance of two miles. Estimated cost, \$275,000.

#### Santa Clara County

Rights-of-way on various state highway routes—\$3,594,000.

Construct 6.2 miles of the eight-lane Interstate 280 Freeway between 0.1 mile north-east of Woodside Road (Route 114) in Woodside, San Mateo County, and 0.5 mile south of Page Mill Road in Santa Clara County, linking sections completed, under construction or budgeted between Raymundo Drive in Woodside and Los Gatos-Santa Cruz Road (Route 17) in San Jose. The project includes construction of interchanges at Page Mill Road, Alpine Road and Sand Hill Road and bridges across Los Trancos and San Francisquito Creeks. Estimated cost, \$9,600,000, of which \$5,600,000 will be budgeted in the 1968-69 fiscal year. (Also listed in San Mateo County.)

Grade one mile for the future eight-lane Interstate 280 Freeway in San Jose between Josefa and Race Streets, and construct undercrossings at Lincoln Avenue and Virginia Street, an overcrossing at Bird Avenue, a bridge across Los Gatos Creek, and three railroad separations. Estimated cost, \$3,600,000.

Landscaping 6.3 miles of the Interstate 280 Freeway between 0.6 mile west of Foothill Boulevard near Los Altos and Page Mill Road in Palo Alto. Estimated cost, \$430,000. Widen El Camino Real (Route 82) from four to six lanes between 0.3 mile east of

Construct a two-lane expressway on US 101 between the interchange with Route 169 at Klamath and 1.4 miles north, and grade an additional two lanes which eventually will carry southbound traffic when this section is converted to a four-lane freeway. Estimated cost, \$1,950,000.

#### Humboldt County

Rights-of-way on various state highway routes—\$220,000.

Extend the four-lane US 101 Freeway, under construction between Dean Creek and 0.8 mile south of Garberville, another 2.9 miles southerly to 1.8 miles south of Benbow. The project includes constructing an interchange with the existing highway at Lake Benbow State Park. Estimated cost, \$6,300,000.

Widen Route 49 to a 64-foot city street section between Main Street in Jackson and

#### Amador County

Rights-of-way on various state highway routes—\$20,000.

Construct a two-lane expressway on Route 4 between 1.2 and 3.2 miles north-east of the Calaveras county line. Estimated cost, \$1,110,000.

Rights-of-way on various state highway routes—\$250,000.

#### Calaveras County

Rights-of-way on various state highway routes—\$25,000.

San Antonio Road in Mountain View and El Camino Real (Route 82) at Mary Avenue and Bernardo Avenue in Sunnyvale. Estimated cost, \$153,000, of which the state will pay \$130,000, and the city the balance. Resurface 0.9 mile of El Camino Real (Route 82) between 0.2 mile north of Curt Avenue in San Jose. Estimated cost, \$50,000. Replace a structurally deficient bridge carrying two lanes of southbound US 101 Expressway traffic across Tar Creek and the Southern Pacific Company's tracks, about 0.6 mile north of the San Benito county line, with a wider structure, and construct approximately one mile of new approaches. Estimated cost, \$887,000.

Landscaping six miles of the Bayshore Freeway (US 101) between Borregas Avenue in Sunnyvale and Maradero Creek in Palo Alto. Estimated cost, \$372,000.

Resurface the two southbound lanes of the Bayshore Freeway (US 101) between 0.6 mile north of the Tully Road Interchange and Santa Clara Street-Alum Rock Avenue (Route 130) in San Jose, a distance of 2.2 miles. Estimated cost, \$175,000.

Realign portions of Route 36 between 2.8 and 4.8 miles east of Bridgeville to ease curves. Estimated cost, \$100,000.

#### Lake County

Rights-of-way on various state highway routes—\$280,000.

Construct the four-lane US 101 Freeway between Squaw Creek, 0.9 mile north of Cummings Post Office, and 0.9 mile north of Cedar Creek, 4.4 miles north, with an interchange at Scandia. The project includes constructing a 265-foot-high and 800-

#### Mendocino County

Rights-of-way on various state highway routes—\$385,000.

Construct an equipment undercrossing on Route 237 approximately midway between Maude Avenue in Mountain View and the Bayshore Freeway (US 101) in Sunnyvale. Estimated cost, \$100,000, of which the state will pay \$70,000, and Sunnyvale the balance. Rights-of-way on various state highway routes—\$8,651,000.

#### Santa Cruz County

Widen and resurface 0.8 mile of Route 9 between San Lorenzo and Mount Hermon Roads, approximately six miles north of Santa Cruz. Estimated cost, \$100,000.

Construct channelization on Route 17 at Upper Glenwood Road, about 10.5 miles north of Santa Cruz. Estimated cost, \$70,000.

Grade and pave to reconstruct and widen Bay Street (Federal Aid Secondary Route 1295) from two to six lanes as an urban extension project between Escalova Drive and High Street in Santa Cruz, a distance of 0.7 mile, to serve the University of California at Santa Cruz. Estimated cost, \$410,000, to be shared equally by the state and city.

Rights-of-way on various state highway routes—\$394,000.

#### Sonoma County

Widen Route 12 from two to four lanes as an interim improvement pending freeway construction between Brush Creek in Santa Rosa and 0.4 mile east of Callistoga Road, a distance of 2.1 miles, and install traffic signals at Reservoir Drive and Middle Rincon Road. Estimated cost, \$766,000, of which the state will pay \$750,000, and the city the balance.

Reconstruct one mile of Route 1 on improved alignment bypassing Fort Ross. Estimated cost, \$300,000.

## SAN JOAQUIN AND CENTRAL MOUNTAIN COUNTIES

#### Fresno County

Widen and resurface 0.8 mile of Route 9 between San Lorenzo and Mount Hermon Roads, approximately six miles north of Santa Cruz. Estimated cost, \$100,000.

Construct an equipment undercrossing on Route 237 approximately midway between Maude Avenue in Mountain View and the Bayshore Freeway (US 101) in Sunnyvale. Estimated cost, \$100,000, of which the state will pay \$70,000, and Sunnyvale the balance. Rights-of-way on various state highway routes—\$425,000.

## SAN JOAQUIN AND CENTRAL MOUNTAIN COUNTIES

## SAN JOAQUIN AND CENTRAL MOUNTAIN COUNTIES

structing interchanges at Fresno-Coalinga Road, Route 33 and Kamm Avenue. Estimated cost, \$5,484,000, of which \$3,145,000 had been budgeted in the 1966-67 fiscal year.

Construct the initial four lanes of the ultimate eight-lane Interstate 5 (Westside) Freeway between Route 41 in Kings County two miles south of Kettleman City, and 0.2 mile north of the Fresno-Kings county line, and grade another 0.4 mile southeast of Route 41, a total distance of 10.7 miles. The project includes constructing half-interchanges at Route 41 and Lassen Avenue at the project's northern terminus. Estimated cost, \$6,064,000, of which \$2,764,000 will be budgeted in the 1968-69 fiscal year. (Also listed in Kings County.)

Widen Route 69 to 20 feet between 0.4 mile south and 0.1 mile north of Mill Creek Bridge just north of the Tulare county line. Estimated cost, \$100,000.

Widen the Belmont Avenue Overcrossing on the Route 99 Freeway in Fresno from two to four lanes. Estimated cost, \$350,000, of which the state will pay \$80,000, and the county the balance.

Rights-of-way on various state highway routes—\$1,155,000.

#### **Inyo County**

Widen 1.9 miles of Route 168 from two to four lanes between 0.1 mile west of Meadow Lane and the west city limit of Bishop. Estimated cost, \$250,000.

#### **Kern County**

Extend the four-lane Route 58 Freeway from 1.1 miles west of the Tehachapi Overhead 12.7 miles easterly through that city to a completed section east of Cameron. The project includes constructing the Old Town, Mill Street, Summit, Sand Canyon Road and Cameron Canyon Road Interchanges, two crossings of the A.T. & S.F. and Southern Pacific Company's tracks, and a bridge across Cache Creek. Estimated cost, \$7,700,000, of which \$4,700,000 will be budgeted in the 1968-69 fiscal year.

Construct the initial four lanes of the ultimate eight-lane Interstate 5 (Westside) Freeway between Route 119 and 0.4 mile south of Lerdo Highway, about 14 miles west of Shafter, a total distance of 23.5 miles. The project includes constructing interchanges at Route 119, Route 43, Stockdale Road, Route 58, and Seventh Standard Road-Rowlee Road, and grading, planting trees and installing an irrigation system for a future safety roadside rest just north of Tracy Avenue. Estimated cost, \$10,843,000, of which \$3,843,000 will be budgeted in the 1968-69 fiscal year.

Tree and functional planting on 5.1 miles of the Interstate 5 Freeway between the Los Angeles county line and Fort Tejon. Estimated cost, \$32,000.

Convert the four-lane Route 99 Expressway to six-lane freeway between 1.4 miles south of Route 46 in Famoso and 0.2 mile north of Sherwood Avenue in McFarland, a distance of 6.5 miles, completing the conversion of this route to full freeway standards between its inception at Wheeler Ridge in Kern County and Madera, a distance of 140 miles. It includes constructing an interchange at Whistler Road. Estimated cost, \$3,075,000.

Tree and functional planting on the Route 99 Freeway between Wheeler Ridge and 11 miles northerly, including at the interchange with Interstate 5. Estimated cost, \$90,000.

Construct a bridge to carry Route 119 traffic across the future California Aqueduct at the Western Waterworks. The project includes widening the bridge across the nearby Kern River and constructing a detour to serve during the bridge construction period. Estimated cost, \$361,000, of which state highway funds will finance \$88,000, and the Department of Water Resources the balance.

Grade and pave to reconstruct and widen South H Street (Federal Aid Secondary Route 882) in Bakersfield from two to four lanes as an urban extension project between Ming Avenue and White Lane, a distance of 1.5 miles. Estimated cost, \$520,000, to be shared equally by the state and city.

Rights-of-way on various state highway routes—\$2,440,000.

#### **Kings County**

Construct the initial four lanes of the ultimate eight-lane Interstate 5 (Westside) Freeway between Route 41 in Kings County, two miles south of Kettleman City, and 0.2 mile north of the Fresno-Kings county line, and grade another 0.4 mile southeast of Route 41, a total distance of 10.7 miles. The project includes constructing half-interchanges at Route 41 and Lassen Avenue at the project's northern terminus. Estimated cost, \$6,064,000, of which \$2,764,000 will be budgeted in the 1968-69 fiscal year. (Also listed in Fresno County.)

Rights-of-way on various state highway routes—\$450,000.

#### **Madera County**

Extend a four-lane expressway section under construction on Route 152 another 9.5 miles easterly between 0.9 mile west of County Road 10 and Route 99 at Califa. The project includes constructing bridges across Ash and Berenda sloughs, and an interchange with Robertson Boulevard (Route 233). Estimated cost, \$2,464,000.

Replace a two-lane timber bridge across the Fresno River on North Lake Street (Federal Aid Secondary Route 866) in Madera as an urban extension project with a four-lane concrete structure. Estimated cost, \$232,000, to be shared equally by the state and city.

Rights-of-way on various state highway routes—\$30,000.

#### **Mariposa County**

Rights-of-way on various state highway routes—\$150,000.

#### **Merced County**

Construct a four-lane expressway on Route 152 between 0.1 mile east of Ward Road in Los Banos and 11 miles easterly. The project includes constructing an interchange with Elgin Road (Route 33) north of Dos Palos. Estimated cost, \$3,900,000, of which \$1,100,000 will be budgeted in the 1968-69 fiscal year.

Tree and functional planting on the Interstate 5 (Westside) Freeway between 0.1 mile south of Route 152 west of Los Banos and 7.2 miles northwesterly. Estimated cost, \$56,000.

Rights-of-way on various state highway routes—\$1,633,000.

#### **Mono County**

Convert US 395 from two-lane expressway to four-lane freeway between six miles south and 1.2 miles north of Casa Diablo. The project includes constructing an interchange with Route 203 and realigning 1.5 miles of Route 203 west of the interchange. Estimated cost, \$2,200,000.

Construct a two-lane expressway on US 395 on improved alignment between 9.1 and 10.1 miles north of Bridgeport. Estimated cost, \$120,000.

Rights-of-way on various state highway routes—\$414,000.

#### **San Joaquin County**

Complete the substructure and construct the superstructure of the paired Interstate 5 Freeway bridges across the Stockton Channel in Stockton, and a portion of the interchange between Interstate 5 and the future Crosstown (Route 4) Freeway. Estimated cost, \$21,755,000, of which \$16,255,000 will be budgeted in the 1968-69 fiscal year.

\$5,305,000 to complete the financing for constructing Interstate 5 as an eight-lane freeway between Stockton Channel in Stockton and Country Club Boulevard, 1.7 miles northerly, and as a six-lane freeway between this point and March Lane, 1.5 miles farther north. This project involves constructing interchanges at Pershing Avenue, Mount Diablo Boulevard, Country Club Boulevard-Telegraph Avenue, and March Lane. Estimated cost, \$9,650,000, of which \$4,345,000 had been budgeted in the 1966-67 fiscal year. (The construction of paired bridges and approaches across Smith's Canal and the Calaveras River was financed in the 1965-66 fiscal year budget.)

Extend the previously budgeted six-lane Interstate 5 Freeway 2.7 miles northerly from March Lane, just north of the Calaveras River, to Hammer Lane in Stockton. The project includes constructing an interchange at Benjamin Holt Drive and one-half of the interchange at Hammer Lane. Estimated cost, \$4,640,000, of which \$1,640,000 will be budgeted in the 1968-69 fiscal year.

Construct an overcrossing and on- and off-ramps for northbound traffic on Route 99 at Milgea Avenue at the north city limit of Ripon. Estimated cost, \$480,000.

Widen Route 120 from two to four lanes and construct left-turn lanes at Airport Way, and install traffic signals at this intersection, approximately one mile west of Manteca. Estimated cost, \$185,000, of which the state will pay \$170,000, and the county the balance.

Tree and functional planting on the Interstate 580 Freeway between 1.6 miles east of the Jefferson Road Overcrossing, southeast of the Tracy Airport, and 7.4 miles northwesterly. Estimated cost, \$56,000.

Rights-of-way on various state highway routes—\$2,730,000.

#### **Solano County**

Construct passing lanes at three locations, widen one bridge and lengthen 56 culverts on Route 12 between 0.5 mile west of Rio Vista and 11.3 miles westerly. The project includes installing highway lighting at the intersection of Route 12 and Birds Landing Road (Route 113). Estimated cost, \$326,000.

Install lighting on the Interstate 80 Freeway bridges across Carquinez Strait and





will serve the future Natomas Airport, with Yolo County, and construct the bridge approaches. Estimated cost, \$10,300,000, of which \$5,300,000 will be budgeted in the 1968-69 fiscal year. (Also listed in Yolo County.)

\$7,799,000 to complete the financing for constructing the eight-lane Interstate 5 Freeway between J Street in Sacramento and the future Interstate 880 Freeway near San Juan Road, and the six-lane Interstate 5 Freeway from this point to Route 99 at Bayou Way, a distance of approximately seven miles, connecting to the recently completed two-lane expressway section westerly to Elkhorn. The project includes constructing a northbound on-ramp from L Street in Sacramento, an interchange at J-I Streets, and connections to the I Street Bridge and the Old Sacramento Historic Project area, an interchange at Richards Boulevard, paired freeway bridges across the American River, plus interchanges at Garden Highway, West El Camino Avenue extended, the Interstate 880 Freeway, Del Paso Road and Route 99. Estimated cost, \$22,099,000, of which \$11,300,000 had been budgeted in the 1966-67 fiscal year, and another \$3,000,000 in the 1965-66 fiscal year for the bridges across the American River and the Richards Boulevard Interchange.

Construct the six-lane Interstate 880 Freeway between the Interstate 5 Interchange and Winters Street in the Del Paso Heights area of Sacramento, a distance of about 5.9 miles. The project includes constructing interchanges at Northgate Boulevard, Norwood Avenue, Marysville Boulevard-16th Street, and an overhead across the Sacramento Northern railroad tracks just east of Rio Linda Boulevard. Estimated cost, \$11,900,000, of which \$6,000,000 will be budgeted in the 1968-69 fiscal year.

Grade and build the structures for the interchange between the six-lane Interstate 80 and Interstate 880 Freeways in Sacramento. Estimated cost, \$8,920,000, of which \$4,420,000 will be budgeted in the 1968-69 fiscal year.

Construct the embankment approaches for the future Interstate 880 Freeway bridges across the Sacramento River at Bryte Bend and at the Southern Pacific Company's tracks east of the Yolo Causeway. Estimated cost, \$2,492,000. (Also listed in Yolo County.)

Widen the existing four-lane Route 80 Freeway to six lanes by adding lanes in the median between 0.3 mile west of Marconi Avenue in Sacramento and 0.3 mile east of Watt Avenue, a distance of three miles. Estimated cost, \$850,000.

Landscape portions of the Interstate 80 Freeway in Sacramento between the west side of Fifth Street and Alhambra Boulevard, a distance of 1.9 miles. Estimated cost, \$290,000.

Replace the ferry carrying Route 220 traffic across Steamboat Slough separating Solano and Sacramento Counties at Howard Landing, about four miles west of Walnut Grove in Sacramento County. Estimated cost, \$100,000. (Also listed in Solano County.)

Construct an interchange on J Street (Federal Aid Secondary Route 930) at Carlson Drive near Sacramento State Col-

lege in Sacramento as an urban extension project. Estimated cost, \$1,000,000, to be shared equally by the state and city.

Rights-of-way on various state highway routes—\$13,775,000.

#### Shasta County

\$8,917,000 to complete the financing for extending the Interstate 5 Freeway 3.5 miles northerly from two miles north of Redding as a six-lane facility, and for another 12.6 miles northerly to three miles north of O'Brien as a four-lane freeway, connecting to freeway construction in progress to the Sacramento River Bridge at Antler. North of the Pit River Bridge, work consists of constructing two lanes to carry northbound traffic and reconstructing and widening the existing two-lane highway for southbound traffic. The project includes constructing interchanges at Oasis Road, Pine Grove, Shasta Dam Boulevard (Route 151), Mountain Gate, Fawndale Road, Bridge Bay, Turntable Bay and O'Brien, and safety roadside rests one mile north of the Pit River Bridge and 1.5 miles south of O'Brien overlooking Shasta Lake. It also includes constructing truck climbing lanes on steep uphill grades. Widening of the Pit River Bridge was recently completed under previous financing. Estimated cost, \$16,417,000, of which \$7,500,000 had been budgeted in the 1966-67 fiscal year.

Construct the four-lane Route 44 Expressway between Hilltop Road, just east of the Interstate 5 Freeway in Redding, and four miles easterly. The project includes constructing an interchange at Hilltop Road, paired freeway bridges across Churn Creek, and reconstructing Airport Road on new alignment to intersect the expressway just west of Oregon Trail Road. Estimated cost, \$2,300,000.

Reconstruct and widen Shasta Dam Boulevard (Route 151) from two to four lanes between just east of the Southern Pacific Company's underpass in Project City and Cascade Boulevard, just west of the Interstate 5 Freeway, a distance of 1.2 miles. The project includes constructing a one-way couplet for opposing lanes of traffic between Hardenbrook Avenue and just west of Montana Avenue. Estimated cost, \$445,000.

Rights-of-way on various state highway routes—\$481,000.

#### Sierra County

Widen portions of Route 49 between Yuba Pass and 1.6 miles west of Route 89 near Sattley, and improve drainage. Estimated cost, \$100,000.

#### Siskiyou County

Construct 19.7 miles of the four-lane Interstate 5 Freeway between the Shasta River Bridge north of Weed and 3.8 miles south of Yreka. The project includes constructing an interchange with Edgewood Road just north of the bridge; an interchange and two safety roadside rests near the Siskiyou County Airport; and interchanges with Louie Road east of Gazelle and the Routes 99-97 cutoff (Federal Aid Secondary Route 1166) near Granada. It also includes minor improvements to approximately two miles of the existing freeway south of the river.

Work will start soon to construct paired freeway bridges over the Southern Pacific Company's tracks near the county airport and near Granada under previous financing. Estimated cost, \$9,750,000, of which \$6,750,000 will be budgeted in the 1968-69 fiscal year.

\$2,101,400 to complete the financing for constructing the four-lane Interstate 5 Freeway between 11.1 miles north of Yreka and Bradley-Henley Road near Hornbrook, a distance of 3.3 miles. The project includes constructing a bridge across the Klamath River to connect the existing highway north of the river with a future safety roadside rest which will be constructed on the river's south bank and portions of the paired freeway bridges across the river. Estimated cost, \$5,601,400, of which \$3,500,000 had been budgeted in the 1966-67 fiscal year.

Replace a bridge across Ti Creek on Route 96, approximately 14 miles north of Somesbar, with a wider structure on improved alignment. Estimated cost, \$88,000.

Tree and functional planting on the Interstate 5 Freeway between 4.6 miles south and 1.5 miles north of Mount Shasta. Estimated cost, \$60,000.

Rights-of-way on various state highway routes—\$1,238,000.

#### Sutter County

Resurface Route 99 between its junction with Route 70 and 1.4 miles north of the Feather River, a distance of 5.9 miles. Estimated cost, \$150,000.

Replace the decking on the two-lane bridge across the Sacramento River on Route 20 linking Sutter County with Colusa County at Meridian. Estimated cost, \$300,000. (Also listed in Colusa County.)

Rights-of-way on various state highway routes—\$100,000.

#### Tehama County

Reconstruct Route 36 on new alignment generally north of the existing highway, between seven and 12 miles west of Red Bluff, to eliminate 13 fords on Dibble Creek. Estimated cost, \$655,000.

Tree and functional planting on the 28.7-mile stretch of the Interstate 5 Freeway between the Glenn county line and the North Red Bluff Interchange. The project includes landscaping the interchange at Red Bluff. Estimated cost, \$365,000.

Rights-of-way on various state highway routes—\$67,000.

#### Trinity County

Rights-of-way on various state highway routes—\$57,000.

#### Yolo County

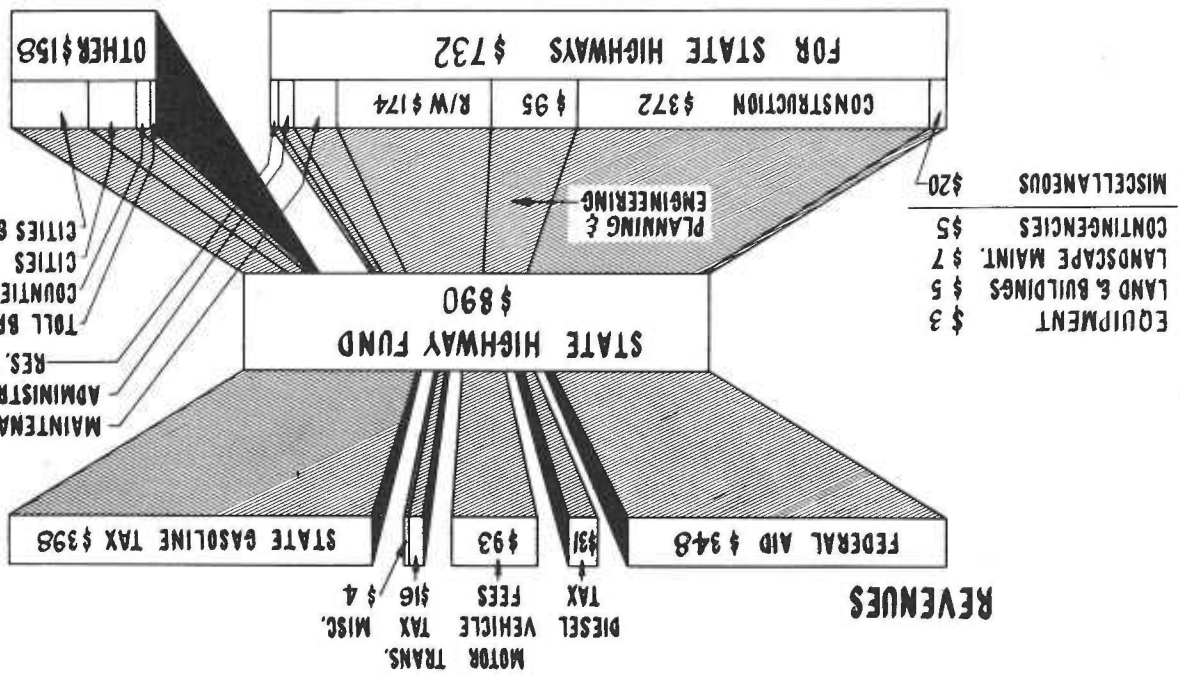
Construct the four-lane Interstate 5 Freeway bridge across the Sacramento River, linking the recently completed two-lane Interstate 5 Expressway section between Route 99 and Elkhorn, Sacramento County, which will serve the future Natomas Airport, with Yolo County, and construct the bridge approaches. Estimated cost, \$10,300,000, of which \$5,300,000 will be budgeted in the 1968-69 fiscal year. (Also listed in Sacramento County.)

Construct the embankment approaches for the future Interstate 880 Freeway bridges



STATE HIGHWAY BUDGET  
1966-1967

EXPENDITURES



NOTE: ALL FIGURES IN MILLIONS OF DOLLARS

\$310,000 to complete the financing for constructing the initial two lanes of an eventual four-lane freeway on Route 70 between Bear River and just south of McGowan Road, south of Marysville, and for constructing a four-lane freeway from this point to Route 65, a total distance of 8.4 miles, with interchanges at McGowan Road and Route 65. The project includes constructing almost one mile of Route 65 south of the completed freeway to Marysville as a four-lane divided highway. Estimated cost, \$2,810,000, of which \$2,500,000 had been budgeted in the 1966-67 fiscal year.

**Yuba County**  
Reconstruct and widen Route 20 on improved alignment between near the north-city limit of Marysville and 2.7 miles northerly to improve sight distances for motorists and eliminate flooding of the highway. Estimated cost, \$980,000.

Rights-of-way on various state highway listed in Colusa County.)  
budgeted in the 1968-69 fiscal year. (Also across Oat and Buckeye Creeks. Estimated cost, \$6,600,000, of which \$2,300,000 will be

Construct the four-lane Interstate 5 Freeway between two miles south of the future Interstate 505 Freeway south of Dunnigan, Yolo County, and construction in progress south of Arbuckle, Colusa County, a distance of ten miles. The project includes construction of interchanges with the Interstate 505 Freeway, Yolo County; Roads 8 and P6 and County Line Road, and bridges across the Sacramento River at Bryce Bend and at the Southern Pacific Company's tracks east of the Yolo Causeway. Estimated cost, \$2,492,000. (Also listed in Sacramento County.)

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