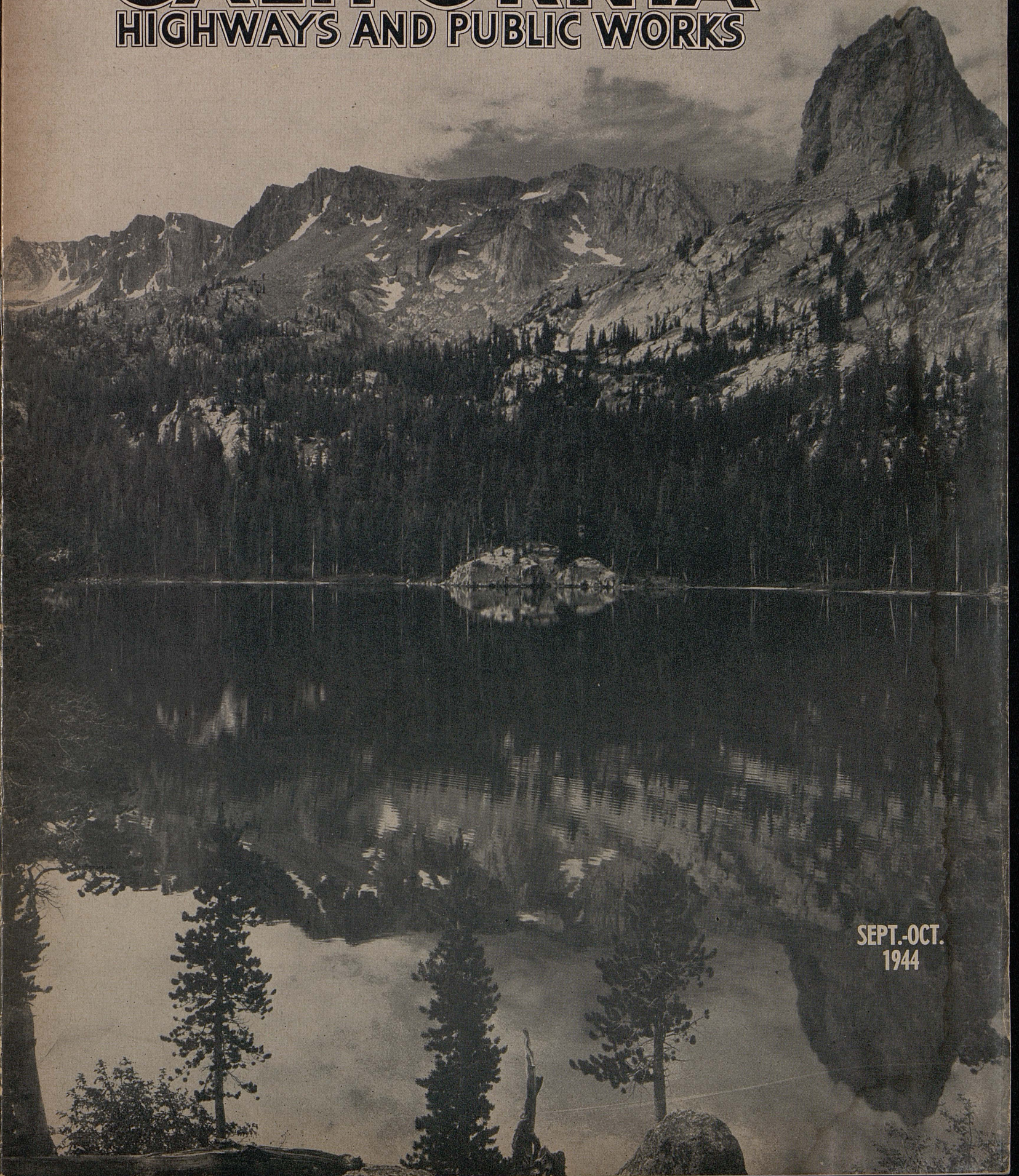


CALIFORNIA

HIGHWAYS AND PUBLIC WORKS



SEPT.-OCT.
1944

D50 Illuminant, 2 degree observer

inches

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2	16.97	18.72	-22.29	-24.49	-0.35	63.51	39.92	52.24	97.06	1.13	0.23	0.21	0.43	0.28	0.19	
3						63.51	39.92	52.24	97.06	1.13	0.23	0.21	0.43	0.28	0.19	
4						63.51	39.92	52.24	97.06	1.13	0.23	0.21	0.43	0.28	0.19	
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13						63.51	39.92	52.24	97.06	1.13	0.23	0.21	0.43	0.28	0.19	
14						63.51	39.92	52.24	97.06	1.13	0.23	0.21	0.43	0.28	0.19	
15						63.51	39.92	52.24	97.06	1.13	0.23	0.21	0.43	0.28	0.19	

Density

Golden Thread

16 (M)	49.25	36.62	28.86	18.19	8.29	3.44	31.41	72.46	72.95	73.97	54.91	13.86	62.74	52.78	50.97
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Colors by Munsell Color Services Lab

Don Williams

CALIFORNIA HIGHWAYS AND PUBLIC WORKS

Official Journal of the Division of Highways, Department of Public Works, State of California

[PRINTED
IN U.S.A.]

C. H. PURCELL, Director

GEORGE T. McCOY, State Highway Engineer

K. C. ADAMS, Editor

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California Highway Commission Gives Help to San Francisco On Postwar Airport Project

NEGOTIATIONS between the City of San Francisco and the California Highway Commission on the relocation of the Bayshore Freeway, U. S. Highway 101 BY-PASS, in the vicinity of the San Francisco Municipal Airport, were climaxed on September 21st when a mutually satisfactory agreement opening the way for postwar development of the airport was reached by the city and the State.

The commission, meeting in San Francisco, adopted a resolution agreeing to relocate a portion of the Bayshore Highway near the airport, to relinquish title to its present right of way through airport property and binding San Francisco to an agreement to "construct a facility equal and equivalent to the standard of the existing road," and to build the additional length of freeway which will be required by the shifting of the present highway to the western boundaries of existing airport property. The additional length will be between 1,400 and 2,000 feet.

The resolution was approved by the San Francisco Public Utilities Commission on September 25th.

It had been the plan of the Highway Commission to develop the Bayshore

Freeway along its present location through airport properties. The Public Utilities Commission, however, desired to extend the airport both east and west by "stage construction" and felt that a freeway through the middle of the field would hamper development.

The formula for the agreement was reached when the city offered to pay the additional expenses involved in relocation of the freeway along the western boundaries of the airport. The present highway bisects the airport with 2,450 acres on one side of the roadway and 550 acres on the other. Shift-

ing of the freeway to the west will permit the consolidation of the 2,900 acres of airport land into one large field.

Headed by their chairman, C. H. Purcell, who is also Director of Public Works; State Highway Engineer George T. McCoy, and Assistant State Highway Engineer Fred Grumm, the Highway Commissioners inspected the airport properties and the proposed relocation site on September 20th. They were accompanied by Mayor Lapham; Marshall Dill, President of the Public Utilities Commission; E. G. Cahill, Manager of Utilities; Chief Administrative Officer T. A. Brooks, and B. M. Doolin, Airport Manager, representing the City of San Francisco.

In a statement commenting upon the agreement, Mr. Cahill said:

"The sympathetic hearing accorded the San Francisco delegation and the prompt action of the Highway Commission in reaching a basis for a working agreement, are highly appreciated by Mayor Lapham, Mr. Dill, and myself.

"We will now be able to proceed much more rapidly toward completion of the master plan for the airport and hasten the date when it will take its rightful position as the leading airport in the west."

RESOLUTION

WHEREAS, The City and County of San Francisco, through the Mayor and Public Utilities Commission, have informed the California Highway Commission of its desire to enlarge the San Francisco Municipal Airport, known as "Mills Field," by stage construction, both to the east and west of the existing airport as its ultimate program; and

WHEREAS, The City and County of San Francisco has requested the removal of a portion of State Highway Route 68 so as to clear the same for use for airport purposes; and

WHEREAS, The City and County of San Francisco offers to construct a facility equal and equivalent to the standard of the existing road on a location to be selected by the California Highway Commission; and

WHEREAS, The City and County of San Francisco offers to build the additional length of completed freeway required over that necessary had the State Highway remained in its present position; and

WHEREAS, The City and County of San Francisco offers to furnish a right of way satisfactory to the State through city owned property; now, therefore, be it

Resolved, That the California Highway Commission agrees to relinquish title to its present right of way when the City and County of San Francisco enters into an agreement with the State in accordance with the offers hereinabove recited and when such relocated highway has been constructed; and it is further

Resolved, That on acceptance of the conditions in this resolution by the legally authorized authority of the City and County of San Francisco, the State Highway Engineer will be instructed to proceed with the completion of the engineering involved.

Access Defense Highway Construction In District XI Aggregates \$8,000,000

By E. E. WALLACE, District Engineer

IN December, 1941, when this country was drawn into the war, San Diego highway facilities were inadequate for existing traffic. U. S. Highway 101 leading into San Diego from the north carried over 40,000 vehicles per day at the Barnett-Pacific Highway intersection, and serious congestion was the result.

In October, 1940, prior to the final passage by Congress of the Defense Highway Act of 1941, a conference was held in San Diego at the office of the Commandant of the Eleventh Naval District, which was attended by representatives of the Navy and Army, the U. S. Public Roads Administration and the State Division of Highways. At that conference a system of Access Highways was designated which was intended to provide needed relief from

traffic congestion in serving the naval and defense activities in this area.

Work was immediately started on surveys and plans with the result that several important projects were under construction early in 1942.

HUGE PROGRAM

Subsequently this district has handled an Access Highway construction program amounting to over eight million dollars, or more than twice the usual volume of work assigned to this area. This has been accomplished in spite of the unusual stress of conditions in a very critical defense area, where labor and material conditions are exceedingly difficult.

Another serious handicap has been the loss to this district of 53 engineers and maintenance and construction em-

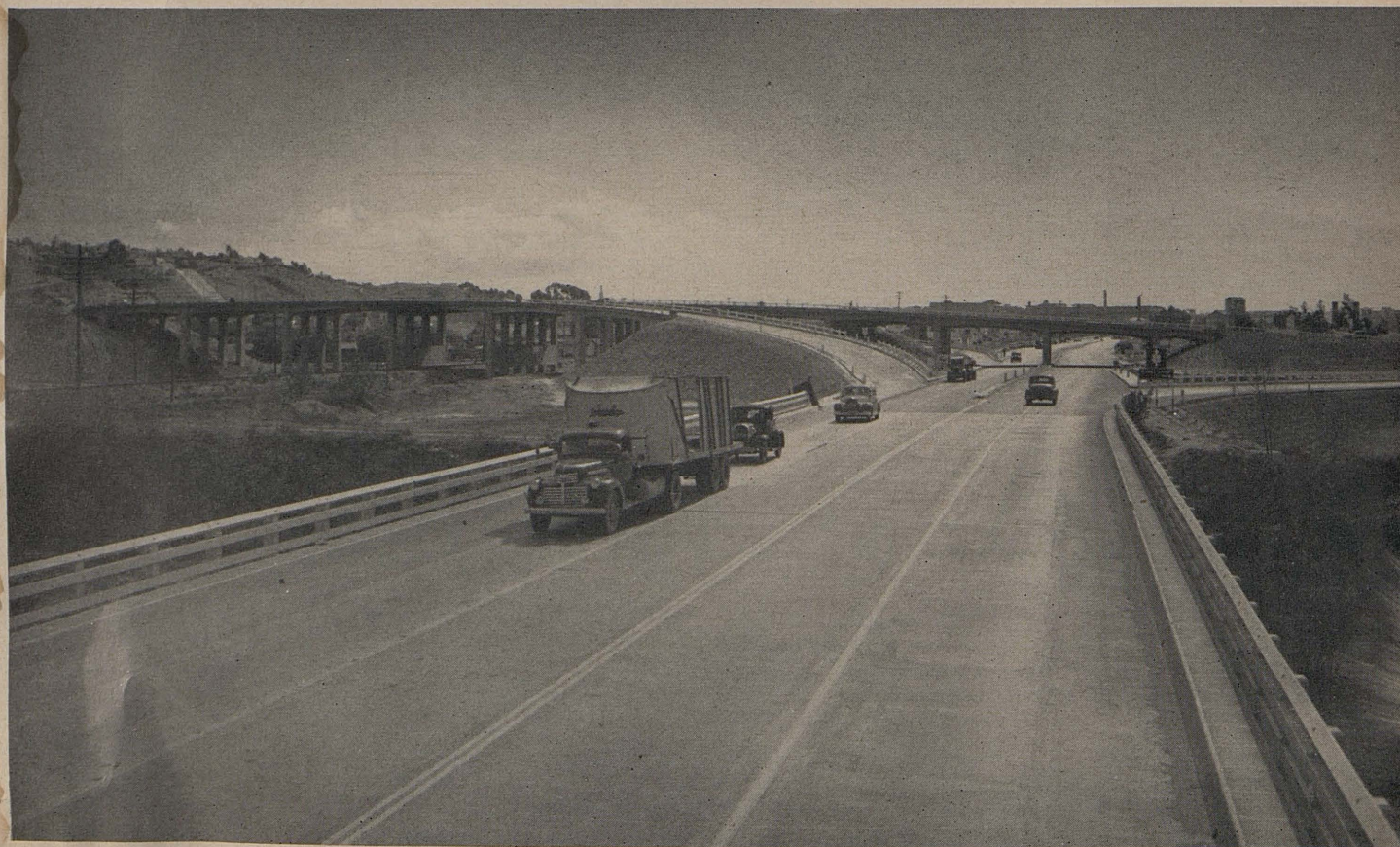
ployees to the armed services of the United States, and the fact that replacement of such experienced help has been impossible.

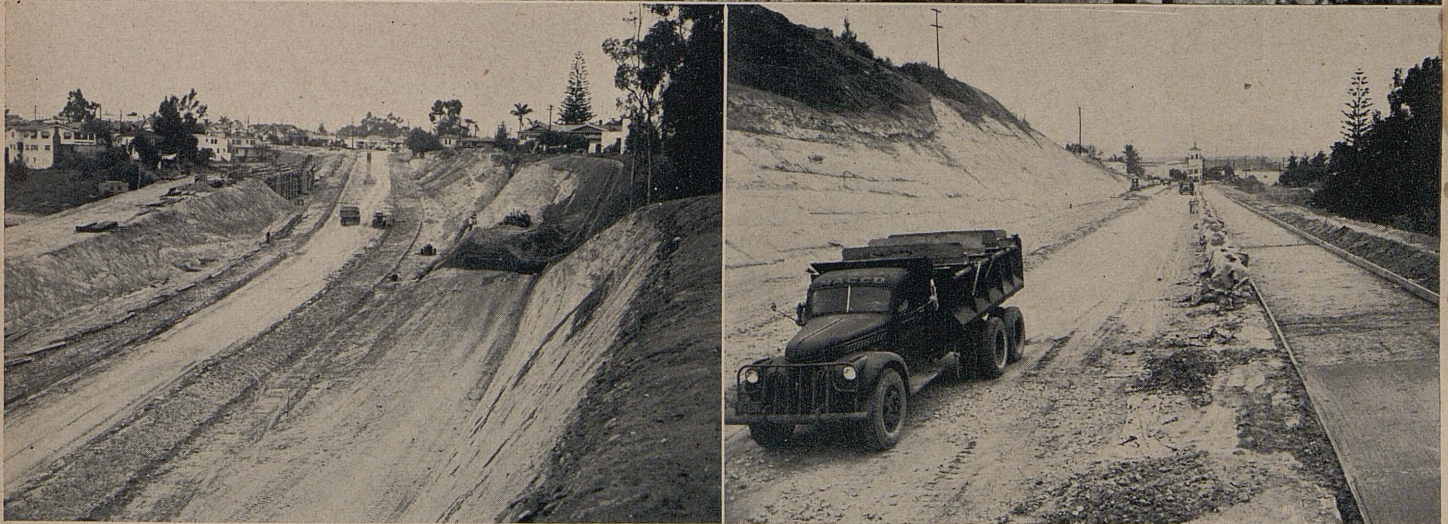
The construction work has not been confined to the San Diego area alone. Projects have been completed in Imperial and San Diego counties to provide access to airports, Army camps, sources of raw materials, amphibious bases, Marine camps and ammunition depots.

To date 32 access projects have been approved of which 26 have been completed, and six are in various stages of construction. Of these, only 12 projects were on the State Highway System, though four on Harbor Drive have since been added to the State System.

All of the projects in the Access

View of the Mission Valley Overpass in San Diego, looking south from the San Diego River





Before and after views of Douglass Street extension in San Diego. Upper picture shows route between Pacific Highway and Washington Street before grading operations (lower) began

system as designated at the conference above referred to have been completed with the exception of the relocation of U. S. Highway 395 through Balboa Park; this project has been indefinitely deferred due to its magnitude and

the continuing labor shortage in this area.

Some of the more important Access projects in District XI are briefly described as follows:

Pacific Highway in San Diego, be-

tween Market Street and the San Diego River, has been widened to a six lane, divided highway, paved and resurfaced. Highway grade separations have been installed at Barnett, Witherby and Mission Valley intersections.

(Continued on page 22)

CALIFORNIA MISSIONS

By KENNETH C. ADAMS, Editor

PREFACE

CALIFORNIA'S 21 Franciscan missions were established by members of the Order of Friars Minor, led and inspired by Fray Miguel Joseph Serra, famous in history as Father Junipero Serra.

St. Francis of Assisi, Italy, founded the Order of Friars Minor, better known as the Order of Franciscan Monks, in 1209. It is a missionary brotherhood bound together by the vows of Poverty, Obedience and Chastity. Leaders of the Order in the 17th century conceived plans for a communal mission life in which Friars might create protected establishments and gather about them in family groups aboriginal people among whom they worked. Experimented with for the first time in Sinaloa, Mexico, in 1611 the plan proved successful and was adopted by the Jesuit Order in Lower California. The system was perfected by the Franciscans in Alta (Upper) California, which now is the State of California.

To Father Serra belongs the credit for the far-flung perfect mission system which played so large a part in the early history of this State.

Born in humble circumstances on the Island of Majorca in 1713, Miguel Joseph Serra entered the Franciscan Order before he was 17. He took the name of Junipero out of reverence for the chosen companion of St. Francis and as a youth dedicated himself to missionary work. It was not until 1749, however, that the opportunity for service in foreign fields came to him. In that year, to his unbounded joy, he and Father Francesco Palou, his friend and biographer, were appointed members of a group of priests requested by the College of San Fernando, Mexico, for duty in the New World.

ARDUOUS TRIP

Of Father Serra's long and arduous trip from Majorca to the City of Mexico much has been written by that faithful chronicler, Father Palou, and many historians and writers. It is related that when Father Serra arrived at Vera Cruz so eager was he to plunge into his new apostolic duties that he would not wait for the mules and wagons, which were to transport him

Mission Meccas

California's famous old missions with their historical and romantic background annually attract thousands of visitors. Twenty-one Franciscan missions were founded by the Reverend Fray Junipero Serra and his colleagues, extending from San Diego to Sonoma. On his way north from San Diego, Father Serra and the mission padres who came after him followed a course which became known as El Camino Real, "The King's Highway." El Camino Real retains to this day its original name and is designated U. S. 101. Along this highway and short distances from it, the founding padres established their missions. U. S. 101, the old "King's Highway," now extends from the Mexican border to the Oregon boundary line.

Present day State highways lead to all the mission sites. When the war is ended and California again welcomes tourists from all over the world and there are no longer restrictions on automobile travel, it is believed that the missions will be popular meccas for visitors to the Golden State.

Anticipating this traffic, the Division of Highways will publish in California Highways and Public Works brief histories of the missions with directions on how to reach them over State highways. For the purpose of this series, the missions will be taken up in the order of their locations from south to north, rather than in the sequence of their founding.

This is the first of the series.

and his colleagues to Mexico City, and which had been delayed, and so set out on foot for his destination. He paid dearly for his impetuosity. An ulcer developed in one of his legs and

throughout his life he suffered from it. On several occasions the infection brought him near to death.

Father Serra engaged in missionary work in Mexico for nearly 19 years and then was rewarded by appointment as president of the Missions of California which, following expulsion of the Jesuits in 1768, had passed into the control of the Franciscans. There were 13 of these missions, all in Lower California. Father Serra was 55 years of age when his chance to extend the missions to Upper California came.

Jose de Galvez had been sent out to New Spain by Carlos III as visitador general of the provinces with instructions to establish military posts at San Diego and Monterey to prevent encroachments of the English and Russians. Announcing organization of an expedition into the north, Galvez stated that its purpose was "to establish the Catholic faith among a numerous heathen people, submerged in the obscure darkness of paganism, and to extend the dominion of the King, our Lord, and protect this peninsula from the ambitious views of foreign Nations."

EXPEDITIONS FORMED

Assembling his forces at Santa Ana, near La Paz, Galvez invited Father Serra, then at Loreto, to visit him. Junipero enthusiastically made the long trip to Santa Ana and inspired by the prospect of a great new missionary field, joined up with Galvez.

The soldier and the priest decided that their joint expedition should be divided and sent to San Diego in two sections, one by land and one by sea. Three ships, the San Carlos, the San Antonio and San Joseph, carrying troops and four missionaries, sailed from La Paz on January 9, February 15 and June 16, 1769, in the order named.

Driven off her course by storms, the San Carlos arrived at San Diego 20 days after the San Antonio, although she had sailed five weeks earlier, and of her crew all but one sailor and the cook had succumbed to scurvy and many of the soldiers had died. The San Antonio lost eight of her crew from the same disease. The San Joseph was lost at sea.

The land expedition was divided into two divisions under Captain Fernando Rivera y Moncada and Governor Don Gaspar de Portola. Captain Moncada led the advance detachment and Portola followed. Father Serra was to have accompanied the Governor, but when the date of departure came his ulcerous leg kept him in bed and Portola went on without him.

INDOMITABLE SPIRIT

It was not until March 28th, several weeks later, that Father Serra with two soldiers and a servant set out on muleback to overtake the expedition. He suffered greatly enroute, but caught up with Portola. His condition became so grave that the Governor besought him to return to San Fernando for treatment. This Junipero would not do. His life was despaired of.

And then, records Father Palou, the indomitable Serra, after offering up a prayer, called one of the muleteers and said to him: "Son, do you not know how to make a remedy for the ulcer on my foot and leg?" And the muleteer answered, "Father, how should I know of any remedy? Am I a surgeon? I am a mule-driver, and can only cure harness wounds on animals." "Then, son," Father Serra directed, "consider that I am an animal and that this ulcer is a harness-wound and prepare for me the same medicament as you would make for a beast."



This cross marks site of original Mission San Diego de Alcalá Photo by Byron Dome

Unwillingly, the muleteer obeyed, applied his preparation to the infected leg and to the astonishment of all, the good Father slept that night and the next morning was able to resume the journey.

After many hardships, Portola reached San Diego on July 1, 1769.

There he found Moncada and his force and the San Carlos and San Antonio with the surviving members of the sea expedition. And there Father Serra found his new field of endeavor of which he long had dreamed.

Mission San Diego de Alcalá July 16, 1769

WHEN Father Junipero Serra arrived at San Diego with Governor Gaspar de Portola after their arduous march from La Paz the conditions they found there were enough to discourage a far stouter heart than the valiant priest's. Many soldiers and sailors of the sea expedition had died from scurvy and the survivors still were suffering from the disease.

But, as Father Palou recorded, "that fervent zeal which continually glowed and burned in the heart of our venerable Father Junipero did not permit him to forget the principal object of his journey."

Two weeks after the arrival of the land force, Governor Portola, under orders to locate Monterey Bay and establish there a presidio, departed for the north with a small expedition on July 14, 1769. And two days later, Sunday, July 16th, Father Serra, impatient to take up his task of converting the Indians to Christianity, founded the first mission in California.

For the location of his mission, Father Serra selected a site adjoining the Spanish camp. Until this day, Holy Mass had been celebrated in a brushwood shelter and for the Spaniards only. The date selected for the establishment of the mission was an appropriate one, as Father Palou observed; for on that day, in the year 1212, the Spaniards fighting under the banner of the Holy Cross won an historical victory over the Mohammedans, which annually was celebrated by the Spanish church as the Triumph of the Holy Cross.

CROSS RAISED

"Furthermore," says Father Zephyrin Engelhardt, mission historian, "it was the day of Our Lady of Mount Carmel, through whose intercession Father Serra hoped to wean the savages from their beastly practices and induce them to accept the ennobling Faith of Christ."

Assisted by Fathers Vizcaina and Parron, Father Serra, on the morn-

View of court yard in Mission San Diego de Alcalá, showing ancient walls

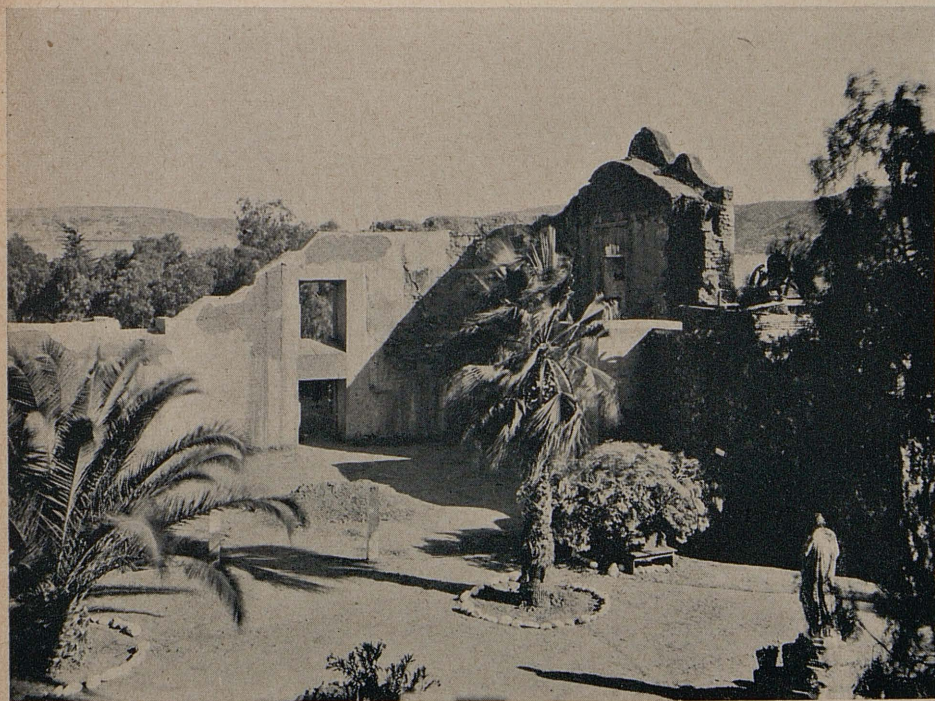


Photo by Byron Dome

ing of July 16th, raised the Cross where the chapel was to stand, blessed and sprinkled the site with holy water and himself sang the High Mass and preached a sermon, thus dedicating his first California mission, which he named in honor of San Diego de Alcalá (Saint James of Alcalá). Many years before, Sebastian Vizcaino, discovering San Diego Bay, had named it after San Diego de Alcalá, a man of lowly birth in the town of St. Nicholas, in the diocese of Seville, Spain, who was canonized by Pope Sextus V, in 1588. He was a Capuchin monk at the convent of Alcalá in 1463.

The ceremony was witnessed by a little group of 28, all the able-bodied men in camp, including eight Lower California Indians. Others of the sea and land expeditions either had died,

were ill or had accompanied Governor Portola north.

Father Serra and his missionaries found the Indians unfriendly but not hostile. The savages accepted presents of beads and clothing and even stole such articles, but would not partake of any of the Spaniards' food, believing the deaths and sickness among the invaders were caused by the food they ate. This fear of the Indians, Father Palou later looked upon as the working of Divine Providence for had the natives taken to eating the stores of the Spaniards the members of the expedition would have died of starvation.

Knowing no word of the Indian language, Father Serra nevertheless proceeded with his work of converting the aborigines. A native boy who evinced a liking for the missionaries

and who picked up a smattering of Spanish was used as an interpreter.

INDIANS ATTACK

Coveting trinkets and clothing, the Indians became bolder in their thieving and being ignorant of firearms they jeered the soldiers. Less than a month after the mission was started, a band of savages attacked, but was driven off, the Spaniards refraining from firing upon them.

Two days later, while four soldiers comprising the mission guard were absent watering their horses and Fathers Serra and Vizcaino and mission workers and servants were unprotected, the savages attacked in force. Father Vizcaino and several others were wounded by arrows before the soldiers returned and opened fire. Joseph Maria, a servant, died of

(Continued on page 20)

Recent photograph of Mission San Diego de Alcalá taken from exterior and showing restored tower



REMINISCENCE

By R. L. THOMAS,
Senior Highway Engineer

THE other day while looking over some musty photographs of Division of Highways field parties on early road surveys in Mendocino County it occurred to me that unpretentious as the old ways were and improved as the new ways are, the progress has not been made without the loss of an indefinable something which only an old time jungle bird or ridge runner can feel and understand.

WHENEVER I see one of our field parties starting on an assignment with its station wagon loaded with efficiently placed survey instruments and equipment I can not help but think that much of the romance of highway engineering that the rider of the station wagon might well regret having missed went out with the long hiker. I fondly remember, as does any S. I. of the old school:

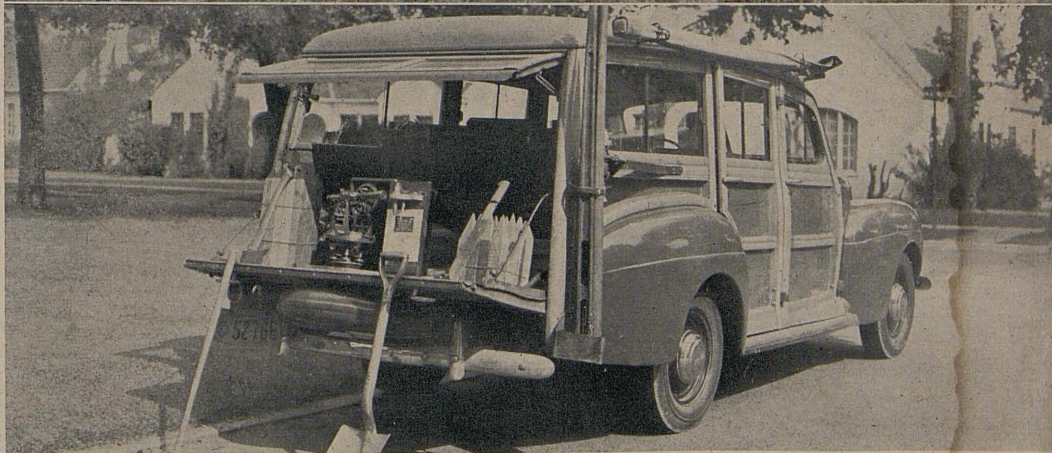
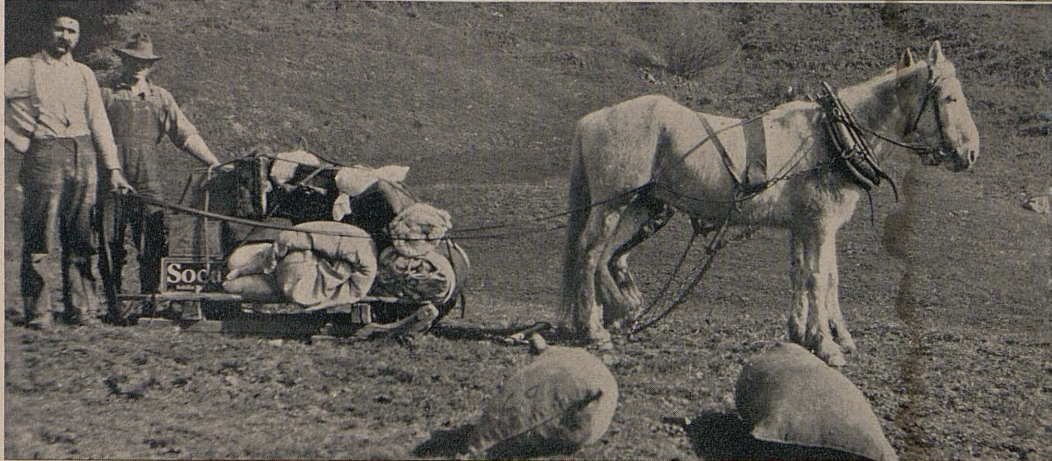
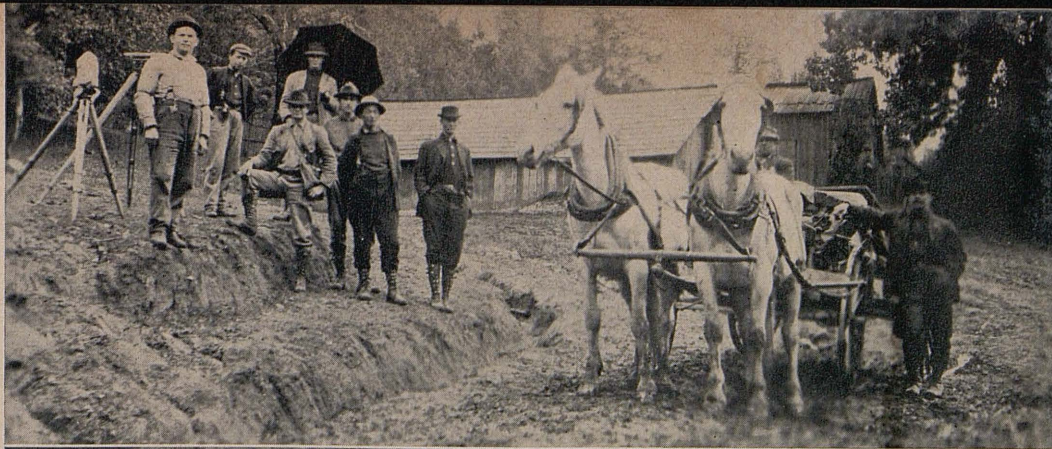
THE unlimited field, the intriguing and fascinating brush line reaching endlessly onward into the unknown; the Silver Arc that holds the direction, the rhythmic flash and sound of axe and bolo in the virgin growth ahead; the development of the zone, with the finished and staked design bringing up the rear, and the sense of achievement as each control is passed;

THE spirit and comradeship of the camp in the wilderness that held the crew together in contact with the common interest in the work; the organization based on the survival of the fittest and the elimination of the unfit, and the united effort for increased efficiency;

THE night work in the office tent, the camp study classes, with college boys for mentors and the chief for the last guess;

THE pack train or horse teams that maintained contact with the outside world; the teamsters and packers who shaved only when there were complaints that it was visually uncertain where the horse ended and where the man began. This was the life.

HAIL to those who have lived it,— and loved it!



These photos contrast the early day equipment of field parties of Division of Highways and the modern transportation afforded State road surveyors and their instruments and equipment. The three upper pictures were taken in Mendocino County in the year 1913

State Builds Military Roads in Napa and Solano Counties Costing \$4,358,600

By P. O. HARDING, District Engineer

ONE of the important contributions of District X of the Division of Highways to the war effort involved the construction in Solano and Napa counties for the Navy and the Army of approximately 40 miles of State highway access roads costing \$3,758,300, and 18 miles of such projects off the State Highway System, which raised the total of expenditures, including costs of right of way, for the military access program in these two counties to \$4,358,600.

The military access program of District X is located in three general areas, as follows:

(a) The mountain area where raw material access projects, both on and off the highway system, serve the forest and mine raw material sources of supply. The district has previously reported in CALIFORNIA HIGHWAYS AND PUBLIC WORKS on two important projects of this type but our program, while well advanced in these mountain sections, is still under way.

(b) The San Joaquin Valley area, more particularly that area adjacent

to Stockton and its concentration of war activities, serves both the Army and Navy branches of service.

(c) Lower Solano and Napa counties under the direct influence and sponsorship of Mare Island Navy Yard and the Army's Benicia Arsenal.

No report has heretofore been made on any of the Army and Navy projects although a number of the more important ones were completed as early as two years ago. At that time of rigid blackout control at night, and with the sky filled with barrage balloons and every vantage point occupied with on-the-alert anti-aircraft installations both day and night, military censorship precluded the projects being unduly publicized.

IMPORTANT AREA

The most important of the three areas listed above is that area in lower Solano and Napa counties under the influence of the Army from Benicia, with its arsenal, to Vallejo; and extending under the still greater influence of the Mare Island Navy Yard

dominating Vallejo and the tributary area up the Napa River Valley to Napa. With the pouring of concrete pavement near completion on the Casson-Ball contract on Route 8 between Suscol Creek and Napa, District X expects to wind up its access program of highway construction in this important area soon.

It will be noted that this area includes a portion of Napa County, in which some 10½ miles of State highway construction lie within the limits of District IV. Due to the close relationship which this section of highway bears to the remainder of the program in District X, this district was requested to handle it as a part of its program. We have been required, however, to borrow some of District IV construction personnel to complete this important work due to the general war depletion of all district engineering personnel.

Excluding several access projects for the Fairfield-Suisun Airfield and one in the town of Benicia, being handled directly by the Public Roads Ad-

View of new four-lane highway between Napa Wye and Vallejo before paving operations. New lane is on right





This photograph shows paving operations in progress on Vallejo-Napa highway between Napa Wye and Napa City

ministration and not otherwise commented on here, the Army and Navy access program of lower Solano and Napa counties handled by District X involves:

FIFTEEN CONTRACTS

(a) Fifteen contracts, three of which were sponsored by the Benicia Arsenal and 12 by the Mare Island Navy Yard.

(b) The construction of some 40 miles of State highway, approximately 10 miles of which were for the Army and 30 for the Navy.

(c) The construction of roads and streets off the State Highway System of some 18 miles, $1\frac{1}{2}$ of which were for the Army and $16\frac{1}{2}$ for the Navy.

(d) Construction costs of \$899,700 on the State Highway System for the Army and \$2,595,700 for the Navy, making a total of \$3,495,400. Construction costs on roads and streets off the highway system of \$103,000 for the Army and \$497,300 for the Navy, making a total of \$600,300.

(e) The acquisition of 157 parcels of right of way for the Army at an approximate cost of \$66,000 and 109 parcels of right of way for the Navy at an approximate cost of \$196,900, making a total of approximately \$262,900, all being involved on the State Highway System.

(f) The preceding gives a total cost of \$3,758,300 for the 40 miles of State highway construction, and a grand total of \$4,358,600 for 58 miles of total roads involved.

All of the work was performed by 10 California contracting firms. The contract of one of these contractors involved the redecking of the important Napa River bascule bridge and trestle approaches on the Sears Point Highway. The remaining nine contractors had the remaining 14 general contracts covering road construction which included one major highway grade separation structure and several major bridge structures as a part of the road contract. In addition to the above contractors, the Basalt Rock Company constructed to the design furnished by the Division of Highways a highway underpass structure which will segregate its important quarrying transport from the main quarries east of the highway to the railroad and water shipment points west of the highway. This was performed at the company's expense but under agreement will be deeded to the State with the final acceptance of the adjacent road contract.

MANY DIFFICULTIES

The performance of the work involved in this program would have been difficult under normal conditions.

War condition with all of the attendant problems multiplied the difficulties many fold. In this regard, conditions of this area are undoubtedly indicative of comparable or possibly worse conditions elsewhere in the State in any of the major critical war effort areas. Prior to the war the population of Vallejo township, which includes Vallejo and suburban territory, was approximately 30,000. This population has grown to over 100,000, and is still expanding. Comparable expansion has occurred at Benicia and surrounding territory due to the influence of the arsenal. Similar growth has also occurred at Napa due to the influence of the Basalt shipyards located on the Napa River west of the highway about $2\frac{1}{2}$ miles south of Napa.

This tremendous expansion of population has resulted in the construction of some 15,000 governmental housing units and other thousands of units of private housing, generally inflated realty values, greatly increasing the difficulties of acquiring rights of way, inadequate restaurant facilities and many other attendant obstacles.

BIG POPULATION INCREASE

The general increase of population of this area is not indicative of expansion of the military facilities of the area. It is understood that the per-

(Continued on page 17)

Monterey-Castroville-Prunedale Project Provides Modern Highway From Del Monte Junction to Route 2

By C. E. WAITE, District Construction Engineer

THE recent completion of the contract on Route 56 between Seaside Junction and the North Reservation Boundary of Fort Ord now provides a modern highway from Del Monte Junction, just east of the City of Monterey, to Route 2 near Prunedale via Castroville, with the exception of the three-mile section between Del Monte Junction and Seaside Junction. This latter section is included in the postwar program and is planned for construction as soon as funds are made available.

The Seaside Junction-North Reservation Boundary project is the last of nine completed road and bridge contracts financed with Federal Access Highway Funds on Routes 56 and 22, providing access from Fort Ord to

Route 2 (U. S. 101) near Prunedale. In addition to providing a modern access highway for the large military establishment at Fort Ord, the new highway will be of immeasurable benefit to postwar traffic between Monterey and points north. This routing has an advantage of approximately six miles over the highway through Salinas via Routes 2 and 117, in addition to which less traffic congestion and delay will be encountered.

With the completion of the postwar project between Del Monte Junction and Seaside Junction, approximately nine miles of this 19.5 mile section will be four-lane divided, all of which will be on the Monterey end of the section.

The first bids for construction were received on March 4, 1942, at which

time they were submitted for the Neponset Bridge across the Salinas River near Castroville and for the highway construction between Castroville and Route 2, near Prunedale.

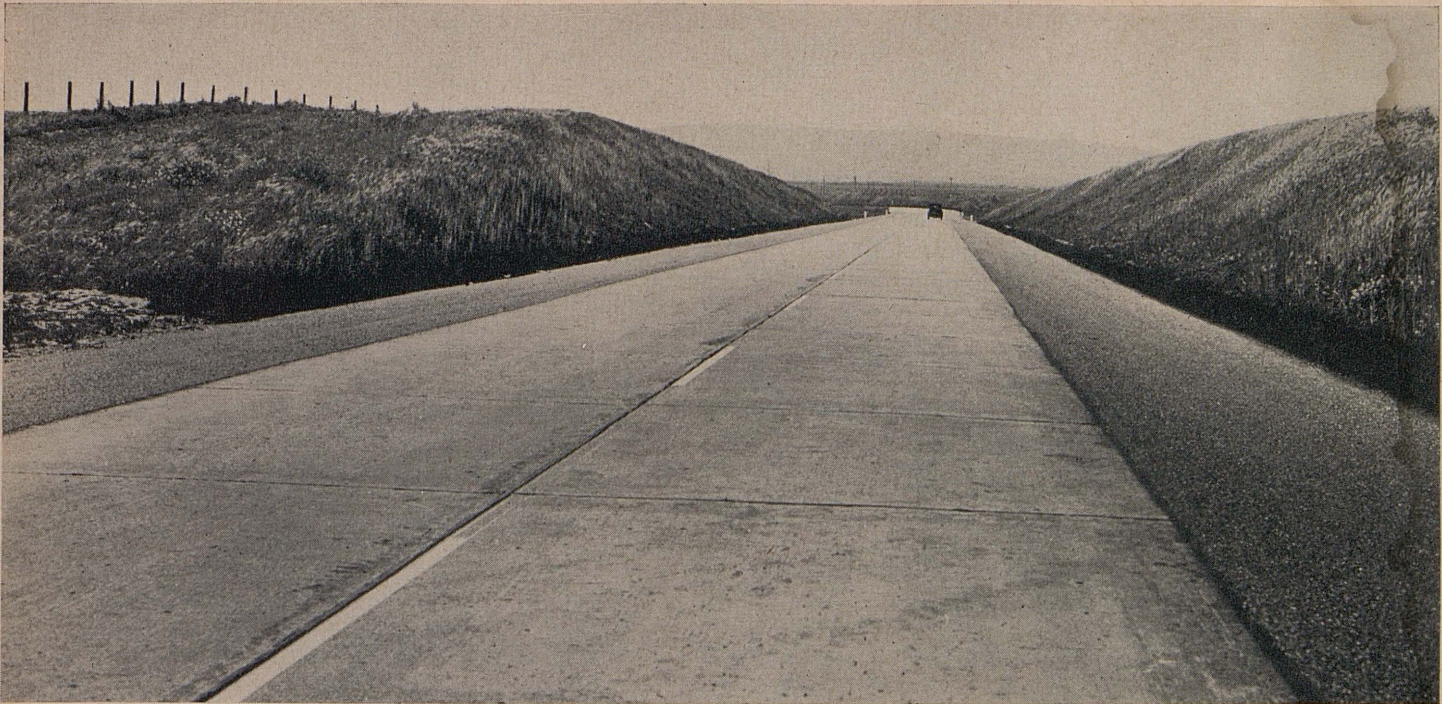
Following is a brief description of the various projects involved which will be discussed in order, running from Monterey to Route 2.

DEL MONTE JUNCTION TO SEASIDE JUNCTION

(1) This is postwar project No. 45 and is designed for four-lane divided portland cement concrete pavement approximately three miles in length. Plans and specifications have been prepared on this project and approximately two-thirds of the right of way acquired.

Looking southerly toward Marina on completed 4-lane, divided Portland cement concrete pavement. Road to left in foreground is Monterey Avenue, a county road to Salinas via East Garrison of Fort Ord





Completed 2-lane Portland cement concrete pavement between Marina and Castroville. Paved gutters and erosion protection on slopes show in this picture

SEASIDE JUNCTION TO NORTH BOUNDARY
OF FORT ORD

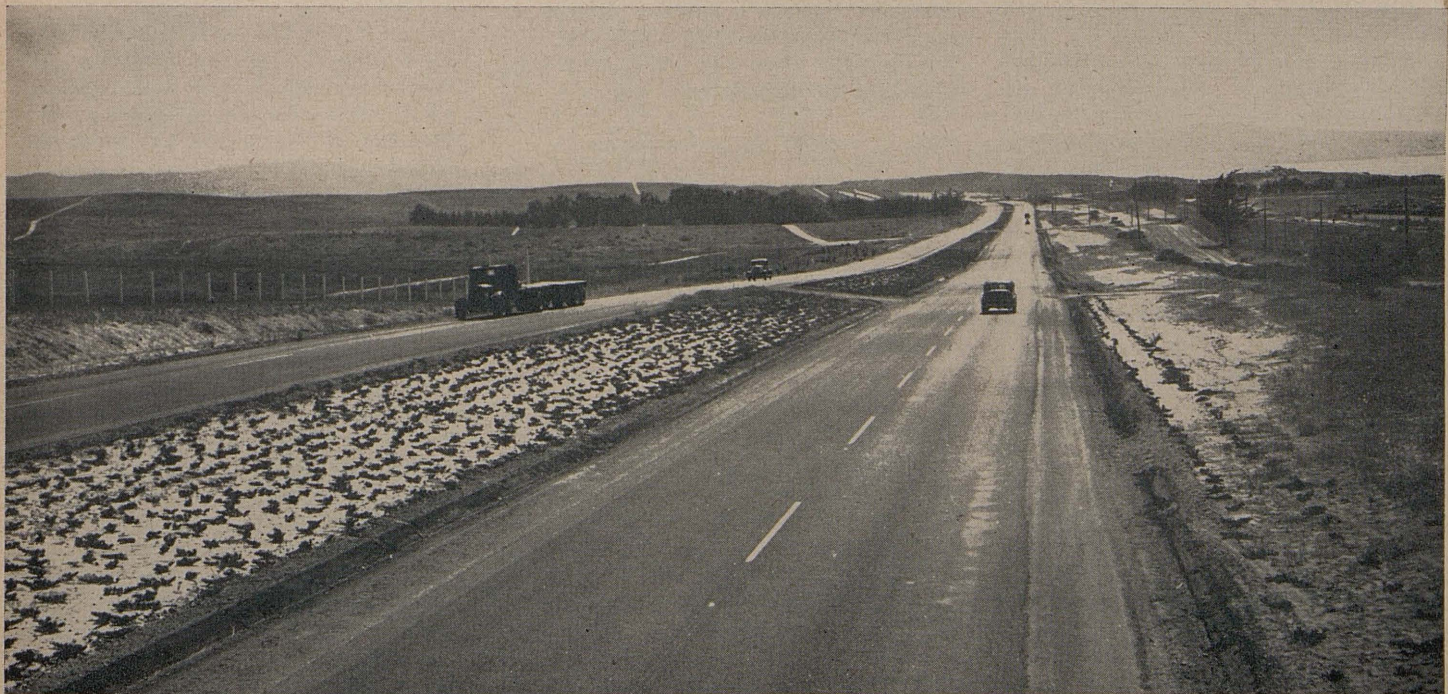
(2) This contract for approximately 4.5 miles of grading and surfacing was awarded to M. J. Ruddy and Son on June 23, 1943, and accepted on June 23, 1944. The existing road prior to construction consisted of

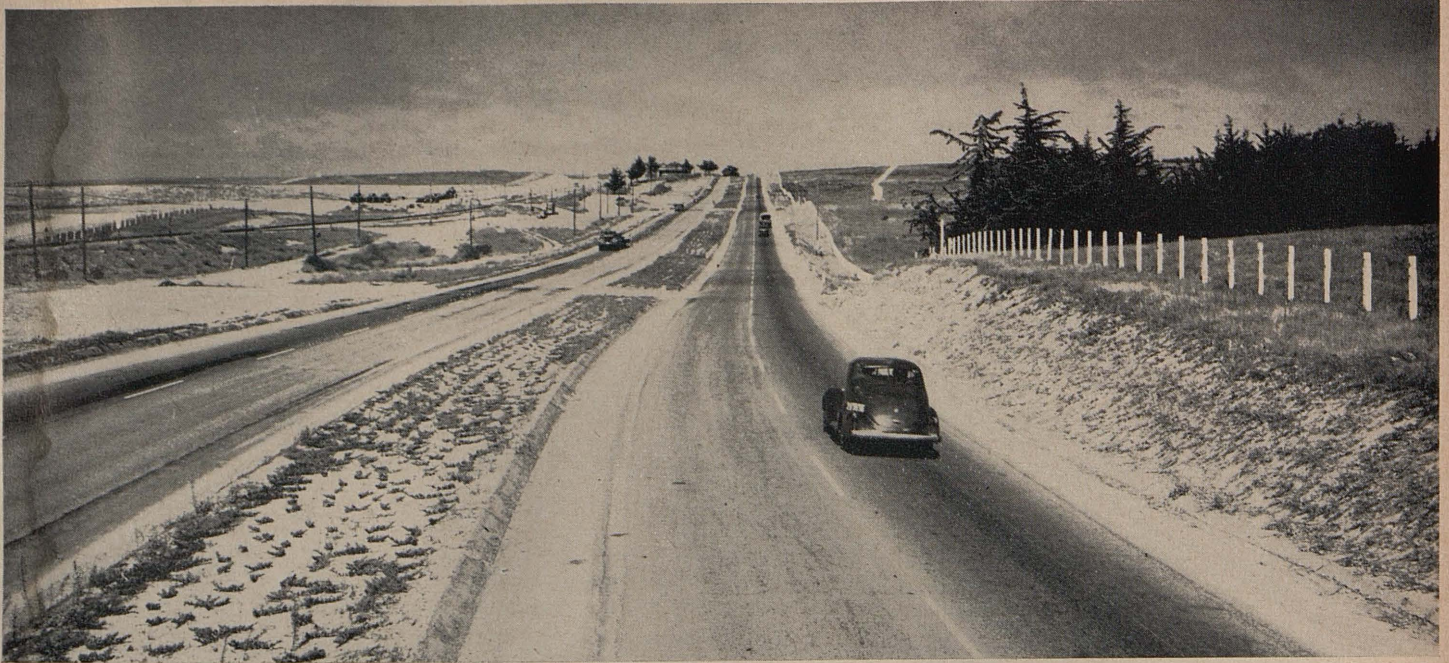
a four-lane divided highway with about 1.5 miles of inferior alignment and grade and rapidly deteriorating surfacing on the easterly or north-bound lanes. The westerly lanes consisted of an armor coat surfacing 20-24 feet wide on an old bituminous macadam and crusher run base 8 inches

thick. The easterly lanes, constructed in 1940 by Monterey County under a WPA project, consisted of an armor coat 24 feet wide on a 6 inch decomposed granite base and as above stated was rapidly disintegrating.

The proposed project consisted of constructing about 1.5 miles of grade

Looking southerly toward Monterey on Seaside Junction-North Reservation Boundary project, showing completed armor coat surfacing and planting in dividing strip





Completed crusher run base with armor coat surfacing between Seaside Junction and North Boundary of Fort Ord

and line changes on both lanes and reworking and resurfacing the remaining portions of the easterly lanes. In addition to this, three short dips on the westerly lanes were eliminated by grade changes.

New construction on the line and grade changes provided for an armor coat on 0.67-foot of salvaged and crusher run base, while on the resurfaced sections, the work consisted of reworking and compacting the existing surfacing which was covered with 0.4-foot of crusher run base and an armor coat.

Work on this project was suspended from February 17, 1944, to May 10, 1944, during which time the unsurfaced crusher run base was protected by the application of a seal coat with screenings.

FORT ORD PEDESTRIAN CROSSINGS

(3) This contract was awarded to Dan Caputo, Contractor, on June 5, 1942, and accepted on March 1, 1943. These structures, one overhead and one underpass, provided separated grades for troop and equipment movements across the State Highway and adjacent branch line of the Southern Pacific Railroad. These structures are constructed of reinforced concrete and provide a 14-foot clear roadway width.

NORTH BOUNDARY OF FORT ORD TO MARINA

(4) This contract was awarded to W. J. Wilkinson and H. B. Scott on

July 1, 1942, and accepted March 19, 1943. The work consisted of constructing a four-lane divided highway of portland cement concrete pavement with curbs along the dividing strips. This unit is approximately 1.5 miles in length with a transition to a two-lane highway at its northerly end.

Because of the shortage of critical materials, the pavement was built without steel dowels or reinforcing, the thickened end section being utilized at transverse expansion joints. Shoulders were standard 8-foot width, being surfaced with salvaged surfacing and crusher run base covered with a seal coat and medium screenings.

MARINA TO CASTROVILLE

(5) Contract awarded to Granite Construction Company on April 16, 1942 and accepted March 17, 1943. This project was built concurrently with the preceding project, the contractors' organizations being the same on both sections although bid under different names.

This work consisted of constructing a two-lane portland cement concrete pavement with 8 feet wide crusher run base shoulders covered with a seal coat. Berms and gutters were surfaced in the same manner as the shoulders to prevent erosion of the sandy soil which predominates in this area.

This project is 5.3 miles in length including the Neponset Bridge across the Salinas River and the bridge across

Tembladero Slough, which were built under separate contracts.

NEPONSET BRIDGE ACROSS SALINAS RIVER

(6) This contract was awarded to Harry J. Oser and Peter Sorenson on March 11, 1942, and accepted on October 28, 1943, nearly a year later than the anticipated date of completion. The large overrun in time was due to delay in securing steel with the priority available and the washing out of the detour bridge twice within a period of approximately seven weeks.

The new bridge is of the continuous steel girder type, on concrete piers with a reinforced concrete deck, concrete curb and timber railing. It is 785 feet in length and has a roadway width of 26 feet.

The original through truss steel bridge at this site was constructed in 1914 and during the latter part of 1941 was posted for three tons and a five-mile-an-hour speed limit. Because this road was the outlet from Fort Ord to the north, a detour bridge was built early in 1942 to serve traffic until completion of the new structure, which was scheduled for the fall of 1942.

This detour bridge, which was not planned to withstand winter floods, was washed out January 23, 1943, replaced and washed out again March 10, 1943, just before it was to have been placed in use. It was replaced the second time and served until traffic was turned over the new bridge, after which the detour bridge was removed

(Continued on page 26)

Traffic Count on State Highways Shows Little Change Over Last Year

By G. T. McCOY, State Highway Engineer

THE annual state-wide traffic count taken on Sunday and Monday, July 16th and 17th, in sharp contrast with the two last previous counts of 1942 and 1943, shows little change from the preceding year.

While rather wide variations are to be found among the various individual routes, the over-all picture indicates essentially the same volume of traffic as that which was recorded during the 1943 annual count. Sunday traffic still shows a slight but measurable decline of approximately 4 per cent, but traffic during the normal working days of the week, which account for the preponderant part of the total travel, remains at so nearly the same level as a year ago that the calculated difference based on a summary of Routes 1 to 80 inclusive, as given below, amounts to only 1½ per cent.

The marked decline in highway traffic from the peak year of 1941 is shown by the records of our monthly counts at key stations to have reached its lowest level about December of 1942. This was followed by a slight upturn in total traffic which continued until September of 1943. This pickup from the low point was, however, less than the normally expected seasonal increase.

The volume since then has remained fairly constant, with the combined total for the first seven months of the present year showing an approximate increase of 2.8 per cent over the corresponding period of 1943. Commercial traffic has continued throughout the entire period at a consistently high level, freight vehicles now constituting approximately 22 per cent of all vehicles recorded.

No change was made from the regular procedure of previous years in the manner of taking the count. Actual recording covers the 16-hour period from 6 a.m. to 10 p.m. for both Sunday and Monday. Traffic was segregated by hourly periods into the following vehicle classifications: California passenger cars, out-of-State passenger cars, buses, light trucks, heavy trucks, trailers drawn by trucks, trailer coaches, and other passenger car trailers.

Each year some minor changes in the census become necessary, such as the

relocation, addition, or discontinuance of individual stations; but in every instance these are excluded when determining comparisons with the previous year, only those stations that were identical during both years being taken into consideration.

These comparisons for the various route groups are as follows:

	PER CENT GAIN OR LOSS FOR 1944 COUNT AS COMPARED WITH 1943	
	Sunday	Monday
All Routes	- 4.47	- 1.56
Main North and South Routes	- 3.59	+ 0.05
Interstate Connections	-13.18	-12.94
Laterals between Inland and Coast	- 8.27	- 4.89
Recreational Routes	- 7.12	- 1.19

The gain or loss of traffic volume for State Highway Routes 1 to 80 inclusive, which constitute the basis for the foregoing summary, is shown in the following tabulation:

Route	Termini	1944			
		Per cent gain or loss		Monday	
		Sunday	Loss	Gain	Loss
1. Sausalito-Oregon Line		4.66		1.66	
2. Mexico Line-San Francisco		5.97	2.76		
3. Sacramento-Oregon Line		0.99		6.79	
4. Los Angeles-Sacramento				0.18	
5. Santa Cruz-Jc. Rt. 65 near Mokelumne Hill		5.63	5.29		
6. Napa-Sacramento via Winters		4.38		0.11	
7. Crockett-Red Bluff		1.63	2.79		
8. Ignacio-Cordelia via Napa		8.83		9.36	
9. Rt. 2 near Montalvo-San Bernardino		9.98		8.01	
10. Rt. 2 at San Lucas-Sequoia National Park		11.99		3.98	
11. Rt. 75 near Antioch-Nevada Line via Placerville			6.89		11.38
12. San Diego-El Centro		10.25		0.37	
13. Rt. 4 at Salida-Rt. 23 at Sonora Jc.		18.69		25.97	
14. Albany-Martinez		15.61		14.16	
15. Rt. 1 near Calpella-Rt. 37 near Cisco		8.89		17.88	
16. Hopland-Lakeport		6.04	12.56		
17. Rt. 3 at Roseville-Rt. 15, Nevada City		5.25		21.13	
18. Rt. 4 at Merced-Yosemite National Park		1.42		17.08	
19. Rt. 2 at Fullerton-Rt. 26 at Beaumont		15.35		6.84	
20. Rt. 1 near Arcata-Rt. 83 at Park Boundary		10.09		0.74	
21. Rt. 3 near Richvale-Rt. 29 near Chilcoot via Quincy		19.86		27.94	
22. Rt. 56, Castroville-Rt. 29 via Hollister		14.10		32.35	
23. Rt. 4 at Tunnel Sta.-Rt. 11, Alpine Jc.		19.63		8.39	
24. Rt. 4 near Lodi-Nevada State Line		7.00	1.76		
25. Rt. 37 at Colfax-Rt. 83 near Sattley		10.86		7.40	
26. Los Angeles-Mexico via San Bernardino		10.64		8.69	
27. El Centro-Yuma		6.12		14.42	
28. Redding-Nevada Line via Alturas		0.66		7.21	
29. Peanut-Nevada Line near Purdy's		20.02	0.92		
31. Colton-Nevada State Line		18.69		7.74	
32. Rt. 56, Watsonville-Rt. 4 near Califa		2.68		5.98	
33. Rt. 56 near Cambria-Rt. 4 near Famoso		14.72		6.80	

Route	Termini	Sunday		Monday	
		Gain	Loss	Gain	Loss
34. Rt. 4 at Galt-Rt. 23 at Pickett's Jc.		11.59		10.88	
35. Rt. 1 at Alton-Rt. 20 at Douglas City		3.38			0.75
37. Auburn-Truckee			2.27		20.65
38. Rt. 11 at Mays-Nevada Line via Truckee River		15.08		18.49	
39. Rt. 38 at Tahoe City-Nevada State Line		25.46		38.08	
40. Rt. 13 near Montezuma-Rt. 76 at Benton		19.79		26.90	
41. Rt. 5 near Tracy-Kings River Canyon via Fresno		5.70		3.40	
42. Redwood Park-Los Gatos		20.83		8.48	
43. Rt. 60 at Newport Beach-Rt. 31 near Victorville			8.16		1.07
44. Boulder Creek-Redwood Park			5.62	33.44	
45. Rt. 7, Willows-Rt. 3 near Biggs		7.86			7.14
46. Rt. 1 near Klamath-Rt. 3 near Cray		0.51			0.64
47. Rt. 7, Orland-Rt. 29 near Morgan			4.58		2.62
48. Rt. 1 N. of Cloverdale-Rt. 56 near Albion		17.74		9.48	
49. Napa-Rt. 15 near Sweet Hollow Summit			4.69		3.30
50. Sacramento-Rt. 15 near Wilbur Springs			2.70	0.11	
51. Rt. 8 at Schellville-Sebastopol		0.88			1.71
52. Alto-Tiburon		14.44			14.50
53. Rt. 7 at Fairfield-Rt. 4 near Lodi via Rio Vista		8.56		10.37	
54. Rt. 11 at Perkins-Rt. 65 at Central House			25.64		24.04
55. Rt. 5 near Glenwood-San Francisco			4.31		15.15
56. Rt. 2 at Las Cruces-Rt. 1 near Fernbridge			13.64		7.72
57. Rt. 2 near Santa Maria-Rt. 23 near Freeman via Bakersfield			9.60		13.35
58. Rt. 2 near Santa Margarita-Arizona Line near Topock via Mojave and Barstow			1.18		4.44
59. Rt. 4 at Gorman-Rt. 43 at Lake Arrowhead			6.69	5.04	
60. Rt. 2 at Serra-Rt. 2 at El Rio			1.92		5.54
61. Rt. 4 S. of Glendale-Rt. 59 near Phelan			11.05		9.45
62. Rt. 171 at Northam-Rt. 61 near Crystal Lake			2.12	0.08	
63. Big Pine-Nevada State Line		21.90		46.09	
64. Rt. 2 at San Juan Capistrano-Blythe			25.43		30.10
65. Rt. 18 near Mariposa-Auburn		2.64		10.28	
66. Rt. 5 near Mossdale-Rt. 13 near Oakdale			13.07		3.05
67. Pajaro River-Rt. 2 near San Benito River Bridge			14.15	1.01	
68. San Jose-San Francisco			15.54		7.75
69. Rt. 5 at Warm Springs-Rt. 1, San Rafael			10.47		7.54
70. Ukiah-Talmage		6.61			9.42
71. Crescent City-Oregon Line		2.84			0.38
72. Weed-Oregon Line			29.91		33.72
73. Rt. 29 near Johnstonville-Oregon Line		0.52		16.65	
74. Napa Wye-Cordelia via Vallejo and Benicia			18.83		20.01
75. Oakland-Jc. Rt. 65 at Altaville			3.87		8.45
76. Rt. 125 at Shaw Ave.-Nevada State Line near Benton		8.53		4.65	
77. San Diego-Los Angeles via Pomona			7.52	0.40	
78. Rt. 12 near Descanso-Rt. 19 near March Field			12.71		7.56
79. Rt. 2, Ventura-Rt. 4 at Castaic			4.86	3.68	
80. Rt. 51, Rincon Creek-Rt. 2 near Zaca		2.87			10.92

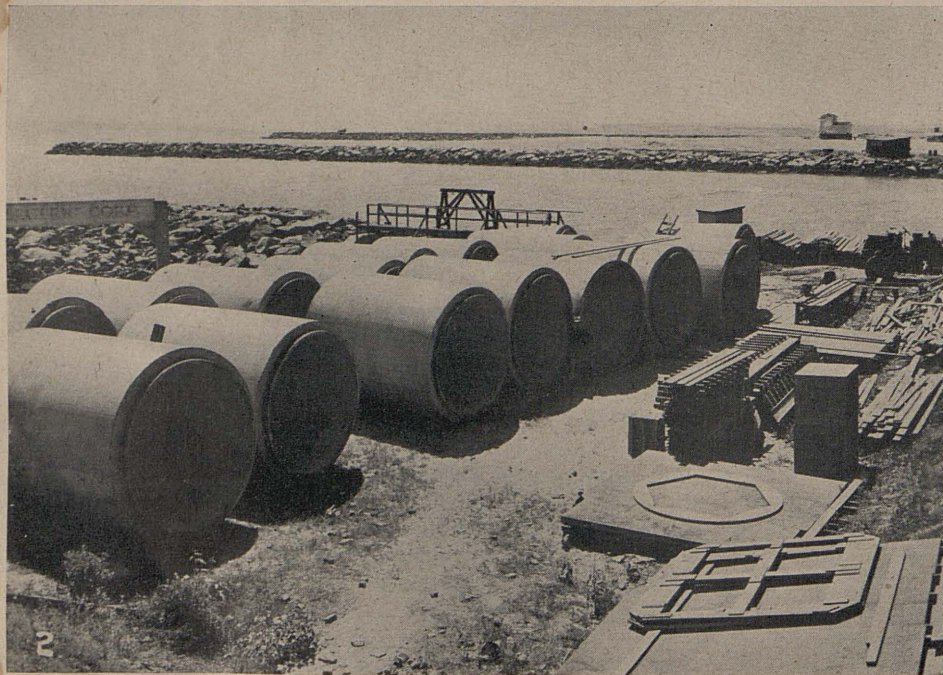
Alamitos Bay and Ocean Park Project Undertaken by State and County Agencies

IMPROVEMENT of Alamitos Bay and Ocean Beach in Los Angeles County, a cooperative project financed by the State Park Commission from funds appropriated by the 1941 Legislature, in the amount of \$100,000, and by contributions from the County of Los Angeles and City of Long Beach in the amounts of \$65,000 each, making a total of \$230,000, is under way. The Department of Public Works, Division of Water Resources, is the construction agency. The purpose of the project is to replenish sand on the ocean beach in the vicinity of Alamitos Bay, deepen the bay and dredge a new entrance channel to provide an initial unit for a yacht harbor.

The project is one of three parts of a larger cooperative undertaking to assist the war effort by increasing the production of electric energy at the Seal Beach steam electric plant of the Department of Water and Power of the City of Los Angeles.

CHANNEL CLOSED

The present entrance channel to Alamitos Bay connects with the San Gabriel River through its right bank at a point approximately one-eighth of a mile upstream from the river's mouth.



The steam electric plant is located on the left bank of the San Gabriel River slightly downstream from the entrance channel and secures its cooling water from the river through an intake at the upstream end of the plant.

Difficulty in securing adequate amounts of cooling water has been experienced due to silting up of the river channel by flood waters and by tidal action. A considerable amount of maintenance is required to maintain adequate depths at the present cooling water inlet. For this reason, it was decided to close off the existing entrance channel to the bay, dredge a new channel parallel to and immediately west of the river channel and install a cooling water intake structure with an inlet in Alamitos Bay, where it would not be affected by the debris carried by the river when in flood.

The Los Angeles County Flood Control District's project consists of construction of a levee between the existing right bank jetty of the San Gabriel River and the existing levee approximately 800 feet upstream, which will result in closing the present entrance to Alamitos Bay from the San Gabriel River.

The project under construction by the Department of Public Works includes the building of an 800-foot rock jetty, dredging of Alamitos Bay and new entrance channel paralleling the San Gabriel River on the west side, the moving of two houses from the new

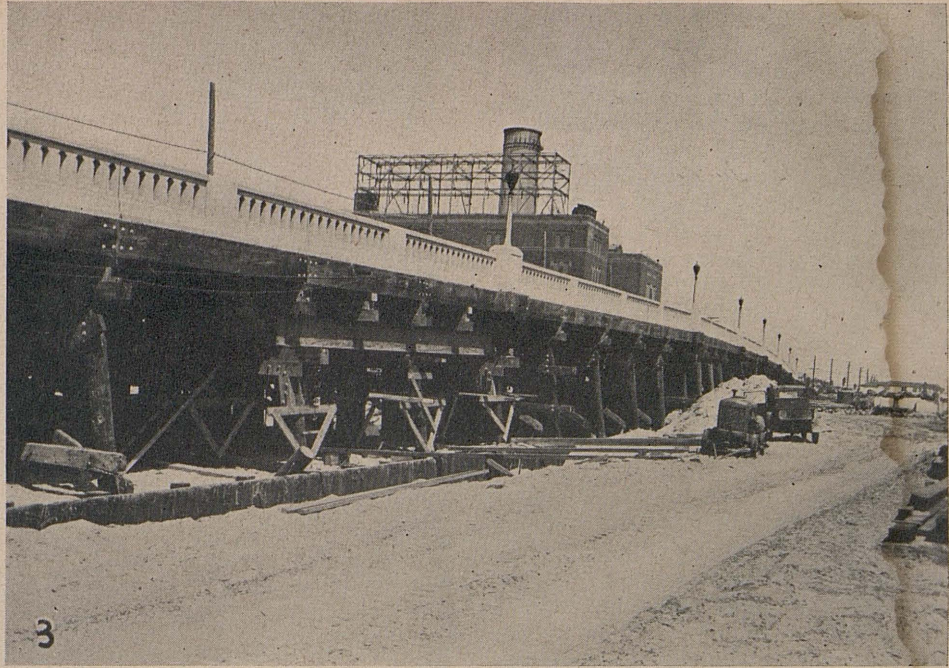
entrance channel, the removal of one bent in the Ocean Avenue Bridge and other miscellaneous work.

The Department of Water and Power's project consists of construction of a new intake structure for cooling water for the steam plant, with the inlet end located in Alamitos Bay. The new structure consists of a twin 84-inch pipeline under the San Gabriel River and an inlet structure in Alamitos Bay.

The accompanying pictures show how the project is progressing.

Picture No. 1—West side of Alamitos Bay jetty. The view is southerly from Ocean Beach. The jetty was constructed between January 19th and April 18, 1944. The rock used was hauled by truck from Riverside.

Picture No. 2—Shows 12-foot sections of 84-inch precast reinforced concrete pipe ready to be laid under the San Gabriel River to supply cooling water from Alamitos Bay to the Seal Beach Power Plant of the Los Angeles Water and Power Department. The pipe was temporarily stored on the east bank of the river awaiting delivery to the cofferdam, 400 feet up stream, where it will be finally placed in two parallel lines in a pile-supported concrete cradle. Each section of pipe weighs approximately 21 tons. The view is southwesterly from south side of Ocean Boulevard, showing jetty under this contract in extreme background. The area lying between the visible jetties will form the new en-



trance to Alamitos Bay. The excavation of an entrance channel through this area is a part of the Shannahan Brothers contract.

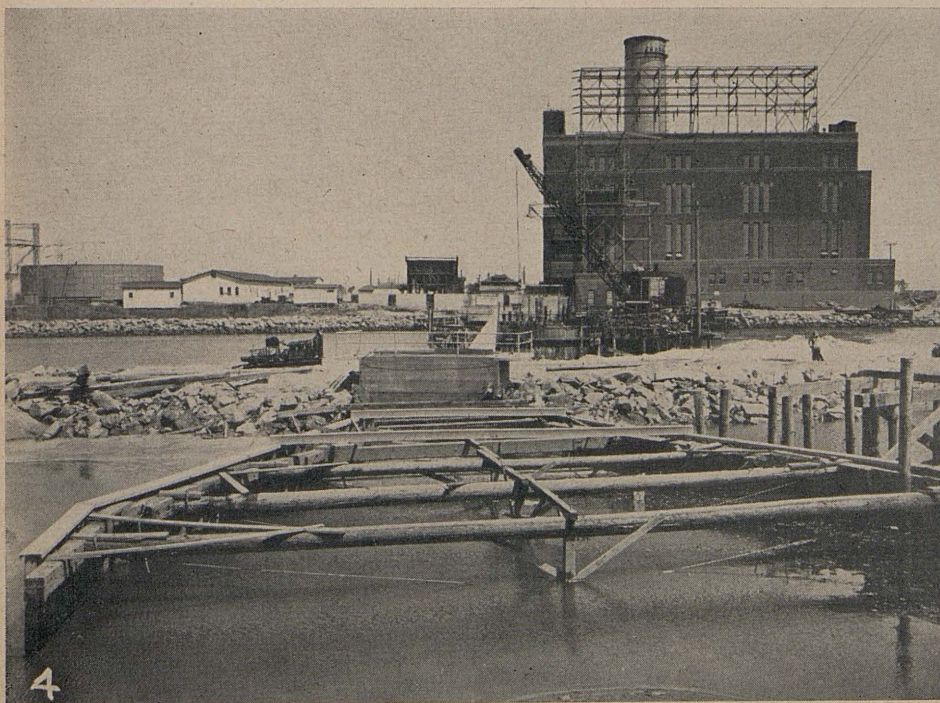
Picture No. 3—Ocean Avenue Bridge showing 27½-inch steel girders installed on new caps on bents 8 and 10. The piles of bent No. 9 had not been removed when this photograph was taken and were being temporarily utilized as stalls until all permanent shims have been placed and angles installed and bolted. The purpose of

enlarging this span was to give a larger waterway for yachts and to allow sufficient room for moving a dredger in and out of the bay.

Picture No. 4—Entrance structure to cooling pipe tunnels under San Gabriel River. The central portion of the structure is in course of construction within caisson. The steam operated crane on the construction trestle is placing concrete grillage. Seal Beach power plant in background. Partially constructed levee of the Los Angeles County Flood Control District enveloping concrete stop log chamber is shown across the center portion of the picture. The view is easterly from Alamitos Bay side.

Picture No. 5—View southwesterly from a point near east end of Ocean Avenue Bridge, showing successively from foreground: The mouth of San Gabriel River, west jetty of San Gabriel River, area through which new entrance channel to Alamitos Bay will be dredged, and new jetty in background. In the area to be dredged between the two jetties may be seen the accretion of sand and also the borrow pit from which approximately 19,000 cubic yards have been removed and delivered to Ocean Beach near Granada Avenue.

Picture No. 6—View southwesterly from Ocean Avenue Bridge. Guy F. Atkinson Company is placing concrete in caisson for grillage in middle section of concrete pipe cooling water tunnels being constructed under the San Gabriel River. In the mid picture



over caisson may be seen the existing entrance to Alamitos Bay. This entrance will be closed upon completion of the contract between the Los Angeles County Flood Control and Shannahan Brothers, Inc., shortly after the completion of a new entrance channel connecting the bay directly with the Pacific Ocean. This latter work is now under contract with the Department of Public Works, Division of Water Resources, and Shannahan Brothers, Inc.

BIDS CALLED

Bids for the three parts of the project were called for at the same time on November 23, 1944, by the Department of Water and Power, the Los Angeles County Flood Control District and the Department of Public Works; and a contract was awarded by the Department of Water and Power to Guy F. Atkinson Company, while Shannahan Bros., Inc., were awarded contracts by the Los Angeles County Flood Control District and the Department of Public Works.

Construction on the contracts of the Department of Water and Power and the Department of Public Works was started during December, 1943, but heavy storms and flood waters of the San Gabriel River in February and March, 1944, caused delay in prosecuting the work. Construction on the Los Angeles County Flood Control District contract was started in April, 1944. The Department of Public Works contract was approximately 70



per cent completed on September 1, 1944.

The rock jetty has been practically completed, bridge alterations made, houses moved and dredging operations have been started.

Guy F. Atkinson Company, contractor for the Department of Water and Power has completed approximately two-thirds of the intake structure. Shannahan Bros., Inc., contractor for the Los Angeles County Flood Control District has completed the levee con-

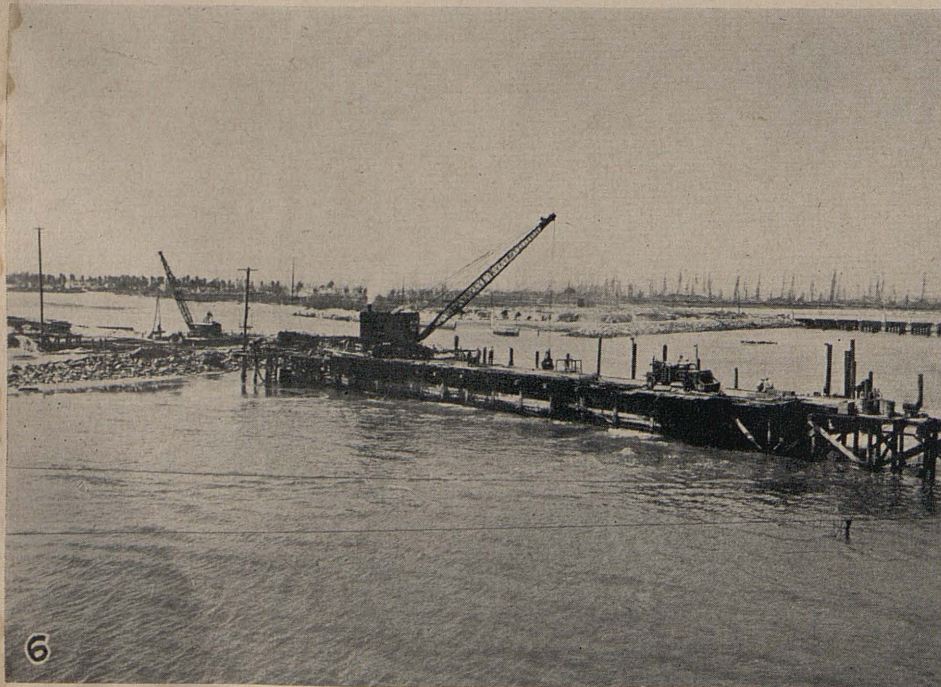
struction from Ocean Boulevard Bridge to a point immediately upstream from the intake structure inlet. The remaining section of levee which will close off the present entrance channel to Alamitos Bay will be constructed upon completion of dredging of the new entrance channel.

HIGHWAY TRANSPORT MUST FIND JOBS FOR 8 MILLION

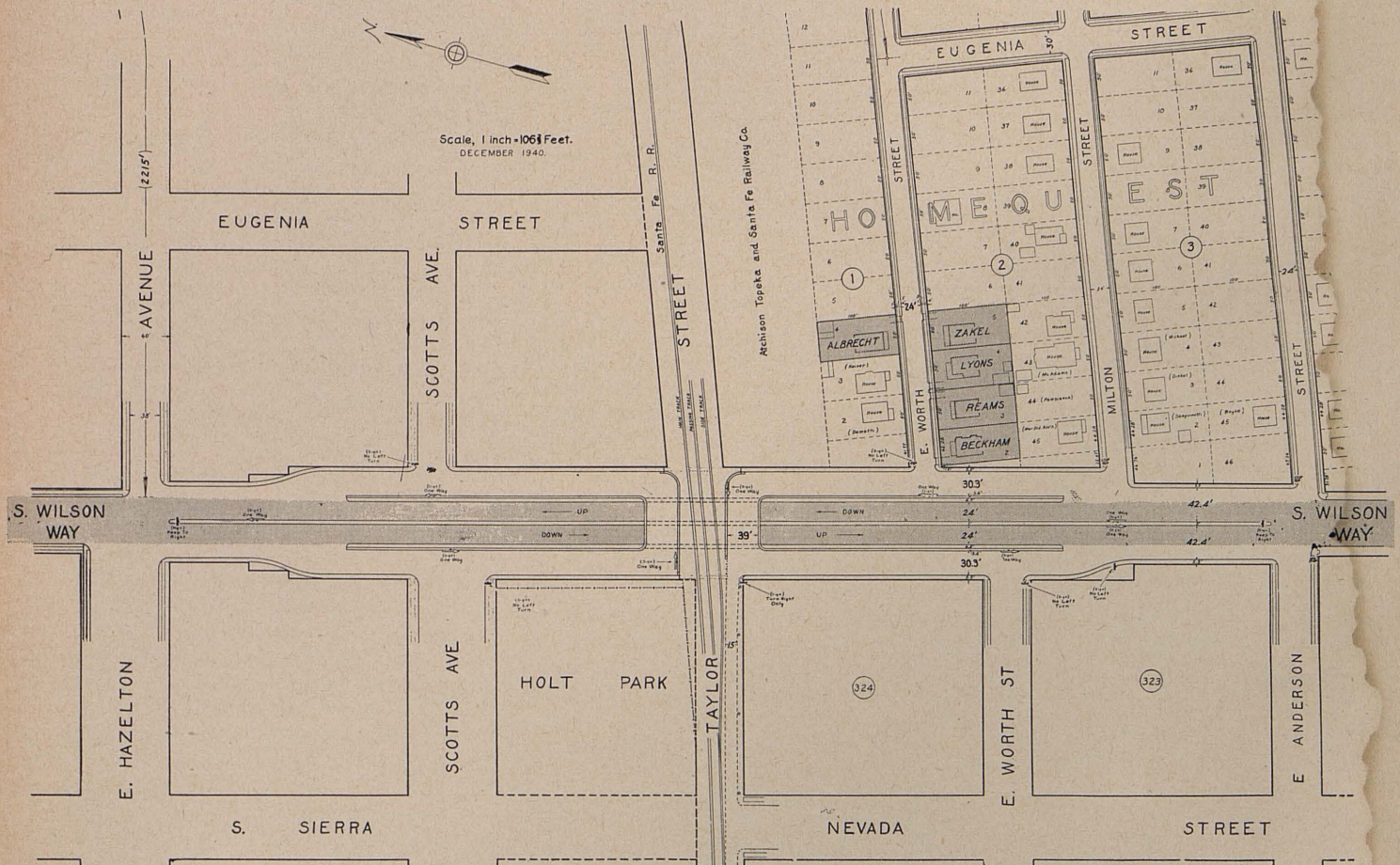
To hold up its end in meeting postwar employment demands, highway transportation alone will have to provide about one million more jobs than it has ever done before, according to studies of the American Road Builders' Association, announced by Charles M. Upham, Engineer-Director.

"Such an increase would swell employment in highway transportation to approximately eight million workers," Upham pointed out.

"Prior to the war, highway transportation, which includes automotive and accessory production, employment in garages, salesrooms, filling stations, bus and truck drivers and highway construction and maintenance workers, totaled approximately seven million, or about one-seventh of all people gainfully employed. Authorities are in general agreement that the postwar labor force will total approximately 56 million and that jobs must be found for from nine to ten million more workers than were employed before the war."



Position of State Respecting Public Rights in Highways Is Sustained by Appellate Court in Stockton Subway Case



The Supreme Court of California, on July 20, 1944, refused to grant a hearing in the case of *Beckham et al. vs. City of Stockton and State of California, Department of Public Works*. As a result, the decision of the District Court of Appeal, Third Appellate District (64 A.C.A. 591), favoring the State, is now final.

The facts in this important litigation are shown by the map above, reproduced from an exhibit introduced at the trial in the Superior Court of San Joaquin County. The shaded parcels of land indicated on the map are the properties of the plaintiffs which abut upon East Worth Street in Stockton. The subway which caused the alleged damage to their right of access was built in Wilson Way. Presiding Justice Annette Abbot Adams, in her opinion, said that plaintiff property owners' situation resolved itself into "mere circuity and inconvenience of travel after reaching Wilson Way" which, it was held, constituted "no grounds for recovery of damages."

The judgment of the superior court allowing damages was reversed.

The case was tried and the appeal conducted by attorneys for the Department of Public Works.

State Builds Military Roads in Napa and Solano Counties

(Continued from page 9)

sonnel employed on Mare Island has increased over prewar figures from 800 per cent to 1,000 per cent and still more workers are being constantly solicited. It is impossible to house all of these workers in the immediate area and the Navy has as a result instituted a fleet of some 357 Navy buses for the sole purpose of transporting employees

to and from this area from Alameda and Contra Costa counties, San Francisco, Marin, Sonoma, and Sacramento counties. This system of buses has created problems in itself in the breakdown of the main traveled highways and streets traversed by the local commute buses of the area.

Access projects of the nature herein

discussed are always subordinate to the main construction effort of the military establishments, which with their higher priorities for labor, materials and equipment, tend to increase the difficulties of accomplishment on our subordinate projects. Entirely aside from the primary war construction activity of the Arsenal and the Navy Yard, there

(Continued on page 21)

New \$5,000,000 Aliso Street Viaduct Heralds Era of Freeway Construction

WITH FEDERAL, State, county, city and transportation officials participating, colorful ceremonies dedicating the new \$5,000,000 Aliso Street Viaduct and the Ramona Freeway across the Los Angeles River were held in Los Angeles on August 15.

Using a pair of five-foot shears, Mayor Fletcher Bowron clipped a rope of asters stretched across the overhead structure, thus opening the viaduct for traffic.

"Acting not merely on behalf of the City of Los Angeles, but of all people who will cross and recross this span for generations to come, I dedicate the Aliso Viaduct to the very greatest and highest use—the use of the American people," Mayor Bowron said, as he severed the flowered ribbon.

Harrison R. Baker of Pasadena, member of the California Highway Commission, represented Governor Earl Warren, whose wartime duties prevented his attendance.

"This great Aliso Street Bridge," Baker said, "is a monument to the foresight and skill of the engineers, the builders and the officials who conceived and constructed the project. It is also a fine monument to the ability of the various agencies involved, including the City of Los Angeles, the County of Los Angeles, the Federal Agencies, the State of California, and the railway companies, to cooperate together in the planning, the financing, and the construction necessary to bring this project to a successful completion.

"However this structure is more than a monument. It is a symbol of greater things to come in the future. This will be the major Eastern gateway to the center of Los Angeles. The Aliso Street Viaduct is the cornerstone of the two master freeways which will join together and enter the Civic Center and central business area at this point—the Santa Ana Parkway and the Ramona Parkway, the first unit of which has just been completed at a cost of \$1,208,000 and is being opened today. Thus this new bridge is a symbol of the great freeway system of the future for the Los Angeles metropolitan area.

Governor Warren Sends Greetings To Los Angeles

On the occasion of the dedication of the Aliso Street Viaduct, it is a pleasure to extend greetings and congratulations to the City of Los Angeles and to the County of Los Angeles.

This \$5,000,000 project is an excellent example of what cooperation between the State and local political subdivisions can accomplish in the development of our great California Highway System. The Arroyo Seco Parkway is another outstanding monument to this sort of cooperative effort. I think the State may be justifiably proud of its contribution of \$746,123 to this undertaking.

The Aliso Street grade separation is another long step forward in solving vehicular traffic congestion in the downtown area of Los Angeles. Over the viaduct will flow a huge volume of such traffic from the proposed Ramona Parkway and the Santa Ana and Hollywood Parkways, both of which are on the postwar program adopted by the California Highway Commission.

Recognizing the future needs for freeways in large metropolitan centers, the Highway Commission is giving much study to this type of highway development and the Aliso Street Viaduct is a component part of its planning in this direction.—
Earl Warren, Governor of California.

"Recent figures show that California has now become the third largest State in the Union in population. With this growth has come great congestion of population in our metropolitan areas with increasingly difficult problems of urban traffic conges-

tion. This problem is particularly acute in the Los Angeles Metropolitan area.

"The California Highway Commission has taken cognizance of this problem and has allocated a substantial portion of the postwar highway program to the Los Angeles area, with particular emphasis upon the construction of freeways on the State highway system in this section of the State. This means a definite start upon the program of the development of the much needed freeway system in the Los Angeles area.

"California has been built by men who have had faith, courage and vision—by men who have not made small plans. Let us hope that this bridge, which we are dedicating here today, will prove to be a symbol—a symbol of the future—a cornerstone of the freeway system ultimately to be built commensurate with the needs and the importance of the great Los Angeles metropolitan area.

"Included in the postwar program of the Highway Commission for this section are such vital freeway units as the extension of the Arroyo Seco-Harbor Parkway to Fifth Street and the central business district of Los Angeles, the initial unit of the Hollywood Parkway to serve the western portion of the city and the San Fernando Valley, and the building of the first stage of the Santa Ana Parkway from the Civic Center across the Aliso Street Bridge and through the congested East Side section."

The Aliso Viaduct, approximately 3,132 feet long, extends from the westerly approach, near Brooklyn Avenue, to the connection with Ramona Freeway at the old Mason Street Bridge. The concrete arch carries traffic across the Los Angeles River and a network of railroad tracks along both banks. Ground-breaking ceremonies for the project were held November 6, 1939, and work was started with \$2,718,000 in Federal WPA funds. The State contributed \$746,000 in highway funds and Los Angeles City, Los Angeles County, and the Santa Fe, Union Pacific, and Pacific Electric companies contributed the remainder.



Recently completed \$5,000,000 Aliso Street Viaduct across Los Angeles River in Los Angeles, showing connections with important freeways

CALIFORNIA MISSIONS

(Continued from page 6)

his wounds. Determined to teach the Indians a lesson, the soldiers killed a number of them with their muskets and for the first time the natives learned that the firearms of the strangers were deadly.

Father Serra continued his friendly overtures to the Indians. Meanwhile, Governor Portola and his expedition had failed in their quest of Monterey Bay and returned discouraged to San Diego on January 25, 1770, to find only 20 members of the mission force alive and food stores almost exhausted. He announced his intention of returning to Mexico with ships and men and abandoning California if the San Antonio with fresh supplies did not arrive by March 19th, the day of the feast of St. Joseph.

PRAYER ANSWERED

Father Serra was heartbroken and declared that he and Father Juan Crespi would remain alone to carry on their work. He prayed day and night for the arrival of the San Antonio. Providentially, on March 19, the day before Portola was to depart, the sail of a ship was sighted far out at sea. Although the vessel proceeded past the harbor and disappeared, Father Serra was overjoyed. Four days later the San Antonio put in, having been forced to turn back on her way to Monterey by a shortage of water. In this incident, Father Serra saw the hand of God.

Confidence was restored to Governor Portola and on April 16th a sea expedition including Father Serra started for Monterey and the following day Portola with a land force again set out in search of the northern bay.

In July, 1771, Father Serra sent Father Luis Jayme from Monterey to San Diego to assume charge of the mission. The latter with Father Francisco Dumetz and later, Father Vincent Fuster, carried on bravely but early in 1772, with the missionaries subsisting on a half pint of corn, 20 ounces of flour and a little milk daily, the situation appeared hopeless. Hearing of the plight of his colleagues, Father Serra in Monterey ordered provisions sent to them and on September 16, 1772, himself arrived at San Diego. Conditions improved and Father Serra in October set sail for Mexico to submit to the

viceroy and the College of San Fernando his plans for mission extension, returning to San Diego in March, 1774. He found the mission thriving and approved its removal to a new site about six miles up the valley of the San Diego River. He then continued on to Monterey.

MISSION PROSPERS

The new mission prospered and by 1775 had 97 Christian Indians enrolled. On October 3, 1775, Fathers Jayme and Fuster baptized 60 Indians. But that night, two of the converts left the mission, aroused the natives by telling them that all were to be baptized by force and 800 armed savages stormed the mission, killing Father Jayme, Jose Arroyo, the blacksmith, and Ursulino, the carpenter, looted the chapel and buildings and then set them afire.

Captain Rivera hastened to San Diego from Monterey with troops, and the ringleaders were seized and flogged over the protests of Father Fuster. Owing to strained relations between the missionaries and the military over this incident it was not until the arrival of Father Serra from Monterey in July, 1776, that actual rebuilding of the mission was started and it was not until 1780 that it was completed.

Now began an era of prosperity and fruitful work for the missionaries. In September, 1808, construction of a new church was launched. It was dedicated November 12, 1813, and its ruins stand today. In 1834, the mission was secularized and passed into the hands of a parish priest. From the date of its founding in 1769 to its secularization, 6,638 persons were baptized, 4,428 persons buried, and 1,106 couples married.

After its secularization, Mission San Diego de Alcalá fell upon evil days. In June, 1846, Governor Pio Pico of California sold it to Santiago Arguello for past services to the government. American troops were quartered there during the Mexican war and it was a military post until 1858. Thereafter, it was neglected and its walls began to crumble. In 1862, President Lincoln signed an executive order returning it to the Catholic Church. After 20 years of untiring efforts on the part of Albert

Mayrhofer of San Diego, the mission was restored to its original form in 1931 and now is open to the public as a museum and lasting monument to its founder, Junipero Serra.

Mission San Diego de Alcalá is 7 miles from Fifth and D Streets in San Diego. Leaving from that point by auto, the mission visitor will pass beautiful Balboa Park. The route is past Balboa Park out Park Boulevard, Adams Avenue and Ward Road direct to the mission.

Entering San Diego from the north, motorists using the main State Highway, Route 101, travel over the new Rose Canyon road to the outskirts of Old Town, turn left to Taylor street, then north on Taylor to Camino Del Rio, which leads direct to the mission. The route is along the course of the San Diego River through beautiful rolling country. The visitor may stop at Ramona's Marriage Place and Serra Museum at Old Fort Stockton before proceeding on Camino Del Rio.

Motorists from San Joaquin Valley points may take the Inland Route from Los Angeles, U. S. 395, direct to the mission. Arizona and Imperial Valley visitors will follow U. S. 395 route along El Cajon Avenue to Fairmont Avenue, north to Camino Del Rio and then west to Ward Road and the mission.

Mission bell guide posts along El Camino Real, the State highway, from San Diego to Sonoma direct visitors to all the missions. The first of these directional signs stands in front of Mission San Diego de Alcalá and bears the following inscription: "Erected by Mr. and Mrs. A. S. C. Forbes, in memory of Fray Luis Jayme, the first martyr of California. Fr. Jayme was massacred by the Indians November 4, 1775. The bell was blessed and christened 'Jayme' by Rev. J. C. Mesny."

Next—Mission San Luis Rey de Francia.

Two men look out through the selfsame bars; one sees the mud, the other the stars.—
Frederick Langbridge.

There is no greater obstacle in the way of success in life than trusting for something to turn up, instead of going to work and turning up something.

State Builds Military Roads in Napa and Solano Counties

(Continued from page 17)

has been continuous construction of new facilities within each of these important units which has had first call upon the commercial output of fill material, base material, and both asphalt and concrete paving materials at all times, although we have had a high degree of cooperation from both Army and Navy officials at all times, since both realized the importance of our work to their effort.

DEARTH OF MATERIALS

There is also a general dearth of high quality base materials, other than commercial, in this area which has resulted in commercial plants carrying the heaviest possible load seven days a week around the clock and still being unable to meet the tremendous demand placed upon them. This incidental but major construction particularly of the Naval Base has, in addition to the traffic difficulties of the bus commuting program, resulted in constant construction trucking over the highways and roads of the vicinity, greatly intensifying the maintenance problem. This has been difficult for the State but even more difficult for the local communities whose gas tax funds have not been augmented by other taxable income, except in very minor degree, due to the tremendous Government holdings of the vicinity. This factor has undoubtedly been recognized in the projects sponsored by the Army and Navy agencies as access projects and discussed herein.

The first project sponsored by the Army involved the relocation of the highway between Benicia and Cordelia. The original highway is located through a portion of the Benicia Arsenal grounds which had to be utilized for military installations. The Government acquired some 13 parcels and Solano County obtained five parcels of right of way on this project. The construction supervised by the district involved heavy two-lane grading and surfacing including two major concrete bridge structures. Since its completion the Arsenal has constructed under permit another major concrete structure utilized as an underpass by the Army in expanding its facilities. We have no record of its cost.

KNOWN and beloved in newspaper circles on both the Atlantic and Pacific coasts for almost half a century, John W. Howe, Editor of California Highways and Public Works magazine, the official publication of the State Department of Public Works, died on August 29th at Sutter Hospital in Sacramento after an illness of two months.

Born in New York City, September 19, 1876, Mr. Howe attended the public schools of New York and graduated with a B.S. degree in science from the College of the City of New York in 1897. He immediately entered newspaper work. He rose rapidly in his chosen profession. He became one of William Randolph Hearst's trusted executives and served as city editor of the New York Journal and the New York American.

In September, 1915, Mr. Howe was transferred to the Los Angeles Examiner and was automobile editor of that newspaper from September, 1915, to March, 1931.

On September 22, 1931, he was appointed secretary of the California Highway Commission by the late Governor James Rolph, Jr. He combined the work of editing California Highways and Public Works with his duties as Highway Commission secretary until December 15, 1934, when he was named Public Information Editor of the Department of Public Works.

It was during the years of Mr. Howe's editorship that the Public Works magazine became one of the outstanding publications of its kind in this country and at the outbreak of the present war was being mailed to governmental agencies, engineers, universities, and libra-

In Memoriam



John Wesley Howe

ries in almost every country in the world.

A lover of music, Mr. Howe was a member of and sang with Sacramento's famous McNeill Club and until his last illness was a member of the choir of the Pioneer Congregational Church.

He is survived by his widow, Mrs. Bertie Howe, his daughter, Mrs. Wayne Rapp of Sacramento, his son, Sergeant John Wesley Howe, Jr., U. S. Army, Santa Ana, California, and a sister, Miss Betty Howe.

BENICIA ARSENAL PROJECT

The second project was initiated by the Navy in improving a number of streets off the highway system, serving a large parking area constructed by the Navy, from plans prepared by the district, adjacent to a ferry approach to Mare Island.

The third project had been initiated by the Benicia Arsenal authorities in late 1940. It involved the four-lane construction of M Street in Benicia entering the Arsenal gates and the widening and reconstruction on partially revised location of the two-lane State highway from Benicia to US 40 at Vallejo. Through a misunderstanding the State was under the impression that the Government agents would acquire the rights of way on this important project as they had on the shorter project through the Arsenal, cited first

above. They had requested and been furnished with deed descriptions and preliminary appraisal data. Upon Federal approval of this project in late March, 1942, however, the Government announced that the State was to acquire all rights of way, which involved some 157 parcels, and at the same time expected almost immediate start of construction.

Through concentrated effort toward obtaining immediate rights of entry without condemnation, and through the cooperation of Judge O'Donnell of Solano County, we were enabled to take bids on this important project by May 13, 1942. The low bid appreciably exceeded the estimate and allotted funds. At the request of the Public Roads Administration and through the cooperation of the contractor and the San Francisco office of the Associ-

(Continued on page 23)

Access Defense Highway Construction in District XI

(Continued from page 3)

Through the cooperation of the Consolidated Vultee Aircraft Corporation and the Defense Plant Corporation, three pedestrian overpasses and one major vehicular overpass have been installed at no construction expense to the State or city. These structures and the major improvements to Pacific Highway have assisted greatly in relieving the congestion and in making it possible to handle the heavy increase in service which has been demanded of this highway.

HARBOR DRIVE WIDENED

Harbor Drive in San Diego, extending from Rosecrans Street, West of the Naval Training Station, to National City, is a new four lane divided highway with several major structures which has been located along the waterfront. It has already become a heavily traveled thoroughfare, serving many military and defense activities, and is now serving approximately 10,000 vehicles per day, which would otherwise be forced to use the overcrowded Pacific Highway.

Mission Valley-Rosecrans Highway in San Diego has provided a much needed modern east-west four lane, divided highway, connecting military and naval establishments with intersecting highways to the north and east, and also providing access to defense plants and housing projects.

A new, four lane divided highway extension in San Diego, leading to the east from Pacific Highway and connecting with Washington Street and with Douglass Street by means of a highway grade separation, is now under construction, and will provide needed access from the residential area to the defense activities along the waterfront.

OTHER PROJECTS

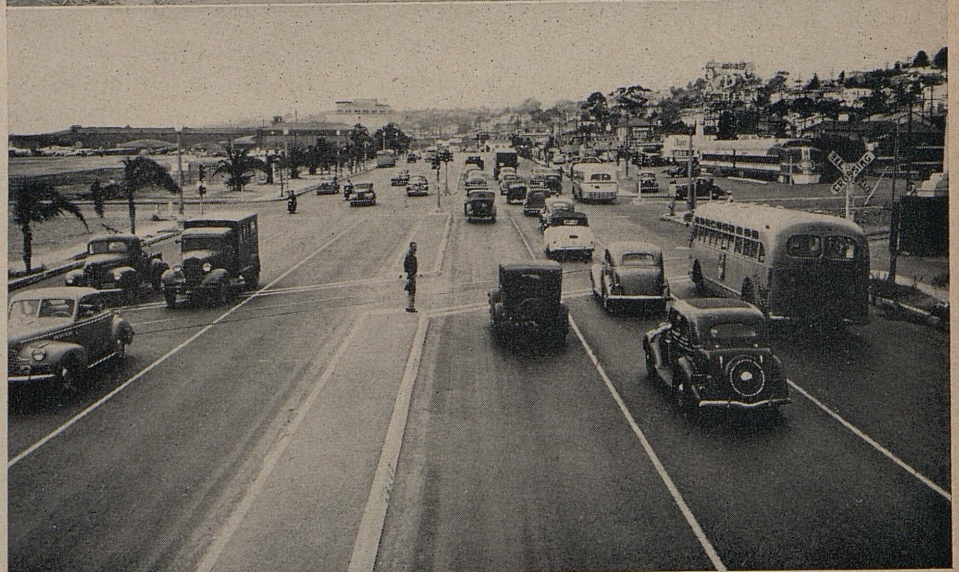
Connections have been built from existing State highways in the county to the large Marine training center at Camp Pendleton, and similarly to Camp Elliott and Camp Callan.

Access roads and a bridge have been provided for Camp Lockett.

Airports, training camps and calcite mines in Imperial County have also been served with new or reconstructed access roads.

Under Federal restrictions practically no new highway construction is permitted other than access defense

(Continued on page 28)



San Diego highway improvements. Upper—Harbor Drive South (U. S. 101) near Twenty-eighth Street. Center—Miramar Road Access improvement, near U. S. 101. Lower—New Pacific Highway in San Diego

State Builds Military Roads in Napa and Solano Counties

(Continued from page 21)

ated General Contractors, sand piles planned for a peat marsh section were eliminated for which the contractor reduced his grading unit prices and it was possible to finance and award the contract without delay.

PROBLEM SOLVED

March, 1942, was the end of a period in which our maintenance forces had been struggling, largely in vain, to maintain the important Sears Point State highway route between the Vallejo area and the Napa County boundary, a distance of some 11 miles. Similarly, difficulty was being experienced in maintaining the deck of the trestle approaches of the bascule bridge over the Napa River on this road. This problem had resulted from the constant stream of construction trucks entering Mare Island from both directions, but particularly from the Vallejo end on a 24-hour-a-day basis, this total varying from 4,000 to 8,000 trucks per day.

A conference was held with the Navy officials toward providing a solution for the problem, which resulted in the certification of the Sears Point road for its entire length within Solano County from the junction with US 40 to the Sonoma Creek bridge at the Napa County line. The section from Val-

lejo to the Mare Island entrance was an expedite matter and at the request of the Public Roads Administration, informal bids were taken upon plans rushed to immediate completion.

This contract called for paving of two lanes of concrete for the 2.25 miles involved, excluding the Napa River bridge which was to be made a separate contract. It was started in mid-June, 1942, but before completion, per instructions from the PRA, the contract was extended first 0.35 mile to a second entrance to Mare Island and was subsequently extended to the Sonoma Creek bridge, an additional distance of some seven miles. This latter section involved construction over the subsiding tide lands of the area on the existing two-lane road bed where a six-mile detour on adjacent levees on private property presented the major construction difficulty. We fortunately had splendid cooperation from the owners and the paving of this rush project was completed and it was opened to traffic in early January, 1943.

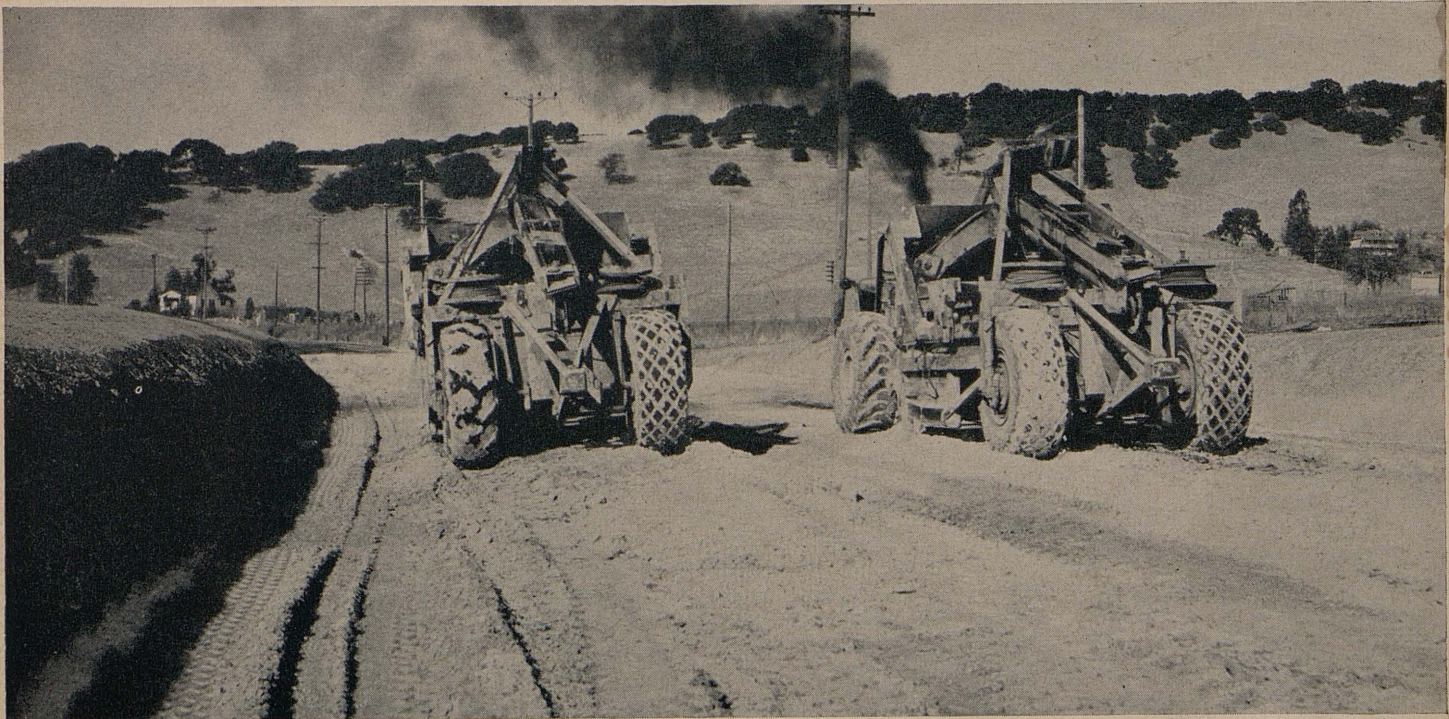
BRIDGE PROJECT

In the meantime, after rejecting first bids for the Napa River Bridge construction, a contract was awarded in

August, 1942, for the redecking of the 0.41 mile of the existing bridge. This required the construction of a temporary trestle approach on each end for maintaining traffic during the placing of a new concrete deck upon the trestle approaches of the bridge proper. The contractor and the Bridge Department ran into almost every conceivable difficulty and delay in obtaining materials, and in repairing the bridge which was damaged several times by river and highway traffic during this construction project.

The District and Bridge Department had rushed plans on the Sears Point road between Vallejo and US Route 40, which included a grade separation structure as a part of the road project at the junction of these two important highways, widening throughout, and revisions in existing alignment requiring acquisition of rights of way for the entire length of the project. Obtaining rights of entry were again resorted to, and we were able to get construction under way by May, 1943.

Due to the rapid deterioration of the streets of the vicinity and the approaching winter season, the Navy requested the certification in late 1942 of four sections of arterial streets. To expedite construction the district rushed



Carryalls engaged in grading on Vallejo-Napa highway between Napa Wye and Vallejo. Paving on this stretch is now nearing completion

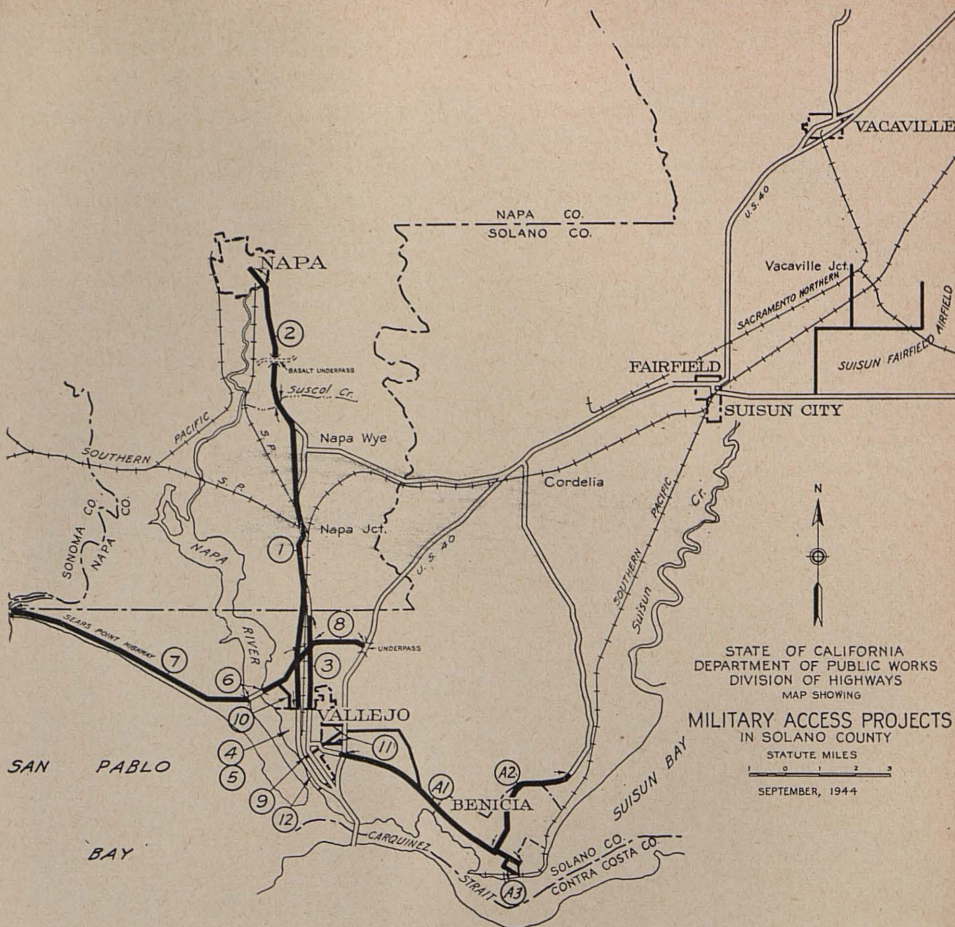
out plans for three contracts: (a) Sacramento Street, (b) Tennessee and Georgia streets, and (c) Solano Avenue, and was able to get the base placed before winter, completing the surfacing in the spring of 1943. The latter contract involved opening up a section of new street upon an existing right of way. All three contracts involved drainage, base and surfacing two lanes. The county subsequently widened to four lanes Georgia, Tennessee, and portions of Solano Avenue, contributing to the cost.

VALLEJO-NAPA PROJECT

The district had likewise been rushing plans for the most important project between Vallejo and Napa which had been certified in late 1942. This involved many attendant problems in connection with rights of way, particularly with the San Francisco and Napa Valley Railroad, which is the only railroad entering Mare Island proper and which parallels a highway route immediately adjacent to same for some three miles in Solano and Napa counties. Difficult problems were involved also in connection with the Southern Pacific depot and the San Francisco and Napa Valley Railroad depot at the Napa end of the project.

The Basalt Rock Company, desiring to construct an underpass, segregating its cross truck traffic from the quarry on the east side of the highway to its rail and water shipment facilities on the Napa River and also its shipyard located at this point on the Napa River, offered to pay the entire cost of constructing such an underpass in connection with this project. This involved a revision in the grade line of both the existing two-lane road and the two new lanes of concrete to be constructed as a part of the access project. Through a very high degree of cooperation by the Basalt Rock Company, the revision in grade was made, the Basalt Company assuming the full difference in cost of constructing the highway without the underpass and constructing the revised highway with the underpass. Furthermore, Basalt actually performed the construction work under State supervision of the underpass, and of the complete fill and drainage facilities up to the base of concrete for a 0.5 mile section of road. The aggregate cost of this work represented the total difference in cost, as cited above.

Unfortunately all the problems involved in these various arrangements



delayed the start of any work beyond that time when the Government appointed a Facility Review Committee with other attendant agencies which resulted in the delaying of advertising of any portion of this project until August 4, 1943, at which time bids were taken on the 9-mile section from Vallejo to Suscol Creek. On September 15, 1943, bids were received on the second section from Suscol Creek to Napa, Casson and Ball being the low bidders on both of these projects.

This combined major project from Vallejo to Napa consists of constructing two lanes of concrete pavement throughout. These two lanes are on a revised location, being one side of an ultimate four-lane divided highway from Vallejo to Collins, a distance of 3.7 miles. Similar construction is involved from Kelly Curve to Glass House Curve, a distance of two miles, along the general route followed by the San Francisco and Napa Valley Railroad, which section of railroad had been abandoned.

The remainder of the project consists of two lanes of concrete which with the existing two lanes adjacent thereto

form a four-lane divided highway, with the exception of the portion from Bell Avenue to Third Street in Napa, a distance of 0.8 mile, where a four-lane asphalt concrete city street section has been utilized.

SPLENDID COOPERATION

To provide for the Navy commuter buses on their local runs, the Navy requested major repairs to some 15 miles of both city streets and county roads and including $3\frac{3}{4}$ miles of existing State highway routes. This work was awarded in three contracts. A one-mile extension was later requested by the Navy and constructed as a part of this work.

The third Army project called for another entrance from Benicia to the Arsenal, where through cooperation between the Army officials, the contractor, and the State, we were enabled to grade a section of the Arsenal grounds and the highway jointly to the mutual benefit of the Army construction project and the access project.

The accompanying tabulation gives detailed pertinent information on the

several projects involved. They are listed in the approximate reverse order of the dates of completion.

No attempt has been made to show the official designation of the highways since it is felt that it would confuse rather than clarify.

District X is particularly grateful for the very splendid cooperation of close working relationship held with the Public Roads Administration at all times. It would have been impossible to prosecute this program, so essential to the war effort, without this understanding cooperative effort on the part of District 2 personnel of the San Francisco office. We received a very high degree of cooperation from the Army and Navy, the counties of Solano and Napa, and the cities of Vallejo, Benicia, and Napa, throughout, and were assisted in getting rush title re-

ports by the title companies of both Solano and Napa counties.

Resident engineers on the various projects were:

A. K. Nulty, on all Army projects and on the Mare Island Ferry approaches, Mare Island parking lot, Vallejo area arterial and city and county streets, for the Navy; R. E. Lapp, on Vallejo-Suscol Creek project, Routes 74 and 8, and through grading on Suscol Creek-Napa project, Route 8; J. E. Burke, Napa River Bridge project; Wayne Davey, representing the Bridge Department on all other major structures; and George Hubbard on all the remaining projects in the Solano-Napa Access program.

Young Wife—Aren't you the same man I gave some biscuits to last week?

Man (at door)—Oh, no, ma'am. The doctor says I'll never be the same again.

ABUSE OF ROAD FUNDS PREVENTED BY MAINE VOTE FOR AMENDMENT

An overwhelming "yes" vote at the State elections in September placed Maine fifteenth in the list of States which have adopted constitutional amendments preventing diversion of motor revenues to nonhighway purposes. The amendment, first approved by the State Legislature, was sponsored by the Maine Good Roads Federation, leading citizens, chambers of commerce, labor groups, motor clubs and other State groups.

In addition to Maine, these States have protected their highway funds; Minnesota, Kansas, Missouri, Colorado, California, Michigan, New Hampshire, Idaho, Nevada, North Dakota, South Dakota, Iowa, Oregon and West Virginia.

Project reference	Location	Contractor	Navy access projects, type of work	Length, miles	Engineering and construction cost	Number cases	Right of way cost	Date of completion
N 1	Route 74 and 8, Vallejo-Suscol Creek	Casson & Ball	Two additional lanes concrete	8.93	\$781,200	57	\$99,900	Oct., 1944
N 2	Route 8, Suscol Creek, Napa (In above section)	Casson & Ball, Basalt Rock Co.	Underpass and roadway adjacent	4.29 (inc.)	484,800	36	59,500	Oct., 1944
N 3	Bus routes off State highway	Lee J. Immal	Base, surface, shoulders	*3.26	*67,300			Sept., 1944
N 4	Bus routes on State highway	Lee J. Immal	Base, surface, shoulders	(1)3.19	(1)64,700			
N 4	Bus routes off State highway	Piazza & Huntley	Base, surface, shoulders	*4.12	*84,000			Aug., 1944
N 5	Bus routes off State highway	Piazza & Huntley	Base, surface, shoulders	.55	10,400			
N 6	Napa River Bridge	Piazza & Huntley	Base, surface, shoulders	*4.70	*85,600			July, 1944
N 7	Trewhitt-Shields & Fisher	Trewhitt-Shields & Fisher	Redeck bridge	0.41	289,200			May, 1944
N 8	Sears Point Highway	Heafey Moore Co.	Two lane concrete pavement	9.64	702,700	2	1,100	Feb., 1943
N 8	Sears Point Highway	Heafey Moore Co.	Two lane reconstruction and underpass	3.1	204,700	14	36,400	Jan., 1944
N 9	Vallejo Area Arterial, Solano Avenue	Chas. L. Harney	Base, surface, 4 new streets	*1.3	*73,600			May, 1943
N 10	Vallejo Area Arterial, Sacramento Street	E. A. Forde	Base, surface, 4 new streets	*1.5	*56,600			May, 1943
N 11	Vallejo Area Arterial, Georgia Street	A. G. Raisch	Base, surface, 4 new streets	*1.06	*67,900			May, 1943
N 12	Mare Island Ferry Approaches	E. A. Forde	Base, surface, 4 new streets	*0.7	*22,000			July, 1942
N 12	Mare Island Parking Lot	Navy Yard	Base, surface, 4 new streets		*22,300			May, 1941
	Vallejo Area Arterial, city streets and county roads		Base, surface, 4 new streets		x18,000			
	Totals on State Highway Systems			30.11	\$2,595,700	109	\$196,900	
	Totals off State Highway System			*16.64	497,300			
	Grand totals Navy Access Projects			46.75	\$3,093,000			

Project reference	Location	Contractor	Army access projects, type of work	Length, miles	Engineering and construction cost	Number cases	Right of way cost	Date of completion
A 1	Benicia Arsenal—Vallejo	Tyler & Parish	Revise location 2 lanes A. C.	*0.42	*\$40,000	157	\$66,000	Apr., 1943
A 2	Through Benicia Arsenal	Tyler & Parish	Relocation Grade and surface	5.78	576,900	18	Acquired by Solano County and Federal Government	Apr., 1943
A 3	5th-4th Street Benicia Arsenal	Tyler & Parish	New road into Arsenal	3.94	322,800			Mar., 1943
	Totals on State Highway Systems			1.1	*63,000			
	Totals off State Highway Systems			9.72	\$899,700	157	\$66,000	
	Grand totals Army Access Projects			*1.52	*103,000			
				11.24	\$1,002,700			

Summary	Miles	Construction cost	Right of way		Total cost
			Parcels	Cost	
State Highway ¹	39.83	\$3,495,400	266	\$262,900	\$3,758,300
Off State Highway	18.16	600,300			600,300
Grand totals	57.99	\$4,095,700	266	\$262,900	\$4,358,600

NOTES:

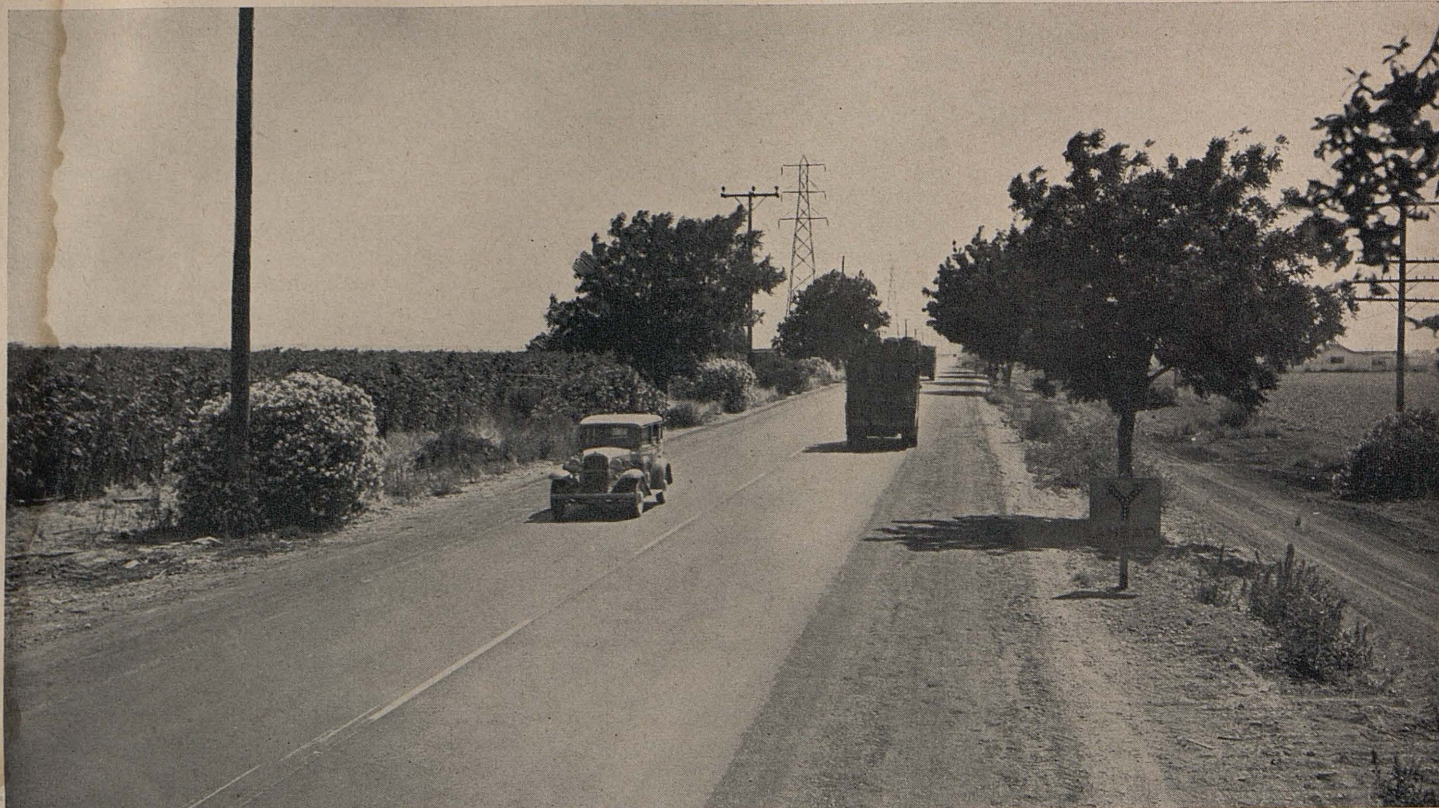
Work on State Highway System unless otherwise shown.

* Work on roads and streets off the State Highway System.

¹ 2.8 miles on present State Highway System to be relinquished to county on final acceptance of (1).

x Includes contribution of \$5,000 Solano County funds for supplemental improvement and repair Solano, Georgia, and Tennessee streets.

Summer Highway Repair Program Nearly Complete



THE California Highway Commission last spring allocated \$4,000,000 for a state-wide highway repair program for the 1944 season. As of October 1st, all scheduled projects, largely consisting of surface repair contracts and including a number of bridge repair jobs, were under way or completed. This photograph shows resurfacing work on U. S. 50 between Tracy and Banta Road in San Joaquin County, which is typical of the summer program in many counties.

Monterey-Castroville-Prunedale Project Provides Modern Highway

(Continued from page 12)

under another contract. During the time this bridge was out, military traffic only used the Southern Pacific Railroad bridge, which had been planked to accommodate vehicular traffic.

TEMBLADERO SLOUGH BRIDGE

(7) This structure consists of a 5-span reinforced concrete slab bridge on concrete pile bents. The overall length is 95 feet with a clear roadway width of 26 feet.

The contract was awarded to Dan Caputo on March 18, 1942, and accepted September 28, 1942.

CASTROVILLE TO ROUTE 2 NEAR PRUNEDALE

(8) This contract was awarded March 13, 1942, to Harms Brothers

and accepted on January 11, 1943. The work consisted of grading and surfacing 22 feet wide with 3 inches of plant mixed surfacing on a 6-inch crusher run base. Shoulders, gutters and dikes were bituminous surface treated and a seal coat with screenings was placed on the plant mixed surfacing.

The largest item of construction in this project was roadway excavation, which amounted to nearly 100,000 cubic yards per mile. There were several locations where unstable ground was encountered, the worst of them being at Moro Cojo near the Castroville end of the project. The unstable material was removed and replaced with sand and the embankment overloaded to accelerate settlement.

CASTROVILLE OVERHEAD OVER SOUTHERN PACIFIC RAILROAD

(9) Immediately east of Castroville, the new highway crosses over the main coast line of the Southern Pacific Railroad Company. The contract for the highway overhead was awarded March 31, 1942, to Kiss Crane Company and accepted December 3, 1942.

The structure is a reinforced concrete girder bridge consisting of 5 spans, totaling 196 feet in length and has a clear roadway width of 26 feet. It eliminates a crossing at grade on the old highway.

Resident Engineer G. W. Thompson supervised the bridge projects, and the road contracts were handled by Resident Engineers J. C. Adams, F. C. Weigel and V. E. Pearson.

Highway Bids and Contract Awards for August and September 1944

August 1944

ALAMEDA COUNTY—In the vicinity of Gilman Street, about 0.5 mile to be graded and paved with asphalt concrete pavement on crusher run base. District IV, Route 69. Independent Construction Co., Ltd., Oakland, \$81,288; A. A. Tieslau & Son, Berkeley, \$82,235. Contract awarded to Lee J. Immel, Berkeley, \$75,042.

ALAMEDA AND CONTRA COSTA COUNTIES—Between El Cerrito Hill Overhead and Richmond, portions only about 1.0 mile, to be repaired with plant-mixed surfacing. District IV. A. J. Raisch, San Jose, \$23,911; Independent Construction Co., Ltd., Oakland, \$27,860. Contract awarded to Lee J. Immel, Berkeley, \$22,368.

CONTRA COSTA COUNTY—Between Alameda-Contra Costa County line and San Pablo Avenue, about 0.9 mile to be resurfaced with asphalt concrete. District IV, Route 69. Lee J. Immel, Berkeley, \$25,606; Independent Construction Co., Ltd., Oakland, \$29,202. Contract awarded to A. J. Raisch, San Jose, \$24,937.

DEL NORTE COUNTY—Between Route 71 near Smith River and 0.4 mile northwesterly of Little Mill Creek, about 0.5 mile in length to be graded, imported base material to be furnished and placed, and a double prime coat to be applied. District I, Route 81, Section A. J. L. Conner & Sons, Eureka, \$38,658. Contract awarded to John Burman and Sons, Eureka, \$34,846.

HUMBOLDT COUNTY—At Dyerville, about 0.1 mile heavy stone riprap, wire and rock mattress and permeable pile jetties to be constructed. District I, Route 1, Sections C.D. Fred J. Maurer & Son, San Francisco, \$67,465; Kiss Crane Co., San Pablo, \$69,350. Contract awarded to Scheumann & Johnson, Seattle, \$41,100.

KERN AND LOS ANGELES COUNTIES—Between Antelope School and State Route 58, existing surfacing to be repaired with roadmix surfacing for 16.1 miles. District IX. Contract awarded to Phoenix Construction Co., Bakersfield, \$13,258.

KERN COUNTY—Between 2 miles west of Wasco and 4.7 miles west of Famoso, about 3.8 miles to be repaired with plant-mixed material and seal coat. District VI, Route 33, Section D. Union Paving Co., San Francisco, \$37,105. Contract awarded to Griffith Co., Los Angeles, \$35,595.

LOS ANGELES COUNTY—On Ridge Route about 1 mile northerly of Frenchmans Flat, a concrete lined channel to be repaired with Class "E" Portland cement concrete. District VII, Route 4, Section I. Norman I. Fadel, North Hollywood, \$28,798; Modern Builders Construction Co., Inc., Long Beach, \$28,929; F. E. Stearman, Glendale, \$33,370; C. B. Tuttle, Long Beach, \$34,583; Oberg Bros., Inglewood, \$43,458; P. G. K. Construction Co., Los Angeles, \$49,209; Ralph A. Bell, San Marino, \$51,800. Contract awarded to Mitty Bros. Construction, Los Angeles, \$25,168.

LOS ANGELES COUNTY—In the city of Los Angeles on Lakewood-Rosemead Blvd. at Anaheim-Telegraph Road, existing traffic signal detectors to be moved laterally and raised to level of new pavement. District VII, Route 168, Section B. Econolite Corp., Los Angeles, \$625. California Electrical Works, Ltd., San Diego, \$660. Contract awarded to C. D. Draucker Co., Los Angeles, \$555.

LOS ANGELES COUNTY—On Ramona Freeway from State Street to Marengo Street, chain link fence to be constructed. District VII, Route 26. Cyclone Fence Division, American Steel & Wire Co. of N. J., Glendale, \$2,371; Pacific Fence Co., Los Angeles, \$2,585. Contract awarded to Alcorn Fence Co., Los Angeles, \$2,337.

LOS ANGELES COUNTY—At Atlantic and Bandini Boulevards, about 0.4 mile to be graded and widened with Portland cement

concrete and plant-mixed surfacing. District VII, Route 167. Olympic Contracting Co., Los Angeles, \$20,009. Contract awarded to Vido Kovacevich, South Gate, \$19,076.

LOS ANGELES COUNTY—Between Solamint and Agua Dulce Canyon Road and between Newhall and Saugus, portions about 0.6 mile in length, rail and wire bank protection fences to be placed and sacked concrete riprap to be constructed. District VII, Routes 23 and 79, Sections BCD. Oberg Bros., Inglewood, \$39,875; Frank T. Hickey, Inc., Los Angeles, \$49,900; Mitty Bros. Construction Co., Los Angeles, \$49,950; Norman I. Fadel, North Hollywood, \$53,350; C. B. Tuttle, Long Beach, \$55,150; Ralph A. Bell, San Marino, \$58,775; Modern Builders Construction Co., Inc., Long Beach, \$60,149. Contract awarded to Bonadiman McCain, Inc., Los Angeles, \$32,313.

MODOC COUNTY—Furnishing and stockpiling plant-mixed surfacing about 16 miles northeast of Adin. District II, Route 28, Section A. Contract awarded to McGilivray Construction Co., Sacramento, \$2,002.

MODOC COUNTY—Furnishing and stockpiling plant-mixed surfacing about 4 miles northeast of Adin. District II, Route 28, Section A. Contract awarded to E. B. Bishop, Orland, \$1,935.

NAPA COUNTY—Between Vallejo and Napa, a portion of highway to be repaired. District IV, Route 74, Section A. A. G. Raisch Co., San Francisco, \$6,916; C. M. Syar, Vallejo, \$6,928; Louis Biasotti & Son, San Francisco, \$6,979. Contract awarded to E. A. Forde, San Anselmo, \$6,745.

RIVERSIDE COUNTY—Near Shavers Summit, 5 bridges to be repaired. District XI, Route 64, Section B. Modern Builders Construction Co., Inc., Long Beach, \$9,468; F. E. Stearman, Glendale, \$10,713; E. G. Perham, Los Angeles, \$10,916. Contract awarded to C. B. Tuttle, Long Beach, \$9,449.

SACRAMENTO COUNTY—Near McClelland Field on E Street between 16th Street and 32d Street, about 2.0 miles to be graded and surfaced with crusher run base and armor coat. District III, McGilivray Construction Co., Sacramento, \$52,663; J. R. Reeves, Sacramento, \$55,780. Contract awarded to A. Teichert & Co., Sacramento, \$42,072.

SAN DIEGO COUNTY—Across Cottonwood Creek about 35 miles east of San Diego, a bridge to be repaired. District XI, Route 200, Section C. F. Fredenburg, Temple City, \$13,739; C. B. Tuttle, Long Beach, \$14,415; Modern Builders Construction Co., Inc., Long Beach, \$15,414; Ralph A. Bell, San Marino, \$20,841; The Contracting Engineers Co., Los Angeles, \$20,864. Contract awarded to E. G. Perham, Los Angeles, \$12,937.

TEHAMA COUNTY—Furnishing and stockpiling plant-mixed surfacing about 2 miles west of Mineral. District II, Route 29, Section B. Contract awarded to Mercer, Fraser Co., Eureka, \$2,837.

TEHAMA COUNTY—Furnishing and stockpiling plant-mixed surfacing about 5 miles east of Childs Meadows. District II, Route 29, Section C. Contract awarded to Lester L. Rice, Marysville, \$2,474.

VENTURA COUNTY—Across Santa Clara River at Saticey, the northerly trestle and truss spans of the existing bridge to be repaired. District VII, Route 9, Section A. C. B. Tuttle, Long Beach, \$67,497; Norman I. Fadel, North Hollywood, \$74,915; Oberg Bros., Inglewood, \$75,371; Dan Caputo, San Jose, \$75,940; J. E. Haddock, Ltd., Pasadena, \$78,169; Byerts & Dunn, Los Angeles, \$85,654; Ralph A. Bell, San Marino, \$89,101; Modern Builders Construction Co., Inc., Long Beach, \$92,934. Contract awarded to J. & B. Rocca, Stockton, \$64,424.

YOLO AND COLUSA COUNTIES—Between Knights Landing and Grimes, about 10.0 miles to be repaired with imported borrow material. District III, Route 88, Section A.A. Westbrook & Bing, Sacramento,

\$48,180; Phoenix Construction Co., Bakersfield, \$50,850; A. Teichert & Company, Sacramento, \$51,602; A. A. Tieslau & Son, Berkeley, \$54,284; Claude C. Wood, Lodi, \$54,587. Contract awarded to W. C. Railing, Redwood City, \$47,357.

SAN DIEGO COUNTY—Between San Ysidro and Chulu Vista, about 1.5 miles to be repaired with plant-mixed surfacing and a seal coat applied. District XI, Route 2, Section F. Griffith Co., Los Angeles, \$12,717; Daley Corp., San Diego, \$13,266; V. R. Dennis Construction Co., San Diego, \$13,641. Contract awarded to R. E. Hazard & Sons Contracting Co., San Diego, \$12,036.

SAN FRANCISCO-OAKLAND BAY BRIDGE—At Harbor Pier 26, the existing automatic sprinkler system to be revised and extended. Viking Automatic Sprinkler Co., San Francisco, \$1,500. Contract awarded to Grinnell Company of the Pacific, San Francisco, \$1,393.

SHASTA COUNTY—About 1.5 miles west of Burney, a reinforced concrete box culvert to be constructed. District II, Route 28, Section C. O'Connor Bros., Red Bluff, \$7,642; M. A. Jenkins, Sacramento, \$7,750; J. P. Brennan, Redding, \$9,981. Contract awarded to C. C. Gildersleeve, Willows, \$7,534.

VENTURA COUNTY—Between Fillmore and Piru Creek, about 2.9 miles, to be repaired with plant-mixed material. District VII, Route 79, Section C. Southwest Paving Co., Roscoe, \$17,737; Oswald Bros., Los Angeles, \$20,738; Griffith Co., Los Angeles, \$23,008. Contract awarded to Schroeder & Co., Roscoe, \$16,955.

September 1944

ALAMEDA COUNTY—Between San Francisco-Oakland Bay Bridge and Toll Plaza, about 0.6 mile to be repaired by surfacing with asphalt concrete (passenger lanes). District IV, Route 5. Lee J. Immel, Berkeley, \$23,927; Independent Construction Co. Ltd., Oakland, \$25,640; The Fay Improvement Co., San Francisco, \$26,980; A. J. Raisch, San Jose, \$30,965. Contract awarded to The Lowrie Paving Co., Inc., San Francisco, \$21,554.

ALAMEDA COUNTY—Between San Francisco-Oakland Bay Bridge and Toll Plaza, about 0.2 mile to be widened with Portland cement concrete pavement (truck lanes). District IV, Route 5. Independent Construction Co. Ltd., Oakland, \$16,031. Contract awarded to Lee J. Immel, Berkeley, \$13,678.

CONTRA COSTA COUNTY—In the City of Richmond on Garrard Boulevard between Barrett Avenue and Pennsylvania Avenue, about 0.4 mile to be graded, paved with asphalt concrete pavement on crusher run base and penetration treatment to be applied to shoulders. District IV. J. Henry Harris, Berkeley, \$46,932; Lee J. Immel, Berkeley, \$50,516; Independent Construction Co., Ltd., Oakland, \$51,514; Union Paving Co., San Francisco, \$53,032; Chas. L. Harney, San Francisco, \$53,946; A. J. Raisch, San Jose, \$64,169. Contract awarded to Macco Construction Co., Oakland, \$41,924.

KERN COUNTY—Between San Bernardino County line and 1.5 miles north of Inyokern, portions only, about 5.4 miles to be graded, blanketed with imported borrow and imported surfacing material, bituminous surface treatment to be applied and 2 reinforced concrete slab bridges on treated timber pile bents to be constructed. District IX, Route 145, Section A, C. Griffith Co., Los Angeles, \$143,020; Phoenix Construction Co., Bakersfield, \$145,482; D. A. Williams and Frontier Construction Co., Whittier, \$152,202; Vinnell Company, Alhambra, \$153,386; Mitty Bros. Construction Co., Los Angeles, \$160,369; Robert A. Parish, San Francisco, \$171,-

872. Contract awarded to Clyde W. Wood, Inc., Los Angeles, \$108,069.

LOS ANGELES COUNTY—In the City of Los Angeles on Woodley Avenue between the Southern Pacific Railroad and Sherman Way and on Saticoy Street between Sepulveda Boulevard and Valjean Avenue, about 2.3 miles, to be graded and surfaced with plant-mixed surfacing, asphalt concrete and Portland cement concrete. District VII. Schroeder & Co., Roscoe, \$66,015; Vido Kovacevich, South Gate, \$68,053; Oswald Bros., Los Angeles, \$74,198; Tomei Construction Co., Van Nuys, \$81,242. Contract awarded to Griffith Co., Los Angeles, \$64,343.

LASSEN COUNTY—Furnishing and stockpiling mineral aggregate between Termo and Madeline. District II, Route 73, Section F. McGillivray Construction Co., Sacramento, \$14,570. Contract awarded to Harms Bros., Sacramento, \$11,750.

VENTURA-LOS ANGELES COUNTIES—Across Arroyo Simi at Simi and across Castaic Creek near Castaic Junction and the culvert at Station 255+06, two bridges to be repaired and a culvert to be constructed. District VII, Routes 9, 4, 79. Sections C, A, B. C. B. Tuttle, Long Beach, \$20,150; Norman I. Eadel, North Hollywood, \$21,466; Modern Builders Construction Co., Inc., Long Beach, \$1,725,538. Contract awarded to F. Fredenburg, Temple City, \$18,603.

RIVERSIDE COUNTY—Between Beaumont and Banning at Station 18+76, constructing a reinforced concrete box culvert. District VIII, Route 26, Section B. Matich Bros., Elsinore, \$10,289; George Herz & Co., San Bernardino, \$9,412. Contract awarded to Egglestone & Root, San Bernardino, \$8,539.

SACRAMENTO COUNTY—Repairing a bridge on the State highway across the Sacramento River at Rio Vista. District X, Route 53, Section C. Jas. H. McFarland, San Francisco, \$3,454; C. C. Gildersleeve, Willows, \$4,720; Barton & Anderson, Oakland, \$4,132. Contract awarded to M. A. Jenkins, Sacramento, \$3,420.

SACRAMENTO COUNTY—Across the Sacramento River at Rio Vista, a portion of the existing bridge to be reconstructed. District X, Route 53, Section C. C. W. Caletti & Company, San Rafael, \$733,481; J. H. Pomeroy & Co., Inc., San Francisco, \$745,773; Earl W. Heple, San Jose, \$746,680; United Concrete Pipe Corp. and Ralph A. Bell, Los Angeles, \$747,375; W. A. Bechtel Co., San Francisco, \$755,127; A. Soda & Son, Oakland, \$764,984; George Pollock Co., Sacramento, \$772,472; Morrison Knudsen Co., Inc., Los Angeles, \$812,963. Contract awarded to Lord & Bishop & A. Teichert & Son, Inc., Sacramento, \$727,858.

SAN BERNARDINO AND RIVERSIDE COUNTIES—Between Redlands and Beaumont, about 9.4 miles, seal coat to be placed over the existing surfacing. District VIII, Route 2, Sections B, A. A. S. Hubbs, Colton, \$8,449; Matich Bros., Elsinore, \$7,675; Geo. Herz & Co., San Bernardino, \$8,392. Contract awarded to C. R. Herring Co., Los Angeles, \$7,190.

SAN DIEGO COUNTY—Between Palm Avenue and Coronado, about 4.7 miles, to be graded, paved with asphalt concrete and Portland cement concrete. District XI, Route 199, Section A. Coronado. Griffith Co., Los Angeles, \$247,153; R. E. Hazard & Sons Contracting Co., San Diego, \$274,798; V. R. Dennis Construction Co., San Diego, \$284,927; Ralph O. Dixon, Alhambra, \$300,387. Contract awarded to Basich Bros., Alhambra, \$234,229.

SAN DIEGO COUNTY—In the City of San Diego on Pacific Highway between Broadway and Torrey Pines Grade and on Rosecrans Street between Lytton Street and Canon Street, portions only, about 10.4 miles to be repaired by resurfacing with plant-mixed surfacing material, seal coat only to be applied to portions of existing pavement. District XI, Routes 2, 12. Basich Bros. Construction Co., Alhambra, \$60,802; R. E. Hazard & Sons

Ode To A Surveyor

Pity, Oh pity the man that's inside,
Who has to interpret your notes,
Who has to design, and map, and plot,
And mostly he needs the stuff you forgot,
And the corners you didn't get tied.

Pity, Oh pity the man that's inside,
For mind-reading isn't much fun
When the mind you must read is far,
far away,
And the time when it thunk is past
many a day,
And the notes hold no hint for a
guide.

Is the book nice and white, and the
dope in your head,
So the dope has the dope (and his
thoughts can't be read?)
Or didn't you know what stuff you
should get?
Was the weather too dry, or was it too
wet?
Or maybe it's hot, or maybe it's cold,
Or your help is too young or maybe
too old.

But don't you forget the draftsman
must guess
And a guess, I guess, can be quite a
mess.

The tea leaves are failing, the crystal
ball's cracked
With trying to find the things the
notes lacked.

Oh pity, Oh pity the man that's inside,
Who is just about fit to be tied.

—A. Nonimous Draffsmunn

Contracting Co., San Diego, \$60,922; J. E. Haddock, Ltd., Pasadena, \$65,072; Daley Corp., San Diego, \$66,178. Contract awarded to Griffith Co., Los Angeles, \$54,796.

SAN DIEGO COUNTY—Between I Street in Chula Vista and South Harbor Drive at 7th Street in National City, about 3.6 miles, to be graded and surfaced with plant-mixed surfacing. District XI. Griffith Co., Los Angeles, \$170,971; R. E. Hazard & Sons Contracting Co., San Diego, \$195,891; V. R. Dennis Construction Co., San Diego, \$201,261. Contract awarded to Basich Bros. Construction Co., Alhambra, \$158,310.

SAN FRANCISCO-OAKLAND BAY BRIDGE—Repairing struts TS4W and TS4E of Bent E4 of the East Bay Crossing. District IV. Bethlehem Steel Co., Alameda, \$18,614. Contract awarded to Columbia Steel Co., San Francisco, \$17,977.

SAN JOAQUIN COUNTY—Between 5 miles south of Stockton and 0.6 mile north of Lodi, four timber trestle bridges to be repaired. District X, Routes 4 and 5, Sections G, B. William E. Thomas Concrete Construction, Petaluma, \$28,153; Stockton Construction Co., Stockton, \$29,540; J. H. McFarland, San Francisco, \$32,449. Contract awarded to Dan Caputo, San Jose, \$26,319.

First Highway Tax Was in Scotland

WE can sometimes take lessons from the old-timers. Scotland had a road maintenance tax some 400 years ago. It may not have been the first of its kind, but it was at least almost four centuries older than our modern gasoline tax.

In the early sixteenth century, the Canongate was one of the first paved streets in Edinburgh. It was also the main street of the medieval Scottish capital. Soon after the paving of the Canongate was finished, James V of Scotland in 1535 issued a proclamation governing all traffic on the Canongate. The law applied equally to private and government-owned vehicles.

Empty carts and wagons using the Canongate were compelled to pay a tax of one halfpenny every time they traveled along the street. Loaded carts and other vehicles paid a tax of one penny to "repair and maintain the causeway."

The proclamation of the Stuart King might very well have been the first of its kind. It was certainly the first to levy taxes in proportion to the amount of wear and tear on a street or highway.

Access Defense Highway Construction in District XI

(Continued from page 22)

highways, however, the heavy demands of wartime conditions have placed unusually heavy traffic, both in volume and weight, on most of the State Highway System and this has resulted in rapid deterioration and failures in the roadway surfaces. To meet that condition temporarily, we have placed approximately 140 miles of light bituminous blankets on the sections most in need of repairs during the past two years.

The district is also engaged on a program of preparing plans for postwar highway projects in line with the policy of the State Highway Engineer to be prepared to do our part in the postwar era.

In connection with a program such as outlined above, entire cooperation of all of the remaining district employees is greatly appreciated. Many of them have worked overtime and outside their usual assignments in order to complete their work.

State of California
EARL WARREN, Governor

Department of Public Works

Headquarters: Public Works Building, Twelfth and N Streets, Sacramento

CHARLES H. PURCELL, Director of Public Works

A. H. HENDERSON, Assistant Director

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HOWARD C. WOOD, Acting Bridge Engineer, San Francisco-Oakland Bay, Carquinez, and Antioch Bridges

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G. H. JONES, Flood Control and Reclamation
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D. C. WILLETT, Supervising Structural Engineer
CARLETON PIERSON, Supervising Specification Writer
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W. H. ROCKINGHAM, Principal Mechanical and Electrical Engineer
C. E. BERG, Supervising Estimator of Building Construction

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