SEPTEMBER - OCTOBER
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CALIFORNIA
HIGHWAYS AND PUBLIC WORKS

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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San Francisco-Oakland Bay Bridge Able to Finance a Second Span and Carry All Costs of Both Structures

BY COMBINING outstanding bonds of the San Francisco-Oakland Bay Bridge with a new bond issue for a second similar bay crossing, the present bridge revenues could finance another parallel bridge estimated to cost $100,000,000 and carry its interest and bond redemption costs even if earnings did not increase in the future.

Director of Public Works C. H. Purcell has so declared, basing his assertion on known and anticipated future traffic on the San Francisco-Oakland Bay Bridge, which cost, with approaches, $79,600,000.

During the fiscal year ended February 28, 1947, revenues of the bay bridge amounted to $7,981,000. Expenses, inclusive of bond maturities, totaled $3,248,341, leaving $4,732,659 in excess of fixed charges.

BONDS OUTSTANDING

Bridge bonds now outstanding aggregate $42,215,000. On September 1, $1,090,000 worth of bonds matured and were paid off, and an additional $2,417,000 of bonds were called and redeemed out of excess money now on hand.

This will leave $38,708,000 worth of bonds to be retired.

All outstanding bonds are callable on March 1, 1950. If no second bridge were contemplated, the present span could become toll-free early in 1953.

Purcell said that if the California Toll Bridge Authority desired to do so, it could safely, under a new revenue bond issue, sell enough bonds in 1949 to retire outstanding bonds of the existing bridge in 1950 and also finance a second bay crossing of design and location similar to the present one.

TRAFFIC STATISTICS

During the fiscal year ended June 30, 1947, a total of 25,511,724 vehicles used the bay bridge. Of this number 827,482 toll-free vehicles operated by federal agencies made use of passes.

Steady stream of revenue on San Francisco-Oakland Bay Bridge

Vehicular revenues totaled $7,528,841.41 for that period.

For the fiscal year ended June 30, 1947, rail and bus passengers numbered 27,574,928 and revenues accruing to the bridge from this traffic amounted to $547,247.44.

Since the opening of the bridge on November 12, 1936, to June 30, 1947, the total number of vehicles using the span was 182,875,557 and revenues from this source amounted to $59,294,276.49.

During the same period, there were 229,652,810 rail and bus passengers. The revenue from this source aggregated $5,447,631.65.

NEW BOND ISSUE $131,600,000

Purcell said that assuming that financing a second bridge costing $100,000,000 should be undertaken in 1949, the amount required to purchase the present bonds would be about $25,000,000, which, with the $6,600,000 that was borrowed from state highway funds to construct approaches to the present bay bridge, would make the total amount of bonds which would have to be issued $131,600,000.

Depending on the interest rate on the new bond issue it would require approximately from 22 to 26 years for debt retirement. At the end of any one of these periods, both the existing and the second bay bridge would become toll-free without any financial assistance from the new span.

If additional traffic is induced by reason of expanded transbay transportation facilities, the period of time required to retire a new bond issue would be reduced accordingly.

The San Francisco-Oakland Bay Bridge was originally financed by the sale of revenue bonds in the total amount of $73,000,000 to the Reconstruction Finance Corporation. In addition, an allocation of $6,600,000 was granted from the State Highway Fund to be used for bridge approaches, subject to the requirement that after the redemption of all revenue bonds this amount would be refunded to the Highway Fund out of toll collections.

In 1939 a refinancing was effected and a new issue of 4 percent bonds, in principal amount of $71,000,000 was sold to a syndicate of investment houses. The specified redemption date of the last of these bonds was 1976. As of March 1, 1944, the California Toll Bridge Authority had outstanding $57,070,000 of these bonds subject to call and redemption as a whole on March 1, 1945.

On May 5, 1944, the California Toll Bridge Authority adopted a resolution authorizing the creation of an issue of not exceeding $60,000,000 principal amount of San Francisco-Oakland Bay Bridge Toll Bridge Revenue Bonds. On May 22, 1944, the authority, after due notice, sold $65,000,000 principal amount of the bonds, due September 1, 1962, at an average interest rate to maturity of 1.96613 percent, effecting a saving of $5,097,000 in interest cost.

California Highway Commission Adds

THE CALIFORNIA Highway Commission, at its August meeting in San Francisco, added 17 million dollars to its 1947-48 Fiscal Year construction program from a portion of the increased revenues created by the Collier-Burns Highway Act. This 17 million represents the total amount of new money available for construction, construction engineering, and right of way acquisition. The Collier-Burns Highway Act does not become fully operative insofar as all additional new funds are concerned until January 1, 1948.

Director of Public Works Charles H. Purcell, Chairman of the Commission, stated that the Commissioners, in selecting critical deficiency projects to be financed from funds provided by the last Legislature, had to take into consideration that construction costs have increased an average of 60 percent; that necessary right of way expenditures for the current fiscal year have risen 8 million dollars; and that there has been an increase of from 12 to 16 million in maintenance costs.

The previous budget for the Fiscal Year July 1, 1947, to June 30, 1948, approved by the Highway Commission on November 20, 1946, provided for 34 million for construction (including major and minor projects), construction engineering, and right of way; to this the Commission added 17 million dollars.

This 17 million dollars represents all of the new money made available by the Collier-Burns Highway Act for construction purposes for this fiscal year. Total projects authorized in the south county group are estimated to cost 27 million for construction, construction engineering, and right of way; and projects authorized in the north county group are estimated to cost 24 million. A number of these projects have been advertised and the balance will be placed under way by June 30, 1948.

The next budget of the Highway Commission for 1948-49 must be submitted to the Governor 30 days prior to the next budget session of the Legislature, which will convene on the first Monday of next March. Purcell said that the Division of Highways has and will have plans completed so that advertising for bids on projects in the 1948-49 Budget will, as authorized by law, begin on March 1st and the awarding of contracts will start on April 1st.

The construction projects in the budget from July 1, 1947, to June 30, 1948, are shown on the following tabulation:

County	Route	Description	Approximate mileage	Estimated cost, including engineering and right of way
Alameda	(US50)	Redwood Road, signals and channelization		45,000
Alameda	(SR17)	East Shore Freeway in Oakland, at Fruitvale Avenue, superstructure for grade separation		1,100,000
Fresno*	(US99)	South County Boundary to Selma, grade, pave, and structures	4.7	853,000
Fresno	(US99)	In Fresno, intersections of Broadway and Divisadero, H Street and Divisadero, H Street and Belmont, traffic signals		6,000
Glenn*	(SR45)	Sacramento River near Butte City, bridge superstructure		300,000
Humboldt	(SR96)	Klamath River at Weitchpec, bridge superstructure and approaches	0.6	435,000
Humboldt	State Park	Whittemore Grove State Park, South Fork of Eel River at Redway, bridge		63,000
Imperial	(US80)	Apache Wash and Sandy Ditch, redeck bridges		35,000
Imperial*	(US99)	Trifolium Canal to two miles north of Sandy Beach Road, grade, pave, and structures	15.2	587,000
Imperial	(US80)	Grays Well to State Line, redeck and widen twelve timber bridges		73,000
Imperial	(SR98)	New River and Greeson Wash, bridges and approaches	0.3	110,000
Inyo	(US6) (US395)	Alabama Gates Spillway to Manzanar, grade and surface	4.4	256,000
Inyo	(US6) (US395)	10.7 miles south of Olancha to 2 miles south of Olancha, drainage correction	8.7	19,000
Inyo	(SR127)	Near Shoshone, grade and surface	1.0	15,000
Kern	(US99)	In Bakersfield, intersection of Baker Street and Niles Street, traffic signals		2,500
Kern	(US466)	Keene to Tehachapi, bridge superstructures		475,000
Kern	(US466)	Walker Basin, redeck bridges		25,000
Kern	(US466)	Caliente Creek, redeck bridge		14,000
Kern	(SR178)	Main Drainage Canal, bridge and approaches		23,000
Kern	(US466)	Near Monolith, reconstruct railroad crossing	0.2	19,000
Kern	(SR65)	Poso Creek, extend, redeck, and repair bridge		17,000
Lake	(SR53)	Coyote Creek, bridge and approaches		96,000
Lake	(SR53)	Burns Valley Creek, bridge		12,000
Los Angeles*	(US101)	Alameda Street to Vermont Avenue (portions) structures and grading		3,000,000
Los Angeles	(US101)	Soto Street to Eastman Street, grade and pave	2.0	2,000,000
Los Angeles*	(US101)	Calabasas to 1.5 miles westerly, grade, pave, and structures	2.2	633,000
Los Angeles	(US101)	Whittier Boulevard and Durfee Road, traffic signals		16,000
Los Angeles	(US101)	Whittier Boulevard, Painter Avenue to Redman Avenue, traffic signals and channelization		45,000
Los Angeles	(US99)	Violin Saddle to Whitaker Summit, grade, pave, and structures	4.5	1,960,000
Los Angeles	(US66)	Intersections Falling Leaf Avenue and Buena Vista Avenue; Foothill Boulevard and Irwindale and Alosta Avenues; Alosta Avenue and Grand and Citrus Avenues, traffic signals		100,000
Los Angeles	(US66)	Alosta Avenue and Glendora Avenue, traffic signals		16,000
Los Angeles	(US66)	In Monrovia, Foothill Boulevard and Fifth and Myrtle Avenues, traffic signals		12,000
Los Angeles	(US60)	Garvey Avenue at Valley Boulevard, additional traffic signals and channelization		24,000

$17,000,000 to Construction Budget

County	Route	Description	Approximate mileage	Estimated cost, including engineering and right of way
Los Angeles	(SR138)	Sandy Creek, bridge		10,000
Los Angeles	(SR138)	Stony Wash, bridge		10,000
Los Angeles	(SR138)	Big Rock Wash, two bridges		40,000
Los Angeles	U≥101)	Lincoln Boulevard at Jefferson Boulevard, traffic signals		17,000
Los Angeles*	(SR2)	Angeles Crest Highway (portions), grade and surface (prison labor)		400,000
Los Angeles	77	Valley Boulevard, east city limits of San Gabriel to Garvey Avenue (except City of El Monte and Peck Road), traffic signals		65,000
Los Angeles	(SR7)	Sepulveda Boulevard and Jefferson Boulevard (North), traffic signals and channelization		39,000
Los Angeles	(SR7)	Sepulveda Boulevard and Jefferson Boulevard (South), traffic signals and channelization		39,000
Los Angeles	(SR7)	Sepulveda Boulevard and Centinela Avenue, traffic signals and channelization		34,000
Los Angeles	(SR107)	Hawthorne Boulevard, 167th Street to Imperial Highway, traffic signals and channelization		93,000
Los Angeles	(SR107)	Hawthorne Boulevard and Redondo Beach Boulevard, traffic signals		19,000
Los Angeles*	(US6)	Adobe Street to Fifth Street (portions), grade, pave, and structures	1.2	800,000
Los Angeles	(US6)	Figueroa Street and Carson Street, traffic signals and channelization		16,000
Los Angeles	(SR15)	Atlantic Avenue and Rosecrans Avenue, traffic signals and channelization		17,000
Los Angeles	(SR15)	Atlantic Avenue between Washington Street and Anaheim-Telegraph Road, traffic signals		13,000
Los Angeles	(SR19)	Lakewood Boulevard and Flower Street, traffic signals		17,000
Los Angeles	(SR19)	Rosemead Boulevard and Mission Drive, traffic signals and channelization		17,000
Los Angeles	(SR19)	Rosemead Boulevard and Las Tunas Drive, traffic signals and channelization		19,000
Los Angeles	(SR19)	Rosemead Boulevard and Huntington Drive, traffic signals and channelization		20,000
Los Angeles	(SR35)	Stafford Creek, bridge		10,000
Los Angeles	(SR26)	Olympic Boulevard between Lincoln Boulevard and Bundy Drive, grade and pave	2.3	1,521,000
Los Angeles	(SR26)	Olympic Boulevard, Indiana Street to Anaheim-Telegraph Road, traffic signals		40,000
Madera	(US99)	San Joaquin River to Arcola School grade and pave	7.2	1,340,000
Madera	(US99)	In Madera, intersections of 4th Street and 6th Street, traffic signals (State's share, portion City funds)		5,000
Marin	(US101)	At Greenbrae, traffic signals and channelization		50,000
Mendocino*	(US101)	Rock Creek, bridge and approaches	0.6	192,000
Mendocino	(SR28)	Rancheria Creek, redeck bridge		6,000
Mendocino*	(SR1)	Navarro River, bridge and approaches	0.7	439,000
Merced	(U≥99)	In Merced, traffic signals		7,000
Modoc*	(U≥395)	Route 28 to Oregon State Line (portions), grade and surface (prison labor)	7.8	275,000
Nevada	(SR49)	1.5 mile north of Rattlesnake Creek to Grass Valley, grade and surface	3.8	517,000
Nevada	(US40)	Kingvale & Donner Grades, grade & surf.	3.0	105,000 7(s)
Nevada	(US40)	Flycasters Curve, grade and surface	1.0	85,000
Orange	(US101)	In San Clemente, south city limits to Valencia Street, grade and pave	1.8	144,000
Orange	(US101)	In Anaheim, Los Angeles Street, traffic signals		46,000
Orange	(US101)	Spadra Road and Orangethrope, traffic signals		17,000
Orange	(SR55)	Newport Avenue and Harbor Boulevard, traffic signals		17,000
Orange	(SR55)	In Orange, Tustin Avenue and Chapman Avenue, traffic signals		17,000
Orange	(US101)	Corona Del Mar to Route 171, traffic signals		118,000
Orange	(US101)	Broadway Intersection in Sunset Beach, traffic signals		17,000
Orange	(SR39)	Stanton Avenue and Lincoln Avenue, traffic signals		21,000
Orange	(SR18)	In Anaheim, Center Street, traffic signals		12,000
Orange	(SR22)	Garden Grove Boulevard and Harbor Boulevard, traffic signals		17,000
Orange	183	Bolsa Avenue and Harbor Boulevard, traffic signals		17,000
Riverside	(US99)	Banning to White Water, redeck timber bridges		56,000
Riverside	(US60)	4 miles west of Blythe to State Line, grade, surface and structures	7.7	384,000
Riverside	(US60)	Deep Canyon Wash, redeck bridge		17,000
Riverside*—San Diego	(US395)	Escondido to 10 miles north of San Diego County Line (portions), grade and surface (prison labor)	6±	380,000
Riverside	(SR111)	Whitewater Point to 0.5 mile north of Palm Springs, grade, surface and structures	4.1	632,000
Sacramento	(US40)	North Sacramento Viaduct to 0.5 mile east of Ben Ali, lighting and landscaping		69,000
Sacramento	(US99)	Stockton Boulevard and 14th Avenue, widening and traffic signals		20,000
Sacramento	(SR24)	Three Mile Slough, bridge superstructure and approaches		672,000
San Bernardino*	(US60)	Los Angeles County Line to 6.0 mile east of Ontario, grade, pave and structures	5.8	1,064,000
San Bernardino	(US466) (US66)	Various locations, redeck timber bridges		56,000
San Bernardino	(U≥66)	In Upland, Junction Routes 9 and 192, traffic signals and channelization		26,000
San Bernardino*	207	City Creek to 0.7 mile east of Plunge Creek, grade, pave and structures	4.3	1,010,000
San Diego	(US101)	In Oceanside, 3rd and Hill Streets, traffic signals		13,000
San Diego	(US80)	In San Diego, Texas Street and Rolando Boulevard, traffic signals		25,000
San Diego*	(US395)	Escondido to County Line, surfacing	23.5	312,000
San Diego*—Riverside	(US395)	Escondido to 10 miles north of San Diego County Line (portions), grade and surface (prison labor)	6±	380,000
San Diego	(SR79)	Line change at mile 3.1 to mile 4.3, grade and surface	1.2	13,000

County	Route	Description	Approximate mileage	Estimated cost, including engineering and right of way
San Diego	(SR79)	Agua Caliente and Buena Vista Creek, bridge and approaches	0.2	100,000
San Diego	195	Colby Ranch to Rincon Store, grade and surface	0.5	30,000
San Diego	(SR78)	In El Cajon, Wright Street Creek, bridge		6,000
San Diego	(SR78)	San Felipe Creek (Sentenac), bridge and approaches	0.3	80,000
San Diego	(SR75)	National and Palm, Palm City, traffic signals		11,000
San Diego	(SR49)	In San Diego, Euclid and Federal, traffic signals		13,000
San Joaquin	(US99) (US50)	Junction Mariposa Road south of Stockton to Calaveras River, and Wilson Way to Route 4, grade and structures	8.5	2,093,000
San Joaquin	(US50)	San Joaquin River, bridge superstructure and approaches		550,000
San Joaquin	(US50)	In Tracy, traffic signals		7,000
San Luis Obispo	(US101)	Miles Station to March Street in San Luis Obispo, grade, pave and structures	6.3	1,990,000
San Mateo	(US101)	Junipero Serra connection, traffic signals and channelization		23,000
San Mateo	(US101)	Lomita Park, traffic signals		20,000
San Mateo	(SR1)	White House Creek, culvert		23,000
San Mateo	(SR1)	Gazos Creek, bridge		17,000
San Mateo*	(US101)	Bayshore Freeway, North City Limits of South San Francisco to 0.35 mile south of Colma Creek, grade, pave and structures	2.0	2,075,000
San Mateo	(US101)	Bayshore Freeway Colma Creek in South San Francisco to Broadway in Burlingame, superstructures, approaches and landscaping	5.1	1,606,000
San Mateo	(US101)	Willow Road, traffic signals and channelization		8,000
Santa Barbara*	(US101)	Park Place to Rancheria Street, Salsipuedes Overhead, superstructure and landscaping	2.3	816,000
Santa Barbara*	(US101)	Santa Ynez River to Jonata Park, structures		860,000
Santa Clara	(US101)	Sunnyvale, junction Route 114, traffic signals and channelization		130,000
Santa Clara	(US101)	Castro Street (Mountain View), traffic signals and channelization		85,000
Santa Clara	(US101)	San Antonio Road, traffic signals and channelization		45,000
Santa Clara	(US101)	Agnew Road, traffic signals and channelization		12,000
Santa Cruz*	(SR1)	Rob Roy to Morrissey Avenue in Santa Cruz, grade and structures	7.7	2,487,000
Shasta	(US99)	In Redding, Intersection Routes 3 and 20, channelization		7,000
Shasta	(SR44)	At Redding, Route 3 to 1.5 miles east of Sacramento River Bridge, superstructure and approaches	1.5	721,000
Shasta	(US299)	Tower House to Shilling, grade and surface	5.3	785,000
Siskiyou*	(US99)	Camp Lowe to Bailey Hill, grade	7.8	942,000
Solano*	(US40)	Vallejo Wye to north of junction of Route 208, grade, pave, and structures	5.4	1,900,000
Sonoma	(SR48)	Tolay Creek, redeck bridge		9,000
Sutter	(US99)	Live Oak Line change, grade and surface	1.7	214,000
Sutter—Yuba	(US99)	In Marysville and Yuba City, Feather River Bridge and approaches, landscaping, lighting, and signals		175,000
Sutter	(SR24)	Sutter Causeway, redeck bridge (portions)		20,000
Trinity*	(US299)	Willow Creek to White's Bar (portions), grade and surface (prison labor)	4	265,000
Tulare*	(US99)	0.5 mile south of County Line to County Line, grade and pave	0.5	88,000
Tuolumne*	(SR120)	Tuolumne River at Stevens Bar, bridge and approaches (portion County funds)	0.1	205,000
Ventura	(US101)	0.5 mile west of El Rio to Santa Clara River Bridge, grade, pave, and signals		300,000
Ventura	(US399)	In Ventura, resurface existing pavement		17,000
Yuba—Sutter	(US99)	In Marysville and Yuba City, Feather River Bridge and approaches, landscaping, lighting, and signals		175,000

Highway Links Aid Grand National Traffic

SPONSORS of the 1-A District Agricultural Association are eagerly studying recent construction plans for new San Francisco highway links to the projected Bayshore Freeway south of the city.

Their expectation is that the operations will facilitate traffic to San Francisco's Cow Palace and the annual Grand National Livestock Exposition, heralded as one of the country's "Big Six" premier livestock shows.

It is expected that the hundreds of motorists who will drive in to San Francisco from points north, east, south and west, expressly to see the Grand National this year from November 1 through November 9, will continue to beat their path over main state highways that are being readied for the event.

For, again this year, the Grand National will attract both city and country dwellers to its livestock, rodeo and horse show that is without parallel in the country.

Opening in the Cow Palace on November 1, the Grand National promises nine days of entertainment in addition to its entries of the continent's finest beef and dairy cattle, sheep and swine. There will be a national horse show with $25,000 prizes at stake; a rodeo of champions fighting it out for titles and almost $30,000 in purses and circus and tanbark acts.

The vast arena spectacle, which plays to an audience of some 12,000 at a time, is scheduled to take place thirteen times during the Exposition —every night at 8 and four afternoons, November 1, 2, 8 and 9 at 2 p.m.

Here is reason indeed for an autumnal trek westward over California highways to the Cow Palace and Exposition . . . reason too, for constant public interest in the State's great highway improvement program.

Colorful Ceremonies Mark Dedication Of New Four-Lane Marin-Sonoma Highway

CEREMONIES commemorating completion of the San Rafael-Novato-Petaluma sector of U. S. 101 in Marin and Sonoma Counties were staged by the Redwood Empire Association at Novato on Friday morning, August 22d.

Officials of the Department of Public Works, Division of Highways, California Highway Commission, boards of supervisors of Marin and Sonoma Counties, Golden Gate Bridge and Highway District, chambers of commerce of San Rafael, Novato, and Petaluma, mayors and city councilmen of Petaluma and San Rafael, the associated chambers of commerce of Marin and Sonoma Counties, the Marin County Junior Chamber of Commerce, federal officials and members of the State Legislature, participated in the colorful celebration.

Director of Public Works C. H. Purcell, who is Chairman of the Highway Commission, represented Governor Earl Warren, who was prevented from attending by other official business.

Director of Public Works C. H. Purcell starts flow of traffic over new Marin-Sonoma highway, while Patricia Allen, Patricia Ceresa, and Catherine De La Montanya look on approvingly

CONTROLLED ACCESS FREEWAY

The new project, a controlled access freeway to which was allocated $1,700,000 from California's post-war highway construction program, stretches from South Third Street in Petaluma, 12 miles southerly to Ignacio Wye. It makes full use of the previously constructed two-lane, 20-foot concrete highway which is now paralleled by the newly completed 23-foot wide Portland cement, concrete pavement. Each of these roads carries traffic in only one direction. They are separated by a landscaped, 39-foot safety dividing strip.

Several engineering difficulties required special attention before completion of this new facility. Special subgrade treatment was necessary on marsh land sections. Particular attention was given throughout the project's length to control of slope erosion by landscaping. Two major concrete reinforced girder bridges were required, one over Novato Creek and the other across San Antonio Creek. These bridges provide a 27-foot wide, clear roadway for traffic in one direction. They are supplemented by many minor drainage structures along the 12-mile section. Modern alignment provides high standard sight distance throughout, and full advantage is taken of scenic resources along the route.

CEREMONIES AT NOVATO

Much work such as right of way fencing, stock crossing, relocation of public utilities and numerous building setbacks on relocations were incidental to the contract.

Ultimately, a three-foot width pavement will be added to the high standard, 20-foot strip last improved in 1939.

An accelerated highway building program will make possible additional such projects in all sections of the State.

The dedicatory ceremonies were opened by George C. Hoberg of Lake County, President of the Redwood Empire Association, who introduced Marin Vice President Clifford Bartlett, who acted as master of ceremonies. Following the introduction of prominent guests, including Director Matt Graham, Golden Gate Bridge and Highway District; State Senator Thomas F. Keating of Marin County; Assemblyman Richard H. McCollister of Marin and Sonoma Counties; Supervisor Fred Bagshaw, Marin County; Supervisor George Kennedy, Sonoma County; Supervisor Pat McMurray of San Francisco; Mayor Robert Austin, San Rafael; Mayor Jasper S. Woodson, Petaluma; Harold Eckart, President Petaluma Chamber of Commerce; M. J. Lamperti, President San Rafael Chamber of Commerce; Richard Smiley, President Marin County Junior Chamber of Commerce; Ward Von Tillo, President Associated Chambers of Commerce of Sonoma; A. W. Bowman, President Novato Chamber of Commerce; C. N. Strawn, U. S. Forest Service; Col. Jno. H. Skeggs, District Highway Engineer, who supervised the project; members of the Highway

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Widening of U. S. 99 in Bakersfield To Six Lanes Will Reduce Traffic Accidents

By T. E. WHALEY, Associate Highway Engineer

THE MANY motorists who travel the Golden State Highway in the southern San Joaquin Valley can now enjoy the modern six-lane highway through the formerly congested portion passing through the City of Bakersfield.

Bakersfield, which has had a very rapid growth, is a well-known origin, destination, and stopping point for the large volume of traffic in this area.

The petroleum industry has for many years generated much commercial traffic in this area, but agriculture has in the last few years equaled or surpassed the oil industry with an attendant increase in the heavy commercial type of traffic.

The usual increase in commercial traffic, the large general state-wide gain in automobile traffic and the large increase in local city traffic, which must use or cross the Golden State Highway, produced a bottleneck of a serious nature. This was not only annoying to both the through motorist and the local motorist, but was the cause of many accidents.

HIGH ACCIDENT RATE

During the year 1941, there were 175 reported traffic accidents within the 1.9 mile length of this project. There were 98 accidents concentrated in a distance of four city blocks; 47 occurring at 18th Street, 26 at 19th Street and 25 at 21st Street.

As a result of the large increase in traffic load, especially heavy trucks and trailers, the old four-lane pavement was progressively failing to the point where maintenance was very expensive.

These three major factors, safety, lack of capacity, and structural fail-

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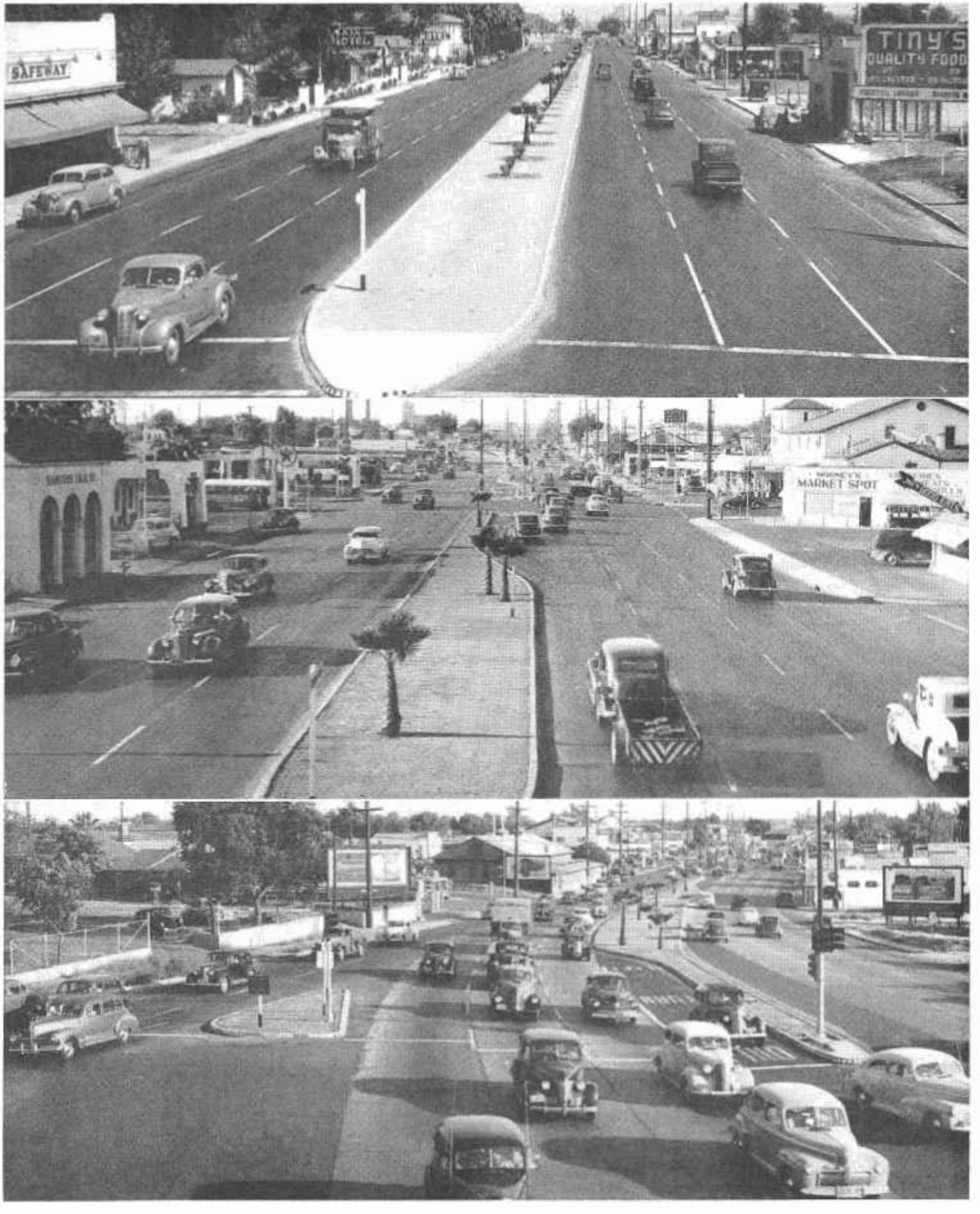
On opposite page—Upper—Looking northerly on Union Avenue from Eighth Street. Center—Looking northerly on Union Avenue from Eureka Street with 18th and 19th Street intersections. Lower—Looking southerly on Union Avenue from 21st Street

Looking northerly on Union Avenue from near Brundage Lane in Bakersfield



California Highways and Public Works (*September-October 1947*)

Highway Engineers Must Have Help of Motorists in Combating Accident Rate

On August 15th, last, Mr. L. H. Batman, publisher of "The Township Register," Niles, California, printed on the front page of his newspaper an open letter to State Highway Engineer George T. McCoy. He called attention to a fatal traffic accident which had occurred at the intersection of State Highway Routes 5 and 107—the Hayward-Mission San Jose and Niles Canyon roads—and in boldface type said: "Adequate warning devices must be installed at this dangerous intersection."

California Highways and Public Works, believing that Mr. McCoy's reply to Mr. Batman will be of interest to all newspaper publishers as well as to all motorists, prints it in full.—Ed.

September 5, 1947

MR. L. H. BATMAN, *Publisher*
The Township Register
Niles, California

DEAR MR. BATMAN: Your open letter to me, which appeared in the August 15 edition of your widely read *The Township Register,* charging that the Division of Highways has not installed adequate warning devices at the intersection of Highway 17 and the Niles Canyon Road has, of course, come to my personal attention.

Let us consider specifically the situation at the intersection of State Highway Routes 5 and 107 (Hayward-Mission San Jose and Niles Canyon Roads) which was the immediate occasion for your letter.

By the use of bold face capital type you emphasize the statement: "Adequate warning devices must be installed at this dangerous intersection." I have before me a detailed report of an investigation of this location which includes scale drawings and photographs of the area. These show that uniform "Stop" signs are in place on Route 107 and on the county road approaching from the west. Traffic stripes are in place and stop bars and the word "Stop" in large letters are painted on the pavement. Cross Road warning signs are in place in both directions on Route 5 in advance of the intersection and the intersection is lighted at night by two luminaries. There is good visibility distance in each direction on all legs. In view of these facts I am somewhat puzzled that the adequacy of the control devices installed at this intersection should be questioned, since they fully equal and indeed exceed recognized satisfactory control treatment for intersections of this type. Surely no one licensed to drive and exercising even the most rudimentary prudence could advance a claim that lack of adequate control devices caused him to become involved in an accident at this point.

This photograph, looking east from the west leg at intersection of Hayward-Mission San Jose and Niles Canyon Roads, shows "STOP" signs and "CROSS ROAD" warning signs. There is good visibility in each direction on all legs

DRIVERS AT FAULT

In the particular accident to which attention is drawn in your letter your own news account states (and this is fully confirmed by the record) that: "* * * the death car was coming at a very fast rate (the reports says 60 miles per hour) of speed out of Niles Canyon when it failed to stop and ran into the truck trailer." This was on a clear summer day shortly after 12 o'clock noon. Any tragic occurrence such as this is of course always greatly to be regretted, but there can be no escape from the hard fact that no preventive measures whatsoever can be effective which do not also include reasonable cooperative action on the part of the driver.

Setting aside this single accident as an isolated case, we have also reviewed the record of all other accidents which have been reported as occurring at this intersection since January 1, 1945. This study reveals no evidence that inadequacy of traffic control devices could be cited as having in any sense contributed materially to the 15 accidents reported.

In seven cases the drivers at fault admitted that they were frequent

users of the intersection and consequently they may be presumed to have been fully aware of the physical conditions. Three cases involved two drivers and one pedestrian who were either drunk or had been drinking.

THE HUMAN ELEMENT

In two cases, both in daylight, the drivers stopped at the "Stop" sign and then for some undetermined reason drove out into the intersection into the path of a passing vehicle.

In one case a northbound car, in daylight, on Route 5 (Hayward-Mission San Jose main highway) turned left directly in front of a southbound car on the same highway. The report in one case is not clear as to whether or not the driver observed the boulevard stop. He was injured and had no remembrance of what he did. His statement that he had never previously used the intersection is difficult to accept in view of the other data showing that he is a resident of Hayward and has had 21 years of driving experience.

In the only remaining case, which also involved disregard of boulevard stop, there is no evidence in the record to question the driver's statement that he had never before used the road. However, he holds a California driver's license and claims 19 years of driving experience. With no extenuating circumstances present such as inclement weather, mechanical defects, or outside distracting elements, there is no reason to believe that a driver so unobservant as he would have acted any differently no matter what control devices may have been present.

ENGINEERS DO THEIR BEST

We of the Division of Highways whose chore it is to design, construct, and maintain state highways throughout the State are perhaps more acutely and more constantly aware of the gravity of this problem than those of other groups. We frankly recognize that this division is charged with certain and important responsibilities in highway transportation activities. These we accept without question and endeavor to the full extent of our ability and authority to meet them honestly and intelligently. But to assume more or to permit ourselves to be presented as being responsible for things clearly beyond our power to control would be a distinct disservice to everyone.

It is the function of the highway engineer to provide and maintain—within the limits of the funds at his disposal—facilities which if properly used will assure the expeditious and safe movement of traffic. This is our constant objective. Save to the most limited degree there can be no positive physical guarantee against misuse. However, the engineer in common with all good workmen is deeply interested and concerned that the thing he fashions will in actual use function as it inherently can and would if intelligently used. To this end we endeavor, in addition to providing those elements which are basically essential, also to incorporate all reasonable features which will assist and induce proper action on the part of the ordinary user. Among students of the problem and among all thoughtful people, and based both upon factual records and general observation, it is accepted beyond question that the overwhelmingly preponderant majority of traffic accidents are the result of personal failure in some manner on the part of the vehicle driver, or of the pedestrian himself where a pedestrian is involved.

CARELESS USE OF ROADS

To cope with this condition there is not much the engineer can do beyond those things we have noted above. And that is not enough. And knowing that it is not enough we cannot be satisfied so long as we are daily made aware that the inherent value of these highways which are our particular concern is not only not being achieved but is constantly being destroyed, primarily by unthoughtful if not plainly careless use.

Realization of this fact is why I am most happy for the opportunity which your letter affords to call upon you for help in this our common problem.

The people of California through legislative processes provide for the issuance of individual operator's licenses. Such licenses are issued only after a demonstration of familiarity with the California Vehicle Code as well as a knowledge of devices used upon highways for controlling traffic. The operator's license is not only a permit to operate an automobile on California's highways, but it also entails an obligation that such operation shall conform to law, to the rules of the road, and to the obligations generally imposed upon citizens of the State. These conditions are equally true as regards the visitors from outside our boundaries, since signs, signals, markings, and rules of the road have now become in all essential features practically uniform throughout the country.

FACE-SAVING EXPLANATIONS

The records of the Department of Motor Vehicles show for the last calendar year (1946) that in 62,893 (roughly 90 percent) of the total of 70,087 accidents reported in which death or injury was involved, one or more of the drivers had violated provisions of the California Vehicle Code. And the fact that in the other 10 percent of the cases no violation was reported is by no means conclusive that none was committed.

We are too apt to accept irresponsible statements and inferences to the effect that these accidents are for the most part attributable to the so-called "accident prone" drivers who are repeatedly involved in trouble. This too ready agreement in such a face-saving explanation in which the great majority of us indulge is not only indefensible from the standpoint of fact but is in itself one of the most serious contributory reasons for the existing deplorable accident situation. While it is doubtless true that there are here and there scattered instances of drivers who have been involved in two or three, or in very rare cases even more than three, accidents within a comparatively short space of time, the total of all of these is but a tiny fraction of the thousands of accidents which yearly occur on our streets and highways. The cold blunt fact of the matter is that this scandalous yearly total of traffic accidents is made up of single occurrences involving John Jones, who in all likelihood has never had an accident before or who at least has driven tens of thousands of miles since his last previous mishap.

UP TO INDIVIDUAL

Not until the ordinary user of our highways can be reached and thoroughly imbued with the realization of his own constant, never-ending individual responsibility for proper use of the public highway can we hope for any appreciable improvement in the record.

It is here, Mr. Batman, where you and your colleagues can be of incalculable assistance. The power of the psess is axiomatic. And the influence of the local press is of especial value in this matter, for the great bulk of accidents are local. They involve local people on our local streets and roads. Our records of accidents occurring on state

(Continued on page 32)

Constructing fill above main line of Southern Pacific tracks near Cable

New Highway—Keene to Tehachapi

By J. W. COLE, Associate Highway Engineer

THE MOTORING public will welcome the completion of a section of new highway between Keene and Tehachapi in Kern County which will replace an old highway that is steep, narrow and crooked, built about the year 1916.

The new highway is 10.45 miles in length compared to 13.80 miles on the old highway. Its alignment and grades are unusually good for mountainous country. The location is on a southerly exposure and several hundred feet lower than the old road, and the snow problems should correspondingly decrease.

The recent work has been done by the Guy F. Atkinson Company and completed six months ahead of the contract completion date. The work is a continuation of a project begun by prison labor in June, 1937 at the Bear Mountain Ranch and carried on until 1943 when the prison camp was closed down. A description of that work appeared in the January, 1940 number of the California Highways and Public Works magazine. The total length of the project completed, Bear Mountain Ranch to Tehachapi, is 15.00 miles.

GRADING OPERATIONS

The contractor made rapid progress on roadway excavation. The peak output was 11,000 cubic yards per day. To accomplish this three 2½ cubic yard shovels, 6 Tournapuls and 6 carryalls, also 15 bulldozers were used. About one-third of the excavation was rock that required blasting.

BRIDGES AND CULVERTS

The contract included the substructures of four bridges and a small concrete bridge complete, a concrete arch 262 feet in length and 30 square feet flow area, and two double box concrete culverts.

Bridge 50-44 located near Keene is 375 feet in length and carries the roadway over the Southern Pacific Railroad and Tehachapi Creek.

Bridge 50-171 located near Cable is 292.7 feet in length and spans Tehachapi Creek.

Bridge 50-172 located near Cable is 96 feet in length and spans Tehachapi Creek.

Bridge 50-173 is 23 feet in length and spans a tributary of Tehachapi Creek and is located near Cable.

Bridge 50-149 located near Tehachapi is 465 feet in length and carries the roadway over the Southern Pacific Railroad and Tehachapi Creek. The total length of bridges is 1,252 feet.

The Guy F. Atkinson Company has recently been awarded the contract for the completion of the bridge superstructures.

The new highway passes through the gorge of Tehachapi Creek. The

Southern Pacific Railroad also passes through the gorge on the opposite side of the creek from the highway.

Tehachapi Creek is normally a small inoffensive stream but occasionally storms of cloudburst proportions turn the stream into a raging torrent. At peak flood it has been estimated to carry 33,000 second feet.

Two floods of recent years have taken many lives and caused much damage to the railroad and considerable damage to the highway slope protection where channel changes had been made.

SEVERE FLOOD DAMAGE

One of these floods occurred in September, 1932. Seven bridges of the Southern Pacific Railroad were successively blocked with debris and then swept downstream with the impounded water. When the flood passed the railroad station of Woodford it undermined the banks supporting a railroad siding. Two locomotives were toppled into the stream and buried so deep with debris it was necessary to use a magnet to locate one of them.

When the flood reached the large arch at Stoney brook it topped the arch and railroad tracks and carried two freight trains downstream. Freight cars were found two miles downstream from the arch.

Several people had stopped at a small service station just below the arch on the bank of the stream, because of the storm, and although warned of the oncoming flood by a railroad brakeman, they were unconvinced of their danger and remained at the service station until carried away by the flood. Eighteen bodies were found in the flats below after the flood.

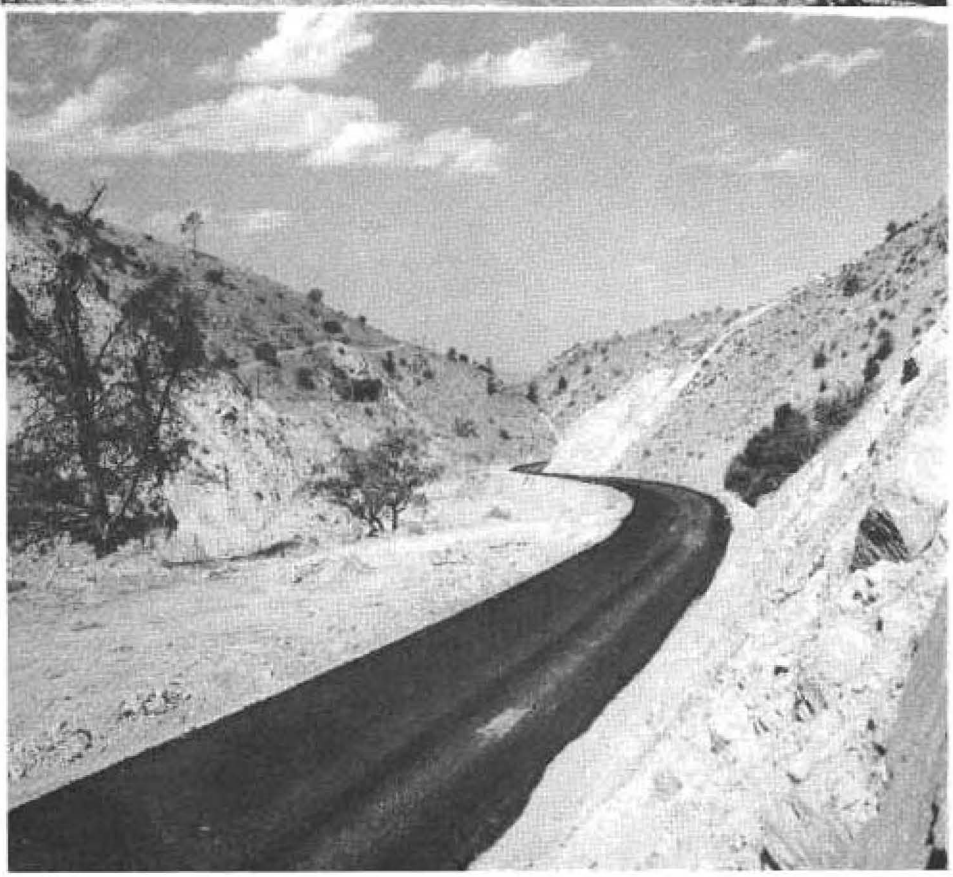
FLOOD IN 1945

Another flood occurred in October, 1945. The rain in some areas was accompanied by hail. At one place a pond formed behind a highway embankment and the highwater line of the pond was banked with hailstones. Two days after the storm photographs were taken of clusters of hail stones as large as a football, the individual stones being about the size of cherries.

This flood did considerable damage to the Southern Pacific Railroad near Keene and to the slope protection on the highway embankments in the gorge. The erosive power of the stream was demonstrated in several ways, one of which was carrying away all rock from the damaged slope protection and all rock that had been left in the creek bed by the workmen because they were too large to place with a 5-ton derrick.

The damaged walls and slope pavement have been rebuilt and carried down into the stream bed to a depth of 12 feet or to bedrock. The slope pavement rests on concrete toe walls carried 12 feet below the stream bed. They are reinforced with three lines of railroad rails placed longitudinally in the base to prevent any section from pushing out of line. Stone masons were hard to find and the slope pavement was constructed by placing large rock on the slope with cranes and vibrating Class "A" concrete into the voids to a depth

Constructing base of toe wall for support of riprap at channel change

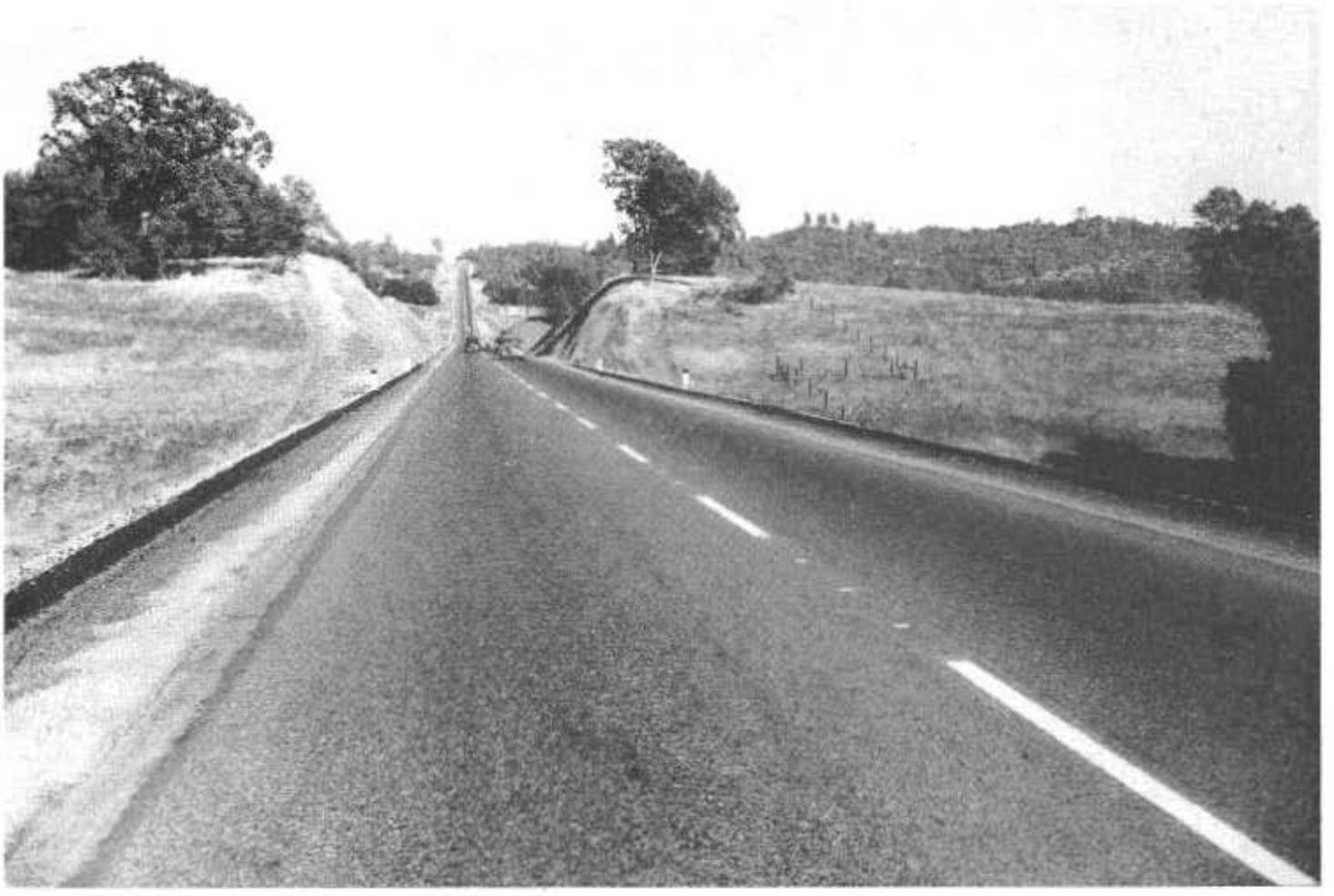


Upper — Heavy excavation near Keene Sanitarium. Lower — Section of completed Keene-Tehachapi highway

of 18 inches measured perpendicular to the slope. A blanket of earth was then spread over the slope pavement and kept moist through the curing period. This method eliminated all possible voids and made certain that the mortar was properly cured. The finished slope pavement presents an extremely rough appearance which fulfills one of the requirements of the specifications.

Imported borrow was placed on the roadway to a depth of one foot and mixed with SC-4 road oil to a compacted depth of 0.25 feet. An adjacent section of highway, which has given good service for several years, had the same treatment.

The writer has been Resident Engineer for the project, Tom Dunn was assistant in charge of bridges, and T. J. Canini has been assistant in charge of surveys. Mr. H. S. Booth was project manager for Guy F. Atkinson Company.



Section of U.S. 50 between Shingle Springs and El Dorado where new state highway eliminates many curves

Projects on U.S. Route 40 and U.S. Route 50

By P. C. Sheridan, Associate Highway Engineer

SEVERAL of the projects on U.S. Route 40, U.S. Route 50 and State Route 49, which were a part of the postwar program, are now completed or nearing completion.

The project described in the article titled "Eliminating 29 curves on U.S. 50 Between Shingle Springs and El Dorado" by S. H. Lathrop, contained in the May-June, 1946, issue of *California Highways and Public Works,* has been completed and recently opened to traffic.

This 3.4 mile project extends from Shingle Springs to 1¼ miles west of El Dorado and was constructed at a cost of $270,000. The work included 181,000 cubic yards of roadway excavation; 27,400 cubic yards imported borrow for blanketing the poor quality native material; 14,300 tons of crusher run base; and 7,800 tons of plant-mixed surfacing.

The new road provides a 22-foot plant-mixed surfacing on a 30-foot roadbed.

The road traverses rolling foothill country used mainly for grazing with a small amount of general farming.

AUBURN PROJECT

The project on U.S. Route 40, a limited access highway now nearing completion, in contrast, passes through the City of Auburn. This project has previously been described in an article titled "Old 'Diggins' Scene of Road Work," by J. L. Piper contained in the November-December, 1946, issue of *California Highways and Public Works.* It is anticipated that this section will be opened to traffic during October.

The present highway winds through the business and residential streets of Auburn. On the present alignment there are right angle turns; a stretch of narrow width; several steep grades; a narrow underpass with one approach and a blind right angle turn. None of the streets in Auburn over which the present traffic is routed accommodates over two lanes of moving traffic.

The minimum radius of curvature on the new alignment is 1,000 feet, and the maximum grade is 6 percent.

GRADE SEPARATIONS

The new construction extends from one-tenth mile west of Nevada Street

Construction scene on State Sign Route 49 at Auburn, looking north from intersection, where highway underpasses U. S. 40

in Auburn to one mile east of Auburn, is 2.6 miles in length and is four-lane divided except at the ends where transitions are made to the existing two-lane pavements.

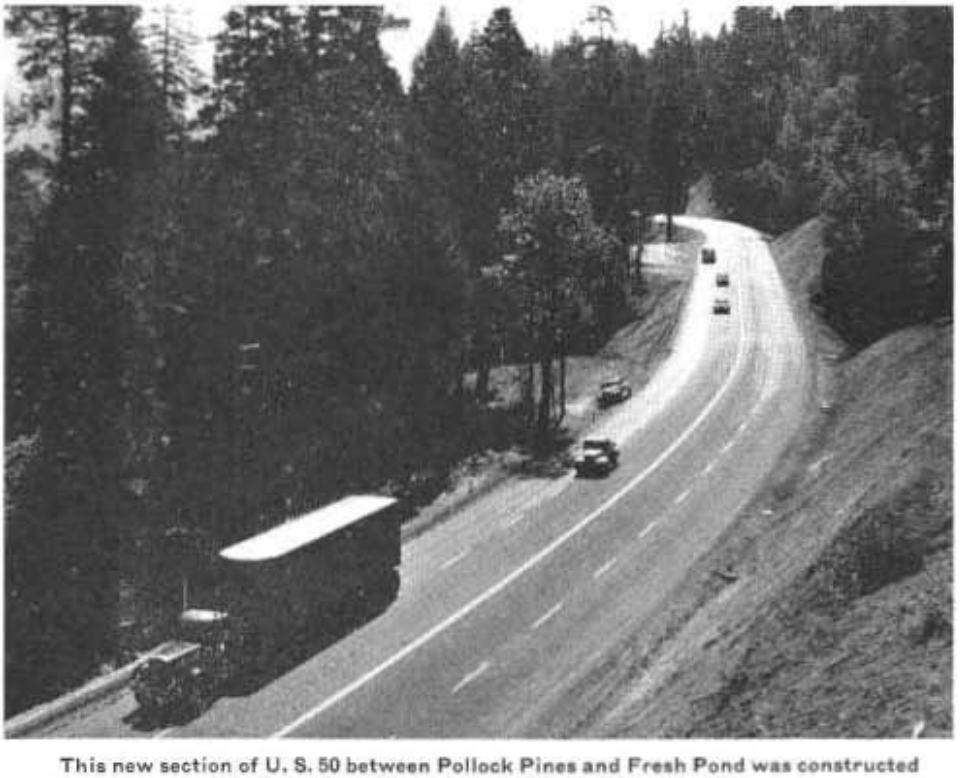
Under separate contracts, grade separations were constructed at East Street and Walsh Street and over the Southern Pacific Railroad westbound main line track.

The grade separation at East Street and connecting ramps will provide an interchange from the highway to the business district of Auburn and to the new relocation of State Route 49 to Grass Valley.

In order that the East Street traffic interchange facility function properly, it was desirable that the State Route 49 relocation adjacent to U.S. Route 40 be constructed concurrently. Within the limits of the northerly portion of the Route 49 relocation, a grade separation with the eastbound track of the Southern Pacific Railroad is being constructed. Because of the structural steel shortages, the Route 49 project was contracted in two units. The southerly unit is now completed and will be opened to traffic at the same time as the U.S. Route 40 project.

Work on the road portion of northerly unit will probably be suspended until next spring due to the delay in completing the underpass under the railroad.

Portland cement concrete is the pavement type on the U.S. 40 unit, and plant-mixed surfacing on crusher



This new section of U. S. 50 between Pollock Pines and Fresh Pond was constructed by the United States Public Roads Administration

This is another view of new four-lane highway on U. S. 50 near Fresh Pond

run base is used on connecting roads and ramps.

The two units on State Route 49, also a limited access highway, provide 22 feet of plant-mixed surfacing on a 36-foot roadbed, for a distance of 3.6 miles. The combined units extend from the junction with U.S. Route 40 in Auburn to Rock Creek.

The work on the three road contracts in the vicinity of Auburn includes about 441,000 cubic yards of excavation; 33,650 cubic yards of imported subgrade material; 24,000 tons of crusher-run base; 13,500 tons of plant-mixed surfacing; and 12,750 cubic yards of Portland cement concrete pavement.

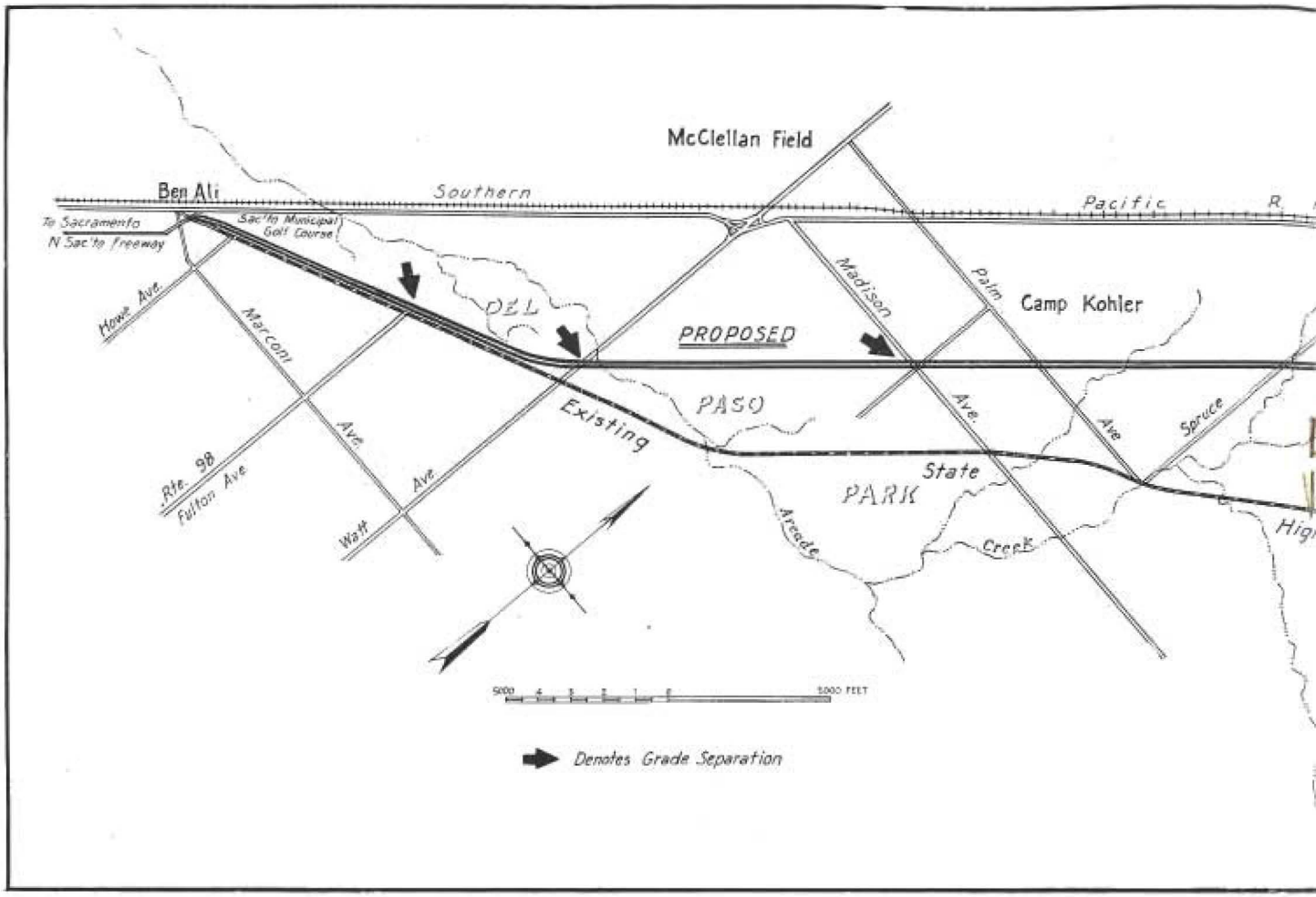
The projects, including the structures built under separate contracts, will cost approximately $1,280,000.

The contract on U.S. Route 50 was constructed by the Utah Construction Company of Salt Lake City and the road contracts in the vicinity of Auburn are being constructed by the Frederickson and Watson Construction Company of Oakland. The work is under the supervision of C. H. Whitmore, District Engineer.

The portion of U. S. 50 between Pollock Pines, which is about 15 miles east of Placerville, and the California-Nevada state line at the south end of Lake Tahoe, comprises Forest Highway Route 32, Placerville-Lake Tahoe.

During this year two construction projects have been completed under contracts awarded and supervised by the Public Roads Administration, one designated 32-K, between Pollock Pines and Fresh Pond, and the other designated 32-J1 on the Meyers Grade extending from the Sierra Nevada summit easterly into the Lake Tahoe basin. Forest highway funds were used to finance both projects.

(Continued on page 18)



Relocation of U. S. 99E and U. S. 40 as

PLANS and surveys for relocation of U. S. 99E and U. S. 40 as a freeway from the end of the North Sacramento Freeway to a point on U. S. 40 one-half mile east of Roseville, have been authorized by the California Highway Commission.

These are primary highway routes, U. S. 99E proceeding at present through Roseville to Marysville and points north, and U. S. 40 branching from U. S. 99E at Roseville and proceeding easterly through Auburn and Donner Pass as a transcontinental highway.

The proposed relocation, as shown in the accompanying sketch, will be 1.1 miles shorter than the existing route; the design speed will be 60 miles per hour as compared with an average operating speed of 40 to 45 miles per hour on the present highway; freeway traffic will not be subject to crossing traffic, and roadways in each direction will be separated; the principal cross laterals will be carried under or over the freeway, some initially, others eventually, it being difficult to obtain right of way for separation and interchange ramps on the present route.

FREEWAY DESIGN PLANNED

Describing the plans of the Division of Highways, State Highway Engineer George T. McCoy said:

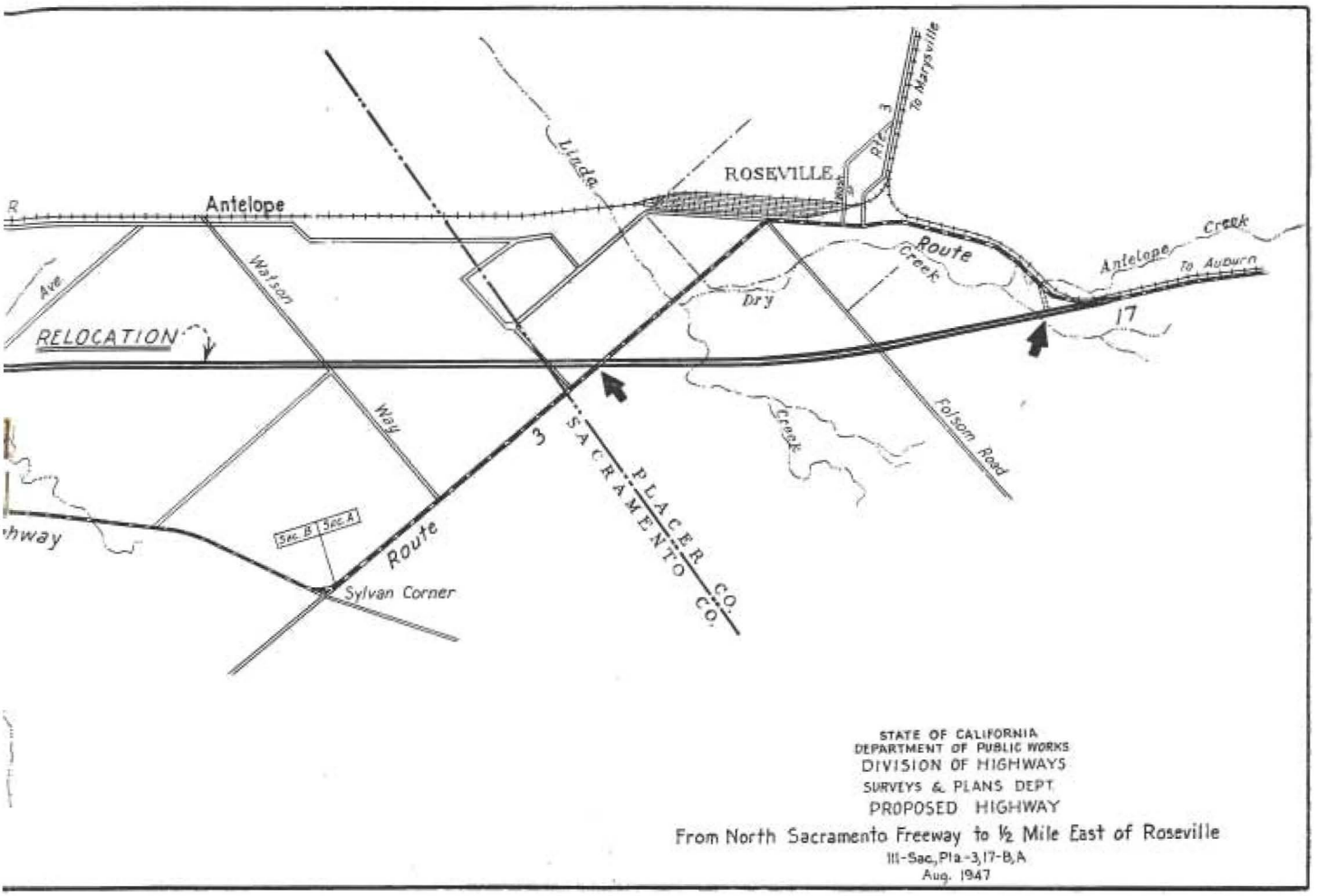
"Surveys and studies, aided by aerial maps, have already resulted in conclusive evidence that the project should be planned as a freeway on a revised location that will not disturb or destroy properties along the present highway.

"The present highway along this section is seriously inadequate for traffic that now exceeds 10,000 vehicles per day and has peak loads of 1,200 vehicles per hour. There have been 260 accidents on its 14 miles during the past three years, an accident rate that is 1½ times the average for all state highways.

"The addition of more lanes will not provide satisfactory results unless the marginal and intersectional friction from the fast-developing adjacent territory is also reduced. The only permanent solution that will prevent recurrence of present difficulties and obsolescence is establishment of the future highway on a permanent freeway basis whereby access will be provided through outer highways or public roads to limited designated intersections.

WILL EFFECT SAVING

"A limited freeway on the present road with hundreds of points of access to adjacent properties or with outer highways on each side to provide access to private properties, was the alterna-



Freeway Extension Is Projected by State

tive that has the severe disadvantages of creating unusually high damages in acquiring frontage and moving back all the improvements within approximately 100 feet of the present center line, of constructing parallel roads, and of penalizing both through traffic and local traffic with the hazard and delay from frequent movements on, off, and across the highway.

"Suitable connections to existing facilities will provide a fast and convenient route for the semi-urban traffic to and from Sacramento and Roseville.

"In comparison with the existing road, the reduction in distance alone will save traffic about $2,000,000 in operating costs over a period of 20 years. The reduction in time of travel will represent an even larger amount of savings to traffic.

"A comparison between the cost of providing comparable standards of design on the new location as opposed to the expansion of the existing highway, discloses that the initial construction of rights-of-way cost will be over $1,500,000 cheaper on the new line.

NEW ROUTE SHORTER

"Thus, not only is the new location shorter in distance, more direct in alignment, and better for traffic service, but it is overwhelmingly superior in first cost.

"In the final economic analysis, the estimated savings to traffic operating on the proposed freeway for a 20-year period, plus the savings in rights-of-way and construction estimates on the new location, as compared with an alternate plan for the relatively inefficient improvement of the existing route, discloses the saving of a sum several times the estimated initial cost of the construction on the new location. Moreover, the improvements along the existing route will not be disturbed and the inherent value of the existing highway will remain for service to the adjacent area."

STATE HIGHWAY FUND
ESTIMATED REVENUES FOR THE 99th FISCAL YEAR

ESTIMATED REVENUES	TOTAL
Gas tax	$69,523,024
Motor vehicle fees (inc. caravan fees)	2,715,706
Use fuel tax (diesel)	2,806,990
Transportation tax	4,055,891
Federal aid and federal aid grade separation	16,696,305
Federal aid secondary (inc. highway planning)	1,236,456
Total	$97,034,372

These long, easy curves on U. S. 50 replace the hazardous old Meyers Grade between Echo Summit and Lake Tahoe

Projects on U. S. Route 40 and U. S. Route 50 Near Completion

(Continued from page 15)

The Pollock Pines-Fresh Pond project consisted of 3.1 miles of grading and plantmix bituminous surfacing, replacing the old, narrow and crooked road. Normal roadbed width on the new work is 32 feet except on the central 1.2-mile portion where a four-lane 46-foot width has been constructed. The minimum radius of curvature is 700 feet and the maximum grade is 7 percent. Studies indicated that the four-lane construction would be more economical than improving the alignment of a two-lane road to provide sight

(Continued on page 30)

Victorville Highway Improvement Will Eliminate Many Hazardous Curves

By WILLIS F. JONES, Assistant Highway Engineer

STATE Sign Route 18, a portion of which is shown on the accompanying "Vicinity Map," traversing the center of Southern California, links together a wide variety of terrain, climate, and scenery.

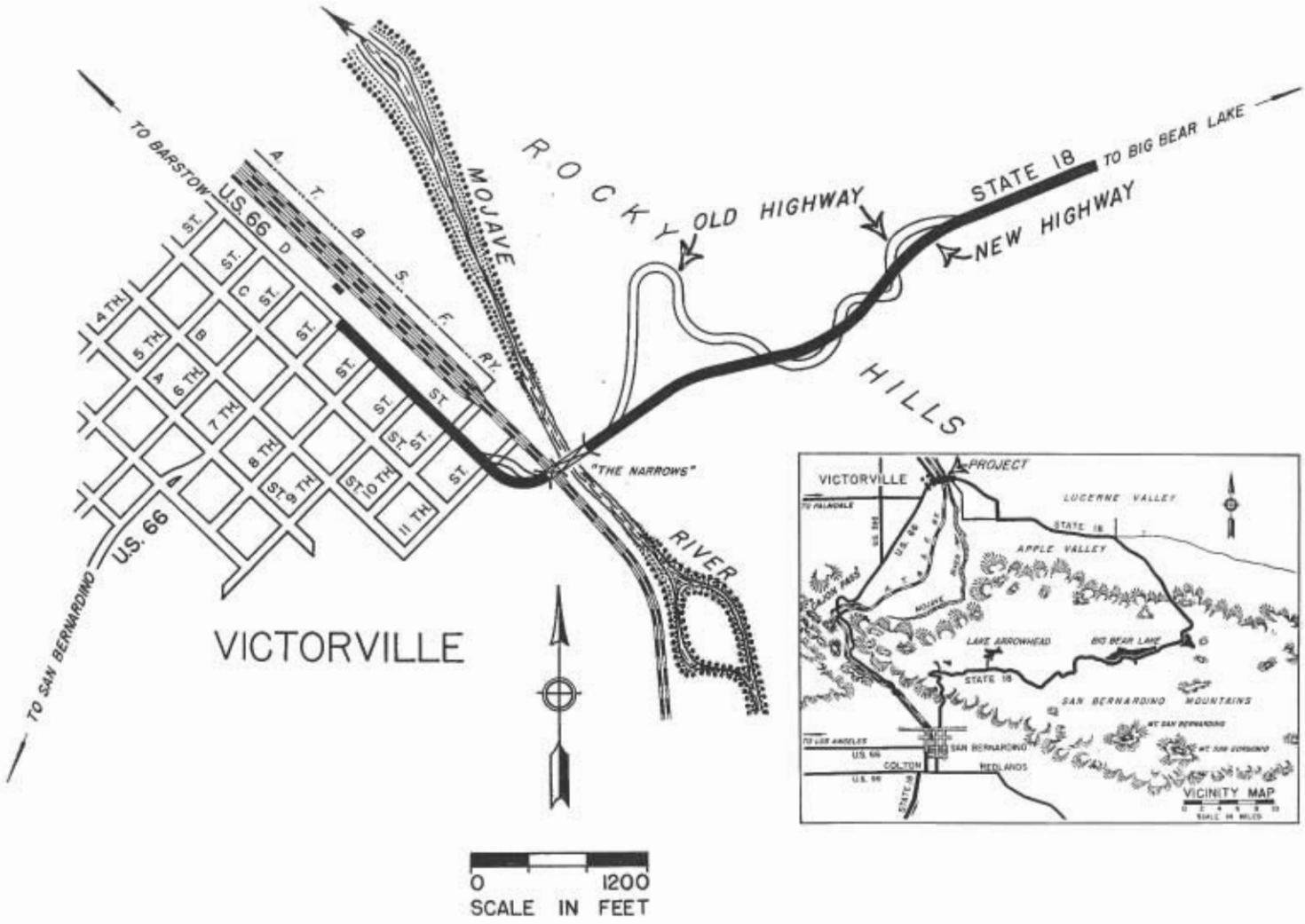
From sea level at Newport Beach, inland through picturesque Santa Ana Canyon and the valleys of the Citrus Belt, up into the San Bernardino Mountains over a modern mountain highway, through the largest patronized recreational area in the country; from elevations up to 7,200 feet above sea level the route sweeps on down into the great Mojave Desert to its junction with U. S. Highway 66 at Victorville at elevation 2,750.

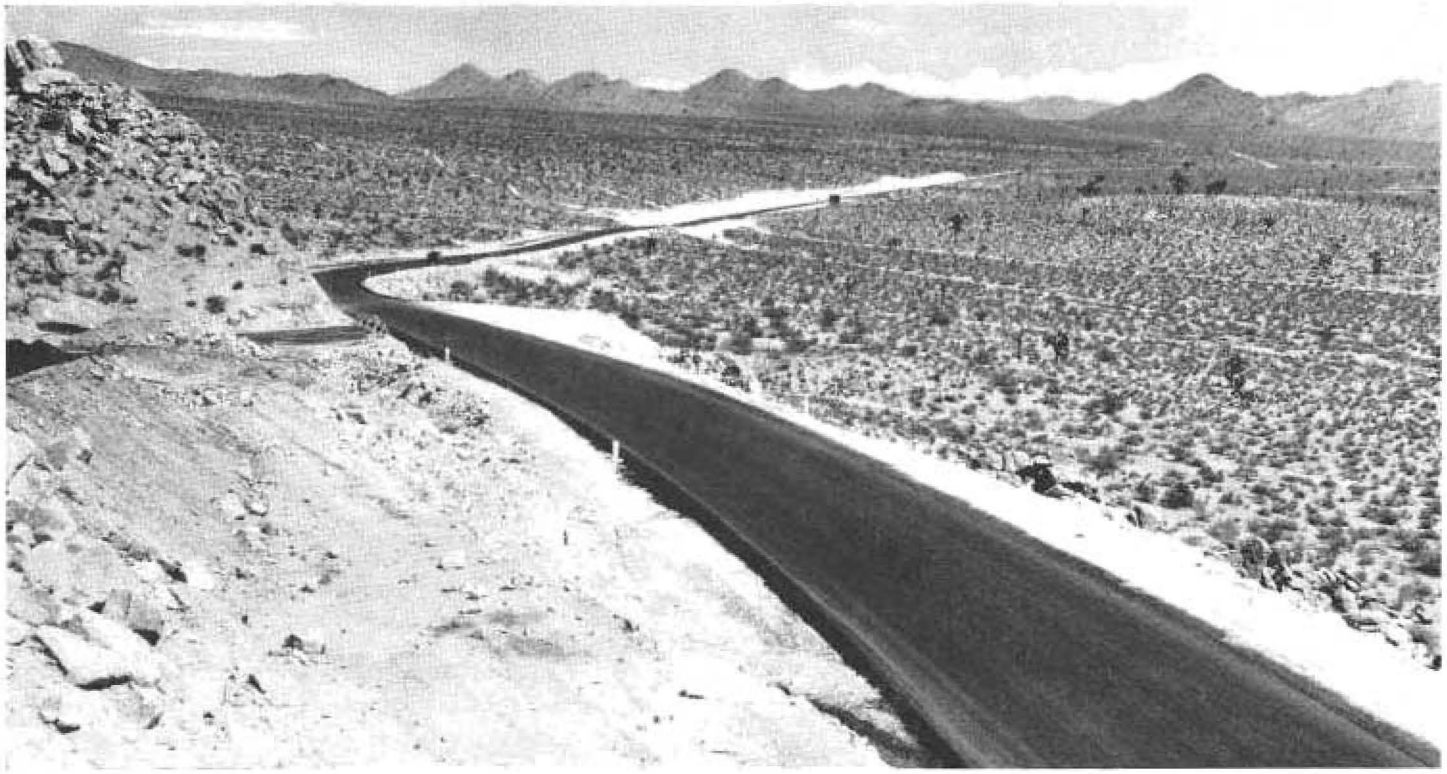
It is here that the State has recently opened to traffic an improved section of this route. Beginning in the center of Victorville at the corner of Seventh and D Streets, the new route runs along D Street to and over the existing structures that span both the A. T. & S. F. Ry. and the Mojave River, then on through a small range of rocky hills to connect with the existing oiled highway leading toward Big Bear Lake.

Through these rocky hills in the comparatively short distance of one and a quarter miles, the new highway has eliminated one of the most hazardous and inadequate stretches of rural highway in Southern California.

Seventeen curves, some of the "hairpin" variety with radii as short as 50 feet made it impossible for trucks and trailers to negotiate them without blocking traffic or risking collision.

These numerous sharp curves have been replaced with four curves of easy transition ranging in radii from 1,000 to 2,000 feet designed for a safe driv-





Looking easterly from summit in Rocky Hills toward the easterly end of the Victorville project. Old road in left foreground

ing speed of 50 miles per hour. Gradients up to 9 percent have been replaced by those of high-gear standards.

The improvement in alignment is shown graphically on the accompanying map. Only the exigencies of war deferred this improvement. This route provides access to the San Bernardino Mountains, not only from the north but also provides an alternate winter route via Cajon Pass for traffic originating south of the mountains.

RAPID GROWTH

The town of Victorville is the trading center and shipping point for the area to the east which has been changing from a typical desert region to one of communities and agricultural development. Lucerne Valley and Apple Valley are typical examples of this development with their rapidly increasing production of alfalfa hay, livestock, and poultry, with some activity in mining. The health giving properties of the desert have resulted in the establishment of many guest ranches and dude ranches throughout the area.

This region was the locale of many incidents in early Southern California history from the expeditions of General Fremont through Lucerne Valley, to those of the historical Mormon trail that traversed the course of the Mojave River, where at the "Narrows" of this river the pioneers stopped for its never failing water.

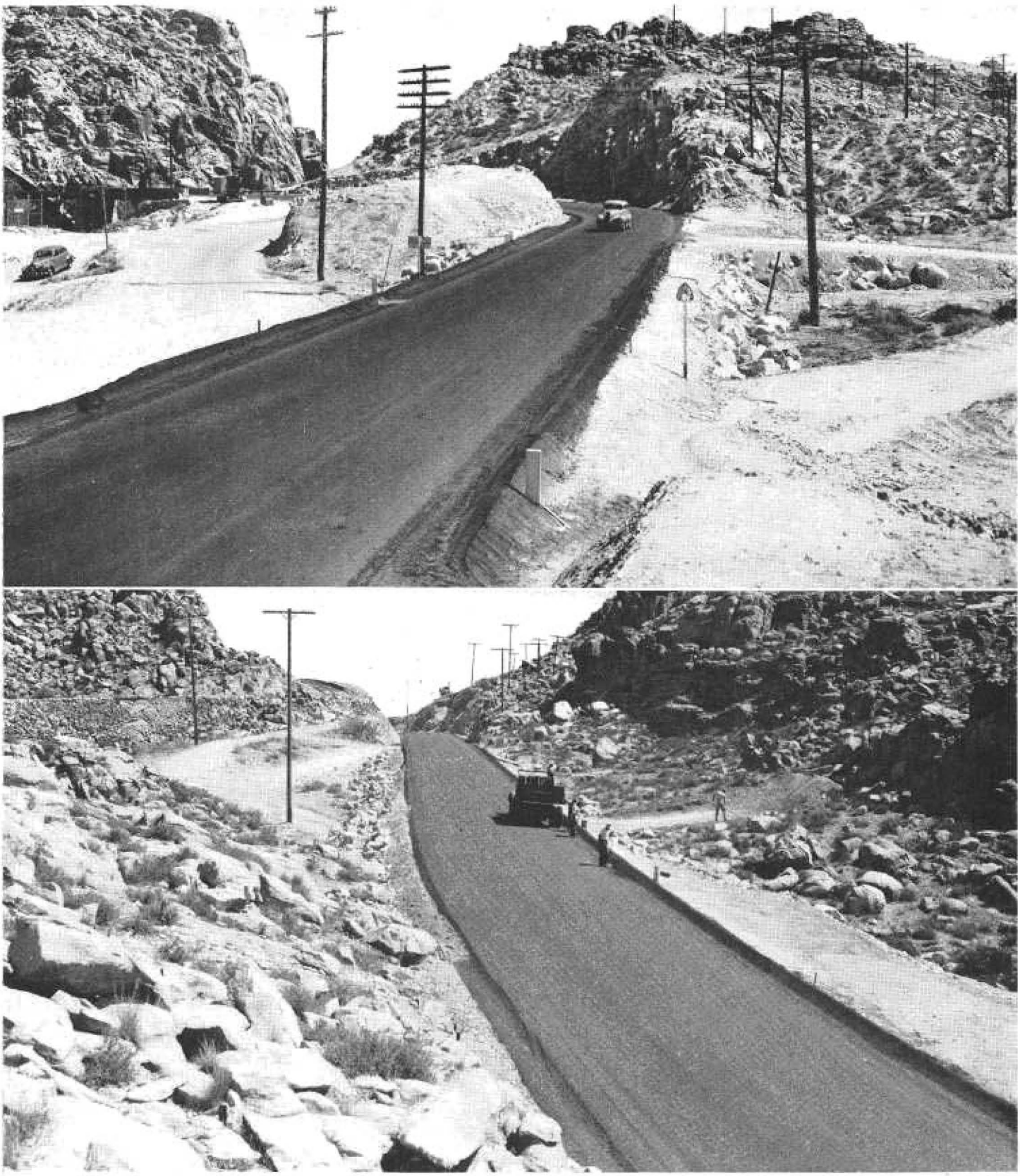
It was at this "Narrows" that a crossing of the Mojave River was selected by San Bernardino County since it provided the only feasible crossing in many miles, due to its rocky banks confining the bed of the stream within narrow limits as well as providing a stable and permanent anchorage for a bridge.

BRIDGE STRUCTURES

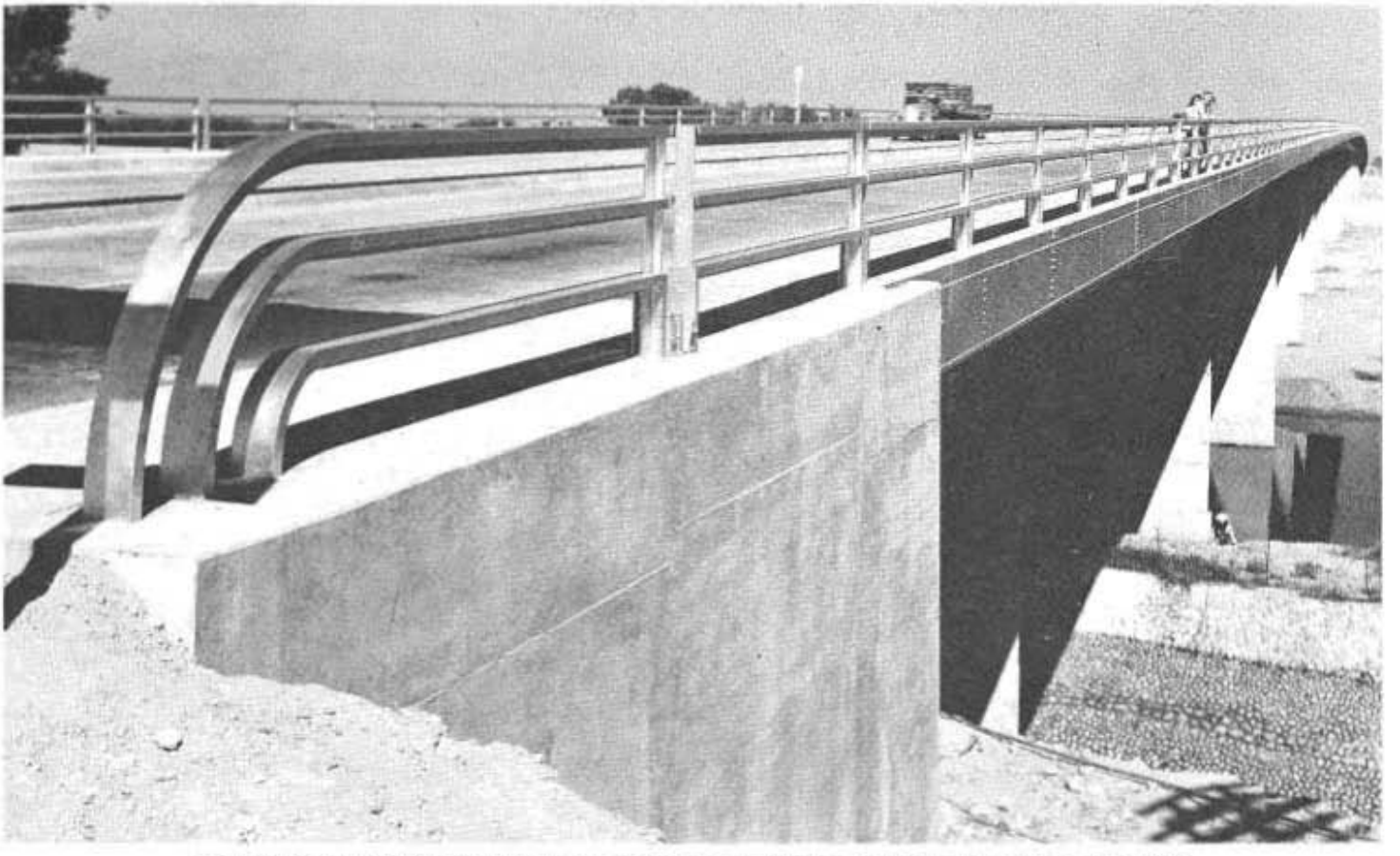
The present bridge over the Mojave River is a 254-foot span of steel box arch design, with a roadway of 20 feet between curbs. Abutting this bridge, to form a continuous roadway, is a structure over the A. T. & S. F. Ry. tracks, a 62-foot span of through steel girder design, with a roadway of 19 foot 4 inches between conerete wall railings. Outside of resurfacing for a short distance at the west end of these structures to provide the proper superelevation at this approach and the installation of guard railing at both approaches for increased safety, no work was necessary on the existing structures. At the west approach the former curve of very short radius was replaced with one of 280-foot radius. This approach lies adjacent to residential D Street where lower speed limits prevail.

The roadbed is of a standard width of 24 feet with an additional 3 feet on either side for a drainage gutter and a shoulder dike. This entire area is surfaced with a bituminous surface treatment applied by the road-mix method. Throughout the greater part of its length the roadbed lies in rocky material where a one-foot blanket of local material was applied, suitable for oiling. Side road and driveway approaches are surfaced with pre-mixed surfacing material. Traffic was carried through construction with a short detour at the summit.

The contract was awarded March 6, 1947, to Matich Bros. of Colton, California, for the sum of $94,486. Traffic is now using the new highway with only a few minor construction items remaining to be completed. This project is known as Road VIII-SBd-43-L. Kent B. Stone, Assistant Highway Engineer has acted as Resident Engineer on the project.



Upper—Looking southerly from Victorville toward the westerly approach to the Mojave River crossing at "The Narrows." At left is old road approach with bridges over the Atchison, Topeka and Santa Fe Railway. Lower—Looking easterly through gap in Rocky Hills. New road on right; old switchback road on left



This new steel bridge between Marysville and Yuba City replaces old span downstream built in 1906

New Feather River Bridge Dedicated

RESIDENTS of Yuba and Sutter and neighboring counties joined on Friday afternoon, September 19, in celebrating the completion of the new Marysville-Yuba City highway bridge across the Feather River. The affair was synchronized with the opening of the first Peach Bowl Festival held since Pearl Harbor.

A feature of the celebration was a barbecue, at which an estimated 15,000 visitors were served. Planes from Hamilton Field flew over the new span signalizing the start of a speech making program.

General Richard E. Mittelstaedt, State Utility Commission, represented Governor Earl Warren. Three California Highway Commissioners, Harrison R. Baker, Pasadena; Walter Sandelin of Ukiah, and Chester H. Warlow of Fresno, participated in the ceremonies, together with State Highway Engineer George T. McCoy, Deputy Director of Public Works A. H. Henderson, Bridge Engineer F. W. Panhorst, C. H. Whitmore, District Engineer, Division of Highways, and other engineers of the Department of Public Works.

BUDGET ITEMS

THE CURRENT highway budget provides for the following needed projects in Sutter County:

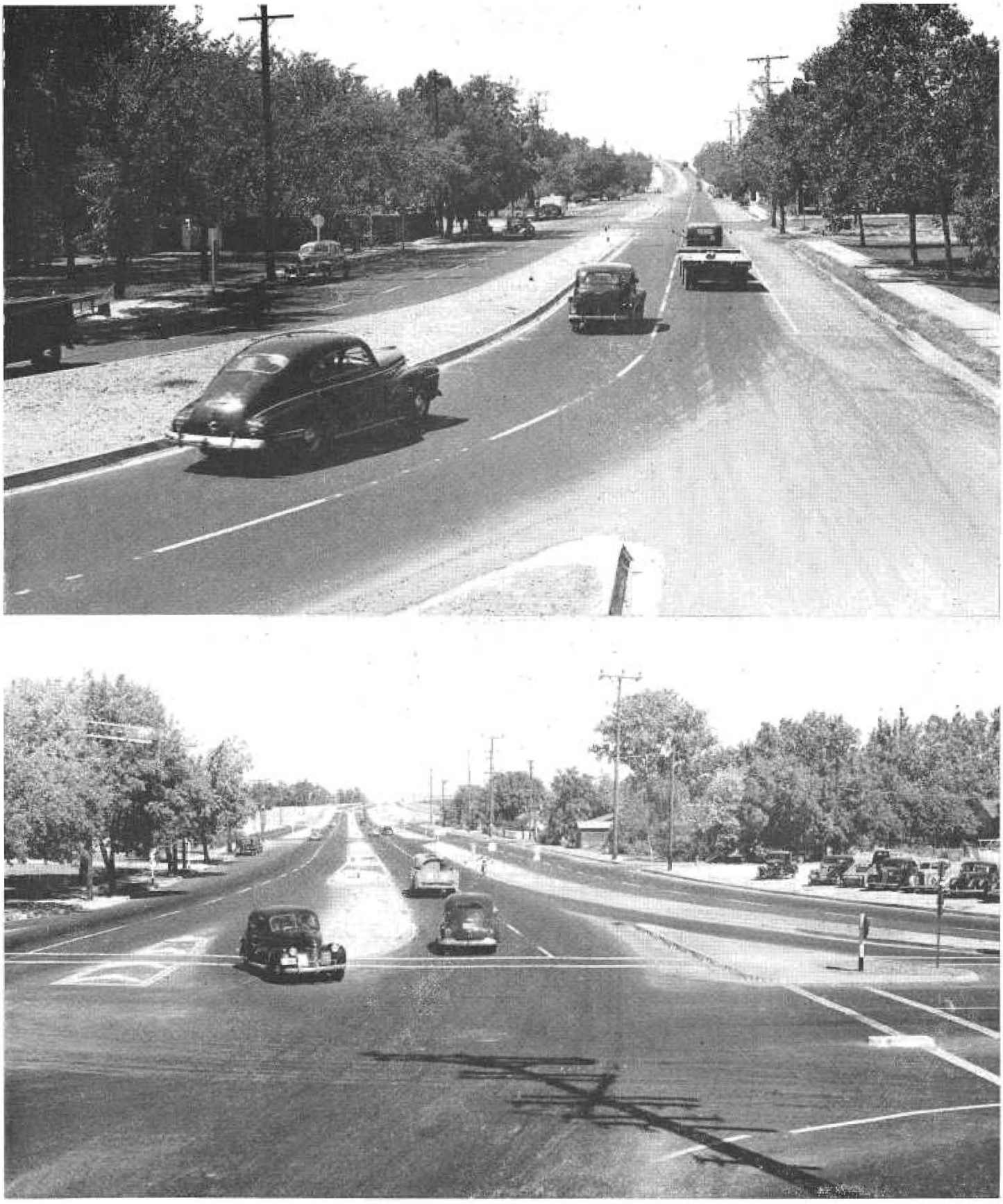
Live Oak line change, grade and surface 1.7 miles (bids will be opened on Oct. 1)	$214,000
Sutter Causeway, redeck portions of bridge	20,000
In Yuba and Sutter Counties:	
Landscaping, lighting and signals on Marysville-Yuba City Bridge and approaches (bids for this work will be opened next Oct. 15)	175,000
Total	$409,000

District Attorney Lloyd Hewitt of Marysville introduced prominent city and county officials, including Mayor H. C. Johnson of Marysville, Keith Kenyon, Yuba City Chamber of Commerce, and Jules E. Gerhardt, Chico.

Senator William P. Rich introduced attending State officials, including Assemblyman Bert Loomis, and presented the principal speakers, General Mittelstaedt and Commissioner Baker.

"Five blocks downstream on the Feather River stands the old bridge built in 1906 on the 19-foot wide 'wagon road,' as it was designated on the bridge plans. For over 40 years this bridge has served the needs of through and local traffic. However this traffic grew beyond the capacity of the old bridge, as shown by our July, 1946, traffic count of over 22,000 vehicles for one day, of which approximately 20 percent were trucks serving this great Peach Bowl agricultural area.

(Continued on page 31)



Upper—Attractive four-lane divided approach to new Marysville-Yuba City bridge on Marysville side of Feather River. Lower—Yuba City approach to new bridge

Traffic on State Highways Shows 8.8 Percent Increase Over 1946

By G. T. McCOY, State Highway Engineer

THE annual State-wide traffic count taken on Sunday and Monday, July 13th and 14th, shows an increase of 8.8 percent over the previous annual count of July, 1946. This very material growth in highway traffic, now 28 percent above the high prewar year of 1941, is found throughout the entire system. All groups show very similar gains. In the minor instances where individual routes indicate percentage losses from 1946, these are mostly accounted for by the fact that the 1946 counts for these routes were abnormally high. Unlike the gains shown in 1946, which were predominantly in passenger car traffic, this year's increases were quite uniform for both passenger and freight vehicles.

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, totals being shown for each hour. At selected representative stations counts are also continued for the entire 24-hour period and are extended to record each of the seven days of the week. Traffic is segregated into the following vehicle classifications: California passenger cars, out-of-state passenger cars, buses, pickups, two-axle commercial units, three-axle units, four-axle units, five-axle units, and six-or-more-axle units.

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 in determining comparison 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:

PERCENT GAIN OR LOSS FOR 1947 COUNT AS COMPARED WITH 1946

	Sunday	Monday
All Routes	+ 8.29	+ 8.93
Main North and South Routes	+ 8.16	+ 8.77
Interstate Connections	+10.32	+11.14
Laterals Between Inland and Coast	+ 7.75	+ 9.23
Recreational Routes	+10.04	+ 6.28

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	1947 Percent gain or loss Sunday Gain	Sunday Loss	Monday Gain	Monday Loss
1.	Sausalito-Oregon Line	9.16		11.67	
2.	Mexico Line-San Francisco	8.19		9.89	
3.	Sacramento-Orgeon Line	15.34		10.65	
4.	Los Angeles-Sacramento	8.92		6.56	
5.	Santa Cruz-Jct. Rt. 65 near Mokelumne Hill	6.61		7 90	
6.	Napa-Sacramento via Winters	23.55		9.64	
7.	Crockett-Red Bluff	4.23		4.36	
8.	Ignacio-Cordelia via Napa	4.76		5.88	
9.	Rt. 2 near Montalvo-San Bernardino	7.38		13.14	
10.	Rt. 2 at San Lucas-Sequoia National Park	9.49		8.04	
11.	Rt. 75 near Antioch-Nevada Line via Placerville	5 04		8.64	
12.	San Diego-El Centro	7.22		13.78	
13.	Rt. 4 at Salida-Rt. 23 at Sonora Jct.	10.25		13.40	
14.	Albany-Martinez	10.56		5.65	
15.	Rt. 1 near Calpella-Rt. 37 near Cisco	12.31		24.05	
16.	Hopland-Lakeport	11.85		9.61	
17.	Rt. 3 at Roseville-Rt. 15, Nevada City	5.58		12.26	
18.	Rt. 4 at Merced-Yosemite National Park	0.57		17.41	
19.	Rt. 2 at Fullerton-Rt. 26 at Beaumont	5.79		4.77	
20.	Rt. 1 near Arcata-Rt. 83 at Park Boundary	23.38		21.02	
21.	Rt. 3 near Richvale-Rt. 29 near Chilcoot via Quincy	15.12		21.32	
22.	Rt. 56, Castroville-Rt. 29 via Hollister	16.73		8.87	
23.	Rt. 4 at Tunnel Sta.-Rt. 11, Alpine Jct.	10.32		11.12	
24.	Rt. 4 near Lodi-Nevada State Line	9.01		17.48	
25.	Rt. 37 at Colfax-Rt. 83 near Sattley	29.16		22.94	
26.	Los Angeles-Mexico via San Bernardino	4.52		8 49	
27.	El Centro-Yuma	16.05		19.40	
28.	Redding-Nevada Line via Alturas	23.09		15.77	
29.	Peanut-Nevada Line near Purdy's	22.21		19.46	
31.	Colton-Nevada State Line	12.75		13.34	
32.	Rt. 56, Watsonville-Rt. 4 near Califa	14.26		12.61	
33.	Rt. 56 near Cambria-Rt. 4 near Famosa	7.97		7.97	
34.	Rt. 4 at Galt-Rt. 23 at Pickett's Jct.	28.23		45.52	
35.	Rt. 1 at Alton-Rt. 20 at Douglas City	29.02		11.52	
37.	Auburn-Truckee	7.12		6.82	
38.	Rt. 11 at Mays-Nevada Line via Truckee River	7.94		0.66	
39.	Rt. 38 at Tahoe City-Nevada State Line		19.77		0.90
40.	Rt. 13 near Montezuma-Rt. 76 at Benton	27.71		8.54	
41.	Rt. 5 near Tracy-Kings River Canyon via Fresno	12.14		16.15	
42.	Redwood Park-Los Gatos	4.86		18.82	
43.	Rt. 60 at Newport Beach-Rt. 31 near Victorville	2.39			7.57
44.	Boulder Creek-Redwood Park		6.00	23.77	
45.	Rt. 7, Willows-Rt. 3 near Biggs	9.42		21.79	
46.	Rt. 1 near Klamath-Rt. 3 near Cray	45.12		12.42	
47.	Rt. 7, Orland-Rt. 29 near Morgan	22.51		8.92	
48.	Rt. 1 N. of Cloverdale-Rt. 56 near Albion	25.19		5.02	
49.	Napa-Rt. 15 near Sweet Hollow Summit	5.52		4.62	
50.	Sacramento-Rt. 15 near Wilbur Springs	12.10		8.27	
51.	Rt. 8 at Shellville-Sebastopol	4.79		1.73	
52.	Alto-Tiburon		3.07	4.95	
53.	Rt. 7 at Fairfield-Rt. 4 near Lodi via Rio Vista	7.67			1.55
54.	Rt. 11 at Perkins-Rt. 65 at Central House		7.09	5.43	
55.	Rt. 5 near Glenwood-San Francisco	1.68			2.05
56.	Rt. 2 at Las Cruces-Rt. 1 near Fernbridge	26.26		18.76	
57.	Rt. 2 near Santa Maria-Rt. 23 near Freeman via Bakersfield	15.38		10.71	
58.	Rt. 2 near Santa Margarita-Arizona Line near Topock via Mojave and Barstow	15.42		10.49	
59.	Rt. 4 at Gorman-Rt. 43 at Lake Arrowhead	12.53			0.79
60.	Rt. 2 at Serra-Rt. 2 at El Rio	31.40		5.07	
61.	Rt. 4 S. of Glendale-Rt. 59 near Phelan	8.00		11.41	
62.	Rt. 171 at Northam-Rt. 61 near Crystal Lake	17.61		22.44	
63.	Big Pine-Nevada State Line	32.54		2.20	
64.	Rt. 2 at San Juan Capistrano-Blythe	3.66		3.42	
65.	Rt. 18 near Mariposa-Auburn	8.97		16.82	
66.	Rt. 5 near Mossdale-Rt. 13 near Oakdale	37.07		25.81	
67.	Pajaro River-Rt. 2 near San Benito River Bridge		27.21		28.00
68.	San Jose-San Francisco	11.20		14.86	
69.	Rt. 5 at Warm Springs-Rt. 1, San Rafael	7.19		2.50	
70.	Ukiah-Talmage	16.21		13.74	
71.	Crescent City-Oregon Line	27.63		18.93	
72.	Weed-Oregon Line	33.15		40.45	
73.	Rt. 29 near Johnstonville-Oregon Line	34.27		24.07	
74.	Napa Wye-Cordelia via Vallejo and Benicia	4.96		6.75	
75.	Oakland-Jct. Rt. 65 at Altaville	4.77		12.65	
76.	Rt. 125 at Shaw Ave.-Nevada State Line near Benton	18.78		10.08	
77.	San Diego-Los Angeles via Pomona	8.83		4.36	
78.	Rt. 12 near Descanso-Rt. 19 near March Field	1.31		6.06	
79.	Rt. 2, Ventura-Rt. 4 at Castaic		4.32	7.36	
80.	Rt. 51, Rincon Creek-Rt. 2 near Zaca	7.59		11.83	

Link in Fresno-Coalinga County Road Completed

ON JUNE 4, 1947, Fresno County completed its first Federal Aid Secondary (County) road project under the Federal Aid Highway Act of 1944 and the County Highway Aid Act of 1945, at a cost of approximately $160,000.

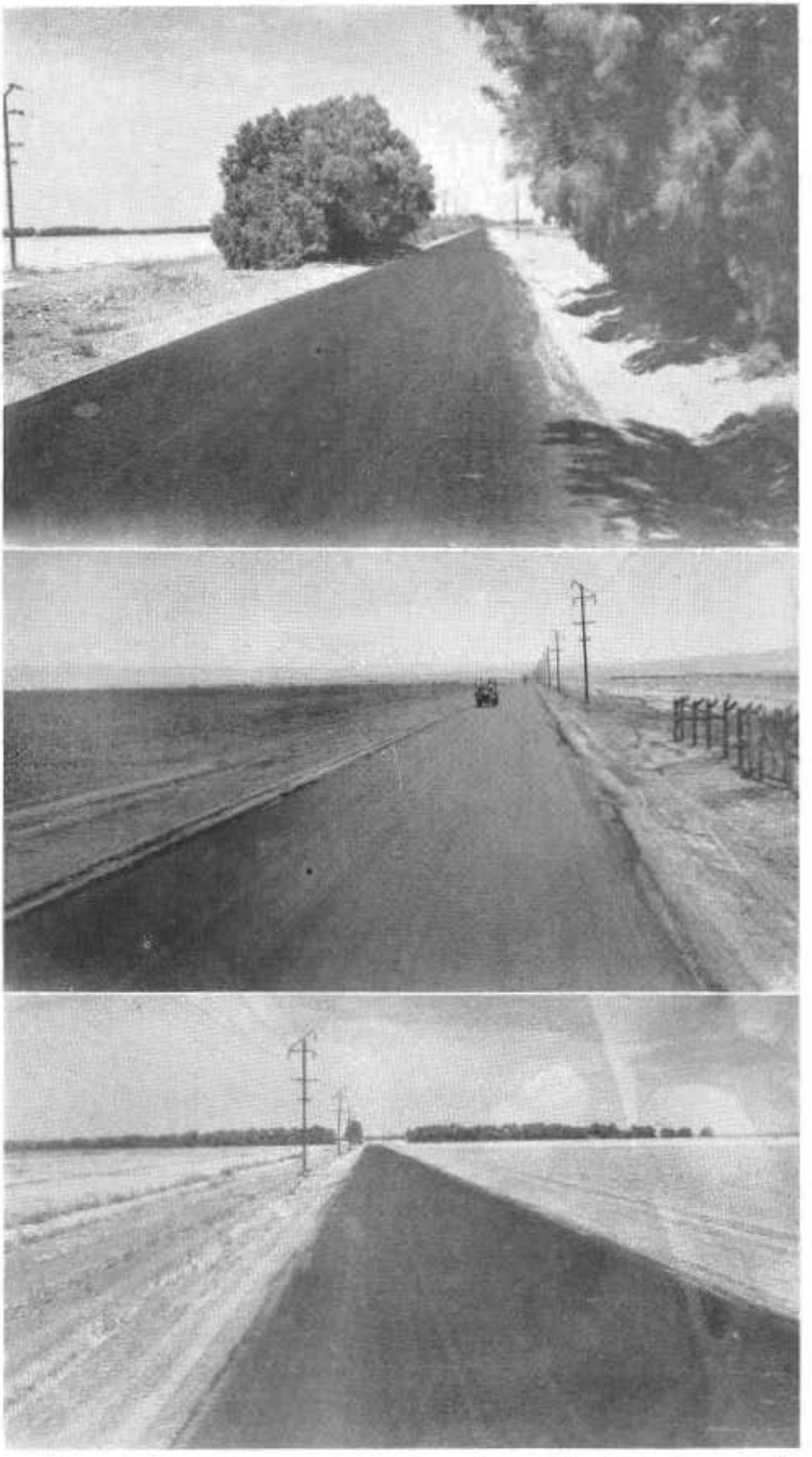
The project provided for reconstruction on the Fresno-Coalinga road from three miles southwest of Five Points to approximately nine miles southwesterly.

This route is the most direct between Fresno and Coalinga and serves the rich agricultural area in the vicinity of Five Points as well as oil field areas. The route is among the more important of Fresno County's arteries and is typical of Federal Secondary Roads.

Design features provided for a total thickness of 12 inches of new material including 3 inches of bituminous treated surfacing, two traffic lanes of 11 feet each and three-foot oiled shoulders.

The reconstruction was programed by the Fresno County Board of Supervision because the destructive effects of increasing truck loadings had made the original lighter construction unmaintainable.

All engineering work was handled by the staff of County Engineer, A. J. Nielson, assisted by the Division of Highways Laboratory and District personnel. Edgar C. Smith was Resident Engineer on the project.

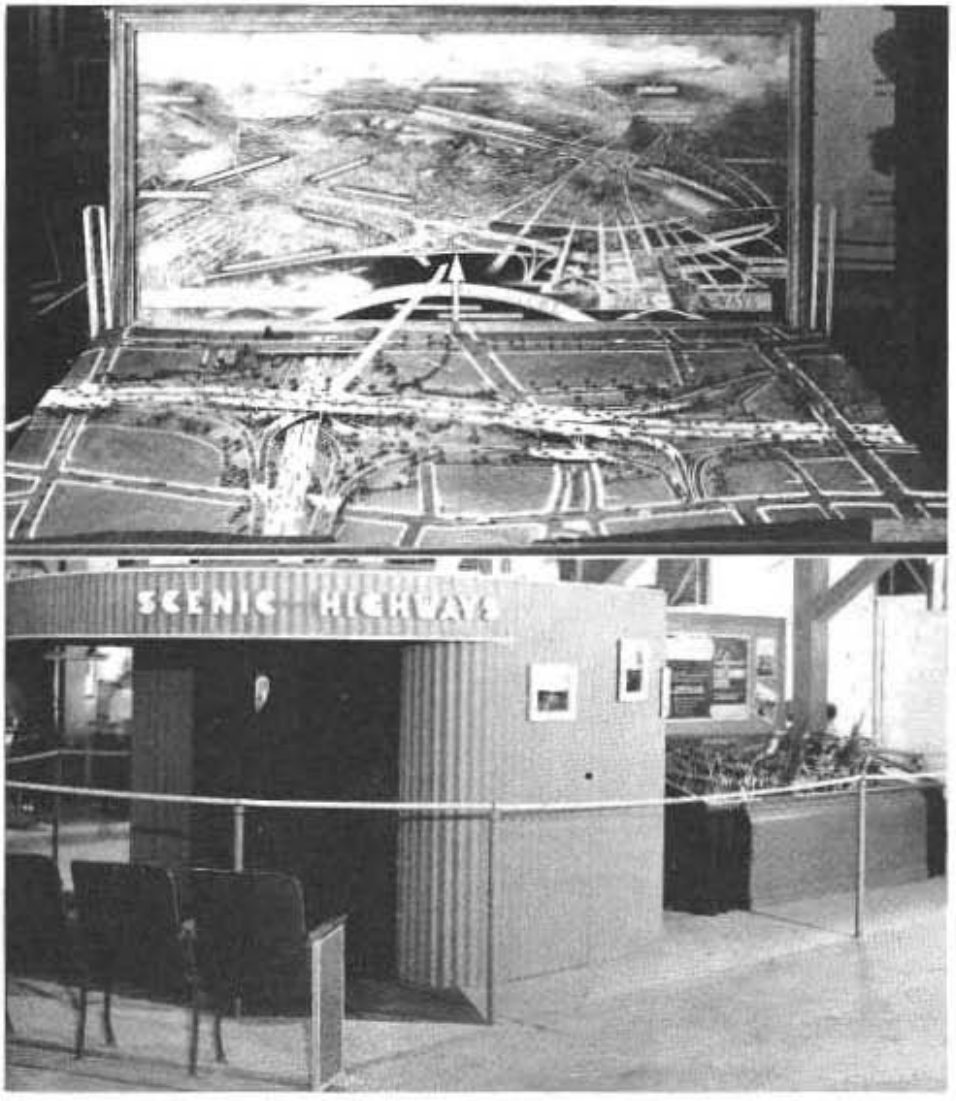


Upper—Looking northeast at point 5.5 miles southwest of Five Points. Center—Looking southwest toward Coalinga from a point 6.5 miles southwest of Five Points. Lower—Looking northeast from point 6.5 miles southwest of Five Points

Penalties Increased for Drunk, Negligent Driving

Penalties for drunken driving and for negligent driving were made more severe by the 1947 session of the State Legislature in response to public demand for increased safety on the highways. The law now requires that the license of any person convicted of drunken driving shall be suspended for 90 days for the first offense, instead of 30 days as previously provided. For a second or subsequent offense, the period of license suspension is set at one year, instead of 90 days, as previously.

Highways Exhibit at State Fair Proves to be Big Attraction



THOUSANDS of visitors to the California State Fair this year visited the exhibit of the Division of Highways in the Education Building.

A sketch by Van der Goes of the Bridge Department of the division, eight feet by three feet, depicting the unique four-level grade separation structure at the intersection of Hollywood Parkway, Arroyo Seco Parkway, and Harbor Parkway, in the City of Los Angeles and a model of the same project attracted considerable attention.

In another section of the exhibit was a plastic model on which highway traffic variations in terms of thin vertical planes were shown. Tall flourescent cylinders marked the cities and each vertical plane represented a state highway, with the height proportional to the volume of traffic in each section. Lowest points on the plane corresponded to an average traffic of 250 vehicles a day and the highest point represented a 70,000 vehicle a day traffic on the San Francisco-Oakland Bay Bridge.

Widening of U. S. 99

(Continued from page 6)

ure, placed this project near the top of the list of projects to be constructed in the immediate postwar period.

In April, 1946, Griffith Company of Los Angeles was awarded the major contract of grading and paving at a cost to the State of $433,000. A concurrent contract for constructing traffic-actuated signals and intersection lighting at five locations was awarded to the Oilfields Electric Company of Ventura at a cost to the State of about $40,000.

COMPLETED IN MARCH

Actual construction began in May, 1946, and the major contract was completed in March of this year.

The contract for traffic signals and lighting has been completed except for the installation of the luminaries. The traffic-actuated signals have been in operation since August and all reports to date on their handling of traffic have been highly satisfactory.

Grading and paving work was unusually difficult because of having to carry the large volume of traffic through construction, and also having to maintain access to the many commercial establishments which border the project throughout.

HEAVY GRADING

The work was confined to the existing 115.5-foot and 110-foot right of way which required that heavy grading operations be conducted within a few feet of buildings and other improvements. The relocation of pole lines, sewers, gas lines, water lines, telephone conduits and other utilities had to be coordinated with the progress of the contract work.

The cross-section of the highway in general consists of two 12-foot and one 11-foot lane on each side of a 17-foot curbed and planted median strip. An 8-foot parking lane borders each edge of the six-lane pavement. Curbs, gutters and sidewalks occupy the remainder of the right of way.

Low bearing ratios and the loose condition of the native soils required that excavation and compaction work be carried to a depth of three feet below profile grade. Only a small portion of the material excavated could be used in the fill because of its poor quality and was therefore disposed of

In Bakersfield

by the Contractor. A 12-inch thickness of high quality imported borrow was placed beneath the pavement subgrade and where Portland cement concrete pavement was used, the upper 3 inches of the imported borrow was plant-mixed with 85-100 penetration paving asphalt to keep moisture out of the subgrade.

THREE TYPES OF PAVEMENT

Pavement used on this project was of three general types. Asphalt concrete 3 inches thick over either old pavement or over 7 inches of Portland cement concrete base was used on about three-fourths of the project. North of 19th Street, where the old pavement was failing badly, it was removed and replaced with 8 inches of Portland cement concrete pavement. At the north end of the project 3 inches of plant-mixed surfacing over 5 inches of crusher run base was used as a temporary transition to the existing four-lane pavement.

Due to the large number of left turns at several of the intersections, special storage lanes were added by cutting into the median strip. The accompanying photographs show these very clearly and show how the three normal lanes of traffic in each direction are unhampered by left turning vehicles.

WILL INCREASE SIGNALS

At the present time the vehicles making left turns move with the green light for the six-lane highway. Eventually, as traffic increases, the vehicles making left turns will find it difficult to find an opening in the on-coming traffic. When this time comes, a third phase can be wired into the signals at a nominal cost to allow the left turns to be made while opposing traffic is stopped. Practically all of the underground work for this added feature was included in the present project.

Structures included in the project included extensions to an existing pedestrian underpass at Fremont School and extensions to two medium sized box culverts.

The State was represented on the project by J. W. Cole and W. M. Nett as resident engineers.

The project superintendent for Griffith Company was T. I. Gibson. M. H. Blacklock superintended the signal and lighting work for the Oilfields Electric Company.

New Highway in Solano and Yolo Counties Is Officially Dedicated

SOLANO and Yolo Counties celebrated on Saturday, August 23d, the completion of the first unit of the Vacaville-Dunnigan Cut-off. Dedication ceremonies were held at the junction of the new highway with U. S. 40 two miles east of Vacaville.

Officials of the two counties and representatives of civic organizations of Vacaville and Winters attended the dedication. State Highway Commissioner Homer P. Brown of Placerville was the principal speaker. Following the ceremonies the invited guests were tendered a luncheon by the Winters Chamber of Commerce.

For years a low standard of alignment on narrow rights of way and a number of blind vertical curves hindered traffic movement between the Yolo-Solano county line and Vacaville. This condition existed because the old seven-mile portion of State Route 90 between Vacaville and Allendale Station followed rolling foothill roads, which were adapted only to traffic of low density.

Although the old road will probably remain for the convenience of local residents, much safer and faster traffic movement is provided by the new relocation. This somewhat shorter route begins at the intersection of U. S. 40 with the Vacaville-Dunnigan portion of the Sacramento Valley Highway.

Closely paralleling the way stations at Hartley, Allendale, and Wolfskill on the Southern Pacific Railroad between Vacaville and Winters, the new route crosses Pine Tree, Horse, Gibson Canyon, Sweeney, and Putah Creeks, and terminates on the Solano-Yolo county line at the southerly town limits of Winters.

The new cut-off eliminates three dangerous grade crossings with the branch line railway. Likewise, several right-angled, short radius curves are done away with. Sight distances on vertical curves are improved materially, and wider and stronger stock crossing structures have been introduced.

In the future it will be necessary to parallel the two-lane, seven-mile section with an equally wide alternate direction pavement of modern design.

Commissioner Homer P. Brown

At such time, the need and convenience of a four-lane divided freeway on this lower Sacramento Valley route will become apparent to the motoring public.

Considerable saving is made in distance over that on the old road. Five pleasingly designed concrete bridges add to the scenic and safety features of the Winters-Vacaville State Highway.

This southerly portion of the Dunnigan Cut-off was built by contract awarded to Fredrickson Brothers of Emeryville. The cost to the State has exceeded $750,000, including day-labor and maintenance account supplemental work in the vicinity of Winters.

The new westerly two lanes of the eventual four-lane divided freeway have been paved 24 feet wide and eight inches thick. In addition, there is an eight-foot, seal-coated shoulder bordering the Portland cement concrete pavement. An imported creek-run gravel base 22 inches thick stabilizes the previously unsatisfactory subgrade.

Highway Bids and Contract Awards for August and September, 1947

August, 1947

ALAMEDA COUNTY—At Fruitvale Avenue in the City of Oakland, the superstructure for an overhead structure over the tracks of the Southern Pacific Railroad to be constructed. District IV, Route 69. Haas & Rothschild, San Francisco, $646,722; Judson Pacific Murphy Co., Emeryville, $647,414; S. J. Amoroso Construction Co., San Francisco, $648,252; Stolte, Inc. & The Duncanson Harrelson Co., San Francisco, $648,449; Chas. L. Harney & A. Soda & Son, San Francisco, $674,296; Guy F. Atkinson Co., South San Francisco, $705,301; Fredrickson & Watson Construction Co., Oakland, $736,896; Clinton Construction Co. of California, San Francisco, $742,106; Fredrickson Bros., Emeryville, $759,501. Contract awarded to J. H. Pomeroy & Co. Inc., San Francisco, $646,322.40.

FRESNO COUNTY—Between one-fourth mile south of Fowler and Calwa Overpass (portions) about 6.4 miles in net length, concrete curbs to be constructed. District VI, Route 4, Section A, Fow, B. Ted F. Baun, Fresno; $17,901; C. J. B. Construction Co., Oxnard, $30,565. Contract awarded to F. Gunner Gramatky, Fresno, $15,775.50.

KERN COUNTY—Between Keene and Tehachapi, the superstructures for two bridges across Tehachapi Creek and for two combined bridge and overhead structures across Tehachapi Creek, and the tracks of the Southern Pacific Company, to be constructed. District VI, Route 58, Sections E. F. Haddock Engineers, Ltd., Oceanside, $410,368; H. B. Nicholson, Pasadena, $412,509; Byerts & Dunn, Los Angeles, $462,027. Contract awarded to Guy F. Atkinson Company, South San Francisco, $392,390.10.

LAKE COUNTY—Between Route 89 and one mile west of Lower Lake, about 5.1 miles to be graded and Class "B-Double" seal coat applied. District I, Route 1039. Dix-Syl Construction Co., Inc., Bakersfield, $131,187.50; N. M. Ball Sons, Berkeley, $141,291; A. G. Raisch Co. & Staring & Galbraith, San Francisco, $156,849; Piombo Construction Co., San Francisco, $162,908; Fredrickson Bros., Emeryville, $164,189; Johnston Rock Co. and Gordon L. Capps, Stockton, $171,828; Fredrickson & Watson Construction Co., Oakland, $198,218. Contract awarded to Morrison-Knudsen Company, Inc., San Francisco, $111,182.20.

LASSEN COUNTY—At Baxter Creek, about 2 miles north of Janesville, about 1.1 miles to be graded and surfaced with road-mixed surfacing on cement treatment. District II, Route 29, Section C. A. Teichert & Son, Inc., Sacramento, $169,766. Contract awarded to Fredrickson & Watson Construction Co., Oakland, $99,712.20.

LOS ANGELES COUNTY—Across Los Angeles River at Florence Avenue, near the City of Bell, a reinforced concrete bridge to be constructed and approximately 0.26 mile to be graded and paved with asphaltic concrete pavement and pre-mix pavement. District VII, Route 838. Guy F. Atkinson Co., Long Beach, $439,737; MacDonald & Kruse & Hensler Const. Corp., Glendale, $439,929; W. J. Distell, Los Angeles, $443,961; Peter Kiewit Sons Co., Arcadia, $453,106; Carlo Bongiovanni, Los Angeles, $462,785; Dimmitt & Taylor & K. B. Nicholas, Los Angeles, $467,606; Byerts & Dunn, Los Angeles, $481,948; Griffith Co., Los Angeles, $490,784; Oberg Bros., Inglewood, $545,865; Haddock Co., Pasadena, $546,768. Contract awarded to H. B. Nicholson, Pasadena, $419,162.

MONO COUNTY—Near Coleville, Coleville Lane D and Coleville Lane B, about 3.4 miles to be graded and a penetration treatment applied. District IX, Route 1094. George E. France, Visalia, $58,467; Johnston Rock Co., Stockton, $61,600; Dix-Syl Construction Co., Inc., Bakersfield, $68,097; Isbell Construction Co., Reno, $72,154; Barney H. Stoutenburg, Carson City, $73,642. Contract awarded to Nevada Constructors, Inc., Reno, $54,382.71.

MONTEREY COUNTY—Across Big Sur River, in Pfeiffer-Big Sur State Park, a structural steel bridge with timber deck to be constructed. District V. Bos Construction Co., Oakland, $19,242; Stolte, Inc., Monterey, $23,650; Dan Caputo, San Jose, $25,325; Granite Construction Company, Watsonville, $34,485; C. J. B. Construction Co., Oxnard, $44,250. Contract awarded to Madonna Construction Co., San Luis Obispo, $18,480.

ORANGE COUNTY—Between El Toro and Irvine, about 2.2 miles, to be repaired with untreated rock base and plant-mixed surfacing. District VII, Route 2, Section B. Jesse S. Smith, Glendale, $61,700; Catalina Construction Co., Covina, $63,480; Griffith Co., Los Angeles, $65,770; Cox Bros. Construction Co., Stanton, $67,484; Oswald Bros., Los Angeles, $68,180; Sully-Miller Contracting Co., Long Beach, $69,570; Cee Tee Construction Corp., Puente, $73,305; Contract awarded to O'Brien & Bell Construction Co., Santa Ana, $59,328.50.

PLACER COUNTY—On county roads between Loomis and Auburn via Brennan's Corner and between Route 768 at Kister's Corner and Newcastle, about 11.9 miles to be graded and road-mixed surfacing placed thereon. District III, Routes 768, 769, 770. Claude C. Wood Co., Lodi, $153,845; Fredrickson & Watson Construction Co., Oakland, $159,039; A. R. McEwen & C. M. Syar, Vallejo, $175,978; A. Teichert & Son, Inc., Sacramento, $186,900; W. C. Railing, Redwood City, $198,236. Contract awarded to H. Earl Parker, Inc., Marysville, $142,869.40.

RIVERSIDE COUNTY—Near Cathedral City, two dips to be constructed and surfaced with plant-mixed surfacing. District VIII, Route 187. Section C, E. L. Yeager, Riverside, $6,451; Herz Paving Co., San Bernardino, $7,712; Cee Tee Construction Corp., Puente, $7,259; R. A. Erwin, Colton, $6,918; Matich Bros., Colton, $9,172. Contract awarded to R. P. Shea Co., Indio, $6,268.20.

SACRAMENTO COUNTY—On Howe Avenue, between Arden Way and State Highway Route 3, about 1.9 miles to be graded and surfaced with armor coat and crusher run base on imported borrow. District III, Route 937. A. Teichert & Son, Inc., Sacramento, $69,972; McGillivray Construction Co., Sacramento, $71,169; Brighton Sand and Gravel Co., Sacramento, $73,634. Contract awarded to George E. France, Visalia, $65,247.60.

SACRAMENTO COUNTY — Dismantling two quonset buildings located at Camp Parks near Livermore, transporting material therefrom to Sacramento and reconstructing one quonset building. District III. Wilkins Draying Co., Sacramento, $11,490; William B. Willett Company, San Francisco, $10,115; Dave L. Sills, Sacramento, $12,424; H. V. Cross Inc., Moutain View, $11,905. Contract awarded to Sutter Construction Co., Sacramento, $8,398.31.

SAN BERNARDINO COUNTY — On Bloomington Avenue, between Riverside Avenue and Colton Avenue, about 2.1 miles to be graded and surfaced with plant-mixed surfacing. District VIII, Route 706. Geo. Herz & Co., San Bernardino, $54,469; Matich Bros., Colton, $54,628; E. L. Yeager, Riverside, $54,713; Griffith Co., Los Angeles, $55,793; Oswald Bros., Los Angeles, $59,199; Cee Tee Construction Co., Puente, $66,381. Contract awarded to T. M. Page, Monrovia, $52,960.40.

SAN DIEGO COUNTY—Furnish and install traffic signal system at 11th Avenue and A Street in City of San Diego. District XI, Route 77, California Electric Works, San Diego, $12,500; Ets-Hokin & Galvin, San Diego, $13,830. Contract awarded to Tri-Cities Electric Service, Oceanside, $9,597.

SAN DIEGO COUNTY—Between Escondido and 3.4 miles south of Riverside County line, a distance of about 19.6 miles, to be surfaced with plant-mixed surfacing. District XI, Route 77, Sections F, G. R. E. Hazard Contracting Co., San Diego, $205,783; Griffith Co., Los Angeles, $216,913; Daley Corporation, San Diego, $226,453; Basich Bros. Construction Co. and Basich Brothers, Alhambra, $235,215; A. Teichert & Son, Inc., Sacramento, $244,190; United Concrete Pipe Corp. & Jesse S. Smith, Baldwin Park, $244,515; Peter Keiwit Sons' Co., Arcadia, $247,140; Dimmitt & Taylor, Los Angeles, $252,912; MacDonald & Kruse & Hensler Construction Corp., Glendale, $254,750; Silva & Hill Construction Co., Los Angeles, $279,565; Warren Southwest, Inc., Los Angeles, $281,487; Haddock Engineers, Ltd., Oceanside, $285,892; Herz Paving Co., San Bernardino, $293,131; V. R. Dennis Construction Co., San Diego, $320,439. Contract awarded to Morrison-Knudsen Co., Inc., San Francisco, $203,180.

SAN JOAQUIN COUNTY—Between Calaveras River and Lodi, furnishing and installing concrete barrier posts and metal plate guard railing at various locations. District X, Route 4, Section C. Evans Construction Co., Berkeley, $27,378; George Von KleinSmid, Bakersfield, $30,111; Westbrook & Pope, Sacramento, $31,672; C. J. B. Construction Co., Oxnard, $36,765; Claude C. Wood Co., Lodi, $37,257; A. Teichert & Son, Inc., Sacramento, $38,884; Fredrickson & Watson Construction Co., Oakland, $39,730; M. J. B. Construction Co., Stockton, $41,466; S. C. Giles and Co., Stockton, $47,136. Contract awarded to F. Kaus, Stockton, $24,120.

SAN LUIS OBISPO COUNTY—At California Polytechnic School, about 2.7 miles to be graded and plant-mixed surfacing placed on imported borrow. District V. Madonna Construction Co., San Luis Obispo, $52,127; Granite Construction Company, Watsonville, $53,937; Ted F. Baun, Fresno, $54,639. Contract awarded to Brown-Doke, Pismo Beach, $46,760.50.

SAN MATEO COUNTY—In Burlingame on El Camino Real, between Rosedale Avenue and Primrose Road, furnishing and installing fixed time traffic signal systems at 10 intersections. District IV, Route 2, Section A, Burl. Abbett Electric Co., San Francisco, $40,207; H. S. Tittle Company, San Francisco, $40,541; H. C. Reid Company, San Francisco, $51,460; L. H. Leonardi Electric Construction Co., San Rafael, $54,581. Contract awarded to Severin Electric Co., San Francisco, $37,065.41.

SAN MATEO COUNTY—Between North City Limits of South San Francisco and 0.35

mile south of Colma Creek, about 2.1 miles to be graded and paved with portland cement concrete, asphalt concrete and plant-mixed surfacing on crusher run base and a steel stringer highway overcrossing and reinforced concrete pedestrian overcrossing to be constructed. District IV, Route 68. Fredrickson & Watson Construction Co., Inc., Oakland, $971,251; Chas. L. Harney, Inc., San Francisco, $993,344; Granite Construction Co., Watsonville, $1,076,522; Morrison-Knudsen Company, Inc., San Francisco, $1,124,971. Contract awarded to Guy F. Atkinson Co., South San Francisco, $962,631.30.

SAN MATEO COUNTY—On Bayshore Freeway, between South San Francisco and Burlingame, superstructures and approaches for four overcrossings to be constructed. District IV, Route 68. J. H. Pomeroy & Co. Inc., San Francisco, $1,023,871; Charles L. Harney & A. Soda & Son, San Francisco, $1,045,897; M & K Corp., San Francisco, $1,059,999; L. E. Dixon Company, San Gabriel, $1,082,376; Guy F. Atkinson Co., South San Francisco, $1,085,894; Peter Kiewit Sons' Co., San Francisco, $1,091,816; United Concrete Pipe Corp. & Ralph A. Bell, Baldwin Park, $1,287,192. Contract awarded to Carrico & Gautier, San Francisco, $989,150.

SANTA BARBARA COUNTY—Over the tracks of the Southern Pacific Company at Salsipuedes Street in the City of Santa Barbara, the superstructure for an overhead crossing to be constructed. District V, Route 2. J. H. Pomeroy & Co., Inc., San Francisco, $533,308; Haddock-Engineers Ltd., Oceanside, $542,761; Earl W. Hiple, San Jose, $551,127; L. E. Dixon Co., San Gabriel, $553,581; Macco Corporation, Clearwater, $558,011; H. B. Nicholson, Pasadena, $564,721; The Contracting Engineers Company, Los Angeles, $578,562; A. Teichert & Son, Inc., Sacramento, $583,481; Dimmitt & Taylor, Los Angeles, $594,243; Carlo Bongiovanni, Los Angeles, $607,504; Sharp & Fellows Contracting Co., Los Angeles, $621,405; N. M. Ball Sons, Berkeley, $635,793. Contract awarded to Carl N. Swenson Co., Inc., San Jose, $527,522.45.

SANTA CLARA COUNTY—On San Jose-Stevens Creek Road between Saratoga Avenue and Cupertino, about 3.5 miles to be graded and surfaced with plant-mixed surfacing, and existing bridges to be widened. District IV, Route 1000. Leo F. Piazza, San Jose, $215,689; Fredrickson Bros., Emeryville, $249,730. Contract awarded to A. J. Raiseh Paving Company, San Jose, $182,646.14.

SISKIYOU COUNTY — At Bear Creek about one-fourth mile south of Station 1239. Furnishing and stockpiling mineral aggregate. District II, Route 83, Section A. Contract awarded to McCoy & Butler, Yuba City, $11,250.

SONOMA COUNTY—About 0.5 mile east of the junction of Route 56 and the county road to Annapolis, mineral aggregates to be furnished and stockpiled. District IV, Route 56, Section E. Contract awarded to Arthur B. Siri, Santa Rosa, $13,475.

TEHAMA COUNTY—About 15 miles west of Red Bluff, the existing bridge across South Fork Cottonwood Creek to be repaired. District II, Route 29, Section E. Barton & Anderson, Oakland, $11,654; Liston Ehorn, Red Bluff, $12,275; C. C. Gildersleeve, Douglas City, $12,469; Evans Construction Co., Berkeley, $12,755; Bos Construction Co., Oakland, $13,422; T. A. Kvale, Ojai, $14,440; Westbrook & Pope, Sacramento, $14,525; Litchfield Construction Co., San Rafael, $16,645; S. C. Giles & Co., Stockton, $30,803. Contract awarded to C. M. Allen, Fairfield, $10,355.

September, 1947

ALAMEDA COUNTY—In the City of Oakland at the San Francisco-Oakland Bay Bridge Toll Plaza, about 0.6 mile, sand fill to be constructed. District IV, Route 5. Johnson Western Co., Alameda, $311,884; Construction Aggregates Corp., San Francisco, $322,500. Contract awarded to S. F. Bridge Co., San Francisco, $270,100.

ALAMEDA COUNTY — In the City of Oakland, at the San Francisco-Oakland Bay Bridge Toll Plaza, about 0.6 mile, rock slope protection and drainage facilities to be constructed. District IV, Route 5. Macco Corporation, Clearwater, $197,905; Chas. L. Harney, Inc., San Francisco, $235,614; Healy Tibbitts Construction Co., San Francisco., $238,150; Lee J. Immel, San Pablo, $241,486. Contract awarded to Piombo Construction Co., San Francisco, $181,806.50.

COLUSA COUNTY — Between Route 7 and Williams (Myers and Zumwalt Roads) and between Stone Corral Creek and Route 7 (McDermott & Lenechan Roads), a net length of about 8.6 miles, existing roadbed to be reshaped, imported borrow to be placed, penetration treatment and seal coat to be applied and a reinforced concrete slab bridge to be constructed across Stone Corral Creek. District III, Routes 1033, 1035, 1036. Jensen & Pitts, San Rafael, $83,085; A. Teichert & Son, Inc., Sacramento, $89,709; Harms Bros., Sacramento, $93,933; W. C. Railing, Redwood City, $95,018; Rice Bros., Marysville, $96,243; Johnston Rock Co., Stockton, $97,438; H. Earl Parker, Inc., Marysville, $99,473; H. & D. Construction Co., San Anselmo, $99,563; Edmondson & Miller, Sacramento, $109,000; J. Henry Harris, Berkeley, $109,085. Contract awarded to Fredericksen & Kasler, Sacramento, $78,421.

FRESNO COUNTY — Across Helm and Colony Canals, between 2 and 6 miles north of Firebaugh, two reinforced concrete slab bridges to be constructed. District VI, Route 41, Section M. Charles MacClosky Co., San Francisco, $47,743; G. M. Carr & Bati Rocca, Santa Rosa, $49,163. Contract awarded to E. G. Perham, Los Angeles, $41,909.50.

GLENN COUNTY — Across Sacramento River and East Branch of Rasor Slough near Butte City, portions of the superstructures of two bridges to be constructed. District III, Route 45, Sections B,C. A. Soda & Son, Oakland, $261,073; Frederickson & Watson Construction Co., Oakland, $268,685; Stolte, Inc., Oakland, $273,804; Carl N. Swenson Co., Inc., San Jose, $278,189. Contract awarded to Judson Pacific-Murphy Corp., Emeryville, $228,990.32.

HUMBOLDT COUNTY — Across South Fork of Eel River, near Redway, repairs to the steel bridge. District I, Whittemore State Park. Judson Pacific-Murphy Corp., Emeryville, $50,788; Butte Construction Co., San Francisco, $62,127; S. C. Giles and Co., Stockton, $66,585. Contract awarded to Reed & Tuttle, Redwood Valley, $39,580.

HUMBOLDT AND DEL NORTE COUNTIES—Repairing members of three steel truss highway bridges across Eel River, Yager Creek, and Smith River. District I, Routes 1,35,1, Sections E,A,C. Eureka Boiler Works & Acme Foundry Co., Eureka, $6,400. Contract awarded to C. E. Johnson, Eureka, $3,750.

HUMBOLDT COUNTY—Across and adjacent to Klamath River, at Weitchpec, a steel bridge superstructure to be constructed; about 0.3 mile of approaches to be graded and surfaced with imported base material; and about 0.6 mile of approaches to be sealed with a Class "C-Double" seal coat. District I, Routes 84,46; Sections B,CD. J. H. Pomeroy & Co. Inc., San Francisco, $428,272. Contract awarded to Guy F. Atkinson Co., South San Francisco, $347,355.

IMPERIAL COUNTY—Between Trifolium Canal and 2 miles north of Sandy Beach Road, a net distance of about 15.1 miles, portions to be graded, bituminous surface treatment to be applied, plant-mixed surfacing to be placed over existing surfacing and new base, and bridges to be constructed. District XI, Route 26, Sections A,B,C. MacDonald & Kruse and Hensler Construction Corp., Glendale, $497,012; Morrison-Knudsen Co., Inc., San Francisco, $529,285; R. P. Shea Construction Co., Indio, $542,393; Dimmitt & Taylor, Los Angeles, $551,228; Griffith Co., Los Angeles, $623,339; Peter Kiewit Sons Co., Arcadia, $629,019; Basich Bros. Construction Co. & Basich Bros., Alhambra, $678,965; R. E. Hazard Contracting Co., San Diego, $712,967. Contract awarded to R. A. Erwin & Cee Tee Construction Co., Puente, $419,275.95.

IMPERIAL COUNTY — At points between Grays Well and Winterhaven, 12 timber bridges to be repaired. District XI, Route 27, Section B. E. S. and N. S. Johnson, Contractors, Fullerton, $36,866; Walter H. Barber, La Mesa, $41,687; Catalina Construction Co., Covina, $49,847; C. J. B. Construction Co., Oxnard, $52,254; Thorsten & Dahl, Santa Monica, $57,951. Contract awarded to C. B. Tuttle Co., Long Beach, $35,774.50.

INYO COUNTY — Between Laws and Mono County line, 2.5 miles of fence to be constructed. District IX, Route 76, Section A. Contract awarded to Bishop Engineering & Construction Co., Bishop, $4,757.90.

INYO COUNTY — On Pine Creek Road near Bishop and on Glacier Lodge Road near Big Pine, a net distance of about 4.2 miles in length to be graded, bituminous surface treatment and penetration treatment to be applied and two timber culverts to be constructed. District IX, Routes 1071 and 1069. Arthur A. Johnson, Laguna Beach, $78,907; Dix-Syl Construction Co., Inc., Bakersfield, $90,078; Browne & Krull, Palto Alto, $103,280; Macco Corp., Clearwater, $110,374. Contract awarded to Westbrook & Pope, Sacramento, $76,074.30.

LOS ANGELES COUNTY — On Arroyo Seco Parkway, between Bernard Street and Avenue 22, about 1.2 miles to be planted. District VII, Route 165. Henry C. Soto & Co., San Pedro, $19,194; Jannoch Nurseries, Altadena, $24,139. Contract awarded to Huettig & Schromm, Palo Alto, $15,871.50.

MONTEREY COUNTY—Over the tracks of the Southern Pacific Company, on Sanborn Road, about 2 miles southeast of Salinas, a steel beam span overhead crossing to be constructed. District V, Route 1084. Granite Construction Co., Watsonville, $186,573; Earl W. Heple, San Jose, $188,235; Carl N. Swenson Co., Inc., San Jose, $189,943; Charles MacClosky Co., San Francisco, $204,094; Peter Kiewit Sons Co., San Francisco, $233,050. Contract awarded to Dan Caputo, San Jose, $183,527.50.

MARIPOSA COUNTY — At points between about 17 miles west of Mariposa and about 12 miles east of Mariposa, six bridges to be constructed. District X, Routes 966 and 963. Carl N. Swenson Co., Inc., San Jose, $95,343; Dan Caputo, San Jose, $98,942; G. M. Carr & Bati Rocca, Santa Rosa, $104,710; S. C. Giles & Co., Stockton, $108,601; C. J. B. Construction Co., Oxnard, $147,662. Contract awarded to E. H. Peterson & Son, Richmond, $83,826.

SHASTA COUNTY—Across Sacramento River at Redding and across Pit River, about 15 miles north of Redding. District II, Route 3, Section B. Contract awarded to J. H. Mohr, Inc., San Francisco, $10,344.

Director of Public Works C. H. Purcell of California shakes hands with Governor Vail Pittman of Nevada at dedication of Meyers Grade project. Frank Globin, President of South Tahoe Improvement Association, on left

Projects on U. S. Route 40 and U. S. Route 50

(Continued from page 18)

distances adequate for necessary passing zones. Work on this project was started in March, 1946, and was completed in March, 1947, at a cost of approximately $520,000. The contractor was H. Earl Parker of Marysville and the Public Roads Administration Resident Engineer was H. T. Gunderson.

RIBBON CUTTING CEREMONY

Officials and motorists of California and Nevada joined on September 13th in celebrating at Bijou, Lake Tahoe, the completion of the Meyers Grade section on U. S. 50.

Governor Vail Pittman of Nevada, Director of Public Works C. H. Purcell of California, representing Governor Earl Warren, E. C. Brown, District Engineer of the U. S. Public Roads Administration, and Congressman Clair Engle participated in ribbon cutting ceremonies.

The celebration was staged by the South Tahoe Improvement Association of which Frank Globin is president. Alan Bible, Attorney General of Nevada, was master of ceremony. The festivities were concluded with a barbecue attended by several thousand persons.

MEYERS GRADE IMPROVED

Opening to traffic of the Meyers Grade project represented completion of a five-mile relocation started in 1936. During the years 1936 to 1939 the upper 2.3-mile portion of the relocation was completed, but this still required that traffic use the major portion of the old road which had a minimum width of 16 feet, curves of 40-foot radius and grades up to 15 percent.

In the summer of 1941 a contract for grading and plantmix bituminous surfacing on the lower 2.7-mile section was awarded by Public Roads Administration to Johnson Rock Company, Inc., of Stockton, but more vital war work made termination of this contract necessary late in 1942, with only a small portion of the contemplated work completed. In December, 1945, a contract for completion of the project

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Colorful Ceremonies Mark Dedication of New Highway

(Continued from page 5)

Commission; Fred J. Grumm, Assistant State Highway Engineer; and others. Director Purcell spoke for Governor Warren.

PURCELL SPEAKS FOR GOVERNOR

Purcell said, in part:

"Governor Warren had hoped to be present today and celebrate, with you, completion of the first major postwar project in your Redwood Empire. Other important duties in connection with State Government prevented his presence, however, and he has asked me to express his sincere regrets and to tell you that he was extremely sorry that he could not be here.

"The Governor has a keen interest in providing highway facilities adequate to serve all of California. He has been successful in obtaining legislation which will provide increased revenues for necessary construction.

"These increased revenues will make it possible to continue modernization such as the highway you see here today. The California Highway Commission and the Division of Highways of the Department of Public Works believe that this newly completed project is an example of the type of facility needed to advance the economy of the State.

LEGISLATURE INCREASES REVENUES

"It is a step toward providing a greater convenience to the motoring public and to advance the economy of your magnificent Redwood Empire by providing an impetus for increased commerce between this and other generously productive areas.

"With the signing by Governor Earl Warren of the Collier-Burns Highway Act, enacted by the Legislature in the closing hours of its 1947 Session, the Division of Highways is assured of an average of approximately $76,000,000 annually for the next 10 years for new state highway construction.

"For the current year of July 1, 1947, to June 30, 1948, new revenue for right of way, construction engineering, and construction will amount to 17 million dollars over and above amounts provided by previous legis-

lation. With this added 17 million, the amount allocated to the southern group of counties will total 27 million dollars, and to the northern group of counties 24 million dollars.

"You may be sure that action will be taken to correct highway deficiencies in Marin and Sonoma Counties, as well as in the balance of the Redwood Empire, as fast as funds become available for allotment to the most critical proposed projects. Improvements such as this do not 'just happen.' They result from prudent consideration of the present and future needs. They represent a lot of planning and a great amount of energy spent by civic-minded groups and individuals.

"I want to give credit where credit is due. It is with deep sorrow that I miss an old familiar face here today. The passing of Senator Herbert Slater has taken a friend of yours, and mine. He was an able champion in many fields of public improvement, not the least of which was the development of streets and highways.

"The late Senator Slater and business and civic leaders up here, including members of the Redwood Empire Association, have been most cooperative by demonstrating wisdom and foresight in keeping the commission fully appraised of your highway needs. Their combined efforts are partly reflected in the expanded service facility provided by this new highway, which, along with other important future improvements, will greatly affect the economy and growth of California's Redwood Empire."

A band, roving musicians, costumed girls from Novato, Petaluma, and San Rafael, and Novato riders, added color to the celebration, which was directed by Clyde Edmondson, General Manager of the Redwood Empire Association. Following the dedication, the official guests proceeded to the New Hotel, Petaluma, for an informal buffet luncheon, provided by the Petaluma City Council, Petaluma Chamber of Commerce, and Redwood Empire Association.

New Feather River Bridge Between Marysville and Yuba City Dedicated

Official group at Marysville-Yuba City bridge dedication. Left to right, front row: Mayor Henry Johnson, Marysville; Assemblyman Bert Loomis, Chico; General R. E. Mittelstaedt; Senator W. P. Rich; Highway Commissioner Harrison R. Bakcr; Deputy Public Works Director A. H. Henderson; State Highway Engineer George T. McCoy; District Engineer C. H. Whitmore, Marysville; Bridge Engineer F. W. Panhorst. Back row: Second from end, left to right, Chairman E. F. DaCosse, Sutter Board of Supervisors; Supervisor Carl Hamon, Marysville; Chairman James P. Brown, Yuba Board of Supervisors; City Councilman Howard Harter, Yuba City; District Attorney Roy Hewitt of Marysville; Highway Commissioner Chester H. Warlow, Fresno; Highway Commissioner Walter Sandelin, Ukiah; Jules E. Gerhardt, Chico; Hugo Del Pero, Yuba City; Lester Rice, Marysville; "Doc" Rice, Marysville; Keith Kenyon, Secretary, Sutter Chamber of Commerce

(Continued from page 22)

"Today we stand upon this new bridge, five blocks upstream and 40 years further along in the history and development of California, to dedicate this modern structure.

"This new bridge is approximately one-half mile long and represents a total cost, together with the approaches, of about $3,000,000. Built to carry four 12-foot traffic lanes, two in each direction, separated by a four-foot safety division strip in the center, the State considers it one of the most modern structures on the State Highway System and feels that it is an important asset not only to this section of California but also to the entire state system.

"We know what it means *now* to the cities of Marysville and Yuba City and to Sutter and Yuba Counties to have a modern bridge facility which will expedite the flow of through traffic. But it should give you greater satisfaction to know that this new improvement was not engineered just for the current traffic of some 22,000 vehicles per day. It is expected that by 1965 the traffic will have increased to about 37,000 vehicles per day and that this new construction will provide adequately for many years beyond that date."

This is another view of intersection of Highway 17 and Niles Canyon Road, showing adequate traffic warning signs

Engineers Must Have Help of Motorists To Combat Accidents

(Continued from page 9)

highways shows that by their own admission 94 percent of drivers involved were familiar with the highway at that point through previous use. It was not that they did not know but that they did not appreciate and perform up to their responsibility to themselves and others which they must necessarily accept when they drive. Your assistance in keeping this truth uppermost in the minds of highway users can be of outstanding benefit, and I earnestly bespeak your cooperation toward this end.

HIGHWAY DEFICIENCIES

The work of the recent Legislature, with its exhaustive study of the entire highway situation throughout the State, is, of course, well known to you as to all other informed citizens. From it you know that there are now on the State Highway System alone deficiencies which measured in dollars and cents amount in round numbers to 1.5 billion dollars. The revenues from present sources, at the rates now established, which will become available to correct these deficiencies are estimated to average about 76 million dollars per year over the next 10 years. It is apparent from this that all of the work which should be done cannot be done within any short period of time.

The Division of Highways as a part of its construction activities carries on a continuous program of traffic signal installations with first consideration necessarily being given to the most acutely congested intersections. Traffic control devices other than traffic signals are installed at all important intersections on the State Highway System. We have no fixed or inflexible criteria for the warrant of signals. Traffic volume is, of course, a paramount consideration. However, the accident history is in every instance also given careful study. In this connection it must be pointed out that any particular total number of accidents which have occurred at an intersection does not necessarily mean that traffic signals are warranted or even altogether desirable. Instances could be cited where the introduction of signals has increased the accident occurrence. And I am sure you would agree that the wholesale indiscriminate installation of signals would not only be an unwise expenditure of limited highway funds but would seriously and needlessly hamper the free movement of traffic in general, a condition directly the reverse of the basic reason for the investment of public funds in highway facilities.

APPRAISING ACCIDENTS

In appraising the accident records it is apparent that the aim must be to determine from the evidence they contain which ones of these would in reasonable probability have been prevented had signals been in place. Only such deserve any serious consideration. In the event an appreciable number are revealed by this study, their seriousness must still be weighed against a like reasonable probability that if signals were installed they might occasion another type of accident. Here we would mention the frequent increase in the rear-end type of accidents which result where signals are introduced against heavy volumes of relatively high speed traffic.

There are, as you know, literally thousands of highway intersections at grade on the State Highway System, and any program calling for even the most modest improvement of them must necessarily require in total a very large expenditure. And this in turn represents but a minor percentage of the over-all deficiencies which require improvement. Consequently, the Division of Highways can logically have but one policy, which is that such funds as are available be allocated and expended so as to obtain the maximum in traffic service per dollar expended and to spend each dollar where it should be spent; in other words, to do those things first which should be done first and to do these in a workmanlike manner.

For this rather lengthy and detailed exposition of certain policies and practices which are followed by this division I ask your indulgence. It has been made with the thought and sincere desire that through fuller understanding of all the elements which are involved, the highway user may be made to recognize and, most important of all, to accept the fact that if he so wills he has within himself more ability and power to reduce the highway accident toll than all other means combined, even to the point of its practical elimination. The Division of Highways will continue its best efforts to assist him in this accomplishment.

Yours very truly

G. T. McCOY
State Highway Engineer

Projects on U. S. Route 40 and U. S. Route 50

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was awarded to the E. W. Elliott Construction Company of San Francisco. Actual contract work was not started until June, 1946, because of snow conditions. Work continued, except for the 1946-1947 winter shutdown, until completion in September, 1947. The cost of the Elliott contract was approximately $275,000. The Public Roads Administration Resident Engineer on the work was H. L. Clausen.

Final cost of the entire five-mile relocation was approximately $750,000.

State of California

EARL WARREN, Governor

Department of Public Works

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

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