State of California

THE RESOURCES AGENCY

Department of Water Resources

BULLETIN No. 132-65

THE CALIFORNIA STATE WATER PROJECT IN 1965

JUNE 1965

HUGO FISHER
Administrator
The Res urces Agency

EDMUND G. BROWN
Governor
State of California

WILLIAM E. WARNE
Director
Department of Water Resources

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STATE OF CALIFORNIA—RESOURCES AGENCY

WILLIAM E. WARNE, *Director*

DEPARTMENT OF WATER RESOURCES
P.O. BOX 388
SACRAMENTO

June 1, 1965

Honorable Edmund G. Brown, Governor,
and Members of the Legislature
of the State of California

Gentlemen:

I have the honor to transmit herewith Bulletin No. 132-65, entitled "The California State Water Project in 1965". This is the official report on construction, operation, financing, and management of the State Water Project. The report is for the information of the State Legislature, the California Water Resources Development Finance Committee, project water and power users, the investors, and the public.

In transmitting to you this third comprehensive annual bulletin, it is my pleasure again to report that work is proceeding on schedule.

Sincerely yours,

William E. Warne

Director

STATE OF CALIFORNIA
THE RESOURCES AGENCY
EDMUND G. BROWN, Governor
HUGO FISHER, Administrator, The Resources Agency

DEPARTMENT OF WATER RESOURCES
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Alfred R. Golze'
Robin R. Reynolds
John E. Hunt
Donald A. Sandison
John M. Haley
J. K. Cummings
Helen T. Moss, Secretary

DIVISION OF OPERATIONS

This report was prepared under the direction of

Robin R. Reynolds . . . . . Division Engineer

by

Wayne MacRostie . . . . . Chief, Contracts and Repayment Branch
John R. Eaton . . . . . Chief, Project Analysis Section

Assisted by

Jean H. Jaquith
Harley R. Woodworth
Laurence C. Linser
Robert B. Chiarovano
Donald R. Long
James C. Scheler
Lawrence W. Smith
Donald H. Taylor
Donald A. Williams
Clinton E. Fitzgerald
Kenneth L. Scribner

and

Roderick L. Hall
John E. Anderson
Kay Shibata
Valerie Vann

Estimates concerning the future project water supply were made by

Division of Resources Planning

Wesley E. Steiner . . . . . Acting Division Engineer

- - - - -

Estimates of future project construction costs were made by

Division of Design and Construction

Haywood G. Dewey, Jr. . . . . Division Engineer

and by Area Management

John M. Haley . . . . . Acting Assistant Chief Engineer
Charles A. McCullough . . . . . Chief, Bay Area Branch
Carl A. Werner . . . . . Chief, Delta Branch
Gordon W. Dukleth . . . . . Acting Chief, Northern Branch
Carl L. Stetson . . . . . .Chief, San Joaquin Valley Branch
James J. Doody . . . . . District Engineer, Southern District

- - - - -

Power planning considerations and projected power costs and revenues were prepared under the direction of

J. K. Cummings . . . . . Chief, Power Office

- - - - -

The Project Financing Program was prepared under the direction of

John E. Hunt . . . . . Financial Adviser

Assisted by

Dillon, Read & Co. Inc. . . . . Financial Consultants

- - - - -

The Utility Financial Statements and prior annual expenditures were compiled under the direction of

Donald A. Sandison . . . . . Comptroller

CALIFORNIA WATER COMMISSION

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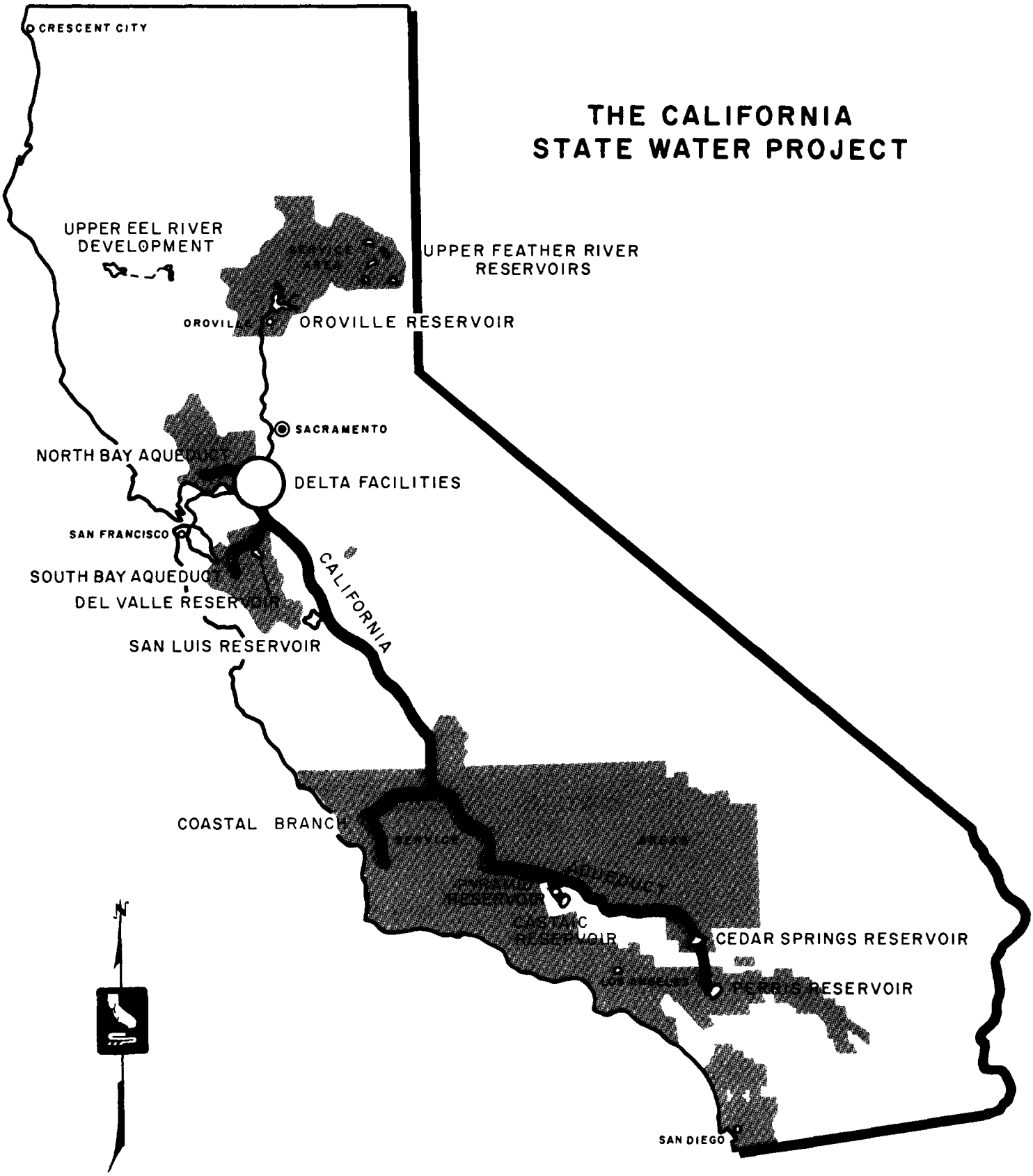
-----o-----

WILLIAM M. CARAH
Executive Secretary

ORVILLE L. ABBOTT
Engineer


THE CALIFORNIA
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RESERVOIRS
OROVILLE
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DEL VALLE RESERVOIR
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SAN DIEGO
N

PREFACE

This is the third in a series of comprehensive annual reports on California's State Water Project, tracing the development of its construction, operation, financial planning, and management.

The original volume of this series, Bulletin No. 132-63, described the status of the project in the spring of 1963. That report documented the history of each component facility since the time of its authorization for construction; summarized the principles of the water contracting program, under which 12 contracts had then been executed; estimated the total costs of the facilities sized to provide the originally conceived scope of project water supply; and introduced the general financial program now being followed, which involves the use of revenue bonds supported by Oroville-Thermalito power revenues in addition to the funds provided by the Burns-Porter Act.

The second of this series, Bulletin No. 132-64, described the project in the spring of 1964. The estimated costs presented therein were based upon project transportation facilities sized to provide a distribution of the full project water supply projected at the completion of the first phase of the water contracting program on December 31, 1963. The number of contractors had grown to 30, and there had been pronounced increases in demands for project water in the southerly areas of the State over what had been originally contemplated. This shift in potential service increased estimated project capital costs. It was still forecast, however, that sufficient funds would be available to finance these costs.

The present report in this series, Bulletin No. 132-65, records the many significant events that have occurred since release of Bulletin No. 132-64, including the completion of the water contracting program, the enlargement of the minimum project yield, final sizing and routing of several facilities, and important developments in the power marketing and purchasing programs. Estimated construction costs, operation and maintenance costs, and power costs and revenues of the project have been revised in light of these developments and have been accounted for in an updated analysis of the financial program described herein.

The period of time covered by this report is from generally April 1, 1964 to April 1, 1965, although in some areas developments after April 1, 1965, are reported. In other areas, to allow time for the large amount of computation work, the cutoff date was earlier than April 1, 1965.

CHAPTER I. THE CALIFORNIA STATE WATER PROJECT IN 1965

California is constructing the largest single integrated water development and transportation project yet known to man. California is building the State Water Project to meet the requirements of the State's continuing dynamic growth.

In the last 25 years, the population of California has grown from 6,900,000 to about 18,700,000. In the next 25 years, the population is projected to 35,300,000. It will swell to 54,000,000 by the year 2020, 55 years hence.

With less than three percent of the Nation's farm units, California accounts for ten percent of the gross cash value of United States' agriculture. Annual farm production currently totals almost $4,000,000,000. Another $2,000,000,000 in value is added in processing. The top three, eight out of the top ten, and fifteen out of the top twenty ranking agricultural counties among the 3,072 counties in the United States are in California.

The preeminence of California counties in the top twenty results from irrigation, long-growing seasons, intensive cultivation of high-value crops, and the progressive nature of the State's farmers. Ninety-five percent of the crop tonnage in California is grown on land that is irrigated.

It is currently estimated that every resident of California requires in an average day almost 200 gallons of water for domestic and industrial usages and 1,300 gallons for agricultural usages. This means that under present conditions, almost 28,000,000,000 gallons of water are used in California every day, or about 31,000,000 acre-feet of water on an annual basis. The State's developed annual water supply must be increased by at least 10,000,000 acre-feet by the year 1990 if California is to provide for its expanding population and to maintain its position of leadership in agriculture.

California's growing demands have created increasingly difficult and complex problems in the conservation and transportation of new water supplies. The State has sufficient natural supplies to meet the projected needs. However, most of the precipitation falls on the State during the winter months and is concentrated in the North Coastal area and the mountainous watersheds of the Central Valley. This maldistribution of water was painfully evident during the recent Christmas 1964 floods in which 24 lives were lost and over $140,000,000 in damages were suffered. More than 10,000,000 acre-feet of water flowed

wastefully into the Pacific Ocean from streams along the North Coast within a six-day period, an amount more than double the annual quantity which will be conveyed to the water-deficient southerly areas of California under full development of the State Water Project.

The Federal Government has in recent years spent about $100 million annually on water projects in California, and local districts have also invested heavily to meet their own needs. These two levels of government, however, cannot develop water fast enough to keep pace with the State's booming growth and economy.

Californians have decided that the State itself must finance and build an integrated system of major projects which involve large scale conservation and transportation of water supplies and which are outside the purview of federal and local agencies. The Legislature in 1959 enacted the California Water Resources Development Bond Act, commonly referred to as the Burns-Porter Act, to provide funds to assist in the construction of a State Water Resources Development System. The Burns-Porter Act was adopted by the people in the general election of November 8, 1960. It authorized the issuance of $1,750,000,000 of general obligation bonds of the State for the construction of the initial works of this system, identified as the "State Water Facilities" in the act, and of certain additional facilities. The State Water Project covered in this bulletin consists of the State Water Facilities and one additional project conservation facility, all of which are described in Chapter III.

The State Water Project is capable of annually conserving and delivering 4,230,000 acre-feet, an amount estimated to be sufficient to satisfy the needs of project service areas in the Sacramento and San Joaquin Valleys, the San Francisco Bay and Central Coastal areas, and Southern California until about 1990. Presently unused yield of existing federal and local projects and capabilities of future projects of federal and local agencies, projected for completion before 1990, are estimated to total roughly 6,000,000 acre-feet per year. Thus it appears that the State Water Project together with federal and local projects will satisfy the projected increase in the State's annual water demand during the next 25 years, previously indicated to be about 10,000,000 acre-feet.

The design and construction program of the Department for the State Water Project has had as its first objectives the progressive completion of reservoirs in the upper Feather River area beginning in 1961 and the completion of the South Bay Aqueduct, except for Del Valle Dam and reservoir, into Santa Clara County in mid-1965. The next major objectives are the

completion of Oroville Dam and reservoir in 1967 and the delivery of project water to Kern County in the San Joaquin Valley by 1968, and to Los Angeles and Riverside Counties in Southern California by 1971 and 1972, respectively. Construction contracts are now underway from the northern edge of the Sierra Nevada to the southern edge of the Tehachapi Mountains. The value of construction completed or underway on the "main-line" features of the project passed the one-quarter point at the end of 1964. Work was on established schedules to meet the deadlines.

The State Water Project will solve many of California's water problems. While the main water problem in California is that nature has not provided the right amounts of water in the right places at the right times to meet the growing needs of the population and agriculture, there are many other water-associated problems including flood control, drainage, and water quality control. The State Water Project, in addition to solving a number of these problems, will provide additional benefits including hydroelectric power generation, recreation, and fish and wildlife enhancement.

Some significant benefits of the Project are already being realized.

Agencies in Alameda and Plumas Counties have been receiving a water supply through project facilities since 1962, and initial deliveries to Santa Clara County will commence by the summer of 1965.

Frenchman Dam and Lake in the Upper Feather River Basin, which in 1961 was the first unit of the State Water Project to be completed, has been providing recreation and fish and wildlife enhancement benefits beyond all expectations. Public use of the reservoir in 1964 amounted to 320,000 visitor-days. In 1963, the yield to anglers was nearly 60 pounds for each acre of water surface. This rate of harvest is among the highest recorded in California for a reservoir trout fishery. Antelope Dam and Lake, also located in the Upper Feather River Basin, was completed in the summer of 1964. This lake, created solely for the purposes of recreation and fish and wildlife enhancement, is expected to have a banner year in 1965.

The State Departments of Parks and Recreation and of Fish and Game are cooperating with the Department in the planning of recreation and fish and wildlife enhancement developments at all facilities of the State Water Project. In addition, recreation planning along the California Aqueduct is being accomplished in coordination with advisory committees composed of representatives of county, federal, and state agencies having a direct

interest in recreation development along the particular reach of aqueduct involved. These recreation developments, the total costs of which are estimated to aggregate about $200,000,000, are financed from funds other than those provided by the Burns-Porter Act and are therefore not covered in this report.

Oroville Dam on the Feather River, which will be the world's highest zoned earth embankment dam when completed in 1967, averted a reoccurrence during the Christmas 1964 floods of the disastrous Christmas 1955 flood in which 36 lives were lost in the Yuba City area. The unfinished dam effectively reduced the record peak flow of the Feather River by 100,000 cubic feet per second. The U.S. Corps of Engineers estimated that this reduction in peak flow prevented $30,000,000 of damages, more than the contributions received to-date from the Federal Government for the construction costs of Oroville Dam allocable to flood control.

The water supply programs of the project are included in one massive operating utility. Thirty-one agencies have executed long-term contracts with the Department assuring repayment of the costs allocable to the purpose of water supply. These agencies are organized in the State Water Service Contractors Council which has met regularly with the Department of Water Resources on a monthly basis since July 1961. The Council is an effective instrument for exchange of information among contractors and between the contractors and the Department.

The Utility Committee was established within the Department on May 20, 1963 by order of the Director of Water Resources with membership as listed at the beginning of this report. Its purpose is to analyze and review major decisions affecting policy and operations of the utility programs of the State Water Project. This committee, which previously held periodic meetings, has met on a weekly basis since March 1, 1965, reflecting the growing scope of operational considerations.

A total of $350,000,000 of general obligation bonds authorized by the Burns-Porter Act has been sold to date. Favorable interest rates have been received. The net interest cost of these sales, including the bond anticipation notes issued in the latter part of 1963, has averaged 3.531 percent. The total net interest cost of all general obligation bonds required to finance the State Water Project is now estimated to be 3.7 percent, rather than 4.0 percent as previously assumed. Marketing of bonds under the Burns-Porter Act is administered by the California Water Resources Development Finance Committee. This committee consists of Edmund G. Brown, Governor and Chairman; Hale Champion, Director of Finance and Vice Chairman; Bert A. Betts, State Treasurer and member; Alan Cranston, State Controller and member; and William E. Warne, Director of Water Resources and Secretary. John E. Hunt, Financial Adviser of the Department, is Assistant Secretary.

Last year's report referred to a number of crucial decisions or actions regarding the State Water Project to be made in 1964. These were:

1. The minimum project yield had to be committed so that certain features could be sized as rapidly as possible.

2. Decisions needed to be reached concerning features and construction agencies for the Delta Facilities and the San Joaquin Drainage Facilities.

3. Contracts for the sale of power from the Oroville Powerplant had to be negotiated and executed as rapidly as possible to realize the full revenue and financing potential.

The most critical item was reported to be the final sizing of the California Aqueduct through the Tehachapi Tunnels. These capacities had to be established by early fall of 1964 if the objectives of the construction program were to be met. At the time of last year's report, requests for additional water under the water supply contracts far exceeded the portion of the annual minimum project yield of 4,000,000 acre-feet remaining uncommitted. Compounding the problem of aqueduct sizing at that time was a certain loss of 662,000 acre-feet annually in the existing supply to the project service area in Southern California due to the decree of the United States Supreme Court in the case of Arizona v. California.

The necessary decisions were made and the necessary actions taken, keeping the construction program on schedule.

The requests for option water by the contractors were analyzed and granted for those agencies demonstrating that such water could be put to beneficial use by the year 1990. The remaining portion of the minimum project yield was reserved for the Metropolitan Water District of Southern California, the contractor whose supply was affected by the Court's decree. A decrease in Metropolitan Water District's future supply which could not be met by other means still was forecast. Therefore, the Department pursued a crash effort and enlarged the minimum project yield to 4,230,000 acre-feet which will insure a water supply to meet all projected demands of the contractors until the year 1990.

On September 11, 1964, the California Water Commission approved the Department's request for enlargement of the minimum project yield.

On September 28, 1964, 21 contractors, representing 99.6 percent of the entitlement under the enlarged project yield, signed contract amendments in approval of the project enlargement.

On the same day the Director signed a project order establishing the maximum annual quantities of water to be delivered from the California Aqueduct. This order permitted design to proceed on schedule.

Thus the water contracting program for the project, which began in 1960 with the development of the prototype water supply contract, was effectively completed. This unprecedented program is more fully discussed in Chapters II and VI.

A definitive plan for the construction of the San Joaquin Drainage Facilities has been published in a preliminary report of the Department, design and right-of-way acquisition activities have commenced, and negotiations of a State-Federal agreement on the sharing of costs of the joint facilities are nearing completion. The Department will be the constructing agency in accordance with these negotiations. The Department has assisted the State Water Quality Control Board and the California Water Commission, in response to requests of those organizations, by recommending a plan of investigation of San Francisco Bay and tributary watersheds in relation to water quality and waste disposal.

A general plan for the coordinated development of the Delta Facilities was presented in a final report in January 1965, by the Interagency Delta Committee. This Committee was formed on September 15, 1961 for the purpose of coordinating the broad interrelated problems involved in the Sacramento-San Joaquin Delta. At that time, there were over 30 separate federal, state, and local agencies concerned with water activities in the Delta, as well as numerous other special interest groups and individuals. The Department has adopted the concept of a peripheral canal, recommended by the Committee, as the general framework for the Joint Delta Facilities and is undertaking definitive studies and actions toward that end. Active participation by the federal agencies primarily concerned, the U. S. Corps of Engineers and the Bureau of Reclamation, must await Congressional authorization, however.

Concerning the sale of power to be generated in the Oroville-Thermalito power facilities, the Department made an offering on December 15, 1964, to some 45 potential customers for wholesale peaking power. Five applications and ten letters expressing an interest in purchasing a portion or all of the output have been received. The Department is now negotiating terms and conditions of its sale and delivery.

Other significant actions have been taken which were unforeseen in last year's report.

The alignment of the West Branch of the California Aqueduct was shifted from Elizabeth Lake Canyon to the Piru-Pyramid alignment. This change was due to the increased requirements for reservoir storage on that branch caused in turn by the increased water deliveries under the option and request provisions of the original 4,000,000 acre-foot minimum project yield. Additional storage capacity can be more economically obtained on the new alignment.

Considerable progress was made in securing the tremendous amount of power required to pump project water.

Options on 300,000 kilowatts of Canadian Entitlement power from the Pacific Northwest and on intertie transmission capacity sufficient for delivery thereof were obtained by the Department. Negotiations of contracts to formalize the specific details of arrangements have commenced.

Negotiations with the U. S. Atomic Energy Commission resulted in a Memorandum of Understanding, which became effective on January 1, 1965. This covered joint participation by the Department and the Commission in the construction of a nuclear powerplant. Though technical difficulties have recently arisen in the design of the long-life reactor core being developed by the Commission, the Department still plans to use nuclear power since studies show that such power will result in lower project costs. Since the State must insure that electrical power is available for project pumps in accordance with the water supply contractors' needs, the Department is currently negotiating with the major electric utilities of the State toward contracts assuring a power supply that will take care of project needs for an extended period of time. These contracts with the utilities will include the principle that the State will be free, upon due notice, to obtain power from other sources including construction of nuclear facilities of its own or in cooperation with others.

Numerous details were also attended to during the year. For example, an architectural motif was developed for use on all State Water Project structures so that they will convey a unifying appearance throughout the project and will present a pleasing image to the public. Two amphibian trucks were provided by the Department as an emergency flood transportation system across the Middle Fork of the Feather River. They were in heavy use during the December 1964 flood, conveying residents of the Upper Quincy Road area above Bidwell Bar in the Oroville reservoir area.

These have been but a few of the events concerning the State Water Project which have occurred since last year's report. A more complete history is described in Chapter II.

Much, however, remains to be done. Although design or construction of most of the facilities between the Delta and the south portal of the Carley V. Porter Tunnel in the Tehachapi Mountains is progressing, similar activities for works south of the Tehachapis have yet to be commenced. Power sales and purchase contracts must be executed.

Furthermore, the Department of Water Resources is preparing for the awesome population projection for the year 2020. While the State Water Project has been designed to meet the demand for water throughout much of California until 1990, experience has shown that a lead time of 25 years is needed to plan, obtain authorization and financing, and design and construct a major project. California, while faced with completing the construction of the greatest water project of all time, must also be planning the second giant step in the development of the State Water Resources Development System. The Department is working diligently on the evaluation of future demands for water throughout the State and on the formulation of a staged plan of development to meet these future demands when and where they occur.

CHAPTER II. HISTORY OF THE STATE WATER PROJECT

The previous reports of this series included a history of the State Water Project up to about April 1, 1964. A continuation of that narrative is presented in this chapter. It covers the period of time generally from April 1, 1964 to April 1, 1965. Information is given regarding the important legislative and administrative actions that have influenced the course of the State Water Project. The status and important events in the water contracting and the power contracting programs are indicated.

General Project History

A number of activities during the past year affected a major portion of the project as compared to actions confined to specific facilities which are considered in a later section of this chapter. This section discusses those events having a general effect on the project as a whole.

Actions by the California Legislature

A number of actions of the Legislature during the 1964 First Extraordinary Session were concerned with the State Water Project, either directly or indirectly. The Department responded to requests contained in several legislative resolutions.

The Legislature took action beyond that effected in 1963 which will help meet the impact of the State Water Project on school districts, the enrollments of which are increased as a result of nearby construction activity. Senate Bill 47 1/ amends Sections 18302, 18303, and 18305 of the Education Code to liberalize special state allowances to school districts for increases in enrollment due to construction of state water projects. The bill expands the definition of "project-connected pupils" for the 1963-64 fiscal year to include those who are newly enrolled and are in addition to the children normally within the district and whose parents are employed in the vicinity as well as those whose parents are employed on the project. District eligibility was also broadened by deleting the requirement that average daily attendance or project-connected pupils must be at least three percent of the total, leaving only the requirement

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1/ Calif. Stats. First Ex. Sess. 1964, Chapter 84.

that average daily attendance of project-connected pupils be at least ten. The costs of this program are paid by special appropriations from the California Water Fund, but are not part of the construction costs of facilities of the State Water Project.[2] This is in contrast to payments under the Byrne Act[3] to assist local governments meet increased municipal costs due to the project, which payments are specified in the Act to be project costs.

Senate Bill 60[4] revises the grant of tidelands and submerged lands to the City of Long Beach to provide an increased share of oil revenues for the State, to increase state control over oilfield development, to define the trust boundaries and purposes for which the funds may be spent, and to allocate the first $11 million of revenues annually to the California Water Fund.

The Legislature, by Assembly Concurrent Resolution 43[5], requested the Department to give local entities an opportunity to plan and design relocations of facilities scheduled for their areas. Permission would be conditioned, however, so that the cost with local participation would not be greater than it would be if the work were done by the Department. In order for such delegation of responsibility to be made, it would also have to expedite the development of the particular project involved.

In identical letters[6] to Senators Hugh M. Burns and James A. Cobey and Assemblymen Jesse M. Unruh, Jack T. Casey, and Carley V. Porter, the Director of Water Resources stated that the present relocation procedures of the Department[7] comply with the policy set forth in Assembly Concurrent Resolution 43. He noted that upon the requests of Butte and Los Angeles Counties, the Department had entered into agreements for those counties to design and construct relocated portions of roads in their areas. He indicated that the Department was negotiating a similar agreement with Riverside County.

2/ Department of Water Resources, Opinion of Chief Counsel No. 62-3, dated November 20, 1962.

3/ Part 7 (commencing with Section 12950) of Division 6 of the Water Code.

4/ Calif. Stats. First Ex. Sess. 1964, Chapter 138

5/ Calif. Stats. First Ex. Sess. 1964, Resolution Chapter 56.

6/ Letter from William E. Warne to Honorable Hugh M. Burns, Senator, 30th Senatorial District, dated January 6, 1965.

7/ Department of Water Resources, "Policy Manual" Sections 3431 (4)(a) and 3432.

Senate Joint Resolution 11[8] requests Congress to appropriate to the Corps of Engineers funds to initiate comprehensive studies of multiple-purpose water projects in California's North Coastal Area compatible with the State Water Plan and with coordinated water development of such area by local, state and federal agencies.

Congress was memorialized by Senate Joint Resolution 14[9] to make the necessary appropriation to comply with the contract between California and the United States wherein the United States agreed to reimburse the State for construction costs of Oroville Dam and reservoir that are allocated to flood control.

The Joint Legislative Budget Committee was directed by Assembly Concurrent Resolution 1[10] to make a study of the Department's employee housing at Oroville. The study was to cover the origin and ownership of the property involved, the money invested, the contracts for construction, and the present and proposed need for these houses, as well as taxation of the property and the cost of moving the houses when the project is completed.

The Legislative Analyst, acting as staff for the Joint Legislative Budget Committee pursuant to Assembly Concurrent Resolution 1, reported on his investigation of the Oroville housing in December 1964.[11] The report indicated that the present housing development is reasonable and acceptable when judged by state practices elsewhere. The investigation revealed that, although there is a surplus of houses for sale in the area, there is a scarcity of good rental housing.

The Department of Water Resources was directed by House Resolution 353[12] to cooperate in and take all steps necessary to insure the construction of a single waste drain in the San Joaquin Valley area to serve both the federal and state needs.

8/ Calif. Stats. First Ex. Sess. 1964, Resolution Chapter 60.

9/ Calif. Stats. First Ex. Sess. 1964, Resolution Chapter 75.

10/ Calif. Stats. First Ex. Sess. 1964, Resolution Chapter 90.

11/ Office of the Legislative Analyst, "Oroville Housing, Department of Water Resources, Pursuant to Assembly Concurrent Resolution 1, 1964 First Extraordinary Session", dated December 29, 1964.

12/ Printed in the Assembly Journal for May 19, 1964.

The resolution asked that the discharge point into the San Joaquin River should be placed as near the outlet into the Pacific Ocean as is economically feasible and in no circumstances as far upstream as the Antioch Bridge or the City of Pittsburg. This matter is discussed further in a specific reference to the San Joaquin Drainage Facilities later in this chapter.

Action to Increase Minimum Project Yield

The fact that the decree of the United States Supreme Court in Arizona v. California[13] increased the need for water in Southern California was discussed in Chapter I of Bulletin No. 132-64. The 4,000,000-acre-foot State Water Project was intended to accommodate water needs in its service area until 1990, assuming the continued avilability of 5,362,000 acre-feet of water per year from the Colorado River corresponding to the diversion capability of presently constructed works. The Supreme Court decision allocated only 4,400,000 acre-feet per year to California as long as 7,500,000 acre-feet is available annually to the Lower Basin States below Lee Ferry on the Colorado River.

The difference between the present diversion capability and the amount allocated by the Supreme Court, amounting to 962,000 acre-feet per year, represents a certain loss to agencies in Southern California. Of this quantity 662,000 acre-feet would be deducted from the supply of the Metropolitan Water District of Southern California, one of the State's water supply contractors. The remaining 300,000 acre-feet is for agricultural use outside the service area of the State Water Project.

It is possible that California could lose more than 962,000 acre-feet if supplies to the Lower Basin States should fall below 7,500,000 acre-feet. Senate Bill 1019 by Senators Kuchel and Murphy of California, would be a major step toward eliminating this danger. In addition to authorizing the Central Arizona Project and other projects in the Lower Colorado River Basin, it would give California a priority among Lower Basin States to an annual diversion of 4,400,000 acre-feet until works are constructed for importation of 2,500,000 acre-feet per year to the Basin to offset depletions that could cause the lower basin supply to fall below 7,500,000 acre-feet.

13/ 84 S. Ct. 755 (1964).

Contemplating its certain loss of 662,000 acre-feet from the Colorado River, the Metropolitan Water District asked the Department to consider increasing the District's maximum annual entitlement from the State Water Project from 1,500,000 acre-feet to 2,000,000 acre-feet per year. With the scheduled 152,000-acre-foot augmentation of importations by the City of Los Angeles from the Owens River and Mono Basins and other factors, the District estimated that it would need 500,000 acre-feet to offset completely its loss from the Colorado River. Chapter VI describes how a portion of this increase could be supplied from the District's option water rights and from water not optioned by other contractors within the minimum project yield of 4,000,000 acre-feet specified in the original water supply contracts. It was estimated that approximately 230,000 acre-feet, not available from the 4,000,000-acre-foot yield, would be needed by the District to fill out its requested 500,000 acre-foot increase.

The Department decided to increase the project yield and proceeded to obtain the necessary concurrence of the California Water Commission and the water supply contractors. The approval of the California Water Commission was required because the increase constituted a substantial change in the project contemplated by the water rights applications assigned to the Department by the Commission. Water Code Section 10504.5(a) requires any such change to be approved by the Commission. The Commission considered the Department's request for approval of the increase at its July, August, and September meetings and approved the increase on September 11, 1964.[14/] The water supply contractors were asked to agree to the amendment of Article 16(a) of the water supply contracts, which limited the aggregate maximum annual entitlements the Department could contract for to 4,000,000 acre-feet. On September 28, 1964, most of the water supply contractors executed contract amendments which changed the amount stated in Article 16(a) from 4,000,000 acre-feet to 4,230,000 acre-feet.

Events in Power Management Program

Present activities in the Power Management Program involve principally the disposition of Oroville-Thermalito power, obtaining power supplies for project pumping requirements, and acquisition of the Pacific Gas and Electric Company's Big Bend Powerplant.

14/ California Water Commission Resolution No. 267, "Re: Enlargement of the State Water Project", adopted September 11, 1964.

Letters were mailed on December 15, 1964 soliciting applications for Oroville-Thermalito power from some 45 potential power customers. Five of the agencies solicited submitted applications indicating an interest in ultimately purchasing a total of 610,000 kilowatts and 10 additional agencies indicated interest.

Discussions have continued with the California Power Pool Companies (Pacific Gas and Electric Company, Southern California Edison Company and San Diego Gas and Electric Company) following their December 17, 1963 offer to purchase project-generated power and to provide power for pumping as described in Bulletin No. 132-64. Further developments in these discussions leading to assumptions used in this report are discussed in Chapter VIII.

As stated in Bulletin No. 132-64, the Fluor Corporation, Ltd. had been retained to investigate alternative sources of energy for project pumping and to recommend the most economical and reliable source or sources. In its first interim report of September 1963, 15/ Fluor eliminated from consideration, as uneconomical, 38 possible sources including various arrangements of thermal plants fired by coal, oil and gas as well as power supplied by utilities at the then known rates. That report stated,

> "Energy from a state-owned nuclear plant combined with utility purchases is indicated as the most economical source for all the different cases considered."

In its second interim report of May 1964, 16/ Fluor again advised,

> "Energy generated by a state-owned nuclear plant appears to be the most favorable source and should be treated in a definitive manner in the final report."

In its third and final report of September 1964, 17/ Fluor reported on its findings resulting from further study of state-owned nuclear powerplants as a source of power for the pumps. The final report covered essentially three plans:

15/ The Fluor Corporation, Ltd., Los Angeles, California, "Interim Report on Energy Source Study", September 1963.

16/ The Fluor Corporation, Ltd., Los Angeles, California, "Second Interim Report on Energy Source Study", May 1964.

17/ The Fluor Corporation, Ltd., Los Angeles, California, "Energy Sources Study for California State Water Project", September 1964.

Case I - Power from a nuclear powerplant to be built in two stages; one by 1971 and a second by 1976.

Case II - Power from the California Power Pool supplemented by Pacific Northwest power.

Case III - Power from the California Power Pool and Pacific Northwest power until 1982, then a state-owned nuclear powerplant.

Fluor found Case II to be uneconomical under the December 17, 1963 proposal of the California Power Pool. Between Case I and Case III it found little economic difference and suggested the State reevaluate these cases. Fluor advised, however, that the Department had until September 1965 to finalize its plans for project power sources.

Negotiations are actively proceeding toward obtaining power from the Northwest over the Intertie. The State has a firm commitment for sufficient Canadian Treaty Entitlement Power beginning in April 1968 for its initial pumping requirements and for 300,000 kilowatts beginning in 1969 for a period of nine years and 150,000 kilowatts for an additional five years to 1983. Currently under negotiation are the final agreements for assignment of rights for the Canadian Entitlement Power to the State by cities and utility companies in the Northwest and contracts between the State and the California Power Pool Companies for capacity in the Intertie and related details of power transmission and supply.

Considerable negotiations have taken place in the area relating to State construction of a nuclear powerplant to supply the project's pumping needs. The Department initiated discussions in 1964 with the Atomic Energy Commission looking toward a cooperative arrangement with the Commission to build a nuclear powerplant. The AEC, represented by Vice Admiral H. G. Rickover, U.S. Navy, Manager, Naval Reactors Branch, was particularly desirous of building a "seed-blanket" powerplant in the 500,000 kilowatt range. Seed-blanket is the name given to a pressurized water-type reactor in which fuel elements highly enriched in fissionable material, called the seed, are surrounded by elements of the fertile material thorium, called the blanket. The thorium seed-blanket reactor for the State Water Project would demonstrate the breeding technology which is expected to provide means for ultimately making available for power production about 50 percent of the potential energy in the thorium nuclear material reserves in the United States, an energy source many times larger than the energy available from known fossil fuel reserves.

An important step in the negotiations was a meeting on July 7, 1964, attended by Admiral Rickover, Governor Brown and Water Resources Director Warne together with Department of Water Resources personnel. The outgrowth of the meeting was the dispatching of a letter[18] from Governor Brown to the Commission, stating that he was asking the Director of Water Resources to start negotiations with the Commission looking toward a firm agreement, contingent on the assumption that the final studies substantiated the economics indicated at that time. Following a series of discussions among the staffs of both agencies, a Memorandum of Understanding[19] became effective on January 1, 1965. This comprised a statement of principles to guide both parties in the drafting of the formal contract which, it was then anticipated, would be negotiated and executed during 1965.

On April 14, 1965 the Department was notified by Admiral Rickover that the Atomic Energy Commission had encountered a problem in connection with the design of the long-life seed-fuel elements which might delay the project one or two years. The Atomic Energy Commission expressed its conviction that the required redesign of the elements would not prevent the demonstration of breeding and the ability of this concept to provide a reliable nuclear powerplant meeting the requirements of the State Water Project.

By letter dated May 3, 1965,[20] the Department of Water Resources advised the Atomic Energy Commission that the Department was still interested in the nuclear powerplant and was willing to extend the target dates for approximately one year if necessary for execution of a firm contract and for completion of construction, provided that the Congress acted during 1965 to authorize the project for construction. The Memorandum of Understanding contemplated a firm contract which the Department hoped could be signed by September 1965, with construction to be completed by June 1970. As conditions for entering into a contract the Department specified the following:

18/ Letter from Governor Edmund G. Brown to Dr. Glenn T. Seaborg, Chairman, U.S. Atomic Energy Commission, dated July 22, 1964.

19/ "Memorandum of Understanding between The Department of Water Resources, State of California, and the U.S. Atomic Energy Commission", entered into January 1, 1965.

20/ Letter from William E. Warne to Robert E. Hollingsworth, General Manager, Atomic Energy Commission, dated May 3, 1965. Printed in "AEC Authorizing Legislation, Fiscal Year 1966, Hearing Before the Joint Committee on Atomic Energy, Congress of the United States, Eighty-Ninth Congress - First Session, on Reactor Development Program (Civilian Power Program) March 11, 18, 19, 24 and April 13, 1965", Appendix 29, page 1914.

1. That technical problems can be satisfactorily resolved by the Atomic Energy Commission.

2. That the joint independent study, which the Department has agreed to undertake with the Metropolitan Water District, satisfies the Department as to the reliability and favorable economics based on factors prevalent at that time.

3. That the Department's power needs can be satisfield on schedule.

Late in May 1965, Congress passed House Resolution 8122 authorizing an appropriation of $91,500,000 for the large seed-blanket reactor and authorizing the Atomic Energy Commission to enter into a cooperative arrangement with "a State, its departments and agencies . . . . . for participation in the research and development of a thorium seed-blanket nuclear powerplant". Upon signature by the President this resolution has become law.[21/]

Big Bend Powerplant on the Feather River, owned and operated by the Pacific Gas and Electric Company, will be inundated during the filling of Oroville reservoir. Negotiations with the Company for purchase of the plant began with a meeting between representatives of the State and the Company during January 1964 and continued throughout the year. At a meeting on January 15, 1965, substantial agreement regarding the acquisition price was reached subject to mutual acceptance of an operating agreement and legal language pertaining to transfer of water rights. It is anticipated that the remaining problems involved in the acquisition of Big Bend Powerplant will be resolved by June 30, 1965, and that the State will acquire possession of the plant after approval by the Public Utilities Commission of the Company's application for disposal of the plant.

21/ Public Law No. 89-32, June 2, 1965.

Reporting of Project Cost Allocations

The State Water Project will accomplish a number of purposes, including water supply, flood control, hydroelectric power generation, water quality control, recreation, and fish and wildlife enhancement. The water supply contracts provide that contractors will pay only those costs of the project conservation and transportation facilities that are reimbursable, as determined by the State.

In January 1965, the Department released a report[22/] which presented cost allocations of the State Water Project facilities which were completed, under construction, or on which construction was scheduled to commence during fiscal year 1965-66. The report also described the principles and methods which were applied in developing the cost allocations and recommended an appropriation by the Legislature for 1965-66 to reimburse the Department for expenditures from Project Funds for certain costs allocated to recreation and fish and wildlife enhancement. It was indicated that the cost allocation percentages in the report would be used in this bulletin and in statements of charges for 1966 to reduce project costs to be repaid by the water supply contractors.

Closely related to this matter is a bill before the 1965 Legislature,[23/] which would provide for deposit in the Central Valley Water Project Construction Fund of the first $5,000,000 per year of tidelands oil and dry gas revenues, after the $11,000,000 to be deposited in the California Water Fund pursuant to Senate Bill 60 of the 1964 Legislature, discussed above. It would provide that cost allocations reported to the Legislature by the Department would become effective upon approval by concurrent resolution of the Legislature. Tidelands revenues placed in the Central Valley Water Project Construction Fund, pursuant to the bill, would be appropriated to the Department for expenditure in amounts equal to effective allocations to recreation and fish and wildlife enhancement and for costs of rights-of-way for those purposes.

22/ Department of Water Resources, Bulletin No. 153-65, "Allocations of Costs Among Purposes of the California State Water Project", dated January 1965.

23/ A.B. 1147, Introduced by Assemblymen Porter, Ashcraft, Lanterman, Belotti, Chappie, Dannemeyer, Flournoy, Garrigus, Henson, Harvey Johnson, Roy E. Johnson, Monagan, Quimby, Russell, and Williamson (Coauthor: Senator Cobey).

Establishment of Operation and Maintenance Centers

In May 1965, the Department established the locations and types of certain operation and maintenance centers for the State Water Project.[24] Three major centers are to be located at Oroville, the Delta Pumping Plant, and San Luis reservoir. Six related subcenters will be situated at Portola, Hood, Orestimba Creek, Five Points, Patterson Reservoir and Cordelia. The centers are described in a preliminary report[25] on operations and maintenance centers for the entire State Water Project.

History of Individual Facilities

In the period covered by this chapter, a number of events occurred which were significant to the definition, formulation, or further development of individual facilities of the State Water Project. These are recorded in the discussion which follows.

Upper Feather Division

Construction work on Frenchman Dam and Frenchman Lake[26] was completed in 1961. In July 1964, the initial four and one-half miles of recreation access road to the facility were completed. Dedication ceremonies for the dam, lake and recreational facilities were held on September 27, 1964.

Antelope Dam and Antelope Lake[26] were completed in 1963. Installation of initial recreational facilities was completed in July 1964. Dedication ceremonies were held on September 27, 1964.

A groundbreaking ceremony was held at the site of Grizzly Valley Dam on September 27, 1964, and the lake to be formed by the dam was named Lake Davis[26] in honor of the late Assemblyman Lester Davis and Assemblywoman Pauline Davis who succeeded her husband in the Assembly of the State Legislature.

24/ Department of Water Resources Memorandum to William E. Warne and Alfred R. Golze' from John M. Haley and Robin R. Reynolds, "Locations and Types of O&M Centers", approved May 4, 1965.

25/ Department of Water Resources, "Report on the Location of Operation and Maintenance Centers for the California State Water Project", dated January 1965.

26/ Department of Water Resources, Project Nomenclature Order No. 1, dated November 12, 1964.

Oroville Division

The facilities of the Oroville division are in various stages of design and construction, and notable progress has been made since April 1964.

The most significant milestone was the construction of Oroville Dam to the 605-foot elevation about one week ahead of the November 15, 1964 deadline. This level is sufficiently high to provide storage space sufficient to control the standard project flood of 440,000 cubic feet per second.

During Christmas week of 1964, a flood with a record peak of 250,000 cubic feet per second occurred on the Feather River. The incomplete Oroville Dam and its uncontrolled diversion tunnels reduced the peak flow to 157,000 cubic feet per second below the dam, at the time the Yuba River was peaking at a record level downstream. Oroville Dam prevented almost certain flooding of Yuba City or Marysville.

A change was made in the specifications controlling the placement of material in Zone 2 in the embankment of Oroville Dam.[27] A modification in the grading requirements for the tailings material used in that zone made possible the placement of material from the borrow area without additional cost for further treatment or selectivity. The Oroville Dam Consulting Board[28] agreed with the Department that the change would be in the best interests of the State and would not impair the safety of the dam.

The Department entered two contracts with Butte County in November 1964. These represented the conclusion of negotiations between the two agencies concerning alternative alignments and specifications for the relocation of the portions of the Oroville-Quincy and Oroville-Feather Falls Roads to be inundated by Oroville reservoir. The agreement[29] on the Oroville-Quincy

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27/ Department of Water Resources Memorandum, Alfred R. Golze' to H. G. Dewey, Jr., Zone 2 Specifications, Oroville Dam, dated November 25, 1964.

28/ Letter to Alfred R. Golze' from Oroville Dam Consulting Board, dated November 20, 1964.

29/ "Agreement Between the State of California and the County of Butte for Relocation of Oroville-Quincy Road Northerly of the Middle Fork Bridge", dated November 10, 1964.

Oroville Dam and Tunnel Intake Structures
December 12, 1964 (Oroville division)

Oroville Dam looking downstream. Peak Flood
Stage. December 23, 1964 (Oroville division)

Road provides for design and construction by the County and payment by the State in the amount of $4,651,490. The agreement[30] on the Oroville-Feather Falls Road specifies design and construction by the State.

A contract was let during July 1964 for dismantling the 110-year old Bidwell Bar suspension bridge, that spanned the Feather River, together with the adjoining toll house. Both structures were situated within the area to be inundated by Oroville reservoir. The dismantled components of both toll house and bridge are being stored at the Department of Water Resources headquarters near Oroville until a permanent site on Kelly Ridge, overlooking Oroville reservoir, is made ready for authentic restoration of the structures.

The Mother Orange Tree, which has been an attraction at Curry-Bidwell State Park, which would also have been inundated by Oroville reservoir, was moved during August 1964 to a temporary site at the Department of Water Resources headquarters. The tree, which was prepared for shipping a year earlier, is said to be the oldest living orange tree in the State. It too will eventually be moved to Kelly Ridge.

In September 1964 a contract to construct a new cemetery and relocate 300 bodies from cemeteries in the Oroville reservoir area was completed. This was the first cemetery removal made necessary by construction of the State Water Project. The new site was dedicated on May 2, 1965 as Pioneer Cemetery and is located adjacent to the Thompson Flat Cemetery on Cherokee Road near Oroville.

During the summer of 1964, two archaeological sites in the vicinity of Thermalito Diversion Dam were excavated by Division of Beaches and Parks personnel under a cooperative arrangement with the Department. A number of burials, features, and house remains were recorded. Also during that summer, additional excavation was done within the Oroville reservoir area to test a number of recent archaeological sites and to provide information on the proto-historic and historic Indian occupation of the area.

30/ "Agreement Between the State of California and the County of Butte for Relocation of the Oroville-Feather Falls Road", dated November 10, 1964.

North Bay Aqueduct

In November 1964, the North Bay Aqueduct was defined as terminating in Napa County and being capable of delivering annual entitlements of not less than 37,000 acre-feet and not more than 42,000 acre-feet in Solano County and 25,000 acre-feet in Napa County.[31]

South Bay Aqueduct

Construction of South Bay Aqueduct conduits is nearing completion and first delivery of water at the terminal facilities in Santa Clara County is scheduled for mid-1965.

Early in 1964, Del Valle Dam and reservoir construction was delayed one year to provide for further investigation of subsurface geologic problems. During 1964 these investigations indicated a need for revised designs of the dam and related structures because of foundation conditions. The revised designs were made with the approval of the Earth Dams Consulting Board.[32] As a result of the new designs and construction procedures suggested by the Board, it became apparent that completion might be delayed by as much as two years to the fall of 1968. In December 1964 the schedule for advertising construction of the dam was revised to October 1965 with the completion date to be scheduled after foundation requirements are finalized.[33]

California Aqueduct

The enlargement of the minimum project yield from 4,000,000 acre-feet to 4,230,000 acre-feet, discussed earlier in this chapter, and the final distribution of maximum annual entitlements under the water supply contracts necessitated a final sizing of the project transportation facilities. In September 1964, a document[34] was issued which changed the name of the San Joaquin Valley-Southern California Aqueduct to the California Aqueduct and specified that design and construction would provide

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31/ Department of Water Resources, Project Order No. 9, dated November 30, 1964.

32/ Letter to Alfred R. Golze', from Earth Dams Consulting Board, dated March 10, 1965.

33/ Department of Water Resources Memorandum to William E. Warne, et al from C. A. McCullough, "Recommendations for Future Actions on Del Valle Dam and Reservoir" dated December 16, 1964.

34/ Department of Water Resources, Project Order No. 8, dated September 28, 1964.

for capacities permitting maximum annual deliveries of 1,345,300 acre-feet to the San Joaquin Valley and 2,477,900 acre-feet to Southern California. Also, it provided that the Coastal Branch would be constructed so as to permit an annual delivery of 82,700 acre-feet to the Central Coastal service area.

The San Luis Agreement[35] provides for a state capacity of 7,100 cubic feet per second at the head of the joint-use San Luis Canal. The deliveries of water to areas south of that point under the amended water supply contracts, with the enlarged minimum project yield, are greater than were estimated for the San Luis Agreement. This would require a state capacity at that point of about 8,086 cubic feet per second. The insufficiency of capacity amounting to some 986 cubic feet per second would not be felt until late in the 1980's. It is contemplated that the required additional capacity will be provided as a part of a future transportation facility designed primarily to meet growth of water demands after 1990. The cost of such additional capacity was considered in evaluating the effect of increasing the minimum project yield[36] and is accounted for in this bulletin.

In April 1965, the final design capacities were fixed for the reaches of the California Aqueduct from Kettleman City to the junction of the East and West Branches and for the portion of the Coastal Branch extending from Avenal Gap to the inlet of Devil's Den Pumping Plant.[37] Final design capacities of reaches located between Tupman and the Wind Gap Pumping Plant differ somewhat from those used in this bulletin, because final changes were made after aqueduct capacities were fixed in January for the cost estimates in this bulletin.

35/ "Agreement Between the United States of America and the Department of Water Resources of the State of California for the Construction and Operation of the Joint-Use Facilities of the San Luis Unit", dated December 30, 1961.

36/ Letter to Ralph M. Brody, Chairman, California Water Commission, from William E. Warne, dated September 4, 1964.

37/ Department of Water Resources, "Design Capacities of the California Aqueduct-Kettleman City to: 1. Junction, East and West Branches, 2. Devil's Den Pumping Plant", (Final Edition), dated April 1965.

In February 1965, the contract between the State and the Metropolitan Water District of Southern California was amended[38] to fulfill the District's request for excess capacity pursuant to Article 24(d) of the water supply contracts. That article provides, at the request of the contractor, for inclusion of capacity in any aqueduct reach to enable maximum monthly deliveries in excess of the maximum percentage values specified in Article 12(b). It also provides that the contractor must advance funds to cover the cost of providing such excess capacity. This amendment to the District's contract provides for excess capacity in each reach of the project transportation facilities from Kettleman City to the south portal of the Tehachapi Tunnels in the amount of 238 cubic feet per second. If the same excess capacity were later to be included in a future facility paralleling the California Aqueduct in the San Luis Division, it would have to be added to the required 986-cubic-foot-per-second additional capacity described above. The total required capacity would then be about 1,224 cubic feet per second. Excess capacity is also provided by the amendment in each reach of the transportation facilities from the south portal Tehachapi Tunnels to the West Branch terminal reservoir (Castaic reservoir) in the amount of 809 cubic feet per second. No excess capacity was provided in regulatory storage reservoirs.

The largest of the four tunnels through the Tehachapi Mountains, which had been previously designated as Tunnel No. 4, was renamed Carley V. Porter Tunnel[39] during dedication ceremonies on October 1, 1964. The tunnel was named in honor of Assemblyman Porter, the co-author of the legislation which established the State Water Project.

The design water surface elevation of the Tehachapi Afterbay was revised from 3,079 feet to 3,100 feet in August 1964.[40] The higher elevation will reduce the depth of excavation required and decrease the probability of slides in cut slopes in soils with poor slope stability. The higher elevation will also facilitate the prevention of open channel flow in the Carley V. Porter Tunnel, which might cause surging problems.

38/ "Amendment No. 2 to Water Supply Contract between the State of California, Department of Water Resources and Metropolitan Water District of Southern California", dated February 23, 1965.

39/ Department of Water Resources, Project Nomenclature Order No. 2, dated November 12, 1964.

40/ Department of Water Resources Memorandum from James J. Doody to Alfred R. Golze', et al "California Aqueduct Tehachapi Division Afterbay Elevation", approved August 25, 1964.

In December 1964, the Department selected an alignment for the West Branch division. This matter had been under consideration for several years. The studies involved two basic alignments: one via Elizabeth Lake Canyon and the other via Piru Creek. It was found that the Elizabeth Lake Canyon alignment would provide conveyance at the least cost as long as storage requirements could be satisfactorily met at Castaic reservoir. The Piru-Pyramid alignment would have the advantage of being able to supply a large block of storage at a relatively low cost.

Until the fall of 1964, the assumed quantities of conveyance and storage in the West Branch were such as to favor the Elizabeth Lake Canyon route. Pursuant to the "option provisions" of the water supply contracts, however, the Metropolitan Water District and the Upper Santa Clara Valley Water Agency elected to increase their maximum annual entitlements and to take delivery of the additional water through the West Branch division. As a result, the Department reanalyzed the two routes and reported its findings in an office report[41] in November 1964. The recommendations of the report were included in a position paper,[42] approved in December 1964, which proposed that the alignment of the West Branch division be revised to the Piru-Pyramid alignment and sized to deliver approximately 2,047,000 acre-feet per year, providing the Metropolitan Water District executed the contract amendment for inclusion of excess capacity in that branch, as discussed above. Proposed as authorized features were Oso Pumping Plant, Quail Lake regulating reservoir, Pyramid Powerplant, Pyramid Dam and reservoir, Castaic Powerplant, and Castaic Dam and reservoir as well as the interconnecting conduits.

In December 1964 the Department formalized selection of the Piru-Pyramid alignment for the West Branch division.[43] The order specified that the West Branch, as formulated and authorized for construction by Project Order No. 8,[44] was

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41/ Department of Water Resources, "Report on Location of West Branch Aqueduct", dated November 1964.

42/ Department of Water Resources, "A Position Paper Re: Location and Capacity of West Branch Aqueduct", approved December 4, 1964.

43/ Department of Water Resources, Project Order No. 10, "West Branch of the California Aqueduct", dated December 4, 1964.

44/ Department of Water Resources, Project Order No. 8, "San Joaquin Valley-Southern California Aqueduct System", dated September 28, 1964.

modified to follow substantially the alignment described as the Castaic route in Bulletin No. 78[45] to a terminus at Castaic reservoir. Storage en route was to be provided at the Pyramid reservoir site, which was referred to in Bulletin No. 78 as the Bear Trap reservoir site, and terminal storage was to be provided at Castaic reservoir. Power was to be recovered by powerplants at Pyramid and Castaic reservoirs.

In May 1965, an additional facility, the Las Perillas Pumping Plant, was added to the Coastal Branch division[46] near its point of departure from the main California Aqueduct at Avenal Gap. This was to reduce construction costs by eliminating a deep cut for the intake channel of the first pumping plant of the originally proposed form of the Coastal Branch. This fact, the reduction of the elevation of the canal leading to the Devil's Den Pumping Plant, and the increased length of the Coastal Branch from the California Aqueduct to Devil's Den Pumping Plant were explained in letters to the water supply contractors to be served from the Coastal Branch.[47]

The eastern segment of the Coastal Branch from the junction with the main California Aqueduct to the vicinity of the intake of Devil's Den Pumping Plant, a distance of about 15 miles, was designated as the "Coastal Stub" in an order by the Department in May 1965.[48] It was specified that the Coastal Stub would be capable of delivering a maximum monthly amount of 6,892 acre-feet of water, corresponding to a combined maximum annual entitlement of 82,700 acre-feet, to the Central Coastal area contractors and a maximum monthly amount of 18,468 acre-feet of water to delivery points in Kings and Kern Counties. The order provided finally that the Coastal Stub would be constructed at about the same time as the California Aqueduct in the vicinity of Avenal Gap and that the remainder of the Coastal Branch would be constructed so as to provide initial delivery of project water in 1980.

45/ Department of Water Resources, Bulletin No. 78, "Investigation of Alternative Aqueduct Routes in Southern California", dated December 1959.

46/ Department of Water Resources, Project Nomenclature Order No. 3, dated May 7, 1965.

47/ Letters dated May 3, 1965 from William E. Warne to Roland Curran, President Kern County Water Agency; E. E. Anderson, President Devil's Den Water District; San Luis Obispo County Flood Control and Water Conservation District; and Santa Barbara County Flood Control and Water Conservation District.

48/ Department of Water Resources, Project Order No. 11, dated May 5, 1965.

As discussed in Bulletin No. 132-64, a Department study of recreation potentials on the west side of the San Joaquin Valley was requested by Senate Resolution 54 [49] of the 1963 Legislature. The resolution requested the Department to report on this subject to the 1965 Regular Session of the Legislature.

In compliance, the Department prepared Bulletin No. 154[50] and transmitted it to the Legislature on December 28, 1964. The Department recommended that the following recreation sites should be developed initially:

1. Buena Vista Reservoir
2. Kettleman City Aquatic Park
3. Ingram Creek Aquatic Park
4. Fishing Access Sites:
    a. Wheeler Ridge
    b. Three Rocks
    c. Sperry Road

In addition, it was recommended that land acquisition at the following sites be undertaken:

1. Tupman Aquatic Park
2. Fishing Access Sites:
    a. Buttonwillow
    b. Lost Hills
    c. Huron
    d. Ora Loma

A canalside wildlife habitat planting program and an aqueduct trail system were also recommended for accomplishment in such manner that the Department's requirements for operation and maintenance of the aqueduct would be satisfied.

Of the remaining projects included in the 26 potential water-based recreation developments, referred to in Senate Resolution 54, six fishing access sites were recommended for further study and development as the demand develops. Also, it was recommended that six reservoirs be considered in the future for recreation use in the event they are investigated for other purposes as well. Six reservoir projects were considered infeasible because of difficult geologic or site location conditions but subject to reevaluation under future recreation demands and possible changed evaluation criteria. Five reservoirs were considered to have been replaced by alternative recreation facilities in the same general area.

49/ 1963 Calif. Senate Journal, p. 2936.

50/ Department of Water Resources, Bulletin No. 154, "Potential Recreation Areas Along the California Aqueduct", dated January 1965.

A number of archaeological explorations have been made for the Department by Division of Beaches and Parks personnel. Excavations of a site on the axis of San Luis Dam were made in 1962 and 1963. Several burials, a house floor and rock features were recorded. A site was excavated in the reservoir area of the Los Banos Creek Detention Dam during the summer of 1964. The site consisted of the remains of nine house pits, a midden deposit, and several cemeteries. Archaeologists returned to the site in the spring of 1965 to augment data gathered during the preceding summer. Funds for this work were provided by the Bureau of Reclamation. During 1964, excavations were made at an archaeological site on the alignment of the California Aqueduct on the former shores of Buena Vista Lake, in Kern County. A stratified midden deposit was investigated in which a deep-buried cultural stratum was uncovered. It is estimated that this dates back in excess of 3,000 years.

Delta Facilities

Numerous studies of the Sacramento-San Joaquin Delta have been made by the Department of Water Resources, the Corps of Engineers, and the Bureau of Reclamation. These have considered chiefly the conservation of fresh water, controlling seawater intrusion into the channels, providing for transportation of water across the Delta, furnishing flood protection, and providing recreation and fish and wildlife enhancement. In 1961, an Interagency Delta Committee was formed by the three agencies to formulate a mutually acceptable plan and to recommend an action program for implementation of the plan.

The committee carefully studied four alternative proposals. These were the hydraulic barrier, the physical barrier, the Delta waterway control, and the peripheral canal concepts. The alternatives were compared on the basis of the relative ability of each to meet the planning objectives of water quality and transfer, local water supply, flood control, seepage and drainage control, navigation, fish and wildlife, recreation, and vehicular transportation. In January 1965 the committee recommended the peripheral canal concept[51] as an overall framework within which the activities of federal, state, and local governmental agencies could proceed cooperatively.

51/ "Plan of Development, Sacramento-San Joaquin Delta", prepared by the Interagency Delta Committee, dated January 1965.

The Department of Water Resources has initiated[52] action to implement the peripheral canal component of the plan recommended by the Interagency Delta Committee and proposes joint action by the Department and the Bureau of Reclamation under a Peripheral Canal Task Force composed of personnel from both agencies.

San Joaquin Drainage Facilities

As stated in Bulletin No. 132-64, Senate Concurrent Resolution 27[53] of the 1963 Legislature, requested the Department to complete its San Joaquin Valley Drainage Investigation at the earliest possible time, to prepare a comprehensive report on facilities for removing drainage water from the San Joaquin Valley, and to report thereon to the 1965 Legislature. The Department and the Bureau of Reclamation joined through a task force committee to coordinate the Bureau's San Luis Interceptor Drain Studies and the State's San Joaquin Valley Master Drain Program and to formulate a plan for joint use of drainage facilities that might be constructed in the San Joaquin Valley.

Such a plan is presented in the preliminary report[54] prepared by the Department and submitted to the Legislature on December 9, 1964, in accordance with the aforesaid resolution. This report also serves as a response to House Resolution 353 discussed earlier in this chapter. The report recommends construction of the San Joaquin Master Drain which will provide protection for the agricultural economic structure of the San Joaquin Valley and will provide the first step toward full protection of the quality of surface and groundwater supplies of the valley. It will be, for two-thirds of its length, a joint federal-state facility. Construction in two stages is proposed, with provision for future enlargement as the need develops.

Negotiations are nearing completion on an agreement between the State and the Bureau of Reclamation for construction and operation of the First Stage of the Master Drain. Basic agreement has been reached on the essential elements of the agreement, including formulae for sharing of construction and operation costs.

52/ Department of Water Resources Memorandum to William E. Warne, et al, from Carl A. Werner, "Implementation of Peripheral Canal", approved May 11, 1965.

53/ Calif. Stats. of 1963, Res. Ch. 119, p. 4892.

54/ Department of Water Resources, Bulletin No. 127, "San Joaquin Valley Drainage Investigation, San Joaquin Master Drain", dated January 1965.

Additional Project Conservation Facilities

In August 1964, the Department transmitted to the Legislature a preliminary edition of a report[55/] formulating a planning framework for the long-range development of the North Coastal Area. Included were plans for the Upper Eel River Development which is authorized as an additional project conservation facility of the State Water Project. The development will consist of one or two reservoirs on the Middle Fork Eel River and associated conveyance features to deliver the conserved water supplies to local areas and to the Sacramento River Basin. Two alternative conveyance routes are being studied. One alternative would be southerly via Clear Lake and Lake Berryessa to the Sacramento River; the other would be easterly via Thomes or Stony Creek and via elements of the Glenn reservoir complex.

In July 1964, the Department initiated advance planning studies for the Upper Eel River Development. This program is directed toward a comprehensive definition of the overall project, including nominal sizing of individual features. The primary objective of the first phase of the program is selection of the conveyance route from the Eel River to the Sacramento River Basin.

Following the unprecedented flood of December 1964 and January 1965, Governor Brown directed the Department of Water Resources to review the events during the flood and to prepare a strengthened and accelerated flood control program. Transmitted to the Governor on January 21, 1965, was a report[56/] which presented a program to increase the State's capability to prevent and combat floods, coordinate and strengthen the flood control activities of all participating agencies, and provide a basis upon which all agencies could work to achieve additional flood protection.

55/ Department of Water Resources, Bulletin No. 136, "North Coastal Area Investigation", dated September 1964.

56/ Department of Water Resources, Bulletin No. 159-65, "California Flood Control Program, 1965", dated February 1965

The report included recommendations for the possible early construction for flood control purposes of multiple-purpose reservoir projects now being considered as sources of water supply to meet future water demands. Four of these projects are under consideration as elements of the alternative diversion systems of the Upper Eel River Development. These are Dos Rios, Spencer, and English Ridge reservoirs on the Upper Eel River and the Paskenta-Newville project in the Sacramento Valley.

Work by the Department involving planning for water conservation and flood control facilities in the North Coastal Area and the Sacramento River Basin is closely related to similar investigations of federal agencies. To facilitate coordination and cooperation among the water agencies, the California State-Federal Interagency Group was formed in 1958. It consists of the Director of Water Resources, the Director of Region II of the Bureau of Reclamation, the Pacific Southwest Division Engineer of the Corps of Engineers and the State Conservationist of the Soil Conservation Service. This group has made considerable progress in coordinating the gathering of basic information needed for planning and in reaching general agreement on an overall project plan for the Upper Eel River and adjacent basins.

CHAPTER III. DESCRIPTION OF WORKS

This chapter presents a brief description of the individual features of the State Water Project as of the beginning of 1965. With the water supply contracting program essentially having been completed, and with several key decisions as to aqueduct routing and other details having been made, the configurations of many of the facilities are nearing their final forms. A number of features, however, are subject to change as advance planning and design studies are completed.

The works described in this chapter are the bases for the cost estimates presented in Chapter XI. A general location map of the State Water Project is shown on Plate 1. Appendix C entitled, "State Water Project Statistics", presents brief narrative descriptions and detailed maps of the outstanding physical features. That appendix is bound separately from this volume.

Feather River Facilities

The Feather River Facilities include the Upper Feather division and the Oroville division.

Upper Feather Division

This division consists chiefly of Frenchman and Antelope Dams and Lakes, Grizzly Valley Dam and Lake Davis, and Dixie Refuge and Abbey Bridge Dams and reservoirs. All are located in Plumas County, as shown on Plate 1.

Frenchman Dam is a 128-foot high earthfill structure with an ungated, concrete-lined spillway. It was completed in 1961. It is located on Little Last Chance Creek about 30 miles northeast of Portola. Frenchman Lake,[1/] with a storage capacity of 55,400 acre-feet, regulates the water of Little Last Chance Creek for downstream irrigation use and for enhancement of the outdoor recreation area. Surface area of the lake is 1,580 acres and the shoreline is 21 miles.

Antelope Dam, is an earthfill structure 105 feet high, completed in 1964. Antelope Lake[1/] stores 22,500 acre-feet of water to be used entirely for recreation and fish and wildlife enhancement purposes. The reservoir has a surface area of 930 acres and a shoreline of 15 miles. The dam is located on Indian Creek about 25 miles northeast of Crescent Mills.

1/ Department of Water Resources, Project Nomenclature Order No. 1, dated November 12, 1964.

Grizzly Valley Dam, on which construction commenced in 1965, will be an earthfill structure 115 feet high and will impound Lake Davis.[1] The reservoir will have a storage capacity of about 83,000 acre-feet and will be used for recreation, fish and wildlife enhancement, and domestic water supply purposes. Lake Davis will have a surface area of about 4,000 acres and a shoreline of 35 miles. The damsite is located on Big Grizzly Creek about 10 miles north of Portola. The Grizzly Valley Pipeline[2] is a proposed future conveyance facility to carry water from the dam to the town of Portola for urban use.

Dixie Refuge Dam,[2] construction of which is not yet scheduled, would impound a reservoir with a storage capacity of about 16,000 acre-feet to be used for recreation and fish and wildlife enhancement purposes. The reservoir would have a surface area of about 900 acres and a shoreline of 15 miles. The damsite is located on Last Chance Creek about 30 miles east of Crescent Mills.

Abbey Bridge Dam,[2] construction of which is not yet scheduled, would impound a reservoir with a storage capacity of about 11,000 acre-feet for recreation and fish and wildlife enhancement purposes. The reservoir would have a surface area of about 540 acres and a shoreline of 11 miles. The damsite is located on Red Clover Creek about 24 miles east of Crescent Mills.

Oroville Division

The Oroville division includes the following major units: Oroville Dam and reservoir, Oroville Powerplant, Parish Camp Saddle Dam, Bidwell Canyon Saddle Dam, Thermalito Diversion Dam, Thermalito Power Canal, Thermalito Forebay Dam, Thermalito Forebay, Thermalito Powerplant, Thermalito Afterbay Dam, Thermalito Afterbay, Feather River Fish Barrier Dam, Feather River Fish Hatchery, and Interim Fish Facility. Features of the Oroville division are shown on Plate 2.

Oroville Dam,[2] which is under construction, is located about four miles northeast of the City of Oroville. The dam will be an embankment structure with an impervious rolled-fill core and a graded gravel shell approximately 770 feet in height with a crest length of 5,600 feet. The change in height, from 747.5 feet shown in Bulletin No. 132-64 is the result of deeper foundation excavation than formerly contemplated. The reservoir will have a surface area of 15,500 acres, a shoreline of 167 miles, and a storage capacity of 3,484,000 acre-feet at the normal pool elevation of 900 feet above sea level.

1/ See page 33.

2/ Department of Water Resources, Project Nomenclature Order No. 3, dated May 7, 1965.

View of machine hall excavation
for Oroville Powerplant (Oroville division).

Oroville spillway, construction of which is to be commenced in mid-1965, will be located in a saddle on the right abutment of Oroville Dam. It will consist of a low-level flood control outlet, with eight 17.6-foot by 33-foot radial gates, and an ungated auxiliary spillway, with a fixed crest 1,730 feet long at elevation 901 feet. A concrete-lined chute, 178 feet wide and about 3,500 feet long, will conduct water from the gated outlets to the river.

Two auxiliary earthfill dams will be located at low points on the rim of the reservoir. The Bidwell Canyon Saddle Dam,[2] on the south rim, will have a crest length of 2,000 feet and a maximum height of 47 feet above natural ground. Parish Camp Saddle Dam,[2] located on the northwest rim, will have a crest length of 260 feet and a maximum height of 25 feet above natural ground. The changes in heights and crest lengths from values in Bulletin No. 132-64 result from designs of the structures having been modified upon more detailed investigations.

Oroville Powerplant,[2] construction and fabrication of equipment for which is underway, will be located underground in the left abutment of the dam. Two circular penstock tunnels, leading from intakes on the left abutment at an elevation of approximately 605 feet, immediately adjacent to the upstream toe, will convey water to the powerplant. After passing through the turbines, the water will be conveyed through two tailrace tunnels discharging into the present river channel at the downstream toe of the dam.

Oroville Powerplant is designed for pumped storage operation. The powerplant will have six units with a nameplate generating capacity of 644,200 kilowatts. Three of the units will be reversible.

Thermalito Diversion Dam,[2] which is under construction is located immediately northeast of Oroville. It will maintain tailwater at the Oroville Powerplant and will divert water into the Thermalito Power Canal serving the Thermalito Powerplant. The diversion dam will be a concrete gravity structure 133 feet high with a crest length of 1,280 feet. The dam will have a gated spillway controlled by 14 centrally located 40-foot by 23-foot radial gates. The outlet works will provide for a downstream release of 400 cubic feet per second for the preservation of fishlife in the Feather River. The reservoir will have a surface area of 330 acres, a storage capacity of 13,500 acre-feet, and a shoreline of 10 miles.

Thermalito Power Canal,[2] construction of which is scheduled to begin in mid-1965, will convey water from Thermalito Diversion Dam to Thermalito Forebay and will have

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2/ See page 34.

a capacity of 17,000 cubic feet per second which is sufficient to handle the discharge from the Oroville Powerplant. The canal will be concrete-lined and will be designed to permit flow in either direction to allow water stored in Thermalito Afterbay to be returned to Oroville Powerplant during the pumping cycle of the pumped storage operation.

Thermalito Forebay,2/ construction of which is scheduled to commence in mid-1965, will have a gross capacity of 11,400 acre-feet. It will be impounded by Thermalito Forebay Dam,2/ an earthfill dam 65 feet high. The dam will provide head for Thermalito Powerplant, and the forebay will function essentially as an extension of Thermalito Power Canal. Surface area of the forebay will be about 600 acres and the shoreline will be about 6 miles.

Thermalito Powerplant,2/ construction of which was started in December 1964, will contain one Kaplan turbine unit and three pump-turbines with a total nameplate generating capacity of 115,100 kilowatts. This plant will operate on the same schedule as Oroville Powerplant and will pass essentially the same flows. A tailrace channel will connect the powerplant with Thermalito Afterbay.

Thermalito Afterbay,2/ construction of which is scheduled to begin in mid-1965, will be formed by Thermalito Afterbay Dam,2/ an earthfill dam 37.5 feet high and about 41,600 feet long. The afterbay will have an ultimate gross storage capacity of 57,500 acre-feet and an active storage capacity of 35,000 acre-feet initially and 45,000 acre-feet ultimately. The water surface area will be about 4,550 acres and the shoreline will be about 26 miles. Outlet structures will serve the Western and Sutter-Butte Canals, the P.G.&E. Lateral, and the Richvale Canal. Discharge to the original channel of the Feather River will be regulated at the river outlet.

The Feather River Fish Barrier Dam,2/ completed in 1964, is located about two miles below Thermalito Diversion Dam. It is a concrete gravity structure with a maximum height of 75 feet and a crest length of 600 feet. Its function is to divert migrating salmon and steelhead into the fish ladder that will lead to the Feather River Fish Hatchery. It is now part of the Interim Fish Facility2/ by which fish are diverted from the river and conveyed by truck back to the river upstream from Oroville Dam while that dam is under construction and before the hatchery is completed.

The Feather River Fish Hatchery,2/ construction of which is scheduled to be started in 1966, will be located on the right bank of the river. The primary purpose of the hatchery will be to maintain the existing salmon and steelhead

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2/ See page 34.

runs by serving as a substitute for the spawning areas disturbed by project construction. The hatchery will have a capacity of about 20,000,000 eggs.

North Bay Aqueduct

The North Bay Aqueduct[2] will include the works necessary to divert water from the Sacramento-San Joaquin Delta and convey it some 28 miles across parts of Solano and Napa Counties to a turnout located near the west end of Jameson Canyon in Napa Valley and near the proposed water treatment plant for the City of Napa. This aqueduct is shown on Plate 3.

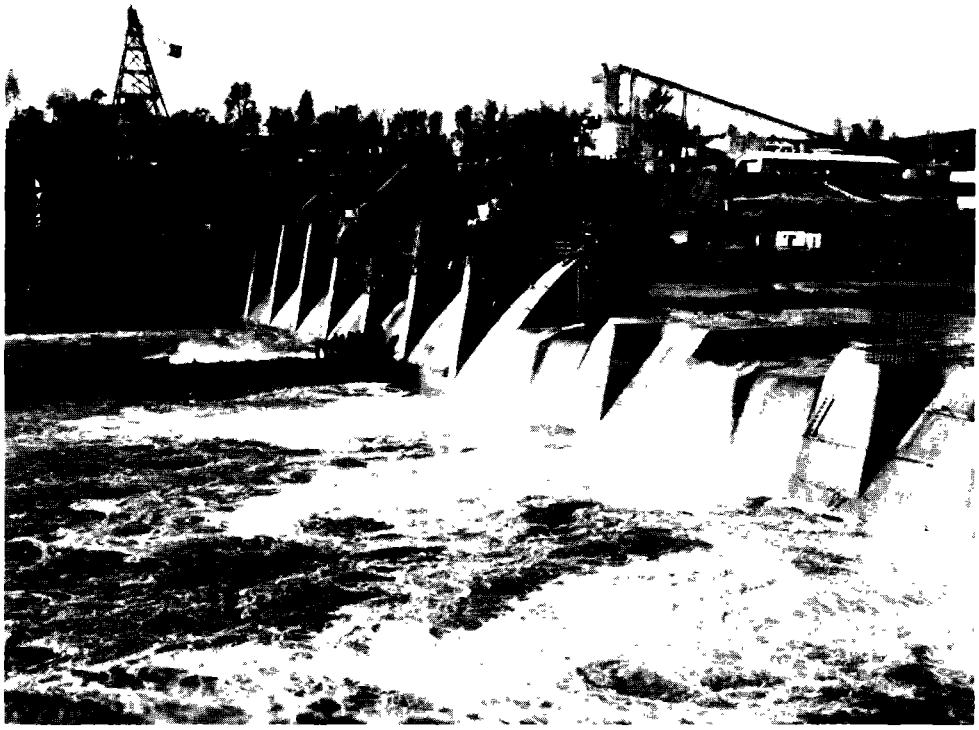
The North Bay Aqueduct would divert from Lindsey Slough in the Delta. The improved, unlined intake channel would convey water about 3.8 miles from Lindsey Slough to Calhoun Pumping Plant.[2] The pumping plant would lift water from elevation zero to elevation 30 feet and would have a capacity of about 117 cubic feet per second. The aqueduct from Calhoun Pumping Plant would extend about 18.0 miles in unlined canal and pipeline to the Cordelia Pumping Plant.

Cordelia Pumping Plant[2] would lift water to an elevation of about 381 feet at the head of Jameson Canyon. The plant would have a total capacity of 46 cubic feet per second. Water would be conveyed through Jameson Canyon in a pipeline about 6.1 miles to the Napa Turnout. Construction on this reach is scheduled to commence in 1966.

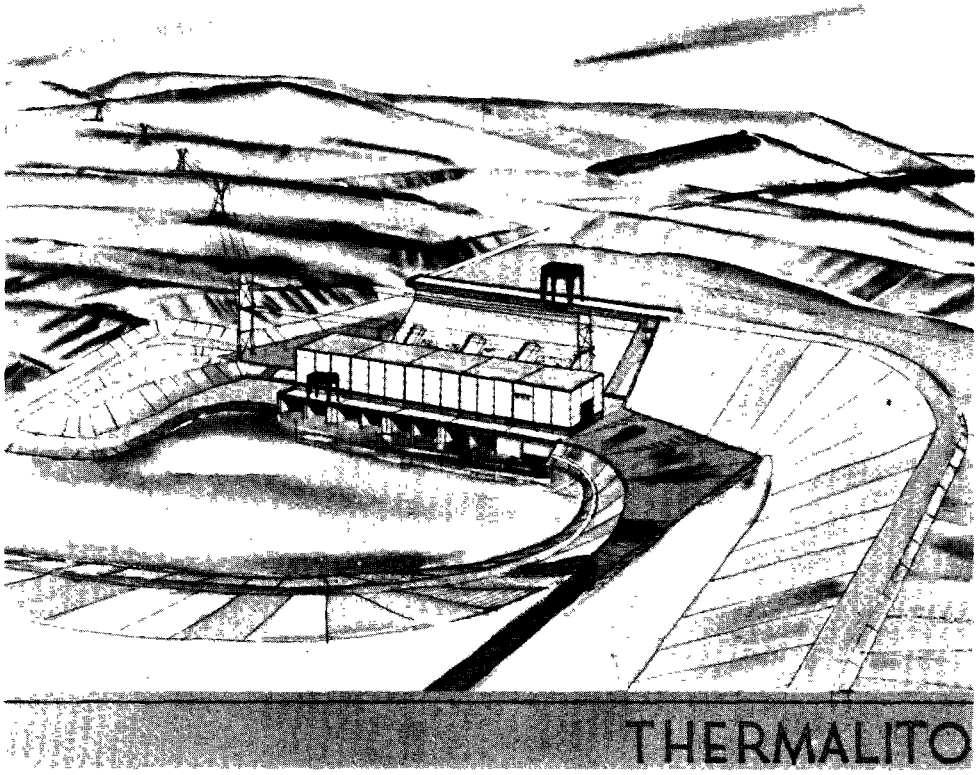
Project water will not be delivered through the North Bay Aqueduct until about 1980. Prior to that and beginning in 1968, nonproject water would be conveyed through the Jameson Canyon pipeline to the Napa Turnout. An interim pumping plant would lift water through a head of about 280 feet to the pipeline from the terminal reservoir of the federal Solano Project in the vicinity of Cordelia.

The reduction in capacities of the Calhoun and Cordelia Pumping Plants from 138 and 57 cubic feet per second, respectively, as shown in Bulletin No. 132-64, reflect the fact that the two North Bay water supply contractors did not increase their maximum annual entitlements under the option provisions, whereas it was assumed for that report that they would. Portions of the North Bay Aqueduct are in the advance planning stage and the sizes and types of facilities and other details described above may be changed before final design is initiated.

2/ See page 34.



Construction in progress on the
Thermalito Diversion Dam (Oroville division)



Artist's Conception of the
Thermalito Powerplant (Oroville division)

South Bay Aqueduct

The South Bay Aqueduct,[2] shown on Plate 3, includes those facilities necessary to divert water from Bethany reservoir of the California Aqueduct and to convey it through portions of Alameda and Santa Clara Counties to the vicinity of Penitencia Creek on the east side of the Santa Clara Valley near San Jose. The overall length of aqueduct is about 44 miles. It includes two pumping plants and an offstream flood control and regulatory storage reservoir in the Arroyo Del Valle. The capacities of the various reaches of the main aqueduct range from 363 to 184 cubic feet per second.

The physical units and capacities of the South Bay Aqueduct and the aqueduct reaches thereof utilized as a basis for allocating transportation costs among water supply contractors are now defined. Except for Del Valle reservoir and related facilities, the South Bay Aqueduct features are completed or are under construction. Therefore, this aqueduct system is described by aqueduct reaches in the following sections.

Bethany Reservoir to Altamont Turnout

Water is presently being supplied to Bethany reservoir by an interim canal and the Interim Pumping Plant.[2] The two-mile-long interim canal is largely unlined and has a capacity of 150 cubic feet per second. It conveys water from the Delta-Mendota Canal of the federal Central Valley Project to the Interim Pumping Plant. The latter is a temporary outdoor plant which has five pump units with a rated total capacity of 125 cubic feet per second but delivery capacity of about 150 cubic feet per second to lift water from the canal into Bethany reservoir.

Water supplied to Bethany reservoir by the Interim Pumping Plant is lifted by the South Bay Pumping Plant[2] about 600 feet in elevation to a surge tank at the head of a pipeline section. The nine units of the pumping plant will have a combined delivery capacity of 300 cubic feet per second, when they are all installed.

The aqueduct from the surge tank to the Altamont turnout has a capacity of 300 cubic feet per second and consists of a double-barrel concrete pipeline 2.5 miles long, a concrete-lined canal 2.0 miles long, and approximately 2.0 miles of single-barrel concrete pipeline.

2/ See page 34.

Altamont Turnout Through Patterson Reservoir

This reach consists of about 0.5 mile of single-barrel concrete pipeline, a two-mile portion of a concrete-lined canal, and Patterson Reservoir,[2] a small regulatory and emergency reservoir with a capacity of 100 acre-feet. The capacity of the conveyance features is 300 cubic feet per second.

Patterson Reservoir to Del Valle Branch

This reach includes the conveyance facilities from Patterson Reservoir to the junction with the Del Valle Branch Pipelines. It consists of 7.0 miles of concrete-lined canal and 2.3 miles of the Del Valle Siphon,[2] both with a capacity of 300 cubic feet per second.

Del Valle Branch Through Del Valle Reservoir

Del Valle Branch Pipelines[2] will convey water a distance of about two miles from the main route of the South Bay Aqueduct to Del Valle reservoir for regulatory storage. Releases from the reservoir to meet delivery demands will also be made through the pipeline. Del Valle Pumping Plant,[2] will be required at different reservoir stages either to pump aqueduct-supplied water into storage or to make releases from storage. Both the pumping plant and the pipeline will have a capacity of 120 cubic feet per second.

Del Valle Dam[2] will be an earthfill structure 223 feet high with a crest length of 880 feet. Del Valle reservoir will provide 78,500 acre-feet of storage. Of this amount, 39,500 acre-feet will be allocated for flood control storage, 29,000 acre-feet for regulation of South Bay Aqueduct flows and 10,000 acre-feet provided for dead storage. One thousand acre-feet of the flood control pool can also be utilized for regulatory storage during certain portions of the year. With 40,000 acre-feet in storage (the sum of regulation and dead storage), the reservoir will have a water surface area of 715 acres and a shoreline length of 16 miles.

Del Valle Branch to South Livermore Turnout

This reach consists of a 0.6-mile section of Del Valle Siphon with a capacity of 363 cubic feet per second.

2/ See page 34.

South Livermore Turnout to Vallecitos Turnout

This reach includes a 0.7-mile section of Del Valle Siphon; La Costa Tunnel,[2] a concrete-lined structure about 0.9 mile long; and a 1.7-mile section of pipeline. The capacity of the reach is 305 cubic feet per second.

Vallecitos Turnout to Alameda-Bayside Turnout

This reach includes a 5.4-mile section of pipeline; Mission Tunnel,[2] a concrete-lined tunnel about 0.6 mile long; and 0.5 mile of pipeline. Capacity of the reach is 255 cubic feet per second.

Alameda-Bayside Turnout to Santa Clara Terminus

This reach consists of 12.7 miles of concrete pipeline with a capacity of 184 cubic feet per second. The reach extends southerly to the Santa Clara terminus near Penitencia Creek approximately five miles northeast of downtown San Jose. The terminal facilities consist of a 7.9 acre-foot steel reservoir, valves, and bypasses to permit discharge of water into the distribution system or a future treatment plant of the Santa Clara County Flood Control and Water District or into a spreading ground on Penitencia Creek for groundwater recharge.

Delta Facilities

As discussed in Chapter II, the Interagency Delta Committee recommended the peripheral canal concept to alleviate or solve the major problems associated with the Delta. The plan presented in the Committee's report entitled, "Plan of Development, Sacramento-San Joaquin Delta", has been utilized for the description in this section and as the basis for cost estimates included in Chapter XI of this bulletin. The Delta studies are just entering the advance planning stage, however, and the facilities described herein are subject to change as further refinements are made in operational functions and design of the system.

The peripheral canal would divert water from the Sacramento River near Hood and convey it past the western extremities of Stockton and thence to the Bureau of Reclamation's Tracy Pumping Plant and the State's Delta Pumping Plant, a distance of about 45 miles. It would include an intake works, a pumping plant, and the conveyance canal with its attendant siphons and other structures to provide for release of flows to channels along the project alignment.

Flows entering the peripheral canal would be regulated by a gated intake structure which would also contain fish screen facilities to prevent entry of fish from the Sacramento River.

2/ See page 34.

About three miles beyond the intake, a pumping plant with a design capacity of 21,800 cubic feet per second would pump through a head varying from 5 to 10 feet. A gated bypass would provide for diversion of flows around the pumping plant when the head would be sufficient for canal operation without pumping. The pumping plant forebay would be constructed with a weir which would allow flood flows from the Stone Lake area of Sacramento County to enter the canal. The weir would pass 11,300 cubic feet per second at a stage of 11 feet.

The peripheral canal would be unlined and would have a maximum capacity varying from 21,800 at the intake to 18,300 cubic feet per second at the export pumps. Siphons would convey canal flows under the Mokelumne, San Joaquin, and Old Rivers. Middle River would be crossed by providing an earthfill closure on the north side of the canal alignment and a closure at the head of Middle River. Both closures would be provided with gates to allow fresh water releases to be made from the canal. A 1,300-cubic-foot-per-second pumping plant would be required to make releases from the canal to Old River. Fresh water would be supplied to the Delta channels through release facilities at Hog, Beaver, Sycamore, White and Disappointment Sloughs, and the Mokelumne, San Joaquin, Middle and Old Rivers.

At the western end of the Old River siphon the peripheral canal would split into two branches. One branch, with a capacity of 8,000 cubic feet per second, would lead to the existing Tracy Pumping Plant. The other branch, with a capacity of 10,300 cubic feet per second, would continue westward to the Clifton Court Tract forebay and would then turn southward to the State's Delta Pumping Plant. The forebay would provide about 15,000 acre-feet of regulatory storage for the pumping plant.

California Aqueduct

The California Aqueduct[2/] will extend 444 miles from the Sacramento-San Joaquin Delta to Perris reservoir in Southern California. For this report, it is divided into seven divisions: The North San Joaquin, San Luis, South San Joaquin, Tehachapi, East Branch, West Branch, and Coastal Branch divisions. The location of each division is shown on Sheets 1 through 6 of Plate 4. The total length of these components is 574 miles.

North San Joaquin Division

The North San Joaquin division includes those units required for the conveyance of water from the Delta to San Luis Forebay. Principal features of the division include about 66.5 miles of unlined intake channel and

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2/ See page 34.

concrete-lined canal, a fish protective facility, the Delta Pumping Plant, and Bethany reservoir.

The unlined intake channel, which is under construction, will be about three miles long and will convey water from Italian Slough to the Delta Pumping Plant. Facilities to protect fishlife, by preventing them from being drawn into the pumping plant, will be constructed near the beginning of the intake channel.

The Delta Pumping Plant,2/ under construction since August 1964, is located northwest of Tracy. It will lift water from sea level to an elevation of about 243 feet. It will be an indoor-type plant. The substructure will be of mass-concrete construction with heavy reinforcement, and the superstructure will be of rigid-frame reinforced-concrete construction. The plant will house 11 pumping units with an aggregate capacity of 10,300 cubic feet per second. Nine large pump units will each have a discharge capacity of about 1,070 cubic feet per second and a motor horsepower of 34,500. Two smaller pumping units will each have a discharge capacity of about 350 cubic feet per second and a motor horsepower of 11,300. There will be four discharge lines, each approximately 15 feet in diameter and one discharge line 13.5 feet in diameter. The discharge lines will be about 1,100 feet long. Major power switching and transforming facilities will also be included.

From the pump discharge lines, a concrete-lined canal with a capacity of 10,300 cubic feet per second will convey water about one mile to Bethany reservoir.

Bethany reservoir was designed to serve initially as the forebay for the South Bay Pumping Plant of the South Bay Aqueduct and is now performing that function. The reservoir will be enlarged when required to serve the additional function of water transportation in lieu of canal through the new reservoir area. Dikes, to be constructed beginning in 1966, will be extended southerly from the existing dam. Together these will be referred to as Bethany Dams,2/ which will form the additional portion of the conveyance reservoir when joined to the existing forebay reservoir by an interconnecting channel. Under this condition, the maximum operating water surface elevation of the reservoir will be about 243 feet. At this elevation the reservoir will have a capacity of about 4,800 acre-feet, a water surface area of about 160 acres, and a shoreline length of about five miles. The enlarged facility will serve for conveyance of water in lieu of about one and one-half miles of canal.

2/ See page 34.

The aqueduct from Bethany reservoir to San Luis Forebay, is under construction and will be a concrete-lined canal having a capacity of 10,000 cubic feet per second and a length of approximately 62 miles. Appurtenant to the canal will be numerous control and drainage structures, utility and road crossings, fencing, and maintenance roads and facilities.

San Luis Division

The San Luis division contains the state-federal joint-use facilities located between about Los Banos and Kettleman City. Included are the San Luis Forebay and Dam, San Luis Pumping-Generating Plant, San Luis Dam and reservoir, Mile 18 Pumping Plant, and about 101 miles of aqueduct. The joint-use facilities are being designed and constructed by the Bureau of Reclamation.

San Luis Forebay[2/] will be impounded by San Luis Forebay Dam[2/] under construction immediately below San Luis Dam. With a gross capacity of about 58,000 acre-feet at water surface elevation 225, the forebay will serve as a pumping-generating regulation pool and as a gravity diversion pool for flows entering the San Luis Canal. Active storage in the reservoir and the first reach of the San Luis Canal (Reach 3 of the California Aqueduct) will be operated as a unit for pumping-generating use. The storage capacity of this unit will be 20,000 acre-feet between normal operating elevations of 217 and 225 feet above sea level. This regulatory storage serves Mile 18 Pumping Plant as well as the San Luis Pumping-Generating Plant. The reservoir proper will have a surface area of 2,000 acres and a shoreline of nine miles. The dam will be an earthfill structure requiring about 3,000,000 cubic yards of material and will have a height of 65 feet and a crest length of 13,500 feet. The reservoir is about three miles long from the end of the canal in the North San Joaquin division to the inlet of the San Luis Canal.

The substructure and eight indoor pumping units of the San Luis Pumping-Generating Plant,[2/] are under construction and fabrication, respectively. The plant will have a total pumping capability of about 11,000 cubic feet per second and will lift water from San Luis Forebay through a maximum head of about 320 feet into San Luis reservoir. When water stored in the reservoir is required to meet delivery demands, it will be released through the plant and will generate electric power. Under conditions of maximum head and discharge the plant will generate about 400,000 kilowatts.

2/ See page 34.

San Luis Dam,[2] which is under construction, will be a 77,000,000-cubic-yard earthfill structure 305 feet high, with a crest length of about 18,500 feet. The reservoir will have a gross storage capacity of about 2,100,000 acre-feet under normal operating conditions, with a corresponding maximum water surface elevation of 544 feet. The State's share of this capacity will be 1,100,000 acre-feet. At this elevation the reservoir will have a surface area of 13,300 acres and shoreline length of about 41 miles. The minimum operating level will be an elevation of 326 feet. The inactive storage capacity at this elevation will be about 80,000 acre-feet and the reservoir surface area will be about 4,000 acres.

Mile 18 Pumping Plant,[3] under construction and fabrication, will be an indoor type structure and will raise the water about 122 feet. Six pumping units will be installed to provide the required 13,000-cubic-foot-per-second maximum flow.

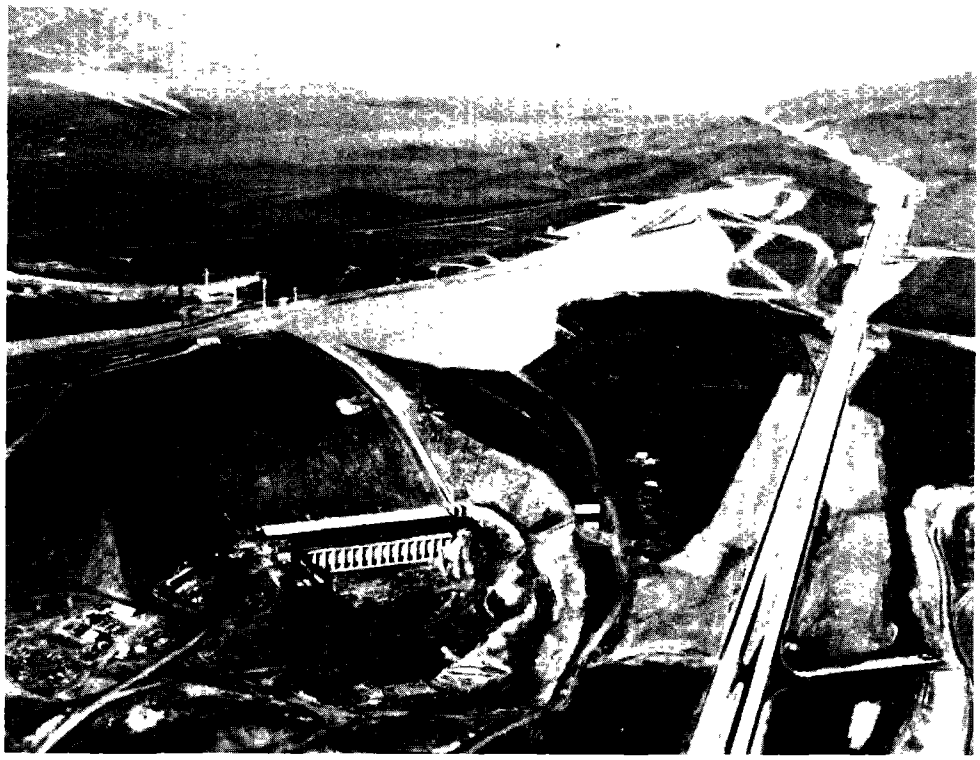
San Luis Canal,[4] presently under construction, will convey water from San Luis Forebay to Kettleman City, a total distance of about 101 miles. It will be a concrete-lined trapezoidal canal. The reach from San Luis Forebay to Mile 18 Pumping Plant will be about 16 miles in length and will have a capacity of 13,000 cubic feet per second. The reach from Mile 18 Pumping Plant to Kettleman City will be about 85 miles long and will have a capacity decreasing from 13,000 to 8,350 cubic feet per second, of which the State's share will decrease from 7,100 to 7,000 cubic feet per second.

Two detention reservoirs will be formed by dams on Los Banos and Little Panoche Creeks to reduce flood peak flows which must cross the aqueduct alignment through siphons. Los Banos Creek Detention Dam will be an earthfill structure 154 feet high with a crest length of 554 feet. The dam will form a reservoir with a capacity of 34,500 acre-feet, a surface area of 623 acres, and a shoreline length of 12 miles. Little Panoche Creek Detention Dam will be 122 feet high, will have a crest length of 676 feet, and will form a reservoir of 5,600 acre-feet.

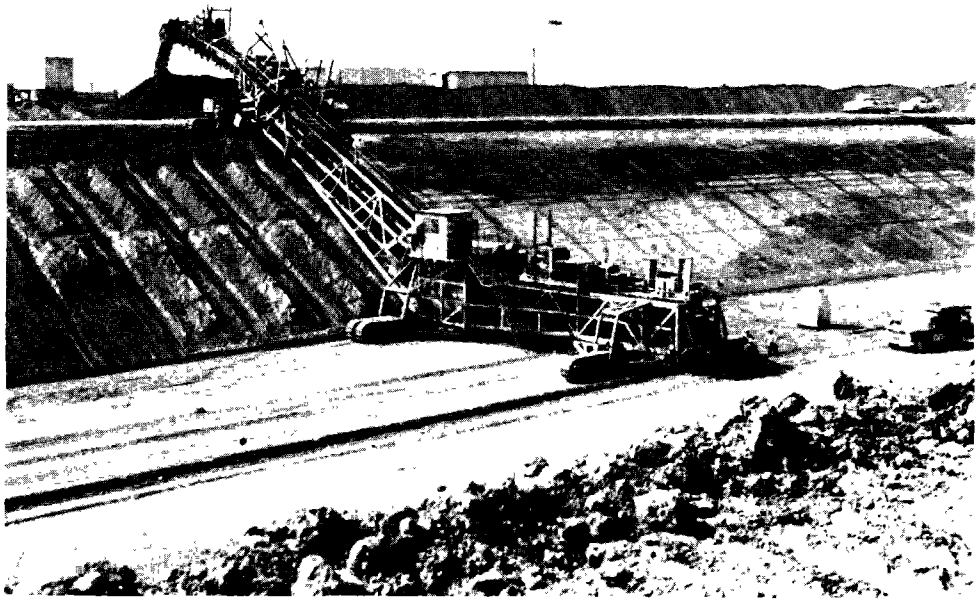
2/ See page 34.

3/ New name to be determined in cooperation with the Bureau of Reclamation.

4/ Nomenclature used in "Agreement Between the United States of America and the Department of Water Resources of the State of California for the Construction and Operation of the Joint-Use Facilities of the San Luis Unit", dated December 30, 1961.



Construction of San Luis Dam and Pumping-Generating Plant. (San Luis division)



Canal Trimmer in operation (San Luis division)

South San Joaquin Division

The South San Joaquin division includes those facilities required for the conveyance of water from Kettleman City to the Tehachapi Pumping Plant. Construction has been commenced and will be in progress until 1970. In addition to about 120 miles of concrete-lined canal, this division includes Buena Vista, Wheeler Ridge, and Wind Gap Pumping Plants. From Kettleman City to Buena Vista Pumping Plant there will be about 79 miles of concrete-lined canal with a capacity decreasing from 8,100 cubic feet per second to 5,100 cubic feet per second.[5] Bulletin No. 132-64 stated that the capacities for this division would decrease from 7,344 to 4,338 cubic feet per second. The increases from those values are due mainly to more water having to be transported to Southern California pursuant to the water supply contracts and to excess capacity to be provided for The Metropolitan Water District of Southern California. The same facts cause the capacities of other reaches of the South San Joaquin division to be increased.

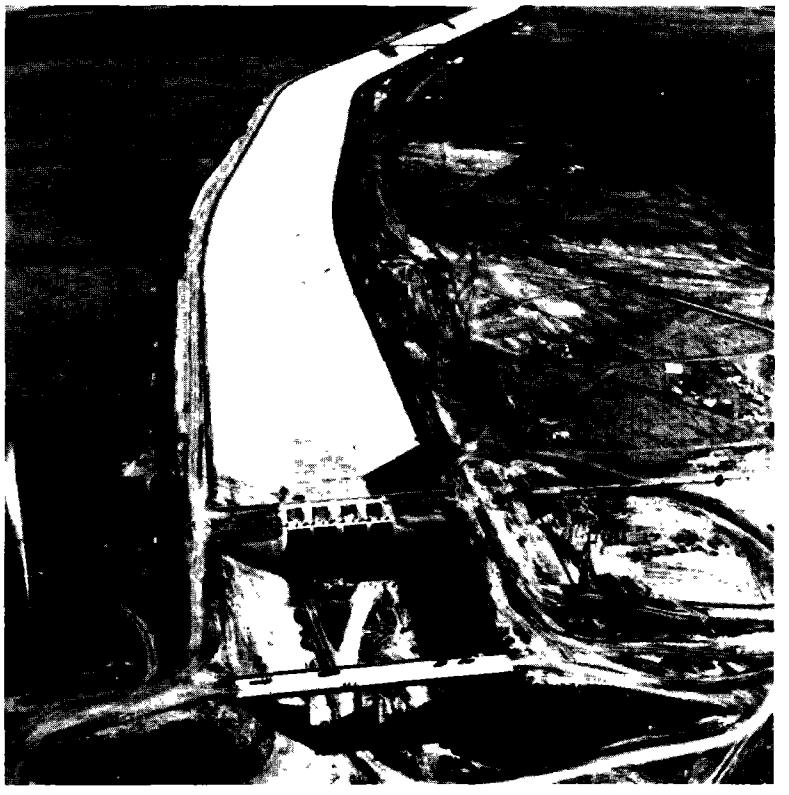
The pumping lift at the Buena Vista Pumping Plant[2] will be about 205 feet. The 11 pumping units will have a combined capacity of about 5,000 cubic feet per second. The canal will follow a route near the 500-foot elevation contour above sea level from Buena Vista Hills to the base of Wheeler Ridge.

Wheeler Ridge Pumping Plant[2] will lift the water about 235 feet. The 12 pumping units will have a combined capacity of about 4,500 cubic feet per second. The canal from the pumping plant will follow the 725-foot elevation contour along the base of Wheeler Ridge to a gap near the eastern end of the ridge.

The 11 pumping units at the Wind Gap Pumping Plant[2] will lift the water about 520 feet. The plant will have a capacity of about 4,400 cubic feet per second. The canal from the plant will follow a route near the 1,240-foot contour from Wheeler Ridge to the Tehachapi Mountains east of Pastoria Creek.

2/ See page 34.

5/ Department of Water Resources, "Design Capacities of the California Aqueduct-Kettleman City to: 1. Junction, East and West Branches, 2. Devil's Den Pumping Plant", (Final Edition), dated April 1965.



Aqueduct under construction, Head of San Luis Canal looking southeasterly (San Luis division)

Mile 18 Pumping Plant and San Luis Canal looking northwesterly (San Luis division)

Tehachapi Division

This division consists of a single reach about 11.7 miles long, including the Tehachapi Pumping Plant and the tunnel and pipeline crossing of the Tehachapi Mountains to the inlet of the Cottonwood Powerplant penstock located at the southern end of the Tehachapi Afterbay. Construction is in progress and will continue until 1971.

The Tehachapi Pumping Plant[2/] would be located at the north base of the Tehachapi Mountains. The pumps would raise the water through a head of 1,926 feet to an elevation of 3,165 feet above sea level. The pumping units would have a total capacity of 4,100 cubic feet per second. The capacity of this division has been increased from the value of 3,442 cubic feet per second given in Bulletin No. 132-64 to reflect the larger quantities of water contracted for in Southern California than previously assumed and the excess capacity included for Metropolitan Water District. Designs for the plant, assumed in this report, would include 14 pump units pumping through a single lift.[6/] This would require an installed capacity of 1,016,000 horsepower. The plant's two parallel discharge lines would be 7,950 feet in length and would each be 12.5 feet in diameter.

The aqueduct from the discharge lines of the Tehachapi Pumping Plant would consist of a surge chamber 70 feet in diameter, an open forebay, four successive concrete-lined tunnels, three single-barrel cast-in-place siphons, one multibarrel prestressed concrete siphon, and an afterbay. The tunnels are numbered 1 through 3 beginning with the northernmost. As stated in Chapter II, the southernmost has been named the Carley V. Porter Tunnel.[7/] Tehachapi Tunnels No. 1, 2 and 3,[2/] with a total length of about 16,803 feet, would have inside diameters of 23.5 feet, and the Carley V. Porter Tunnel, with a total length of 25,097 feet, would have an internal diameter of 20.0 feet. The cast-in-place siphon between Tehachapi Tunnels No. 1 and 2, with a total length of about 201 feet, would have the same diameter as the adjacent tunnels or 23.5 feet. The prestressed concrete Pastoria Siphon,[2/] between Tehachapi Tunnels No. 2 and 3, with a total length of about 2,220 feet, would comprise three barrels each with about a 14-foot inside diameter.

2/ See page 34.

6/ Studies on lift arrangements were in progress at the time of this report.

7/ Department of Water Resources, Project Nomenclature Order No. 2, dated November 12, 1964.

The cast-in-place siphon between Tehachapi Tunnel No. 3 and the Carley V. Porter Tunnel with a total length of about 171 feet, will have a transition from 23.5 feet to 20.0 feet inside diameter. A cast-in-place siphon, consisting of an 800-foot long, 20-foot diameter pipe, will connect the Carley V. Porter Tunnel and the Tehachapi Afterbay. The Tehachapi Afterbay,2/ with a total length of about 3,100 feet, will be a concrete-lined canal structure. It will also function as the control structure for regulation of water between the East and West Branch divisions.

East Branch Division

The East Branch division of the California Aqueduct extends 141 miles from the junction with the West Branch at Tehachapi Afterbay to Perris reservoir in Riverside County. Principal features of the division are Cedar Springs reservoir, Perris reservoir, about 98 miles of canal, 36 miles of pipeline and siphon, four miles of tunnel, one pumping plant, and three powerplants. It will be constructed between 1966 and 1971.

The East Branch division considered in this report includes the facilities between the Tehachapi Afterbay and Fairmont, which is some 16 miles west of Lancaster. This reach was designated as the Antelope division in Bulletin No. 132-64. This change results from the adoption of the Piru-Pyramid alignment for the West Branch which changed the junction of the East and West Branches from Fairmont to the Tehachapi Afterbay. There is no longer the need for a separate Antelope division, and the facilities formerly comprising that division, including Cottonwood Powerplant and about 23 miles of canal and pipeline, have been added to the East Branch division.

Changed capacities of all reaches compared to those shown in Bulletin No. 132-64 resulted from a general shift of entitlements of water supply contractors under the option provisions, assumed for that bulletin, chiefly from the East Branch division to the West Branch.

2/ See page 34.

Cottonwood Powerplant[2/] would develop a static head of about 140 feet. When operating at the design discharge of about 1,477 cubic feet per second, the generating unit would produce 13,900 kilowatts. The penstock would extend from Tehachapi Afterbay and would consist of a single pipeline 5,540 feet in length, with a 13-foot inside diameter. The tailrace would be a concrete-lined trapezoidal canal, approximately two miles in length. The aqueduct from Cottonwood Powerplant to Pearblossom Pumping Plant would consist of about 53 miles of concrete-lined canal and siphons, with the capacity decreasing from 1,477 cubic feet per second to 1,431 cubic feet per second.

Pearblossom Pumping Plant[2/] would have six pumping units which would lift water about 545 feet to an elevation of about 3,480 feet above sea level. From the pumping plant the aqueduct, with a design flow of about 1,430 cubic feet per second and consisting of 47 miles of canal and siphons, would cross the Mojave River through a two-mile-long siphon which would have a capacity of 1,416 cubic feet per second and would discharge into the Cedar Springs reservoir.

Cedar Springs Dam[2/] would be located on the West Fork of the Mojave River at the northern base of the San Bernardino Mountains. The dam assumed for this report would be an earthfill structure 283 feet high and, with a normal surface elevation of 3,445 feet, would impound about 200,000 acre-feet of water. It would require 21,800,000 cubic yards of embankment. The spillway would have a design capacity of 31,000 cubic feet per second. The dam would have a crest length of 2,500 feet, a water surface area of 1,630 acres, and a shoreline length of 22 miles. The reservoir would regulate essentially uniform inflow so as to meet peaking demands of contractors and would serve for conveyance of water in lieu of about two miles of aqueduct.

Cedar Springs Dam is presently being intensively restudied because of poor foundation conditions discovered at the damsite. It is possible that the plan as described above will be altered for final design.

The aqueduct from Cedar Springs reservoir to the Devil Canyon power development would consist of the four-mile-long San Bernardino Tunnel[2/] with a diameter of 10.5 feet and a capacity of 1,227 cubic feet per second. Upper Devil Canyon Powerplant[2/] would be located below the south portal of the San Bernardino Tunnel and would develop about 950 feet of static head. When operating at the design capacity of about 1,195 cubic feet per second, the plant would generate 74,700 kilowatts.

2/ See page 34.

Lower Devil Canyon Powerplant[2] would be located 1.1 miles below Upper Devil Canyon Powerplant at the southern base of the San Bernardino Mountains and would develop nearly 575 feet of static head. When operating at the design capacity of about 1,195 cubic feet per second, the plant would generate 49,400 kilowatts.

The reach from Lower Devil Canyon Powerplant to Mill Avenue would consist of eight miles of pipeline with a design capacity of about 632 cubic feet per second. The reach of pipeline between Mill Avenue and Perris reservoir, a distance of 18.9 miles, would be designed for approximately 453 cubic feet per second. This pipeline, the southernmost water conveyance feature in the California Aqueduct, would range from 9.75 feet to 7.25 feet inside diameter, and would consist of reinforced concrete or steel pipe.

Perris reservoir, would be located southeast of Riverside in a wide valley bounded on three sides by the Bernasconi Hills, adjacent to the Colorado River Aqueduct. Perris Dam[2] would be an earthfill structure with a crest length of 11,450 feet and a height of 116 feet and would impound about 100,000 acre-feet of water. The reservoir would have a water surface area of 2,080 acres and a shoreline length of eight miles. It would perform the same functions as Cedar Springs reservoir.

The Metropolitan Water District of Southern California, which would be the only water supply contractor to receive water from Perris reservoir, has requested the Department to consider constructing the dam in no more than two stages so as to impound not more than 300,000 acre-feet ultimately.[8] This study is in progress.

West Branch Division

The West Branch, California Aqueduct,[2] herein referred to as the West Branch division, will be constructed between 1966 and 1971. It includes those portions of the aqueduct system from the junction with the East Branch division at the southern end of the Tehachapi Afterbay to Castaic reservoir near Newhall. The proposed capacities would vary from about 3,123 to 3,062 cubic feet per second. Principal

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2/ See page 34.

8/ Letter from Robert A. Skinner, General Manager and Chief Engineer of The Metropolitan Water District of Southern California, to William E. Warne, dated May 7, 1965.

features in the division include the Oso Pumping Plant, 22.2 miles of aqueduct, Pyramid Powerplant, Pyramid Dam and reservoir, Castaic Powerplant and Castaic Dam and reservoir. The adoption of the Piru-Pyramid alignment for the West Branch division is described in Chapter II. The increase in capacities over the 1,500 cubic feet per second given in Bulletin No. 132-64 resulted from greater deliveries to be made to The Metropolitan Water District of Southern California, Upper Santa Clara Valley Water Agency, and Antelope Valley-East Kern Water Agency through the West Branch than previously assumed, and from inclusion of excess capacity for the Metropolitan Water District.

The Oso Pumping Plant[2/] would be located 1.6 miles from the junction of the East and West Branch divisions at the Tehachapi Afterbay. The delivery capacity of the plant would be 3,123 cubic feet per second through a head of 206 feet. Six pump units would pump through two discharge lines, each with a 15.0 foot internal diameter and about 1,895 feet long. Quail Lake, a 2,650 acre-foot natural lake located 2.8 miles from Oso Pumping Plant, would balance the aqueduct flows. The gravity flow aqueduct, with an initial capacity of 3,086 cubic feet per second, would extend from Oso Pumping Plant 11.3 miles in a southerly direction to Pyramid Powerplant. Conveyance features would include 5.8 miles of canal and 4.6 miles of pipeline.

Pyramid Powerplant[2/] would develop a static head of 755 feet and, when operating at the design capacity of 3,073 cubic feet per second, would generate 161,000 kilowatts. Each of the two penstocks would be 10 feet in diameter and about 3,400 feet in length. Water from the powerplant would flow about 0.5 mile through a tailrace channel to Pyramid reservoir.

Pyramid Dam,[2/] would be located on Piru Creek 11 miles south of the Los Angeles County line. Pyramid reservoir, at a normal water surface elevation of 2,550 feet, would have a gross capacity of 146,700 acre-feet, a surface area of 1,225 acres, and a shoreline length of 21 miles. The earthfill dam would require 6,700,000 cubic yards of embankment, would be 342 feet high and would have a crest length of about 1,000 feet.

Water would be conveyed from Pyramid reservoir to Castaic Powerplant[2/] through a 6.6-mile-long, concrete-lined tunnel; a 0.1-mile-long, cast-in-place pipeline, and a 0.3-mile-long concrete-lined tunnel, all 17.3 feet in diameter. Castaic Powerplant would develop a static head of 1,040 feet and would

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2/ See page 34.

generate 218,000 kilowatts. The penstocks would be 12.5 feet in diameter and about 2,230 feet in length. Water from the powerplant would enter Castaic reservoir via a 0.6-mile-long tailrace channel. Discussions with the City of Los Angeles regarding possible joint use of these facilities for a pumped-storage power development as well as for water conveyance may lead to substantial increases in the sizes of all components.

Castaic Dam,2/ located on Castaic Creek two miles north of the junction of Highway 99 and Elizabeth Lake Canyon Road, would serve as the terminal reservoir for the West Branch division. With a normal water surface elevation of 1,510 feet the reservoir would have a gross capacity of 350,000 acre-feet, a surface area of 2,600 acres, and a shoreline length of 34 miles. The dam would be of earthfill construction requiring approximately 42,800,000 cubic yards of embankment material. Its maximum height above streambed would be 330 feet, and its crest length would be 5,000 feet.

Coastal Branch Division

The Coastal Branch, California Aqueduct,2/ herein referred to as the Coastal Branch division, includes those portions of the aqueduct system from the junction with the main California Aqueduct near Avenal Gap in the San Joaquin Valley to a terminal structure at the Santa Maria River near the San Luis Obispo-Santa Barbara County line. Overall length of the Coastal Branch division will be about 100 miles. Principal features include Las Perillas Pumping Plant, Badger Hill Pumping Plant, Devil's Den Pumping Plant, Sawtooth Pumping Plant, Polonio Pumping Plant, San Luis Obispo Powerplant, about 20 miles of canal and about 80 miles of pipeline. The easternmost segment of the Coastal Branch, from its junction with the main California Aqueduct to the intake of Devil's Den Pumping Plant, is designated the "Coastal Stub". Construction of the Coastal Stub is scheduled to commence in 1966. Construction of the remainder of the aqueduct will not be started until about 1975, unless all water supply contractors to be served from that portion of the Coastal Branch request a change.

Las Perillas Pumping Plant2/ would be located in the Avenal Gap area of Kings County and would lift water from the main aqueduct through a head of about 55 feet. The decision to add this pumping plant to the Coastal Aqueduct Division is discussed in Chapter II. Water would be conveyed from the

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2/ See page 34.

California Aqueduct to the pumping plant through 1.2 miles of intake channel. The channel and the pumping plant would have a capacity of about 450 cubic feet per second. The increase in capacity from 329 cubic feet per second, given in Bulletin No. 132-64, is due to the requirement under the water supply contracts for larger quantities of water being delivered from this division than were assumed for that bulletin.

Badger Hill Pumping Plant,[2/] would also be located in the Avenal Gap area and would lift the water through a head of about 151 feet. Water would be conveyed from the Las Perillas Pumping Plant to the Badger Hill Pumping Plant through three miles of concrete-lined canal. The canal and the pumping plant would have a capacity of about 450 cubic feet per second.

Devil's Den Pumping Plant[2/] would be located in Kern County about one mile southwest of the Devil's Den Oil Field. It would be connected with Badger Hill Pumping Plant by 9.9 miles of concrete-lined canal, having a capacity of 450 cubic feet per second. Devil's Den Pumping Plant would have a design capacity of about 127 cubic feet per second, and would lift the water through a head of about 409 feet.

Sawtooth Pumping Plant[2/] would be located at the base of Sawtooth Ridge in Kern County and would lift the water through a head of about 331 feet. Capacity of the plant would be 127 cubic feet per second. The aqueduct from Devil's Den Pumping Plant to Polonio Pumping Plant would include about 11 miles of concrete-lined canal and pipeline with a capacity of 127 cubic feet per second.

Polonio Pumping Plant,[2/] located at the base of the Temblor Range in Kern County, would accomplish the final lift of water out of the San Joaquin Valley. The pumping plant would have a capacity of about 127 cubic feet per second and would lift water through a head of about 810 feet.

From this plant the water would be conveyed to San Luis Obispo Powerplant,[2/] which would be located about four miles southeast of the City of San Luis Obispo. When operating at the design capacity of 127 cubic feet per second, the plant's single operating unit would generate 5,400 kilowatts. The static head in this power drop would be about 730 feet.

2/ See page 34.

From Polonio Pumping Plant to the Santa Maria terminus the aqueduct would consist of about 75 miles of pipeline. The capacity en route will decrease from 127 cubic feet per second to 103 cubic feet per second. The aqueduct will terminate at the Santa Maria River, about one mile northeast of the City of Santa Maria.

San Joaquin Drainage Facilities

The San Joaquin Drainage Facilities will be designed to meet needs for waste water disposal in the San Joaquin Valley. Of the several alternatives considered in the current advance planning investigations, the plan for which cost estimates are shown in this report is the one recommended in the Department's Bulletin No. 127, "San Joaquin Valley Drainage Investigation, San Joaquin Master Drain", dated January 1965.

The San Joaquin Master Drain[2/] would function as a waste water disposal facility for the valley. It would be a concrete-lined canal beginning at a point southwest of Bakersfield in Kern County and would discharge into the Sacramento-San Joaquin Delta near the Antioch Bridge in Contra Costa County, approximately 276 miles to the north. The drain would include a regulatory reservoir with an active storage capacity of 27,000 acre-feet located between Dudley Ridge and Sand Ridge in Kings County, just north of the Kern County line. An emergency storage reservoir would be located near South Dos Palos. A dilution facility would be located near the Delta on the intake channel for the Delta Pumping Plant. In addition, a surveillance system would be initiated to monitor the quality of the receiving waters and to detect any detrimental changes that may occur in those waters due to the operation of the drain. The capacity of the drain would be 60 cubic feet per second at its beginning, and would increase to 125 cubic feet per second at the outlet of the regulatory reservoir. The terminal capacity would be 915 cubic feet per second at the Delta. The San Luis Service Area of the federal Central Valley Project would discharge a maximum of 250 cubic feet per second into the drain.

The initial terminus of the drain would be the San Joaquin River near the Antioch Bridge. If the surveillance system indicates that the discharge from the drain is adversely affecting the quality of the receiving waters, the drain would be extended.

2/ See page 34.

The location of the San Joaquin Drainage Facilities basic to the cost estimates of this report is shown on Sheets 1 through 3 of Plate 4. This location and the above description of works are tentative, pending completion of project formulation and advance planning studies.

Upper Eel River Development

The Upper Eel River Development was authorized by the Director of Water Resources on March 9, 1964 as an additional facility of the State Water Resources Development System and the State Water Project and as an additional unit of the federal Central Valley Project, defined in the California Water Code. Located in the North Coastal Area, this development has been officially selected and legally identified as the first of the additional project water conservation facilities which will maintain the minimum project yield of the State Water Project.

The Upper Eel River Development, as authorized, consists of Spencer and Franciscan Dams, Spencer reservoir, and Dos Rios Dam and reservoir, or alternatives thereto on the Middle Fork Eel River in Mendocino County; and associated conveyance features to deliver the conserved water supplies to local areas and to the Sacramento River Basin either (1) via pumped diversion to the upper main stream of the Eel River with subsequent gravity diversion via Clear Lake, Soda Creek, Putah Creek, and Lake Berryessa to the Sacramento River, or (2) via gravity diversion to Thomes or Stony Creeks with inclusion of elements of the Glenn reservoir complex. Selection of the diversion route and determination of the specific project units will be made during the advance planning program that is now in progress.

As in the previous reports in this series, the alternative route via Glenn reservoir has been selected for the purpose of estimating the effect of the Upper Eel River Development on the capital and annual costs of the State Water Project. The costs for the Eel project shown in this year's report correspond to a conservation facility which would make available in the Delta up to 862,000 acre-feet annually of additional water supplies.

Local Projects

The Davis-Grunsky Act authorizes state financial assistance by grants, loans, or both to public agencies for local water projects. State loans are authorized to agencies for the construction of needed local projects and for the preparation of feasibility reports on such projects. State grants are authorized for construction costs allocated to the enhancement of fish and wildlife, to recreation, and to initial water supply and sanitary facilities. Direct state participation in local projects is also authorized under certain conditions.

Applications for loans or grants which have been approved as of April 1, 1965, total $12,693,600, including a loan of $1,260,000 to the South Sutter Water District authorized by special act of the Legislature in 1959. Approved applications, in addition to the 10 reported on pages 84 and 85 of Bulletin No. 132-63, and to the two reported on page 83 of Bulletin No. 132-64, are as follows:

1. A $391,300 recreation grant to City of San Diego for its Miramar Project in San Diego County.

2. A $138,000 loan to Groveland Community Services District for construction of a municipal distribution system to service the community of Groveland in Tuolumne County.

3. A total of $1,200,000 in recreation and initial water supply and sanitary facility grants to South Sutter Water District for its Camp Far West Project in Sutter County.

4. A total of $385,000 in recreation and initial water supply and sanitary facility grants to Jackson Valley Irrigation District for its Jackson Creek Project in Amador County.

5. A $63,000 loan to Keswick Community Services District for construction of a municipal distribution system to service the community of Keswick in Shasta County.

6. A $182,000 loan to Hydesville County Water District for construction of a municipal distribution system to serve the town of Hydesville in Humboldt County.

7. A $112,000 loan to Alderpoint County Water District for construction of a municipal distribution system to serve the town of Alderpoint in Humboldt County.

8. A $14,000 loan to the American Canyon County Water District for the preparation of a feasibility report on a municipal distribution system in the southernmost portion of Napa County.

Reconciliation With Bulletin No. 132-64

Set forth below is a summary and, in some cases an elaboration, of discussions presented previously in this chapter regarding comparisons of transportation system capacities assumed in this report with those shown in Bulletin No. 132-64.

Differences in capacities of the North Bay Aqueduct since publication of Bulletin No. 132-64 are due to the lesser quantities of water being taken by the water supply contractors under the option provisions than assumed for that bulletin. Changes of California Aqueduct capacities have resulted principally from enlargement of the minimum project yield from 4,000,000 acre-feet to 4,230,000 acre-feet, changes in maximum annual entitlements of contractors under the option provisions, change in the location of the West Branch from the Elizabeth Lake Canyon alignment to the Piru-Pyramid alignment, and the inclusion of excess capacity for Metropolitan Water District from Kettleman City to the terminus of the West Branch.

The conveyance capacities at key points for the aqueduct systems as reported in Bulletin No. 132-64 compared with those for this report are as follows:

Facility	Bulletin No. 132-64	Bulletin No. 132-65
	(in cubic feet per second)	
North Bay Aqueduct at Calhoun Pumping Plant	138	117
South Bay Aqueduct at South Bay Pumping Plant	300	300
California Aqueduct at:		
Delta Pumping Plant	10,300	10,300
Head of San Luis Canal	7,100	7,100
Head of South San Joaquin division	7,344	8,100
Head of Coastal Branch division	329	450
Tehachapi Pumping Plant	3,442	4,100
Head of East Branch division	1,842	1,477
Head of West Branch division	1,501	3,123

Of particular significance are the capacities of the California Aqueduct. The Burns-Porter Act provides that the minimum capacity from the Delta to San Luis reservoir will be 10,000 cubic feet per second. This capacity is still sufficient to transport the increased deliveries to service areas downstream from San Luis reservoir.

As discussed in Chapter II, the capacity of 7,100 cubic feet per second, available to the State at the head of the San Luis Canal, would be insufficient to meet the State's delivery commitments under full scale project operation. The required capacity would be about 8,086 cubic feet per second leaving a deficiency of about 986 cubic feet per second. At the south end of the San Luis Canal, the capacity allotted to the State is 7,000 cubic feet per second compared with the required capacity of 7,819 cubic feet per second, leaving a deficiency of 819 cubic feet per second. Chapter II indicates that, for this report, it is assumed that these additional capacities will be provided in a future transportation facility.

In the South San Joaquin division, immediately downstream from the San Luis Canal, the capacity has been established at 8,100 cubic feet per second.5/ This consists of the aforesaid

5/ See page 48.

required capacity of 7,813 cubic feet per second plus the excess capacity of 238 cubic feet per second requested by the Metropolitan Water District, with the sum rounded upward to the nearest multiple of 50 cubic feet per second.

The general increases in estimated capacities in reaches from Kettleman City to the bifurcation of the East and West Branch divisions are caused by the increase in deliveries to Southern California. These increases more than offset a small reduction in required capacity due to lesser deliveries to the San Joaquin Valley at an agricultural peaking rate.

The changes in estimated capacities of the East and West Branch divisions of the California Aqueduct result from the delivery of additional entitlements to West Branch contractors, an overall decrease in entitlements to East Branch division contractors with respect to those assumed in 1964, and the inclusion of 809 cubic feet per second excess capacity in the West Branch pursuant to Amendment No. 2 of Metropolitan Water District's water supply contract. In addition, the change in West Branch alignment has reduced the capacity formerly required in the reach from Tehachapi Afterbay to Fairmont, as discussed previously. The overall effect has been a reduction in the East Branch division capacities which is more than offset by an increase in the West Branch capacities.

The increase in capacity at the head of the Coastal Branch is chiefly the result of greater agricultural deliveries being requested by water supply contractors than were previously assumed.

Only minor capacity changes have occurred in other project facilities as the result of essentially final establishment of the maximum annual entitlements of contractors.

CHAPTER IV. CONSTRUCTION OF THE STATE WATER PROJECT

Construction of the State Water Project is rapidly gaining momentum and is projected to reach its peak during 1967. Design of the project facilities yet to be constructed is currently at its peak, and right-of-way and relocation activities are keeping pace with construction. Construction work currently extends from Grizzly Valley Dam in the Upper Feather River Basin to the Carley V. Porter Tunnel in the Tehachapi Mountains.

Design and construction of the State Water Project remains essentially on schedule, except for several units of the Oroville division. The only significant lag in construction during 1964 was in the Oroville Powerplant excavation contract, a situation aggravated by a labor walk-out in the latter part of the year. The unprecedented flood flows in late December held up work on Oroville Dam for a brief period. Both of the diversion tunnels were in operation at that time and carried peak flows of about 157,000 cubic feet per second without damage. Detention storage of flood water in the reservoir prevented major flood damage downstream.

Design

During 1964, the Department completed plans and specifications for 36 major construction and procurement contracts on the State Water Project, and work was well advanced on 29 additional contracts scheduled for award in calendar year 1965. The Bureau of Reclamation completed plans and specifications for 19 additional major construction and procurement contracts in 1964 for work on the joint-use facilities in the San Luis division.

Rights-of-Way and Relocations

Expenditures for rights-of-way during 1964 were about $7,500,000. This was about 13.5 percent of the total estimated cost of rights-of-way amounting to $54,500,000 for the features of the State Water Project having construction schedules. A total of 3,200 acres, involving over 300 parcels, were acquired during the year. These lands had a value of $3,876,000. By the end of the year, acquisition had been completed on 24 percent of the identified parcels, and 42 percent of the estimated total land costs had been committed, either as payments or as security deposits.

During 1964, the Department performed appraisals and negotiations along with the other functions in connection with the acquisition and clearance of rights-of-way in the Upper Feather division, Oroville division, South Bay Aqueduct, and South San Joaquin division. The Division of Highways of the Department of Public Works conducted appraisals and negotiations on behalf of the Department in the North San Joaquin division and in the East and West Branch divisions. Of the total amount of $7,500,000 obligated for the possession, purchase and clearance of rights-of-way during the year, approximately $5,700,000 was handled by the Department and $1,800,000 by the Division of Highways on behalf of the Department.

During 1964, 680 condemnation actions were initiated through the California Water Commission and filed in appropriate Superior Courts. As a result of these actions, 797 parcels were acquired or covered by orders for possession. The Department located and served summons and complaints on 1,200 individuals in connection with obtaining possession of property required for construction. Two hundred seventy-eight properties were rented during the year and a total of $153,000 in rental income was collected. Signatures on about 300 exploration and other entry agreements were obtained, as well as numerous agreements with state, federal, and local agencies.

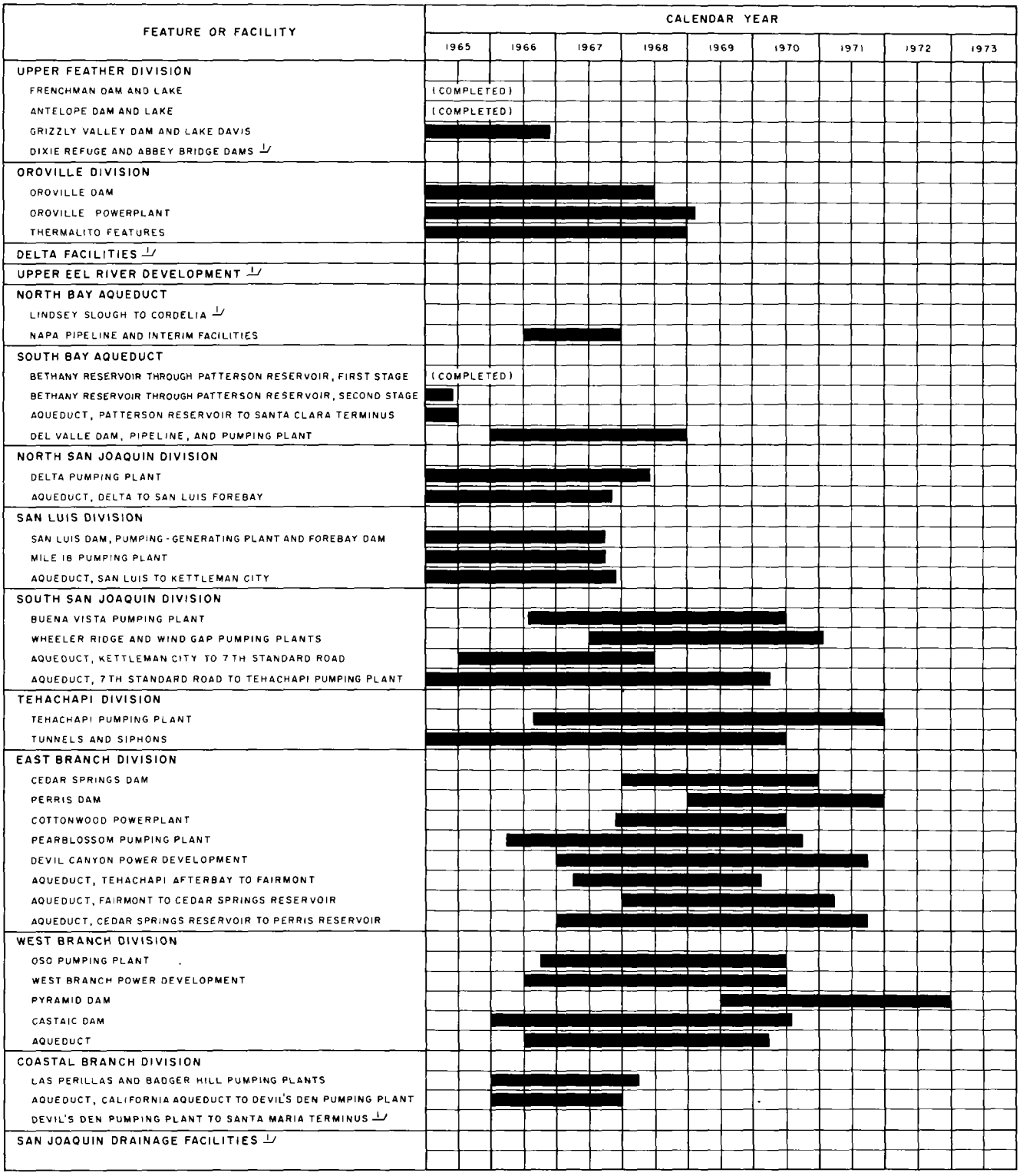
Relocation of the facilities of others to make way for construction of the project continued to move ahead. By the end of 1964, agreements covering 35 percent of the relocation items had been executed. Fifty-four separate relocation agreements covering relocation or adjustments of 148 separate conflicts with the Department's rights-of-way were completed during the year. Relocation negotiations were initiated south of the Tehachapis.

Construction

A generalized construction schedule for the State Water Project is shown graphically on Figure 1. The schedule is primarily geared to meet the water deliveries specified in the Department's water supply contracts and to generate power at Oroville at the earliest possible date. Definite construction schedules have not been set for certain features for which project formulation studies are incomplete. Such features include the Delta Facilities, the San Joaquin Drainage Facilities, the Upper Eel River Development, Abbey Bridge and Dixie Refuge Units in the Upper Feather division, the North Bay Aqueduct to Cordelia Pumping Plant, and the Coastal Branch division downstream from Devil's Den Pumping Plant. Construction schedules for these features have been assumed for the cost analyses of this report.

FIGURE 1

STATE WATER PROJECT
GENERALIZED CONSTRUCTION SCHEDULE



1/ CONSTRUCTION SCHEDULE NOT YET ESTABLISHED

It is estimated that about 320 contracts will be required to construct the presently scheduled facilities of the State Water Project. This includes the Bureau of Reclamation's current program in the San Luis division. About 130 of these contracts were either completed or were under way as of February 1, 1965.

Fifty-three contracts having a value of $81,931,000 have been completed, and another 77 contracts are under way which will cover construction costing an estimated $430,759,000. By January 1966, an additional 59 contracts worth $288,000,000 will have been advertised. Table 1 presents a summary of all Department construction contracts and of the major Bureau of Reclamation construction contracts which were completed or under way, as of February 1, 1965.

The tabulation below presents for the entire State Water Project important measures of physical construction progress during 1964 and for the total construction period through 1964. These figures do not include quantities under contracts for relocations of facilities or for fabrication of equipment.

Item	Cubic yards excavation	Cubic yards embankment	Cubic yards concrete	Pounds steel
1964	46,467,000	45,669,000	384,000	29,279,000
Construction period through 1964	81,084,000	65,452,000	906,000	53,332,000

The following sections briefly describe the construction activities for features of the State Water Project having established construction schedules.

Upper Feather Division

Frenchman Dam and reservoir was completed in 1961. Antelope Dam, the second dam to be built in the upper basin of the Feather River, was completed in July 1964. Construction of the third facility, Grizzly Valley Dam to impound Lake Davis, was started late in 1964 and is scheduled for completion by late 1966.

Oroville Division

Construction of Oroville Dam is proceeding. The placing of embankment has been carefully scheduled to fit the runoff pattern of the Feather River. The embankment reached an elevation of 605 feet about one week ahead of the schedule calling for this mandatory elevation by November 15, 1964. The next targets in the schedule are the reaching of mandatory elevations of 575 feet on April 1, 1966 and 700 feet on November 15, 1966. Over 17,000,000 cubic yards of material had been placed in the dam by the end of the year, with the final volume of the embankment expected to total about 80,600,000 cubic yards. At the time of this bulletin, Oro-Dam Constructors, the contractors for Oroville Dam, Diversion Tunnel No. 2 and Thermalito Diversion Dam, are ahead of schedule on their overall contract. Although in placing embankment for Oroville Dam, they are approximately 2,000,000 cubic yards behind their original schedule, their plant and equipment should enable them to reach the mandatory 1966 elevations on schedule.

Diversion Tunnel No. 2 for Oroville Dam was completed late in 1964 and was placed in operation for the 1964-65 winter runoff. Work is continuing on the underground Oroville Powerplant, but is some five months behind schedule principally as a result of labor strife. Oroville Powerplant equipment now being fabricated includes the turbines and pump-turbines, the generators and motor generators, and the 114-inch sperical valves. Work will be commenced during 1965 on the Oroville reservoir site clearing and the Oroville spillway contracts and on the Oroville Powerplant completion contract. Nearly all of the concrete has been placed in Thermalito Diversion Dam and construction has begun on the Thermalito Powerplant. The Thermalito Powerplant pump turbines and the Kaplan turbine are under contract for fabrication. By the fall of 1965 construction will have started on the Thermalito Power Canal and the Thermalito Forebay and Afterbay Dams. The Middle Fork Bridge on the Oroville-Quincy Road relocation is scheduled for completion in July 1965.

North Bay Aqueduct

Construction of the North Bay Aqueduct will be accomplished in two stages to accommodate scheduled water deliveries to Solano and Napa Counties. The first stage from Hill 343, near the east end of Jameson Canyon, to the Napa turnout will permit water delivery to Napa County in 1968 from an interim source, considered herein to be the Putah-South Canal of the federal Solano Project. Acquisition of rights-of-way for the first stage is progressing. The first construction contract will be awarded in 1966.

The special provisions of the water supply contracts with these counties provide that construction of the second stage of the aqueduct, from the Delta to Cordelia Pumping Plant will not be commenced until 1975, or at an earlier date if mutually agreed upon by the contracting parties.

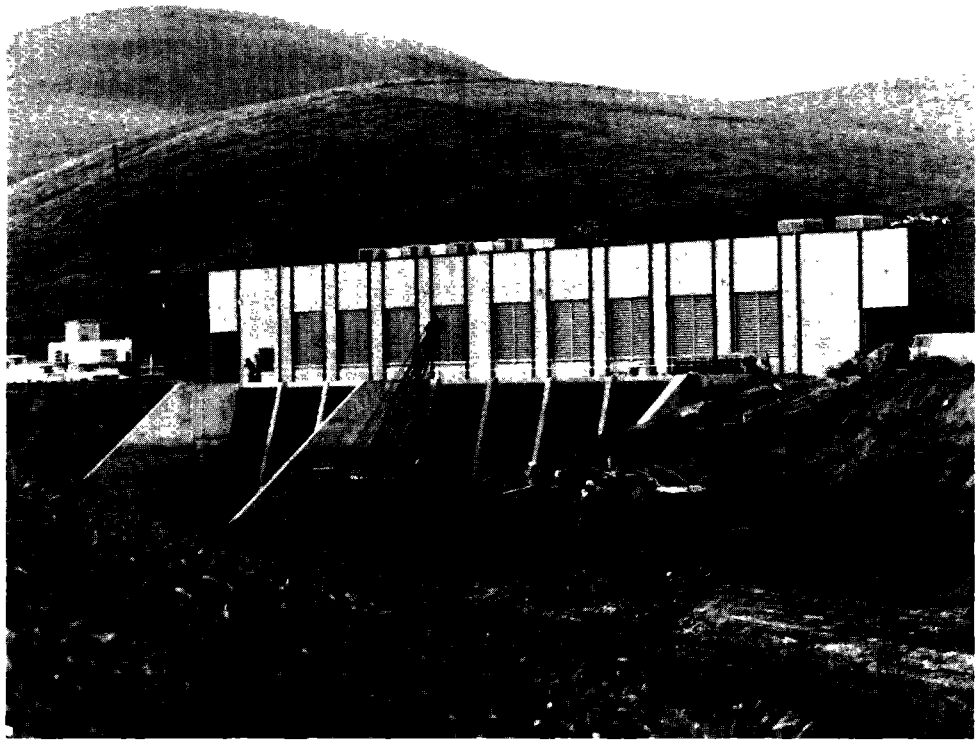
South Bay Aqueduct

All major South Bay Aqueduct construction contracts, with the exception of those for features associated with Del Valle Dam and reservoir and certain units in the South Bay Pumping Plant which will be installed in the future, are either complete or are under construction. Twenty-nine miles of aqueduct have been completed, with the remaining 13 miles to the Terminal facilities in San Jose to be finished in mid-1965. The contract for constructing Del Valle Dam will be advertised late in 1965.

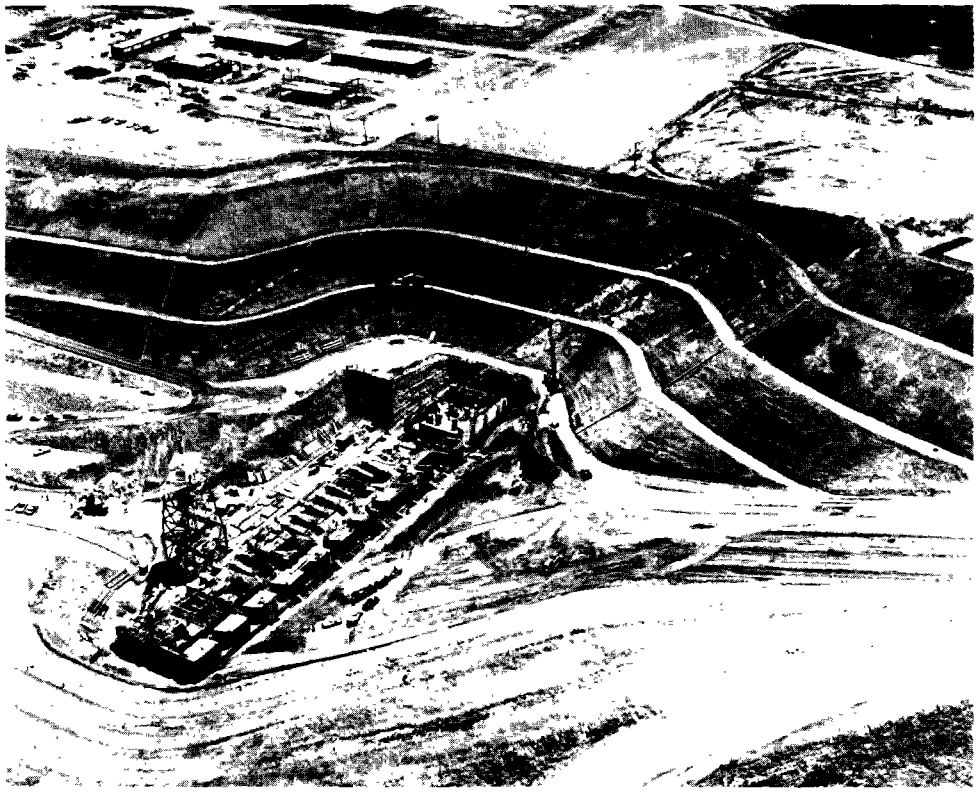
California Aqueduct

Construction activities along the California Aqueduct will become more and more evident during 1965, especially from the Delta through the Tehachapi Mountains. All canal contracts in the North San Joaquin and San Luis divisions will be under way in 1965. The Delta Pumping Plant, the San Luis Pumping-Generating Plant, the Mile 18 Pumping Plant, and San Luis Dam and reservoir are currently major features under construction in addition to the canals. These two divisions, extending about 170 miles from the Delta to Kettleman City, will be completed by January 1968.

All major preconsolidation contracts are under way in the South San Joaquin division. Water for this purpose is being obtained from state-owned wells or from supplies of local agencies. Temporary power service for pumping has been supplied by diesel units and will be provided through an allocation from the federal Central Valley Project with wheeling furnished by the Pacific Gas and Electric Company. Two canal contracts will be advertised during 1965 for construction of the aqueduct from Kettleman City to 7th Standard Road, which is shown by the reach designations on Plate 4 C. This 46-mile reach is also scheduled to be operational by January 1968. Construction south of 7th Standard Road is scheduled so that water deliveries to the southern portion of Kern County can commence in 1971. Contracts for fabrication of equipment are in progress. These cover pumps at the Delta and Mile 18 Pumping Plants, pump-turbines and motor-generators at San Luis Pumping-Generating Plant, and power transformers for San Luis Pumping-Generating Plant and Mile 18 Pumping Plant.



South Bay Pumping Plant
(South Bay Aqueduct)



Delta Pumping Plant under construction
(North San Joaquin division)

Construction of the Carley V. Porter Tunnel in the Tehachapi division will start in 1965. The initial 3,600-foot pilot bore is completed. It will provide geological information for constructing the full size tunnel. Bids for the initial construction contract for the reaches located south of the Tehachapis were called in May 1965. Construction of the Tehachapi, West Branch, and East Branch divisions is scheduled so that water deliveries may be made from Castaic reservoir in 1971, and from the East Branch division, including Perris Reservoir, in 1972, in accordance with the objectives set forth in Chapter I.

The construction of the Coastal Branch division will be accomplished in two stages. The initial reach to the Devil's Den Pumping Plant will be started in 1966 and completed to deliver water to water supply contractors in the San Joaquin Valley in 1968. In the water supply contracts with San Luis Obispo and Santa Barbara County Flood Control and Water Conservation Districts, construction of the Coastal Branch downstream from the intake of Devil's Den Pumping Plant is tentatively scheduled to commence in 1975, permitting water deliveries in 1980. However, these dates may be advanced or delayed upon mutual agreement by the concerned parties.

CHAPTER V. WATER SUPPLY

This chapter contains a brief summary of the recent developments regarding water rights for the State Water Project and a discussion of the Department's latest estimates of water supplies that will be available in the future for project use.

Water Rights

Water rights activities during 1964, which were related to the State Water Project, included proceedings to obtain permits under applications before the State Water Rights Board; steps to acquire or define existing rights by negotiation of agreements; and actions protesting new applications by others for the appropriation of water in the Delta.

Applications for the State Water Project

Descriptions of project water rights applications were presented in Bulletins No. 132-63 and 132-64. On December 11, 1964, the California Water Commission approved in amended form State Applications Nos. 5629, 5630, 14443, and 14444 pertaining to the Oroville division; 14445A pertaining to the California Aqueduct; and 17514A and 17515A pertaining to the North Bay Aqueduct. The amendments reflected first the situation with essential completion of the water contracting program. Allocations of water among areas of the State were eliminated from the applications at the conclusion of the water contracting period. The description of the West Branch was changed to indicate that it will follow the Piru-Pyramid alignment. Applications Nos. 17514 and 17515 were amended to reassign 700 cubic feet per second under each application to the California Water Commission, leaving 200 cubic feet per second under each of the Applications Nos. 17514A and 17515A, which were retained by the Department. These reductions of contemplated diversions were made to conform the applications to the capacity of the North Bay Aqueduct. The Department resubmitted the amended applications to the State Water Rights Board on December 21, 1964, and they are pending.

The State Water Rights Board, on December 24, 1964, issued water rights permits for Antelope Dam on Indian Creek.1/

1/ Permit No. 14587 was issued on Application No. 16951 and Permit No. 14588 was issued on Application No. 20177. The permits were issued pursuant to the Board's "Order Approving Applications and Directing Issuance of Permits", dated March 18, 1964.

The permits were issued subject to existing rights to the waters of Indian Creek, to the agreement between the Department and Pacific Gas and Electric Company dated January 6, 1964, and to the agreement between the Department and Richvale Irrigation District, Biggs-West Gridley Water District, Butte Water District, and Sutter Extension Water District dated January 24, 1964. The permits authorize storage of water between October 1 of each year and June 30 of the succeeding year.

Applications Nos. 16950 and 21443 for Grizzly Valley Dam and Lake Davis have been submitted to the State Water Rights Board by the Department and are pending.

Negotiation of Water Rights Agreements

The Department is conducting negotiations with local water users downstream from Grizzly Valley Dam on Big Grizzly Creek so that the project can be operated in a manner which will not interfere with their water rights. Negotiations are also continuing with other downstream water users, who are protestants to the Department's applications, mentioned above. The objectives are to obtain agreement as to the amounts of their entitlements to waters of Big Grizzly Creek.

The Department is active in negotiation with the Joint Water Districts Board and the Pacific Gas and Electric Company pertaining to their water rights for the Sutter-Butte and Western Canals, respectively. The Department expects to begin negotiation of agreements with all other individual users of water along the Feather River during calendar year 1965..

The Bureau of Reclamation, the local Delta water users, and the Department are continuing negotiations regarding entitlements to water in the Delta. Present negotiations indicate that agreements covering such entitlements will probably take the form of guarantees of water quality within the Delta.

Protests on Applications of Others

On March 25, 1964, the City of Napa filed an application to appropriate unappropriated water from the Delta at a point near the proposed Calhoun Pumping Plant of the North Bay Aqueduct. The Department as well as the Bureau of Reclamation, County of Solano, County of Napa, Napa County Flood Control and Water Conservation District, the Contra Costa County Water District, the Delta Water Users Association, and twelve other legal entities have protested the application. The Department has protested on the basis that unappropriated waters are not available in such quantities and at such times that a dependable supply could be obtained by the City.

A hearing on the Napa application before the State Water Rights Board commenced on December 1, 1964. After eight days of hearing, the Board recessed the proceeding to allow the applicant and the protestants additional time to prepare water supply studies and information.

Estimates of Future Water Supplies

State Water Project demands, to be discussed in Chapter VII, will be met by releases of project water conserved in Oroville reservoir and by diversion of other waters of the Sacramento and San Joaquin Valleys which will occur in the Delta. Future urban and agricultural developments in the drainage area tributary to the Delta are expected gradually to reduce the supplies available in the Delta. It is necessary, therefore, to estimate the extent of these depletions in order that the Department may plan the construction of additional project conservation facilities to maintain the minimum project yield it has contracted to deliver.

This chapter briefly describes the methods and assumptions utilized to estimate the quantities of water that will be required to sustain economic growth of the basin tributary to the Delta. These requirements are then deducted from estimated present water supplies to obtain future supplies used for the operation studies described in Chapter VII, by which the water yields of the project are estimated.

Depletion Estimation Methods

The basic steps followed in estimating future depletions of the project water supplies available at the Delta were the same as those employed for Bulletin No. 132-64. The steps were as follows:

1. A determination of the present land and water use in the areas tributary to the Delta.

2. A classification of the lands as to their suitability for future development or use.

3. An estimate of future population growth.

4. An estimate of the future rate of irrigation development in the area.

5. Unit water use estimates of urban populations and agricultural areas.

6. Estimates of total water use and their logical sources of supply.

7. Analysis of the effect upon streamflow of the above water uses, considering consumptive use, return flows, and groundwater operations.

Estimates of population, urban acreage, irrigable acreage, irrigated acreage, consumptive use of applied water, and applied water were made for each of 18 subareas of the drainage basin tributary to the Delta. This basin was taken to include all of the floors of the Sacramento and San Joaquin Valleys, and areas tributary thereto, except the Tulare Lake and Buena Vista Lake Basins.

The population estimates were based upon previous demographic studies by the Department and related agencies for major regions and counties of the State to the year 2020.

A total statewide acreage requirement for major irrigated crops in California was derived from long-term 1960-2020 market prospects for the various crops and from estimates of the future yields per acre of these crops and over the same time period. In turn, estimates of the future irrigated crop patterns for each of the 18 subareas were made. To assist in these projections for each area, data on available irrigable land, historical land use trends, and the percentage each area had contributed in the past to statewide crop acreages were studied. Additional elements were the comparative economic advantages of particular areas in growing and marketing certain crops.

Estimates of future water requirements for urban and agricultural purposes were made by multiplying the population projections by per capita water use values and the future acreages of various crops by respective unit consumptive use of applied water values.

To these estimates were added quantities of water for miscellaneous developments such as isolated industrial plants, public institutions, airports, parks, scattered small residential areas, and others. Also accounted for were water requirements for maintenance of salt balance in certain agricultural areas in the San Joaquin Valley and for reservoir evaporation.

Table 2 is a summary of the estimated present and future annual water requirements for all of the foregoing uses in the Delta and tributary areas by decade until 2020. The last line indicates the estimated increases in water requirements decade by decade as compared to 1960 requirements. For purposes of the operation studies described in Chapter VII, the increasing requirements were extended from 2020 to 2035.

Table 2 reflects certain decreases in the projected water requirements in the Delta and tributary areas as compared with the corresponding table contained in Bulletin No. 132-64. These came as a result of recent economic and land and water use studies. The decreases in annual use total about 1,000,000 acre-feet by 2020, or about 20 percent of the projected increase in use shown in last year's report.

Estimated Future Delta Water Supplies

The estimates of future water requirements described above were next subjected to hydrologic analysis to approximate the manner in which they might be met from existing or projected surface water supply projects and groundwater. The methods and assumptions used for these analyses, described herein, were the same as those employed for Bulletin No. 132-64.

The future surface water supply systems under construction or proposed, which were assumed to be available in whole or part for local use in the Delta watershed or for export therefrom, were the Sacramento Valley Canals, Marysville reservoir, Oroville reservoir, Auburn reservoir, Folsom South Canal, East Side Project (initial phase), Delta Facilities, North Bay Aqueduct, South Bay Aqueduct, California Aqueduct, and federal San Luis Unit. These facilities were assumed to be operated in a normal fashion to meet the local and export demands, with Delta inflows being reduced at times and augmented at other times.

Within each of the 18 subareas, those new water requirements in addition to the present water uses, which could not be supplied from the foregoing surface water facilities, were assumed to be met from groundwater, particularly within the Sacramento Valley. Since data pertaining to groundwater and its use within that valley are limited, a major assumption had to be made as to the effect future groundwater developments would have on Delta inflows. It was assumed that Delta inflows would be reduced during the nonirrigation season by the total groundwater extractions during the irrigation season. It was further assumed that Delta inflows during the irrigation season would be increased by surface drainage due to groundwater pumping.

The monthly inflows to the Delta resulting from the depletions estimated as described above for 2035 conditions are shown in Table 3. These and similar data for key locations upstream from the Delta were used in the project operation studies described in Chapter VII.

Table 3 reflects the latest operation studies accounting for the various hydrologic parameters that affect inflows to the Sacramento-San Joaquin Delta. These studies indicate that with a reoccurrence of the natural water supply conditions experienced during the most critical drought period of record, 1927-28 through 1934-35, the average inflow to the Sacramento-San Joaquin Delta during such a period would be about 10,700,000 acre-feet annually under conditions projected for the year 2035. The corresponding value which may be derived from Table 3 of last year's report, was about 9,300,000 acre-feet annually. The difference between these values is mainly attributable to the decrease in projected water requirements within the areas tributary to the Delta as discussed above.

CHAPTER VI. ENTITLEMENTS TO PROJECT WATER

The water marketing program was substantially completed in 1964. During the year, many of the water supply contracts were amended to increase their maximum annual entitlements. At the end of the year the aggregate maximum annual entitlements of the 30 long-term contracts totaled 4,200,700 acre-feet out of the authorized annual project yield of 4,230,000 acre-feet. In March 1965, one additional contract was signed to bring the total of maximum annual entitlements to 4,206,400.

This chapter briefly describes the status of the water supply contracting program and presents a summary of the contracts. It also indicates the distributions of the project yield and the annual entitlements to project water by contractor and service area and by year to indicate the bases for the analyses in this report.

Status of Water Supply Contracting Program

Chapter VI of Bulletin No. 132-64 stated that, by the end of 1963, 30 long-term water supply contracts with maximum annual entitlements totaling 3,468,000 acre-feet had been executed. This left 532,000 acre-feet of the original 4,000,000-acre-foot minimum project yield to be taken by the 30 contractors under the option provisions of Article 8 of the contracts, if they so elected. Eighteen of the contractors, having option privileges totaling 462,800 acre-feet, notified the Department of their desires to have their maximum annual entitlements increased under this provision. This was done by contract amendments between September 22, 1964 and January 26, 1965, as shown on Table 4.

Chapter II presents a discussion of the fact that the decision of the Supreme Court of the United States in Arizona v California resulted in a loss of 662,000 acre-feet per year of Colorado River water by the Metropolitan Water District of Southern California. It indicates that to assist in making up this deficit, it was necessary to increase the maximum annual entitlement of that District in the State Water Project from 1,500,000 acre-feet to 2,000,000 acre-feet and to increase the minimum project yield from 4,000,000 acre-feet to 4,230,000 acre-feet. The 500,000 acre-foot increase was made up of the District's 230,100-acre-foot option water entitlement; all of the portion of the original 4,000,000-acre-foot yield not optioned by other contractors, amounting to 69,200 acre-feet; and 200,700 acre-feet of the 230,000-acre-foot increase in the minimum project yield.

The exercise of options by the water supply contractors and the adjustment of the maximum entitlement of Metropolitan Water District resulted in the commitment of 4,200,700 acre-feet of the enlarged minimum project yield of 4,230,000 acre-feet, leaving at the end of 1964 a residual amount of 29,300 acre-feet. One additional contract, for a maximum annual entitlement of 5,700 acre-feet, was executed on March 23, 1965 with the Oak Flat Water District in western Stanislaus County. This reduced the residual to 23,600 acre-feet. Several water supply contractors have expressed interest in acquiring all or portions of this remaining quantity.

Descriptive data relating to the present water supply contractors of the State Water Project are summarized in Table 4. The general location of each entity, together with its maximum annual entitlement, is shown on Plate 5.

Distribution of the Minimum Project Yield

The cost estimates and operation studies for the analyses described in this report had to be commenced on about January 1, 1965. Therefore, these analyses consider 29,300 acre-feet of the minimum project yield to be "unassigned". Table 5 presents a summary of the resulting distribution of the minimum project yield among the major service areas of the project, and compares the distribution with those assumed for Bulletin Nos. 132-63 and 132-64.

Annual Entitlements to Project Water

"Table A" of each water supply contract sets forth the agency's annual entitlements to project water for each year of the development period in which the agency's use is building up to the maximum annual entitlement. Tables A show the years in numbered sequence without identifying the calendar years. Therefore, the contractor's development period must be further defined by Article 6(a) of each contract, which sets forth the estimated initial calendar year of water delivery.

Initial delivery of non-project water from the Bureau of Reclamation to the South Bay Area commenced in 1962. Most of the contracts provide for years of initial project water delivery between 1967 and 1972. A few call for initial delivery in 1980.

Article 6(a) provides that the State shall, to the extent practicable, notify the water supply contractors of any change in the estimated year of initial water delivery. The contractors to be served from the West Branch were notified by letters dated February 4, 1965 that the year of initial project water delivery is now estimated to be 1971, rather than 1972 as set forth in their contracts. This does not apply to Ventura County Flood Control District, since that district has requested and its contract provides for initial delivery in 1980. The Plumas County Flood Control and Water Conservation District was notified by letter dated December 29, 1964 that the year of initial water delivery is now estimated to be 1968, instead of 1967. This is because Grizzly Valley Dam is now scheduled for completion in the fall of 1966 and because the special provisions of the District's contract require that water be deemed unavailable for delivery until storage in Lake Davis has continued for a period of 12 months.

The information contained in Articles 6(a) and Tables A indicate that the annual entitlements to project water generally reach their maxima in 1990. Exceptions for certain contractors are noted in the following tabulation:

Water supply contractor	Year in which maximum entitlement reached
Plumas County Flood Control and Water Conservation District	2015
Alameda County Flood Control and Water Conservation District, Zone 7	1997
Alameda County Water District	1994
Santa Clara County Flood Control and Water District	1994
Devil's Den Water District	1977
Empire West Side Irrigation District	1968
Antelope Valley-East Kern Water Agency	1991
San Bernardino Valley Municipal Water District	1991

Table 6 presents a summary of the annual entitlements of contractors by calendar year, which was used as a basis for the analyses contained in this report. Several aspects of these data require special note. First, although the Antelope Valley-East Kern Water Agency, is to be served in part from the West Branch, its year of initial water delivery is shown as 1972. This is because the agency is currently reanalyzing its delivery structure locations and capacities, as well as its use of Cedar Springs reservoir in the East Branch division for regulation. During this period of re-examination, it was deemed advisable not to change the year of initial water delivery shown in its contract. Secondly, the entitlements of the Plumas County Flood Control and Water Conservation District are shown to commence in 1967. This will be corrected in next year's report.

CHAPTER VII. PROJECT WATER YIELD

The "minimum project yield" of 4,230,000 acre-feet per year, referred to in previous chapters, represents the total net dependable supply to be made available to the water supply contractors from the State Water Project. In addition to this net supply, the gross yield of the project conservation facilities must provide water consumptively used for project purposes other than water supply and water consumed or otherwise lost incidental to the normal operation of the project facilities. This gross yield is considered herein to be equivalent to the demand of the project on the Delta Pool, discussed subsequently in this chapter.

The yield capabilities of the conservation facilities of the State Water Project are determined by the relationships among total water demands, available water supplies, and the operational characteristics and capabilities of the project conservation facilities. The potential yield of the facilities will not be static. It will gradually decrease as the upstream depletions described in Chapter V continue to reduce the supply available at the Delta. The yield will be increased periodically as project conservation facilities are added to the State Water Resources Development System.

The water supply contracts provide that the Department will estimate the yield capabilities of the conservation facilities based upon coordinated operation studies. The Department is to report at intervals on its ability to meet future demands for project water and for supplemental water and on its plans for constructing future conservation facilities. The first of these reports is required by the "Standard Provisions for Water Supply Contract" to be made within two years after the first delivery of project water, with subsequent reports to be submitted at least every five years thereafter. These reports will be based on plans for the staging of future conservation facilities to meet Statewide demands for water and other information to be produced by the Department's Coordinated Statewide Planning Program.

The operation studies and estimates of yield described in this chapter are preliminary evaluations for the purpose of estimating the costs of an additional project conservation facility required to augment water supplies at the Delta in meeting demands of the State Water Project only. These cost estimates are described in Chapter XI and are used for the financial analyses in Chapter XIII.

Some of the input data for and results of these operation studies are summarized in Table 7. The left side of the tabulation presents the total water demands of the State Water Project on the Delta Pool. The supplies to be made available for these demands are shown on the right side. This information together with the criteria utilized in and results of the operation studies are briefly discussed in the following sections.

Project Water Demands

The total annual water demands of the State Water Project will include:

1. The annual entitlements of water supply contractors.

2. The annual quantities consumptively used for project purposes other than water supply, taken herein to be recreation and fish and wildlife enhancement.

3. The annual water quantities to be sold under the surplus water program for agricultural or ground water replenishment purposes. (excluded from Table 7)

4. The annual quantities needed during construction or required to bring water surfaces in project facilities to operational levels.

5. Annual quantities consumed or otherwise lost incidental to the normal operation of project facilities.

Annual Entitlements

The annual entitlements of contractors, set forth in the water supply contracts, have been described in Chapter VI. These annual quantities are summarized for major project service areas in Table 7.

Water Requirements for Recreation and Fish and Wildlife Enhancement

Annual quantities of water to be consumed in specific recreation and fish and wildlife enhancement facilities under full project development have been estimated. A total usage of 45,500 acre-feet per year is considered in the analyses of this report for future developments to be located along the California Aqueduct south of Kettleman City.

Of this value, 25,500 acre-feet would be for facilities in the South San Joaquin division and 20,000 acre-feet would be for those located in Southern California. The quantities of water used in connection with specific recreation and fish and wildlife enhancement facilities adjacent to project conservation reservoirs will probably be small and are neglected herein.

Surplus Water

During most years from the beginning of project water deliveries until the late 1980's, the yield capabilities of the initial and additional project conservation facilities will be greater than the annual water demands of the project. This excess potential will provide a supply for the surplus water program, described in Chapter II of Bulletin No. 132-64.

Under the amended water supply contracts, however, delivery of surplus water for agricultural and ground water replenishment purposes must be so limited that it will not adversely affect the reliability or increase the cost of delivering annual entitlements. Thus the surplus water program cannot result in increased capital costs by reason of accelerated installation of project facilities nor in increased operating costs because of the method of utilizing operable pumping and other facilities. The scheduling of construction and operation must be based fundamentally upon the delivery of annual entitlements. Therefore, the projected demands of the State Water Project shown in Table 7, exclude estimates of surplus water deliveries.

Water Quantities Involved in Construction

Water is utilized during construction for (1) aqueduct preconsolidation; (2) testing of aqueduct sections and electrical-mechanical equipment; and (3) bringing aqueduct and reservoir water surfaces to operational levels.

The Department is providing water for the preconsolidation of aqueduct foundations from nonproject sources, including ground water from State-owned wells and the supplies of local water agencies. The compensation arrangements in certain of the contracts with local agencies include payment in kind by delivery of project water. Since such replacement supplies will be derived from surplus water, these demands are not included in Table 7, for the same reasons given above.

Water utilized for testing purposes will not be consumed and will be available for bringing water surface elevations in downstream facilities to operational levels.

The estimated annual quantities of water required to create operational levels in facilities, which are included in the demands shown in Table 7, are summarized in the following tabulation. These include water for the initial filling of the aqueducts, San Luis reservoir, and the terminal reservoirs located in Southern California. For Del Valle reservoir, water to fill dead storage space only is included, because that is all that would be required to make the reservoir operational.

(in acre-feet)

Calendar year	Aqueducts	Del Valle reservoir	San Luis reservoir	Southern California reservoirs[a]	Total
1968	11,800	8,000	394,000		413,800
1969		2,000	574,000		576,000
1970	18,200		132,000	45,400	195,600
1971	11,400			97,300	108,700
1972				114,100	114,100
1973				208,600	208,600
1974				92,600	92,600
1975				125,600	125,600
1976				113,100	113,100
.					
.					
.					
1980	200				200
Totals	41,600	10,000	1,100,000	796,700	1,948,300

a/ Includes Castaic, Pyramid, Cedar Springs, and Perris reservoirs.

The operating costs associated with transportation of water for the above purposes will be included in the capital costs of the respective facilities.

Losses Incidental to Operation

Operational losses in the project conservation and transportation facilities located below the Delta will average about 295,330 acre-feet by the year 1990. Water losses in conservation facilities will consist primarily of evaporation from water surfaces, while losses in transportation facilities will consist of canal seepage and evaporation. Evaporation losses were estimated largely from evaporation records and seepage losses were evaluated from operational experience of the Bureau of Reclamation and others.

Estimates of operational losses included in Table 7 also contain an allowance for cooling water that would be required for a possible nuclear powerplant, located at the Tehachapi Pumping Plant. It is estimated that water consumed in an evaporative condensor cooling system for the type and size of nuclear powerplant being considered for the State Water Project, if located at that site, would amount to 35,000 acre-feet annually. The Department is also considering sites adjacent to the ocean in Southern California. If the powerplant were built at one of those locations, a cooling water supply from the California Aqueduct would not be required.

The following tabulation summarizes the average annual losses included in Table 7 for the major facilities of the State Water Project located below the Delta.

Facility	Estimated annual operational losses, in acre-feet
Reservoirs:	
Del Valle	3,500
San Luis[a]	34,000
Pyramid	6,900
Castaic	16,100
Cedar Springs	8,600
Perris	9,800
Subtotal	78,900
Canals:	
North Bay Aqueduct	1,400
South Bay Aqueduct	1,230
California Aqueduct[a]	178,800
Subtotal	181,430
Nuclear Powerplant	35,000
TOTALS	295,330

a/ Includes only assumed State's share of losses in the San Luis division.

Estimates of the total annual quantities of water to be conveyed through each pumping plant, corresponding to the quantities in Table 7, are contained in Appendix B.

Project Operation Studies

Operation studies of the initial project conservation facilities, together with facilities of the federal Central Valley Project, were made to determine the yield at the Delta available for the State Water Project. Assumptions, criteria and procedures were essentially the same as those followed in preparing Bulletin No. 132-64 and described in Chapter VII thereof. Set forth below is a brief summary of that information and an indication of the estimated project yields resulting from the studies for this bulletin.

Assumptions, Criteria and Procedures

Two basic commitments of the State comprise the foundations for the operation studies. The first is the so-called "Delta Pooling Program", which requires that the yield of the State Water Project from waters of the Central Valley be taken after local upstream requirements have been satisfied. This is consistent with the Area of Origin Statutes contained in Sections 10505 and 11460 through 11463 of the Water Code. Additional or supplemental conservation facilities must be available for use when it is forecasted that the total project demand will exceed the yield available to the project from Central Valley water supplies as measured at the Delta.

The second commitment is the "May 16, 1960 Agreement" which broadly defines the relationship between entitlements of the State and of the Bureau of Reclamation to waters of the Central Valley. This determines the basic criteria governing coordinated operation of the projects of the two agencies.

The dependable yield of the State Water Project was determined by operation studies for the historical water supply period from 1922 through 1951. This period was selected because (1) it contains the most severe drought period of record, from 1928 through 1934; (2) it includes the two driest years of record, 1924 and 1931, and (3) hydrologic conditions preceding and during the period were such that the reservoirs would be full at the beginning and at the end of the period. The actual studies were performed for each decade from 1965 to 2035; based upon the projections of gradually diminishing water supplies at the Delta described in Chapter V.

Project demands were as shown in Table 7, with reductions in agricultural use of water assumed during the critical water supply period. The reductions amounted to a maximum of 50 percent of a year's supply in any one dry year and a total of 100 percent of a year's supply in any series of seven consecutive years, pursuant to Article 1(k) of the standard contract provisions.

Oroville Reservoir was assumed to be operated to produce a dependable power capacity of 710,000 kilowatts. using the pumped storage plan for firming the power capacity. The reservoir was operated in such a way that its water surface would be drawn down to the minimum power pool elevation of about 733 feet, with a storage of 1,504,000 acre-feet, at the end of the critical drougth period. It was assumed that the Delta facilities would be operational in the year 1974. Available information indicated that outflow from the Delta, sufficient to maintain acceptable water quality in the Delta and at the Delta Pumping Plant, could be maintained until that time from unregulated stream discharge and from State Water Project and Central Valley Project storage releases. The Delta Pumping Plant was assumed to be operated on a combined onpeak-offpeak schedule, with the offpeak operation used as much as possible to reduce pumping costs. At the San Luis Pumping-Generating Plant, water was assumed to be pumped into storage in San Luis reservoir during offpeak periods when water supplies available in the Delta exceed demands from the California Aqueduct south of that reservoir. Available water was assumed to be pumped into San Luis reservoir as required to meet each year's project water demands and to provide carry-over storage for dry years. A minimum recreation pool of 80,000 acre-feet was maintained.

Essentially the same electronic data processing program was used to perform the coordinated operation studies of the facilities of the Central Valley Project and the State Water Project as was employed for Bulletin No. 132-64. This program involves the routing of monthly water quantities through three reservoirs of the Central Valley Project and two reservoirs of the State Water Project to supply the local demands for water in the Sacramento Valley and Delta and the demands for water to be exported from the Delta by the two projects. It considers not only requirements for water supply, but also takes into account water needs for fish and wildlife, navigation and water quality control in the Delta as well as operational requirements for flood control. It is a very comprehensive program requiring one of the largest data processing machines available for general use in California.

Summary of Project Yields

The results of the operation studies in the form of yields of the initial project conservation facilities are depicted in Table 7. Column 9 indicates the portions of the demands on the Delta Pool that are susceptible of being supplied from the initial project conservation facilities. The values in that column show that, beginning in 1986, the yield of the initial facilities is inadequate to meet the demands. Therefore, in 1986

an additional project conservation facility would have to be operational in order to meet the growing demands for water from the project and to overcome the gradual diminution of yield of initial project conservation facilities due to depletions of water supplies available at the Delta. In order to meet only the demands for water from the State Water Project, analyzed in this bulletin, it would be necessary for this additional project to have an annual yield capability of about 862,000 acre-feet, as shown for the year 2035 at the bottom of Column 10.

It was assumed for the cost and financial analyses in this bulletin that an additional project conservation facility would be built by the State to supply this 862,000 acre-feet. This was done to forecast the outcome of the financial program for the "closed" State Water Project, to deliver 4,200,700 acre-feet, with the financing presently available under the Burns-Porter and Central Valley Project Acts. This project was assumed to be an initial unit of the Upper Eel River Development, which could be sized so as to yield approximately that quantity of water.

In actual practice, it is probable that the size of a given additional project conservation facility would be determined by topographic and geologic conditions at the site and by engineering economic considerations pertaining to the specific facility. The potential yield might be more or less than that assumed for this bulletin. If it were a state project, its financing would be provided by offset bonds under the Burns-Porter Act. It might be constructed by the Federal Government or jointly by the State and the United States with portions of the yield and costs allocated to the State. State costs would be repaid under the Delta Water Charge pursuant to Article 22 of the water supply contracts. Conceivably a large project would be built, the State's share of which would comprise in part a supplemental conservation facility designed to supply water for a second increment of the State Water Resources Development System to meet a portion of the growing demands of the State beyond 1990. Chapter XII presents an example of the possible effect of such an arrangement on the unit Delta Water Charge.

CHAPTER VIII. PLANS FOR PROJECT OPERATION AND MAINTENANCE

Important elements of plans for operation and maintenance of water and power facilities of the project are described in this chapter. Progress of work toward activation of initial project operation is discussed. Plans for facilities control and operation are discussed. Hydroelectric power production and marketing and sources of power for project pumping also are discussed. This information is utilized in estimating operation and maintenance costs for Chapter XI and project revenues for Chapter XII.

Activation of Operation and Maintenance

The Frenchman and Antelope facilities and portions of the South Bay Aqueduct already are operational. Activation of operation and maintenance for the other facilities of the project, however, is still in the future. Operation is scheduled to start in December 1966 for the Delta and Mile 18 Pumping Plants and in January 1967 for the San Luis Pumping-Generating Plant. Generation of power at Oroville is scheduled to begin in the summer of 1967, water conditions permitting. The other plants along the California Aqueduct will be tested and operated in order until the total project is operational in 1972.

The activation of operation and maintenance is on schedule. Organization and staffing studies are substantially completed and indicate that approximately 950 employees will be required under full operation. About 800 of these new employees will work at plants and other facilities and along the aqueducts. The remaining 150 will be the support and technical staffs at Sacramento and in the several district offices. The plant superintendents for the Oroville facilities, for the Delta Pumping Plant, and for the San Luis facilities will take up their duties in the early summer of 1965 and the employment of their staffs will soon follow. In connection with the new operation and maintenance employees, a training plan has been developed and the dates of initial employment of the new employees make allowance for such training.

Operational and maintenance manuals are being prepared. Locations and layouts of operation and maintenance facilities and centers from the northern portions of the project southward through the San Luis division have been determined. Supply and equipment lists are being completed. Computer programs for long-range operation studies on an annual basis have been completed as have daily and hourly scheduling

programs for the Oroville-Thermalito facilities. A computer program to simulate the operation of the features of the California Aqueduct is nearing completion.

A water quality program[1] for project operations has been recommended by Dr. Rolf Eliassen, consultant to the Department, and the initial phases are being implemented.

Studies of staff and equipment needs for equipment test and analysis and for power metering standardization have been completed.

Work also is progressing on studies of the project control system in which the South Bay Aqueduct is to be used as a test model.

Negotiation of agreements with the Bureau of Reclamation for operation and maintenance of the San Luis facilities and for coordination of the operation of the State Water Project and the federal Central Valley Project is progressing as are studies of staff, facility and equipment needs, and operation procedures.

Certain of the foregoing activities are discussed more fully in the succeeding paragraphs.

Operation of Facilities

The procedures to be followed in delivering water to project cusomers in the respective service areas will vary. Entitlements of those in Plumas County will be met by releases from Frenchman Lake and Lake Davis either directly into natural stream channels for rediversion by the contractors or, in the case of the latter reservoir, into a conduit. Entitlements in the Feather River service area will be supplied chiefly from facilities of the Oroville division below Oroville Dam and from water released into the Feather River downstream from those facilities.

The Oroville-Thermalito facilities will be operated to provide flood control on the Feather River; to provide a new water supply for contractors in the Feather River service area in addition to meeting the existing water rights; to provide additional water for diversion from the Sacramento-San Joaquin Delta by the California Aqueduct; and to supply at least 710 megawatts of dependable electrical capacity. These facilities

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1/ Department of Water Resources, "Program for the Development of an Operations Plan for Water Quality Control for the State Water Project", May 1965.

will also be used in connection with recreation and the fish resources of the Feather River.

The Oroville-Thermalito facilities will be operated to generate power during onpeak power periods and to pump water back into Oroville Reservoir during offpeak power periods. During the onpeak periods, the water released from Oroville Powerplant will flow through Thermalito Power Canal to Thermalito Forebay and to Thermalito Powerplant. Releases will be made through Thermalito Powerplant to Thermalito Afterbay. Before the releases from Oroville Powerplant reach Thermalito Forebay, diversions will be made to the river, to the fish hatchery, and to Butte County under the provisions of its water supply contract. Such diversions may also be made to Thermalito Irrigation District under terms of a special exchange agreement being negotiated.

During the offpeak periods, reversible pump-turbine units in the Thermalito Powerplant will pump water from Thermalito Afterbay into Thermalito Forebay. This water will return through Thermalito Power Canal to the reservoir behind Thermalito Diversion Dam from where it will be pumped into Oroville reservoir.

During flood periods, Oroville reservoir will control the runoff from the standard project storm so that the maximum release from the reservoir will be 150,000 cubic feet per second.

The Sacramento-San Joaquin Delta will be the point of diversion for conveyance of water to the San Francisco Bay Area, the San Joaquin Valley, the Central Coastal Area, and Southern California. Water in excess of upstream needs which flows into the Delta, supplemented by releases from Oroville reservoir, will be diverted from the Delta by the North Bay, South Bay and California Aqueducts. Peaking requirements in the North Bay service area will be met by direct deliveries through the aqueduct without project storage. The fluctuations in demand from the South Bay Aqueduct will be met by storage in Del Valle reservoir, allowing the South Bay Pumping Plant to pump from the California Aqueduct at nearly a constant rate throughout the year. Water will be pumped from the Delta into the California Aqueduct throughout the year, utilizing San Luis reservoir to store water during the high runoff, low demand months. The water so stored will be released during periods of peak downstream demand to supplement diversions from the Delta.

The service areas in the San Joaquin Valley will be served by canal without storage facilities in the service areas. The State's share of the San Luis Canal and the California Aqueduct to the south will be operated to convey all water required to meet the peak monthly demands of these service areas.

Contractors in the Central Coastal service area will be supplied from the Coastal Branch at a constant rate. They will supplement this supply from local sources which they are expected to develop.

The fluctuations in the demands of the Southern California service area will be accommodated by using the storage to be provided in Pyramid, Castaic, Cedar Springs, and Perris reservoirs. These reservoirs will have sufficient capacity to allow the Tehachapi Pumping Plant and the portions of capacities in upstream plants, used to supply Southern California, to be operated at a constant rate throughout the year, with allowance for offpeak operation in early years of project operation, as discussed subsequently. They also will provide emergency storage to permit continuous service to many of the contractors during unforeseen aqueduct outages. The California Aqueduct will have a reserve capacity of 7.5 percent of the continuous flow requirement for Southern California as an allowance for refilling these reservoirs after emergency use and to compensate for scheduled outages for maintenance, repair or replacement of the transportation facilities.

Under normal operation, the aqueduct will be operated utilizing a concept that has been named the "Controlled Volume Concept". This method of operation will permit considerable flexibility and will enable a quick response to changes in rates of flow needed by the water supply contractors. This method of operation is characterized by three factors:

1. Nearly constant volumes of water are maintained between canal checks through a wide range of flows.

2. Changes in water surface levels are kept to a minimum.

3. The time required to change deliveries from the aqueduct will not exceed four to six hours.

This operation is accomplished by operating the aqueduct check gates so that when the downstream demand is changed each upstream check gate is immediately raised or lowered to reflect the change. Thus, flows through the check gates are

increased or decreased simultaneously, and the volume of water between any two check gates remains relatively constant. Under this type of operation, the time required to change the flow to meet a variation in demand will be limited only by the surges associated with the change. Therefore, the amount of the required change in flow and the surge characteristics of the critical reach determine the time that it will take to change from one rate of flow to another.

Fluctuation of the canal water surface during normal operational changes in flow will generally be limited by the following criteria:

1. Fluctuation must not exceed six inches in one hour or one foot in any 24-hour period.

2. If a six-inch drop is taken in any one hour, the remaining six inches must be distributed uniformly over the next 23 hours.

The aqueduct facilities will be operated during emergencies to prevent or minimize any damage to the facilities or to adjacent property. The endangered reach will be isolated from the remainder of the canal by the appropriate reduction of flow in the aqueduct. If canal failure occurs without warning, pumps will be shut off and check and certain turnout gates will be closed as quickly as possible, to keep both damage and loss of water to a minimum.

Unscheduled power outages can produce emergencies by stopping pumping plants along the aqueduct and/or by causing pumps at turnouts to stop. Check gates are being provided with an auxiliary power supply so that power outages will not interrupt their operation. Power outages at pump turnouts probably will be the most frequent type of emergency. When a power outage causes flow rejection by one or more turnouts action will be taken to reduce the flow in the aqueduct by the amount of the rejection. In most cases, these situations can be handled with little difficulty. A power outage causing interruption of the operation of an aqueduct pumping plant will be rare, but serious. In these cases, check gates along the aqueduct upstream from the interruption will be adjusted as rapidly as possible.

Method of Control

In order to provide the foregoing control and protection, a unique operation and control system is being developed. With this control system pumping plant operation, powerplant operation, reservoir operation and operation of aqueduct checks and major turnouts will be monitored and controlled from remote locations.

The Department has employed the consulting firm of Daniel, Mann, Johnson, and Mendenhall for assistance and guidance in the development of a prototype control system on the South Bay Aqueduct. In the design of this system, operational requirements were established from analyses of the functions required of each type of facility. Control concepts for each facility were developed. Finally, a control system structure, showing the arrangement of the control system equipment and the data transfer links, was formulated. Specifications are being prepared for procurement and installation of equipment that will comprise the prototype system.

This control system will be operated for the first two years to collect data which will be analyzed and evaluated. An operational control plan will be developed for the entire State Water Project based on these evaluations.

The monitoring of conditions at facilities of the California Aqueduct will be an important feature of project operation. In addition to on-site monitoring and recording, certain information will be remotely monitored by control centers on either an automatic or a demand basis. Information remotely monitored will include information on water quality, flow, water surface elevation, and operating status of facility.

Check gates will be provided with the following control features:

1. On-site operation capability.

2. Automatic gate control devices will be provided to maintain a selected water surface in the canal.

3. The capability will be provided to remotely operate each gate.

Mechanical control structures on the spill basins will be designed to be operated on-site or remotely and an automatic on-site backup will be provided.

Generating and pumping plants will be fully automatic within the plant, having sequentially set relays and contacts, and the necessary protective relays to alarm and/or shut down in event of trouble or failure. Each individual motor or generator unit will have its associated switchgear and its control and relay panels, and it will be controlled both locally and remotely. Local control will override remote control.

The requirements for personnel, equipment and supplies, used for estimates of operation and maintenance costs in Chapter XI, are based on the assumption that full remote manual operation will be attained by 1972. Under this type of operation, operators at operation and maintenance centers, such as the Delta Pumping Plant, would open and close canal check gates, turn pumping and powerplants on and off, and monitor status of water and equipment meters. Total system coordination would be provided from the control center in Sacramento with the operating decisions facilitated by the use of computers.

Negotiation of San Luis Operating Agreement

The San Luis Agreement[2/] provides for construction of the Joint-Use Facilities of the San Luis Unit by the Bureau of Reclamation, for the sharing of costs of construction between the Department and the Bureau, and for operation of the joint-use facilities by the Department. In the fall of 1961, after the San Luis Agreement had been negotiated and while formal signature was pending, work was initiated by the two parties aimed at formulating a detailed operation agreement. Negotiations toward this objective are in progress.

As the negotiations have developed the problem has been subdivided and it is now probable that three separate agreements will be produced. The first of these, on which work is nearing completion, will be an agreement covering, but restricted to, the operation and maintenance of the joint-use facilities. This agreement will cover such topics as: sharing of operation and maintenance costs, scheduling of water deliveries, operating rules, operation for water quality and water quality objectives, cost accounting, and schedules for payments.

The second agreement will set forth the general principles for coordination of the State Water Project and the federal Central Valley Project. Some work has been done on this agreement.

2/ "Agreement Between the United States of America and the Department of Water Resources of the State of California for the Construction and Operation of the Joint-Use Facilities of the San Luis Unit", dated December 30, 1961.

The third agreement, on which work has not yet begun, will contain the detail of operating rules to coordinate the two projects.

Project Electric Power Production and Supply

The power generation and power requirements associated with operation of the State Water Project are of large magnitude and are major factors affecting the cost of water. Studies and negotiations are being carried on in cooperation with representatives of California public and private utility systems and with federal agencies to attain realization of the lowest cost of water practicable through coordination of project power operations with those of other power systems. Recent events in these negotiations are discussed briefly in Chapter II.

Ultimately more than 13 billion kilowatt-hours of energy will be consumed annually in pumping and about six billion kilowatt-hours annually will be generated in project hydroelectric plants. The total installed capacity in all the project hydro-generating plants will be about 1,500,000 kilowatts while the aggregate demand of all the pumping plants will be about 2,500,000 kilowatts.

Hydroelectric Power Production

Power will be generated when water is released from storage in Oroville reservoir, in the Thermalito Forebay and in San Luis reservoir and by power recovery generating plants located at drops along the California Aqueduct.

Oroville and Thermalito Powerplants will operate together on essentially the same schedules. Each will have conventional turbine generator units which will generate during onpeak hours. They will have reversible pump-turbine and motor-generator units which will generate power onpeak and in combination will pump water back into Oroville reservoir during offpeak hours. The combined Oroville-Thermalito dependable capacity is estimated to be 710,000 kilowatts or more with average and minimum (dry-year) energy outputs estimated at 42 and 34 percent capacity factors, respectively. The combined average annual energy output is estimated at 2,578,000,000 kilowatt-hours. The offpeak pump-back operation of the two plants is estimated to require 630,000,000 kilowatt-hours annually.

The capacities of the aqueduct power recovery plants are related to the aqueduct capacities required to accomplish the scheduled water deliveries. This results in "run-of-the-aqueduct" operation of these plants unless special facilities are provided to permit peaking. Such peaking operations at the power recovery plants would require forebays, afterbays, and additional penstock and machine capacity. Economic analyses of forebays and afterbays at the sites of the San Luis Obispo, Devil Canyon, Cottonwood, Pyramid and Castaic Powerplants are not yet completed. It is assumed for this report, therefore, that generation at these plants will be on the basis of run-of-the-aqueduct operation.

The presently proposed installed capacities and outputs of the San Luis Pumping-Generating Plant and the power recovery plants along the aqueduct are shown in the following tabulation:

Powerplant	1991 installed generating capacity, in kilowatts	1991 annual energy generation, in millions of kilowatt-hours
San Luis[a]	222,100	139
Cottonwood	13,900	103
Upper Devil Canyon	74,700	524
Lower Devil Canyon	49,400	347
Pyramid	160,700	966
Castaic	217,300	1,305
San Luis Obispo	5,900	48

a/ Estimated State's share; size based on USBR's invitation to bid (No. DS 6040).

On March 9, 1965, the Director authorized negotiations with the City of Los Angeles, Department of Water and Power relative to a possible joint State-City development of the power potential of the West Branch of the California Aqueduct. The City proposes the installation of up to 1,600,000 kilowatts at Castaic Powerplant. This development

would be operated at about 10 percent capacity factor and pumped storage would be included for operating flexibility and reliability. The City also proposes the installation of 240,000 kilowatts at Pyramid Powerplant for operation at 50 percent capacity factor. This would require enlarging the conduit above Pyramid Powerplant and might require enlarging Quail Lake reservoir.

Disposition of Project Power

The capabilities of the Oroville and Thermalito Powerplants are such that the outputs of these plants can best be used to supply peaking power in coordination with the supply of supplemental base load energy from thermal power sources. Such thermal power sources also can supply the off-peak energy needed for the pumpback operation. It is planned to sell the entire output of the Oroville-Thermalito power facilities as it becomes available, although some absorption period may be necessary. Initial generation is scheduled to commence between July 1967 and February 1968, depending upon steamflow conditions in the Feather River following closure of the diversion tunnels at Oroville Dam in early 1967. The entire dependable peaking capacity is scheduled to be available by March 1, 1969. It will total 710,000 kilowatts or more, the exact amount to be determined by performance tests of the turbines and generators after installation.

Late in 1964 a rate for sale of Oroville-Thermalito power was developed based on the cost and value of the power to be produced and, as stated in Chapter II, an offering of power for sale was made to some 45 potential customers. The offering noted that the Oroville-Thermalito power will be peaking power limited to 34 percent annual load factor in dry years and will be required to be contracted for under 45-year contracts, the repayment period of a proposed revenue bond issue. Note was made of the fact that arrangements might be necessary for transmission beyond the Oroville 230 kilovolt switchyard and that such arrangements for wheeling by entities having transmission lines might be made by the customers or that the Department might endeavor to do so in their behalf or would consider the practicability of constructing transmission lines to serve them. The responses from this offering are discussed in Chapter II.

Bulletin No. 132-64 described negotiations with the California Power Pool Companies (Pacific Gas and Electric Company, Southern California Edison Company, and San Diego Gas and Electric Company), which developed from principles submitted by them in December 1963 under which these companies would purchase all power generated at project hydroelectric

plants and would sell to the Department all power required for project pumping. At a meeting on April 26, 1965, representatives of the Pacific Gas and Electric Company discussed a prospective proposal that their Company purchase 400,000 kilowatts of Oroville-Thermalito power. Features of this proposal include a long-term contract (up to 50 years) with a fixed annual payment based on the Company's current estimate of the cost of power from large thermal generating units to be placed in operation at about the same time that Oroville-Thermalito power will first become available in 1967 and 1968. This proposal would result in revenues somewhat less than would be obtained from sale of the same amount of power at the rates established for sale of Oroville-Thermalito power in December 1964. Other major utilities are preparing similar proposals for the purchase of Oroville-Thermalito power. Possible use of Oroville-Thermalito power for project pumping is also being studied.

In this report it is assumed that the first 400,000 kilowatts of Oroville-Thermalito power would be sold, as it becomes available on a firm basis, to the Pacific Gas and Electric Company at a price based on the April 26, 1965 discussions. It is further assumed that initially the remaining 310,000 kilowatts would be sold on the same basis but reflecting the increased losses and transmission costs involved in marketing this portion of the output in Southern California. Beginning in 1975, however, it is assumed that the increasing Northern California load can absorb additional power and the portion transmitted to Southern California will be reduced in annual increments until the entire 710,000 kilowatts is marketed in Northern California in 1980 and thereafter.

The continuing technological developments in the field of electric power production and in high voltage transmission are reducing the cost of power. While this has had a beneficial overall effect on the State Water Project from the standpoint of the overall cost of water delivered by the project, since large amounts of power are consumed by the project in pumping the water, it has had a depressing effect on the value of power produced at the Oroville and Thermalito Powerplants.

In this report, it is assumed that the State's share of power and energy generated at the San Luis Pumping-Generating Plant and generation at powerplants downstream therefrom along the California Aqueduct and its branches will be used to offset purchases of capacity and energy for project pumping plants.

Power Requirements for Project Pumping

The State Water Project has been designed to accomplish delivery of maximum annual entitlements of contractors across the Tehachapis on a continuous flow basis. Therefore, excess aqueduct capacity is available during the years of buildup in water demand. The availability of excess aqueduct capacity permits flexibility in the operation of project pumping plants within limits established by hydraulic criteria for operation of the aqueduct. In the early years of operation, pumping may be done on either an essentially continuous basis at a relatively uniform rate, or the amount of continuous pumping may be reduced and pumping done at a higher rate during the times when the area power load is at a minimum, that is, during the offpeak hours which approximate 50 percent of the time. The latter method is referred to as the minimum onpeak method.

The estimated annual power demands for the Delta Pumping Plant and the San Luis Pumping-Generating Plant are based on the detailed project operation studies described in Chapter VII. Annual demands of other pumping plants were estimated on the basis of the buildup of water deliveries, operational losses and other allowances also discussed in that chapter.

The estimated annual electric energy requirements by individual pumping plants are shown in Table 8. These requirements include the pumping energy for the Oroville-Thermalito and San Luis Pumping-Generating Plant operations as well as for the aqueduct pumping. The energy requirements for San Luis pumping are the Department's current estimates of the State's share of the energy required for pumping water based on the detailed operation studies previously discussed. The significant increases in power requirements in 1968 and 1971 reflect the start of water deliveries first to the San Joaquin Valley and then to Southern California in those years.

Sources of Power for Pumping

The project energy requirements shown on Table 8 are more than double the total energy generation shown in Table 9, and as discussed above, are assumed to be met only in small part by project generation.

Possible sources of pumping power being considered include: public and private utility systems; the federal Central Valley Project; firm power and energy from the Canadian Entitlement Treaty Power; surplus nonfirm power from the

Bonneville Power Administration; power recovery plants on the California Aqueduct, itself; and a nuclear powerplant that may be constructed in the future specifically to serve the pumping plants. It may be advantageous to utilize power from these different sources in various amounts and combinations at different times, depending upon costs, availability, and water delivery requirements.

The status of negotiations with the Atomic Energy Commission looking toward a cooperative arrangement with that agency for state construction of a nuclear powerplant was discussed in Chapter II. It was stated that although the commission has advised that it has encountered problems in the design of fuel elements for the plant which will delay its construction, the Department is still interested in a nuclear powerplant financed and built under the proposed arrangement, subject to certain conditions.

On March 2, 1965, a proposal was received from the California Power Pool Companies in combination with the City of Los Angeles to supply pumping power for the State Water Project. The March 2 proposal supersedes the California Power Pool Companies' proposal of December 17, 1963, which was discussed in Bulletin No. 132-64.

Under the March 2, 1965 proposal,the utilities offered to furnish offpeak pumping energy at 3 mills per kilowatt-hour at specified bulk transmission points. Assuming the State first would use onpeak power from its own recovery powerplants and its Canadian Treaty Entitlement Power, mentioned in Chapter II, the utilities offered to sell any additional onpeak capacity at $17.00 per kilowatt-year at the same bulk transmission points. The rate for energy associated with the onpeak capacity would be 3 mills per kilowatt-hour. The quoted rates were to be firm through the year 1982 and would cover the cost of generation and transmission to the bulk delivery points.

The utilities would construct transmission facilities from the bulk transmission points to the State's pumping and power recovery plants. The State would pay the utilities' annual costs associated with the transmission and substation facilities constructed for this purpose.

Until such times, upon not less than five years' notice, as the State places in operation its own nuclear generating facilities,all of the State Water Project pumping power requirements would be supplied by the project recovery plants, by power purchases from the Pacific Northwest over the intertie, and by purchases from the suppliers.

When the State places in operation its own nuclear generating plant, additional rates would become effective for standby service and for transmission service to be paid by the State and a rate to be paid by the utilities would be established for purchase by the utilities of power surplus to the State's pumping requirements.

The March 2 proposal would require the State, to the extent practical, to maintain an offpeak mode of operation to minimize power required from the utilities during onpeak periods. The pumps would operate from the utility supply only about 50 percent of the hours in each week, mainly at night and on weekends.

As discussed in Chapter IX, Central Valley Project power is now being used for operation of the pumping plants serving the South Bay Aqueduct. It was stated in Chapter IV that such power will also be used for construction of the California Aqueduct.

CHAPTER IX. PROJECT OPERATIONS

This chapter sets forth the record of project operations for the calendar year 1964. Monthly reports on operation and maintenance of the State Water Project have been published beginning in January 1965.

Water Operations

Units in operation during 1964 were Frenchman Lake, Antelope Lake, and the first three reaches of the South Bay Aqueduct.

Frenchman Lake

In the operation of Frenchman Lake, a recreation pool of 21,500 acre-feet at an elevation of 5,560 feet, which is 28 feet below the spillway crest, is required. During 1964 the reservoir surface was maintained above this minimum at all times. The 33,900 acre-feet of storage space, between the minimum recreation pool and the spillway, was operated to provide regulated irrigation and fishery releases.

A water delivery contract providing for water deliveries during 1964 was executed on March 13, 1964, with the Last Chance Creek Water District. Under this contract $14,000 was paid to the State by the District for regulation and delivery of 13,300 acre-feet of water on a schedule furnished by the District. This quantity included 12,000 acre-feet from local water rights and from project yield, and 1,300 acre-feet of unused contract water still in storage from 1963. The 1964 contract replaced the prior interim water delivery contract executed March 22, 1963.

Frenchman Lake contained 34,966 acre-feet at the beginning of 1964. Inflow during the year totaled 20,806 acre-feet and total regulated releases were 12,550 acre-feet. Peak storage of 43,114 acre-feet occurred May 11, 1964. Minimum storage of 31,317 acre-feet occurred on November 7, 1964. Storage at the end of the year was 38,685 acre-feet.

Table 10 presents the monthly operation data for Frenchman Lake for 1964.

No unusual water quality conditions occurred during the year. The reservoir again exhibited variations in thermal stratification and dissolved oxygen concentrations which are considered normal for a lake of this type, altitude, and location.

During the 1964 recreation season, May to November, Frenchman Lake received an estimated 320,000 visitor-day use by fishermen, campers and other recreationists.

Antelope Lake

Antelope Lake began its first full year of operation in 1964. Antelope Lake has a maximum storage capacity of 22,513 acre-feet and is operated for recreation purposes. Water right entitlements for Pacific Gas and Electric Company were routed through the reservoir in accordance with procedures established at a July 3, 1964 meeting between staff members of Pacific Gas and Electric Company and the Department. The established procedures include recognition of rights for downstream projects owned and operated by the Company. The amount to be delivered to the Company was 13,000 acre-feet. Of the 13,000 acre-feet, 8,600 acre-feet were delivered between October 5, 1964 and November 10, 1964. The remaining 4,400 acre-feet will be delivered in 1965.

Storage at the beginning of 1964 was estimated to be 436 acre-feet. Total regulated releases were 15,298 acre-feet. The storage at the end of the year was 17,145 acre-feet.

Table 11 presents monthly operation data for Antelope Lake for 1964.

During 1964 a water quality sampling program similar to that being conducted at Frenchman Lake was initiated at Antelope Lake. As expected, with the initial filling of the reservoir, organic material which had remained in the reservoir area exerted an effect on the quality of the water. The decomposition of this material resulted in a deficiency of dissolved oxygen. Thermal stratification, normal to high altitude reservoirs also was noted in Antelope Lake. In late August, a fish kill was noted in one of the reservoir coves. This probably resulted from the oxygen deficiency caused by decomposition of the organic material, aggravated by lack of water circulation in the shallow cove. It is anticipated that an adequate fishery can be maintained under normal operating conditions after the biological oxygen demand of the initial organic decomposition has decreased. Antelope Lake received approximately 11,600 visitor-days of recreation use during 1964. The use was primarily for fishing.

South Bay Aqueduct

The water supply for the South Bay Aqueduct during 1964 was purchased from the Bureau of Reclamation under terms of Contract No. 553073 executed on December 12, 1963. A total of 21,743 acre-feet of water, measured at the turnout from the Delta-Mendota Canal, was purchased during 1964.

Deliveries from the South Bay Aqueduct were made to Zone 7, Alameda County Flood Control and Water Conservation District, to the Alameda County Water District in the amounts of 1,680 and 19,238 acre-feet, respectively. The bulk of the water delivered to Zone 7 was through Altamont Turnout and from Patterson Reservoir. Seven acre-feet were delivered from Bethany reservoir. Of the quantity delivered to Alameda County Water District, 19,200 acre-feet were delivered to Altamont Creek at Altamont Turnout and 38 acre-feet were delivered to Altamont Creek during the draining of Patterson Reservoir.

Other deliveries included 187 acre-feet for use by the contractor constructing Del Valle Siphon and by the Department for other uses. In addition, six acre-feet were delivered at Bethany reservoir.

Table 12 summarizes the monthly water deliveries from the South Bay Aqueduct and other operational data for 1964.

The water quality management program for South Bay Aqueduct was expanded in 1964. The program now includes continuous monitoring for mineral quality, and a surveillance program for biologic pests.

Water samples for mineral analysis were collected monthly at Altamont turnout, near Patterson Reservoir, and at South Bay Pumping Plant. Electrical conductivity of the water was continuously recorded at South Bay Pumping Plant. The monthly average concentrations of total dissolved solids of water pumped at South Bay Pumping Plant are presented in Table 12.

At stations along the canal and in Bethany reservoir samples are obtained for identification and enumeration of plankton and/or other benthonic organisms. Studies to develop methods to control algae and the Asiatic Clam infestation are being made and work has been started on the formulation of a program for control of algae and pond weeds.

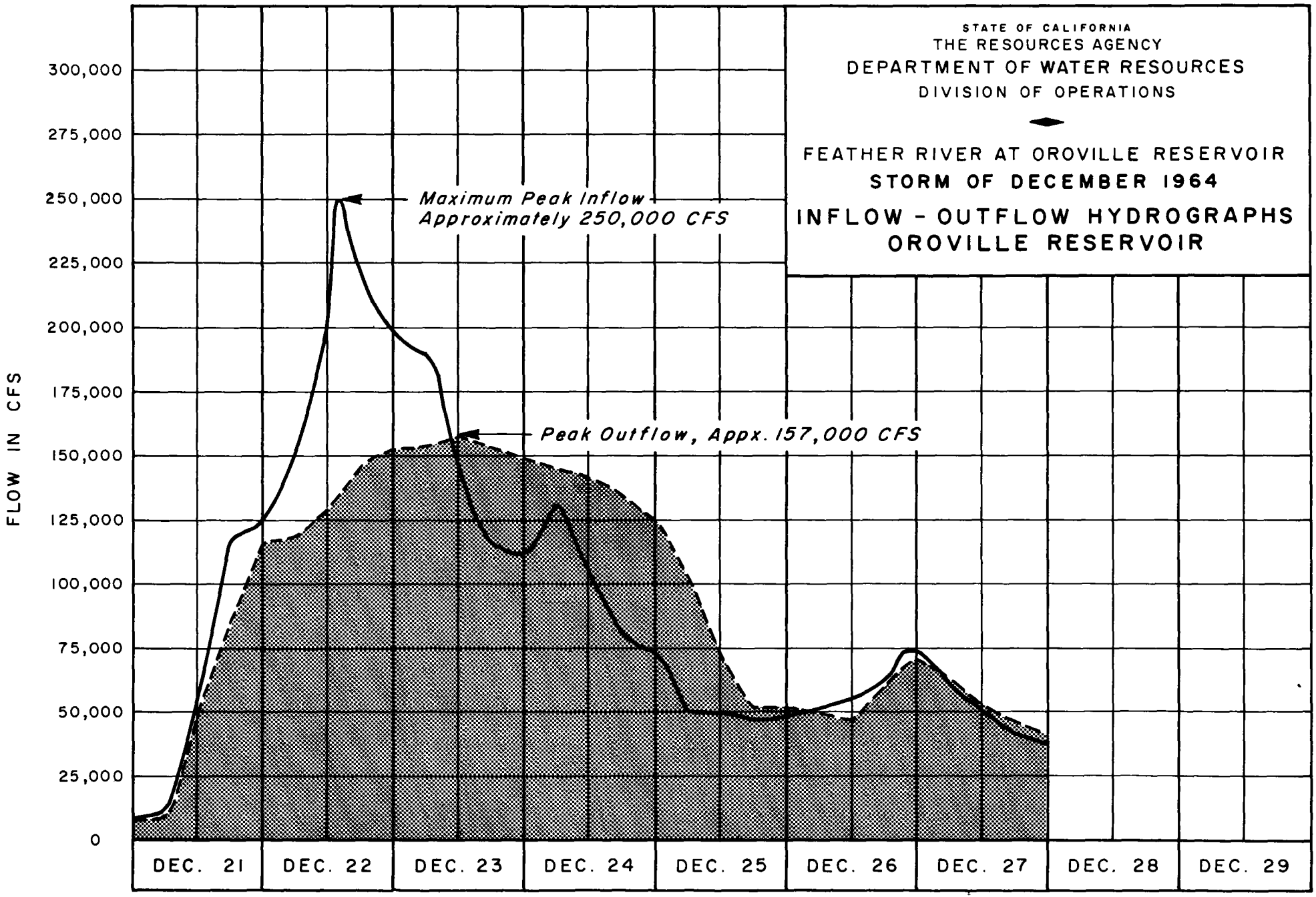
Power Operations

Power operations during 1964 were limited to the South Bay and Interim Pumping Plants. Installation of two additional 30 cubic feet per second units brought the installed pumping capacity of the South Bay Pumping Plant up to 105 cubic feet per second and 8,750 horsepower. Power was continued to be purchased from the Bureau of Reclamation and transmitted to the plants via the Pacific Gas and Electric Company System. Energy use during the year amounted to 16,843,000 kilowatt hours, the peak demand was 3,320 kilowatts and the power cost totaled $72,351.70 for an average rate of 4.3 mills per kilowatt hour.

Operation of Oroville Reservoir During Flood of December 1964

During the flood of December 1964, Oroville Dam averted a recurrence of the disastrous 1955 flood on the Feather River which took 36 lives. The unfinished dam impounded the flood peak and reduced the peak flow of 250,000 cubic feet per second to 157,000 cubic feet per second. Figure 2 presents the hydrograph of inflow to and outflow from the temporary reservoir created by the embankment. About 155,000 acre-feet of water were temporarily impounded. The maximum depth of water behind the dam was about 240 feet. The U. S. Corps of Engineers estimated[1] that this reduction in peak flow prevented $30,000,000 in damages.

1/ "Flood Control Accomplishments of the Partially Completed Oroville Dam During the December 1964 Flood", Office Report 14 April 1965. U. S. Army Engineer District, Sacramento, Corps of Engineers.


STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
DIVISION OF OPERATIONS
FEATHER RIVER AT OROVILLE RESERVOIR
STORM OF DECEMBER 1964
INFLOW - OUTFLOW HYDROGRAPHS
OROVILLE RESERVOIR
Maximum Peak Inflow
Approximately 250,000 CFS
Peak Outflow, Appx. 157,000 CFS
FLOW IN CFS
300,000
275,000
250,000
225,000
200,000
175,000
150,000
125,000
100,000
75,000
50,000
25,000
0
DEC. 21
DEC. 22
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DEC. 24
DEC. 25
DEC. 26
DEC. 27
DEC. 28
DEC. 29

FIGURE 2

CHAPTER X. PROJECT MAINTENANCE

Maintenance of the State Water Project in 1964 was limited to the operable facilities which consist of Frenchman and Antelope Dams and Lakes and the then completed portions of the South Bay Aqueduct from the Delta-Mendota Canal to the beginning of the Del Valle Siphon.

Maintenance of Operable Facilities

Maintenance activities in connection with completed and operating facilities of the project are described under the following subheadings.

Frenchman Dam and Lake

In addition to routine maintenance activities, two special tasks were completed at Frenchman Dam during 1964 by maintenance personnel. The first was the installation in the reservoir of a log boom secured by anchors. The boom is designed to prevent logs and debris from lodging in the spillway. This installation will provide protection for the dam and spillway structure during periods in which the reservoir is spilling. The other major work performed by maintenance forces was the installation of a toe drain measuring device. This consists of a "V" notch weir to determine accurately seepage outflow at the toe of the dam.

Antelope Dam and Lake

Major activities other than routine work at Antelope Dam performed by maintenance forces in 1964 consisted of: (1) installation of a 24-inch butterfly valve to discharge high flows to satisfy downstream water rights; (2) installation of measuring weirs on nine streams tributary to the reservoir, to determine the required water right or nonproject releases to be made during periods of low inflow; (3) removal of large boulders downstream from the control house in order to minimize the backwater effect during high flows; and (4) construction of a collector drain on the saddle dam to prevent slope erosion.

South Bay Aqueduct

Routine project maintenance activities were conducted. In addition, clams and silt, averaging about three feet in depth, were removed from the interim canal by dragline in April and again in December.

A short portion of the canal between Highway 50 and Patterson Reservoir was sealed with mastic sealant to reduce seepage.

The wire ropes on the check gates at Patterson Reservoir failed due to corrosion and were replaced with stainless steel rope. A recommendation was made that all checks be equipped with stainless steel cable in the future.

In June 1964, a leakage problem was detected under the concrete spillway apron at Patterson Reservoir. To correct this leakage, a contract for about $61,000 was executed with a general contractor. Repairs to be made under the contract generally consist of removal of the concrete apron and replacement with an impervious clay apron with an asphalt-concrete topping. The contract also requires some sealing of canal joints and cracks in the immediate vicinity of the reservoir. During 1964, an additional sum of about $29,000 was expended by state maintenance forces to complete repairs to these facilities not included in the contract.

Metal downdrains to improve road drainage were placed at various locations along the aqueduct access roads to reduce slope erosion.

Inspections for Dam Safety

Inspections of project dams and related work were performed by the Division of Safety of Dams pursuant to Division 3 of the Water Code as shown below:

Oroville Dam	- There were 38 construction inspections during 1964.
Thermalito Dam	- There were 33 construction inspections during 1964.
Bethany Dam	- An inspection was made on 6/26/64, and the condition was found to be satisfactory.
Frenchman Dam	- The dam was inspected on 2/20/64, and its operation was deemed to be satisfactory and safe for continued use. A Certificate of Approval for Safety was issued on 11/25/64.

Antelope Dam	- An inspection made on 2/20/64 found the dam to be in a satisfactory condition and to be safe for continued filling under observation. On 6/23/64, it was noted that construction was complete and that it was safe to continue filling. Following receipt of a report on 8/27/64 that auxiliary drains were flowing, an inspection showed no dangerous or unusual conditions.
Grizzly Valley Dam	- An inspection on 4/30/64 indicated the site was suitable for a dam of the type and height proposed. Review of design was accomplished from 4/30/64 through 7/30/64. On 7/30/64, the application was approved.

CHAPTER XI. PROJECT COSTS

This chapter discusses the capital costs of the facilities of the State Water Project described in Chapter III and annual operating costs under current plans for project operation as set forth in Chapter VIII. The costs incurred through calendar year 1964 are based upon the accounting records of the Department, which are summarized in Appendix A entitled "Financial Statements". Expenditures for calendar year 1965 and for years through the end of the project repayment period are estimated.

This chapter also presents the allocations of costs of a number of project facilities among the project purposes of water supply, power generation, flood control, quality control (drainage), recreation, and fish and wildlife enhancement, as applicable. The allocation percentages utilized for most facilities are those developed in the Department's Bulletin No. 153-65, "Allocations of Costs Among Purposes of the California State Water Project", dated January 1965, which was described in Chapter II.

This chapter further separates the allocated costs among the State Utility, State Nonutility and Federal Programs. The costs of these respective programs are the portions of total costs which are (1) reimbursable by project contractors, (2) nonreimbursable by project contractors, and (3) recoverable from federal agencies. Costs of State Utility Programs comprise those reimbursable under water supply contracts and include the State's share of costs allocated to water supply and power as reduced by Oroville-Thermalito power revenues. State Utility costs also include those reimbursable under assumed future drainage contracts. Costs of State Nonutility Programs include the costs of the Davis-Grunsky Program, herein conservatively assumed to be totally nonreimbursable; the State's share of the costs allocated to the purposes of recreation and fish and wildlife enhancement; and the costs incurred for features which were deleted from the project after the expenditures were made. Costs of Federal Programs include those allocated to flood control and the federal share of costs to be incurred by the State which are allocated to water supply, drainage, recreation, and fish and wildlife enhancement.

This chapter concludes with the development of the estimated capital costs of the State Water Project which must be financed and which must be repaid by the revenues to be realized from State Utility Programs and by miscellaneous project receipts to be derived from all major programs.

Composition of Capital Costs

Capital costs include all costs incurred subsequent to authorization of a project facility for construction which are properly chargeable to the construction of, and furnishing of equipment for, facilities of the project. A full definition of the term "capital costs" is given in Article 1(s) of the "Standard Provisions for Water Supply Contract". A feature will generally be considered operational for accounting purposes on January 1 of the year following the year in which physical construction of the feature is completed. Capital costs will terminate and operating costs will commence on that date. Capital costs also include the initial costs of electromechanical units of pumping and power recovery plants, or additional barrels of pipelines and penstocks, the installations of which may be staged within the operational period.

The term "capital costs" in fiscal and engineering usage generally includes the item of "interest during construction". Capital costs described herein, however, are total annual capital expenditures exclusive of annual interest costs. The Burns-Porter Act has been interpreted to prohibit use of funds provided thereunder for financing of interest charges during the construction period. Therefore, annual interest charges corresponding with the capital costs shown in this report must be considered to commence in the year in which the costs were incurred rather than at the end of the construction period.

The estimated capital costs of the various physical facilities of the State Water Project as compared with the estimates presented in Bulletin No. 132-64, together with the major reasons for changes in cost estimates for each facility, are summarized in Table 13. It is shown that the estimated total cost of the State Water Project has increased about $259,000,000. The increased costs, or positive changes, shown for a number of the conservation and transportation facilities are primarily due to the enlargement of the minimum project yield since the preparation of Bulletin No. 132-64 and to the expanded scope of the Delta Facilities. The increase of about $97,000,000 for the California Aqueduct includes (1) about $57,000,000 for the costs of excess capacity requested by the Metropolitan Water District of Southern California, which will be financed by that agency, and (2) about $33,000,000 as an allowance for the project's share of the costs of a future facility, which will be required to provide additional conveyance capacity in the San Luis division.

The deficiency of conveyance capacity in the San Luis division is discussed in Chapters II and III. The proportionate share of the costs of a future facility will of course depend upon the location and total capacity of that facility and attendant economies of scale. Such locations and capacities will in turn be determined by the locations and magnitudes of supplemental water demands continuing after 1990 in California and possibly in adjoining states. For this bulletin it was assumed that the supplemental transportation facility would be located adjacent and parallel to the San Luis Canal and would be of approximately the same scale.

Table 14 summarizes the annual capital expenditures for the State Water Project by the major classifications of cost items. As of the end of the calendar year 1964, costs of about $367,655,000 had been incurred. The composition of the estimated remaining capital cost of about $2,191,515,000 is shown in that table and is described in the following sections.

Surveys and Engineering Studies

Several features of the State Water Project are still in the formulation or advance planning phase and require additional studies prior to the preparation of final designs. These include Dixie Refuge and Abbey Bridge Dams and reservoirs of the Upper Feather division, the Delta Facilities, the North Bay Aqueduct, the San Joaquin Drainage Facilities, and the Upper Eel River Development. Other surveys and engineering studies, such as earthquake engineering studies, are required for design. The estimates of future capital expenditures for the project include about $8,362,000 to cover the expense of surveys and engineering studies.

Design, Rights-of-Way, and Construction

Included in costs of design, rights-of-way acquisition and relocations, construction and related items are the following:

1. Construction including labor, materials, supplies, utilities, and services during construction.

2. Lands, easements, and rights-of-way.

3. Railroads, roads, utility and other relocations.

4. Clearing and preparing project land.

5. Special works and services provided during construction, such as (a) those necessary for the protection of public health and safety and (b) purchases and transportation of water for preconsolidation of aqueduct foundations in subsidence areas.

6. Preservation of fish and wildlife.

7. Design costs, including allocated departmental general expense. Those costs range from 5 to 10 percent of "field costs" [items (1) through (6)] depending upon the type of feature being designed.

8. Construction supervision, including allocated departmental general expense and design support during construction. These costs generally range from 7 to 15 percent of field costs depending upon the type and size of the construction contract.

As indicated above, items (1) through (6) are described as field costs. For contracts covering work under construction these costs are based on bid data. For work to be done under future construction contracts, field costs in this report are based upon preliminary designs and upon unit prices generally prevailing in January 1965. In both cases, allowances are included for contingencies during the construction period which generally range between 15 and 20 percent. Estimated design and construction supervision costs are then determined as percentages of the totals.

Table 14 shows these categories of future capital costs under the three major classifications. Estimated costs are: design, $80,436,000; rights-of-way acquisition and relocations, $141,596,000; and construction, $1,690,340,000: totaling about $1,912,372,000.

Local Impact Aid

Pursuant to the Byrne Act,[1/] payments are made to local governments for the temporarily increased municipal costs directly attributable to the influx of construction workers. Such payments are now being made to the Cities of Oroville and Los Banos. The estimated costs of this kind total about $1,647,000.

1/ Part 7 (commencing with Section 12950) of Division 6 of the Water Code.

Preoperating Expense

Costs of an operational nature, which are incurred prior to completion of the construction of the various project features, are included in the capital costs of such features. These are of the following two types:

1. General operating costs which are incurred for the project as a whole, including such costs as negotiating and administering repayment contracts and operational agreements and developing project-wide operational plans and procedures.

2. Direct operating costs, which are incurred for a particular facility to insure its being operational at the end of the construction period, such as salaries of operation and maintenance trainees and electric power to bring water surfaces of conduits and reservoirs to operational levels.

Future general operating costs which will be capitalized are estimated to total about $28,733,000, while direct operating costs to be capitalized are estimated to amount to about $15,060,000.

Local Projects Loans and Grants

Under the Burns-Porter Act, $130,000,000 was reserved for provision of water development facilities for local areas pursuant to the Davis-Grunsky Act.2/ In addition, a sum of $1,418,000 was utilized for local projects from funds appropriated prior to passage of the Burns-Porter Act. A total of approximately $9,174,000 was expended by the end of 1964. The estimated future annual disbursements for loans, grants, and administrative costs of the program are shown on Table 14.

State Contributions for the San Luis Division

The San Luis division of the California Aqueduct is a joint-use facility being constructed by the Bureau of Reclamation, and financed in part by the State. In accordance with the federal-state agreement of December 30, 1961, the Bureau of

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2/ Chapter 6 (commencing with Section 12880) of Part 6 of Division 6 of the Water Code.

Reclamation will pay 45 percent and the State will pay 55 percent of the construction costs. The joint costs to be shared are specified as only those costs incurred after July 1, 1959. The total cost of the joint-use facilities is estimated to be about $322,293,000, of which about $177,300,000 will be paid by the State. It is estimated that the State will have to pay about $103,096,000 in 1965 and subsequent years, accounting for moneys already advanced, and for credits received through 1964.

Composition of Operating Costs

All costs of an operational nature, which are incurred for features after they are transferred from a construction to an operational status, are considered herein to be operating costs. Table 15 summarizes the actual and estimated annual operating costs for the State Water Project. The bases for these costs are described under the following subheadings.

General Operating Costs

General operating costs are for various programs concerning the operation and maintenance of the State Water Project as a whole which are not directly assignable to any specific facility or aqueduct reach. Such programs include the following:

1. Water supply contract negotation and administration.

2. Power contract negotiation and administration.

3. Financing and repayment studies for the project.

4. Formulation of operation and maintenance management criteria.

5. Operational studies to prepare project operation plans.

6. Special continuing investigations and activities concerning the project such as obtaining water rights, data collection and analysis, and report preparation.

Costs of insurance required under revenue bond financing for the Oroville-Thermalito power facilities are also considered herein to be general operating costs, because they are not related to categories of direct operating costs discussed under the following subheadings of this section. These costs amount to about $150,000 annually.

General operating costs are estimated to level off at about $5,105,000 annually under conditions of substantially full project utilization.

Salaries and Expenses

This category includes the costs for personnel directly involved in operating and maintaining the various features of the State Water Project. The annual costs shown in Table 15 are based on estimates of the required personnel at field locations, except those needed for certain of the facilities currently under formulation. For the latter facilities, which include the Delta Facilities, San Joaquin Drainage Facilities, and the Upper Eel River Development, the estimated annual costs for operation and maintenance personnel are based on approximate percentages applied to the total capital costs of each facility. All estimates of personnel requirements are preliminary and are subject to adjustment.

Salary ranges for operation and maintenance personnel have been tentatively estimated on the bases of analyses of job requirements and comparisons with salaries of existing state civil service classifications. The estimated costs reflect salaries at the top of the pay grades assumed. Basic salary costs have been increased by an allowance of 60 percent to cover expenses of supervision and administration, retirement contributions, standard personnel allowances such as travel expenses, and other indirect charges.

As shown in Table 15, the estimated annual costs of salaries and expenses reach a level of about $2,594,000 for operating personnel and $8,011,000 for maintenance personnel.

Materials, Supplies and Equipment

This category includes the costs of materials, supplies, and equipment required for the annual maintenance of the State Water Project.

For electro-mechanical units, these costs are assumed to be a function of installed capacities. Quantities and costs are based on Bureau of Reclamation experience. Such costs for reservoirs and aqueducts are estimated as a function of maintenance personnel requirements and are based on state and bureau experience in related work.

Under full operation of the facilities, these costs will total about $1,055,000 per year.

Costs of Power and Energy for Pumping

Table 15 shows the estimated costs of power and energy for pumping, after completion of construction, for all plants of the State Water Project except those of the Oroville division. The cost of energy for the pump-back operation at the Oroville-Thermalito power facilities is accounted for in this report as a reduction of the revenues from sale of power generated by those facilities.

Basic unit power and energy costs for all pumping plants used to derive the values in Column 5 of Table 15, were based on a weighted average of costs of the following: Canadian Entitlement power, surplus Bonneville power, power from the California Power Pool Companies, power from a state-owned nuclear plant, and power from aqueduct power recovery plants. Unit power costs were determined for each pumping plant location for both continuous and offpeak classes of power and energy. The total cost of power for each plant was determined by multiplying the average unit cost for continuous and offpeak power and energy by the respective power and energy requirements.

Column 6 of Table 15 shows, as credits applicable to pumping costs, the estimated value of generation at the San Luis Pumping-Generating Plant and at downstream power recovery plants. As discussed in Chapter VIII, power and energy at these plants is assumed to be used to offset purchases of capacity and energy for pumping. It is assumed herein that the energy generated at Cottonwood, Pyramid, Upper and Lower Devil Canyon and San Luis Obispo Powerplants will have an annual value equal to the estimated total annual costs of these power recovery facilities. The approximate effect of these computations is to credit against the operating costs for conveyance of water in aqueduct reaches downstream from

the power recovery plants the value of the generation in those plants. The value of generation at San Luis Pumping-Generating Plant is credited to reduce the operating costs of all project conservation facilities.

As shown in Table 15, the gross annual costs of pumping power and energy constitute approximately two-thirds of the total annual operating costs of the project under full-scale operation. The total annual costs for pumping power and energy, under these conditions, are about $45,000,000 and all other operating costs total about $22,000,000. When the gross pumping costs are reduced by the credits from the value of power-recovery-plant production, the estimated maximum annual net expenditure for pumping power and energy will be approximately $36,000,000. The pumping power costs used in this bulletin are considerably less than those used in Bulletin No. 132-64. The new unit costs reflect the technological and other developments in the field of power supply generally and from power sources which have been developed in recent years.

Replacement Costs

This category includes annual contributions toward the costs of those facilities or major items of equipment, such as pumps, generators, and valves, which are expected to require replacement before the end of the project repayment period. Estimates of such contributions are based upon practical operating experience of the Bureau of Reclamation and various public utilities. The annual values presented in Table 16 are the total of deposits into replacement reserve funds which, when accumulated at 3.5 percent annual interest, will provide sufficient moneys to replace each item at the end of its estimated useful life based on present cost levels.

Although the annual rate of 3.5 percent is below the current interest yield on the fund in which the replacement reserve is invested, it has been selected as reasonably representative of the average rate that may be realized over the years that the reserve is being accumulated.

It is the Department's intention to review periodically the adequacy of both the above interest rate and the replacement cost assumptions. Annual deposits are currently estimated to total $5,364,000 under conditions of full project utilization.

Allocations of Costs

The Department's water supply contracts provide that the contractors will repay with interest those costs of the project conservation and transportation facilities which are reimbursable, as determined by the State. This provision requires allocations of costs of facilities (1) between the project functions of conservation and transportation and (2) between reimbursable and nonreimbursable project purposes. Relative to the latter, costs allocated to water supply, water quality control (drainage), and power generation are reimbursable by the project contractors for these respective services. Flood control is considered to be a nonreimbursable purpose, the costs of which will be borne by the Federal Government. Costs allocable to the purposes of recreation and fish and wildlife enhancement are nonreimbursable by project contractors under the Davis-Dolwig Act.3/

In this bulletin account is taken of cost allocations to the nonreimbursable purpose of recreation and fish and wildlife enhancement for a number of facilities for which such cost allocations were not included in Bulletin No. 132-64. The bases for these determinations, as well as allocations to flood control and reimbursable purposes, are the cost allocation percentages given in Bulletin No. 153-65.4/ For some facilities cost allocations are assumed.

Presented in this section first are descriptions of the cost allocation percentages for the determination of costs allocated to functions and to purposes of the project. Next the applications of these percentages to determine allocated capital and operating costs are discussed.

Cost Allocation Percentages

The water supply contracts provide that the costs of the reaches of the California Aqueduct from the Delta through San Luis reservoir are to be allocated between project conservation facilities and project transportation facilities by the "Proportionate Use of Facilities Method". The assumptions as to the measures of use for this allocation were described on pages 176 and 177 of Bulletin No. 132-64. The percentages given in that report have been revised for the analyses herein to reflect the increased transportation requirements in the concerned reaches. The derivations of the new percentages are shown in the following tabulation:

3/ Sections 11900 through 11925 of the Water Code.

4/ Department of Water Resources, Bulletin No. 153-65, "Allocations of Costs Among Purposes of the California State Water Project", dated January 1965.

Reach of California Aqueduct	Measure of use, in cubic feet per second			Proportionate use, in percent		
	Water conservation	Water transportation	Total	Water conservation	Water transportation	Total
Delta through Bethany reservoir	1,624	8,676	10,300	15.8	84.2	100.0
Bethany reservoir to San Luis Forebay	1,625	8,375	10,000	16.2	83.8	100.0
San Luis Forebay to Mile 18 Pumping Plant[a]	11,000	13,100	24,100	45.6	54.4	100.0

a/ Since this entire reach acts as a forebay to both the San Luis Pumping-Generating Plant and Mile 18 Pumping Plant, the total state and federal pumping capacities of these plants, amounting to 11,000 and 13,100 cubic feet per second, respectively, are considered to be measures of the proportionate use of the reach between water conservation and water transportation, respectively.

The percentages for allocations of cost among project purposes which have been determined to-date, are for those facilities which are completed, under construction, or on which construction is scheduled to commence during fiscal year 1965-66. The authorized facilities for which such allocations have not yet been initiated include Abbey Bridge and Dixie Refuge Dams and reservoirs of the Upper Feather division, the North Bay Aqueduct, the Delta Facilities, the Upper Eel River Development, and the San Joaquin Drainage Facilities. It was assumed for this report, that 100 percent of the costs of multiple-purpose features of all of the named units, except the Delta Facilities, would be allocated to the primary purpose for which each facility is to be constructed. The allocation of multiple-purpose costs of the Delta Facilities among project purposes is based generally upon the percentages given in the report of the Interagency Delta Committee, referred to in Chapter II.

The cost allocation percentages determined to-date are applicable to the capital costs and to the minimum operating costs of the multiple-purpose features of each facility covered. Minimum operating costs are defined in the water supply contracts as those that do not depend upon amounts of water delivered, while variable operating costs include those that are dependent upon and vary with the amounts of water delivered. Variable operating costs are allocated annually among project purposes in proportion to the annual deliveries to the respective purposes. Therefore, allocation percentages are not required for such costs.

As indicated above, the allocation percentages determined to-date are applicable to the total costs of multiple-purpose features of the facilities covered. The total capital costs of facilities involving the project purpose of flood control include certain federal expenditures for engineering, design, supervision, and administration during the construction of the particular facilities.

Since costs included in this report comprise only those to be financed by project funds, the allocation percentages given in Bulletin No. 153-65 must be adjusted to make them applicable to the costs incurred by the State only. This adjustment applies only to capital costs and not to minimum operating costs, because federal operating costs are not involved.

The current cost allocations requiring such adjustment are for Oroville and Del Valle Dams and reservoirs. The adjusted percentages for these facilities, compared with those developed in Bulletin No. 153-65, are as follows:

Facility and project purpose	Allocation percentages applicable to capital costs of multiple-purpose features: Determined in Bulletin No. 153-65	Adjusted
Oroville Dam and reservoir:		
Flood control	21.3%	21.2%
Water supply and power generation	78.7	78.8
Total	100.0%	100.0%
Del Valle Dam and reservoir:		
Flood control	32.9%	31.4%
Water supply	39.1	40.0
Recreation and fish and wildlife enhancement	28.0	28.6
Total	100.0%	100.0%

The cost allocation percentages for the multiple-purpose features of the State Water Project, which were used for this report are shown in Table 16.

Allocation of Capital Costs

The allocations of actual and projected capital costs incurred or to be incurred by the State for multiple-purpose features of the State Water Project are also shown in Table 16. Presented therein are allocations of cost both between the conservation and transportation functions and among the various project purposes. In addition, the specific costs of features used solely for particular project purposes are included in Table 16 so that the total estimated capital costs to be borne by project funds for all facilities of the State Water Project are indicated.

The specific costs for the purposes of recreation and fish and wildlife enhancement (abbreviated in the column headings as "R&F&WE"), which are shown in Table 16, include only those for lands, easements, and rights-of-way purchased concurrently with multiple-purpose project lands in order to decrease total land costs. The Department is making, and intends to continue to make, requests to the Legislature for the reimbursement of such moneys expended from Project Funds, together with the costs of multiple-purpose features allocated to recreation and fish and wildlife enhancement. These requested reimbursements are further described in Chapter XII under "Miscellaneous Receipts".

The total costs of specific recreation and fish and wildlife enhancement features, including those financed by Project Funds, will aggregate more than $137,000,000 based on the following partial estimates summarized in Bulletin No. 153-65:

Facilities covered in Bulletin No. 153-65	Costs of specific recreation and fish and wildlife enhancement features	
	Initial installations[a]	Continuing installations[b]
Upper Feather division:		
Frenchman unit	$ 410,000	$ 829,000
Antelope unit	450,000	1,103,000
Grizzly Valley unit	870,000	2,483,000
Oroville division	19,513,000	51,144,000
California Aqueduct	37,820,000	13,530,000
South Bay Aqueduct	3,250,000	5,820,000
Total	$62,313,000	$74,909,000

a/ Sufficient to accommodate the growth in estimated visitor use during the initial 10-year period of operation.

b/ Sufficient to accommodate the continuing growth in estimated visitor use subsequent to the initial 10-year period of operation.

The costs of boat ramps, parking lots, and camp sites, included in the above values, are financed by the State General Fund under the provisions of the Davis-Dolwig Act. Such costs are not accounted for by the Department and are not covered in the project financial analyses in this bulletin. The magnitudes of appropriations by the Legislature to date to cover such costs, as well as multiple-purpose operating costs allocated to recreation and fish and wildlife enhancement, are shown in the following tabulation:

Fiscal year	Legislative Appropriations from the State General Fund for the Davis-Dolwig Program			
	Recreation planning	Capital outlay	Multiple-purpose operating costs	Total
	(in thousands of dollars)			
1962-63	96	488	10	594
1963-64	119	689	10	818
1964-65	209	1,126	9	1,344
Totals	424	2,303	29	2,756

It is anticipated that the costs of some 30 percent of the open-space lands at Del Valle, Pyramid, Castaic, Cedar Springs, and Perris reservoirs will be financed by the Federal Government through the open-space recreation land grants of the Housing and Home Finance Agency. These grants are under Title VII of the Housing Act of 1961. Open-space is defined as "any undeveloped or predominantly underdeveloped land in an urban area which has value for (1) park and recreation purposes, (2) conservation of land and other natural resources, or (3) historic or scenic purposes."

The columns of Table 16, under the heading "unspecified purposes", include certain unassigned costs and costs of the Davis-Grunsky Program. Unassigned costs include costs incurred for features which were deleted from the project after the expenditures were made. These costs pertain to reaches of the North Bay Aqueduct beyond the Napa turnout and to the Doolan branch of the South Bay Aqueduct. Local projects receiving loans or grants under the Davis-Grunsky Act may be constructed for a number of purposes including water supply, flood control, power generation, recreation and fish and wildlife enhancement. Costs of a project allocated to recreation and fish and wildlife enhancement may be covered by grants which are nonreimbursable by the project construction agency, while the remaining project costs may be reimbursable under the loan provisions of the act. As

stated heretofore, only a small portion of the Project Funds reserved for local projects has been committed to date, and the total estimated costs of local projects are conservatively considered herein to be nonreimbursable. Therefore, cost allocations for local projects are not required for this bulletin.

Allocation of Operating Costs

The classification of actual and projected operating costs of the State Water Project into the two component categories of minimum and variable costs, and the allocation of such costs among project purposes, is shown on Table 17.

The items of costs included in the minimum and variable categories of operating costs are described in Appendix B, entitled "Distribution of Water Supply Costs of Project Transportation Facilities Among Contractors". Also shown in that appendix is the allocation of annual variable operating costs between the purposes of (1) water supply and (2) recreation and fish and wildlife enhancement. This is based upon preliminary estimates of the specific water requirements for the latter purposes.

Separation of Costs into Programs

It was mentioned in the introduction to this chapter that the costs of the State Water Project are divided into (1) State Utility Programs, (2) State Nonutility Programs, and (3) Federal Programs. Tables 18 and 19 present the estimated capital costs and operating costs of the project grouped under these three general classifications. The costs included in each program and related matters are described under the following headings.

State Utility Programs

The costs of State Utility Programs shown in Tables 18 and 19 include the following:

1. The total costs of project conservation facilities allocated to purposes of water supply and power generation, less the share of costs allocated to water supply for the Delta Facilities and the San Luis division, which will be borne by the Federal Government. To determine costs which are reimbursable by the water supply contractors under the Delta Water Charge, the net costs included in these tables must further be reduced by the revenues derived from the sale or other disposal of Oroville-Thermalito power generation.

2. The total costs of project transportation facilities allocated to water supply less the appropriate costs of the San Luis division which will be borne by the Federal Government. These net costs are reimbursable by the water supply contractors under the Transportation Charge.

3. The total costs of the San Joaquin Drainage Facilities allocated to drainage, less the share of such costs to be borne by the Federal Government. These costs will be reimbursable under drainage contracts to be executed.

State Nonutility Programs

The costs of State Nonutility Programs listed in Tables 18 and 19 include the following:

1. The total costs of "unspecified purposes", including currently unassigned project costs and the costs of the Davis-Grunsky Program.

2. The total costs allocated to the purposes of recreation and fish and wildlife enhancement, less the share of such costs assumed herein to be borne by the Federal Government for the Delta Facilities.

Federal Programs

The costs of Federal Programs given in Tables 18 and 19 include the following portions of expenditures from Project Funds:

1. The total costs allocated to the purpose of flood control.

2. The costs allocated to water supply, drainage, recreation, and fish and wildlife enhancement excluded from the above State Programs.

The bases for determination of the costs referred to under item 2 above, which are largely assumed for the analyses of this report, are discussed under the following subheadings.

Delta Facilities. As indicated heretofore, the Delta Facilities are still in the advance planning stage, and no formal negotiations regarding their actual construction and financing have been undertaken with the federal agencies.

The plan of development recommended by the Interagency Delta Committee in its report, which is discussed briefly in Chapter II, would provide a solution to the complex problems of the Delta. The Department endorsed the concept of the peripheral canal, advanced by the report, but did not commit itself to operational details, specific location, cost allocations, or cost-sharing arrangements therein set forth.

For purposes of this bulletin, it is assumed that the percentages basic to "Tentative Division of Capital Costs Between Federal and Non-Federal Interests", shown on Table 5 of the Committee's report, are indicative of the eventual sharing of capital and operating costs between federal and state interests. These values are 45 percent for the federal and 55 percent for the non-federal shares of the costs of multiple-purpose features allocable to water supply, and 50 percent for both the federal and non-federal shares of multiple-purpose and specific costs allocable to the nonreimbursable purposes of recreation and fish and wildlife enhancement. It is emphasized that the use of these percentages herein does not constitute acceptance of them by the State.

San Luis Division. In accordance with the federal-state agreement regarding construction and operation of the San Luis Unit of the Central Valley Project, the State will operate the joint-use facilities of that unit and the Federal Government will contribute its share of operating costs. As

discussed in Chapter VIII, the formulae for the allocation of annual operation costs are currently being negotiated with the Bureau of Reclamation. For purposes of cost analyses included in this report based upon the trend of current negotiations, operating costs, exclusive of pumping power and energy, are assumed to be allocated 55 percent to the State and 45 percent to the Bureau of Reclamation. Pumping power and energy are assumed to be provided by each agency for its own requirements.

San Joaquin Drainage Facilities. The San Joaquin Drainage Facilities, considered in this report, would provide for drainage of poor quality waters from the federal San Luis Service Area as well as from extensive additional areas of the San Joaquin Valley in accordance with the recommended plan in the Department's Bulletin No. 127.

The facilities would be constructed in three stages. The first stage would extend from Kettleman City to Antioch Bridge and would accommodate drainage from the federal service area and adjacent areas, commencing in about 1969. The second stage would extend from the vicinity of the bed of Buena Vista Lake to Kettleman City, with initial operation in about 1980. The third stage would be an enlargement of the first stage to final size with initial operation in about 1986.

Negotiations are currently underway with the Bureau of Reclamation on the sharing of costs of the first stage. It is assumed for this report that the State will pay 40 percent and the United States 60 percent of the capital costs of the first stage incurred after July 1, 1964 and that the United States will pay $220,000 of the total costs incurred by the State prior to July 1, 1964. It is also assumed that the State will pay 33 percent and the United States 67 percent of the annual operating costs of the first stage, and that federal percentage will be adjusted downward in about the year 1980 to reflect the increased costs attributable to the State's operations, due to the implementation of subsequent stages of the facilities. These assumptions are based on the provisions of the current draft of contract under consideration.

Total Costs to be Financed

The capital costs previously described in this chapter have been presented in several different ways in the various tables as follows:

Table 13 compares for each major facility the presently estimated total cost with the corresponding estimate included in Bulletin No. 132-64;

Table 14 develops the composition of the estimated total annual capital costs of the facilities by major cost classifications;

Table 16 presents a detailed allocation of the annual capital costs among project purposes for each facility; and

Table 18 separates the estimated capital costs of purposes into State Utility, State Nonutility and Federal Programs.

Table 20 presents the data given in the above tables in a manner that indicates the annual capital expenditures of the State Water Project which must be financed by Project Funds. These annual expenditures are the bases for the financial analysis described in Chapter XIII.

Summary of Costs by Facilities

A recapitulation of the total annual costs for each of the major facilities of the State Water Project is shown in Columns 1 through 10 of Table 20. The upper values in these columns indicate costs financed from sources available prior to the effective date of the Burns-Porter Act, and the lower values indicate costs financed or to be financed by Project Funds subsequent to that effective date.

It should be noted that the total costs of State Nonutility and Federal Programs, as well as the costs of State Utility Programs, are included for the purpose of financial analyses. Net miscellaneous receipts to be realized under the first two programs, as well as certain net receipts to be received under the State Utility Programs, are utilized to supplement the net operating revenues of the State Utility Programs in the coverage of annual service on general obligation bonds issued for project financing. The portion of such miscellaneous receipts, which is not required for coverage of bond service, is expected to be applied directly to capital expenditures. These matters are discussed in Chapters XII and XIII.

Capital Costs Credited with Receipts

Certain miscellaneous receipts accrue to the project other than those referred to above. Such items include the sale or other disposal of rights-of-way originally purchased for features of the project, which subsequently have been deleted, and income from rentals of rights-of-way. Such receipts are credited to the capital costs of the facility concerned in accordance with the Department's accounting procedures. Since the required financing for the credited costs has previously been provided, these receipts are treated in the financial analysis as being available for coverage of bond service in a manner similar to the application of other miscellaneous receipts. Thus the amounts of costs which have been credited with income received, shown in Column 12 of Table 20 to total $1,746,300, are added to the capital costs of the facilities to determine the total expenditures to be financed.

Costs Financed from Funds Provided Prior to the Burns-Porter Act

The total costs of the State Water Project financed from funds provided prior to the ratification of the Burns-Porter Act by the Electorate on November 8, 1960, are shown in the upper portion of Column 13 of Table 20 to total about $100,721,000. The funds utilized to finance this amount are summarized in the following tabulation:

(in thousands of dollars)

Calendar year	General Fund	California Water Fund	Local Projects Assistance Fund	Total from funds provided prior to Burns-Porter Act
1952	278			278
53	657			657
54	737			737
55	391			391
56	1,237	518		1,755
57	2,866	5,611		8,477
58	2,236	10,241		12,477
59	1,199	14,097		15,296
1960	1,721	19,038		20,759
61	120	25,358	427	25,905
62	51	8,258	78	8,387
63		5,372	756	6,128
1964 a/		(-) 526		(-) 526
TOTAL	11,493	87,967	1,261	100,721

a/ Negative values indicate accounting adjustments.

Total Costs to be Financed from Funds Provided Subsequent to the Burns-Porter Act

The annual capital expenditures which are currently estimated to require financing from the proceeds of general obligation bonds, revenue bonds, miscellaneous receipts not required for bond service coverage, and the assumed continuing annual accrual to the California Water Fund, are shown in the lower portion of Column 13, Table 20.

CHAPTER XII. MISCELLANEOUS RECEIPTS AND PROJECT REVENUES

This chapter describes the miscellaneous receipts and total revenues for the State Water Project, which will be available to defray operating costs and to repay certain of the funds utilized to finance the project. The annual receipts and revenues through calendar year 1964 are from the accounting records of the Department which are summarized in Appendix A entitled "Financial Statements", while those for calendar year 1965 and thereafter are estimated from the costs developed in Chapter XI. This chapter also derives the annual net values of such revenues and receipts over and above (1) the annual operating costs of the project and (2) those power revenues reserved for the coverage of revenue bonds. These net values will be available for meeting service on general obligation bonds and are basic to the financial analysis of the State Water Project developed in Chapter XIII.

Presented first under the following headings is a general description of the interest rates and repayment periods applicable to the estimates contained in this chapter. This is followed by a discussion of miscellaneous receipts to be realized from State Utility, State Nonutility and Federal Programs. Finally project revenues to be derived from State Utility Programs under the payment provisions of water supply, drainage, and power contracts are presented.

Project Interest Rates

Article 1(r) of the "Standard Provisions for Water Supply Contract" specifies that the "project interest rate" shall mean the weighted average of interest rates paid by the State on bonds issued under the Burns-Porter Act, without regard to any premiums received on the sale thereof.

The project interest rate is currently 3.531 percent per annum, reflecting rates on Water Bonds through Series "D" as derived in the following tabulation:

Issue	Dollar-years[a]	Total interest cost	Project interest rate
	(in thousands of dollars unless otherwise noted)		
$50,000,000 Bond Anticipation Notes dated December 1, 1963, due June 15, 1964.	26,944	531	
$100,000,000 Series "A" Water Bonds dated March 1, 1964, due September 1, 1973-2013.	3,402,000	119,750	
$50,000,000 Series "B" Water Bonds dated May 1, 1964, due May 1, 1974-2014.	1,726,000	60,985	
$100,000,000 Series "C" Water Bonds dated November 1, 1964 due November 1, 1974-2014.	3,452,000	123,764	
$100,000,000 Series "D" Water Bonds dated March 1, 1965 due March 1, 1975-2015.	3,497,900	122,403	
TOTALS through Series "D"	12,104,844	427,433	3.531%[b]

a/ A dollar-year is a unit equivalent to one dollar of principal amount outstanding for one year.

b/ Determined by the ratio of the total interest cost to the total dollar-years of bonds issued to-date, expressed as a percentage.

The annual statements of charges to water supply contractors for payment in 1966, substantiated in Appendix B, are based on the project interest rate of 3.531 percent pursuant to the water supply contracts. The statements for each year thereafter will include adjustments as necessary to account for subsequent changes in the project interest rate. It is contemplated that the project interest rate will increase to a certain extent over the project construction period.

For financial planning purposes, and for the reasons stated in Chapter XIII, a future project interest rate of 3.700 percent was assumed in the calculation of revenues in this chapter.

Project Repayment Period

Article 1(t) of the standard contract provisions specifies that the "project repayment period" is the period beginning on January 1, 1961, and extending until all bonds secured by the pledge of revenues under the Burns-Porter Act have been repaid. Since the maximum term of such bonds is 50 years, the project repayment period will end no later than 50 years after the last bonds are issued.

It was assumed for the determination of available revenues in this chapter that the final sale of these bonds will occur in 1981, which is the last year in which the issue of general obligation bonds is required in the financial analysis described in Chapter XIII. It was further assumed that final repayment of those bonds will occur 50 years thereafter. The project repayment period will extend through the year 2030 under this premise.

It was assumed for the detailed repayment tables under the Transportation Charge for each water supply contractor, developed in Appendix B that the project repayment period will extend at least to the year 2039, fifty years after the last year of construction shown in this report. This assumption recognizes the difficulty of accurately predicting at this time when the last year of repayment of general obligation bonds issued under the Burns-Porter Act will occur, because of the probability that "offset bonds" will be issued to finance additional or supplemental conservation facilities at least as late as 1989. Thus this assumption ties the term of repayment to Article 24(c) of the water supply contracts, which provides that the annual capital costs of the project transportation facilities allocated to each contractor shall be repaid in not more than 50 equal annual installments of principal and interest.

Previous estimates of water charges supplied to the contractors by the Department have been based upon this maximum amortization period. If under future financial programs, it is determined that the project repayment period will terminate before 2039, the amortization period for allocated transportation capital costs during the later years of the construction period will be adjusted so as to match the actual project repayment period.

Miscellaneous Receipts

Miscellaneous receipts include the following items for each major classification of program:

1. State Utility Programs; the annual advances by The Metropolitan Water District of Southern California for excess peaking capacity it has contracted for in certain reaches of the California Aqueduct.

2. State Nonutility Programs; the annual reimbursements assumed to be provided by Legislative appropriations for the costs allocated to the purposes of recreation and fish and wildlife enhancement.

3. Federal Programs; the annual reimbursements to be provided for the costs allocated to the purpose of flood control and for the federal share of the costs of the Delta Facilities, San Luis division and San Joaquin Drainage Facilities.

These items are described in the following sections. Miscellaneous receipts also include Legislative appropriations made available prior to ratification of the Burns-Porter Act, rentals and sales of rights-of-way, and minor reimbursements credited to capital costs which were described in Chapter XI.

State Utility Programs

The standard contract provisions provide in Article 12(b) that the State shall not contract to deliver in any one month of any year a total amount of project water greater than 11 percent of each contractor's annual entitlement put to municipal use, and 18 percent of each contractor's annual entitlement put to agricultural use, as determined by the State. These percentages may be increased for a particular contractor by contract amendment, providing the contractor advances funds to cover costs of enlarging the transportation facilities. The amount of such advance is determined pursuant to Article 24(d) of the contracts.

That article also provides that the difference between the estimated costs of the reaches, had excess capacity not been provided, and the actual total costs of the reaches will be allocated to the contractor requesting such excess capacity as a final adjusted cost. Since the formula for advance of funds will normally require advance of a greater sum than the adjusted cost, the difference will be credited to the contractor's account.

Amendment No. 2 to the water supply contract with The Metropolitan Water District of Southern California was executed on February 23, 1965. Under this amendment, the State is to provide excess capacity for the District as follows:

1. In each reach of the project transportation facilities from Kettleman City to the south portal of the Carley V. Porter tunnel; 238 cubic feet per second; and

2. In each reach of the project transportation facilities exclusive of regulatory storage reservoirs from the south portal of the Carley V. Porter Tunnel to the Castaic reservoir, 809 cubic feet per second.

That amendment also amplifies the details of the calculation of advances and allocated costs generally described in Article 24(d) of the water supply contracts as follows:

1. The first annual advance of funds shall include any accumulated capital costs attributable to such increased capacity in prior years together with interest thereon at the project interest rate.

2. The differences between advances and allocated costs shall be applied to the account of the District under the capital cost component and shall be credited or debited accordingly, with interest thereon at the applicable average interest rate of the fund in which the advance is invested (estimated to be 3.5 percent per annum for the analyses of this report).

3. The connected-load charges for power resulting from the provision of excess capacity shall be paid entirely by the District and shall not be included in the minimum or variable operating costs to be allocated among all water supply contractors.

4. The minimum operating costs of each aqueduct reach in which excess capacity is provided shall be allocated among contractors by the proportionate use of facilities method of cost allocation, in accordance with Article 25 of the water supply contracts, based upon total reach capacities including excess capacity and upon maximum annual entitlements. Under this procedure, a slight reduction will be realized in the minimum operating components paid by contractors other than the District, due to economies of scale.

5. The variable operating components paid by contractors other than the District will not be increased due to the inclusion of excess capacity for the District.

The calculation of the gross annual advances and allocated costs for the excess capacities included for the District in each reach of the project transportation facilities between Kettleman City and Castaic reservoir is shown in Appendix B. These values are summarized by aqueduct division in Table 21. The last column of Table 21 presents a summary of the calculation and the application of credits for the estimated amounts of advances in excess of allocated costs. Overall credits to the District's account will accrue as shown by the negative values of that column. These annual credits totaling about $5,670,000, are herein applied to the water supply charges to the District in the years shown. They will reduce the annual revenues to be realized from State Utility Programs in those years.

State Nonutility Programs

Miscellaneous receipts are expected to accrue to the project to cover the costs allocated to the project purposes of recreation and fish and wildlife enhancement included in State Nonutility Programs. These receipts were referred to briefly in Chapter XI and are shown in Tables 18 and 19 for capital and operating costs, respectively.

Reimbursement of the operating costs of multiple-purpose features allocated to these purposes will be from the State General Fund under the provisions of the Davis-Dolwig Act. Such reimbursements have been included annually as items in the Department's budgets and have been appropriated by the Legislature, as shown in Chapter XI.

Reimbursement of the capital costs of multiple-purpose features allocated to these purposes and reimbursement of the costs of recreational lands acquired with Project Funds are herein assumed to occur in the manner provided by Assembly Bill No. 1147 of the 1965 Regular Session of the Legislature. This bill, which is described in Chapter II, would permit the Department to draw upon the portion of the State's share of tidelands oil and dry gas revenue to be deposited annually in the Central Valley Water Project Construction Fund for coverage of such costs. The magnitude of the annual deposits would be limited to $5,000,000.

The use of such deposits is herein assumed to commence in calendar year 1966. The portion of the costs of State Non-utility Programs, comprising capital costs allocated to recreation and fish and wildlife enhancement, are shown in Table 18 to total about $86,900,000. Reimbursement of this amount, and interest thereon at the future project interest rate of 3.7 percent, would be completed in calendar year 1990 with the proposed annual deposits of $5,000,000. This reimbursement schedule is developed in Column 3 of Table 22.

Federal Programs

The estimated miscellaneous annual receipts accruing to the project from Federal Programs are shown in Table 23. These are annual reimbursements which consist generally of the capital and operating costs of Federal Programs shown in Tables 18 and 19. The agreement with the Federal Government for the reimbursement of costs of Oroville Dam and reservoir allocated to flood control and a proposed similar agreement for Del Valle Dam and reservoir, provide for the payment of estimated future annual operating costs on a capitalized basis, along with payments for capital costs. The flood control reimbursements for these two features are briefly described under the subheadings that follow.

Oroville Dam and Reservoir. The Federal Government agreed to contribute toward the total costs of the Oroville division allocable to the project purpose of flood control an amount equal to 22 percent of the actual capital costs of the dam and reservoir, exclusive of the Oroville-Thermalito power facilities, not to exceed $85,000,000.[1] Federal administrative

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1/ Contract No. DA-04-167-CIVENG-62-56, DWR 152012, dated March 8, 1962.

costs and interest on the federal investment during construction are to be deducted from this value to obtain the maximum net contribution. Reimbursements to date under the contract amount to about $27,000,000. It is presently estimated that the total reimbursement, which includes the capitalized value of annual operating costs allocable to the purpose of flood control, will be about $68,530,000.

Del Valle Dam and Reservoir. A federal contribution for the flood control benefits of Del Valle Dam and reservoir, a part of the South Bay Aqueduct, has been authorized.2/ The amount of federal contribution assumed in this report has been based on the provisions of the draft of contract, currently being reviewed by the Chief of Engineers. This provides for a contribution equal to 30.7 percent of the actual capital costs of the dam and reservoir, including federal administrative costs during construction, but not to exceed $4,080,000. This limitation would determine the magnitude of the contribution under the latest cost estimates for the dam and reservoir contained in this bulletin, and is assumed for the analyses herein. The Department has asked the Corps of Engineers to review the limitation with the hope that it can be raised to reflect more realistic project costs revealed by geologic surveys and studies conducted since preparation of the estimates in 1961, which were basic to the contract draft.

The contract draft provides, in addition to the above contribution for capital costs, $776,000 for the capitalized value of annual operating costs allocable to flood control. Thus the total federal reimbursement considered herein for Del Valle Dam and reservoir is about $4,860,000.

Receipts Available for Project Financing

The total of miscellaneous receipts which will be available for financing the project are summarized in Table 27, which is described in Chapter XIII. This is a schedule supporting the financial analysis presented therein, which develops the respective annual use of these receipts for (1) coverage of general obligation bond service and (2) direct application to capital

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2/ Section 203 of the Flood Control Act of 1962, 76 Stat. 1173, authorizes a contribution substantially in accordance with the plans and subject to the conditions set forth in the report of the Chief of Engineers in Senate Document 128, 87th Congress, Second Session.

expenditures. The miscellaneous receipts in Table 27 include only reimbursements for capital costs and for those annual operating costs, which are recovered on a capitalized basis. The treatment in this report of the payments for operating costs to be made on an annual basis are described in the following paragraphs.

The only operating costs associated with State Non-utility Programs are those allocated to the purposes of recreation and fish and wildlife enhancement. As stated heretofore, these costs are being paid directly from the State General Fund under the procedures of the Davis-Dolwig Act. Thus they are excluded from the financial analysis described in Chapter XIII.

The operating costs associated with Federal Programs, which are allocated to the purposes of water supply, drainage, recreation, and fish and wildlife enhancement, are herein assumed to be paid on an annual basis. Since these annual receipts will directly offset annual operating costs, they are likewise excluded from the financial analysis.

Project Revenues

The total revenues to be realized from State Utility Programs will include those covered by water supply, power, and drainage contracts.

Water supply contracts will return with interest the State's share of the costs of facilities which are reimbursable by water supply contractors in two separate water charges: (1) the Delta Water Charge, which will return costs of project conservation facilities allocated to water supply and power generation, less Oroville-Thermalito power revenues and (2) the Transportation Charge, which will return costs of project transportation facilities allocated to water supply.

Contracts assumed herein covering the sale of Oroville-Thermalito power will return to the State with interest those costs allocated to power generation and the portion of the water supply costs credited with power revenues in the determination of the Delta Water Charges.

Drainage contracts assumed herein will return with interest the State's share of the costs of the San Joaquin Drainage Facilities.

The estimated revenues to be realized under the water supply contracts considered in this report and under assumed power and drainage contracts are summarized in Table 24 and are briefly described in the following sections.

Water Supply and Oroville-Thermalito Power

Water supply contracts executed to-date cover approximately 99.8 percent of the total capital costs included in State Utility Programs, which are allocated to water supply. As stated above, the costs and revenues associated with Oroville-Thermalito power are tied to water supply costs in the calculation of Delta Water Charges. Considering water supply and Oroville-Thermalito power as one program of the State Utility, the water supply contracts cover 87.2 percent of the associated capital costs.

Oroville-Thermalito Power Revenues. The annual revenues estimated to be realized under the future contract, or contracts, covering the sale of power and net energy generation of the Oroville-Thermalito power facilities are shown in Table 24. These total revenues are reflected in the calculation of Delta Water Charges and include revenues which may be reserved for coverage of revenue bonds. Under the formula for the unit Delta Water Charge, described under the following subheading, the calculation does not take into account the manner of financing the Oroville-Thermalito power facilities.

Delta Water Charges for Financial Analysis. Article 22(c) of the water supply contracts provides that the Delta Water Charge for each contractor shall be determined as the product of the entity's annual entitlement (for the capital cost and minimum operation, maintenance, power and replacement components) or actual deliveries (for the variable component) and the applicable unit Delta Water Charge or rate for each component. It also provides that through December 31, 1969, the unit Delta Water Charge will be $3.50 per acre-foot, without regard to components. The computation thereafter of the rate for each component of the charge is specified by a formula, also set forth in Article 22(c). For purposes of this report, these rates are computed in accordance with the following application of the formula:

1. The present worths of the annual differences between all appropriate costs and power revenues which have accrued to the time of the calculation at the future project interest rate; plus

2. The present worths of the annual differences between all estimated future costs and power revenues to be realized for authorized facilities for the remainder of the project repayment period at the future project interest rate; minus

3. The present worths of all actual annual charges under the appropriate component to the time of the calculation at the future project interest rate; the above quantities all divided by

4. The present worths of the annual entitlements remaining in the project repayment period, from the time of the calculation.

The computations of the unit Delta Water Charges applicable to project entitlements subsequent to 1969, which were used to derive the revenues shown in Table 24, are given in the tabulation that follows.

Item	Capital cost component	Operating cost components	Totals
Present worth of costs, power revenues and charges at 3.7 percent interest (in millions of dollars):			
Total cost of project conservation facilities under State Utility Programs allocated to water supply and to Oroville-Thermalito power.	747.29	74.48	821.77
Oroville-Thermalito power revenues	-351.45	- 0.00	-351.45
Delta Water Charges through 1969 ($3.50 per acre-foot applied to present worths of entitlements through 1969)	- 1.78	- 0.00	- 1.78
Net values	394.06	74.48	468.54
Present worth of annual entitlements from 1970 through remainder of project repayment period (in millions of acre-feet)	62.52	62.52	62.52
Unit Delta Water Charges (Above net value divided by present worth of remaining entitlements, in dollars per acre-foot)	6.30	1.19	7.49

The unit Delta Water Charge derived above is subdivided into rates for the capital cost and the minimum and variable operation, maintenance, power, and replacement cost components. Having the capital cost components of annual revenues, from the Delta Water Charge permits adjustment of such revenues to an accrual basis for the purposes of the financial analysis described in Chapter XIII. This in turn allows a more accurate analysis of the annual flow of revenues than that presented in Bulletin No. 132-64. It is assumed for this subdivision of charges that:

1. The fixed rate of $3.50 per acre-foot of annual entitlement through 1969 consists entirely of the capital cost component.

2. The net revenues to be derived from the sale or other disposal of electrical energy, in excess of the costs allocable to power generation, will be credited entirely to the capital cost component of the Delta Water Charge.

The above estimated rates will repay the reimbursable costs of the initial project conservation facilities and additional project conservation facilities included in the State Utility Programs analyzed in this bulletin. The facilities involved would have sufficient capacity to satisfy the project water demands described in Chapter VII for the entire project repayment period, with anticipated continuing depletions of flow in the Delta watershed. These rates reflect the necessity of presenting a complete integral or "closed" project for the purposes of the financial analysis of Chapter XIII. The conservation facilities of the State Water Resources Development System are thus assumed to develop only the yield required for the present State Water Project. The System is of course dynamic and will continue to grow after the State Water Project can no longer satisfy the demands for supplemental water supplies in California subsequent to 1990. An approximation of the effect of this growth on the Delta Water Charge is presented below.

Delta Water Charge with Expanding System. The continuing implementation of conservation facilities to meet the supplemental demands under an expanding State Water Resources Development System is reflected in the structure of the Delta Water Charge. Article 22(g) of the water supply contracts provides that upon the construction of supplemental conservation facilities, to supply water in addition to the minimum project yield and to meet local needs, the Delta Water Charge will be adjusted as necessary to recover the costs of such facilities. It further provides that the new rates will be paid by both contractors for supplemental water and contractors supplied by the present minimum project yield. These might be termed "open" unit Delta Water Charges.

The staging of construction and the sizing of future conservation facilities will be governed by physical and economic considerations involved in meeting the continuing water demands upon the System. As stated in Chapter VII, it is entirely conceivable that none of the future conservation facilities to be implemented under the System will constitute an additional project conservation facility which will exactly meet and maintain the present minimum project yield.

A schedule of future unit Delta Water Charges reflecting an illustrative future staging of additional and supplemental conservation facilities under the continuing needs of the System together with the rates derived for the purposes of the financial analysis of Chapter XIII, are shown in the following tabulation:

Applicable period	Total unit Delta Water Charge, all components: "Closed" conditions, for the purposes of this report	"Open" conditions recognizing continuing demands upon the System
	(in dollars per acre-foot of entitlement)	
1961-1969	3.50	3.50
1970-1982	7.49	7.10
1983-1990	7.49	6.80
1991-2000	7.49	6.60
2001-2005	7.49	8.40
2006 and thereafter[a]	7.49	8.40

a/ To the end of the respective project repayment periods.

In deriving the above illustrative schedule, it was assumed that the combined yield of the State Water Resources Development System from the Sacramento-San Joaquin Delta and from North Coastal streams, including the present project yield, will total about 6,900,000 acre-feet annually by the year 2020 and will remain essentially constant thereafter. It was assumed that this yield, together with the yield of existing and proposed developments by local and federal entities, would satisfy future water demands in the San Francisco Bay Area, the San Joaquin Valley, the Central Coastal Area, and Southern California.

Although the estimate of the total required yield for 2020 is based on preliminary data developed in the Department's Coordinated Statewide Planning Program, it involved an arbitrary assumption as to how much of the total future demands would be satisfied by state facilities.

The foregoing illustrative schedule is also based upon estimated construction and operation costs of the North Coastal facilities, with the indicated yield capabilities that are shown in the tabulation below. These are generally described in the Bulletin No. 136.[3/]

Additional and/or supplemental conservation facility	Yield capability acre-feet per year	Start of construction	Year of initial operation
Upper Eel River Development	800,000	1977	1986
Trinity diversion project	600,000	1983	1992
South Fork Trinity project	700,000	1991	2000
Mad-Van Duzen project	500,000	2001	2005
Lower Eel River project no. 1	600,000	2001	2009
Lower Eel River project no. 2	370,000[a/]	2006	2016
Total	3,570,000		

a/ Proportionate share of a larger facility with a total annual yield capability of 1,100,000 acre-feet.

The above staging of facilities would supply sufficient water to supplement the State's share of the diminishing yield of water from the Delta in meeting assumed demands of the State Water Resources Development System only. If cooperative state-federal North Coastal developments are constructed or if water for the State System is obtained by other means, the data on costs to the State, derived from that assumed project staging, would undoubtedly be different.

3/ Department of Water Resources, Bulletin No. 136, "North Coastal Area Investigation" (preliminary edition), dated September 1964.

The estimates of costs of the North Coastal facilities listed above are of a reconnaissance nature. They are obsolete to a considerable extent because of the relatively high values of power and energy which were considered appropriate for planning purposes at the time the estimates were made. The values utilized generally correspond with Basis "A", or high power value, assumptions for Oroville power generation, described in Bulletin No. 132-64. Since pumping and power recovery schemes were included in most of the above facilities, it is uncertain how total costs will be affected when advanced planning studies account for lower power values. More detailed studies may also result in higher construction cost estimates. For these reasons the projected unit Delta Water Charges reflecting the continuing demands upon the System may be low.

Transportation Charges. In Appendix B, revenues under the Transportation Charge are computed in detail to substantiate annual statements of charges to water supply contractors. That appendix performs the following functions:

1. It shows annual capital, minimum operating, and variable operating costs of the project transportation facilities, allocated to water supply, for each of the aqueduct reaches shown on Plates 3 and 4;

2. It sets forth the detailed criteria and factors utilized to distribute transportation costs among water supply contractors;

3. It distributes such costs among water supply contractors; and

4. It compiles comprehensive repayment schedules pursuant to the applicable standard and special provisions of each water supply contract in accordance with the project costs and other conditions set forth in this report, including the current project interest rate of 3.531 percent per annum, without regard to actual prior payments made. Adjustments for actual payments are contained in the data accompanying the statements of charges to each contractor.

Table 24 summarizes the annual values of actual or estimated revenues from the Transportation Charge. It corresponds with the data developed in Appendix B with the following exceptions:

1. Payments received through calendar year 1964, and payments to be received under outstanding statements for 1965 (billed in June 1964) and statements for 1966 (billed in June 1965) were used.

2. The future project interest rate of 3.7 percent per annum rather than the current project interest rate of 3.531 percent was utilized.

3. Overpayments or underpayments indicated for all years through 1966, with relation to charges computed on the basis of annual costs shown in Chapter XI, were accumulated at 3.7 percent per annum and algebraically added to the estimated payments for 1967.

4. Transportation Charges were terminated in the year 2030, or fifty years after the last general obligation bond issue indicated in the financial analysis of Chapter XIII, rather than in the year 2039, which would be fifty years after the last construction cost of the project transportation facilities is estimated to occur.

It should be noted that the operating cost components of the Transportation Charge, shown in Table 24, are less than the estimated total operating costs of the water transportation facilities allocated to water supply shown included for State Utility Programs in Table 19. The difference between these values comprises the operating costs associated with assumed future contractors and with excess aqueduct capacity which are borne by the project.

Drainage

The repayment structure of the drainage program of the State Utility has not as yet been established. It is arbitrarily assumed for the drainage revenues shown in Table 24 that:

1. A repayment contract will be executed with a master drainage district in the San Joaquin Valley in 1966;

2. The repayment provisions of the contract or contracts will correspond with those set forth in Article 24(c) of the water supply contract for the amortization of allocated capital costs, whereby each year's capital cost is repaid to the State in 50 equal annual installments of principal and interest at the project interest rate.

3. The first payment by the district will commence in 1967.

These assumptions generally correspond with those utilized for the estimation of drainage revenues in Bulletin Nos. 132-63 and 132-64.

Net Operating Revenues

The total estimated revenues remaining after defraying the operating costs included in the State Utility Programs are shown in Table 25. These net operating revenues must be further reduced to derive the revenues available for coverage of annual service on the general obligation bonds issued to finance the project. This derivation is also shown in Table 25. These reduced revenues are used for the financial analysis described in Chapter XIII.

Net Credits from Advances for Requested Excess Capacity

The net credits from advances made by The Metropolitan Water District of Southern California for requested excess capacity, over-and-above the allocated costs of such capacity, are herein applied to the District's capital cost components required under the Transportation and Delta Water Charges. The amounts and the timing of application of these credits are shown by the negative values in Column 13, Table 21.

Revenues Applied to Capital Expenditures

Minor amounts of project revenues have in the past been applied directly to capital expenditures. These total less than $100,000. In this analysis, they are deducted from the revenues available for coverage of bond service.

Net Operating Revenues Reserved for Coverage of Revenue Bonds

The financing program described in Chapter XIII uses $150,000,000 of revenue bond proceeds to assist in the construction of the Oroville-Thermalito power facilities. To estimate this figure, a contract or contracts for the sale of 400,000 kilowatts of Oroville-Thermalito power, which can be absorbed readily by the Northern California power load, was assumed. Therefore, the net operating revenues associated with the first 400,000 kilowatts of power are herein deducted from the total net operating revenues to compute the portion available for coverage of general obligation bond service.

Operating Costs of Federal Programs Allocated to Flood Control

The operating costs of Federal Programs allocated to flood control are recovered by the State on a capitalized basis as previously described in this chapter. These receipts are treated in the financial program as available for coverage of general obligation bond service. Therefore, the annual operating costs covered by such receipts must be paid from project revenues and are herein deducted from the net operating revenues of the project.

CHAPTER XIII. PROJECT FINANCING

This chapter discusses the present financial program for the State Water Project, on the basis of current estimates of capital expenditures and revenues. This financial program has been developed in close cooperation with the Department's financial consultants, Dillon, Read & Co. Inc.

The implementation of the financial program through the sale of securities commenced with the sale on November 21, 1963 of $50,000,000 bond anticipation notes for "Water Bonds" (the term applied to bonds authorized by the Burns-Porter Act) at an interest cost of 1.96492 percent. Since then, a total of $350,000,000 Water Bonds have been sold as tabulated below:

Series	Amount, in millions of dollars	Date of sale	"Net" interest cost	"Effective" interest cost	Maturity dates
A	100	2/18/64	3.520%	3.600%	9/1/1973 - 2013
B	50	5/5/64	3.533	3.612	5/1/1974 - 2014
C	100	10/7/64	3.585	3.627	11/1/1974- 2014
D	100	2/16/65	3.499	3.538	3/1/1975 - 2015

General Discussion

The financial program is consistent with the principles of the Burns-Porter Act, which became effective November 8, 1960, and the Governor's Contracting Principles relating to the water supply provided by the State Water Project, which were announced January 20, 1960. The implementation of the program through the sale of securities was delayed by litigation which was concluded by decisions rendered by the California Supreme Court, in Metropolitan Water District v Marquardt,[1] Warne v Harkness,[2]

1/ 59 Cal. 2d 159, 28 Cal. Rptr. 724, 379 Pac. 2d 28 (February 21, 1963).

2/ 60 Cal. 2d 579, 35 Cal. Rptr. 601, 387 Pac. 2d 377 (December 12, 1963).

and California Water Resources Development Finance Committee v Betts.[3] These decisions upheld the authority to issue the securities and also upheld the Department's position as to other relevant matters.

The principal features of the financial program are the following:

1. The major part of the financing will be accomplished by the sale of General Obligation Bonds of the State. The Burns-Porter Act authorizes the issuance of $1,750,000,000 of these bonds for the State Water Project of which $1,400,000,000 remain unsold.

2. The Department of Water Resources will issue revenue bonds to be supported by a portion of the power revenues of the Oroville-Thermalito power facilities, which are part of the State Water Project. These bonds are authorized by the provisions of the Water Code governing the Central Valley Project,[4] and the Department's authority to issue them was upheld in the decision of the California Supreme Court in Warne v Harkness.

3. The balance of the moneys required to construct the State Water Project is being provided in large part out of the California Water Fund. The Burns-Porter Act contains an appropriation of these moneys for the construction of the State Water Project, subject to the right of the Legislature to reappropriate the California Water Fund for other purposes, which right has been exercised as to a portion of the fund.

4. The remaining moneys required for the construction of the State Water Project are being provided from the following miscellaneous sources: certain State appropriations; federal reimbursements for project costs allocated to flood control and for a share of the costs of certain facilities to be used jointly with the State; advance payments by The Metropolitan Water District of Southern California for excess delivery capability and proceeds of rights-of-way rentals and sales.

3/ 60 Cal. 2d 595, 35 Cal. Rptr. 611, 387 Pac. 2d 387 (December 12, 1963).

4/ Part 3 of Division 6 of the Water Code, commencing at Section 11.100.

The financial analysis contained in Table 26 of this report shows for the period through 1964 and by years for the remainder of the construction period, or by decades for the later portions of the project repayment period, the amounts of the projected capital expenditures for the State Water Project, the sources of moneys to be applied thereto, the projected amounts of general obligation bond service, and the net operating revenues available therefor. Supplementing this information is Table 27 showing the sources in detail of the miscellaneous receipts, and the expenditures thereof, as referred to in the financial analysis.

The financial analysis has been prepared as a "working model" of the manner in which the State Water Project is expected to be financed and its costs repaid, on the basis of the Department's best estimates and assumptions at the time of preparation of this report. The figures presented in this analysis are necessarily fluid. They differ from those presented in the Department's previous report on the State Water Project, Bulletin No. 132-64, issued in June 1964, by reason of changes since that time in the design and construction schedule, notably on account of the increase in the minimum project yield from 4,000,000 to 4,230,000 acre-feet annually; in the status of water supply contracts and power negotiations; and in related factors. This report will be revised annually to incorporate changes in the figures and assumptions as they are made, and to reflect modifications of the financial program if that should prove necessary.

The State Water Project as now designed could provide a firm supply of 4,230,000 acre-feet annually to the end of the project repayment period, estimated to be about the year 2030. It has been assumed in this report that the demand for project water would reach substantially this amount by about 1990. The Department has always recognized, however, that the State's water program must be considered as a continuing one, that there may be an acceleration of demands, and that in any case the demand for water after 1990 will continue to grow beyond 4,230,000 acre-feet.

As and when it becomes necessary to enlarge the State Water Project, the Department can consider various alternative means of financing, or a combination of some or all of them. The alternative means of financing to be considered for a future enlargement of the State Water Project could include a more extended use of any or all of the supplemental sources of funds being used for or potentially available for the 4,230,000-acre-foot project, including: revenue bonds, state appropriations, federal reimbursements, advances by water supply contractors and general obligation bonds issued under a supplemental bond act.

In line with the California Supreme Court's decision in California Water Resources Development Finance Committee v Betts, relating to project financing, the service of bonds issued under such a supplemental bond act could be paid from project revenues just as in the case of bonds issued under the Burns-Porter Act.

Estimates of Capital Expenditures

The total capital cost of the State Water Project is estimated at $2,561,000,000, of which $369,000,000 had been expended through 1964, leaving $2,192,000,000 to be expended during the period 1965-1989. These amounts exclude interest during construction.

The following table gives a breakdown of this total estimated cost by major features of the project:

Major features	Actual through 1964	Projected 1965-1989	Total
	(in millions of dollars)		
Project Conservation Facilities:			
Upper Feather division	8	10	18
Oroville division (including Oroville-Thermalito power facilities)	182	278	460
Delta Facilities	4	150	154
Upper Eel River Development	0	220	220
California Aqueduct (a portion thereof including San Luis reservoir)	55	60	115
Total, Project Conservation Facilities	249	718	967
Project Transportation Facilities:			
California Aqueduct (remaining portion)	77	1,220	1,297
North Bay Aqueduct	0	9	9
South Bay Aqueduct	29	21	50
Total, Project Transportation Facilities	106	1,250	1,356
Miscellaneous Facilities:			
San Joaquin Drainage Facilities	2	102	104
Local Projects (Davis-Grunsky Program)	9	122	131
Unclassified[a]	3	0	3
Total, Miscellaneous Facilities	14	224	238
TOTAL, STATE WATER PROJECT	369	2,192	2,561

(a) Includes the costs of deleted features and the costs credited with rights-of-way sales, etc.

The foregoing excludes amounts to be expended by the Federal Government for its share of the cost of facilities constructed by it and used jointly with the State, namely, the San Luis facilities. The estimated federal expenditures for these facilities are as follows:

San Luis Facilities	Actual through 1964	Projected 1965-1969	Total
	(in millions of dollars)		
San Luis Facilities			
Project conservation facilities	52	86	138
Project transportation facilities	5	3	8
Total, San Luis Facilities	57	89	146

The foregoing estimated capital costs do not provide for the possible construction by the Department of a nuclear generating plant to supply pumping power to the project transportation facilities or for the possible construction by it of power transmission lines; both of which types of facilities have been under active consideration by the Department, but a decision as to their construction has not been made. If such facilities are constructed and are financed by revenue bonds, there should be no impact upon the financial analysis, insofar as it relates to the amounts of general obligation bond issues, of general obligation bond service, and of net operating revenues applicable thereto.

The portion of future capital costs of the project which are not covered by existing construction contracts, are estimated essentially from the multiplication of estimated quantities by unit costs at present price and wage levels. These estimates include allowances for engineering, administration and overhead, and contain allowances generally ranging between 15 and 20 percent for engineering contingencies. They do not include provision for possible increases in price and wage levels. It would not be practicable to forecast these for the balance of the construction period, which extends over about 25 years.

Burns-Porter Financing

The funds available to the State under the Burns-Porter Act consist of the proceeds of Water Bonds in the aggregate principal amount of $1,750,000,000, of which $250,000,000 had been issued through 1964, together with certain California Water Fund moneys, which are derived from payments to the State of oil and gas royalties and bonuses under certain tidelands leases.

The availability to the project of California Water Fund moneys is subject to the right of the Legislature to appropriate moneys from this fund for other purposes. This right has been exercised, resulting currently in a limitation of $11,000,000 annually being available for project construction. This is the amount which is provided in the 1965-66 state budget and in Senate Bill 60[5] relative to the disposition of tideland revenues. The $11,000,000 figure is used for projecting the portions of annual accruals to the fund to be available for project construction.

Additional amounts over-and-above the $11,000,000 annual limitation, are expected to be paid into the California Water Fund during the latter part of the construction period, from net operating revenues of the project and applied to construction. This arises from a projected excess at that time of net operating revenues of the State Water Project over then current bond service requirements, and from a provision of the Burns-Porter Act that any remainder of net operating revenues, after the payment of Water Bond service, is to be paid into the California Water Fund to the extent of construction expenditures made therefrom. The projected construction payments from the California Water Fund, and reimbursements of this fund out of net operating revenues, are shown in Table 26.

Revenue Bond Financing

Funds available to the State for financing capital expenditures in addition to Burns-Porter Act financing include the proceeds of revenue bonds issuable under the Central Valley Project Act. In line with the California Supreme Court's decision in Warne v Harkness, the pledge of revenues provided by the Burns-Porter Act does not preclude the pledge for such revenue bonds of the revenues allocable to the facilities financed by the revenue bonds. It is arbitrarily assumed for the purpose of this report that the revenue bonds proposed to be issued under the financial program will provide proceeds for construction of $150,000,000, equivalent to the cost of the Oroville division allocated to the purpose of generating 400,000 kilowatts, and will be secured by the pledge of the

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5/ Calif. Stats. First Ex. Sess. 1964, Chapter 138

revenues from the sale of this power. The assumed figure of $150,000,000 does not include proceeds to be used for the payment of interest during construction. As required by law, the amount of the revenue bond issue will provide for such interest to a date one year following the estimated completion date, for operating expenses during one year following completion, and for repayment to the State, with interest, of certain appropriations heretofore expended on the facilities.

The foregoing amount of $150,000,000 is subject to revision depending, among other things, on the outcome of negotiations for the sale of the 400,000 kilowatts of power to the Pacific Gas and Electric Company, which were in progress at the time of the preparation of this report. It cannot be compared with the total revenue bond proceeds of $267,000,000 or $217,000,000 used in Bulletin No. 132-64 on the alternative bases set forth therein, since these latter two figures related to the total dependable capacity of 710,000 kilowatts of Oroville-Thermalito power.

The Department assumes that the remaining 310,000 kilowatts of dependable capacity of Oroville-Thermalito power would be sold on the same price basis as the 400,000 kilowatts. The estimated revenues assume the marketing of the 310,000 kilowatts in Southern California and reflect the increased transmission losses and costs involved. It is further assumed that the increasing Northern California load can commence to absorb additional power in 1975 and that the portions transmitted to Southern California will be reduced in annual increments until the entire 710,000 kilowatts are marketed in Northern California in about 1980 and thereafter.

The present uncertainties attending sale on a long-term contract of the remaining 310,000 kilowatts of Oroville-Thermalito power do not permit development of a revenue bond program to finance the cost allocated to this capacity. If later developments should warrant the issuance of additional revenue bonds within the next several years, to be secured by the proceeds to be derived from the sale of all or portions of this power, the effect could be to reduce the requirements for general obligation bond financing and for general obligation bond service, and to reduce the net operating revenues available for coverage of general obligation bond service, as projected herein.

As the revenue bonds proposed to be issued under the financial program will be supported by the revenues to be derived from the sale of the 400,000 kilowatts of Oroville power to the Pacific Gas and Electric Company, neither the service on these bonds nor the revenues from this power are shown in the financial analysis. Other than as to the financing

of capital expenditures, this analysis is directed to the general obligation bond service, the net operating revenues available therefor, and the treatment of deficiencies or excesses of such revenues as compared with the general obligation bond service.

Miscellaneous Receipts

The funds available for financing the capital expenditures of the State Water Project, in addition to those provided by the Burns-Porter Act and by revenue bond proceeds, include certain miscellaneous receipts. These receipts are derived from (1) reimbursements by the Federal Government for the costs of facilities allocated to flood control and for a share of the capital costs of facilities constructed by the State and jointly used by the federal Central Valley Project and the State Water Project; (2) state appropriations made available prior to the effective date of the Burns-Porter Act and future state appropriations assumed to be made available in the manner proposed in Assembly Bill 1147; (3) advance payments by the State's water supply contractors for excess delivery capability; and (4) minor other receipts including those from the sale or rental of rights-of-way, the costs for acquisition of which are included in the capital expenditures for the project.

The costs of Oroville and Del Valle Dams and reservoirs allocated to the purpose of flood control, which is a responsibility of the Federal Government, are estimated to total $74,000,000. The facilities constructed by the State and jointly used by the federal Central Valley Project include the Delta Facilities and the San Joaquin Drainage Facilities. The share of capital costs assumed to be borne by the Federal Government for these facilities are estimated to total $100,000,000. The federal reimbursements for Oroville Dam and reservoir, although subject to revision as to the total amount and to Congressional appropriations from time to time of the unreimbursed balance, are covered by agreement between the Department and the U. S. Army, Corps of Engineers. The amounts of the other federal reimbursements are based on tentative agreements and on discussions with the concerned federal agencies.

Capital expenditures covered by state appropriations made available to the State Water Project prior to the effective date of the Burns-Porter Act total about $101,000,000.

Appropriations by the State of $5,000,000 annually for the capital costs of multiple-purpose features allocated to the purposes of recreation and fish and wildlife enhancement are proposed in Assembly Bill 1147 of the current legislative session. The Davis-Dolwig Act declares the intention of the Legislature to provide in annual budgets an appropriation from the General Fund for these purposes, which the Department estimates would exceed the assumed receipts of $5,000,000 annually. Therefore, it is believed that regardless of the fate of Assembly Bill 1147, the aforesaid assumption is a reasonable one.

The portion of the costs allocated to the purposes of recreation and fish and wildlife enhancement assumed to be covered by state appropriations total $87,000,000. The annual appropriations covering such costs, based upon the $5,000,000 limitation proposed in Assembly Bill 1147, would extend over the period 1966-1990, and would total $120,000,000, including accumulated interest charges. About $26,000,000 of the annual appropriations, assumed to be made subsequent to 1984 to reimburse these allocated costs, are ignored in the financial analysis since this amount could not be utilized to cover capital expenditures under the existing construction schedule. This amount would be available for construction of additional facilities, however.

The estimated amounts of federal reimbursements and state appropriations available for financing the project are shown in greater detail below:

Reimbursements and appropriations	Actual through 1964	Projected 1965-1989	Total
	(in millions of dollars)		
Federal reimbursements:			
Oroville Dam and reservoir-flood control	27	42	69
Del Valle Dam and reservoir-flood control	0	5	5
San Joaquin Drainage Facilities-drainage	0	31	31
Delta Facilities - water supply, recreation, and fish and wildlife enhancement	0	69	69
Total federal reimbursements	27	147	174
State appropriations:			
Various facilities - recreation and fish and wildlife enhancement	0	120	120
Less: portion ignored herein, available for construction of future facilities	0	26	26
Total use of appropriations made prior to the Burns-Porter Act	101	0	101
Total state appropriations	101	94	195

The Metropolitan Water District of Southern California, the largest water supply contractor of the State, has requested capacity in the project transportation facilities to permit delivery rates in excess of those to be provided by the State for other contractors. The District must advance to the State the additional capital costs associated with such excess capacity prior to construction of the affected facilities. The total advance by the District is estimated to be $61,000,000, with certain credits resulting therefrom applied to the annual water charges to be paid by the District.

Summary of Financing

The total funds considered herein to be available for financing the State Water Project, and the use of such funds in covering the capital expenditures, are shown in the following summary:

Item	Actual through 1964	Projected 1965-1989	Total
	(in millions of dollars)		
General obligation bond proceeds	250	1,359	1,609
Revenue bond proceeds	0	150	150
California Water Fund	142	252	394
Subtotal	392	1,761	2,153
Miscellaneous receipts:			
State appropriations	101	94 a/	195
Federal reimbursements	27	147	174
Advance payments for excess delivery capacity	0	61 b/	61
Rights-of-way rentals and sales, etc.	2	0	2
Total miscellaneous receipts	130	302	432
Deduct: amounts expended for general obligation bond service (net of interest earned on miscellaneous receipts)	0	24	24
Net miscellaneous receipts	130	278	408
Total funds available for covering capital expenditures	522	2,039	2,561
Plus (minus) carryover of temporary excess of unexpended bond proceeds and miscellaneous receipts	(153)	153	0
Total capital expenditures	369	2,192	2,561

a/ Consists of assumed reimbursements for recreation and fish and wildlife enhancement utilized in the financial analysis.

b/ Pursuant to Amendment No. 2 to water supply contract and The Metropolitan Water District of Southern California.

The application, as shown above, of a portion of the miscellaneous receipts to general obligation bond service is due to the fact that whereas the major part of the bonds will be issued during the early part of the construction period, a sufficiently high level of net operating revenues to pay the service thereon will not be attained until the latter part of the construction period. Therefore, the payment of a portion of the general obligation bond service during the construction period would fall on the State's General Fund, consisting principally of tax revenues, were it not for this application of a portion of the miscellaneous receipts.

For the period through 1964, and by years thereafter, the data contained in the foregoing table are shown in Tables 26 and 27.

Offset Bonds

Under the Burns-Porter Act, as and when California Water Fund moneys (other than those covered by prior appropriations) are expended for the construction of the initial State Water Facilities, the amount of unissued Water Bonds available for construction of these facilities is reduced in the amount of these California Water Fund expenditures. The initial State Water Facilities are defined in the Act as those comprising the State Water Project exclusive of the Upper Eel River Development. A corresponding amount of Water Bonds is reserved for additional facilities, which include the Upper Eel River Development. The bonds so reserved are frequently referred to as "Offset Bonds". This reservation of Water Bonds for additional facilities operates at the time the California Water Fund expenditures are made.

The effect is to limit the sum of Water Bond proceeds and of California Water Fund moneys expended for the construction of the State Water Facilities to the sum of (1) $1,750,000,000, plus (2) the amount of any California Water Fund moneys so expended after the combined expenditure of $1,750,000,000 from these two sources.

The expenditure of a cumulative total of $1,750,000,000 of Water Bond proceeds and California Water Fund moneys on the State Water Facilities is reached in mid-1972, which is before the completion of construction of these facilities. Thus it becomes necessary to rely upon the availability of California Water Fund moneys thereafter, or of other funds excluding Water Bond proceeds, to complete these facilities. For practical purposes, it can be said that the availability of Water Bonds for this purpose ceases in mid-1972 at which time the California

Water Fund expenditures for this purpose will have amounted to $224,000,000. This is shown in the following summary of capital expenditures, by source, on the State Water Facilities and on additional facilities, namely, the Upper Eel River Development. No Water Bonds are issued for the State Water Facilities after 1971, in which year $1,526,000,000 of these Bonds will have been issued for that purpose. The balance of the cost of the State Water Facilities is met in part by California Water Fund moneys, revenue bonds and miscellaneous receipts.

Source	State Water Facilities			Additional facilities (Upper Eel River Development)	Total State Water Project
	Through mid-1972	Mid-1972-1989	Total		
	(in millions of dollars)				
Water Bonds	1,526	0	1,526	83	1,609
California Water Fund	224[a]	136	360	34	394
Subtotal	1,750	136	1,886	117	2,003
Revenue bonds	150	0	150	0	150
Miscellaneous receipts	166	139	305	103	408
Total	2,066	275	2,341	220	2,561

a/ These expenditures create Offset Bonds.

Of the $224,000,000 of Offset Bonds created by the application of California Water Fund moneys to the construction of State Water Facilities as shown above, some $83,000,000 are used for the Upper Eel River Development. This results in a total issue of $1,609,000,000 of Water Bonds out of the $1,750,000,000 authorization. There remain some $141,000,000 of authorized but unissued Water Bonds, which are available for still further additional facilities but not for State Water Facilities as defined in the Burns-Porter Act.

The details of the computation of the amount of Offset Bonds are shown in Table 28.

Scheduling of Bond Sales

About 92 percent of the actual and projected issues of Water Bonds are expected to be sold before the end of 1970.

Water Bond issues were scheduled in Bulletin No. 132-64 so as to require a maximum annual issuance of from $180,000,000 to $200,000,000 of these bonds. The financial analysis shown in Table 26 provides for annual issues of from $200,000,000 to $270,000,000 during the 1966-69 period. Water Bonds totaling $250,000,000 were sold in 1964. A schedule of bond sales in such quantities over the next four years may require re-examination in the light of market conditions at the time, including the interest rate structure.

There will be available substantial amounts of miscellaneous receipts, as shown in Table 27, which could be used for construction in lieu of a portion of these Water Bond issues if it is found to be impracticable to issue the projected volume during the 1966-69 period. A corresponding amount of Water Bond issues would be deferred for issuance after this period, so that the total amount thereof would be unchanged. The overall effect upon the relation between general obligation bond service and the use of miscellaneous receipts for coverage thereof would not be affected materially, since the interest rate assumed to be paid on the bonds and the interest rate assumed to be earned on the accumulated amounts of these miscellaneous receipts are in the same general range. The effect of this rescheduling of Water Bond sales would be to delay somewhat beyond mid-1972, the time when California Water Fund expenditures would cease to create Offset Bonds, with the result that there could be a small deficiency of projected funds available for the completion of the State Water Facilities. This deficiency could be met out of the various alternative means of financing previously mentioned.

The initial issue of revenue bonds scheduled in Bulletin No. 132-64 for 1964 is not expected to be offered until late 1965, or early 1966 (as is assumed for purposes of this report). It is unlikely that a contract for the sale of the Oroville-Thermalito power will be executed for several months. This delay has imposed a temporary burden on general obligation bond financing. Since construction of the Oroville-Thermalito power facilities cannot be deferred pending the availability of revenue bond proceeds, a substantial portion of these proceeds will fund such construction expenditures for which the necessary moneys were previously advanced from other sources, namely the California Water Fund and Water Bond proceeds.

The annual amounts of Water Bond issues will necessarily vary, in practice, from the pattern set up in the financial program. The issues will have to be fitted in with the State's overall financial requirements in a planned marketing procedure; and from time to time the Department may again avail itself of the flexibility provided through the issuance of bond anticipation notes. It is expected that the marketing of the revenue bonds will not conflict unduly with the marketing of the general obligation bonds, since the revenue bonds will be of moderate amount in relation to the general obligation bonds and, to a considerable extent, will appeal to a different market.

The Department and the State Treasurer have consulted and cooperated in planning the timing and amounts of Water Bond sales, in the interest of orderly marketing of all state general obligation bonds. Water Bonds will have to be sold in advance of actual construction in order to maintain a prudent level of working capital. Sales may be further advanced to fit in with the needs of the State for other financing. This will provide a backlog of unexpended bond proceeds, the investment of which at short term will produce interest income approximately offsetting the interest cost involved in selling the bonds in advance of actual requirements.

Rate Structure

The development of the financial program has been predicated in large part on the rate structure, which governs the repayment of capital expenditures which are reimbursable to the State by contractors of the State Water Project. Accordingly, the following sections set forth the rate concept used for the State Water Project and adjustments and applications of the rates to produce the project revenues.

Rate Base Concept

The Department has adopted a rate concept under which the rates charged for water supply will be calculated to allow interest to the State on the reimbursable portion of the capital costs, defined as all costs incurred subsequent to authorization of a facility which are properly chargeable to the construction of and the furnishing of equipment for the facilities, and to provide for the amortization of such costs out of the net operating revenues. For this purpose, the weighted average interest rate on the Water Bonds, including bond anticipation notes, issued for the project is taken as the interest rate allowed to the State, and the capital investment includes the expenditures financed by state appropriations made prior to the effective date of the Burns-Porter Act, together with interest thereon.

Rate Formulae

Each contractor for a water supply will pay annually (1) a conservation charge, known as the Delta Water Charge, expressed as a rate per acre-foot which will be the same for all contractors, to cover the reimbursable capital and operating costs of the project conservation facilities (including the Oroville-Thermalito power facilities) and (2) a Transportation Charge to cover the contractor's allocated share of the reimbursable capital and operating costs of the project transportation facilities. In the establishment of the conservation charge, there will be deducted a power credit on account of the Oroville-Thermalito power revenues.

The Delta Water Charge is designed to amortize, with interest, over the entire project repayment period the reimbursable portion of the State's capital investment represented by each year's capital costs for project conservation facilities, together with applicable operating expenses incurred during the year, on the basis of an acre-foot rate applied to the schedule of water deliveries. In general, the Transportation Charge is designed to amortize, with interest, over the ensuing 50 years the reimbursable portion of each year's capital costs for transportation facilities, on the basis of equal annual installments, the applicable operation and maintenance expenses being added on substantially a pay-as-you-go basis. The portions of the Delta Water Charge and of the Transportation Charge which are calculated to amortize the capital investment are referred to as the capital cost components of these charges and the portions which are calculated to provide for operation and maintenance expenses are referred to as the operation, maintenance, power and replacement components.

In the case of agricultural contractors, the allocated share of the capital investment in project transportation facilities is amortized, with interest, on an acre-foot basis, similar to the method employed for the Delta Water Charge. The purpose of using this basis is to keep the Transportation Charge as low as practicable for these contractors during the early years of operation of the project, thus assisting in the sale of agricultural water and promoting the development of irrigation, including irrigation of large and potentially productive areas not now farmed. This is also in consideration of the fact that the initial payment capacity of agricultural water users is generally more limited than that of municipal and industrial users.

Unlike the general amortization pattern for the capital investment in transportation facilities, which is that of level debt service, the amortization pattern for the capital

investment in project conservation facilities, and in project transportation facilities allocated to agricultural contractors, follows generally the curve of water deliveries. Since the water deliveries will be small in the early years of operation of the project, the application thereto of an acre-foot rate determined as above produces only a small amount of revenues during these early years, which amount is insufficient to carry the interest charges on the capital investment. The balance is accumulated with interest, so that the revenues derived later in the project repayment period are calculated to be sufficient to amortize the investment with full interest.

The rate formulae are contained in the water supply contracts. Although these contracts are subject to alteration by mutual agreement (provided such alteration does not impair the rights of the holders of Water Bonds), the Burns-Porter Act provides that they may not be impaired by legislative action so long as any of the Water Bonds are outstanding.

Sales of surplus water, primarily to agricultural contractors, are not covered in the foregoing rate formulae and are not considered in the financial analysis, as it is intended that the payments by water supply contractors therefor will defray currently the costs of delivering the surplus water.

Adjustment of Delta Water Charge for Supplemental Facilities

For the initial period through 1969, the Delta Water Charge is set at $3.50 per acre-foot. Thereafter a rate is calculated for the remainder of the project repayment period. This amounts to $7.49 per acre-foot. In the event of the construction of supplemental conservation facilities to supply water to the contractors in addition to the estimated project yield of 4,230,000 acre-feet a year, the Delta Water Charge will be recalculated to take into account the cost of these supplemental facilities.

Under the existing water supply contracts, Water Bonds may be used for financing the construction of such supplemental conservation facilities only after 1985. If and when this construction is undertaken and bonds are issued therefor, the project repayment period used in determining the Delta Water Charge will be extended to take into account the maturities of these bonds. In that case, as a result of the redetermination of the Delta Water Charge, the capital investment in the

conservation facilities comprising the present project (i.e. for an estimated project yield of 4,230,000 acre-feet a year) may not be amortized fully within the project repayment period used in this study.

Effect of Revenue Bond Financing on Delta Water Charge

No effect on the unit Delta Water Charge or rate ensues from the use of revenue bonds. Under the formula for this charge, as implemented in the existing water supply contracts, the calculation of the rate does not take into account the manner of financing the Oroville-Thermalito power facilities. The valuation of Oroville-Thermalito power does affect this charge, however, since the market value of the power is applied as a credit in the calculation of the rate.

Revenues Calculated From Formulae

The application of the rate formulae produces net operating revenues as shown below for the year 1990, when deliveries are expected to reach substantially the project yield of 4,230,000 acre-feet annually:

Facilities	Operating revenues	Operation, maintenance, power and replacement expenses	Net operating revenues
	(in millions of dollars)		
Project conservation facilities (including Oroville-Thermalito power in excess of 400,000 kilowatts)	37	5	32
Project transportation facilities	102	45	57
San Joaquin Drainage Facilities[a]	4	1	3
Total	143	51	92

a/ Revenues calculated on the basis of the general level debt service formula which is used for the calculation of the Transportation Charge.

Operation, maintenance, power and replacement expenses, shown above exclude the amounts of such expenses allocated to recreation and fish and wildlife enhancement or attributable to the Federal Government's share of the cost of operation of joint facilities, i.e., the San Luis Facilities, Delta Facilities, and San Joaquin Drainage Facilities. These amounts are assumed to be reimbursed to the State Water Project and are shown below for the year 1990:

Reimbursements	Recreation and fish and wildlife enhancement	Joint facilities	Total
	(in millions of dollars)		
State appropriations	2	0	2
Federal reimbursements	0	3	3
Totals	2	3	5

It is assumed that the foregoing state appropriations are to be made out of the General Fund, pursuant to the Davis-Dolwig Act, and the federal reimbursements made on the basis of proposed agreements which are under discussion with the Federal Government.

The project will derive revenues from sale of the first 400,000 kilowatts from the Oroville-Thermalito power facilities in addition to the foregoing net operating revenues. These revenues are dedicated, under the financial program, to the repayment of the revenue bonds so long as any of them are outstanding. Under the California Supreme Court decision in Warne v Harkness, the availability of these revenues, after retirement of the revenue bonds, for the purposes set forth in the Burns-Porter Act, including the service of the Water Bonds, would depend upon future legislative action. Therefore these revenues are not treated as so available in this report.

The break-down by approximate percentages of the major classifications of 1990 operating revenues among the principal contractors of the project is shown below:

Contractor	Project conservation facilities[a]	Project transportation facilities
The Metropolitan Water District of Southern California	40%	68%
Kern County Water Agency	23	9
Antelope Valley-East Kern Water Agency	3	4
San Bernardino Valley Municipal Water District	2	4
Other 27 water supply contractors	17	15
Future contractor(s) for 310,000 kilowatts of Oroville-Thermalito power	15	0
Totals	100%	100%

a/ Including Oroville-Thermalito power in excess of 400,000 kilowatts.

Table 25 sets forth by years information with respect to the amounts of net operating revenues, as calculated from the rate formulae, applicable to the service of the Water Bonds. Because it is assumed for purposes of calculation that the future Water Bond issues for each year will be sold on January 1 of that year, and the amounts of service thereon are on a calendar year accrual basis, the net operating revenues used in the financial analysis are adjusted to a similar accrual basis. This is accomplished by treating the semi-annual payments which are due on January 1 of each year, on account of the capital cost component of the Delta Water Charge and the Transportation Charge, as having accrued during the last six months of the preceding calendar year, and the semi-annual payments which are due on July 1 of each year as having accrued during the first six months of the then current calendar year.

The capital cost component of the Transportation Charge is essentially equivalent to the net operating revenues resulting from the charge since the reimbursable operating expenses of the project transportation facilities are returned to the State by contractors on a pay-as-you-go basis. The same is assumed to be true for the revenues to be realized from the San Joaquin Drainage Facilities.

The calculation of future revenues uses an assumed project interest rate of 3.70 percent. This rate is derived on the assumption that future Water Bond issues will be sold at a net interest cost of 3.75 percent, which compares with an average of about 3.53 percent for the outstanding Water Bonds. The assumed project interest rate of 3.70 percent is a weighted average of the actual interest cost on outstanding bond issues and the assumed interest cost of 3.75 percent on future issues.

The future project interest rate would not reach the assumed level of 3.70 percent until the completion of all Water Bond sales if the assumption of a net interest cost of 3.75 percent for future Water Bond issues were exactly realized. This is because in practice the weighted average interest cost is computed from time to time and can take into account only the interest costs on then outstanding bond issues. However, this statistical treatment is compensated over the project repayment period as a whole by reason of the provision for adjustments in the charges to water supply contractors and is also balanced in part by the treatment which is followed in projecting the annual service on future issues of Water Bonds, as explained hereinafter.

The foregoing discussion of revenues has excluded from consideration any possible recoveries under the Davis-Grunsky Program of loans and grants for local projects. Under the Burns-Porter Act, $130,000,000 is set aside exclusively for this program. Each Davis-Grunsky loan is specific as to the borrowing agency's loan service and repayment obligation. The total amount of loans to be made under the program and the amortization schedule on which the State will recover such loans cannot be determined at this time. For these reasons, no payments of interest or principal on loans made under the Davis-Grunsky Program are included in the projections herein.

Pledge of Revenues

The Water Bonds authorized by the Burns-Porter Act are general obligations of the State, for the payment of which, as to principal and interest, there is pledged the full faith and credit of the State and also, with certain exceptions, the net revenues of the project. The Burns-Porter Act provides that the State is obligated to collect annually, in the same manner and at the same time as other state revenue is collected, such a sum, in addition to the ordinary revenues of the State, as shall be required to pay the principal of and interest on the Water Bonds to the extent they cannot be paid from project revenues.

The California Supreme Court, in Warne v Harkness, held that revenues derived from project facilities constructed with the proceeds of Central Valley Project Act revenue bonds can be pledged to the support of such revenue bonds. This decision supports the 1960 opinion of the California Attorney General[6] that the revenues which are pledged by the Burns-Porter Act to the payment of the Water Bonds constitute solely the portion of the revenues which is allocable to the facilities, or portions thereof, constructed out of funds provided by the Burns-Porter Act, namely, proceeds of such bonds and California Water Fund moneys. Thus, if additional general obligation bonds are issued under a supplemental bond act to finance the completion of construction or the enlargement of the project, they can also be serviced out of those net revenues of the project which are allocated to the facilities, or portions of facilities financed by such additional bonds.

The Burns-Porter Act directs the application of the net revenues pledged thereby, after the payment of current Water Bond service, to the reimbursement of (1) the General Fund, with simple interest, at the rate borne by the Water Bonds, for previous advances therefrom for the service of the Water Bonds, and (2) the California Water Fund, without interest, for payments of capital costs made therefrom. If additional general obligation bonds are issued on a self-supporting basis, this could be accomplished by a provision in the supplemental bond act therefor that the application of any available revenues to their service would take precedence over reimbursement of the California Water Fund. After reimbursement of the California Water Fund, any remaining net revenues become available under the Burns-Porter Act for further construction of the State Water Resources Development System.

Pattern of General Obligation Bond Service

The Burns-Porter Act provides that each issue of the Water Bonds must commence to mature not later than ten years after issuance, with a final maturity not later than 50 years after issuance. As the rate formulae for sales of water to be delivered by the project are intended to amortize, over not less than 50 years, the State's capital investment represented by reimbursable expenditures, it is necessary that the repayment of the bonds be likewise scheduled over a long period in order to make the Water Bonds revenue-supported. A bond service

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6/ 36 Ops. Cal. Atty. Gen. 160 (1960).

pattern which is considered appropriate to the revenue pattern is obtained by providing no maturities until the tenth anniversary after issuance, with maturities scheduled so as to produce approximately level annual service for the last 41 years from the time of issue.

It has been assumed in this report that future Water Bond issues will be sold at a net interest cost of 3.75 percent, as previously stated. Due to the bidding regulations used in the sale of the Water Bonds as well as of other state bonds, the coupon rates for the early maturities of Water Bonds as specified by the bidders normally exceed, and those for the late maturities fall below, the average coupon rate. The net interest cost as calculated under the bidding regulations is normally below the "effective" interest cost, which measures the cost of amortizing the issue and is calculated with the aid of compound interest.

Based on the historical record for the last two Water Bond issues, a net interest cost of 3.75 percent would produce an "effective" cost of about 3.80 percent, with a somewhat higher average initial coupon rate. As it is proper to credit the interest cost for the first year with interest earned on temporarily unexpended bond proceeds, the following rates of service are used in this study for all future general obligation bond issues: first year, 2.60 percent, (reflecting credit for interest earned); next eight years, 3.90 percent (assumed initial average coupon rate); remaining 41 years, 4.826 percent (interest plus amortization to produce overall "effective" cost of 3.80 percent). It is believed that these rates as applied to the first nine years of the life of each issue are slightly overstated, but this is compensated over the project repayment period as a whole by the rate used for the remainder of the life of the issue.

It may be expected that the interest cost on general obligation bonds maturing over a 50-year period, such as the Water Bonds, will continue to be higher than that which would apply on the State's other bond issues, if the maturities of the latter are scheduled, as has usually been the case, over a period not exceeding 26 years. In the 1920's, when the tax advantages of state and municipal bonds were small compared with what they are now, the State rarely had to pay on its borrowings a rate as high as four percent. The year 1959 was the first since 1933 in which the State had to pay a rate as high as four percent on its bond sales, and more recently the rate has been considerably lower. Therefore, the Department, in its calculations, has assumed an overall tax-exempt interest rate of 3.75 percent for the Water Bonds to be hereafter issued.

On the foregoing basis, giving effect to the debt service requirements on outstanding issues and to the proposed schedule of issuance, the annual service on general obligation bonds to be issued for the project would be as shown in Table 29.

Refunding

Although the Burns-Porter Act contains no provision for refunding the bonds, they could, of course, be refunded under a supplemental bond act as to one or more series. The Water Bonds which have been issued to date include a provision which permits refunding by redemption in 1983 or thereafter.

For the convenience of bondholders, there are included in this report Tables 30 and 31 setting forth, respectively, the maturities and coupon rates of the outstanding Water Bond issues and the redemption provisions thereof.

Revenue Bonds

The revenue bonds, as planned, will mature over a period of not exceeding 50 years from their date, with fixed retirements in the form of serial maturities and sinking fund payments, calculated to produce approximately level annual bond service. The interest rate can be expected to be higher than that obtainable on the State's general obligation bonds.

It is assumed that there will be a power contract or contracts covering the sale of Oroville-Thermalito power, extending over the period to final maturity of the bonds. Under the Central Valley Project Act, a power contract made with other than a state agency must be cancellable by the Department upon five years' notice, if and when the State or any financially responsible state agency makes application for the power, but only if the applicant enters into a contract whereby the State receives a total revenue or consideration at least equal to that which it would have received under the original contract. As the revenue bondholders will thus be protected by statute in respect of the amount of revenues available to service their bonds, it is believed that this provision of the Central Valley Project Act, while no doubt affecting the negotiations for the sale of the power, will not constitute a serious impediment to the marketing of the bonds.

For the reasons which have been stated in this report, the financial analysis herein excludes a detailed analysis of the amount of revenue bonds issuable for the Oroville-Thermalito power facilities, of the revenues applicable thereto and of the

amortization schedule. Since these bonds will be set up on a self-supporting basis, this detailed analysis with respect to revenue bonds is not needed for the purpose of the present report, or in order to evaluate the financial program with respect to the Water Bonds.

Summary of Financial Analysis

The financial analysis shows that on the basis of the projections therein, the net operating revenues, together with certain other moneys available for general obligation bond service, are sufficient at all times to take care of the entire general obligation bond service, thus creating no impact upon the General Fund for this purpose. It also shows a substantial remainder, following the completion of the construction period, of net operating revenues after providing for bond service.

The following summary has been prepared from the financial analysis shown on Table 26:

Item	1961-1970	1971-1980	1981-1990	Balance of project repayment period	Total
	(in millions of dollars)				
Net operating revenues	140	648	855	3,078	4,721
General obligation bond service	203	666	765	2,060	3,694
Less: portion paid from miscellaneous recipts (including interest earned thereon)	63	18	0	0	81
Portion paid from net operating revenues	140	648	765	2,060	3,613
Remainder of net operating revenues	0	0	90	1,018	1,108
Reimbursement of California Water Fund	0	0	90	304	394
Available for further construction	0	0	0	714	714

The amounts of net operating revenues available for further construction, remaining after reimbursement of the California Water Fund reflect principally the accumulation, in the revenue formulae, of interest on capital expenditures financed by the California Water Fund and the repayment, with interest, of expenditures financed from funds provided prior to the effective date of the Burns-Porter Act. These remaining amounts of net operating revenues under the Burns-Porter Act, would be applied to the construction of additional facilities of the State Water Resources Development System.

It has been stated that the availability after retirement of the revenue bonds of Oroville-Thermalito power revenues pledged therefor for application under the Burns-Porter Act

would depend upon future legislative action. If these revenues are made so available, the reimbursement of the California Water Fund would be accomplished earlier than has been indicated above, and the amounts of net operating revenues, available for further construction, remaining after such reimbursement would be materially increased.

TABLE 1

CONSTRUCTION CONTRACTS
AS OF FEBRUARY 1, 1965

SPECIFICATION NUMBER	CONTRACT	CONTRACTOR	TOTAL COST (in dollars)	DATE STARTED	DATE COMPLETED	PERCENT COMPLETE FEB. 1, 1965
	UPPER FEATHER DIVISION					
59-19	Frenchman Dam & reservoir	Isbell Construction Company Reno, Nevada	1,725,827	Sep. 15, 1959	Oct. 18, 1961	100
62-04	Frenchman Dam - Road Relocations	Isbell Construction Company Reno, Nevada	258,293	Jul. 21, 1962	Nov. 16, 1962	100
62-20	Antelope Valley Dam & reservoir	Norman I. Fidel, Inc. & Granite Construction Company Eureka, California	2,909,774*	Aug. 28, 1962	Jul. 28, 1964	100
63-14	Recreation Access Road near Frenchman reservoir	A. Teichert & Son, Inc. Sacramento, California	326,138*	Sep. 20, 1963	Jul. 7, 1964	100
64-22	Grizzly Valley Dam & Lake Davis	Pascal and Ludwig Upland, California	1,833,131	Oct. 20, 1964		1
	Division Total		7,053,163			74
	OROVILLE DIVISION					
57-3TC-38Y	U.S. 40A, Wicks Corner to Jarbo Gap	McCammon-Wunderlich San Diego, California	8,546,738	June 1957	Dec. 16, 1960	100
Agreement No. 351653	Poe Siding (Administered by W.P.R.R.)	Morrison-Knudsen Company Oroville, California	508,588*			100
57-03	Western Pacific R.R. - Tunnels Nos. 4 & 5	Peter Kiewit Sons' Company Omaha, Nebraska	10,417,600	May 24, 1957	Dec. 30, 1960	100
57-13	Western Pacific R.R. - North Fork Bridge	Pacific Bridge Company Alameda, California	1,580,940	Feb. 10, 1958	Jun. 29, 1960	100
58-01	Western Pacific R.R. - Feather River Bridge	John C. Gist Sacramento, California	1,293,159	Apr. 29, 1958	Mar. 16, 1960	100
59-16	Western Pacific R.R. - Tunnels Nos. 2 & 3	Gordon H. Ball, Gordon H. Ball, Inc., and Ball & Simpson Danville, California	6,236,000	Aug. 11, 1959	Sep. 8, 1961	100
60-07	Western Pacific R.R. - Tunnel No. 1	Frazier-Davis Construction Company St. Louis, Missouri	1,951,632	Aug. 1, 1960	Nov. 3, 1961	100
60-08	Western Pacific R.R. - Grading Oroville to West Branch Bridge	Gordon H. Ball, Gordon H. Ball, Inc., and Ball & Simpson Danville, California	4,043,180	Sep. 15, 1960	Apr. 20, 1962	100
60-14TC16-Y	U.S. 40A - West Branch Bridge	Stolte & Morrison-Knudsen Oakland, California	8,620,000	Nov. 10, 1959	Feb. 20, 1962	100
60-21	Western Pacific R.R. - Western Union Telegraph Line Relocation	Coopman Electric Company San Francisco, California	262,352	Oct. 28, 1960	Aug. 2, 1962	100
61-05	Diversion Tunnel No. 1	Frazier-Davis Construction Company St. Louis, Missouri	6,193,685*	Aug. 18, 1961	Jan. 16, 1964	100
61-15	Palermo Outlet Works	Morrison-Knudsen Company Oroville California	801,118	Nov. 16, 1961	May 7, 1963	100
61-17	Western Pacific R.R. - Section Headquarters	El Rey Builders, Inc. Van Nuys, California	168,324	Dec. 11, 1961	Jul. 13, 1962	100
61-21	Waterproofing North Fork and Feather River Bridges	Sacramento Roofing & Insulation Company, Inc. Sacramento, California	16,658	Jan. 3, 1962	Mar. 30, 1962	100
62-01	Feather River Hatchery - Interim Facilities	Frazier-Davis Construction Company St. Louis, Missouri	1,096,726*	Mar. 16, 1962	May 8, 1964	100
62-3T3C26	U.S. 40A - Oroville to Wicks Corner	Harms Bros. & Lord & Bishop, Inc. Sacramento, California	3,741,510*	Jan. 4, 1962	Jan. 16, 1964	100
63-3T13C1	U.S. 40A - Approaches & Surfacing West Branch Bridge	Baldwin Construction Company Marysville, California	222,241	Mar. 22, 1962	Sep. 26, 1962	100
62-05	Oroville Dam, Diversion Tunnel No. 2, & Thermalito Diversion Dam	Oro Dam Constructors Oroville, California	120,863,333*	Aug. 13, 1962		58
62-11	Oroville Seismograph Station	El Rey Builders, Inc. Van Nuys, California	39,469	Jul. 23, 1962	Oct. 26, 1962	100
62-13	Left Abutment Access Road	Piombo Construction Company San Carlos, California	549,400	Jul. 14, 1962	Apr. 9, 1963	100
62-27	Oroville Construction Headquarters	A. Teichert & Son, Inc. Sacramento, California	938,000*	Nov. 16, 1962	Oct. 25, 1963	100
62-30	Middle Fork Bridge	Bethlehem Steel Company San Francisco, California	4,436,104*	Feb. 11, 1963		92
63-04	Employee Housing	Nomellini Construction Company Stockton, California	659,095*	Jul. 9, 1963	May 13, 1964	100
63-05	Turbines & Pump Turbines - Oroville Powerplant	Allis-Chalmers Mfg. Company York, Pennsylvania	7,238,791*	Jun. 17, 1963		9
63-06	Oroville Powerplant	McNamara Corp. & G.A. Fuller Company Burlingame, California	18,366,780*	Jun. 24, 1963		35

*Bid amount.

TABLE 1 (Continued)

CONSTRUCTION CONTRACTS
AS OF FEBRUARY 1, 1965

SPECIFICATION NUMBER	CONTRACT	CONTRACTOR	TOTAL COST (in dollars)	DATE STARTED	DATE COMPLETED	PERCENT COMPLETE FEB. 1, 1965
	OROVILLE DIVISION (continued)					
63-11	Modification & Repairs to Powers Canal	Baldwin Construction Company Marysville, California	24,262	Mar. 28, 1963	May 7, 1963	100
63-35	Oroville to Quincy County Road - Forbestown Road to Middle Fork Bridge	Piombo Construction Company San Carlos, California	1,053,196*	Dec. 20, 1963		75
63-38	Construction Overlook Modifications	A. Teichert & Son, Inc. Sacramento, California	114,280	Dec. 18, 1963	May 15, 1964	100
63-36	Powers Canal Repair & Added Construction	Harms Bros. Sacramento, California	65,984	Dec. 20, 1963	Mar.10, 1964	100
63-39	Thermalito Powerplant Pump Turbines, Kaplan Turbine and Governors	Allis-Chalmers Mfg. Co. York, Pennsylvania	3,766,785*	Feb. 25, 1964		11
64-13	Oroville Powerplant 114-inch Spherical Valves	Baldwin-Lima-Hamilton Corp. Philadelphia, Pa.	2,259,760*	Mar. 27, 1964		41
64-17	Pioneer Cemetery and Grave Relocations	Frank P. Donovan Sacramento, California	67,714	Jun. 11, 1964	Sep. 2, 1964	100
64-19	Oroville Powerplant Bridge Cranes	Star Iron & Steel Company Tacoma, Washington	299,950	Jun. 26, 1964		13
64-16	Oroville Powerplant Generators and Motor Generators	Westinghouse Electric Corp. Sacramento, California	6,427,899	Jul. 3, 1964		11
64-25	Thermalito Diversion Dam Slide Gates	Rodney Hunt Manufacturing Co. Framingham, Mass.	20,876*	Jun. 29, 1964		75
64-26	Thermalito Diversion Dam Fixed Dispersion Cone Valve	Willamette Iron & Steel Co. Portland, Ore.	24,004*	Jun. 25, 1964		22
64-30	Headquarters & Employee Housing Landscaping	Frank M. Smith Eureka, California	37,043*	Jul. 24, 1964	Oct.15, 1964	100
64-44	Bidwell Bar Emergency Crossing	Frank P. Donovan Santa Maria, California	31,189	Sep. 28, 1964	Nov.24, 1964	100
64-31	Thermalito Power Canal Relocations	Osborn Construction Company Redding, California	935,480*	Oct. 30, 1964		20
64-37	Thermalito Power Plant	Guy F. Atkinson Company So. San Francisco, California	15,248,037*	Dec. 4, 1964		0
64-43	Thermalito Diversion Dam Radial Gates & Hoists	Berkeley Steel Construction Co., Inc. Berkeley, California	751,000*	Dec. 11, 1964		1
64-51	Temporary Access Road-Middle Fork Bridge to Existing County Road	Crooks Brothers Construction Co. Fair Oaks, California	327,904*	Dec. 3, 1964		34
	Division Total		240,246,786			59
	SOUTH BAY AQUEDUCT					
59-22	Interim Canal, Forebay Pumping Plant & Bethany Dam**	O.K. Mittry & Sons Gardena, California	876,339	Nov. 25, 1959	Mar. 9, 1961	100
60-01	South Bay Pumping Plant	Fred J. Early, Jr. Company, Inc. Torrance, California	869,157	May 26, 1960	May 23, 1962	100
60-14	Pumping Units - South Bay & Forebay Pumping Plants	Fairbanks-Morse & Company Sacramento, California	101,324	Sep. 9, 1960	Aug. 7, 1962	100
60-15	Surge Tank to Patterson Reservoir	Case-Hood Whittier, California	3,204,072	Nov. 15, 1960	Aug. 8, 1962	100
62-08	Asphalt Lining - Interim Canal	Capitol Roofing Company, Inc. Sacramento, California	38,703	Mar. 19, 1962	Apr. 9, 1962	100
62-12	Alameda Division Canal	McGuire & Hester Oakland, California	1,420,018	Aug. 7, 1962	Aug.27, 1963	100
62-15	Mortar Lining - Interim Canal	Sacramento Gunite Company Sacramento, California	9,902	Jun. 1, 1962	Jun. 8, 1962	100
62-35	Project Maintenance Headquarters	Red Feather Construction Company Hayward, California	38,104	Jan. 22, 1963	Jun.14, 1963	100
63-02	Instrumentation & Control	Darrel E. Jordon Fullerton, California	57,149	May 27, 1963	May 15, 1964	100
63-03	La Costa & Mission Tunnels	Peter Kiewit Sons' Company Omaha, Nebraska	2,679,194*	Apr. 9, 1963	Aug.18, 1964	100
63-12	Forebay Pump Procurement	Fairbanks-Morse & Company Sacramento, California	21,048*	Apr. 11, 1963		100
63-13	South Bay Pump Procurement	Peerless Pump Division Sacramento, California	108,300*	Apr. 11, 1963		100
63-15	Installation of Additional Pump Units-South Bay & Forebay Pumping Plants	Fred J. Early, Jr. Company, Inc. Torrance, California	88,222	Jul. 25, 1963	Jun.15, 1964	100
63-16	Del Valle & Sunol Pipelines	U. S. Steel Corporation South San Francisco, California	3,685,315*	Jul. 10, 1963		97

*Bid amount.
**Feature of the California Aqueduct.

TABLE 1 (Continued)

CONSTRUCTION CONTRACTS
AS OF FEBRUARY 1, 1965

SPECIFICATION NUMBER	CONTRACT	CONTRACTOR	TOTAL COST (in dollars)	DATE STARTED	DATE COMPLETED	PERCENT COMPLETE FEB. 1, 1965
	SOUTH BAY AQUEDUCT (continued)					
63-24	Floor Surfacing - South Bay Pumping Plant	Kivah Corporation Sacramento, California	4,546	Aug. 22, 1963	Sep. 19, 1963	100
63-31	Patterson Reservoir Repair	McGuire & Hester Oakland, California	24,865	Aug. 24, 1963	Sep. 23, 1963	100
63-33	Pump Units Nos. 8 & 9 - South Bay Pumping Plant	Johnston Pump Company Pasadena, California	129,021*	Oct. 24, 1963		100
63-34	South Bay Pumping Plant - 2nd Stage	S&Q Construction Company South San Francisco, California	592,777*	Oct. 22, 1963		96
63-40	30-Inch Discharge Valves - South Bay P.P. - 2nd Stage	Chapman Valve Mfg. Company Emeryville, California	52,921*	Feb. 25, 1964		100
63-41	South Bay Pumping Plant to Dyer Canal-2nd Stage	Green Construction Company & Winton Bros. Company San Mateo, California	1,202,055*	Jan. 23, 1964		97
64-03	Dyer Canal Check Structure	Roen Construction Company Danville, California	29,938*	Feb. 28, 1964	Dec. 14, 1964	100
64-04	Niles & Santa Clara Division Pipeline	Kaiser Steel Corp. Oakland, California	4,070,660*	Apr. 9, 1964		80
64-24	Santa Clara Terminal Facilities	McGuire and Hester Oakland, California	1,111,111	Jun. 17, 1964		83
64-49	Modification of Patterson Reservoir	A. Teichert & Son, Inc. Sacramento, California	61,360	Dec. 4, 1964		31
64-53	Grout Sealing Misson Tunnel	The Prepakt Concrete Company Cleveland, Ohio	35,948*	Jan. 11, 1965		50
	Total South Bay Aqueduct		20,512,049			94
	NORTH SAN JOAQUIN DIVISION					
63-01	1st Stage Construction, Sta. 2500 to Sta. 3000	Eugene Luhr Company & Elmer G. Wendt Rio Vista, California	885,469	Feb. 8, 1963	Dec. 5, 1963	100
63-21	Delta Seismograph Station	Chas. I. Cunningham Company Oakdale, California	2,999*	Oct. 5, 1963	Jan. 3, 1964	100
63-22	Intake Channel - Sta. 85+00 to Sta. 174+50	Peter Kiewit Sons' Company Omaha, Nebraska	5,955,761	Jul. 27, 1963	Oct. 26, 1964	100
63-28	1st Stage Construction, Sta. 175 to Sta. 655	Morrison-Knudsen Company Southgate, California	1,657,542*	Sep. 6, 1963	Nov. 20, 1964	100
64-02	Aqueduct-Del Puerto Canyon Road to Orestimba Creek	Western Contracting Corp. Sioux City, Iowa	7,775,441	May 11, 1964		8
64-10	Delta Pumping Plant -- Pumps	Newport News Shipbuilding and Drydock Company Newport News, Va.	1,621,365	Jun. 30, 1964		1
64-20	Delta Pumping Plant Bridge Crane	American Crane and Hoist Corp. Downey, California	90,000*	Aug. 11, 1964		8
64-08	Delta Operation and Maint. Facilities Phase I	Baldwin - Warren Co., Inc. San Francisco, California	1,144,035*	Aug. 12, 1964		32
64-09	Delta Pumping Plant - Initial Contract	Guy F. Atkinson Company So. San Francisco, California	6,332,053*	Aug. 25, 1964		7
64-28	Aqueduct - Orestimba Creek to San Luis Forebay	Western Constructing Corp. Sioux City, Iowa	12,694,128*	Sep. 3, 1964		0
	Division Total		38,158,793			26
	SOUTH SAN JOAQUIN DIVISION					
63-18	Drilling & Developing Two 16-inch Water Wells	Midway Drilling & Pump Company Saticoy, California	152,008	Jun. 24, 1963	Dec. 16, 1963	100
63-32	Preconsolidation Features-Standard Oil Co. Rd. to Grapevine Cr. (Mi. 284 to Mi. 289)	Pascal & Ludwig Upland, California	610,539*	Nov. 8, 1963		99
64-36	Pumps, Motors and Structures for Water Wells	Pylon, Inc. Compton, California	172,100*	July 30, 1964		91
64-21	Preconsolidation Features Wheeler Ridge Pumping Plant to Standard Oil Co. Rd. (Mi. 279 to Mi. 284)	William H. Schallock Bakersfield, California	874,670*	Jun. 22, 1964		81
64-41	Preconsolidation Features Lerdo Highway to Turman Road (Mi. 217 to Mi. 238)	Peter Kiewit Sons' Company Arcadia, California	2,213,629*	Nov. 18, 1964		9
64-46	Preconsolidation Features Buena Vista Pumping Plant to Wheeler Ridge Pumping Plant (Mi. 256 to Mi. 279)	Eugene Luhr & Company and Hood Corp. and Hood Construction Co. West Sacramento	3,910,386*	Jan. 2, 1965		2
	Division Total		7,933,332			24

*Bid amount.

TABLE 1 (Continued)

CONSTRUCTION CONTRACTS
AS OF FEBRUARY 1, 1965

SPECIFICATION NUMBER	CONTRACT	CONTRACTOR	TOTAL COST (in dollars)	DATE STARTED	DATE COMPLETED	PERCENT COMPLETE FEB. 1, 1965
	TEHACHAPI DIVISION					
63-19	Tehachapi Access Roads	William H. Schallock Bakersfield, California	572,306	Jul. 9, 1963	Jun. 17, 1964	100
64-34	Carley V. Porter Tunnel, Phase I	J.F. Shea Co., Inc. Redding, California	1,170,604*	Jul. 22,1964		82
	Division Total		1,742,910			88
	SAN LUIS DIVISION (Major U.S.B.R.Contracts)					
	Detour of State Highway Route 152	James H. Harrison San Ardo, California	287,269*	Aug. 13,1962	Feb. 9, 1963	100
	Preconsolidation - Reach 2	Wilmoth Construction Company Fresno, California	266,131*	Oct. 24,1962	Jan. 22, 1963	100
	Pump-Turbines - San Luis Pumping-Generating Plant	Hitachi, New York, Ltd. New York, New York	3,221,813*	Nov. 20,1962		32
	Relocation of State Highway Route 152 (Administered by California Division of Highways)	McNamara & Mannix Burlingame, California	12,030,208*	Jan. 25,1963		90
	Preconsolidation - Reach 3	Eugene Luhr Co. & Elmer G. Wendt Rio Vista, California	1,230,027	Feb. 8,1963	November 1963	100
	San Luis Dam, Pumping-Generating Plant and Forebay Dam	Morrison-Knudsen Company, Utah Construction & Mining Company, and Brown & Root Southgate, California	85,926,608*	Feb. 4,1963		60
	Pumps - Mile 18 Pumping Plant	English Electric Company New York, New York	2,039,250*	Jun. 10,1963		50
	San Luis Canal - Reach 1	Guy F. Atkinson Company San Francisco, California	16,493,785*	Jun. 5,1963		70
	San Luis Canal - Reach 2	Morrison-Knudsen Company and Utah Construction & Mining Company Southgate, California	11,946,556*	Aug. 30,1963		30
	Mile 18 Pumping Plant	Stolte, Sundt & Santa Fe Oakland, California	8,972,555*	Sep. 18,1963		51
	Los Banos Creek Detention Dam	Guy F. Atkinson Co. San Francisco, California	3,556,954	May 19,1964		30
	San Luis Canal Reach 3	Peter Kiewit Sons' Co. Omaha, Neb.	24,175,380	Dec. 5,1964		0
	Transformers for Mile 18 P.P. and San Luis Pumping Generating Plant	General Electric Company Pittsfield, Mass.	1,345,716	Aug. 27,1964		3
	Division Totals, State share	94,320,739				
	Federal share	77,171,513				
	Total		171,492,252			51
	TOTAL CONTRACTS AS OF FEBRUARY 1, 1965					
	State share	409,967,772				56
	Federal share	77,171,513				51
	Total		487,139,285			55

* Bid Amount.

TABLE 2

ESTIMATED ANNUAL WATER REQUIREMENTS IN THE DELTA AND TRIBUTARY AREAS 1/

(in thousands of acre-feet)

	1960	1970	1980	1990	2000	2010	2020
TOTAL BENEFICIAL LOCAL USE:							
Irrigation consumptive use of applied water	6,713	7,334	7,905	8,363	8,732	9,041	9,274
Urban and suburban consumptive use	114	174	260	393	542	726	946
Miscellaneous consumptive use	114	139	164	189	214	238	262
Subtotal	6,941	7,647	8,329	8,945	9,488	10,005	10,482
TOTAL ASSOCIATED WATER LOSSES:							
Reservoir evaporation	343	378	414	445	472	498	522
Salt balance outflow	163	182	196	204	211	217	223
Subtotal	506	560	610	649	683	715	745
EXPORTS FROM THE DELTA AND TRIBUTARY AREAS UNDER EXISTING RIGHTS 2/	1,518	1,804	2,057	2,144	2,144	2,144	2,144
TOTAL ANNUAL REQUIREMENTS	8,965	10,011	10,996	11,738	12,315	12,864	13,371
INCREASES OVER 1960 REQUIREMENTS	0	1,046	2,031	2,773	3,350	3,899	4,406

1/ Areas covered include all of the valley floors of the Sacramento and San Joaquin Valleys, and drainage areas tributary thereto, except the Tulare Lake and Buena Vista Lake Basins.

2/ Consists of those for: the Cache Slough Diversion by the City of Vallejo, the Contra Costa Canal and Friant-Kern Canal of the Central Valley Project, the Mokelumne Aqueduct of the East Bay Municipal Utility District, and the Hetch Hetchy Aqueduct of the City of San Francisco.

TABLE 3

INFLOWS TO THE SACRAMENTO-SAN JOAQUIN DELTA*

(in thousands of acre-feet)

CALENDAR YEAR	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTAL
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1922	2,112	4,101	2,208	2,057	3,322	2,343	1,091	930	1,257	792	597	2,020	22,830
23	2,015	1,029	861	1,899	1,569	1,095	988	930	1,051	789	723	2,092	15,041
24	553	801	385	516	814	897	921	791	908	626	502	577	8,291
25	589	4,389	1,227	1,569	1,461	886	1,064	931	936	676	486	521	14,735
26	611	4,574	734	1,427	747	1,169	1,251	930	925	664	1,156	1,251	15,439
27	1,466	8,516	2,806	2,914	2,071	1,272	987	931	1,150	816	1,165	924	25,018
28	1,258	2,325	5,969	2,320	1,079	786	1,166	930	963	663	541	508	18,508
29	550	860	639	863	1,128	1,128	1,251	930	973	658	433	536	9,949
1930	1,347	691	1,798	882	811	991	1,251	929	975	690	491	426	11,282
31	584	557	779	946	889	886	920	789	961	827	523	835	9,496
32	1,610	1,222	428	614	836	1,169	1,251	931	1,063	621	374	401	10,520
33	638	850	516	950	904	897	921	777	877	590	426	356	8,702
34	1,141	516	468	978	1,113	1,157	1,252	935	1,074	882	668	490	10,674
35	1,888	699	1,601	2,748	1,559	1,169	988	931	969	725	463	409	14,149
36	2,893	5,952	2,592	1,343	1,474	1,191	986	930	962	689	418	470	19,900
37	935	2,848	3,257	1,699	1,563	1,183	987	931	1,023	722	1,848	5,148	22,144
38	1,790	8.604	9,484	5,381	5,273	4,099	1,489	952	1,299	962	750	951	41,034
39	856	1,038	1,104	542	598	820	920	778	885	613	451	385	8,990
1940	3,655	4,948	6,298	5,152	1,596	1,038	988	929	1,045	729	531	4,333	31,242
41	6,678	7,008	5,714	4,648	3,321	1,857	1,104	931	1,261	837	766	4,418	38,543
42	4,971	7,968	1,768	2,788	3,084	2,455	1,108	931	1,267	947	914	1,792	29,993
43	5,540	3,984	4,663	2,711	1,909	1,319	988	929	1,134	832	591	580	25,180
44	853	2,370	1,600	612	784	1,125	1,250	931	952	680	687	919	12,763
45	633	4,656	1,891	1,086	1,289	1,111	987	930	790	732	1,009	5,166	20,280
46	3,593	901	1,504	1,351	1,856	945	1,006	931	1,083	745	525	1,075	15,515
47	603	1,240	2,103	786	664	1,146	1,252	930	965	702	636	427	11,454
48	666	505	723	2,534	2,320	1,861	987	930	1,099	782	505	717	13,629
49	619	772	3,906	1,064	1,236	788	1,160	928	990	662	489	435	13,049
1950	1,482	2.664	1,459	1,485	1,506	1,309	987	931	1,087	764	3,906	7,160	24,740
1951	4,385	4,370	2,232	1,459	1,641	916	1,036	930	1,102	780	923	3,265	23,039

* Under conditions projected for the year 2035.

TABLE 4

GENERAL DATA
RELATING TO WATER SUPPLY CONTRACTORS

AGENCY	LOCATION (County)	OFFICE (City)	PREDOMINANT TYPE OF WATER SERVICE	MAXIMUM ANNUAL ENTITLEMENT (Acre-feet)	DATE EXECUTED	GROSS AREA AS OF JULY 1, 1964 (Acres)	ASSESSED VALUATION (1963-64)	ESTIMATED POPULATION (July 1, 1964)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Feather River Area								
City of Yuba City	Sutter	Yuba City	Urban	8,300	Dec. 30, 1963	2,000	$ 28,615,600	13,600
				1,300	Sep. 28, 1964			
County of Butte	Butte	Oroville	Urban	27,500	Dec. 26, 1963	1,075,600	186,862,000	92,000
Plumas County Flood Control and Water Conservation District	Plumas	Quincy	Urban	2,700	Dec. 26, 1963	1,657,100	77,100,000	12,500
North Bay Area								
Napa County Flood Control and Water Conservation District	Napa	Napa	Urban	25,000	Dec. 19, 1963	500,500	106,529,000	74,400
Solano County Flood Control and Water Conservation District	Solano	Fairfield	Urban	42,000	Dec. 26, 1963	529,300	207,903,000	157,300
South Bay Area								
Alameda County Flood Control and Water Conservation District, Zone 7	Alameda	Hayward	Urban	40,000	Nov. 20, 1961	272,000	68,237,000	39,700
				6,000	Dec. 30, 1963			
Alameda County Water District	Alameda	Fremont	Urban	42,000	Nov. 29, 1961	64,000	148,070,000	100,000
Santa Clara County Flood Control and Water District	Santa Clara	San Jose	Urban	88,000	Nov. 20, 1961	849,300	1,692,891,000	853,500
				12,000	Dec. 30, 1963			
San Joaquin Valley								
Devil's Den Water District	Kings & Kern	Fresno	Agricultural	11,000	Dec 20, 1963	8,700	255,600	Less than 100
				1,700	Sep. 28, 1964			
Dudley Ridge Water District	Kings	Corcoran	Agricultural	50,000	Dec. 13, 1963	47,100 1/	394,000	Less than 50
				7,700	Sep. 28, 1964			
Empire West Side Irrigation District	Kings	Lemoore	Agricultural	3,000	Dec. 30, 1963	7,700	643,000	Less than 100
Hacienda Water District	Kings	Corcoran	Agricultural	8,500	Dec. 20, 1963	15,300	176,600	Less than 50
Kern County Water Agency	Kern	Bakersfield	Agricultural	1,000,000	Nov. 15, 1963	4,379,400 4/	756,412,800 4/	293,200 4/
				153,400	Sep. 28, 1964			
Oak Flat Water District	Stanislaus	Westley	Agricultural	5,700	Mar. 23, 1965	2,200	148,600	Less than 50
Tulare Lake Basin Water Storage District	Kings & Tulare	Corcoran	Agricultural	90,000	Dec. 20, 1963	193,000	8,490,200	Less than 50
				20,000	Dec. 30, 1963			
Central Coastal Area								
San Luis Obispo County Flood Control and Water Conservation District	San Luis Obispo	San Luis Obispo	Urban	25,000	Feb. 26, 1963	2,128,600	220,686,700	95,700
Santa Barbara County Flood Control and Water Conservation District	Santa Barbara	Santa Barbara	Urban	50,000	Feb. 26, 1963	1,756,800	481,680,600	231,000
				7,700	Jan. 26, 1965			
Southern California								
Antelope Valley-East Kern Water Agency	Los Angeles, Kern & Ventura	Lancaster	Urban	120,000	Sep. 20, 1962	1,503,300	148,073,000	86,800
				18,400	Sep. 22, 1964			
City of West Covina	Los Angeles	West Covina	Urban	10,000	Dec. 2, 1963	9,100	91,241,700	62,200
				1,500	Sep. 28, 1964			
Coachella Valley County Water District	Riverside, Imperial & San Diego	Coachella	Urban	20,000	Mar. 29, 1963	617,000	155,732,700	52,000
				3,100	Sep. 28, 1964			
Crestline-Lake Arrowhead Water Agency	San Bernardino	Crestline	Urban	5,000	Jun. 22, 1963	45,800	20,850,100	7,900
				800	Sep. 28, 1964			
Desert Water Agency	Riverside	Palm Springs	Urban	33,000	Oct. 17, 1962	163,000	95,850,800	22,000
				5,100	Oct. 2, 1964			
Littlerock Creek Irrigation District	Los Angeles	Littlerock	Urban	2,000	Jun. 22, 1963	11,300	2,630,000	1,300
				300	Sep. 28, 1964			
Mojave Water Agency	San Bernardino	Victorville	Urban	44,000	Jun. 22, 1963	2,733,000	132,256,200	68,000
				6,800	Sep 28, 1964			
Palmdale Irrigation District	Los Angeles	Palmdale	Urban	15,000	Feb. 2, 1963	73,000	20,000,000	20,000
				2,300	Sep 28, 1964			
San Bernardino Valley Municipal Water District	San Bernardino	San Bernardino	Urban	85,000	Dec. 30, 1960	150,000	387,840,400	275,000
				13,000	Sep. 28, 1964			
San Gabriel Valley Municipal Water District	Los Angeles	Alhambra	Urban	25,000	Nov. 3, 1962	16,000	245,894,500	145,900
				3,800	Sep. 28, 1964			
San Gorgonio Pass Water Agency	Riverside	Beaumont	Urban	15,000	Nov. 16, 1962	131,000	39,317,800	27,000
				2,300	Jan. 19, 1965			
The Metropolitan Water District of Southern California	Los Angeles, San Diego, Riverside, San Bernardino, Orange, & Ventura	Los Angeles	Urban	1,500,000	Nov. 4, 1960	2,825,300	16,418,177,100	9,200,000
				500,000	Sep. 28, 1964			
Upper Santa Clara Valley Water Agency	Los Angeles	Newhall	Urban	23,000	Apr. 30, 1963	86,100	48,003,400	26,000
				3,500	Dec 22, 1964			
Ventura County Flood Control District	Ventura	Ventura	Urban	20,000	Dec. 2, 1963	965,000 2/ 3/	388,151,300 3/	141,300 2/
TOTALS FOR AGENCY AREAS				4,206,400		22,817,500	$22,179,114,700	12,098,600
Percent of State Total in Agency Areas						23%	60%	66%
TOTALS FOR STATE						101,314,000	$36,743,360,000	18,234,000

1/ Dudley Ridge Water District has initiated proceedings for excluding 17,427 acres.
2/ The following values have been deleted from the Ventura County Flood Control District; Area, 208,000 acres, Population, 142,000; Assessed Valuation, $193,379,900, as they have been included in The Metropolitan Water District of Southern California service area
3/ 6,000 acres of Ventura County Flood Control District have been annexed to the Antelope Valley-East Kern Water Agency service area
4/ The following values have been deleted from the Kern County Water Agency, Area, 850,720 acres, Population, 26,000, Assessed Valuation, $43,118,300, as they have been included in the Antelope Valley-East Kern Water Agency service area.

TABLE 5

DISTRIBUTION OF MINIMUM PROJECT YIELD

(in acre-feet)

SERVICE AREA	MAXIMUM ANNUAL ENTITLEMENTS			CHANGE IN ENTITLEMENT FROM BULLETIN NO. 132-64
	BULLETIN NO. 132-63 (Assumed)	BULLETIN NO. 132-64 (Assumed)	THIS ANALYSIS (Actual)	
	(1)	(2)	(3)	(4)
Feather River	275,000	38,500	39,800	(+) 1,300
North Bay	150,000	73,000	67,000	(-) 6,000
South Bay	210,000	194,000	188,000	(-) 6,000
San Joaquin Valley	1,475,000	1,362,500	1,345,300	(-) 17,200
Central Coastal	75,000	75,000	82,700	(+) 7,700
Southern California	1,800,000	2,257,000	2,477,900	(+) 220,900
TOTAL DISTRIBUTED	3,985,000	4,000,000	4,200,700	(+) 200,700
Unassigned	15,000	0	29,300	(+) 29,300
TOTAL, MINIMUM PROJECT YIELD	4,000,000	4,000,000	4,230,000	(+) 230,000

TABLE 6

ANNUAL ENTITLEMENTS TO PROJECT WATER[1]

(in acre-feet)

CALENDAR YEAR	FEATHER RIVER AREA				NORTH BAY AREA			SOUTH BAY AREA[2]			
	CITY OF YUBA CITY	COUNTY OF BUTTE	PLUMAS COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT	TOTAL	NAPA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT[3]	SOLANO COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT	TOTAL	ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT ZONE 7	ALAMEDA COUNTY WATER DISTRICT	SANTA CLARA COUNTY FLOOD CONTROL AND WATER DISTRICT	TOTAL
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1962	0	0	0	0	0	0	0	494	8,412	0	8,906
63	0	0	0	0	0	0	0	1,731	10,914	0	12,645
64	0	0	0	0	0	0	0	1,673	19,238	0	20,911
65	0	0	0	0	0	0	0	3,600	24,850	25,600	54,050
66	0	0	0	0	0	0	0	3,600	19,400	38,100	61,100
67	0	0	250	250	0	0	0	4,000	14,300	50,600	68,900
68	0	300	270	570	0	0	0	7,500	15,000	88,000	110,500
69	0	350	300	650	0	0	0	8,800	15,500	88,000	112,300
1970	0	400	440	840	0	0	0	10,000	16,200	88,000	114,200
71	0	450	470	920	0	0	0	11,200	17,000	88,000	116,200
72	0	500	500	1,000	0	0	0	12,400	17,900	88,000	118,300
73	0	600	530	1,130	0	0	0	13,600	18,800	88,000	120,400
74	0	700	560	1,260	0	0	0	14,800	19,600	88,000	122,400
75	0	1,050	590	1,640	0	0	0	16,000	20,500	88,000	124,500
76	0	1,400	620	2,020	0	0	0	17,200	21,300	88,000	126,500
77	0	1,800	650	2,450	0	0	0	18,400	22,200	88,000	128,600
78	0	2,200	680	2,880	0	0	0	19,600	23,100	88,000	130,700
79	0	2,600	710	3,310	0	0	0	20,800	23,900	88,000	132,700
1980	0	4,000	740	4,740	12,500	6,750	19,250	22,000	24,800	88,000	134,800
81	4,200	5,450	770	10,420	13,750	8,000	21,750	23,000	26,000	88,000	137,000
82	4,600	6,900	800	12,300	15,000	9,400	24,400	24,000	27,200	88,000	139,200
83	5,050	8,350	830	14,230	16,250	10,800	27,050	25,000	28,400	88,000	141,400
84	5,500	9,800	860	16,160	17,500	12,100	29,600	26,000	29,600	88,000	143,600
85	5,950	12,250	890	19,090	18,750	14,000	32,750	27,000	30,800	88,000	145,800
86	6,600	14,700	920	22,220	20,000	16,500	36,500	28,000	32,100	88,000	148,100
87	7,300	17,150	960	25,410	21,250	20,000	41,250	29,000	33,300	88,000	150,300
88	8,000	20,600	1,000	29,600	22,500	27,000	49,500	30,000	34,500	88,000	152,500
89	8,800	24,050	1,040	33,890	23,750	34,500	58,250	31,000	35,700	90,000	156,700
1990	9,600	27,500	1,080	38,180	25,000	42,000	67,000	32,000	36,900	92,000	160,900
91	9,600	27,500	1,120	38,220	25,000	42,000	67,000	34,000	38,400	94,000	166,400
92	9,600	27,500	1,160	38,260	25,000	42,000	67,000	36,000	39,900	96,000	171,900
93	9,600	27,500	1,200	38,300	25,000	42,000	67,000	38,000	41,400	98,000	177,400
94	9,600	27,500	1,250	38,350	25,000	42,000	67,000	40,000	42,000	100,000	182,000
95	9,600	27,500	1,300	38,400	25,000	42,000	67,000	42,000	42,000	100,000	184,000
96	9,600	27,500	1,350	38,450	25,000	42,000	67,000	44,000	42,000	100,000	186,000
97	9,600	27,500	1,400	38,500	25,000	42,000	67,000	46,000	42,000	100,000	188,000
98	9,600	27,500	1,450	38,550	25,000	42,000	67,000	46,000	42,000	100,000	188,000
99	9,600	27,500	1,510	38,610	25,000	42,000	67,000	46,000	42,000	100,000	188,000
2000	9,600	27,500	1,570	38,670	25,000	42,000	67,000	46,000	42,000	100,000	188,000
01	9,600	27,500	1,630	38,730	25,000	42,000	67,000	46,000	42,000	100,000	188,000
02	9,600	27,500	1,690	38,790	25,000	42,000	67,000	46,000	42,000	100,000	188,000
03	9,600	27,500	1,750	38,850	25,000	42,000	67,000	46,000	42,000	100,000	188,000
04	9,600	27,500	1,810	38,910	25,000	42,000	67,000	46,000	42,000	100,000	188,000
05	9,600	27,500	1,880	38,980	25,000	42,000	67,000	46,000	42,000	100,000	188,000
06	9,600	27,500	1,950	39,050	25,000	42,000	67,000	46,000	42,000	100,000	188,000
07	9,600	27,500	2,020	39,120	25,000	42,000	67,000	46,000	42,000	100,000	188,000
08	9,600	27,500	2,090	39,190	25,000	42,000	67,000	46,000	42,000	100,000	188,000
09	9,600	27,500	2,160	39,260	25,000	42,000	67,000	46,000	42,000	100,000	188,000
2010	9,600	27,500	2,240	39,340	25,000	42,000	67,000	46,000	42,000	100,000	188,000
11	9,600	27,500	2,320	39,420	25,000	42,000	67,000	46,000	42,000	100,000	188,000
12	9,600	27,500	2,410	39,510	25,000	42,000	67,000	46,000	42,000	100,000	188,000
13	9,600	27,500	2,500	39,600	25,000	42,000	67,000	46,000	42,000	100,000	188,000
14	9,600	27,500	2,600	39,700	25,000	42,000	67,000	46,000	42,000	100,000	188,000
2015[4]	9,600	27,500	2,700	39,800	25,000	42,000	67,000	46,000	42,000	100,000	188,000

1/ From Tables A and Articles 6(a) of water supply contracts.
2/ It is currently estimated that the entitlements shown for the South Bay Area will be supplied by nonproject water through 1966. Actual delivery quantities are shown for 1962, 1963, and 1964. Quantities shown for 1965 are those requested by the contractors and approved by the Department pursuant to Article 12(a) of water supply contracts.
3/ Districts' Table A quantities exclude those during the period 1968-1979 which assumed to be supplied by nonproject water.
4/ And each year thereafter for the remainder of the project repayment period.

TABLE 6 (Continued)

ANNUAL ENTITLEMENTS TO PROJECT WATER[1]

(in acre-feet)

CALENDAR YEAR	SAN JOAQUIN VALLEY AREA							CENTRAL COASTAL AREA		
	DEVIL'S DEN WATER DISTRICT	DUDLEY RIDGE WATER DISTRICT	EMPIRE WEST SIDE IRRIGATION DISTRICT	HACIENDA WATER DISTRICT	KERN COUNTY WATER AGENCY	TULARE LAKE BASIN WATER STORAGE DISTRICT	TOTAL	SAN LUIS OBISPO COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT	SANTA BARBARA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT	TOTAL
	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
1962	0	0	0	0	0	0	0	0	0	0
63	0	0	0	0	0	0	0	0	0	0
64	0	0	0	0	0	0	0	0	0	0
65	0	0	0	0	0	0	0	0	0	0
66	0	0	0	0	0	0	0	0	0	0
67	0	0	0	0	0	0	0	0	0	0
68	3,700	11,500	3,000	1,300	87,000	26,900	133,400	0	0	0
69	4,700	13,600	3,000	1,600	95,700	29,300	147,900	0	0	0
1970	5,700	15,700	3,000	2,000	145,100	31,800	203,300	0	0	0
71	6,700	17,900	3,000	2,300	190,300	34,200	254,400	0	0	0
72	7,700	20,000	3,000	2,600	270,700	36,700	340,700	0	0	0
73	8,700	22,000	3,000	2,900	310,500	39,100	386,200	0	0	0
74	9,700	24,100	3,000	3,300	347,000	43,000	430,100	0	0	0
75	10,700	26,200	3,000	3,600	385,500	46,900	475,900	0	0	0
76	11,700	28,300	3,000	3,900	432,800	50,800	530,500	0	0	0
77	12,700	30,400	3,000	4,200	483,600	54,800	588,700	0	0	0
78	12,700	32,500	3,000	4,600	534,300	58,700	645,800	0	0	0
79	12,700	34,600	3,000	4,900	583,900	62,600	701,700	0	0	0
1980	12,700	36,700	3,000	5,200	634,500	66,500	758,600	1,000	1,200	2,200
81	12,700	38,800	3,000	5,600	691,400	70,400	821,900	1,000	2,300	3,300
82	12,700	41,000	3,000	5,900	745,300	74,300	882,200	2,000	4,600	6,600
83	12,700	42,900	3,000	6,200	805,100	78,200	948,100	3,000	6,900	9,900
84	12,700	45,100	3,000	6,500	860,600	82,100	1,010,000	4,500	10,400	14,900
85	12,700	47,200	3,000	6,900	915,000	86,000	1,070,800	7,500	17,300	24,800
86	12,700	49,300	3,000	7,200	968,200	90,000	1,130,400	10,000	23,100	33,100
87	12,700	51,400	3,000	7,500	1,023,500	93,900	1,192,000	12,500	28,800	41,300
88	12,700	53,500	3,000	7,800	1,074,600	97,800	1,249,400	15,500	35,800	51,300
89	12,700	55,600	3,000	8,200	1,112,300	101,700	1,293,500	20,000	46,100	66,100
1990	12,700	57,700	3,000	8,500	1,153,400	110,000	1,345,300	25,000	57,700	82,700
91	12,700	57,700	3,000	8,500	1,153,400	110,000	1,345,300	25,000	57,700	82,700
92	12,700	57,700	3,000	8,500	1,153,400	110,000	1,345,300	25,000	57,700	82,700
93	12,700	57,700	3,000	8,500	1,153,400	110,000	1,345,300	25,000	57,700	82,700
94	12,700	57,700	3,000	8,500	1,153,400	110,000	1,345,300	25,000	57,700	82,700
95	12,700	57,700	3,000	8,500	1,153,400	110,000	1,345,300	25,000	57,700	82,700
96	12,700	57,700	3,000	8,500	1,153,400	110,000	1,345,300	25,000	57,700	82,700
97	12,700	57,700	3,000	8,500	1,153,400	110,000	1,345,300	25,000	57,700	82,700
98	12,700	57,700	3,000	8,500	1,153,400	110,000	1,345,300	25,000	57,700	82,700
99	12,700	57,700	3,000	8,500	1,153,400	110,000	1,345,300	25,000	57,700	82,700
2000	12,700	57,700	3,000	8,500	1,153,400	110,000	1,345,300	25,000	57,700	82,700
01	12,700	57,700	3,000	8,500	1,153,400	110,000	1,345,300	25,000	57,700	82,700
02	12,700	57,700	3,000	8,500	1,153,400	110,000	1,345,300	25,000	57,700	82,700
03	12,700	57,700	3,000	8,500	1,153,400	110,000	1,345,300	25,000	57,700	82,700
04	12,700	57,700	3,000	8,500	1,153,400	110,000	1,345,300	25,000	57,700	82,700
05	12,700	57,700	3,000	8,500	1,153,400	110,000	1,345,300	25,000	57,700	82,700
06	12,700	57,700	3,000	8,500	1,153,400	110,000	1,345,300	25,000	57,700	82,700
07	12,700	57,700	3,000	8,500	1,153,400	110,000	1,345,300	25,000	57,700	82,700
08	12,700	57,700	3,000	8,500	1,153,400	110,000	1,345,300	25,000	57,700	82,700
09	12,700	57,700	3,000	8,500	1,153,400	110,000	1,345,300	25,000	57,700	82,700
2010	12,700	57,700	3,000	8,500	1,153,400	110,000	1,345,300	25,000	57,700	82,700
11	12,700	57,700	3,000	8,500	1,153,400	110,000	1,345,300	25,000	57,700	82,700
12	12,700	57,700	3,000	8,500	1,153,400	110,000	1,345,300	25,000	57,700	82,700
13	12,700	57,700	3,000	8,500	1,153,400	110,000	1,345,300	25,000	57,700	82,700
14	12,700	57,700	3,000	8,500	1,153,400	110,000	1,345,300	25,000	57,700	82,700
2015[2]	12,700	57,700	3,000	8,500	1,153,400	110,000	1,345,300	25,000	57,700	82,700

1/ From Tables A and Articles 6(a) of water supply contracts.

2/ And each year thereafter for the remainder of the project repayment period.

TABLE 6 (Continued)

ANNUAL ENTITLEMENTS TO PROJECT WATER[1]

(in acre-feet)

CALENDAR YEAR	SOUTHERN CALIFORNIA AREA															TOTAL STATE WATER PROJECT
	ANTELOPE VALLEY-EAST KERN WATER AGENCY	CITY OF WEST COVINA	COACHELLA VALLEY COUNTY WATER DISTRICT	CRESTLINE-LAKE ARROWHEAD WATER AGENCY	DESERT WATER AGENCY	LITTLEROCK CREEK IRRIGATION DISTRICT	MOJAVE WATER AGENCY	PALMDALE IRRIGATION DISTRICT	SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT	SAN GABRIEL VALLEY MUNICIPAL WATER DISTRICT	SAN GORGONIO PASS WATER AGENCY	THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA	UPPER SANTA CLARA VALLEY WATER AGENCY	VENTURA COUNTY FLOOD CONTROL DISTRICT	TOTAL	
	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)
1962	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8,906
63	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12,645
64	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20,911
65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	54,050
66	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	61,100
67	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	69,150
68	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	244,470
69	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	260,850
1970	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	318,340
71	0	0	0	0	0	0	0	0	0	0	0	250,000	1,000	0	251,000	622,520
72	20,000	4,200	5,200	580	8,000	170	8,400	1,620	45,541	10,600	1,000	350,000	2,600	0	457,911	917,911
73	25,000	4,600	5,800	870	9,000	290	10,700	2,940	47,559	11,500	1,700	450,000	3,900	0	573,859	1,081,589
74	30,000	4,900	6,400	1,160	10,000	400	13,100	4,260	49,806	12,300	2,400	550,000	5,200	0	689,926	1,243,686
75	35,000	5,200	7,000	1,450	11,000	520	15,400	5,580	51,826	13,100	3,100	650,000	6,500	0	805,676	1,407,716
76	44,000	5,600	7,600	1,740	12,000	640	17,800	6,900	53,842	14,000	3,800	750,000	7,800	0	925,722	1,584,742
77	50,000	5,900	8,421	2,030	13,000	730	20,200	8,220	55,860	14,800	4,500	850,000	9,100	0	1,042,761	1,762,511
78	57,000	6,300	9,242	2,320	14,000	920	22,500	9,340	57,878	15,700	5,200	950,000	10,400	0	1,160,800	1,940,180
79	63,000	6,600	10,063	2,610	15,000	1,040	24,900	10,260	60,010	16,600	5,900	1,050,000	12,500	0	1,278,483	2,116,193
1980	69,200	7,000	10,884	2,900	17,000	1,150	27,200	11,180	61,913	17,400	6,800	1,150,000	13,700	1,000	1,397,327	2,316,917
81	75,000	7,300	12,105	3,190	19,000	1,270	29,600	11,700	64,161	18,300	7,800	1,250,000	15,500	2,000	1,516,926	2,511,296
82	81,300	7,600	13,326	3,480	21,000	1,380	31,900	12,320	64,161	19,100	8,800	1,350,000	17,100	3,000	1,634,467	2,699,167
83	87,700	8,000	14,547	3,770	23,000	1,500	34,300	12,940	64,161	19,900	9,800	1,450,000	18,600	4,000	1,752,218	2,892,898
84	94,000	8,300	15,768	4,060	25,000	1,610	36,700	13,560	64,161	20,700	10,800	1,550,000	19,800	5,000	1,869,459	3,083,719
85	100,400	8,700	16,989	4,350	27,000	1,730	39,000	14,180	64,161	21,800	11,800	1,650,000	21,000	6,000	1,987,110	3,280,350
86	106,700	9,300	18,210	4,640	29,000	1,840	41,400	14,800	66,179	23,200	12,900	1,750,000	22,500	8,000	2,108,669	3,478,989
87	113,000	9,800	19,431	4,930	31,500	1,960	43,700	15,420	72,462	24,600	14,000	1,850,000	24,000	10,000	2,234,803	3,685,063
88	119,400	10,400	20,652	5,220	34,000	2,070	46,000	16,040	78,745	26,000	15,100	1,950,000	25,100	13,000	2,361,727	3,894,027
89	125,700	11,000	21,873	5,510	36,500	2,190	48,500	16,660	89,915	27,400	16,200	2,000,000	26,500	16,000	2,443,948	4,052,388
1990	132,100	11,500	23,100	5,800	38,100	2,300	50,800	17,300	91,198	28,800	17,300	2,000,000	26,500	20,000	2,464,798	4,158,878
91	138,400	11,500	23,100	5,800	38,100	2,300	50,800	17,300	98,000	28,800	17,300	2,000,000	26,500	20,000	2,477,900	4,177,520
92	138,400	11,500	23,100	5,800	38,100	2,300	50,800	17,300	98,000	28,800	17,300	2,000,000	26,500	20,000	2,477,900	4,183,060
93	138,400	11,500	23,100	5,800	38,100	2,300	50,800	17,300	98,000	28,800	17,300	2,000,000	26,500	20,000	2,477,900	4,188,600
94	138,400	11,500	23,100	5,800	38,100	2,300	50,800	17,300	98,000	28,800	17,300	2,000,000	26,500	20,000	2,477,900	4,193,250
95	138,400	11,500	23,100	5,800	38,100	2,300	50,800	17,300	98,000	28,800	17,300	2,000,000	26,500	20,000	2,477,900	4,195,300
96	138,400	11,500	23,100	5,800	38,100	2,300	50,800	17,300	98,000	28,800	17,300	2,000,000	26,500	20,000	2,477,900	4,197,350
97	138,400	11,500	23,100	5,800	38,100	2,300	50,800	17,300	98,000	28,800	17,300	2,000,000	26,500	20,000	2,477,900	4,199,400
98	138,400	11,500	23,100	5,800	38,100	2,300	50,800	17,300	98,000	28,800	17,300	2,000,000	26,500	20,000	2,477,900	4,199,450
99	138,400	11,500	23,100	5,800	38,100	2,300	50,800	17,300	98,000	28,800	17,300	2,000,000	26,500	20,000	2,477,900	4,199,510
2000	138,400	11,500	23,100	5,800	38,100	2,300	50,800	17,300	98,000	28,800	17,300	2,000,000	26,500	20,000	2,477,900	4,199,570
01	138,400	11,500	23,100	5,800	38,100	2,300	50,800	17,300	98,000	28,800	17,300	2,000,000	26,500	20,000	2,477,900	4,199,630
02	138,400	11,500	23,100	5,800	38,100	2,300	50,800	17,300	98,000	28,800	17,300	2,000,000	26,500	20,000	2,477,900	4,199,690
03	138,400	11,500	23,100	5,800	38,100	2,300	50,800	17,300	98,000	28,800	17,300	2,000,000	26,500	20,000	2,477,900	4,199,750
04	138,400	11,500	23,100	5,800	38,100	2,300	50,800	17,300	98,000	28,800	17,300	2,000,000	26,500	20,000	2,477,900	4,199,810
05	138,400	11,500	23,100	5,800	38,100	2,300	50,800	17,300	98,000	28,800	17,300	2,000,000	26,500	20,000	2,477,900	4,199,880
06	138,400	11,500	23,100	5,800	38,100	2,300	50,800	17,300	98,000	28,800	17,300	2,000,000	26,500	20,000	2,477,900	4,199,950
07	138,400	11,500	23,100	5,800	38,100	2,300	50,800	17,300	98,000	28,800	17,300	2,000,000	26,500	20,000	2,477,900	4,200,020
08	138,400	11,500	23,100	5,800	38,100	2,300	50,800	17,300	98,000	28,800	17,300	2,000,000	26,500	20,000	2,477,900	4,200,090
09	138,400	11,500	23,100	5,800	38,100	2,300	50,800	17,300	98,000	28,800	17,300	2,000,000	26,500	20,000	2,477,900	4,200,160
2010	138,400	11,500	23,100	5,800	38,100	2,300	50,800	17,300	98,000	28,800	17,300	2,000,000	26,500	20,000	2,477,900	4,200,240
11	138,400	11,500	23,100	5,800	38,100	2,300	50,800	17,300	98,000	28,800	17,300	2,000,000	26,500	20,000	2,477,900	4,200,320
12	138,400	11,500	23,100	5,800	38,100	2,300	50,800	17,300	98,000	28,800	17,300	2,000,000	26,500	20,000	2,477,900	4,200,410
13	138,400	11,500	23,100	5,800	38,100	2,300	50,800	17,300	98,000	28,800	17,300	2,000,000	26,500	20,000	2,477,900	4,200,500
14	138,400	11,500	23,100	5,800	38,100	2,300	50,800	17,300	98,000	28,800	17,300	2,000,000	26,500	20,000	2,477,900	4,200,600
2015[2]	138,400	11,500	23,100	5,800	38,100	2,300	50,800	17,300	98,000	28,800	17,300	2,000,000	26,500	20,000	2,477,900	4,200,700

1/ From Tables A and Articles 6(a) of water supply contracts.

2/ And each year thereafter for the remainder of the project repayment period.

TABLE 7

PROJECT WATER DEMANDS AND WATER SUPPLIES
AT THE DELTA

(in acre-feet)

CALENDAR YEAR	DEMANDS ON DELTA POOL (STATE ONLY)							SUPPLIED FROM THE DELTA POOL			
	WATER SUPPLY DELIVERIES					OTHER WATER 1/	TOTAL	PURCHASED BUREAU WATER 2/	INITIAL CONSERVATION FACILITIES 3/	ADDITIONAL CONSERVATION FACILITIES 4/	TOTAL
	FEATHER RIVER SERVICE AREA	NORTH BAY AQUEDUCT	SOUTH BAY AQUEDUCT	CALIFORNIA AQUEDUCT	TOTAL						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1962	0	0	8,906	0	8,906	798	9,704	9,704	0	0	9,704
63	0	0	12,645	0	12,645	567	13,212	13,212	0	0	13,212
64	0	0	20,911	0	20,911	832	21,743	21,743	0	0	21,743
65	0	0	54,050	0	54,050	1,950	56,000	56,000	0	0	56,000
66	0	0	61,100	0	61,100	1,820	62,920	62,920	0	0	62,920
67	250	0	68,900	0	69,150	1,930	71,080	0	71,080	0	71,080
68	570	0	110,500	133,400	244,470	566,005	810,475	0	810,475	0	810,475
69	650	0	112,300	147,900	260,850	729,730	990,580	0	990,580	0	990,580
1970	840	0	114,200	203,300	318,340	354,171	672,511	0	672,511	0	672,511
71	920	0	116,200	505,400	622,520	367,197	989,717	0	989,717	0	989,717
72	1,000	0	118,300	798,611	917,911	410,917	1,328,828	0	1,328,828	0	1,328,828
73	1,130	0	120,400	960,059	1,081,589	512,339	1,593,928	0	1,593,928	0	1,593,928
74	1,260	0	122,400	1,120,026	1,243,686	396,315	1,640,001	0	1,640,001	0	1,640,001
75	1,640	0	124,500	1,281,576	1,407,716	429,349	1,837,065	0	1,837,065	0	1,837,065
76	2,020	0	126,500	1,456,222	1,584,742	434,339	2,019,081	0	2,019,081	0	2,019,081
77	2,450	0	128,600	1,631,461	1,762,511	321,230	2,083,741	0	2,083,741	0	2,083,741
78	2,880	0	130,700	1,806,600	1,940,180	321,230	2,261,410	0	2,261,410	0	2,261,410
79	3,310	0	132,700	1,980,183	2,116,193	321,230	2,437,423	0	2,437,423	0	2,437,423
1980	4,740	19,250	134,800	2,158,127	2,316,917	341,034	2,657,951	0	2,657,951	0	2,657,951
81	10,420	21,750	137,000	2,342,126	2,511,296	340,830	2,852,126	0	2,852,126	0	2,852,126
82	12,300	24,400	139,200	2,523,267	2,699,167	340,830	3,039,997	0	3,039,997	0	3,039,997
83	14,230	27,050	141,400	2,710,218	2,892,898	340,830	3,233,728	0	3,233,728	0	3,233,728
84	16,160	29,600	143,600	2,894,359	3,083,719	340,830	3,424,549	0	3,424,549	0	3,424,549
85	19,090	32,750	145,800	3,082,710	3,280,350	340,830	3,621,180	0	3,621,180	0	3,621,180
86	22,220	36,500	148,100	3,272,169	3,478,989	340,830	3,819,819	0	3,749,719	70,100	3,819,819
87	25,410	41,250	150,300	3,468,103	3,685,063	340,830	4,025,893	0	3,835,493	190,400	4,025,893
88	29,600	49,500	152,500	3,662,427	3,894,027	340,830	4,234,857	0	3,924,257	310,600	4,234,857
89	33,890	58,250	156,700	3,803,548	4,052,388	340,830	4,393,218	0	3,962,318	430,900	4,393,218
1990	38,180	67,000	160,900	3,892,798	4,158,878	340,830	4,499,708	0	3,948,408	551,300	4,499,708
91	38,220	67,000	166,400	3,905,900	4,177,520	340,830	4,518,350	0	3,955,250	563,100	4,518,350
92	38,260	67,000	171,900	3,905,900	4,183,060	340,830	4,523,890	0	3,948,990	574,900	4,523,890
93	38,300	67,000	177,400	3,905,900	4,188,600	340,830	4,529,430	0	3,942,830	586,600	4,529,430
94	38,350	67,000	182,000	3,905,900	4,193,250	340,830	4,534,080	0	3,935,680	598,400	4,534,080
95	38,400	67,000	184,000	3,905,900	4,195,300	340,830	4,536,130	0	3,925,930	610,200	4,536,130
96	38,450	67,000	186,000	3,905,900	4,197,350	340,830	4,538,180	0	3,919,080	619,100	4,538,180
97	38,500	67,000	188,000	3,905,900	4,199,400	340,830	4,540,230	0	3,912,230	628,000	4,540,230
98	38,550	67,000	188,000	3,905,900	4,199,450	340,830	4,540,280	0	3,903,480	636,800	4,540,280
99	38,610	67,000	188,000	3,905,900	4,199,510	340,830	4,540,340	0	3,900,640	645,700	4,546,340
2000	38,670	67,000	188,000	3,905,900	4,199,570	340,830	4,540,400	0	3,885,800	654,600	4,540,400
01	38,730	67,000	188,000	3,905,900	4,199,630	340,830	4,540,460	0	3,878,460	662,000	4,540,460
02	38,790	67,000	188,000	3,905,900	4,199,690	340,830	4,540,520	0	3,871,120	669,400	4,540,520
03	38,850	67,000	188,000	3,905,900	4,199,750	340,830	4,540,580	0	3,863,780	676,800	4,540,580
04	38,910	67,000	188,000	3,905,900	4,199,810	340,830	4,540,640	0	3,856,440	684,200	4,540,640
05	38,980	67,000	188,000	3,905,900	4,199,880	340,830	4,540,710	0	3,849,110	691,600	4,540,710
06	39,050	67,000	188,000	3,905,900	4,199,950	340,830	4,540,780	0	3,841,880	698,900	4,540,780
07	39,120	67,000	188,000	3,905,900	4,200,020	340,830	4,540,850	0	3,834,550	706,300	4,540,850
08	39,190	67,000	188,000	3,905,900	4,200,090	340,830	4,540,920	0	3,827,220	713,700	4,540,920
09	39,260	67,000	188,000	3,905,900	4,200,160	340,830	4,540,990	0	3,819,890	721,100	4,540,990
2010	39,340	67,000	188,000	3,905,900	4,200,240	340,830	4,541,070	0	3,812,570	728,500	4,541,070
11	39,420	67,000	188,000	3,905,900	4,200,320	340,830	4,541,150	0	3,808,250	732,900	4,541,150
12	39,510	67,000	188,000	3,905,900	4,200,410	340,830	4,541,240	0	3,803,840	737,400	4,541,240
13	39,600	67,000	188,000	3,905,900	4,200,500	340,830	4,541,330	0	3,799,530	741,800	4,541,330
14	39,700	67,000	188,000	3,905,900	4,200,600	340,830	4,541,430	0	3,795,130	746,300	4,541,430
2015	39,800	67,000	188,000	3,905,900	4,200,700	340,830	4,541,530	0	3,790,830	750,700	4,541,530
2025	39,800	67,000	188,000	3,905,900	4,200,700	340,830	4,541,530	0	3,738,930	802,600	4,541,530
2035	39,800	67,000	188,000	3,905,900	4,200,700	340,830	4,541,530	0	3,679,930	861,600	4,541,530

1/ Includes water to compensate for operational losses, deliveries for specific recreational usage, and water for the initial filling of all facilities below the Delta; but excludes surplus water.

2/ Total of Bureau Water estimated to be purchased is 163,579 acre-feet.

3/ The initial project conservation facilities include the Upper Feather division; the Oroville division; the Delta Facilities; San Luis Dam, reservoir, and Pumping-Generating Plant; and an allocated share of the California Aqueduct between the Delta and Mile 18 Pumping Plant.

4/ The Upper Eel River Development.

TABLE 8

ESTIMATED ANNUAL PROJECT ENERGY REQUIREMENTS
FOR PUMPING BY PUMPING PLANT

(in millions of kilowatt-hours)

CALENDAR YEAR	OROVILLE-THERMALITO POWERPLANTS	NORTH BAY AQUEDUCT		PERIPHERAL CANAL PUMPING PLANT	SOUTH BAY AQUEDUCT PUMPING PLANTS	CALIFORNIA AQUEDUCT											SAN JOAQUIN DRAIN PUMPING PLANTS	TOTAL STATE WATER PROJECT
		CALHOUN PUMPING PLANT	CORDELIA PUMPING PLANT			DELTA PUMPING PLANT	SAN LUIS PUMPING-GENERATING PLANT	MILE 18 PUMPING PLANT	BUENA VISTA PUMPING PLANT	WHEELER RIDGE PUMPING PLANT	WIND GAP PUMPING PLANT	TEHACHAPI PUMPING PLANT	PEARBLOSSOM PUMPING PLANT	OSO PUMPING PLANT	LAS PERILLAS & BADGER HILL PUMPING PLANTS	DEVIL'S DEN, SAWTOOTH, & POLONIO PUMPING PLANTS		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
1962	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	7
63	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	10
64	0	0	0	0	19	0	0	0	0	0	0	0	0	0	0	0	0	19
65	0	0	0	0	45	0	0	0	0	0	0	0	0	0	0	0	0	45
66	0	0	0	0	52	0	0	0	0	0	0	0	0	0	0	0	0	52
67	70	0	0	0	55	20	0	0	0	0	0	0	0	0	0	0	0	145
68	85	0	1	0	93	230	133	30	0	0	0	0	0	0	10	0	0	582
69	520	0	1	0	85	284	182	31	0	0	0	0	0	0	10	0	0	1,113
1970	630	0	1	0	85	149	122	50	14	15	33	116	0	12	11	0	0	1,238
71	630	0	2	0	86	166	119	113	106	119	264	933	53	76	11	0	0	2,678
72	630	0	2	0	88	338	159	162	174	190	419	1,511	158	97	12	0	0	3,940
73	630	0	2	5	90	460	109	200	230	254	561	2,012	222	126	13	0	0	4,914
74	630	0	3	7	91	470	109	206	228	253	561	2,012	218	126	14	0	0	4,928
75	630	0	3	9	93	527	109	235	267	295	655	2,355	242	150	15	0	0	5,585
76	630	0	4	11	94	595	107	261	304	334	740	2,615	286	160	16	0	0	6,157
77	630	0	4	13	96	641	105	270	308	337	744	2,624	280	163	17	0	0	6,232
78	630	0	4	15	98	690	102	295	341	372	821	2,896	308	180	19	0	0	6,771
79	630	0	5	17	98	735	100	320	374	408	898	3,167	336	198	23	0	0	7,309
1980	630	1	6	19	100	756	99	348	404	441	972	3,441	364	215	25	9	0	7,830
81	630	1	6	21	101	870	117	375	434	475	1,046	3,717	386	236	25	12	1	8,453
82	630	1	7	23	103	934	137	401	465	507	1,119	3,988	407	256	26	18	1	9,023
83	630	1	7	25	105	1,004	157	428	497	542	1,194	4,259	427	276	27	26	1	9,606
84	630	1	8	27	107	1,066	176	455	529	576	1,269	4,530	448	297	31	38	1	10,189
85	630	1	8	29	108	1,168	196	482	560	611	1,344	4,801	468	317	34	58	1	10,816
86	630	1	9	32	110	1,173	196	510	597	648	1,422	5,081	491	337	38	77	1	11,353
87	630	1	9	35	112	1,184	197	538	631	685	1,502	5,372	517	358	42	94	1	11,908
88	630	1	10	38	113	1,206	198	566	666	722	1,585	5,664	542	379	46	116	1	12,483
89	630	1	11	41	116	1,212	200	586	688	746	1,638	5,854	571	387	51	148	1	12,881
1990	630	2	11	44	119	1,241	200	599	697	754	1,655	5,902	578	388	56	184	1	13,061
91	630	2	11	44	124	1,246	200	601	700	757	1,663	5,932	582	389	56	184	1	13,122
92	630	2	11	44	128	1,248	200	601	700	757	1,663	5,932	582	389	56	184	1	13,128
93	630	2	11	44	132	1,249	200	601	700	757	1,663	5,932	582	389	56	184	1	13,133
94	630	2	11	44	135	1,250	200	601	700	757	1,663	5,932	582	389	56	184	1	13,137
95	630	2	11	44	137	1,251	200	601	700	757	1,663	5,932	582	389	56	184	1	13,140
96	630	2	11	44	138	1,252	200	601	700	757	1,663	5,932	582	389	56	184	1	13,142
97	630	2	11	44	140	1,252	200	601	700	757	1,663	5,932	582	389	56	184	1	13,144
98	630	2	11	44	140	1,252	200	601	700	757	1,663	5,932	582	389	56	184	1	13,144
99	630	2	11	44	140	1,252	200	601	700	757	1,663	5,932	582	389	56	184	1	13,144
2000 1/	630	2	11	44	140	1,252	200	601	700	757	1,663	5,932	582	389	56	184	1	13,144

1/ And each year thereafter for the remainder of the project repayment period.

TABLE 9

ESTIMATED ANNUAL PROJECT ENERGY GENERATION

(in millions of kilowatt-hours)

CALENDAR YEAR	OROVILLE-THERMALITO POWERPLANTS	COTTONWOOD POWERPLANT	PYRAMID AND CASTAIC POWERPLANTS	SAN LUIS PUMPING-GENERATING PLANT	UPPER & LOWER DEVIL CANYON POWERPLANTS	SAN LUIS OBISPO POWERPLANT	TOTAL GENERATION AT POWERPLANTS
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1967	253	0	0	0	0	0	253
68	1,783	0	0	41	0	0	1,824
69	2,278	0	0	60	0	0	2,338
1970	2,578	0	68	80	0	0	2,726
71	2,578	11	448	121	11	0	3,169
72	2,578	28	568	160	208	0	3,542
73	2,578	40	624	77	229	0	3,548
74	2,578	40	715	77	275	0	3,685
75	2,578	45	875	77	347	0	3,922
76	2,578	51	939	74	433	0	4,075
77	2,578	50	949	72	414	0	4,063
78	2,578	55	1,050	70	460	0	4,213
79	2,578	60	1,153	70	506	0	4,367
1980	2,578	65	1,256	69	552	2	4,522
81	2,578	69	1,376	81	585	3	4,692
82	2,578	72	1,495	97	614	5	4,861
83	2,578	76	1,615	113	644	7	5,032
84	2,578	79	1,734	128	674	9	5,202
85	2,578	83	1,853	147	704	15	5,380
86	2,578	87	1,974	147	737	20	5,543
87	2,578	91	2,095	143	775	25	5,707
88	2,578	96	2,217	143	814	30	5,878
89	2,578	101	2,265	139	859	39	5,981
1990	2,578	102	2,271	139	863	48	6,001
91	2,578	103	2,271	139	871	48	6,010
92	2,578	103	2,271	139	871	48	6,010
93	2,578	103	2,271	139	871	48	6,010
94	2,578	103	2,271	139	871	48	6,010
95	2,578	103	2,271	139	871	48	6,010
96	2,578	103	2,271	139	871	48	6,010
97	2,578	103	2,271	139	871	48	6,010
98	2,578	103	2,271	139	871	48	6,010
99	2,578	103	2,271	139	871	48	6,010
2000 1/	2,578	103	2,271	139	871	48	6,010

1/ And each year thereafter for the remainder of the project repayment period.

TABLE 10

FRENCHMAN LAKE MONTHLY OPERATION

(in acre-feet unless otherwise indicated)

MONTH	RESERVOIR STORAGE			OUTFLOW				INFLOW	RELEASES	
	WATER SURFACE ELEVATION, IN FEET	END OF MONTH STORAGE	MONTHLY STORAGE CHANGE	REGULATED RELEASE	SPILL	ESTIMATED EVAPORATION AND SEEPAGE	TOTAL GROSS OUTFLOW	COMPUTED OR ESTIMATED	WATER RIGHT ENTITLEMENT OR CONTRACT RELEASE 1/	PROJECT WATER 2/
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Jan.	5,573.69	35,563	597	123	0	83	206	803	0	123
Feb.	5,574.05	35,996	433	117	0	93	210	643	0	117
March	5,575.45	37,717	1,721	124	0	154	278	1,999	0	124
Apr.	5,578.52	41,667	3,950	136	0	397	533	4,483	0	136
May	5,578.30	41,376	- 291	3,312	0	513	3,825	3,534	3,242	70
June	5,576.59	39,155	-2,221	2,594	0	560	3,154	933	2,543	51
July	5,574.85	36,973	-2,182	1,496	0	742	2,238	56	1,468	28
August	5,571.30	32,771	-4,202	3,572	0	693	4,265	63	3,564	8
Sept.	5,570.42	31,782	- 989	593	0	550	1,143	154	581	12
Oct.	5,570.06	31,383	- 399	234	0	454	688	289	182	52
Nov.	5,570.13	31,460	77	126	0	178	304	381	16	110
Dec.	5,576.22	38,685	7,225	123	0	120	243	7,468	0	123
Totals	-	-	3,719	12,550	0	4,537	17,087	20,806	11,596	954

1/ Releases under the interim contract with the Last Chance Water District.
2/ Releases required specifically for streamflow maintenance.

TABLE 11

ANTELOPE LAKE MONTHLY OPERATION

(in acre-feet unless otherwise indicated)

MONTH	RESERVOIR STORAGE			OUTFLOW				INFLOW	RELEASES	
	WATER SURFACE ELEVATION IN FEET	END OF MONTH STORAGE 1/	MONTHLY STORAGE CHANGE	REGULATED RELEASE	SPILL	ESTIMATED EVAPORATION AND SEEPAGE	TOTAL GROSS OUTFLOW	COMPUTED OR ESTIMATED	WATER RIGHT ENTITLEMENT OR CONTRACT RELEASE 3/	PROJECT WATER 4/
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Jan.	4,954.04	576	--	772	0	--	--	--	--	--
Feb.	4,956.73	863	287	795	0	8	803	1,090	795	0
March	4,964.43	2,096	1,233	817	0	19	836	2,069	817	0
April	4,981.25	7,889	5,793	890	0	108	998	6,791	890	0
May	4,988.53	11,964	4,075	1,055	0	222	1,277	5,352	1,055	0
June	4,989.46	12,565	601	996	0	279	1,275	1,876	996	0
July	4,988.71	12,079	- 486	447	0	381	828	342	447	0
August	4,988.23	11,774	- 305	61	0	378	439	134	61	0
Sept.	4,987.95	11,598	- 176	50	0	308	358	182	50	0
Oct.	4,973.84	4,767	-6,831	6,447	0	--	--	--	6,447	0
Nov.	4,968.64	3,103	-1,664	2,196	0	46	2,242	578	2,196	0
Dec.	4,995.78	17,145	14,042	772 2/	0	41	813 2/	14,855 2/	772 2/	0

1/ Estimated from periodic gage readings.
2/ Includes runoff from precipitation and snowmelt between dam and gaging station.
3/ Releases required to satisfy water right entitlements in Indian Valley and the agreement with the Pacific Gas and Electric Company.
4/ Releases required specifically for streamflow maintenance.

TABLE 12

SOUTH BAY AQUEDUCT MONTHLY OPERATION

(All quantities in acre-feet unless otherwise indicated)

MONTH	SUPPLY	STORAGE CHANGES		DELIVERIES							LOSSES 1/		ENERGY CONSUMPTION (KILOWATT HOURS)	WATER QUALITY
	FROM DELTA-MENDOTA CANAL	BETHANY RESERVOIR	PATTERSON RESERVOIR	ALTAMONT TURNOUT				PATTERSON TURNOUT	OTHER TURNOUTS		FROM DELTA-MENDOTA CANAL TO SOUTH BAY PUMPING PLANT	SOUTH BAY PUMPING PLANT THROUGH PATTERSON RESERVOIR		AVERAGE TOTAL DISSOLVED SOLIDS AT SOUTH BAY PUMPING PLANT (PARTS PER MILLION)
				ALAMEDA CO. F.C. & W.C.D. - ZONE 7		ALAMEDA COUNTY WATER DISTRICT		ACFC & WCD ZONE 7	MUNICIPAL AND INDUSTRIAL	AGRICULTURE				
				MUNICIPAL & INDUST.	AGRICULTURE	MUNICIPAL & INDUST.	AGRICULTURE	MUNICIPAL & INDUST.						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
1964														
Jan.	1,277	-17	-9	4	0	588	588	70	10	43	0	0	1,008,000	290
Feb.	1,040	122	20	8	0	377	376	67	2	15	48	5	499,200	352
Mar.	1,315	85	-16	8	0	566	566	61	2	0	43	0	1,137,600	341
Apr.	621	-247	3	18	0	358	357	80	0	12	33	7	657,600	301
May	2,808	167	7	27	0	1,220	1,220	114	0	0	12	41	1,679,990	224
June	2,986	22	-93	31	0	1,342	1,342	161	19	19	97	46	2,332,800	209
July	2,754	-74	0	45	0	1,237	1,237	269	1	25	0	14	2,308,800	171
Aug.	2,348	22	0	42	0	956	956	218	2	0	87	65	1,684,800	254
Sept.	2,537	96	0	30	0	1,126	1,127	129	17	12	0	0	2,280,000	316
Oct.	2,469	-152	0	27	0	1,224	1,224	123	2	11	0	10	1,828,800	243
Nov.	1,479	269	0	4	0	535	534	65	2	28	6	36	1,041,600	315
Dec.	109	-115	8	4	0	72	72	68	13	3	0	-16	384,000	312
Total	21,743	178	-80	248	0	9,601	9,599	1,425	70	168	326	208	16,843,190	254 2/
1965														
Jan.	0	-79	0	0	0	0	0	72	1	6	0	0	81,600	329
Feb.	31	-113	0	5	0	0	0	67	14	23	31	4	105,600	329
Total Mar-Feb 3/	19,457	-119	-91	241	0	8,636	8,635	1,427	73	139	278	207	15,523,190	-

1/ Includes operational spills, water surface evaporation, and seepage.
2/ A weighted average.
3/ Bureau Water Year Totals.

TABLE 13

GENERAL RECONCILIATION OF CAPITAL COST CHANGES

(in thousands of dollars)

FACILITIES	BULLETIN NO. 132-64	BULLETIN NO. 132-65	CHANGE	MAJOR REASON FOR CHANGE
LOCAL PROJECTS	131,418	131,418	0	No change.
SAN JOAQUIN DRAINAGE FACILITIES	57,144	103,612	(+) 46,468	Increase in estimated costs due to inclusion of a concrete lining for the entire drainage canal, an emergency storage reservoir, and a waste water dilution facility.
UPPER FEATHER DIVISION	17,629	17,876	(+) 247	Increase in estimated costs of access road of the Abbey Bridge Unit more than offset the decrease in final cost of the Antelope Unit.
OROVILLE DIVISION	467,928	460,178	(-) 7,750	Decrease in estimated costs of reservoir clearing, spillway, and Oroville Powerplant more than offset the increase in estimated costs of the Feather Falls County Road relocation, South Fork Bridge, and Oroville rights-of-way.
DELTA FACILITIES	76,470	154,237	(+) 77,767	Increase in total estimated costs due to adoption of the peripheral canal concept.
UPPER EEL RIVER DEVELOPMENT	171,880	220,301	(+) 48,421	Increase in estimated costs due to greater size of works required to develop the enlarged minimum project yield.
CALIFORNIA AQUEDUCT:				
North San Joaquin division	137,286	120,407	(-) 16,879	Decrease in costs is due to lower bid prices received to date and a corresponding reduction in the estimates of future construction costs.
San Luis division	223,149	195,650	(-) 27,499	Decrease in estimated costs by the Bureau of Reclamation more than offset increases in the estimated costs of operation and maintenance centers, and the estimated costs of providing additional conveyance capacity in a parallel facility at a future date.
South San Joaquin division	205,867	235,251	(+) 29,384	Increase in estimated costs due to a 15 percent increase in capacity required for conveyance of the enlarged project yield and for excess capacity requested by The Metropolitan Water District of Southern California.
Tehachapi division	175,028	209,744	(+) 34,716	Increase in estimated costs due to a 20 percent increase in capacity required for conveyance of the enlarged project yield and for requested excess capacity.
East Branch division	348,881	295,211	(-) 53,670	Decrease in estimated costs corresponding with a decrease in required capacity more than offset increase in costs due to the addition of reaches formerly included in the Antelope division. Decrease in required capacity due to increase in maximum annual entitlements from the West Branch under water supply contract amendments for The Metropolitan Water District of Southern California, rather than from the East Branch division as assumed in Bulletin No. 132-64.
West Branch division	170,138	301,854	(+) 131,716	Increase in estimated costs reflect a 100 percent increase in capacity due to increases in maximum annual entitlements to be delivered under water supply contract amendments and for requested excess capacity.
Coastal Branch division	53,540	52,533	(-) 1,007	Decrease in estimated general costs more than offset costs due to a 10 percent increase in the capacity of the system caused by water supply contract amendments.
NORTH BAY AQUEDUCT	11,072	9,292	(-) 1,780	Decrease in estimated costs of operation and maintenance facilities.
SOUTH BAY AQUEDUCT	51,367	50,241	(-) 1,126	Decrease in estimated pipeline and other costs more than offset the increase in estimated costs of Del Valle Dam.
DELETED FACILITIES	1,760	1,365	(-) 395	Decrease in costs due to sale of rights-of-way for Airpoint reservoir, partially offset by increase in planning costs associated with deleted features.
TOTAL STATE WATER PROJECT	2,300,557	2,559,170	(+) 258,613	

TABLE 14

COMPOSITION OF PROJECTED ANNUAL CAPITAL COSTS

(in dollars)

CALENDAR YEAR	PROJECTED ANNUAL EXPENDITURES										TOTAL ACTUAL, FROM ACCOUNTING RECORDS 2/
	SURVEYS & ENGINEERING STUDIES	DESIGN	RIGHTS OF WAY ACQUISITION & RELOCATIONS	CONSTRUCTION	LOCAL IMPACT AID	PRE-OPERATING EXPENSES 1/		LOCAL PROJECTS (Davis-Grunsky Program)	STATE PARTICIPATION IN COSTS OF SAN LUIS DIVISION	TOTAL PROJECTED	
						GENERAL	DIRECT				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1952											277,835
53											657,145
54											737,377
55											391,035
56											1,755,475
57											8,476,794
58											12,458,093
59											15,268,395
1960											20,662,239
61											31,823,410
62											36,578,165
63											111,998,015
64											126,570,661
Subtotal											367,654,639
1965	2,328,000	22,441,000	42,874,000	98,589,307	810,000	4,129,100	0	10,000,000	36,631,000	217,802,407	0
66	2,510,000	15,074,000	28,883,000	197,102,400	425,000	5,044,200	205,000	10,000,000	36,692,500	295,936,100	0
67	2,191,000	8,761,000	21,899,000	252,500,100	412,152	4,440,400	1,195,000	10,000,000	23,019,500	324,418,152	0
68	1,183,000	4,780,000	16,248,000	256,261,900	0	3,347,900	143,000	10,000,000	6,235,295	298,199,095	0
69	150,000	5,732,000	7,270,000	238,526,005	0	2,957,800	533,000	10,000,000	517,295	265,686,100	0
1970	0	4,384,000	7,468,000	149,051,600	0	3,305,700	2,420,000	10,000,000	0	176,629,300	0
71	0	4,162,000	4,906,000	95,151,900	0	1,275,900	2,061,000	10,000,000	0	117,556,800	0
72	0	786,000	0	54,990,900	0	854,100	1,483,000	10,000,000	0	68,114,000	0
73	0	415,000	60,000	29,147,900	0	854,100	2,712,000	10,000,000	0	43,189,000	0
74	0	538,000	509,000	13,800,900	0	854,100	1,204,000	10,000,000	0	26,906,000	0
75	0	508,000	1,514,000	4,072,900	0	205,100	1,633,000	10,000,000	0	17,933,000	0
76	0	601,000	1,505,000	5,299,900	0	195,100	1,471,000	10,000,000	0	19,072,000	0
77	0	614,000	2,748,000	10,421,900	0	195,100	0	2,244,921	0	16,223,921	0
78	0	3,738,000	2,803,000	39,142,900	0	195,100	0	0	0	45,879,000	0
79	0	2,515,000	1,209,000	45,342,900	0	195,100	0	0	0	49,262,000	0
1980	0	2,500,000	850,000	23,135,000	0	114,000	0	0	0	26,599,000	0
81	0	0	850,000	34,150,000	0	114,000	0	0	0	35,114,000	0
82	0	0	0	44,000,000	0	114,000	0	0	0	44,114,000	0
83	0	2,860,000	0	52,141,000	0	114,000	0	0	0	55,115,000	0
84	0	15,000	0	23,098,000	0	114,000	0	0	0	23,227,000	0
85	0	0	0	17,324,000	0	114,000	0	0	0	17,438,000	0
86	0	0	0	6,829,000	0	0	0	0	0	6,829,000	0
87	0	12,000	0	0	0	0	0	0	0	12,000	0
88	0	0	0	100,000	0	0	0	0	0	100,000	0
89	0	0	0	160,000	0	0	0	0	0	160,000	0
1990	0	0	0	0	0	0	0	0	0	0	0
Subtotal	8,362,000	80,436,000	141,596,000	1,690,340,412	1,647,152	28,732,800	15,060,000	122,244,921 3/	103,095,590	2,191,514,875	
										GRAND TOTAL 2,559,169,514	

1/ Annual operating costs incurred for each facility prior to the conversion from construction to an operational status.
2/ Preliminary, subject to adjustment pending policy decisions.
3/ Balance of the $130,000,000 reserved under the Burns-Porter Act.

TABLE 15

COMPOSITION OF PROJECTED ANNUAL OPERATING COSTS

(in thousands of dollars)

CALENDAR YEAR	PROJECTED ANNUAL EXPENDITURES								TOTAL ACTUAL, FROM ACCOUNTING RECORDS 6/
	GENERAL OPERATING EXPENSE 1/	SALARIES AND EXPENSES 2/		MATERIALS AND SUPPLIES 3/	POWER AND ENERGY 4/		DEPOSITS TO REPLACEMENT RESERVES 5/	TOTAL	
		OPERATING PERSONNEL	MAINTENANCE PERSONNEL		PUMPING PLANTS	RECOVERY PLANTS			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1962									109
63									216
64									251
65	344	99	86	5	162	0	28	724	0
66	437	142	122	5	212	0	28	946	0
67	1,939	420	1,195	233	310	0	143	4,240	0
68	2,667	1,297	2,955	441	1,710	-131	1,875	10,814	0
69	2,397	1,325	3,554	477	1,996	-199	2,019	11,569	0
1970	2,349	1,277	3,955	478	1,448	-259	2,205	11,453	0
71	4,279	2,189	5,081	670	5,707	-1,740	3,259	19,445	0
72	4,451	2,599	6,150	896	7,312	-2,394	3,810	22,824	0
73	4,451	2,261	6,206	912	7,929	-2,537	4,051	23,273	0
74	4,451	2,715	7,333	948	10,503	-2,972	4,209	27,187	0
75	5,100	2,559	7,866	1,033	11,381	-3,537	5,093	29,495	0
76	4,910	2,569	7,893	1,040	12,862	-3,995	5,126	30,405	0
77	4,910	2,290	7,056	1,044	16,652	-4,350	5,141	32,743	0
78	4,910	2,300	7,087	1,044	19,069	-4,906	5,141	34,645	0
79	4,910	2,376	7,074	1,044	21,322	-5,378	5,169	36,517	0
1980	4,991	2,371	7,341	1,049	23,516	-5,780	5,249	38,737	0
81	4,991	2,381	7,370	1,050	26,213	-6,187	5,249	41,067	0
82	4,991	2,387	7,391	1,050	28,195	-6,604	5,249	42,659	0
83	4,991	2,395	7,412	1,050	31,084	-7,022	5,249	45,159	0
84	4,991	2,403	7,437	1,050	34,089	-7,402	5,249	47,817	0
85	4,991	2,427	7,511	1,050	37,028	-7,763	5,286	50,530	0
86	5,105	2,572	7,945	1,054	39,053	-8,111	5,360	52,978	0
87	5,105	2,580	7,966	1,054	41,082	-8,423	5,360	54,724	0
88	5,105	2,587	7,989	1,054	43,180	-8,777	5,360	56,498	0
89	5,105	2,594	8,011	1,054	44,097	-8,977	5,360	57,244	0
1990	5,105	2,594	8,010	1,054	44,415	-9,010	5,364	57,532	0
91	5,105	2,594	8,011	1,055	44,512	-9,023	5,364	57,618	0
92	5,105	2,594	8,011	1,055	44,520	-9,023	5,364	57,626	0
93	5,105	2,594	8,011	1,055	44,530	-9,023	5,364	57,636	0
94	5,105	2,594	8,011	1,055	44,537	-9,023	5,364	57,643	0
95	5,105	2,594	8,011	1,055	44,541	-9,023	5,364	57,647	0
96	5,105	2,594	8,011	1,055	44,544	-9,023	5,364	57,650	0
97	5,105	2,594	8,011	1,055	44,548	-9,023	5,364	57,654	0
98	5,105	2,594	8,011	1,055	44,548	-9,023	5,364	57,654	0
99	5,105	2,594	8,011	1,055	44,548	-9,023	5,364	57,654	0
2000 7/	5,105	2,594	8,011	1,055	44,548	-9,023	5,364	57,654	0

1/ Includes the costs of project-wide programs for contract negotiation and administration, operation and maintenance management, and research and development. Also included in this column is a miscellaneous cost of about $150,000 annually for insurance for the Oroville-Thermalito power facilities required under revenue bond financing.

2/ Includes the direct costs of salaries and expenses, including general administrative and indirect costs of the Department.

3/ Includes the costs of materials, supplies and equipment rental for electrical-mechanical plants, reservoirs, and aqueduct reaches.

4/ Does not include power and energy requirements or production by power features of the Oroville division or for the federal share of power and pumping plant features of the San Luis division.

5/ Based on sinking funds earning 3.5 percent per annum.

6/ Preliminary, subject to adjustment pending accounting, engineering, and legal decisions.

7/ And each year thereafter for the remainder of the project repayment period.

TABLE 16

ACTUAL AND PROJECTED CAPITAL COSTS OF FACILITIES
BY PROJECT PURPOSE

(in dollars)

CALENDAR YEAR	UNSPECIFIED PURPOSES		SAN JOAQUIN DRAINAGE FACILITIES, ALL ASSUMED DRAINAGE 3/	UPPER FEATHER DIVISION (PROJECT CONSERVATION FACILITIES)									
				FRENCHMAN UNIT				GRIZZLY VALLEY UNIT 7/			ANTELOPE VALLEY UNIT, R&F&WE 4/ (100%)	REMAINING UNITS, ALL ASSUMED R&F&WE 3/ 4/ 8/	TOTAL
	LOCAL PROJECTS 1/ (DAVIS-GRUNSKY PROGRAM)	FEATURES DELETED FROM PROJECT 2/		SPECIFIC R&F&WE 4/	MULTIPLE-PURPOSE 5/ R&F&WE 4/ (50.0%)	MULTIPLE-PURPOSE 5/ WATER SUPPLY 6/ (50.0%)	TOTAL	MULTIPLE-PURPOSE 5/ R&F&WE 4/ (94.9%)	MULTIPLE-PURPOSE 5/ WATER SUPPLY (5.1%)	TOTAL			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1952	0	22,202	0	0	0	0	0	0	0	0	0	0	0
53	0	61,096	0	0	0	0	0	0	0	0	0	0	0
54	0	77,059	0	0	0	0	0	0	0	0	0	0	0
55	0	40,852	0	0	0	0	0	0	0	0	0	0	0
56	0	54,883	0	0	0	0	0	0	0	0	0	0	0
57	0	211,800	0	0	1,306	1,306	2,612	1,736	93	1,829	2,175	3,243	9,859
58	0	356,751	0	0	102,244	102,244	204,488	1,962	105	2,067	2,433	3,640	212,628
59	12,666	201,993	0	42,110	232,260	232,260	506,630	11,481	617	12,098	29,464	75,422	623,614
1960	86,983	98,811	53,438	0	491,910	491,910	983,820	12,789	687	13,476	33,736	89,210	1,120,242
61	544,166	72,834	418,557	0	408,866	408,866	817,732	879	47	926	197,319	5,297	1,021,274
62	623,352	19,293	448,088	-154	219,779	226,990	446,615	117,645	6,322	123,967	934,039	10,588	1,515,209
63	3,695,417	56,203	447,124	-282	66,007	65,574	131,299	172,960	9,295	182,255	2,543,069	6,648	2,863,271
64	4,210,974	82,118	528,070	- 26	7,550	4,438	11,962	529,200	28,440	557,640	448,970	30,668	1,049,240
65	10,000,000	9,307	992,000	0	0	0	0	1,075,400	58,000	1,133,400	0	148,700	1,282,100
66	10,000,000	0	4,172,000	0	0	0	0	1,221,100	66,000	1,287,100	0	309,000	1,596,100
67	10,000,000	0	10,981,000	0	0	0	0	6,000	0	6,000	0	1,961,300	1,967,300
68	10,000,000	0	17,423,000	0	8,000	8,000	16,000	38,000	2,000	40,000	10,000	1,948,500	2,014,500
69	10,000,000	0	14,355,000	0	43,000	43,000	86,000	206,000	11,000	217,000	53,000	160,700	516,700
1970	10,000,000	0	3,622,000	0	39,500	39,500	79,000	190,000	10,000	200,000	49,000	913,700	1,241,700
71	10,000,000	0	0	0	0	0	0	0	0	0	0	841,800	841,800
72	10,000,000	0	0	0	0	0	0	0	0	0	0	0	0
73	10,000,000	0	0	0	0	0	0	0	0	0	0	0	0
74	10,000,000	0	0	0	0	0	0	0	0	0	0	0	0
75	10,000,000	0	1,105,000	0	0	0	0	0	0	0	0	0	0
76	10,000,000	0	1,196,000	0	0	0	0	0	0	0	0	0	0
77	2,244,921	0	92,000	0	0	0	0	0	0	0	0	0	0
78	0	0	4,942,000	0	0	0	0	0	0	0	0	0	0
79	0	0	6,427,000	0	0	0	0	0	0	0	0	0	0
1980	0	0	1,485,000	0	0	0	0	0	0	0	0	0	0
81	0	0	0	0	0	0	0	0	0	0	0	0	0
82	0	0	0	0	0	0	0	0	0	0	0	0	0
83	0	0	9,320,000	0	0	0	0	0	0	0	0	0	0
84	0	0	12,956,000	0	0	0	0	0	0	0	0	0	0
85	0	0	10,380,000	0	0	0	0	0	0	0	0	0	0
86	0	0	2,269,000	0	0	0	0	0	0	0	0	0	0
87	0	0	0	0	0	0	0	0	0	0	0	0	0
88	0	0	0	0	0	0	0	0	0	0	0	0	0
89	0	0	0	0	0	0	0	0	0	0	0	0	0
1990	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	131,418,479	1,365,202	103,612,277	41,648	1,620,422	1,624,088	3,286,158	3,585,152	192,606	3,777,758	4,303,205	6,508,416	17,875,537

Footnotes on Sheet 5.

TABLE 16 (Continued)

TABLE 16 (Continued)

ACTUAL AND PROJECTED CAPITAL COSTS OF FACILITIES
BY PROJECT PURPOSE

(in dollars)

CALENDAR YEAR	OROVILLE DIVISION (PROJECT CONSERVATION FACILITIES)							DELTA FACILITIES[10] (PROJECT CONSERVATION FACILITIES)					UPPER EEL RIVER DEVELOPMENT, ALL ASSUMED WATER SUPPLY[3]
	SPECIFIC			MULTIPLE-PURPOSE[5]			TOTAL	ASSUMED SPECIFIC WATER SUPPLY	ASSUMED MULTIPLE-PURPOSE			TOTAL	
	R&F&WE[4]	WATER SUPPLY & POWER GENERATION[9]	TOTAL	WATER SUPPLY & POWER GENERATION (78.8%)	FLOOD CONTROL (21.2%)	TOTAL			R&F&WE[4]	WATER SUPPLY	TOTAL		
	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)
1952	0	20,016	20,016	104,206	28,035	132,241	152,257	0	0	0	0	0	0
53	0	44,065	44,065	173,880	46,779	220,659	264,724	0	0	0	0	0	0
54	0	37,549	37,549	163,830	44,075	207,905	245,454	0	0	0	0	0	0
55	0	29,531	29,531	96,034	25,836	121,870	151,401	0	0	0	0	0	0
56	0	76,534	76,534	965,185	259,669	1,224,854	1,301,388	0	0	0	0	0	0
57	0	165,829	165,829	5,190,795	1,396,508	6,587,303	6,753,132	0	0	0	0	0	0
58	0	174,695	174,695	7,459,603	2,006,898	9,466,501	9,641,196	0	0	0	0	0	0
59	0	370,066	370,066	7,928,895	2,133,154	10,062,049	10,432,115	0	0	0	0	0	0
1960	0	610,597	610,597	9,858,792	2,652,365	12,511,157	13,121,754	3,526	25,474	42,961	68,435	71,961	0
61	7,640	1,225,961	1,233,601	13,833,049	3,721,582	17,554,631	18,788,232	21,247	153,499	258,868	412,367	433,614	0
62	73,101	2,510,623	2,583,724	14,689,200	3,951,917	18,641,117	21,224,841	32,645	235,843	397,736	633,579	666,224	0
63	259,661	5,394,940	5,654,601	33,487,712	9,009,385	42,497,097	48,151,698	62,843	454,005	765,653	1,219,658	1,282,501	0
64	67,833	17,334,825	17,402,658	26,899,334	7,236,876	34,136,210	51,538,868	74,783	540,272	911,137	1,451,409	1,526,192	199,268
65	0	26,726,000	26,726,000	47,505,200	12,780,500	60,285,700	87,011,700	96,000	693,000	1,169,000	1,862,000	1,958,000	796,000
66	0	50,001,000	50,001,000	42,661,000	11,477,200	54,138,200	104,139,200	117,000	848,000	1,430,000	2,278,000	2,395,000	972,000
67	0	28,725,000	28,725,000	28,425,500	7,647,496	36,072,996	64,797,996	164,000	1,188,000	2,004,000	3,192,000	3,356,000	878,000
68	0	13,454,000	13,454,000	5,443,000	1,464,000	6,907,000	20,361,000	508,000	3,671,000	6,191,000	9,862,000	10,370,000	463,000
69	0	1,271,000	1,271,000	403,000	109,000	512,000	1,783,000	1,103,000	7,971,000	13,442,000	21,413,000	22,516,000	124,000
1970	0	50,000	50,000	93,000	25,000	118,000	168,000	1,459,000	10,537,000	17,770,000	28,307,000	29,766,000	124,000
71	0	40,000	40,000	87,000	23,000	110,000	150,000	1,438,000	10,390,000	17,521,000	27,911,000	29,349,000	121,000
72	0	0	0	0	0	0	0	1,242,000	8,974,000	15,133,000	24,107,000	25,349,000	121,000
73	0	0	0	0	0	0	0	821,000	5,929,000	9,999,000	15,928,000	16,749,000	121,000
74	0	0	0	0	0	0	0	414,000	2,991,000	5,044,000	8,035,000	8,449,000	121,000
75	0	0	0	0	0	0	0	0	0	0	0	0	121,000
76	0	0	0	0	0	0	0	0	0	0	0	0	114,000
77	0	0	0	0	0	0	0	0	0	0	0	0	5,114,000
78	0	0	0	0	0	0	0	0	0	0	0	0	24,114,000
79	0	0	0	0	0	0	0	0	0	0	0	0	32,114,000
1980	0	0	0	0	0	0	0	0	0	0	0	0	25,114,000
81	0	0	0	0	0	0	0	0	0	0	0	0	35,114,000
82	0	0	0	0	0	0	0	0	0	0	0	0	44,114,000
83	0	0	0	0	0	0	0	0	0	0	0	0	44,114,000
84	0	0	0	0	0	0	0	0	0	0	0	0	6,114,000
85	0	0	0	0	0	0	0	0	0	0	0	0	114,000
86	0	0	0	0	0	0	0	0	0	0	0	0	0
87	0	0	0	0	0	0	0	0	0	0	0	0	0
88	0	0	0	0	0	0	0	0	0	0	0	0	0
89	0	0	0	0	0	0	0	0	0	0	0	0	0
1990	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	408,235	148,262,231	148,670,466	245,468,215	66,039,275	311,507,490	460,177,956	7,557,044	54,601,093	92,079,355	146,680,448	154,237,492	220,301,268

Footnotes on Sheet 5.

TABLE 16 (Continued)

TABLE 16 (Continued)

ACTUAL AND PROJECTED CAPITAL COSTS OF FACILITIES
BY PROJECT PURPOSE

(in dollars)

CALENDAR YEAR	CALIFORNIA AQUEDUCT												NORTH BAY AQUEDUCT, ALL ASSUMED WATER SUPPLY3/
	PROJECT CONSERVATION FACILITIES					PROJECT TRANSPORTATION FACILITIES						TOTAL	
	SPECIFIC R&F&WE 4/	MULTIPLE-PURPOSE5/			TOTAL	SPECIFIC		MULTIPLE-PURPOSE5/			TOTAL		
		R&F&WE4/ (4.4%)	WATER SUPPLY (95.6%)	TOTAL		R&F&WE4/	WATER SUPPLY 11/	R&F&WE4/ (2.6%)	WATER SUPPLY (97.4%)	TOTAL			
	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)	(39)
1952	0	132	2,860	2,992	2,992	0	0	2,600	97,388	99,988	99,988	102,980	0
53	0	332	7,253	7,585	7,585	0	0	8,371	313,394	321,765	321,765	329,350	0
54	0	405	8,862	9,267	9,267	0	0	10,383	388,763	399,146	399,146	408,413	0
55	0	209	4,566	4,775	4,775	0	0	4,822	180,526	185,348	185,348	190,123	0
56	0	2,055	44,679	46,734	46,734	0	0	6,145	230,108	236,253	236,253	282,987	0
57	0	3,615	78,567	82,182	82,182	0	0	16,684	624,862	641,546	641,546	723,728	20,880
58	0	5,762	125,255	131,017	131,017	0	0	31,496	1,179,656	1,211,152	1,211,152	1,342,169	40,881
59	0	53,087	1,153,903	1,206,990	1,206,990	0	54,980	50,784	1,900,333	1,951,117	2,006,097	3,213,087	22,593
1960	2,085	68,091	1,480,022	1,548,113	1,550,198	0	112,338	68,513	2,563,897	2,632,410	2,744,748	4,294,946	19,004
61	0	42,711	928,809	971,520	971,520	371,158	62,653	126,211	4,725,896	4,852,107	5,285,918	6,257,438	15,869
62	51,629	91,015	1,980,940	2,071,955	2,123,584	665	90,426	170,513	6,382,283	6,552,796	6,643,887	8,767,471	5,689
63	1,124	1,186,377	25,785,617	26,971,994	26,973,118	324,026	169,832	570,417	21,345,258	21,915,675	22,409,533	49,382,651	15,470
64	0	913,583	19,861,400	20,774,983	20,774,983	40,811	469,172	921,310	34,475,722	35,397,032	35,907,015	56,681,998	23,253
65	0	1,080,400	23,511,900	24,592,300	24,592,300	0	578,000	2,228,800	83,390,500	85,619,300	86,197,300	110,789,600	170,500
66	0	873,200	19,021,100	19,894,300	19,894,300	0	4,161,000	3,697,800	138,416,500	142,114,300	146,275,300	166,169,600	847,900
67	0	517,000	11,298,456	11,815,456	11,815,456	0	4,517,000	5,416,300	202,716,000	208,132,300	212,649,300	224,464,756	1,340,800
68	0	57,000	1,222,295	1,279,295	1,279,295	0	427,300	6,035,000	226,089,400	232,124,400	232,551,700	233,830,995	198,300
69	0	3,000	69,000	72,000	72,000	0	182,300	5,602,900	209,965,600	215,568,500	215,750,800	215,822,800	28,600
1970	0	1,000	24,000	25,000	25,000	0	60,300	3,423,000	128,076,600	131,499,600	131,559,900	131,584,900	28,700
71	0	0	0	0	0	0	76,300	1,996,000	74,995,000	76,991,000	77,067,300	77,067,300	27,700
72	0	1,000	15,000	16,000	16,000	0	358,300	750,000	31,492,000	32,242,000	32,600,300	32,616,300	27,700
73	0	24,000	521,000	545,000	545,000	0	549,300	396,000	14,801,000	15,197,000	15,746,300	16,291,300	27,700
74	0	24,000	521,000	545,000	545,000	0	1,004,300	267,000	6,492,000	6,759,000	7,763,300	8,308,300	27,700
75	0	0	0	0	0	0	2,291,300	114,000	4,274,000	4,388,000	6,679,300	6,679,300	27,700
76	0	0	0	0	0	0	6,201,300	39,000	1,432,000	1,471,000	7,672,300	7,672,300	89,700
77	0	0	0	0	0	0	8,286,300	0	0	0	8,286,300	8,286,300	486,700
78	0	0	0	0	0	0	14,415,300	0	0	0	14,415,300	14,415,300	2,407,700
79	0	0	0	0	0	0	7,330,300	0	0	0	7,330,300	7,330,300	3,390,700
1980	0	0	0	0	0	0	0	0	0	0	0	0	0
81	0	0	0	0	0	0	0	0	0	0	0	0	0
82	0	0	0	0	0	0	0	0	0	0	0	0	0
83	0	6,000	147,000	153,000	153,000	0	60,000	38,000	1,430,000	1,468,000	1,528,000	1,681,000	0
84	0	14,000	293,000	307,000	307,000	0	815,000	78,000	2,957,000	3,035,000	3,850,000	4,157,000	0
85	0	27,000	586,000	613,000	613,000	0	260,000	157,000	5,914,000	6,071,000	6,331,000	6,944,000	0
86	0	20,000	441,000	461,000	461,000	0	0	106,000	3,993,000	4,099,000	4,099,000	4,560,000	0
87	0	0	0	0	0	0	0	0	0	0	0	0	0
88	0	0	0	0	0	0	0	0	0	0	0	0	0
89	0	0	0	0	0	0	0	0	0	0	0	0	0
1990	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	54,838	5,014,974	109,133,484	114,148,458	114,203,296	736,660	52,533,001	32,333,049	1,210,842,686	1,243,175,735	1,296,445,396	1,410,648,692	9,291,739

Footnotes on Sheet 5.

TABLE 16 (Continued)

TABLE 16 (Continued)

ACTUAL AND PROJECTED CAPITAL COSTS OF FACILITIES
BY PROJECT PURPOSE

(in dollars)

CALENDAR YEAR	SOUTH BAY AQUEDUCT (PROJECT TRANSPORTATION FACILITIES)						TOTAL BY PURPOSE, STATE WATER PROJECT						
	SPECIFIC WATER SUPPLY 12/	MULTIPLE-PURPOSE 5/				TOTAL	UNSPECIFIED 13/	DRAINAGE 14/	RECREATION AND FISH AND WILDLIFE ENHANCEMENT 15/	FLOOD CONTROL 16/	WATER SUPPLY AND OROVILLE POWER		TOTAL
		R&F&WE (28.6%) 4/	WATER SUPPLY (40.0%)	FLOOD CONTROL (31.4%)	TOTAL						PROJECT CONSERVATION FACILITIES 17/	PROJECT TRANSPORTATION FACILITIES 18/	
	(40)	(41)	(42)	(43)	(44)	(45)	(46)	(47)	(48)	(49)	(50)	(51)	(52)
1952	291	30	42	33	105	396	22,202	0	2,762	28,068	127,082	97,721	277,835 19/
53	1,452	150	209	164	523	1,975	61,096	0	8,853	46,943	225,198	315,055	657,145 19/
54	4,741	489	684	537	1,710	6,451	77,059	0	11,277	44,612	210,241	394,188	737,377 19/
55	6,372	654	915	718	2,287	8,659	40,852	0	5,685	26,554	130,131	187,813	391,035 19/
56	87,790	8,130	11,371	8,926	28,427	116,217	54,883	0	16,330	268,595	1,086,398	329,269	1,755,475 19/
57	692,713	18,499	25,873	20,310	64,682	757,395	211,800	0	47,258	1,416,818	5,436,590	1,364,328	8,476,794 19/
58	826,446	10,874	15,209	11,939	38,022	864,468	356,751	0	158,411	2,018,837	7,861,902	2,062,192	12,458,093 19/
59	709,610	15,077	21,087	16,553	52,717	762,327	214,659	0	509,685	2,149,707	9,685,741	2,708,603	15,268,395 19/
1960	1,602,712	55,023	76,955	60,410	192,388	1,795,100	185,794	53,438	846,831	2,712,775	12,488,495	4,374,906	20,662,239 19/
61	4,048,610	63,726	89,126	69,964	222,816	4,271,426	617,000	418,557	1,377,306	3,791,546	16,676,847	8,942,154	31,823,410 19/
62	3,196,450	31,903	44,619	35,026	111,548	3,307,998	642,645	448,088	1,936,566	3,986,943	19,844,456	9,719,467	36,578,165 19/
63	5,573,871	151,525	211,924	166,360	529,809	6,103,680	3,751,620	447,124	5,735,537	9,175,745	65,571,634	27,316,355	111,998,015 19/
64	9,962,425	219,721	307,302	241,232	768,255	10,730,680	4,293,092	528,070	3,719,892	7,478,108	65,313,625	45,237,874	126,570,661 19/
65	3,514,300	365,800	511,500	401,600	1,278,900	4,793,200	10,009,307	992,000	5,592,100	13,182,100	99,862,100	88,164,800	217,802,407
66	375,900	1,506,800	2,107,300	1,654,300	5,268,400	5,644,300	10,000,000	4,172,000	8,455,900	13,131,500	114,268,100	145,908,600	295,936,100
67	483,200	1,758,600	2,459,700	1,930,800	6,149,100	6,632,300	10,000,000	10,981,000	10,847,200	9,578,296	71,494,956	211,516,700	324,418,152
68	802,000	782,600	1,094,500	859,200	2,736,300	3,538,300	10,000,000	17,423,000	12,550,100	2,323,200	27,291,295	228,611,500	298,199,095
69	540,000	0	0	0	0	540,000	10,000,000	14,355,000	14,039,600	109,000	16,466,000	210,716,500	265,686,100
1970	94,000	0	0	0	0	94,000	10,000,000	3,622,000	15,153,200	25,000	19,569,500	128,259,600	176,629,300
71	0	0	0	0	0	0	10,000,000	0	13,227,800	23,000	19,207,000	75,099,000	117,556,800
72	0	0	0	0	0	0	10,000,000	0	9,725,000	0	16,511,000	31,878,000	68,114,000
73	0	0	0	0	0	0	10,000,000	0	6,349,000	0	11,462,000	15,378,000	43,189,000
74	0	0	0	0	0	0	10,000,000	0	3,282,000	0	6,100,000	7,524,000	26,906,000
75	0	0	0	0	0	0	10,000,000	1,105,000	114,000	0	121,000	6,593,000	17,933,000
76	0	0	0	0	0	0	10,000,000	1,196,000	39,000	0	114,000	7,723,000	19,072,000
77	0	0	0	0	0	0	2,244,921	92,000	0	0	5,114,000	8,773,000	16,223,921
78	0	0	0	0	0	0	0	4,942,000	0	0	24,114,000	16,823,000	45,879,000
79	0	0	0	0	0	0	0	6,427,000	0	0	32,114,000	10,721,000	49,262,000
1980	0	0	0	0	0	0	0	1,485,000	0	0	25,114,000	0	26,599,000
81	0	0	0	0	0	0	0	0	0	0	35,114,000	0	35,114,000
82	0	0	0	0	0	0	0	0	0	0	44,114,000	0	44,114,000
83	0	0	0	0	0	0	0	9,320,000	44,000	0	44,261,000	1,490,000	55,115,000
84	0	0	0	0	0	0	0	12,956,000	92,000	0	6,407,000	3,772,000	23,227,000
85	0	0	0	0	0	0	0	10,380,000	184,000	0	700,000	6,174,000	17,438,000
86	0	0	0	0	0	0	0	2,269,000	126,000	0	441,000	3,993,000	6,829,000
87	12,000	0	0	0	0	12,000	0	0	0	0	0	12,000	12,000
88	100,000	0	0	0	0	100,000	0	0	0	0	0	100,000	100,000
89	160,000	0	0	0	0	160,000	0	0	0	0	0	160,000	160,000
1990	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	32,794,883	4,989,601	6,978,316	5,478,072	17,445,989	50,240,872	132,783,681	103,612,277	114,197,293	71,517,347	824,618,291	1,312,440,625	2,559,169,514

Footnotes on Sheet 5.

TABLE 16 (Continued)

ACTUAL AND PROJECTED CAPITAL COSTS OF FACILITIES
BY PROJECT PURPOSE

1/ Projects financed under the Davis-Grunsky Program may be constructed for a number of purposes as set forth in Water Code Section 12880. The allocation of the future costs of the program among purposes can not be projected at this time.

2/ Includes costs previously incurred for features deleted from the North and South Bay Aqueducts.

3/ In order to present a complete tabulation, the costs of those facilities not covered in Bulletin No. 153-65 are herein shown allocated to the primary purposes for which the facilities will be constructed.

4/ "R&F&WE" represents the abbreviation of the term "Recreation and Fish and Wildlife Enhancement". These project purposes were considered as one in Bulletin No. 153-65. Costs of R&F&WE shown consist of allocated multiple-purpose costs and cetain specific costs. The latter includes costs of recreation lands purchased concurrently with project lands pursuant to Water Code Section 346.

5/ Multiple-purpose costs allocated to project purposes as determined by the percentages contained in Bulletin No. 153-65. In the case of allocations determined by the Federal Government, (Oroville and Del Valle Dams and reservoirs) the percentages reported in Bulletin No. 153-65 have been converted to percentages applicable only to the costs accounted for by the State.

6/ Includes operation and maintenance costs allocated to water supply incurred through 1964, as reduced by income from interim water sales, totaling $3,667. ($7,211 in 1962; -$432 in 1963; and -$3,112 in 1964).

7/ Does not include the costs of the Grizzly Valley Pipeline (estimated to be about $463,000) which may be added at a later date.

8/ Includes the costs of Dixie Refuge and Abbey Bridge Units.

9/ Consists of the costs of the Oroville-Thermalito power facilities.

10/ Based upon those costs of features involving nonfederal water supply shown distributed to purposes in Table 5 of the Interagency Delta Committee Report, "Plan of Development, Sacramento-San Joaquin Delta", dated January 1965.

11/ Consists of the total costs of the Coastal Branch division. Recreation and fish and wildlife enhancement developments are currently not contemplated for this portion of the California Aqueduct.

12/ Consists of the total costs of the South Bay Aqueduct except those associated with Del Valle Dam and reservoir.

13/ The total of Columns 1 and 2.

14/ The same as Column 3.

15/ The total of Columns 4, 5, 8, 11, 12, 14, 22, 27, 28, 32, 34, and 41.

16/ The total of Columns 18 and 43.

17/ The total of Columns 6, 9, 15, 17, 21, 23, 26, and 29.

18/ The total of Columns 33, 35, 39, 40, and 42.

19/ Actual costs; all others projected herein.

TABLE 17

ACTUAL AND PROJECTED OPERATING COSTS OF FACILITIES
BY PROJECT PURPOSE AND BY CATEGORY[1]

(in thousands of dollars)

CALENDAR YEAR	SAN JOAQUIN DRAINAGE FACILITIES, ASSUMED SPECIFIC DRAINAGE	UPPER FEATHER DIVISION (PROJECT CONSERVATION FACILITIES)							OROVILLE DIVISION (PROJECT CONSERVATION FACILITIES)				
		FRENCHMAN UNIT, MULTIPLE-PURPOSE[2]			GRIZZLY VALLEY UNIT, MULTIPLE-PURPOSE[2]			REMAINING UNITS, ALL SPECIFIC	SPECIFIC WATER SUPPLY AND POWER GENERATION	MULTIPLE-PURPOSE[2]			TOTAL (MINIMUM)
		R&F&WE[3] (50.0%)	WATER SUPPLY (50.0%)	TOTAL (MINIMUM)	R&F&WE[3] (91.2%)	WATER SUPPLY (8.8%)	TOTAL (MINIMUM)	R&F&WE[3] (MINIMUM)		WATER SUPPLY AND POWER GENERATION (83.5%)	FLOOD CONTROL (16.5%)	TOTAL	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1962	0	0	0	0	0	0	0	0	0	0	0	0	0
63	0	0	0	0	0	0	0	0	0	0	0	0	0
64	0	0	0	0	0	0	0	0	0	0	0	0	0
65	0	8	8	16	0	0	0	9	0	0	0	0	0
66	0	8	8	16	0	0	0	10	0	0	0	0	0
67	229	8	9	17	38	4	42	10	1,508	136	27	163	1,671
68	229	8	9	17	39	4	43	10	2,453	201	40	241	2,694
69	459	8	8	16	37	4	41	16	2,463	267	52	319	2,782
1970	659	8	8	16	37	4	41	16	2,482	269	53	322	2,804
71	660	8	8	16	37	4	41	16	2,443	279	54	333	2,776
72	660	8	8	16	37	4	41	25	2,398	287	56	343	2,741
73	660	8	8	16	37	4	41	25	2,398	287	56	343	2,741
74	660	8	8	16	37	4	41	25	2,398	287	56	343	2,741
75	660	8	8	16	37	4	41	25	2,398	287	56	343	2,741
76	660	8	8	16	37	4	41	24	2,379	284	56	340	2,719
77	560	8	8	16	37	4	41	24	2,379	284	56	340	2,719
78	560	8	8	16	37	4	41	24	2,379	284	56	340	2,719
79	621	8	8	16	37	4	41	24	2,379	284	56	340	2,719
1980	688	8	8	16	37	4	41	24	2,379	284	56	340	2,719
81	688	8	8	16	37	4	41	24	2,379	284	56	340	2,719
82	688	8	8	16	37	4	41	24	2,379	284	56	340	2,719
83	688	8	8	16	37	4	41	24	2,379	284	56	340	2,719
84	688	8	8	16	37	4	41	24	2,379	284	56	340	2,719
85	798	8	8	16	37	4	41	24	2,379	284	56	340	2,719
86	908	8	8	16	37	4	41	24	2,379	284	56	340	2,719
87	912	8	8	16	37	4	41	24	2,379	284	56	340	2,719
88	912	8	8	16	37	4	41	24	2,379	284	56	340	2,719
89	912	8	8	16	37	4	41	24	2,379	284	56	340	2,719
1990	912	8	8	16	37	4	41	24	2,379	284	56	340	2,719
91	912	8	8	16	37	4	41	24	2,379	284	56	340	2,719
92	912	8	8	16	37	4	41	24	2,379	284	56	340	2,719
93	912	8	8	16	37	4	41	24	2,379	284	56	340	2,719
94	912	8	8	16	37	4	41	24	2,379	284	56	340	2,719
95	912	8	8	16	37	4	41	24	2,379	284	56	340	2,719
96	912	8	8	16	37	4	41	24	2,379	284	56	340	2,719
97	912	8	8	16	37	4	41	24	2,379	284	56	340	2,719
98	912	8	8	16	37	4	41	24	2,379	284	56	340	2,719
99	912	8	8	16	37	4	41	24	2,379	284	56	340	2,719
2000[17]	912	8	8	16	37	4	41	24	2,379	284	56	340	2,719

Footnotes on Sheet 5.

TABLE 17 (CONTINUED)
ACTUAL AND PROJECTED OPERATING COSTS OF FACILITIES
BY PROJECT PURPOSE AND BY CATEGORY[1]
(in thousands of dollars)

CALENDAR YEAR	DELTA FACILITIES (PROJECT CONSERVATION FACILITIES)				UPPER EEL RIVER DEVELOPMENT, SPECIFIC WATER SUPPLY (MINIMUM)	CALIFORNIA AQUEDUCT							
						PROJECT CONSERVATION FACILITIES				PROJECT TRANSPORTATION FACILITIES			
	MINIMUM		VARIABLE, WATER SUPPLY[4]	TOTAL		MULTIPLE-PURPOSE (MINIMUM)[2]		VARIABLE, WATER SUPPLY[5]	TOTAL	SPECIFIC WATER SUPPLY[2]		MULTIPLE-PURPOSE (MINIMUM)[2]	
	R&F&WE[3]	WATER SUPPLY				R&F&WE[3] (8.0%)	WATER SUPPLY (92.0%)			MINIMUM	VARIABLE	R&F&WE[3]	WATER SUPPLY (90.3%)
	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)
1962	0	0	0	0	0	0	0	0	0	0	0	0	0
63	0	0	0	0	0	0	0	0	0	0	0	0	0
64	0	0	0	0	0	0	0	0	0	0	0	0	0
65	0	0	0	0	0	0	163	0	163	0	0	0	137
66	0	0	0	0	0	0	256	0	256	0	0	0	178
67	0	0	0	0	0	10	594	0	604	0	0	68	1,004
68	0	0	0	0	0	30	1,890	1,406	3,326	75	129	251	2,991
69	0	0	0	0	0	65	2,088	1,348	3,501	69	133	262	3,095
1970	0	0	0	0	0	67	1,489	1,419	2,975	71	115	288	3,299
71	0	0	0	0	0	66	1,279	1,255	2,600	84	120	756	7,655
72	0	0	0	0	0	66	1,249	1,191	2,506	93	150	910	9,165
73	0	0	0	0	0	66	1,249	1,382	2,697	92	151	876	8,869
74	1,010	1,703	54	2,767	0	66	1,249	1,382	2,697	91	153	854	8,677
75	1,250	2,112	57	3,419	0	66	1,267	1,382	2,715	91	155	859	8,717
76	1,238	2,090	90	3,418	0	64	1,249	1,383	2,696	89	157	853	8,670
77	1,238	2,090	93	3,421	0	64	1,249	1,392	2,705	89	161	859	8,738
78	1,238	2,090	96	3,424	0	64	1,249	1,389	2,702	89	162	863	8,769
79	1,238	2,090	99	3,427	0	64	1,249	1,387	2,700	89	220	867	8,783
1980	1,238	2,090	102	3,430	0	64	1,244	1,384	2,692	349	271	861	8,752
81	1,238	2,090	121	3,449	0	64	1,340	1,382	2,786	335	238	859	8,804
82	1,238	2,090	138	3,466	0	64	1,439	1,358	2,861	312	268	859	8,821
83	1,238	2,090	141	3,469	0	64	1,514	1,335	2,913	302	287	860	8,869
84	1,238	2,090	144	3,472	0	64	1,613	1,320	2,997	300	378	862	8,916
85	1,238	2,090	147	3,475	0	64	1,727	1,293	3,084	292	415	864	8,963
86	1,238	2,090	152	3,480	618	64	1,670	1,294	3,028	290	489	866	8,941
87	1,238	2,090	172	3,500	618	64	1,631	1,311	3,006	289	557	867	8,918
88	1,238	2,090	177	3,505	618	64	1,592	1,312	2,968	286	605	868	8,904
89	1,238	2,090	182	3,510	618	64	1,553	1,318	2,935	286	732	867	8,876
1990	1,238	2,090	171	3,499	618	64	1,574	1,318	2,956	284	823	864	8,870
91	1,238	2,090	171	3,499	618	64	1,574	1,318	2,956	284	823	864	8,866
92	1,238	2,090	171	3,499	618	64	1,574	1,318	2,956	284	823	864	8,866
93	1,238	2,090	171	3,499	618	64	1,574	1,318	2,956	284	823	864	8,866
94	1,238	2,090	171	3,499	618	64	1,574	1,318	2,956	284	823	864	8,866
95	1,238	2,090	171	3,499	618	64	1,574	1,318	2,956	284	823	864	8,866
96	1,238	2,090	171	3,499	618	64	1,574	1,318	2,956	284	823	864	8,866
97	1,238	2,090	171	3,499	618	64	1,574	1,318	2,956	284	823	864	8,866
98	1,238	2,090	171	3,499	618	64	1,574	1,318	2,956	284	823	864	8,866
99	1,238	2,090	171	3,499	618	64	1,574	1,318	2,956	284	823	864	8,866
2000[17]	1,238	2,090	171	3,499	618	64	1,574	1,318	2,956	284	823	864	8,866

Footnotes on Sheet 5.

TABLE 17 (Continued)

TABLE 17 (CONTINUED)

ACTUAL AND PROJECTED OPERATING COSTS OF FACILITIES
BY PROJECT PURPOSE AND BY CATEGORY[1]
(in thousands of dollars)

CALENDAR YEAR	CALIFORNIA AQUEDUCT PROJECT TRANSPORTATION FACILITIES (CONT'D) MULTIPLE-PURPOSE (VARIABLE)[2]			TOTAL, CALIFORNIA AQUEDUCT	NORTH BAY AQUEDUCT (PROJECT TRANSPORTATION FACILITIES) SPECIFIC, WATER SUPPLY			SOUTH BAY AQUEDUCT (PROJECT TRANSPORTATION FACILITIES) SPECIFIC, WATER SUPPLY[8]		MULTIPLE-PURPOSE (MINIMUM)[2]			
	R&F&WE[3]	WATER SUPPLY	TOTAL		MINIMUM	VARIABLE	TOTAL	MINIMUM	VARIABLE	R&F&WE[3] (74.0%)	WATER SUPPLY (14.6%)	FLOOD CONTROL (11.4%)	TOTAL
	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)	(39)
1962	0	0	0	0	0	0	0	69	40	0	0	0	109
63	0	0	0	0	0	0	0	153	63	0	0	0	216
64	0	0	0	0	0	0	0	167	84	0	0	0	251
65	0	0	137	300	0	0	0	213	186	0	0	0	399
66	0	0	178	434	0	0	0	250	236	0	0	0	486
67	0	155	1,227	1,831	0	0	0	197	244	0	0	0	441
68	0	492	3,938	7,264	25	36	61	170	326	0	0	0	496
69	0	595	4,154	7,655	25	39	64	187	337	9	2	1	536
1970	0	554	4,327	7,302	25	39	64	192	347	9	2	1	551
71	12	4,068	12,695	15,295	25	40	65	197	367	9	2	1	576
72	306	5,565	16,189	18,695	25	40	65	197	372	9	2	1	581
73	276	6,197	16,461	19,158	25	40	65	196	359	9	2	1	567
74	277	7,541	17,593	20,290	25	53	78	196	361	9	2	1	569
75	288	9,118	19,228	21,943	25	53	78	196	364	9	2	1	572
76	280	10,118	20,167	22,863	25	54	79	193	380	9	2	1	585
77	300	12,441	22,588	25,293	25	54	79	193	385	9	2	1	590
78	312	14,292	24,487	27,189	25	54	79	193	388	9	2	1	593
79	316	16,022	26,297	28,997	25	56	81	193	386	9	2	1	591
1980	338	17,737	28,308	31,000	163	70	233	187	387	9	2	1	586
81	352	19,928	30,516	33,302	163	74	237	187	392	9	2	1	591
82	351	21,390	32,001	34,862	163	74	237	187	408	9	2	1	607
83	365	23,757	34,440	37,353	163	74	237	187	413	9	2	1	612
84	374	26,175	37,005	40,002	163	76	239	187	417	9	2	1	616
85	383	28,598	39,515	42,599	163	76	239	187	420	9	2	1	619
86	380	30,313	41,279	44,307	163	77	240	187	426	9	2	1	625
87	378	32,007	43,016	46,022	163	80	243	187	430	9	2	1	629
88	375	33,778	44,816	47,784	163	83	246	186	435	9	2	1	633
89	370	34,448	45,579	48,514	163	85	248	186	444	9	2	1	642
1990	367	34,623	45,831	48,787	163	89	252	186	466	9	2	1	664
91	367	34,704	45,908	48,864	163	89	252	186	475	9	2	1	673
92	367	34,706	45,910	48,866	163	89	252	186	481	9	2	1	679
93	367	34,709	45,913	48,869	163	89	252	186	488	9	2	1	686
94	367	34,711	45,915	48,871	163	89	252	186	493	9	2	1	691
95	367	34,712	45,916	48,872	163	89	252	186	496	9	2	1	694
96	367	34,713	45,917	48,873	163	89	252	186	498	9	2	1	696
97	367	34,714	45,918	48,874	163	89	252	186	501	9	2	1	699
98	367	34,714	45,918	48,874	163	89	252	186	501	9	2	1	699
99	367	34,714	45,918	48,874	163	89	252	186	501	9	2	1	699
2000[17]	367	34,714	45,918	48,874	163	89	252	186	501	9	2	1	699

Footnotes on Sheet 5.

TABLE 17 (Continued)

ACTUAL AND PROJECTED OPERATING COSTS OF FACILITIES
BY PROJECT PURPOSE AND BY CATEGORY[1]

(in thousands of dollars)

CALENDAR YEAR	TOTAL BY PURPOSE AND BY CATEGORY, STATE WATER PROJECT												
	RECREATION AND FISH AND WILDLIFE ENHANCEMENT[3]			DRAINAGE[11]	FLOOD CONTROL[12] (MINIMUM)	WATER SUPPLY AND OROVILLE POWER							TOTAL, ALL PURPOSES
						PROJECT CONSERVATION FACILITIES			PROJECT TRANSPORTATION FACILITIES			TOTAL	
	MINIMUM[9]	VARIABLE[10]	TOTAL			MINIMUM[13]	VARIABLE[14]	TOTAL	MINIMUM[15]	VARIABLE[16]	TOTAL		
	(40)	(41)	(42)	(43)	(44)	(45)	(46)	(47)	(48)	(49)	(50)	(51)	(52)
1962	0	0	0	0	0	0	0	0	69	40	109	109	109[18]
63	0	0	0	0	0	0	0	0	153	63	216	216	216[18]
64	0	0	0	0	0	0	0	0	167	84	251	251	251[18]
65	17	0	17	0	0	171	0	171	350	186	536	707	724
66	18	0	18	0	0	264	0	264	428	236	664	928	946
67	134	0	134	229	27	2,251	0	2,251	1,201	399	1,600	3,851	4,241
68	338	0	338	229	40	4,557	1,406	5,963	3,261	983	4,244	10,207	10,814
69	397	0	397	459	53	4,830	1,348	6,178	3,378	1,104	4,482	10,660	11,569
1970	425	0	425	659	54	4,252	1,419	5,671	3,589	1,055	4,644	10,315	11,453
71	892	12	904	660	55	4,013	1,255	5,268	7,963	4,595	12,558	17,826	19,445
72	1,055	306	1,361	660	57	3,946	1,191	5,137	9,482	6,127	15,609	20,746	22,824
73	1,021	276	1,297	660	57	3,946	1,382	5,328	9,184	6,747	15,931	21,259	23,273
74	2,009	277	2,286	660	57	5,649	1,436	7,085	8,991	8,108	17,099	24,184	27,187
75	2,254	288	2,542	660	57	6,076	1,439	7,515	9,031	9,690	18,721	26,236	29,495
76	2,233	280	2,513	660	57	6,014	1,473	7,487	8,979	10,709	19,688	27,175	30,405
77	2,239	300	2,539	560	57	6,014	1,485	7,499	9,047	13,041	22,088	29,587	32,743
78	2,243	312	2,555	560	57	6,014	1,485	7,499	9,078	14,896	23,974	31,473	34,645
79	2,247	316	2,563	621	57	6,014	1,486	7,500	9,092	16,684	25,776	33,276	36,517
1980	2,241	338	2,579	688	57	6,009	1,486	7,495	9,453	18,465	27,918	35,413	38,737
81	2,239	352	2,591	688	57	6,105	1,503	7,608	9,491	20,632	30,123	37,731	41,067
82	2,239	351	2,590	688	57	6,204	1,496	7,700	9,485	22,140	31,625	39,325	42,660
83	2,240	365	2,605	688	57	6,279	1,476	7,755	9,523	24,531	34,054	41,809	45,159
84	2,242	374	2,616	688	57	6,378	1,464	7,842	9,568	27,046	36,614	44,456	47,817
85	2,244	383	2,627	798	57	6,492	1,440	7,932	9,607	29,509	39,116	47,048	50,530
86	2,246	380	2,626	908	57	7,053	1,446	8,499	9,583	31,305	40,888	49,387	52,978
87	2,247	378	2,625	912	57	7,014	1,483	8,497	9,559	33,074	42,633	51,130	54,724
88	2,248	375	2,623	912	57	6,975	1,489	8,464	9,541	34,901	44,442	52,906	56,498
89	2,247	370	2,617	912	57	6,936	1,500	8,436	9,513	35,709	45,222	53,658	57,244
1990	2,244	367	2,611	912	57	6,957	1,489	8,446	9,505	36,001	45,506	53,952	57,532
91	2,244	367	2,611	912	57	6,957	1,489	8,446	9,501	36,091	45,592	54,038	57,618
92	2,244	367	2,611	912	57	6,957	1,489	8,446	9,501	36,099	45,600	54,046	57,626
93	2,244	367	2,611	912	57	6,957	1,489	8,446	9,501	36,109	45,610	54,056	57,636
94	2,244	367	2,611	912	57	6,957	1,489	8,446	9,501	36,116	45,617	54,063	57,643
95	2,244	367	2,611	912	57	6,957	1,489	8,446	9,501	36,120	45,621	54,067	57,647
96	2,244	367	2,611	912	57	6,957	1,489	8,446	9,501	36,123	45,624	54,070	57,650
97	2,244	367	2,611	912	57	6,957	1,489	8,446	9,501	36,127	45,628	54,074	57,654
98	2,244	367	2,611	912	57	6,957	1,489	8,446	9,501	36,127	45,628	54,074	57,654
99	2,244	367	2,611	912	57	6,957	1,489	8,446	9,501	36,127	45,628	54,074	57,654
2000[17]	2,244	367	2,611	912	57	6,957	1,489	8,446	9,501	36,127	45,628	54,074	57,654

Footnotes on Sheet 5.

TABLE 17 (Continued)

TABLE 17 (Continued)

ACTUAL AND PROJECTED OPERATING COSTS OF FACILITIES
BY PROJECT PURPOSE AND BY CATEGORY

1/ The operating costs of facilities involving the purpose of water supply are shown in this table by the two respective categories defined in the "Standard Provisions for Water Supply Contract":

Minimum operation, maintenance, power and replacement costs: those incurred irrespective of the amount of project water delivered to water supply contractors.

Variable operation, maintenance, power, and replacement costs: those incurred in an amount which is dependent upon and varies with the amount delivered to water supply contractors.

Note that operating costs of Local Projects (the Davis-Grunsky Program) and of specific recreation and fish and wildlife enhancement features are not included in this table since these costs are not accounted for by the Department.

2/ Based upon the percentages determined in Bulletin No. 153-65, "Allocations of Costs Among Purposes of the State Water Project", and summarized on page 5 therein, applied to the currently estimated minimum operating costs of features jointly used by project purposes.

3/ "R&F&WE" represents the abbreviation of the purposes of "Recreation and Fish and Wildlife Enhancement", considered as one purpose in the allocations determined in Bulletin No. 153-65.

4/ Includes primarily the costs of electrical power and energy required for pumping project water at the head of the peripheral canal facilities as considered in the Interagency Delta Committee Report dated January 1965 (approximate).

5/ Includes primarily the net costs of electrical power and energy required for pumping project water through the San Luis Pumping-Generating Plant and the share of the Delta Pumping Plant allocated to conservation.

6/ Consists of the operating costs of the Coastal Branch division.

7/ The percentages determined in Bulletin No. 153-65 for operating costs apply only to those of the minimum category. The variable operating costs of features jointly used by project purposes are allocated annually among purposes in proportion to the annual deliveries to each respective purpose.

8/ Consists of the operating costs of the entire South Bay Aqueduct, except those of Del Valle Dam and reservoir.

9/ The total of Columns 2, 5, 8, 14, 19, 25, and 36.

10/ Equal to Column 27.

11/ Equal to Column 1.

12/ The total of Columns 11 and 38.

13/ The total of Columns 3, 6, 9, 10, 15, 18, and 20.

14/ The total of Columns 16 and 21.

15/ The total of Columns 23, 26, 31, 34, and 37.

16/ The total of Columns 24, 28, 32 and 35.

17/ And each year thereafter for the remainder of the project repayment period.

18/ Actual costs; all others projected herein.

TABLE 18

ACTUAL AND PROJECTED CAPITAL COSTS
BY PROGRAMS

(in dollars)

CALENDAR YEAR	STATE UTILITY PROGRAMS				STATE NONUTILITY PROGRAMS				FEDERAL PROGRAMS					TOTAL, ALL PROGRAMS
	WATER SUPPLY AND OROVILLE POWER		DRAINAGE	TOTAL	UNSPECIFIED PURPOSED		RECREATION AND FISH AND WILDLIFE ENHANCEMENT	TOTAL	WATER SUPPLY	RECREATION AND FISH AND WILDLIFE ENHANCEMENT	FLOOD CONTROL	DRAINAGE	TOTAL	
	PROJECT CONSERVATION FACILITIES	PROJECT TRANSPORTATION FACILITIES			LOCAL PROJECTS (DAVIS-GRUNSKY PROGRAMS)	DELETED FEATURES								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
1952	127,082	97,721	0	224,803	0	22,202	2,762	24,964	0	0	28,068	0	28,068	277,835 1/
53	225,198	315,055	0	540,253	0	61,096	8,853	69,949	0	0	46,943	0	46,943	657,145 1/
54	210,241	394,188	0	604,429	0	77,059	11,277	88,336	0	0	44,612	0	44,612	737,377 1/
55	130,131	187,813	0	317,944	0	40,852	5,685	46,537	0	0	26,554	0	26,554	391,035 1/
56	1,086,398	329,269	0	1,415,667	0	54,883	16,330	71,213	0	0	268,595	0	268,595	1,755,475 1/
57	5,436,590	1,364,328	0	6,800,918	0	211,800	47,258	259,058	0	0	1,416,818	0	1,416,818	8,476,794 1/
58	7,861,902	2,062,192	0	9,924,094	0	356,751	158,411	515,162	0	0	2,018,837	0	2,018,837	12,458,093 1/
59	9,685,741	2,708,603	0	12,394,344	12,666	201,993	509,685	724,344	0	0	2,149,707	0	2,149,707	15,268,395 1/
1960	12,469,137	4,374,906	46,331	16,890,374	86,983	98,811	834,094	1,019,888	19,358	12,737	2,712,775	7,107	2,751,977	20,662,239 1/
61	16,560,204	8,942,154	362,889	25,865,247	544,166	72,834	1,300,557	1,917,557	116,643	76,749	3,791,546	55,668	4,040,606	31,823,410 1/
62	19,665,241	9,719,467	388,493	29,773,201	623,352	19,293	1,818,645	2,461,290	179,215	117,921	3,986,943	59,595	4,343,674	36,578,165 1/
63	65,226,641	27,316,355	387,656	92,930,652	3,695,417	56,203	5,508,535	9,260,155	344,993	227,002	9,175,745	59,468	9,807,208	111,998,015 1/
64	64,903,079	45,237,874	341,662	110,482,615	4,210,974	82,118	3,449,756	7,742,848	410,546	270,136	7,478,108	186,408	8,345,198	126,570,661 1/
65	99,335,100	88,164,800	396,800	187,896,700	10,000,000	9,307	5,246,100	15,255,407	527,000	346,000	13,182,100	595,200	14,650,300	217,802,407
66	113,624,100	145,908,600	1,668,800	261,201,500	10,000,000	0	8,031,900	18,031,900	644,000	424,000	13,131,500	2,503,200	16,702,700	295,936,100
67	70,591,956	211,516,700	4,392,400	286,501,056	10,000,000	0	10,253,200	20,253,200	903,000	594,000	9,578,296	6,588,600	17,663,896	324,418,152
68	24,502,295	228,611,500	6,969,200	260,082,995	10,000,000	0	10,714,100	20,714,100	2,789,000	1,836,000	2,323,200	10,453,800	17,402,000	298,199,095
69	10,410,000	210,716,500	5,742,000	226,868,500	10,000,000	0	10,053,600	20,053,600	6,056,000	3,986,000	109,000	8,613,000	18,764,000	265,686,100
1970	11,562,500	128,259,600	1,448,800	141,270,900	10,000,000	0	9,884,200	19,884,200	8,007,000	5,269,000	25,000	2,173,200	15,474,200	176,629,300
71	11,312,000	75,099,000	0	86,411,000	10,000,000	0	8,032,800	18,032,800	7,895,000	5,195,000	23,000	0	13,113,000	117,556,800
72	9,692,000	31,878,000	0	41,570,000	10,000,000	0	5,238,000	15,238,000	6,819,000	4,487,000	0	0	11,306,000	68,114,000
73	6,956,000	15,378,000	0	22,334,000	10,000,000	0	3,385,000	13,385,000	4,506,000	2,964,000	0	0	7,470,000	43,189,000
74	3,827,000	7,524,000	0	11,351,000	10,000,000	0	1,787,000	11,787,000	2,273,000	1,495,000	0	0	3,768,000	26,906,000
75	121,000	6,593,000	1,105,000	7,819,000	10,000,000	0	114,000	10,114,000	0	0	0	0	0	17,933,000
76	114,000	7,723,000	1,196,000	9,033,000	10,000,000	0	39,000	10,039,000	0	0	0	0	0	19,072,000
77	5,114,000	8,773,000	92,000	13,979,000	2,244,921	0	0	2,244,921	0	0	0	0	0	16,223,921
78	24,114,000	16,823,000	4,942,000	45,879,000	0	0	0	0	0	0	0	0	0	45,879,000
79	32,114,000	10,721,000	6,427,000	49,262,000	0	0	0	0	0	0	0	0	0	49,262,000
1980	25,114,000	0	1,485,000	26,599,000	0	0	0	0	0	0	0	0	0	26,599,000
81	35,114,000	0	0	35,114,000	0	0	0	0	0	0	0	0	0	35,114,000
82	44,114,000	0	0	44,114,000	0	0	0	0	0	0	0	0	0	44,114,000
83	44,261,000	1,490,000	9,320,000	55,071,000	0	0	44,000	44,000	0	0	0	0	0	55,115,000
84	6,407,000	3,772,000	12,956,000	23,135,000	0	0	92,000	92,000	0	0	0	0	0	23,227,000
85	700,000	6,174,000	10,380,000	17,254,000	0	0	184,000	184,000	0	0	0	0	0	17,438,000
86	441,000	3,993,000	2,269,000	6,703,000	0	0	126,000	126,000	0	0	0	0	0	6,829,000
87	0	12,000	0	12,000	0	0	0	0	0	0	0	0	0	12,000
88	0	100,000	0	100,000	0	0	0	0	0	0	0	0	0	100,000
89	0	160,000	0	160,000	0	0	0	0	0	0	0	0	0	160,000
1990	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	783,128,536	1,312,440,625	72,317,031	2,167,886,192	131,418,479	1,365,202	86,896,748	219,680,429	41,489,755	27,300,545	71,517,347	31,295,246	171,602,893	2,559,169,514

1/ Actual costs; all others projected herein.

TABLE 19

ACTUAL AND PROJECTED OPERATING COSTS BY PROGRAMS

(in thousands of dollars)

CALENDAR YEAR	STATE UTILITY PROGRAMS				STATE NONUTILITY PROGRAMS	FEDERAL PROGRAMS					TOTAL, ALL PROGRAMS
	WATER SUPPLY AND OROVILLE POWER		DRAINAGE	TOTAL	RECREATION AND FISH AND WILDLIFE ENHANCEMENT	WATER SUPPLY	RECREATION AND FISH AND WILDLIFE ENHANCEMENT	FLOOD CONTROL	DRAINAGE	TOTAL	
	PROJECT CONSERVATION FACILITIES	PROJECT TRANSPORTATION FACILITIES									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1962	0	109	0	109	0	0	0	0	0	0	109 1/
63	0	216	0	216	0	0	0	0	0	0	216 1/
64	0	251	0	251	0	0	0	0	0	0	251 1/
65	8	399	0	407	17	300	0	0	0	300	724
66	8	486	0	494	18	434	0	0	0	434	946
67	1,797	1,232	78	3,107	134	821	0	27	151	999	4,240
68	4,857	3,792	78	8,727	338	1,558	0	40	151	1,749	10,814
69	5,109	3,969	151	9,229	397	1,582	0	53	308	1,943	11,569
1970	4,596	4,115	217	8,928	425	1,604	0	54	442	2,100	11,453
71	4,195	12,014	218	16,427	904	1,617	0	55	442	2,114	19,445
72	4,077	15,037	218	19,332	1,361	1,632	0	57	442	2,131	22,824
73	4,268	15,359	218	19,845	1,297	1,632	0	57	442	2,131	23,273
74	5,258	16,527	218	22,003	1,781	2,399	505	57	442	3,403	27,187
75	5,503	18,149	218	23,870	1,917	2,584	625	57	442	3,708	29,495
76	5,492	19,123	218	24,833	1,894	2,560	619	57	442	3,678	30,405
77	5,504	21,523	185	27,212	1,920	2,560	619	57	375	3,611	32,743
78	5,504	23,409	185	29,098	1,936	2,560	619	57	375	3,611	34,645
79	5,505	25,211	245	30,961	1,944	2,560	619	57	376	3,612	36,517
1980	5,500	27,353	311	33,164	1,960	2,560	619	57	377	3,613	38,737
81	5,613	29,558	311	35,482	1,972	2,560	619	57	377	3,613	41,067
82	5,705	31,060	311	37,076	1,970	2,560	619	57	377	3,613	42,659
83	5,760	33,489	311	39,560	1,986	2,560	619	57	377	3,613	45,159
84	5,847	36,049	311	42,207	1,997	2,560	619	57	377	3,613	47,817
85	5,937	38,551	592	45,080	2,008	2,560	619	57	206	3,442	50,530
86	6,504	40,323	674	47,501	2,007	2,560	619	57	234	3,470	52,978
87	6,502	42,068	677	49,247	2,006	2,560	619	57	235	3,471	54,724
88	6,469	43,877	677	51,023	2,004	2,560	619	57	235	3,471	56,498
89	6,441	44,657	677	51,775	1,998	2,560	619	57	235	3,471	57,244
1990	6,451	44,941	677	52,069	1,992	2,560	619	57	235	3,471	57,532
91	6,451	45,027	677	52,155	1,992	2,560	619	57	235	3,471	57,618
92	6,451	45,035	677	52,163	1,992	2,560	619	57	235	3,471	57,626
93	6,451	45,045	677	52,173	1,992	2,560	619	57	235	3,471	57,636
94	6,451	45,052	677	52,180	1,992	2,560	619	57	235	3,471	57,643
95	6,451	45,056	677	52,184	1,992	2,560	619	57	235	3,471	57,647
96	6,451	45,059	677	52,187	1,992	2,560	619	57	235	3,471	57,650
97	6,451	45,063	677	52,191	1,992	2,560	619	57	235	3,471	57,654
98	6,451	45,063	677	52,191	1,992	2,560	619	57	235	3,471	57,654
99	6,451	45,063	677	52,191	1,992	2,560	619	57	235	3,471	57,654
2000 2/	6,451	45,063	677	52,191	1,992	2,560	619	57	235	3,471	57,654

1/ Actual costs, all others projected herein.

2/ And each year thereafter for the remainder of the project repayment period.

TABLE 20

SUMMARY OF ANNUAL CAPITAL EXPENDITURES

(in dollars)

CALENDAR YEAR	LOCAL PROJECTS (DAVIS-GRUNSKY PROGRAMS)	SUMMARY OF EXPENDITURES BY FACILITIES 1/									TOTAL	MISCELLANEOUS ADDITIONAL EXPENDITURES 2/	CAPITAL EXPENDITURES COVERED IN FINANCIAL ANALYSIS 3/
		SAN JOAQUIN DRAINAGE FACILITIES	UPPER FEATHER DIVISION	OROVILLE DIVISION	DELTA FACILITIES	UPPER EEL DEVELOPMENT	CALIFORNIA AQUEDUCT	NORTH BAY AQUEDUCT	SOUTH BAY AQUEDUCT	DELETED FEATURES			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
						FROM FUNDS PROVIDED PRIOR TO THE BURNS-PORTER ACT 4/							
1952	0	0	0	152,257	0	0	102,980	0	396	22,202	277,835	0	277,835
53	0	0	0	264,724	0	0	329,350	0	1,975	61,096	657,145	0	657,145
54	0	0	0	245,454	0	0	408,413	0	6,451	77,059	737,377	0	737,377
55	0	0	0	151,401	0	0	190,123	0	8,659	40,852	391,035	0	391,035
56	0	0	0	1,301,388	0	0	282,987	0	116,217	54,883	1,755,475	0	1,755,475
57	0	0	9,859	6,753,132	0	0	723,728	20,880	757,395	211,800	8,476,794	0	8,476,794
58	0	0	212,628	9,641,196	0	0	1,342,169	40,881	864,468	356,751	12,458,093	19,413	12,477,506
59	12,666	0	623,614	10,432,115	0	0	3,213,087	22,593	762,327	201,993	15,268,395	27,220	15,295,615
1960	86,983	53,438	1,120,242	13,121,754	71,961	0	4,294,946	19,004	1,795,100	98,810	20,662,238	97,240	20,759,478
61	483,005	254,717	712,724	16,723,214	271,586	0	3,649,046	15,423	3,595,124	71,263	25,776,102	128,362	25,904,464
62	79,858	17,076	114,289	4,271,173	142,070	0	1,797,951	-1,562	1,745,949	-2,957	8,163,847	222,418	8,386,265
63	755,967	-1,672	-2,859	468,015	9,516	0	3,706,927	- 101	909,737	-552	5,844,978	282,615	6,127,593
1964	0	909	-10,953	-831,993	2,374	0	-88,078	893	-572,651	4,507	-1,494,992	969,070	-525,922
Subtotal	1,418,479	324,468	2,779,544	62,693,830	497,507	0	19,953,629	118,011	9,991,147	1,197,707	98,974,322	1,746,338	100,720,660
						FROM FUNDS PROVIDED SUBSEQUENT TO THE BURNS-PORTER ACT 5/							
1961	61,161	163,840	308,550	2,065,018	162,028	0	2,608,393	446	676,302	1,570	6,047,308	0	6,047,308
62	543,494	431,012	1,400,920	16,953,668	524,153	0	6,969,521	7,251	1,562,049	22,251	28,414,319	39,869	28,454,188
63	2,939,450	448,796	2,866,130	47,683,683	1,272,985	0	45,675,724	15,571	5,193,943	56,755	106,153,037	15,989	106,169,026
64	4,210,974	527,161	1,060,193	52,370,861	1,523,819	199,268	56,770,074	22,360	11,303,331	77,612	128,065,653	17,308	128,082,961
65	10,000,000	992,000	1,282,100	87,011,700	1,958,000	796,000	110,789,600	170,500	4,793,200	9,307	217,802,407	0	217,802,407
66	10,000,000	4,172,000	1,596,100	104,139,200	2,395,000	972,000	166,169,600	847,900	5,644,300	0	295,936,100	0	295,936,100
67	10,000,000	10,981,000	1,967,300	64,797,996	3,356,000	878,000	224,464,756	1,340,800	6,632,300	0	324,418,152	0	324,418,152
68	10,000,000	17,423,000	2,014,500	20,361,000	10,370,000	463,000	233,830,995	198,300	3,538,300	0	298,199,095	0	298,199,095
69	10,000,000	14,355,000	516,700	1,783,000	22,516,000	124,000	215,822,800	28,600	540,000	0	265,686,100	0	265,686,100
1970	10,000,000	3,622,000	1,241,700	168,000	29,766,000	124,000	131,584,900	28,700	94,000	0	176,629,300	0	176,629,300
71	10,000,000	0	841,800	150,000	29,349,000	121,000	77,067,300	27,700	0	0	117,556,800	0	117,556,800
72	10,000,000	0	0 0	0	25,349,000	121,000	32,616,300	27,700	0	0	68,114,000	0	68,114,000
73	10,000,000	0	0	0	16,749,000	121,000	16,291,300	27,700	0	0	43,189,000	0	43,189,000
74	10,000,000	0	0	0	8,449,000	121,000	8,308,300	27,700	0	0	26,906,000	0	26,906,000
75	10,000,000	1,105,000	0	0	0	121,000	6,679,300	27,700	0	0	17,933,000	0	17,933,000
76	10,000,000	1,196,000	0	0	0	114,000	7,672,300	89,700	0	0	19,072,000	0	19,072,000
77	2,244,921	92,000	0	0	0	5,114,000	8,286,300	486,700	0	0	16,223,921	0	16,223,921
78	0	4,942,000	0	0	0	24,114,000	14,415,300	2,407,700	0	0	45,879,000	0	45,879,000
79	0	6,427,000	0	0	0	32,114,000	7,330,300	3,390,700	0	0	49,262,000	0	49,262,000
1980	0	1,485,000	0	0	0	25,114,000	0	0	0	0	26,599,000	0	26,599,000
81	0	0	0	0	0	35,114,000	0	0	0	0	35,114,000	0	35,114,000
82	0	0	0	0	0	44,114,000	0	0	0	0	44,114,000	0	44,114,000
83	0	9,320,000	0	0	0	44,114,000	1,681,000	0	0	0	55,115,000	0	55,115,000
84	0	12,956,000	0	0	0	6,114,000	4,157,000	0	0	0	23,227,000	0	23,227,000
85	0	10,380,000	0	0	0	114,000	6,944,000	0	0	0	17,438,000	0	17,438,000
86	0	2,269,000	0	0	0	0	4,560,000	0	0	0	6,829,000	0	6,829,000
87	0	0	0	0	0	0	0	0	12,000	0	12,000	0	12,000
88	0	0	0	0	0	0	0	0	100,000	0	100,000	0	100,000
89	0	0	0	0	0	0	0	0	160,000	0	160,000	0	160,000
1990	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal	130,000,000	103,287,809	15,095,993	397,484,126	153,739,985	220,301,268	1,390,695,063	9,173,728	40,249,725	167,495	2,460,195,192	73,166	2,460,268,358
TOTALS	131,418,479	103,612,277	17,875,537	460,177,956	154,237,492	220,301,268	1,410,648,692	9,291,739	50,240,872	1,365,202	2,559,169,514	1,819,504	2,560,989,018

1/ Shown distributed to project purposes in Table 17.

2/ The costs in the upper portion of Column 12, totaling $1,746,338, represent those covered by miscellaneous project receipts, including those from rights-of-way rentals and sales. Such receipts are applied for accounting purposes to reduce the capital costs of the particular facilities from which realized. The costs so credited must, however, be initially financed from other sources.

The costs in the lower portion of Column 12, totaling $73,166, represent certain reimbursable operating costs not covered by repayment contracts which have been included in the capital costs of the project.

3/ The financial analysis is described in Chapter XIII.

4/ Includes actual expenditures from the General Fund, California Water Fund, and Local Projects Assistance Fund. Negative amounts reflect accouting adjustments.

5/ Includes actual and projected expenditures from Water Bond proceeds, California Water Fund, and miscellaneous receipts.

TABLE 21

PROJECTED CAPITAL EXPENDITURES AND RECEIPTS
FOR REQUESTED EXCESS DELIVERY CAPABILITIES,1/
STATE UTILITY PROGRAMS

(in thousands of dollars)

CALENDAR YEAR	TOTAL ESTIMATED COSTS				ESTIMATED COSTS WITHOUT EXCESS CAPACITY3/				ALLOCATED COSTS FOR EXCESS CAPACITY4/	TOTAL REQUIRED ADVANCE OF FUNDS5/	INTEREST CREDITS ON ANNUAL ADVANCES IN EXCESS OF COSTS6/	ESTIMATED TOTAL CREDITS TO DISTRICT'S ACCOUNT	NET REQUIRED ADVANCE OF FUNDS7/
	CALIFORNIA AQUEDUCT DIVISIONS			TOTAL	CALIFORNIA AQUEDUCT DIVISIONS			TOTAL					
	SOUTH SAN JOAQUIN	TEHACHAPI	WEST BRANCH 2/		SOUTH SAN JOAQUIN	TEHACHAPI	WEST BRANCH 2/						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1952	14	12	4	30	14	12	4	30					
53	52	37	12	101	52	37	12	101					
54	68	69	14	151	68	69	14	151					
1955	32	45	5	82	32	45	5	82					
56	77	55	5	137	77	55	5	137					
57	215	147	17	379	215	147	17	379					
58	481	206	27	714	481	206	27	714					
59	723	172	52	947	723	172	52	947					
1960	767	200	79	1,046	767	200	79	1,046					
61	1,205	503	80	1,788	1,205	503	80	1,788					
62	1,220	484	330	2,034	1,220	484	330	2,034					
63	2,231	1,441	607	4,279	2,231	1,441	607	4,279					
64	6,394	2,576	1,107	10,077	6,394	2,576	1,107	10,077					
1965	19,884	6,767	5,626	32,277	19,462	5,609	4,706	29,777	2,500	3,725			
66	28,747	26,775	11,529	67,051	28,378	25,638	10,008	64,024	3,027	4,198			8,056 8/
67	31,893	47,593	27,952	107,438	31,505	46,216	14,583	92,304	15,134	16,590			16,590
68	36,361	59,100	50,348	145,809	35,806	57,562	32,713	126,081	19,728	21,354	40	669	20,685
69	51,305	33,158	44,110	128,573	49,941	29,244	37,653	116,838	11,735	15,348	128	1,416	13,932
1970	21,557	16,858	13,236	51,651	20,421	16,858	12,462	49,741	1,910	3,766	392	5,649	-1,883
71	15,598	8,939	4,372	28,909	15,598	8,939	4,123	28,660	249	265	213	3,411	-3,146
72	10,366	1,629	3,536	15,531	10,366	1,629	2,538	14,533	998	1,013	0	0	1,013
73	2,216	1,489	3,583	7,288	2,216	1,489	2,574	6,279	1,009	1,025	0	0	1,025
74	1,704	1,489	615	3,808	1,704	1,489	447	3,640	168	182	69	375	-193
1975	2,140	0	615	2,755	2,140	0	483	2,623	132	143	0	0	143
1976	-	-	-	-	-	-	-	-	-	0	105	448	-448
TOTALS	235,250	209,744	167,861	612,855	231,016	200,620	124,629	556,265	56,590	67,611	947	11,968	55,774

1/ Pursuant to "Amendment No. 2 to Water Supply Contract between the State of California Department of Water Resources and The Metropolitan Water District of Southern California", dated February 23, 1965.
2/ Excluding the costs of Pyramid and Castaic reservoirs.
3/ These estimated capital costs, reduced by those allocable to the nonreimbursable purposes of recreation and fish and wildlife enhancement, are distributed among all water supply contractors utilizing the concerned aqueduct reaches in accordance with Article 24(b) of the "Standard Provisions for Water Supply Contract".
4/ The costs allocated to the District pursuant to Article 24(d) of the "Standard Provisions", constituting the estimated costs shown in Column 4, less the estimated cost had no such excess capacity been provided as shown in Column 8.
5/ Funds bear the same proportion to the total capital costs of the concerned aqueduct reaches, including the costs of providing such excess capacity, as such excess capacity bears to the total capacity of the concerned aqueduct reaches, including such excess capacity. (See Table B-7, Appendix B).
6/ Interest credits computed from date of advance to completion of construction for each respective reach, at a rate of 3.5 percent per annum.
7/ Negative values denote annual credits, herein applied to reduce the District's capital cost components.
8/ Includes the annual advance for 1965, together with $133,000 of interest thereon at the project interest rate.

TABLE 22
PROJECTED CAPITAL EXPENDITURES AND RECEIPTS
FOR RECREATION AND FISH AND WILDLIFE ENHANCEMENT,
STATE NONUTILITY PROGRAMS

(in thousands of dollars)

CALENDAR YEAR	OUTSTANDING BALANCE AT BEGINNING OF YEAR 1/	CAPITAL COSTS OF STATE NONUTILITY PROGRAMS ALLOCATED TO RECREATION AND FISH AND WILDLIFE ENHANCEMENT		OUTSTANDING BALANCE AT END OF YEAR, PRIOR TO INTEREST ACCRUAL 4/	INTEREST ACCRUAL ON AVERAGE BALANCE AT 3.7%
		EXPENDITURES 2/	RECEIPTS 3/		
	(1)	(2)	(3)	(4)	(5)
1952	0	3	0	3	0
1953	3	9	0	12	0
1954	12	11	0	23	1
1955	24	6	0	30	1
1956	31	16	0	47	1
1957	48	47	0	95	3
1958	98	158	0	256	7
1959	263	510	0	773	19
1960	792	834	0	1,626	45
1961	1,671	1,301	0	2,972	86
1962	3,058	1,819	0	4,877	147
1963	5,024	5,508	0	10,532	289
1964	10,821	3,450	0	14,271	464
1965	14,735	5,246	0	19,981	642
1966	20,623	8,032	5,000	23,655	819
1967	24,474	10,253	5,000	29,727	1,003
1968	30,730	10,714	5,000	36,444	1,243
1969	37,687	10,054	5,000	42,741	1,488
1970	44,229	9,884	5,000	49,113	1,727
1971	50,840	8,033	5,000	53,873	1,937
1972	55,810	5,238	5,000	56,048	2,069
1973	58,117	3,385	5,000	56,502	2,121
1974	58,623	1,787	5,000	55,410	2,110
1975	57,520	114	5,000	52,634	2,038
1976	54,672	39	5,000	49,711	1,931
1977	51,642	0	5,000	46,642	1,818
1978	48,460	0	5,000	43,460	1,701
1979	45,161	0	5,000	40,161	1,578
1980	41,739	0	5,000	36,739	1,452
1981	38,191	0	5,000	33,191	1,321
1982	34,512	0	5,000	29,512	1,184
1983	30,696	44	5,000	25,740	1,044
1984	26,784	92	5,000	21,876	900
1985	22,776	184	5,000	17,960	754
1986	18,714	126	5,000	13,840	602
1987	14,442	0	5,000	9,442	442
1988	9,884	0	5,000	4,884	273
1989	5,157	0	5,000	157	98
1990	255	0	260	0	5
TOTALS	-	86,897	120,260	-	33,363

1/ The total of Columns 4 and 5 for the preceeding year.
2/ From Column 7, Table 18.
3/ As limited to $5,000,000 annually under the present form of Assembly Bill No. 1147 of the 1965 Regular Session.
4/ The total of Columns 1 and 2, less Column 3.

TABLE 23

ACTUAL AND PROJECTED RECEIPTS, FEDERAL PROGRAMS

(in dollars)

CALENDAR YEAR	RECREATION AND FISH AND WILDLIFE ENHANCEMENT, DELTA FACILITIES 1/		FLOOD CONTROL		WATER SUPPLY				DRAINAGE SAN JOAQUIN DRAINAGE FACILITIES 5/		TOTAL RECEIPTS, COVERING:		
			OROVILLE DAM AND RESERVOIR 2/	DEL VALLE DAM AND RESERVOIR 3/	DELTA FACILITIES 1/		SAN LUIS DIVISION 4/				CAPITAL AND CAPITALIZED OPERATING COSTS	ANNUAL OPERATING COSTS	TOTAL
	CAPITAL COSTS	ANNUAL OPERATING COSTS	CAPITAL AND CAPITALIZED OPERATING COSTS		CAPITAL COSTS	ANNUAL OPERATING COSTS	ANNUAL OPERATING COSTS		CAPITAL COSTS	ANNUAL OPERATING COSTS			
							CONSERVATION	TRANSPORTATION					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1962	0	0	13,950,000	0	0	0	0	0	0	0	13,950,000	0	13,950,000 7/
63	0	0	0	0	0	0	0	0	0	0	0	0	0
64	0	0	13,040,000	0	0	0	0	0	0	0	13,040,000	0	13,040,000 7/
65	0	0	16,500,000	0	0	0	163,000	137,000	0	0	16,500,000	300,000	16,800,000
66	0	0	3,512,891	993,632	0	0	256,000	178,000	3,466,646	0	7,973,169	434,000	8,407,169
67	2,068,545	0	11,910,400	1,654,300	3,144,755	0	453,000	368,000	6,588,600	151,000	25,366,600	972,000	26,338,600
68	1,836,000	0	7,936,100	1,432,068	2,789,000	0	1,106,000	452,000	10,453,800	151,000	24,446,968	1,709,000	26,155,968
69	3,986,000	0	1,519,500	776,000	6,056,000	0	1,069,000	513,000	8,613,000	308,000	20,950,500	1,890,000	22,840,500
1970	5,269,000	0	112,600	0	8,007,000	0	1,075,000	529,000	2,173,200	442,000	15,561,800	2,046,000	17,607,800
71	5,195,000	0	26,000	0	7,895,000	0	1,073,000	544,000	0	442,000	13,116,000	2,059,000	15,175,000
72	4,487,000	0	24,200	0	6,819,000	0	1,059,000	572,000	0	442,000	11,330,200	2,073,000	13,403,200
73	2,964,000	0	0	0	4,506,000	0	1,059,000	572,000	0	442,000	7,470,000	2,073,000	9,543,000
74	1,495,000	505,000	0	0	2,273,000	767,000	1,059,000	572,000	0	442,000	3,768,000	3,345,000	7,113,000
75	0	625,000	0	0	0	952,000	1,059,000	572,000	0	442,000	0	3,650,000	3,650,000
76	0	619,000	0	0	0	942,000	1,053,000	565,000	0	442,000	0	3,621,000	3,621,000
77	0	619,000	0	0	0	942,000	1,053,000	565,000	0	375,000	0	3,554,000	3,554,000
78	0	619,000	0	0	0	942,000	1,053,000	565,000	0	375,000	0	3,554,000	3,554,000
79	0	619,000	0	0	0	942,000	1,053,000	565,000	0	376,000	0	3,555,000	3,555,000
1980	0	619,000	0	0	0	942,000	1,053,000	565,000	0	377,000	0	3,556,000	3,556,000
81	0	619,000	0	0	0	942,000	1,053,000	565,000	0	377,000	0	3,556,000	3,556,000
82	0	619,000	0	0	0	942,000	1,053,000	565,000	0	377,000	0	3,556,000	3,556,000
83	0	619,000	0	0	0	942,000	1,053,000	565,000	0	377,000	0	3,556,000	3,556,000
84	0	619,000	0	0	0	942,000	1,053,000	565,000	0	377,000	0	3,556,000	3,556,000
85	0	619,000	0	0	0	942,000	1,053,000	565,000	0	206,000	0	3,385,000	3,385,000
86	0	619,000	0	0	0	942,000	1,053,000	565,000	0	234,000	0	3,413,000	3,413,000
87	0	619,000	0	0	0	942,000	1,053,000	565,000	0	235,000	0	3,414,000	3,414,000
88	0	619,000	0	0	0	942,000	1,053,000	565,000	0	235,000	0	3,414,000	3,414,000
89	0	619,000	0	0	0	942,000	1,053,000	565,000	0	235,000	0	3,414,000	3,414,000
1990	0	619,000	0	0	0	942,000	1,053,000	565,000	0	235,000	0	3,414,000	3,414,000
91	0	619,000	0	0	0	942,000	1,053,000	565,000	0	235,000	0	3,414,000	3,414,000
92	0	619,000	0	0	0	942,000	1,053,000	565,000	0	235,000	0	3,414,000	3,414,000
93	0	619,000	0	0	0	942,000	1,053,000	565,000	0	235,000	0	3,414,000	3,414,000
94	0	619,000	0	0	0	942,000	1,053,000	565,000	0	235,000	0	3,414,000	3,414,000
95	0	619,000	0	0	0	942,000	1,053,000	565,000	0	235,000	0	3,414,000	3,414,000
96	0	619,000	0	0	0	942,000	1,053,000	565,000	0	235,000	0	3,414,000	3,414,000
97	0	619,000	0	0	0	942,000	1,053,000	565,000	0	235,000	0	3,414,000	3,414,000
98	0	619,000	0	0	0	942,000	1,053,000	565,000	0	235,000	0	3,414,000	3,414,000
99	0	619,000	0	0	0	942,000	1,053,000	565,000	0	235,000	0	3,414,000	3,414,000
2000 6/	0	619,000	0	0	0	942,000	1,053,000	565,000	0	235,000	0	3,414,000	3,414,000
TOTALS	27,300,545	-	68,531,691	4,856,000	41,489,755	-	-	-	31,295,246	-	173,473,237	-	-

1/ Preliminary, based upon the assumptions of the Interagency Delta Committee Report, "Plan of Development Sacramento-San Joaquin Delta", dated January 1965; whereby 50.0 percent of the capital and operating costs of the joint peripheral canal allocated to these nonreimbursable purposes as shown on Column 22, Table 16, and Column 14, Table 17, respectively, would be borne by the United States; and on the supplemental assumption that the State will be the constructing agency.

2/ Based upon the agreement executed March 8, 1962, whereby the United States shall contribute 22.0 percent of the capital costs of Oroville Dam and reservoir; shown in Column 19 of Table 16.

3/ Based upon the proposed agreement authorized by Congress, whereby the United States shall reimburse to the State 30.7 percent of the total State and Federal capital costs of Del Valle Dam and reservoir (or 31.4 percent of the State's cost, as shown on Column 44 of Table 16), as limited to a total federal contribution of $4,080,000; plus $776,000 for a capitalized share of total annual operating costs.

4/ Based upon a proposed agreement whereby the United States would bear 45 percent of the joint operating costs of the San Luis division.

5/ Based upon a proposed agreement whereby the United States would bear 60 percent of the capital costs and 67 percent of the operating costs of the first stage of the San Joaquin Drainage Facilities.

6/ And each year thereafter for the remainder of the project repayment period.

7/ Actual receipts; all others projected herein.

TABLE 24

ACTUAL AND PROJECTED STATE UTILITY REVENUES

(in thousands of dollars)

CALENDAR YEAR	DELTA WATER CHARGES				OROVILLE-THERMALITO POWER REVENUES 5/	TRANSPORTATION CHARGES				DRAINAGE CHARGES				TOTAL STATE UTILITY REVENUES (ADJUSTED) 11/
	CAPITAL COST COMPONENTS		OPERATING COST COMPONENTS 3/	TOTAL (ADJUSTED) 4/		CAPITAL COST COMPONENTS		OPERATING COST COMPONENTS 6/	TOTAL (ADJUSTED) 7/	CAPITAL COST COMPONENTS		OPERATING COST COMPONENTS 9/	TOTAL (ADJUSTED) 10/	
	ACTUAL 1/	ADJUSTED 2/				ACTUAL 6/	ADJUSTED 2/			ACTUAL 8/	ADJUSTED 2/			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
1961	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	964	60	1,024	0	0	0	0	1,024 13/
1963	0	0	0	0	0	1,927	2,199	116	2,315	0	0	0	0	2,315 13/
1964	0	0	0	0	0	2,471	2,365	213	2,578	0	0	0	0	2,578 13/
1965	0	0	0	0	0	2,258	4,462	481	4,943	0	0	0	0	4,943
1966	0	121	0	121	0	6,665	9,474	479	9,953	0	85	0	85	10,159
1967	242	549	0	549	459	12,282	16,134	1,210	17,344	170	267	78	345	18,697
1968	856	884	0	884	9,951	19,985	24,468	3,770	28,238	364	518	78	596	39,669
1969	913	1,460	0	1,460	14,246	28,951	33,312	3,945	37,257	672	799	151	950	53,913
1970	2,007	2,965	380	3,345	14,953	37,673	40,573	4,091	44,664	925	957	217	1,174	64,136
10 years, 1961-1970	4,018	5,979	380	6,359	39,609	112,212	133,951	14,365	148,316	2,131	2,626	524	3,150	197,434
1971	3,924	4,855	742	5,597	14,953	43,473	45,347	11,990	57,337	989	989	218	1,207	79,094
1972	5,786	6,301	1,093	7,394	14,953	47,221	47,926	15,013	62,939	989	989	218	1,207	86,493
1973	6,817	7,328	1,288	8,616	14,953	48,630	49,036	15,335	64,371	989	989	218	1,207	89,147
1974	7,839	8,356	1,482	9,838	14,953	49,441	49,769	16,503	66,272	990	990	218	1,208	92,271
1975	8,873	9,431	1,677	11,108	15,089	50,097	50,458	18,125	68,583	990	1,014	218	1,232	96,012
1976	9,989	10,549	1,888	12,437	15,227	50,819	51,138	19,099	70,237	1,038	1,064	218	1,282	99,183
1977	11,109	11,669	2,100	13,769	15,366	51,457	51,794	21,499	73,293	1,091	1,093	185	1,278	103,706
1978	12,229	12,784	2,311	15,095	15,502	52,131	52,643	23,385	76,028	1,095	1,205	185	1,390	108,015
1979	13,338	13,971	2,521	16,492	15,641	53,155	53,537	25,187	78,724	1,314	1,456	245	1,701	112,558
1980	14,604	15,216	2,760	17,976	15,804	53,919	54,069	27,329	81,398	1,598	1,630	311	1,941	117,119
10 years, 1971-1980	94,508	100,460	17,862	118,322	152,441	500,343	505,717	193,465	699,182	11,083	11,419	2,234	13,653	983,598
1981	15,829	16,421	2,992	19,413	15,804	54,218	54,356	29,534	83,890	1,663	1,663	311	1,974	121,081
1982	17,013	17,624	3,215	20,839	15,804	54,493	54,653	31,036	85,689	1,663	1,663	311	1,974	124,306
1983	18,234	18,836	3,446	22,282	15,804	54,812	54,982	33,465	88,447	1,663	1,869	311	2,180	128,713
1984	19,437	20,056	3,674	23,730	15,804	55,151	55,358	36,025	91,383	2,075	2,362	311	2,673	133,590
1985	20,676	21,302	3,908	25,210	15,804	55,564	55,793	38,527	94,320	2,648	2,877	592	3,469	138,803
1986	21,928	22,578	4,144	26,722	15,804	56,022	56,228	40,299	96,527	3,106	3,156	674	3,830	142,883
1987	23,227	23,886	4,390	28,276	15,804	56,433	56,563	42,044	98,607	3,206	3,206	677	3,883	146,570
1988	24,544	25,043	4,639	29,682	15,804	56,693	56,793	43,853	100,646	3,206	3,206	677	3,883	150,015
1989	25,542	25,878	4,827	30,705	15,804	56,892	57,013	44,633	101,646	3,206	3,206	677	3,883	152,038
1990	26,213	26,272	4,954	31,226	15,804	57,133	57,133	44,917	102,050	3,207	3,206	677	3,883	152,963
10 years, 1981-1990	212,643	217,896	40,189	258,085	158,040	557,411	558,872	384,333	943,205	25,643	26,414	5,218	31,632	1,390,962
10 years, 1991-2000	264,305	264,375	49,955	314,330	158,040	571,330	571,330	450,286	1,021,616	32,062	32,063	6,770	38,833	1,532,819
10 years, 2001-2010	264,721	264,723	50,031	314,754	158,040	571,330	571,330	450,390	1,021,720	32,062	32,062	6,770	38,832	1,533,346
10 years, 2011-2020	264,764	264,765	50,040	314,805	158,040	461,026	439,835	450,390	890,225	29,931	29,437	6,770	36,207	1,399,277
10 years, 2021-2030	264,770	264,770	50,040	314,810	158,040	95,101	91,157	450,390	541,547	20,979	20,643	6,770	27,413	1,041,810
TOTALS 12/	1,369,729	1,382,968	258,497	1,641,465	982,250	2,868,753	2,872,192	2,393,619	5,265,811	153,891	154,664	35,056	189,720	8,079,246

1/ As determined by applying the following unit rates to the annual entitlements shown in Column 5, Table 7; $3.50 per acre-foot for the period 1967 through 1969, and $6.30 per acre-foot for 1970 and each year thereafter.

2/ Since annual service on general obligation bonds is shown on an accrual basis in the financial analysis described in Chapter XIII, project revenues are herein adjusted to a similar accrual basis.

3/ As determined by applying a unit rate of $1.19 per acre-foot to the annual entitlements shown in Column 5, Table 7, for 1970 and each year thereafter.

4/ The total of Columns 2 and 3.

5/ The total estimated sales less the costs of energy consumed in the pumpback operation.

6/ The total annual components developed in Appendix B, converted to a future project interest rate of 3.7 percent.

7/ The total of Columns 7 and 8.

8/ Repayment of the annual capital costs shown in Column 3, Table 18, in 50 equal annual installments of principal and interest, at a future project interest rate of 3.7 percent, and commencing in 1967.

9/ See Column 3, Table 19.

10/ The total of Columns 11 and 12.

11/ The total of Columns 4, 5, 9, and 13.

12/ In the financial analysis described in Chapter XIII, revenues are considered only through the final repayment of general obligation bonds shown therein. For the purpose of the preparation of relevant revenue tables, it was necessary to assume that the repayment of capital costs would extend for a period of 50 years beyond the completion of construction.

13/ Actual revenues; all others projected herein.

TABLE 25

NET OPERATING REVENUES AVAILABLE
FOR
COVERAGE OF GENERAL OBLIGATION BOND SERVICE

(in thousands of dollars)

CALENDAR YEAR	STATE UTILITY PROGRAMS				PRIOR REVENUES APPLIED TO CAPITAL EXPENDITURES 5/	NET OPERATING REVENUES RESERVED FOR COVERAGE OF REVENUE BONDS 6/	OPERATING COSTS OF FEDERAL PROGRAMS ALLOCATED TO FLOOD CONTROL 7/	AVAILABLE NET OPERATING REVENUES 8/
	TOTAL REVENUES (ADJUSTED) 1/	TOTAL OPERATING COSTS 2/	NET CREDITS FROM ADVANCES FOR REQUESTED EXCESS CAPACITY 3/	TOTAL NET OPERATING REVENUES 4/				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1961								
1962	1,024	109	0	915	47	0	0	868
1963	2,315	216	0	2,099	13	0	0	2,086
1964	2,578	251	0	2,327	7	0	0	2,320
1965	4,943	407	0	4,536	0	0	0	4,536
1966	10,159	494	0	9,665	0	0	0	9,665
1967	18,697	3,107	0	15,590	0	-763	27	16,326
1968	39,669	8,727	0	30,942	0	7,599	40	23,303
1969	53,913	9,229	0	44,684	0	8,103	53	36,528
1970	64,136	8,928	1,883	53,325	0	8,479	54	44,792
10 years, 1961-1970	197,434	31,468	1,883	164,083	67	23,418	174	140,424
1971	79,094	16,427	3,146	59,521	0	8,479	55	50,987
1972	86,493	19,332	0	67,161	0	8,479	57	58,625
1973	89,147	19,845	0	69,302	0	8,479	57	60,766
1974	92,271	22,003	193	70,075	0	8,479	57	61,539
1975	96,012	23,870	0	72,142	0	8,479	57	63,606
1976	99,183	24,833	448	73,902	0	8,479	57	65,366
1977	103,706	27,212	0	76,494	0	8,479	57	67,958
1978	108,015	29,098	0	78,917	0	8,479	57	70,381
1979	112,558	30,961	0	81,597	0	8,479	57	73,061
1980	117,119	33,164	0	83,955	0	8,479	57	75,419
10 years, 1971-1980	983,598	246,745	3,787	733,066	0	84,790	568	647,708
1981	121,081	35,482	0	85,599	0	8,479	57	77,063
1982	124,306	37,076	0	87,230	0	8,479	57	78,694
1983	128,713	39,560	0	89,153	0	8,479	57	80,617
1984	133,590	42,207	0	91,383	0	8,479	57	82,847
1985	138,803	45,080	0	93,723	0	8,479	57	85,187
1986	142,883	47,501	0	95,382	0	8,479	57	86,846
1987	146,570	49,247	0	97,323	0	8,479	57	88,787
1988	150,015	51,023	0	98,992	0	8,479	57	90,456
1989	152,038	51,775	0	100,263	0	8,479	57	91,727
1990	152,963	52,069	0	100,894	0	8,479	57	92,358
10 years, 1981-1990	1,390,962	451,020	0	939,942	0	84,790	570	854,582
10 years, 1991-2000	1,532,819	521,806	0	1,011,013	0	84,790	570	925,653
10 years, 2001-2010	1,533,346	521,910	0	1,011,436	0	84,790	570	926,076
10 years, 2011-2020	1,399,277	521,910	0	877,367	0	84,790	570	792,007
10 years, 2021-2030	1,041,810	521,910	0	519,900	0	84,790	570	434,540
TOTALS	8,079,246	2,816,769	5,670	5,256,807	67	532,158	3,592	4,720,990

1/ From Column 14, Table 24.

2/ From Column 4, Table 19.

3/ Negative values shown in Column 13, Table 21.

4/ Column 1, less Columns 2 and 3.

5/ Represents minor revenues derived from water charges applied to capital expenditures.

6/ Represents the annual revenues from the sale of the first 400,000 kilowatts of Oroville-Thermalito power, reduced by associated annual operating costs, which are herein reserved for the coverage of revenue bonds.

7/ From Column 8, Table 19.

8/ Column 4, less Columns 5, 6, and 7.

TABLE 26

FINANCIAL ANALYSIS FOR WATER BONDS
JUNE 1965

(in thousands of dollars)

CALENDAR YEAR	TOTAL CAPITAL EXPENDITURES 1/	FINANCING OF CAPITAL EXPENDITURES				GENERAL OBLIGATION BOND SERVICE 5/	NET OPERATING REVENUES 6/	BOND SERVICE IN EXCESS OF NET OPERATING REVENUES 7/	NET OPERATING REVENUES IN EXCESS OF BOND SERVICE	
		GENERAL OBLIGATION BONDS 2/	CALIFORNIA WATER FUND	REVENUE BOND PROCEEDS 3/	MISCELLANEOUS RECEIPTS 4/				PAID TO CALIF. WATER FUND 8/	AVAILABLE FOR CONSTRUCTION 9/
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Prior appropriations 10/	100,721				100,721					
4 years, 1961-1964	268,753	250,000	142,245	0	67	5,507	5,274	233	0	0
1965	217,803	100,000	11,000	0	0	12,318	4,536	7,782	0	0
1966	295,936	200,000	11,000	150,000	0	18,120	9,665	8,455	0	0
1967	324,418	250,000	11,000	0	0	27,221	16,326	10,895	0	0
1968	298,199	270,000	11,000	0	0	37,491	23,303	14,188	0	0
1969	265,686	260,000	11,000	0	0	47,761	36,528	11,233	0	0
1970	176,629	150,000	11,000	0	9,112	55,041	44,792	10,249	0	0
6 years, 1965-1970	1,578,671	1,230,000	66,000	150,000	9,112	197,952	135,150	62,802	0	0
1971	117,557	50,000	11,000	0	56,557	58,291	50,987	7,304	0	0
1972	68,114	121	11,000	0	56,993	59,343	58,625	718	0	0
1973	43,189	121	11,000	0	32,068	60,728	60,766	0 11/	0	0
1974	26,906	121	11,000	0	15,785	62,677	61,539	1,100 11/	0	0
1975	17,933	121	11,000	0	6,812	64,519	63,606	913	0	0
1976	19,072	114	11,000	0	7,958	66,733	65,366	1,367	0	0
1977	16,224	5,114	11,000	0	110	69,291	67,958	1,333	0	0
1978	45,879	24,114	11,000	0	10,765	72,628	70,381	2,247	0	0
1979	49,262	32,114	11,000	0	6,148	75,262	73,061	2,201	0	0
1980	26,599	15,599	11,000	0	0	76,398	75,419	979	0	0
10 years, 1971-1980	430,735	127,539	110,000	0	193,196	665,870	647,708	18,162	0	0
1981	35,114	1,512	11,000	0	22,602	76,503	77,063	0	560 12/	0
1982	44,114	0	11,560	0	32,554	76,365	78,694	0	2,329 12/	0
1983	55,115	0	13,329	0	41,786	76,436	80,617	0	4,181 12/	0
1984	23,227	0	15,181	0	8,046	76,476	82,847	0	6,371 12/	0
1985	17,438	0	17,371	0	67	76,218	85,187	0	8,969	0
1986	6,829	0	6,829	0	0	76,073	86,846	0	10,773	0
1987	12	0	12	0	0	76,217	88,787	0	12,570	0
1988	100	0	100	0	0	76,601	90,456	0	13,855	0
1989	160	0	160	0	0	76,891	91,727	0	14,836	0
1990	0	0	0	0	0	76,770	92,358	0	15,588	0
10 years, 1981-1990	182,109	1,512	75,542	0	105,055	764,550	854,582	0	90,032	0
10 years, 1991-2000	0	0	0	0	0	768,084	925,653	0	157,569	0
10 years, 2001-2010	0	0	0	0	0	769,082	926,076	0	146,186	10,808
10 years, 2011-2020	0	0	0	0	0	493,541	792,007	0	0	298,466
10 years, 2021-2030	0	0	0	0	0	29,613	434,540	0	0	404,927
TOTALS	2,560,989	1,609,051	393,787	150,000	408,151	3,694,199	4,720,990	81,197	393,787	714,201

1/ From Column 13, Table 20.

2/ Amounts of bonds issued during the period through 1969 produce a temporary excess of unexpended bond proceeds which are utilized by the end of 1970.

3/ From revenue bonds supported by sale of the first 400,000 kilowatts of Oroville-Thermalito power. The financing of the project may include the issuance of revenue bonds for certain other purposes as well.

4/ From Column 10, Table 27.

5/ From Column 7, Table 29.

6/ From Column 8, Table 25. Excludes net operating revenues from the first 400,000 kilowatts of Oroville-Thermalito power, which are assumed herein to be applied to payment of revenue bond service.

7/ See Column 11, Table 27. These deficiencies are covered by miscellaneous receipts.

8/ These amounts represent projected reimbursement of expenditures made from the California Water Fund, shown in Column 3 to be $393,787,000.

9/ These amounts represent those available for future construction under the fourth priority of revenues under the Burns-Porter Act.

10/ Represents expenditures made during the period 1952-1964 from appropriations made prior to the effective date of the Burns-Porter Act (November 8, 1960).

11/ A total of $38,000 of net operating revenues in excess of bond service for 1973 are carried forward and applied to bond service in 1974.

12/ Repayments to the California Water Fund applied to financing capital expenditures in the following year.

TABLE 27

MISCELLANEOUS RECEIPTS AND THE EXPENDITURE THEREOF

(in thousands of dollars)

CALENDAR YEAR	CUMULATIVE BALANCE AT BEGINNING OF YEAR 1/	MISCELLANEOUS RECEIPTS							CUMULATIVE BALANCE PLUS RECEIPTS 6/	EXPENDITURES		BALANCE AT END OF YEAR, EXCLUDING INTEREST 9/	INTEREST ON AVERAGE BALANCE AT 3.5% 10/
		LEGISLATIVE APPROPRIATIONS 2/	FEDERAL REIMBURSEMENTS 3/				NET ADVANCES FOR EXCESS CAPACITY 4/	RIGHTS OF WAY SALES, ETC. 5/		FINANCING OF CAPITAL EXPENDITURES 7/	COVERAGE OF BOND SERVICE 8/		
			OROVILLE DAM AND RESERVOIR	DEL VALLE DAM AND RESERVOIR	DELTA FACILITIES	SAN JOAQUIN DRAINAGE FACILITIES							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Prior appropriations	-	100,721	0	0	0	0	0	0	-	100,721	0	-	0
4 years, 1961-1964	-	0	26,990	0	0	0	0	1,818	-	67	233	-	1,567
1965	30,075	0	16,500	0	0	0	0	0	46,575	0	7,782	38,793	1,205
1966	39,998	5,000	3,513	994	0	3,467	8,056	0	61,028	0	8,455	52,573	1,620
1967	54,193	5,000	11,910	1,654	5,213	6,588	16,590	0	101,148	0	10,895	90,253	2,528
1968	92,781	5,000	7,936	1,432	4,625	10,454	20,685	0	142,913	0	14,188	128,725	3,876
1969	132,601	5,000	1,520	776	10,042	8,613	13,932	0	172,484	0	11,233	161,251	5,142
1970	166,393	5,000	113	0	13,276	2,173	0	0	186,955	9,112	10,249	167,594	5,845
6 years, 1965-1970	-	25,000	41,492	4,856	33,156	31,295	59,263	0	-	9,112	62,802	-	20,216
1971	173,439	5,000	26	0	13,090	0	0	0	191,555	56,557	7,304	127,694	5,270
1972	132,964	5,000	24	0	11,306	0	1,013	0	150,307	56,993	718	92,596	3,947
1973	96,543	5,000	0	0	7,470	0	1,025	0	110,038	32,068	0	77,970	3,054
1974	81,024	5,000	0	0	3,768	0	0	0	89,792	15,785	1,100	72,907	2,694
1975	75,601	5,000	0	0	0	0	143	0	80,744	6,812	913	73,019	2,601
1976	75,620	5,000	0	0	0	0	0	0	80,620	7,958	1,367	71,295	2,571
1977	73,886	5,000	0	0	0	0	0	0	78,886	110	1,333	77,423	2,648
1978	80,071	5,000	0	0	0	0	0	0	85,071	10,765	2,247	72,059	2,662
1979	74,721	5,000	0	0	0	0	0	0	79,721	6,148	2,201	71,372	2,557
1980	73,929	5,000	0	0	0	0	0	0	78,929	0	979	77,950	2,658
10 years, 1971-1980	-	50,000	50	0	35,634	0	2,181	0	-	193,196	18,162	-	30,662
1981	80,608	5,000	0	0	0	0	0	0	85,608	22,602	0	63,006	2,513
1982	65,519	5,000	0	0	0	0	0	0	70,519	32,554	0	37,965	1,811
1983	39,776	5,000	0	0	0	0	0	0	44,776	41,786	0	2,990	748
1984	3,738	4,308	0	0	0	0	0	0	8,046	8,046	0	0	66
1985	66	0	0	0	0	0	0	0	66	67	0	-1	1
1986	0	0	0	0	0	0	0	0	0	0	0	0	0
1987	0	0	0	0	0	0	0	0	0	0	0	0	0
1988	0	0	0	0	0	0	0	0	0	0	0	0	0
1989	0	0	0	0	0	0	0	0	0	0	0	0	0
1990	0	0	0	0	0	0	0	0	0	0	0	0	0
10 years, 1981-1990	-	19,308	0	0	0	0	0	0	-	105,055	0	-	5,139
TOTALS	-	195,029	68,532	4,856	68,790	31,295	61,444	1,818	-	408,151	81,197	-	57,584

1/ The total of Columns 12 and 13 for the preceding year.

2/ Amounts for 1966 and subsequent years are those assumed to be derived from annual deposits to the Central Valley Project Construction Fund under the procedures contemplated in A.B. 1147, for the capital costs of multiple-purpose features of the State Water Project allocated to the purposes of recreation and fish and wildlife enhancement (See Chapter XIII). Deposits for such purposes total $120,260,000 as shown in Column 3, Table 22, if limited to $5,000,000 annually. Only $94,308,000 is shown herein since deposits assumed for the remaining $25,952,000 occur too late in the construction period to be utilized for the purposes of Columns 10 and 11. This unused amount would be available for future construction, however.

3/ See Column 11, Table 23.

4/ Positive values from Column 13, Table 21.

5/ From the values shown in the upper portion of Column 12, Table 20, together with interest accruals thereon at an interest rate of 3.5 percent per annum.

6/ The total of Columns 1 through 8.

7/ See Column 5, Table 26.

8/ See Column 8, Table 26.

9/ Column 9, less Columns 10 and 11.

10/ Interest accruals on the average of Columns 1 and 12 at an interest rate of 3.5 percent per annum.

TABLE 28

ANALYSIS OF OFFSET BONDS

(in thousands of dollars)

CALENDAR YEAR	FINANCING OF CAPITAL EXPENDITURES												BALANCE OF UNISSUED OFFSET BONDS 6/
	TOTAL STATE WATER PROJECT				STATE WATER FACILITIES				ADDITIONAL FACILITIES				
	CALIFORNIA WATER FUND 1/	GENERAL OBLIGATION BONDS 2/	ALL OTHER 3/	TOTAL 4/	CALIFORNIA WATER FUND	GENERAL OBLIGATION BONDS	ALL OTHER	TOTAL	CALIFORNIA WATER FUND	GENERAL OBLIGATION BONDS	ALL OTHER	TOTAL 5/	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Prior Appropriations	0	0	100,721	100,721	0	0	100,721	100,721	0	0	0	0	0
4 years, 1961-1964	142,245	126,441	67	268,753	142,245	126,242	67	268,554	0	199	0	199	-
1965	11,000	206,803	0	217,803	11,000	206,007	0	217,007	0	796	0	796	152,250
1966	11,000	134,936	150,000	295,936	11,000	133,964	150,000	294,964	0	972	0	972	162,278
1967	11,000	313,418	0	324,418	11,000	312,540	0	323,540	0	878	0	878	172,400
1968	11,000	287,199	0	298,199	11,000	286,736	0	297,736	0	463	0	463	182,937
1969	11,000	254,686	0	265,686	11,000	254,562	0	265,562	0	124	0	124	193,813
1970	11,000	156,517	9,112	176,629	11,000	156,393	9,112	176,505	0	124	0	124	204,689
6 years, 1965-1970	66,000	1,353,559	159,112	1,578,671	66,000	1,350,202	159,112	1,575,314	0	3,357	0	3,357	-
1971	11,000	50,000	56,557	117,557	11,000	49,879	56,557	117,436	0	121	0	121	215,568
1972	11,000	121	56,993	68,114	11,000	0	56,993	67,993	0	121	0	121	219,879
1973	11,000	121	32,068	43,189	11,000	0	32,068	43,068	0	121	0	121	219,758
1974	11,000	121	15,785	26,906	11,000	0	15,785	26,785	0	121	0	121	219,637
1975	11,000	121	6,812	17,933	11,000	0	6,812	17,812	0	121	0	121	219,516
1976	11,000	114	7,958	19,072	11,000	0	7,958	18,958	0	114	0	114	219,402
1977	11,000	5,114	110	16,224	11,000	0	110	11,110	0	5,114	0	5,114	214,288
1978	11,000	24,114	10,765	45,879	11,000	0	10,765	21,765	0	24,114	0	24,114	190,174
1979	11,000	32,114	6,148	49,262	11,000	0	6,148	17,148	0	32,114	0	32,114	158,060
1980	11,000	15,599	0	26,599	1,485	0	0	1,485	9,515	15,599	0	25,114	142,461
10 years, 1971-1980	110,000	127,539	193,196	430,735	100,485	49,879	193,196	343,560	9,515	77,660	0	87,175	-
1981	11,000	1,512	22,602	35,114	0	0	0	0	11,000	1,512	22,602	35,114	140,949
1982	11,560	0	32,554	44,114	0	0	0	0	11,560	0	32,554	44,114	140,949
1983	13,329	0	41,786	55,115	11,001	0	0	11,001	2,328	0	41,786	44,114	140,949
1984	15,181	0	8,046	23,227	15,181	0	1,932	17,113	0	0	6,114	6,114	140,949
1985	17,371	0	67	17,438	17,324	0	0	17,324	47	0	67	114	140,949
1986	6,829	0	0	6,829	6,829	0	0	6,829	0	0	0	0	140,949
1987	12	0	0	12	12	0	0	12	0	0	0	0	140,949
1988	100	0	0	100	100	0	0	100	0	0	0	0	140,949
1989	160	0	0	160	160	0	0	160	0	0	0	0	140,949
1990	0	0	0	0	0	0	0	0	0	0	0	0	140,949
10 years, 1981-1990	75,542	1,512	105,055	182,109	50,607	0	1,932	52,539	24,935	1,512	103,123	129,570	-
TOTALS	393,787	1,609,051	558,151	2,560,989	359,337	1,526,323	455,028	2,340,688	34,450	82,728	103,123	220,301	-

1/ From Column 3, Table 26.
2/ From Column 2, Table 27, after elimination of temporary excess of unexpended bond proceeds during the period through 1969.
3/ From Columns 4 and 5, Table 26.
4/ From Column 1, Table 26.
5/ Costs of Upper Eel River Development as shown in Column 6, Table 20.
6/ Cumulative values of Column 5, less Column 10 through calendar year 1971; plus $4,432,000 less Column 10 in 1972; and less Column 10 in 1973 and each year thereafter. The value of $4,432,000 represents the amount of $1,750,000,000 reduced by expenditures from the California Water Fund and general obligation bond proceeds shown for the State Water Facilities in Columns 5 and 6 during the period through 1971.

TABLE 29

SERVICE ON ACTUAL AND PROJECTED GENERAL OBLIGATION BONDS

(in thousands of dollars)

CALENDAR YEAR	BOND SERVICE ON ACTUAL ISSUES THROUGH SERIES "D" 1/			BOND SERVICE ON PROJECTED ISSUES 2/			TOTAL BOND SERVICE ACTUAL AND PROJECTED
	PRINCIPAL	INTEREST	TOTAL	PRINCIPAL	INTEREST	TOTAL	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1961	0	0	0	0	0	0	0
62	0	0	0	0	0	0	0
63	0	0	0	0	0	0	0
64	0	5,507	5,507	0	0	0	5,507
65	0	12,318	12,318	0	0	0	12,318
66	0	12,920	12,920	0	5,200	5,200	18,120
67	0	12,921	12,921	0	14,300	14,300	27,221
68	0	12,921	12,921	0	24,570	24,570	37,491
69	0	12,921	12,921	0	34,840	34,840	47,761
1970	0	12,921	12,921	0	42,120	42,120	55,041
71	0	12,921	12,921	0	45,370	45,370	58,291
72	400	12,920	13,320	0	46,023	46,023	59,343
73	1,800	12,900	14,700	0	46,028	46,028	60,728
74	3,834	12,811	16,645	0	46,032	46,032	62,677
75	4,000	12,630	16,630	1,852	46,037	47,889	64,519
76	4,083	12,441	16,524	4,250	45,959	50,209	66,733
77	4,200	12,248	16,448	6,942	45,901	52,843	69,291
78	4,633	12,050	16,683	9,662	46,283	55,945	72,628
79	4,950	11,830	16,780	11,486	46,996	58,482	75,262
1980	5,033	11,596	16,629	12,466	47,303	59,769	76,398
81	5,134	11,358	16,492	13,028	46,983	60,011	76,503
82	5,217	11,116	16,333	13,615	46,417	60,032	76,365
83	5,533	10,870	16,403	14,229	45,804	60,033	76,436
84	5,834	10,608	16,442	14,870	45,164	60,034	76,476
85	5,850	10,333	16,183	15,540	44,495	60,035	76,218
86	5,933	10,057	15,990	16,287	43,796	60,083	76,073
87	6,134	9,777	15,911	17,243	43,063	60,306	76,217
88	6,500	9,498	15,998	18,316	42,287	60,603	76,601
89	6,884	9,259	16,143	19,285	41,463	60,748	76,891
1990	6,983	9,026	16,009	20,167	40,594	60,761	76,770
91	7,000	8,787	15,787	21,074	39,687	60,761	76,548
92	7,217	8,546	15,763	22,023	38,738	60,761	76,524
93	7,783	8,297	16,080	23,014	37,747	60,761	76,841
94	8,283	8,027	16,310	24,049	36,712	60,761	77,071
95	8,300	7,739	16,039	25,132	35,629	60,761	76,800
96	8,383	7,450	15,833	26,263	34,498	60,761	76,594
97	8,650	7,157	15,807	27,444	33,317	60,761	76,568
98	9,333	6,854	16,187	28,679	32,082	60,761	76,948
99	9,933	6,526	16,459	29,970	30,791	60,761	77,220
2000	10,033	6,176	16,209	31,319	29,442	60,761	76,970
01	10,133	5,820	15,953	32,728	28,033	60,761	76,714
02	10,433	5,461	15,894	34,143	26,618	60,761	76,655
03	11,233	5,092	16,325	35,546	25,215	60,761	77,086
04	11,934	4,692	16,626	36,930	23,831	60,761	77,387
05	12,034	4,265	16,299	38,292	22,469	60,761	77,060
06	12,217	3,834	16,051	39,662	21,099	60,761	76,812
07	12,500	3,396	15,896	41,066	19,695	60,761	76,657
08	13,183	2,949	16,132	42,521	18,240	60,761	76,893
09	13,867	2,474	16,341	44,027	16,734	60,761	77,102
2010	13,983	1,972	15,955	45,586	15,175	60,761	76,716
11	14,083	1,465	15,548	47,201	13,560	60,761	76,309
12	14,267	959	15,226	48,853	11,908	60,761	75,987
13	13,050	536	13,586	50,514	10,247	60,761	74,347
14	8,483	258	8,741	52,172	8,589	60,761	69,502
15	750	23	773	53,836	6,925	60,761	61,534
16	0	0	0	45,958	5,151	51,109	51,109
17	0	0	0	35,436	3,608	39,044	39,044
18	0	0	0	23,639	2,375	26,014	26,014
19	0	0	0	11,957	1,510	13,467	13,467
2020	0	0	0	5,169	1,059	6,228	6,228
21	0	0	0	2,951	864	3,815	3,815
22	0	0	0	3,048	761	3,809	3,809
23	0	0	0	3,148	655	3,803	3,803
24	0	0	0	3,249	548	3,797	3,797
25	0	0	0	3,347	444	3,791	3,791
26	0	0	0	3,444	342	3,786	3,786
27	0	0	0	3,306	233	3,539	3,539
28	0	0	0	2,256	119	2,375	2,375
29	0	0	0	791	34	825	825
2030	0	0	0	70	3	73	73
TOTALS	350,000	427,433	777,433	1,259,051	1,657,715	2,916,766	3,694,199

1/ Placed on an accrual basis.

2/ All projected issues are assumed at 3.8 percent effective interest per annum, with amortization commencing in the tenth year of such issues, to produce level annual bond service for the 41-year period beginning with the tenth and ending with the fiftieth year.

TABLE 30

STATE OF CALIFORNIA WATER BONDS
SCHEDULE OF MATURITIES, AMOUNTS AND COUPONS

(In thousands of dollars unless otherwise noted)

CALENDAR YEAR	SERIES A MATURITY DATE SEPTEMBER 1		SERIES B MATURITY DATE MAY 1		SERIES C MATURITY DATE NOVEMBER 1		SERIES D MATURITY DATE MARCH 1	
	AMOUNT	COUPON(%)	AMOUNT	COUPON(%)	AMOUNT	COUPON(%)	AMOUNT	COUPON(%)
1973	1,200	5.00	0	0	0	0	0	0
1974	1,200	5.00	600	5.00	1,200	4.50	0	0
1975	1,200	5.00	600	5.00	1,200	4.50	1,000	4.50
1976	1,200	5.00	600	5.00	1,200	4.50	1,000	4.50
1977	1,200	5.00	600	5.00	1,200	4.50	1,100	4.50
1978	1,500	5.00	600	5.00	1,200	4.50	1,100	4.50
1979	1,500	5.00	750	5,00	1,500	4.50	1,200	4.50
1980	1,500	5.00	750	5.00	1,500	4.50	1,200	4.50
1981	1,500	5.00	750	5.00	1,500	4.50	1,300	4.50
1982	1,500	5.00	750	5.00	1,500	4.50	1,400	4.50
1983	1,700	5.00	750	5.00	1,500	4.50	1,400	4.50
1984	1,700	5.00	850	5.00	1,700	4.50	1,500	4.50
1985	1,700	5.00	850	5.00	1,700	4.50	1,600	4.50
1986	1,700	5.00	850	5.00	1,700	4.50	1,600	4.50
1987	1,700	5.00	850	5.00	1,700	4.50	1,700	4.50
1988	2,000	4.00	850	4.75	1,700	3.75	1,800	4.50
1989	2,000	3.40	1,000	3.40	2,000	3.40	1,800	3.25
1990	2,000	3.40	1,000	3.40	2,000	3.40	1,900	3.40
1991	2,000	3.40	1,000	3.50	2,000	3.50	2,000	3.40
1992	2,000	3.40	1,000	3.50	2,000	3.50	2,000	3.40
1993	2,400	3.50	1,000	3.50	2,000	3.50	2,100	3.40
1994	2,400	3.50	1,200	3.50	2,400	3.50	2,200	3,40
1995	2,400	3.50	1,200	3.50	2,400	3.55	2,300	3.40
1996	2,400	3.50	1,200	3.50	2,400	3.55	2,300	3.40
1997	2,400	3.50	1,200	3.50	2,400	3.55	2,400	3.40
1998	2,900	3.50	1,200	3.50	2,400	3.55	2,500	3.50
1999	2,900	3.50	1,450	3.50	2,900	3.55	2,600	3.50
2000	2,900	3.50	1,450	3.60	2,900	3.60	2,700	3.50
2001	2,900	3.50	1,450	3.60	2,900	3.60	2,800	3.50
2002	2,900	3.50	1,450	3.60	2,900	3.60	2,900	3.50
2003	3,500	3.50	1,450	3.60	2,900	3.60	3,000	3.50
2004	3,500	3.60	1,750	3.60	3,500	3.625	3,100	3.50
2005	3,500	3.60	1,750	3.60	3,500	3.625	3,200	3.50
2006	3,500	3.60	1,750	3.625	3,500	3.625	3,300	3.50
2007	3,500	3.60	1,750	3.625	3,500	3.625	3,500	3.50
2008	4,000	3.625	1,750	3.625	3,500	3.65	3,600	3.50
2009	4,000	3.625	2,000	3.625	4,000	3.65	3,700	3.50
2010	4,000	3.625	2,000	3.625	4,000	3.65	3,900	3.60
2011	4,000	3.625	2,000	3.625	4,000	3.65	4,000	3.60
2012	4,000	3.625	2,000	3.625	4,000	3.00	4,100	3.60
2013	4,000	1/10	2,000	3.625	4,000	3.00	4,300	3.00
2014	0	0	2,000	1/20	4,000	3.00	4,400	3.00
2015	0	0	0	0	0	0	4,500	3.00
Total	100,000		50,000		100,000		100,000	
Average Life (years)	34.29		34.52		34.52		34.93	

TABLE 31

REDEMPTION PREMINUMS FOR STATE OF CALIFORNIA WATER BONDS

Year of Maturity	Maturity dates for respective Series: Series A, September 1. Series B, May 1. Series C, November 1. Series D, March 1.																				
	% premium if redemption occurs during 12-month period ending on maturity date for respective Series in year named below:																				
	1983 1/	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003 2/
1984	1/8	0																			
1985	1/4	1/8	0																		
1986	3/8	1/4	1/8	0																	
1987	1/2	3/8	1/4	1/8	0																
1988	5/8	1/2	3/8	1/4	1/8	0															
1989	3/4	5/8	1/2	3/8	1/4	1/8	0														
1990	7/8	3/4	5/8	1/2	3/8	1/4	1/8	0													
1991	1	7/8	3/4	5/8	1/2	3/8	1/4	1/8	0												
1992	1 1/8	1	7/8	3/4	5/8	1/2	3/8	1/4	1/8	0											
1993	1 1/4	1 1/8	1	7/8	3/4	5/8	1/2	3/8	1/4	1/8	0										
1994	1 3/8	1 1/4	1 1/8	1	7/8	3/4	5/8	1/2	3/8	1/4	1/8	0									
1995	1 1/2	1 3/8	1 1/4	1 1/8	1	7/8	3/4	5/8	1/2	3/8	1/4	1/8	0								
1996	1 5/8	1 1/2	1 3/8	1 1/4	1 1/8	1	7/8	3/4	5/8	1/2	3/8	1/4	1/8	0							
1997	1 3/4	1 5/8	1 1/2	1 3/8	1 1/4	1 1/8	1	7/8	3/4	5/8	1/2	3/8	1/4	1/8	0						
1998	1 7/8	1 3/4	1 5/8	1 1/2	1 3/8	1 1/4	1 1/8	1	7/8	3/4	5/8	1/2	3/8	1/4	1/8	0					
1999	2	1 7/8	1 3/4	1 5/8	1 1/2	1 3/8	1 1/4	1 1/8	1	7/8	3/4	5/8	1/2	3/8	1/4	1/8	0				
2000	2 1/8	2	1 7/8	1 3/4	1 5/8	1 1/2	1 3/8	1 1/4	1 1/8	1	7/8	3/4	5/8	1/2	3/8	1/4	1/8	0			
2001	2 1/4	2 1/8	2	1 7/8	1 3/4	1 5/8	1 1/2	1 3/8	1 1/4	1 1/8	1	7/8	3/4	5/8	1/2	3/8	1/4	1/8	0		
2002	2 3/8	2 1/4	2 1/8	2	1 7/8	1 3/4	1 5/8	1 1/2	1 3/8	1 1/4	1 1/8	1	7/8	3/4	5/8	1/2	3/8	1/4	1/8	0	
2003 2/	2 1/2	2 3/8	2 1/4	2 1/8	2	1 7/8	1 3/4	1 5/8	1 1/2	1 3/8	1 1/4	1 1/8	1	7/8	3/4	5/8	1/2	3/8	1/4	1/8	0

Bonds maturing prior to 1984 are not callable. Bonds of each series maturing in 1984 or later are callable for redemption, in inverse order of maturities, on the 1983 maturity date for the respective series, and on any date thereafter, at premiums of 1/8% for each full 12-month period from the redemption date to the earlier of (1) the maturity date of the bonds being called or (2) the 2003 maturity date for respective series.

1/ Premium shown in this column applies only if called for redemption on the 1983 maturity date for the respective series, since bonds of each series are not callable for redemption prior thereto.

2/ Or later.

APPENDIX A

FINANCIAL STATEMENTS

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INTRODUCTION

This appendix to Bulletin 132-65 contains the financial statements of the State Water Resources Development System as of December 31, 1964, and explanatory notes thereto.

Significant changes since the date of the financial statements included in Bulletin 132-64 (December 31, 1963), are summarized below.

The calendar year 1964 marked the first sales of General Obligation Bonds authorized by the Burns-Porter Act. These sales totaled $250,000,000, of which $50,000,000 was applied to retire Bond Anticipation Notes issued in 1963. In addition, funds in the amount of $8,200,000 were utilized from the California Water Fund.

The above funds were applied principally to additions for construction of the State Water Project in the amount of $130,300,000 (including interest during construction of $6,800,000) and to increase net current assets of $77,400,000 which will be utilized for construction during 1965.

Total revenues in 1964 from water supply contractors amounted to $2,900,000 which included $400,000 for water deliveries from the South Bay Aqueduct and Frenchman Dam and Lake. Federal flood control contributions for Oroville Dam were received in the amount of $13,000,000.

Interest charges on bonds were $4,900,000 and interest earnings on investments amounted to $4,000,000 in 1964.

Payments on grants to local agencies made under the Davis-Grunsky Local Projects Assistance Program, totaled $3,900,000 during the year.

STATE WATER RESOURCES DEVELOPMENT SYSTEM
(Excluding Davis-Grunsky Local Projects Assistance Program)
DEPARTMENT OF WATER RESOURCES
BALANCE SHEET - DECEMBER 31, 1964

EXHIBIT 1

ASSETS

Utility Plant: (Note A)			
Construction Work in Progress -			
Water Conservation Facilities (Including Oroville Power)	$217,245,574		
Water Transportation Facilities	98,594,300		
San Joaquin Drainage Facilities	2,000,252		
Accrued (Unallocated)	9,433,394		
		$327,273,520	
Plant in Service -			
Water Conservation Facilities	$ 1,769,000		
Water Transportation Facilities	10,588,192		
	$ 12,357,192		
Less: Reserve for Depreciation	-348,154		
		12,009,038	
Plant Held For Future Use -			
Water Transportation Facilities		938,898	
			$340,221,456
Non-Utility Plant: (Note A)			
Construction Work in Progress -			
Recreation Facilities	$ 8,060,748		
Flood Control Facilities	34,343,106		
Delta Facilities	1,869,109		
		$ 44,272,963	
Plant in Service -			
Recreation Facilities		5,762,654	
			50,035,617
Special Funds: (Note B)			
Central Valley Water Project Construction Fund		$ 29,261,117	
Central Valley Water Project Revenue Fund		29,121	
California Water Resources Development Bond Fund - Replacement Account		27,427	
			29,317,665
Current Assets: (Note B)			
Cash		$ 3,890,739	
Investments		120,214,700	
Accounts Receivable		1,965,792	
Due from Water Resources Revolving Fund		1,678,412	
			127,749,643
Deferred Charges:			
Operation and Maintenance			156,925
			$547,481,306

See Notes to Financial Statements

EXHIBIT 1

LIABILITIES

Capitalization:			
Long-Term Debt -			
Bonds Payable (Note C)		$250,000,000	
Advances from California Water Fund (Note D)		131,026,601	
Grants in Aid of Construction - (Note E)			
From Prior Appropriations -			
California Water Fund	$86,429,843		
General Fund	11,347,683		
	$97,777,526		
Other -			
Interest on State Advances and Grants	21,979,377		
Federal Flood Control Contributions	26,990,000		
		146,746,903	
Accumulated Deferred Net Income (Note F)		777,861	
Accumulated Interest Earnings on Investments		4,721,740	
Advances for Delivery Structures		513,106	
			$533,786,211
Current Liabilities:			
Accounts Payable		$ 2,298,970	
Contract Retentions		9,027,763	
Due to California Water Fund		114,668	
Accrued Interest on Bonds Payable		1,862,088	
			13,303,489
Reserves:			
Reserve for Replacements - Transportation			27,427
Deferred Credits:			
Operation and Maintenance		$ 53,023	
Advance Payments - Transportation (Note G)		111,523	
Property Rental		5,773	
Delivery Structures		193,860	
			364,179
			$547,481,306

STATE WATER RESOURCES DEVELOPMENT SYSTEM
DEPARTMENT OF WATER RESOURCES
STATEMENTS OF DEFERRED NET INCOME AND INTEREST EARNINGS ON INVESTMENTS
FOR THE CALENDAR YEAR ENDED DECEMBER 31, 1964

EXHIBIT 2A

REVENUES (EXHIBIT 3)		
Conservation		$ 14,000
Transportation		
Capital Cost Component	$2,471,214	
Operation Components	373,409	2,844,623
Total Revenues		$2,858,623
COST OF OPERATIONS (EXHIBIT 4)		
Conservation	$ 14,000	
Transportation	356,686	
Provision for Replacements	16,723	
Provision for Depreciation	348,154	
Total Cost of Operations		735,563
Net Operating Revenues		$2,123,060
DEDUCTIONS		
Interest on Bonds	$4,938,704	
Interest on State Advances and Grants, Credited to Grants in Aid of Construction	4,320,959	
	$9,259,663	
Less: Interest Charged to Construction	6,834,239	
Total Deductions (Net)		2,425,424
DEFERRED NET INCOME		$ -302,364
Accumulated Deferred Net Income, December 31, 1963		1,080,225
ACCUMULATED DEFERRED NET INCOME, DECEMBER 31, 1964 (EXHIBIT 1)		$ 777,861
INTEREST EARNINGS ON INVESTMENTS		
Accumulated Balance, December 31, 1963		$ 691,927
Year Ended December 31, 1964		4,029,813
ACCUMULATED BALANCE, DECEMBER 31, 1964 (EXHIBIT 1)		$4,721,740

EXHIBIT 2A

STATE WATER RESOURCES DEVELOPMENT SYSTEM
DEPARTMENT OF WATER RESOURCES
STATEMENT OF DEFERRED NET INCOME
CUMULATIVE TO DECEMBER 31, 1964

EXHIBIT 2B

REVENUES		
Conservation		$ 28,000
Transportation		
Capital Cost Component	$ 4,398,163	
Operation Components	816,782	5,214,945
Total Revenues		$5,242,945
COST OF OPERATIONS		
Conservation	$ 28,000	
Transportation	789,355	
Provision for Replacements	27,427	
Provision for Depreciation	348,154	
Total Cost of Operations		1,192,936
Net Operating Revenues		$4,050,009
DEDUCTIONS		
Interest on Bonds	$ 5,017,937	
Interest on State Advances and Grants, Credited to Grants in Aid of Construction	21,979,377	
	$26,997,314	
Less: Interest Charged to Construction	23,725,166	
Total Deductions (Net)		3,272,148
ACCUMULATED DEFERRED NET INCOME (EXHIBIT 1)		$ 777,861

STATE WATER RESOURCES DEVELOPMENT SYSTEM
DEPARTMENT OF WATER RESOURCES
STATEMENT OF REVENUES
FOR THE CALENDAR YEAR ENDED DECEMBER 31, 1964

EXHIBIT 3

	Conservation	Transportation: Capital Cost Component	Transportation: Operation Components	Total
CONSERVATION FACILITIES				
Frenchman Dam and Lake				
Last Chance Creek Water District	$14,000			$ 14,000
TRANSPORTATION FACILITIES				
South Bay Aqueduct				
Alameda County Water District		$ 159,586	$237,615	397,201
Alameda County F.C. & W.C. District		108,965	57,411	166,376
Santa Clara County F.C. & W.C. District		514,535	78,383	592,918
California Aqueduct				
Antelope Valley-East Kern Water Agency		82,492		82,492
City of West Covina		10,561		10,561
Coachella Valley County Water District		16,808		16,808
Crestline-Lake Arrowhead Water Agency		4,724		4,724
Desert Water Agency		41,062		41,062
Littlerock Creek Irrigation District		1,370		1,370
Metropolitan Water District of Southern Calif.		1,295,389		1,295,389
Mojave Water Agency		35,921		35,921
Palmdale Irrigation District		9,168		9,168
San Bernardino Valley Municipal Water District		86,003		86,003
San Gabriel Valley Municipal Water District		36,042		36,042
San Gorgonio Pass Water Agency		16,867		16,867
San Luis Obispo County F.C. & W.C. District		6,827		6,827
Santa Barbara County F.C. & W.C. District		13,806		13,806
Upper Santa Clara Valley Water Agency		16,372		16,372
Ventura County Flood Control District		14,716		14,716
Total (Exhibit 2A)	$14,000	$2,471,214	$373,409	$2,858,623

STATE WATER RESOURCES DEVELOPMENT SYSTEM
DEPARTMENT OF WATER RESOURCES
STATEMENT OF COST OF OPERATIONS
FOR THE CALENDAR YEAR ENDED DECEMBER 31, 1964

EXHIBIT 4

	Operation, Maintenance and Power				
			Transportation Facilities		
	Grand Total	Conservation Facilities	Minimum Component	Variable Component	Bureau Water Charge
CONSERVATION FACILITIES -					
Frenchman Dam and Lake					
Storage System - Operation & Maintenance	$ 9,506	$ 9,506			
Allocated General Operation Costs	1,380	1,380			
Total - Conservation Facilities	$ 10,886	$10,886			
TRANSPORTATION FACILITIES -					
SOUTH BAY AQUEDUCT					
Reach No. 1 - Bethany Forebay to Altamont Turnout					
Operation - Pumping	61,711		$ 61,711		
Operation - Carriage and Distribution	38,191		38,191		
Operation - Allocated General Costs	15,728		15,728		
Maintenance - Pumping	734		734		
Maintenance - Carriage and Distribution	19,183		19,183		
Water Purchased	153,239				$153,239
Power Purchased	72,352			$72,352	
Water Quality Testing	548			548	
Reclassification of Transportation Losses			522	-522	
Total - Reach No. 1	$361,686		$136,069	$72,378	$153,239
Reach No. 2 - Altamont Turnout thru Patterson Reservoir					
Operation - Carriage and Distribution	19,904		19,904		
Operation - Allocated General Costs	842		842		
Maintenance - Pumping	196		196		
Maintenance - Carriage and Distribution	8,475		8,475		
Water Quality Testing	346			346	
Reclassification of Transportation Losses			2	-2	
Total - Reach No. 2	$ 29,763		$ 29,419	$ 344	
Total - Transportation Facilities	$391,449		$165,488	$72,722	$153,239
Total - Expenditures	$402,335	$10,886	$165,488	$72,722	$153,239
Provision for Replacements	16,723		5,714	11,009	
Provision for Depreciation	348,154				
Less:					
Deferred Operating Costs (1964)	15,404	-3,114	17,339		1,179
Deferred Operating Costs (Prior Years Adjustments)	14,591		13,363		1,228
Charges to Construction	1,654			607	1,047
Total (Exhibit 2A)	$735,563	$14,000	$140,500	$83,124	$149,785

STATE WATER RESOURCES DEVELOPMENT SYSTEM
DEPARTMENT OF WATER RESOURCES
STATEMENT OF SOURCE AND APPLICATION OF FUNDS
FOR THE CALENDAR YEAR ENDED DECEMBER 31, 1964

EXHIBIT 5A

	Utility & Non-Utility Plant	Davis-Grunsky Program	Total
FUNDS PROVIDED			
Burns-Porter Act Appropriation			
Sales of General Obligation Bonds	$200,000,000		$200,000,000
California Water Fund	3,997,724	$4,210,974	8,208,698
Grants in Aid of Construction			
From Prior Appropriations (Adjustments)			
California Water Fund	-2,783,079		-2,783,079
General Fund	-472,080		-472,080
Interest on State Advances and Grants	4,320,959		4,320,959
Federal Flood Control Contributions	13,040,000		13,040,000
Local Projects Assistance Fund		565	565
Deferred Net Income	-302,364		-302,364
Interest Earnings on Investments	4,029,813		4,029,813
Advances for Delivery Structures	395,428		395,428
Interest Earnings on Loans		34,390	34,390
Provision for Depreciation	348,154		348,154
Provision for Replacements	16,723		16,723
Total	$222,591,278	$4,245,929	$226,837,207
FUNDS APPLIED			
Additions to Plant			
Reimbursable under Project Contracts			
Conservation (Including Oroville Power)	$ 42,140,792		$ 42,140,792
Transportation	42,175,260		42,175,260
Delivery Structures	395,428		395,428
Drainage	517,617		517,617
Interest During Construction	6,834,239		6,834,239
Unallocated	9,318,968		9,318,968
Nonreimbursable			
Recreation	6,703,871		6,703,871
Flood Control	20,393,106		20,393,106
Delta Facilities-Federal & Local Participation	1,869,109		1,869,109
Total	$130,348,390		$130,348,390
Davis-Grunsky Program			
Loans		$ 11,493	11,493
Grants		3,880,736	3,880,736
Administrative Expenses		319,310	319,310
Total		$4,211,539	$ 4,211,539
Less Repayments		5,438	5,438
Increases in			
Special Funds	$ 14,783,383		14,783,383
Net Current Assets	77,373,490	39,828	77,413,318
Deferred Charges (Net)	86,015		86,015
Total	$222,591,278	$4,245,929	$226,837,207

EXHIBIT 5A

STATE WATER RESOURCES DEVELOPMENT SYSTEM
DEPARTMENT OF WATER RESOURCES
STATEMENT OF SOURCE AND APPLICATION OF FUNDS
CUMULATIVE TO DECEMBER 31, 1964

EXHIBIT 5B

	Utility & Non-Utility Plant	Davis-Grunsky Program	Total
FUNDS PROVIDED			
Burns-Porter Act Appropriation			
Sales of General Obligation Bonds	$250,000,000		$250,000,000
California Water Fund	131,026,601	$7,755,080	138,781,681
Grants in Aid of Construction			
From Prior Appropriations			
California Water Fund	86,429,843	102,549	86,532,392
General Fund	11,347,683	54,487	11,402,170
Interest on State Advances and Grants	21,979,377		21,979,377
Federal Flood Control Contributions	26,990,000		26,990,000
Local Projects Assistance Fund		1,262,008	1,262,008
Accumulated Deferred Net Income	777,861		777,861
Accumulated Interest Earnings on Investments	4,721,740		4,721,740
Advances for Delivery Structures	513,106		513,106
Accumulated Interest Earnings on Loans		72,989	72,989
Reserve for Depreciation	348,154		348,154
Reserve for Replacements	27,427		27,427
Increase in Deferred Credits (Net)	207,254		207,254
Total	$534,369,046	$9,247,113	$543,616,159
FUNDS APPLIED			
Additions to Plant			
Reimbursable under Project Contracts			
Conservation (Including Oroville Power)	$202,143,231		$202,143,231
Transportation	103,004,043		103,004,043
Delivery Structures	513,106		513,106
Drainage	1,865,096		1,865,096
Interest During Construction	23,725,166		23,725,166
Accrued (Unallocated)	9,318,968		9,318,968
Nonreimbursable			
Recreation	13,823,402		13,823,402
Flood Control	34,343,106		34,343,106
Delta Facilities-Federal & Local Participation	1,869,109		1,869,109
Total	$390,605,227		$390,605,227
Davis-Grunsky Program			
Loans		$2,898,500	$ 2,898,500
Grants		5,239,235	5,239,235
Administrative Expenses		1,036,389	1,036,389
Total		$9,174,124	$ 9,174,124
Less Repayments		6,650	6,650
Increases in			
Special Funds	$ 29,317,665		29,317,665
Net Current Assets	114,446,154	79,639	114,525,793
Total	$534,369,046	$9,247,113	$543,616,159

STATE WATER RESOURCES DEVELOPMENT SYSTEM
DEPARTMENT OF WATER RESOURCES
DAVIS-GRUNSKY LOCAL PROJECTS ASSISTANCE PROGRAM
BALANCE SHEET - DECEMBER 31, 1964

EXHIBIT 6

ASSETS

CURRENT ASSETS		
Cash	$ 77,646	
Loans Receivable, Current Portion	1,993	$ 79,639
LONG-TERM LOANS RECEIVABLE:		
Loans Receivable	$2,888,843	
Less: Current Portion Included Above	1,993	2,886,850
NONREIMBURSABLE GRANTS FOR LOCAL PROJECTS AND ADMINISTRATIVE COSTS		6,275,624
		$9,242,113

LIABILITIES

CAPITALIZATION		
Long-Term Debt:		
Due to California Water Fund		
Burns-Porter Act Appropriation (Note D)	$7,755,080	
Special Appropriation	1,255,000	$9,010,080
Accumulated Interest Earnings on Loans		72,989
State's Contribution from Prior Appropriations		159,044
		$9,242,113

EXHIBIT 6

STATE WATER RESOURCES DEVELOPMENT SYSTEM
DEPARTMENT OF WATER RESOURCES
Notes to Financial Statements
December 31, 1964

NOTE A

UTILITY AND NON-UTILITY PLANT

Utility Plant includes interest during construction at 3.531% which is the project interest rate after reflecting the sale of Series D Bonds. Depreciation of Plant in Service is being recorded which will fully depreciate the facilities, including land, over their estimated service lives.

Capital costs included in Utility Plant and Non-Utility Plant for the period from 1952 through 1962 are subject to minor adjustments pending legal, policy and engineering review of these costs. Such adjustments are expected to be reflected in the financial statements as of December 31, 1965.

Costs allocated between Utility Plant and Non-Utility Plant are subject to adjustments in future years pending final determinations of allocations to project purposes.

NOTE B

SPECIAL FUNDS AND CURRENT ASSETS

Special funds and current assets are subject to certain applications according to their source and purpose. Current assets consist of funds planned for expenditure during 1965. Special funds include those funds to be expended after 1965. The amounts shown in the Balance Sheet at December 31, 1964, consist of:

	Cash	Investments*	Accounts Receivable	Total
CURRENT ASSETS				
Bond Fund:				
Revenue	$ 576,288		$ 24,406	$ 600,694
Construction	3,120,591	$120,100,000	3,619,798	126,840,389
CVWP Funds:				
Construction	193,860	114,700		308,560
Total	$3,890,739	$120,214,700	$ 3,644,204	$127,749,643
SPECIAL FUNDS				
Bond Fund:				
Replacements	$ 25,954		$ 1,473	$ 27,427
CVWP Funds:				
Construction	713,957	$ 8,135,300	20,411,860	29,261,117
Revenue	4,035	25,000	86	29,121
Total	$ 743,946	$ 8,160,300	$20,413,419	$ 29,317,665
TOTAL	$4,634,685	$128,375,000	$24,057,623	$157,067,308

*Investments are made through the State's Surplus Money Investment Fund for the account of each of the funds listed.

NOTE B

SPECIAL FUNDS AND CURRENT ASSETS (cont.)

Planned Application of Current Assets and Special Funds:

	Construction	Interest on Bonds	Replacements	Total
CURRENT ASSETS				
Bond Fund:				
Revenue	$	$ 600,694		$ 600,694
Construction	$126,840,389			126,840,389
CVWP Funds:				
Construction	308,560			308,560
Total	$127,148,949	$ 600,694		$127,749,643
SPECIAL FUNDS				
Bond Fund:				
Replacements			$27,427	$ 27,427
CVWP Funds:				
Construction		$29,261,117		29,261,117
Revenue		29,121		29,121
Total		$29,290,238	$27,427	$ 29,317,665
TOTAL	$127,148,949	$29,890,932	$27,427	$157,067,308

Sources, purposes and restrictions applicable to the funds are as follows:

Bond Fund-Revenue Account: Payments, other than advance payments for replacements and delivery structures, from contracting agencies and other income received are deposited in this fund. Expenditures from this fund are subject to the following priorities under the Bond Act:

1. Operation and Maintenance Costs
2. Transfers to General Fund for Principal and Interest on General Obligation Bonds
3. Repayments to California Water Fund for Advances (See Note D)
4. Construction of Additional Facilities

Bond Fund-Construction Account: Proceeds from sales of general obligation bonds, excluding premium and accrued interest received on such sales which are applied toward interest payments, are deposited in this account. Expenditures for construction of the State Water Resources Development System are made in part from this account.

Central Valley Water Project Construction Fund: Federal Contributions received as reimbursements for the cost of flood control facilities or open-space recreation lands, advance payments for delivery structures, and proceeds from the sales of improvements are deposited in this fund. Expenditures for construction or interest on general obligation bonds will be made in part from this fund.

NOTE B

SPECIAL FUNDS AND CURRENT ASSETS (cont.)

Bond Fund-Replacement Account: Payments received for replacement costs are deposited in this fund. Expenditures are limited to the acquisition of replacements.

Central Valley Water Project Revenue Fund: Revenue from sales of Oroville Power will be deposited in this fund. Property rental income accrued prior to the effective date of the Bond Act, November 8, 1960, was deposited in this fund. Expenditures for interest on revenue bonds will be made from this fund.

NOTE C

BONDS

The Burns-Porter Act authorized the issue of State General Obligation Bonds in the amount of $1,750,000,000, for the State Water Resources Development System which included $130,000,000 for financing of local projects as defined in the Davis-Grunsky Act. The use of the continuing appropriation of the California Water Fund pursuant to the Burns-Porter Act supplements the bond authorization. As California Water Fund money is used for construction of the State Water Facilities as defined in the Burns-Porter Act in lieu of bond proceeds, an equal amount of bond authorization is set aside to be used only for the construction of facilities additional to the State Water Facilities.

As a result of bonds issued and California Water Fund expenditures, the status of the bond authorization, by purpose, as of December 31, 1964 is summarized below:

	Water Facilities	Davis-Grunsky Projects	Additional Facilities	Total
Bonds Authorized	$1,620,000,000	$130,000,000	-0-	$1,750,000,000
Less:				
Bonds Issued	249,800,733		199,267	250,000,000
Calif. Water Fund Advances	131,026,601	7,755,080	-138,781,681	
Balance Available	$1,239,172,666	$122,244,920	$138,582,414	$1,500,000,000

NOTE C

BONDS (cont.)

The General Obligation Bonds outstanding as of December 31, 1964, with their net interest rates and maturity dates are shown below:

Date Issued	Series	Amount	Net Interest Rates	Maturity Dates
3/1/64	A	$100,000,000	3.520%	9/1/1973-2013
5/1/64	B	50,000,000	3.533%	5/1/1974-2014
11/1/64	C	100,000,000	3.585%	11/1/1974-2014
	Total	$250,000,000		

NOTE D

ADVANCES FROM CALIFORNIA WATER FUND

Advances from California Water Fund represent expenditures financed from this fund pursuant to the Burns-Porter Act Appropriation which excludes amounts covered by prior appropriations. Such advances will be repaid from the third priority of system revenues, as shown in Note B. Repayments are not expected to begin until the latter part of the presently programmed construction period.

NOTE E

GRANTS IN AID OF CONSTRUCTION

Grants in aid of construction consist of the following:

1. Construction expenditures financed from the California Water Fund and General Fund from special appropriations made prior to the effective date of the Bond Act (November 8, 1960).

2. Interest computed on State advances and grants, consisting of the reimbursable portion of (1) above and interest computed on advances from the California Water Fund, as described in Note D.

3. Federal flood control contributions received.

NOTE F

ACCUMULATED DEFERRED NET INCOME

The rate structure for the State Water Project generally provides for reimbursement of project costs, with interest, by beneficiaries of the various project purposes. Project revenues, therefore, will ultimately equal project costs. Due to provisions for recovering such costs, there will normally be differences between revenues and costs at any one time during the life of the project; this amount is designated in these financial statements as "Accumulated Deferred Net Income."

NOTE G

PAYMENTS BY PROJECT CONTRACTORS

The State has entered into long-term contracts with thirty-one water service agencies for a water supply. These contracts provide for payments by the agencies calculated to reimburse the State over the project repayment period for all reimbursable capital costs with interest thereon. Annual operation and maintenance costs of the system are recovered generally as incurred; annual charges also include provision for future plant replacements.

A summary of reimbursable capital costs incurred including interest, less payments thereon as of December 31, 1964, is presented below:

	Capital Costs	Interest	Total
Reimbursable Costs			
Conservation (Including Oroville Power)	$202,143,231	$16,871,343	$219,014,574
Transportation	103,004,043	6,963,936	109,967,979
Delivery Structures	513,106	-	513,106
Drainage	1,865,096	135,156	2,000,252
Total	$307,525,476	$23,970,435	$331,495,911
Less: Payments from Water Contractors			
Transportation	$ 2,158,030	$ 2,240,133	$ 4,398,163
Delivery Structures	513,106	-	513,106
Total Payments	$ 2,671,136	$ 2,240,133	$ 4,911,269
Balance	$304,854,340	$21,730,302	$326,584,642

In addition to the above, payments received in advance of due dates totaled $111,523 for transportation and $193,860 for delivery structures.

NOTE H

CONTRACT COMMITMENTS

The Department of Water Resources has entered into contract commitments in connection with construction of the State Water Facilities, of which the uncompleted portion was approximately $158,000,000 as of December 31, 1964. In addition, the Department is committed to pay 55 % of the San Luis Joint-Use Facilities which are under construction by the Federal Bureau of Reclamation. The State's share of these facilities is estimated at $177,000,000 of which $109,000,000 was uncompleted as of December 31, 1964.

APPENDIX B

DISTRIBUTION AMONG CONTRACTORS
OF
WATER SUPPLY COSTS
OF
PROJECT TRANSPORTATION FACILITIES

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Introduction

Article 29 of the "Standard Provisions for Water Supply Contract", in describing the annual statements of charges, provides in part that:

> ". . . All such statements shall be accompanied by the latest revised copies of the document amendatory to Article 22 and of Tables B, C, D, E, F, and G of this contract, together with such other data and computations used by the State in determining the amounts of the above charges as the State deems appropriate."

Compliance with this article requires a comprehensive annual review of the water supply aspects of the project as the basis for the substantiating data. This annual reanalysis is provided for in Article 28 of the standard contract provisions with regard to the project transportation facilities and in Article 22(f) for the project conservation facilities.

This appendix constitutes such an analysis for the purpose of substantiating estimated water charges for 1966. It reflects the State Water Project described in the main text of this report.

Scope of Analysis

The analysis described herein pertains to the transportation facilities and not to the project conservation facilities. In accordance with Article 22(f) of the standard provisions, the unit Delta Water Charge is fixed at $3.50 per acre-foot through December 31, 1969. Therefore, a document amendatory to Article 22 is not required until July 1, 1969. In any event, deliveries of project water, to which the Delta Water Charge will apply, will not be made until 1967.

The Bureau Water Charge is a special charge to cover costs of water obtained from the Bureau of Reclamation for South Bay water supply contractors before project water is available. Pursuant to Article 29 of the appropriate water supply contracts, that charge is estimated at the time of billing only for the following Bureau Water Year. It is substantiated in separate attachments to the statements of charges for the contractors involved.

The analysis in this appendix reflects the allocations of the costs of multiple-purpose features of the project transportation facilities among project purposes developed as described

in the main text of this bulletin on the basis of Department of Water Resources' Bulletin No. 153-65, "Allocations of Costs Among Purposes of the California State Water Project", dated January 1965. These allocations involve the capital and minimum operation, maintenance, power and replacement components. In this appendix, only the costs of these two components allocated to the purpose of water supply are analyzed.

The main text does not allocate among project purposes costs included in the variable operation and maintenance category. Therefore, this appendix considers the total costs in this category for each reach. These costs are allocated among project purposes based upon the annual amounts of water conveyed through each electro-mechanical plant and delivered for each respective project purpose, in accordance with the criteria set forth on page 31 of Bulletin No. 153-65.

The analysis herein does not cover the adjustments for overpayments or underpayments by contractors required by Article 28 of the standard contract provisions. These adjustments must be determined for each of the contractors individually. Consequently, they are set forth in separate attachments to the statements of charges for each contractor.

This appendix contains the following information concerning the project transportation facilities reflecting conditions as of about March 1, 1965.

1. The estimated capacity and maximum annual conveyance capability of each aqueduct reach and the proportionate use thereof by each water supply contractor;

2. The annual conveyance through each aqueduct reach during the period annual entitlements are building up to their maxima and the proportionate share thereof for each water supply contractor;

3. The actual and estimated annual expenditures allocated to the project purpose of water supply for each aqueduct reach and for each category of cost;

4. The proportionate share of such costs to be borne by each contractor; and

5. The schedules of annual payments by each contractor over the entire project repayment period based on the above data and computed in conformance with the provisions of the respective water supply contracts without regard to prior payments.

The basic tabular material contained in this appendix and the inter-relationships among the various data contained in the tables are schematically portrayed in Figure B-1. All tables are included at the end of this appendix.

Basis for Maximum Use of Facilities

The major items considered in the determination of maximum use of the project transportation facilities by each water supply contractor include:

1. The maximum annual entitlements of each contractor;

2. The separation of the facilities into aqueduct reaches;

3. Operational considerations, including the use of aqueduct reaches for project purposes other than water supply, allowances to compensate for water losses and aqueduct outages incidental to operation, and the use of reservoir storage in conjunction with aqueduct capacity in meeting the delivery requirements provided in the water supply contracts; and

4. The maximum annual entitlements diverted from or conveyed through each aqueduct reach for each contractor, together with (a) appropriate use of aqueduct and reservoir capacities to provide the specified delivery capabilities, and (b) an appropriate share of allowances for the operational considerations in (3) above.

Maximum Annual Entitlements

A summary of the maximum annual entitlements for each water supply contractor as of March 1, 1965 is shown on Table B-1. The corresponding annual entitlements for each contractor are discussed in Chapter VI, "Entitlements to Project Water". As stated in that chapter, these entitlements do not include those of the Oak Flat Water District under its contract executed on March 23, 1965.

Aqueduct Reaches

The designation of aqueduct reaches for purposes of the analyses in this bulletin are presented in Table B-2 and are shown on Plates 3 and 4. The differences between these

reaches and those shown in Articles 23 of some of the contracts, reflect modifications required under subsequently executed contracts and changes in the locations of major delivery structures requested pursuant to Article 10(a) of the water supply contracts. Reach nomenclature has been revised in certain instances to describe reach termini more accurately and to reflect route modifications under continuing engineering studies.

Reach termini have been selected as those points at which the physical use of project transportation facilities significantly changes for any of the contractors. These points are generally at the locations of (1) aqueduct branch junctions, (2) aqueduct regulatory reservoirs, and (3) major delivery structures for contractors.

The designation of aqueduct reaches for the California Aqueduct in the San Joaquin Valley conform with those presented in the final edition of the Department's report entitled, "Design Capacities of the California Aqueduct-Kettleman City to: 1. Junction, East and West Branches, 2. Devil's Den Pumping Plant", dated April 1965. The final design capacities established therein for reaches in the southerly portion of the San Joaquin Valley, differ somewhat from those assumed for this bulletin due to a modified request by the Kern County Water Agency after the analysis herein was started.

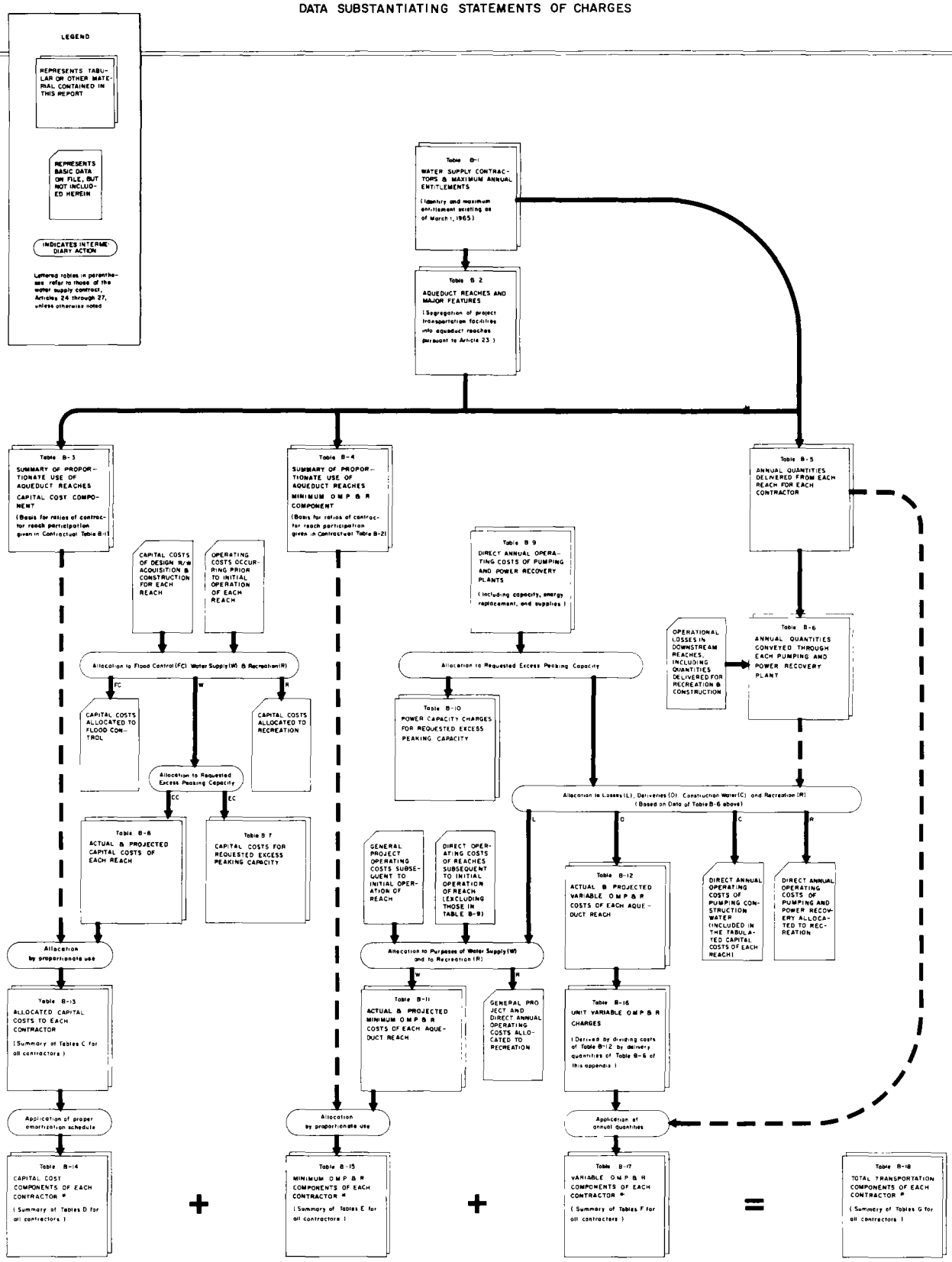
Operational Considerations

Table B-2 also presents a summary of the total reach capacities and of the major subdivisions of such capacities. These subdivisions are necessary for the development of proportionate use calculations in this analysis. The measures of proportionate use of certain aqueduct reaches for distributing capital costs among contractors are different from those for distributing minimum operation, maintenance, power, and replacement costs. These dual allocation criteria pertain to those reaches in which excess peaking capacity for The Metropolitan Water District of Southern California will be included. The payment provisions contained in Article 24(d), as amplified in Amendment No. 2 to the District's contract covering such excess capacity, are summarized in Chapter XII under the heading "Miscellaneous Receipts".

The capital costs allocated to the District for excess capacity will be the additional capital costs of the aqueduct reaches caused by including such capacity, commonly referred to as the "incremental costs". Therefore, such capacities are excluded from capacities used to determine the proportionate use of the various reaches by the contractors. In other words,

Figure I

SCHEMATIC RELATIONSHIP OF DATA SUBSTANTIATING STATEMENTS OF CHARGES



*Unadjusted for prior payments, if any

the inclusion of excess capacity does not affect the allocation of capital costs among water supply contractors other than the District.

Amendment No. 2 of Metropolitan Water District's contract provides that all of the minimum operation, maintenance, power, and replacement costs of the concerned aqueduct reaches shall be allocated among contractors by the proportionate use of facilities method specified in Article 25 of the contracts, based upon total reach capacities, including such excess capacity, and upon the maximum annual entitlements conveyed thereby. This procedure requires the determination of different proportionate use percentages from those utilized to allocate capital costs.

Capacity Proportionately Used, Capital Cost Components. The portions of reach capacities used by water supply contractors, exclusive of requested excess capacity, are shown in Column 1 of Table B-2. Included therein are capacities sufficient to:

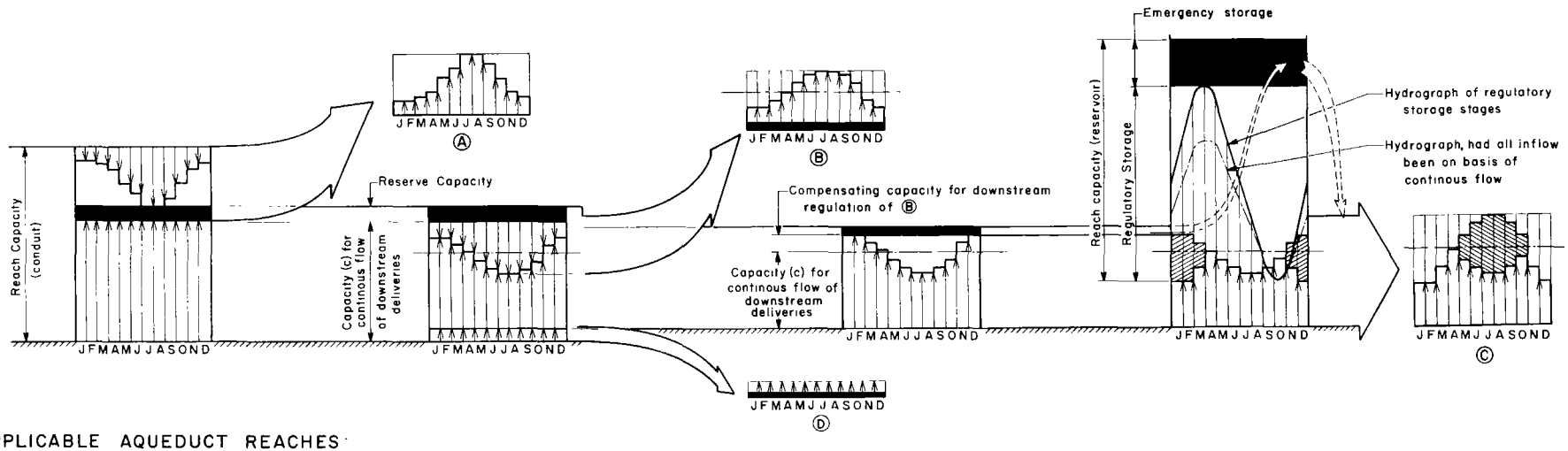
1. Deliver each contractor's maximum annual entitlement, which, in conjunction with reservoir storage, will provide maximum delivery rates specified in Article 12(c) of each water supply contract;

2. Compensate for all operational losses from the project transportation facilities due to water surface evaporation and canal seepage; and

3. Compensate for aqueduct outages for both routine maintenance and for emergencies. (This allowance is herein referred to as "reserve capacity".)

These items have been discussed in the main text of the report. The use of reservoir storage in conjunction with aqueduct capacity to provide maximum delivery rates and the extent that reserve capacity is included in the project transportation facilities are graphically shown on Figure B-2.

The Metropolitan Water District has requested excess capacity in the amount of 238 cubic feet per second in the reaches from Kettleman City to the junction of the West Branch and the East Branch division and 809 cubic feet per second in the reaches of the West Branch, exclusive of reservoirs. It is assumed herein, for determining the maximum use of facilities by the District under full project development, that future requests will be made to extend the 238 cubic feet per second of excess capacity to the reaches of the project transportation facilities upstream from Kettleman City so that such capacity will be fully usable from the Delta southward. These assumed capacities are shown in Column 2 of Table B-2.



APPLICABLE AQUEDUCT REACHES

REACHES OF THE CALIFORNIA AQUEDUCT THROUGH THE SAN JOAQUIN VALLEY AND NORTH BAY AQUEDUCT.	INTER-BASIN REACHES, SUCH AS THOSE IMMEDIATELY BELOW THE TEHACHAPI, SOUTH BAY,* & DEVIL'S DEN PUMPING PLANTS.	SUBSEQUENT REACHES ABOVE AQUEDUCT REGULATION RESERVOIRS	REGULATION RESERVOIRS, SUCH AS CEDAR SPRINGS, PYRAMID, CASTAIC, DEL VALLE, AND PERRIS.	SUBSEQUENT REACHES BELOW AQUEDUCT REGULATION RESERVOIRS.

TYPE OF DELIVERY	APPLICABLE CONTRACTORS
Ⓐ	ALL SAN JOAQUIN VALLEY & NORTH BAY AQUEDUCT CONTRACTORS
Ⓑ	ALAMEDA COUNTY F C. & W. C. D (a portion of)* ANTELOPE VALLEY-EAST KERN W. A. COACHELLA VALLEY COUNTY W. D. DESERT WATER AGENCY MOJAVE WATER AGENCY
Ⓒ	ALAMEDA COUNTY W D * ALAMEDA COUNTY F. C & W. C.D. (a portion of)* CITY OF WEST COVINA CRESTLINE-LAKE ARROWHEAD W. A. SAN BERNARDINO VALLEY M W D. SAN GABRIEL VALLEY M W D SAN GORGONIO PASS W. A SANTA CLARA COUNTY F. C & W. C D * THE METROPOLITAN W. D OF S. C UPPER SANTA CLARA VALLEY W. A VENTURA COUNTY F. C. D
Ⓓ	LITTLEROCK CREEK I D. PALMDALE I D SAN LUIS OBISPO COUNTY F C. & W. C. D. SANTA BARBARA COUNTY F C & W. C D.

WATER QUANTITY LEGEND

- MAXIMUM ANNUAL ENTITLEMENT SHOWN BY APPROXIMATE MONTHLY DISTRIBUTION AS REACH CONVEYANCE OR AS TURNOUT DELIVERY
- DELIVERY CAPABILITY OF RESERVE CAPACITY, TO REPLENISH EMERGENCY STORAGE IN THE AQUEDUCT, OR IN THE CONTRACTOR'S DISTRIBUTION SYSTEM
- WATER QUANTITIES ENTERING REGULATORY STORAGE
- WATER QUANTITIES RELEASED FROM REGULATORY STORAGE

Note Water quantities lost due to evaporation and seepage, and additional capacity to compensate for such losses, are not presented However, their characteristics would correspond with delivery types Ⓐ, Ⓑ, and Ⓒ for the appropriate reaches

* With the exception that emergency storage is not considered for the reaches of the South Bay Aqueduct.

SCHEMATIC DIAGRAM

OPERATIONAL CONSIDERATIONS ASSOCIATED WITH PROPORTIONATE USE OF PROJECT TRANSPORTATION FACILITIES

FIGURE B-2

Excess capacities in the reaches from the Delta to San Luis Forebay are assumed to be provided within the capacities of the aqueduct now under construction. This results in the portions of the total capacities assigned to transportation being increased and the portions assigned to conservation being decreased. It is assumed that the District will repay the capital costs of such excess capacities on a proportionate basis, utilizing the same proportionate use percentages as those employed herein for distributing minimum operation and maintenance costs among contractors. The provision of Article 24(d), which specifies payment in advance of construction for capital costs associated with excess capacity, is not considered applicable to these reaches since construction is currently under way.

It is assumed herein that excess capacities in the reaches from San Luis Forebay to Kettleman City would be provided in the future parallel facility, which is discussed in Chapters II and III. The capital costs of such excess capacities would be offset by advances from the District prior to construction. The distribution of costs of facilities required to deliver the maximum annual entitlements of contractors without regard to excess capacities would be unaffected. Therefore, in this analysis capital costs of these reaches and proportionate use percentages for distribution of these costs among contractors pertain only to the conduit capacities being provided for the State in the San Luis division plus the additional basic capacities required to deliver the maximum annual entitlements. They do not pertain to the requested excess capacities.

Capacity Proportionately Used, Minimum Operating Components. The portions of reach capacities used by all water supply contractors, including excess capacities requested by The Metropolitan Water District of Southern California, are shown in Column 3 of Table B-2. These reach capacities are the bases for the proportionate use calculations for distributing minimum operation, maintenance, power, and replacement costs among contractors.

It should be noted that excess capacities are included in Column 3 for the reaches of the San Luis division from San Luis Forebay to Kettleman City in contrast with the treatment of such capacities in the distribution of capital costs. For those reaches, estimated minimum operation and maintenance costs are sufficient to cover the excess capacities as well as the basic capacities. It is logical, therefore, to account for excess capacities in determining proportionate use of facilities percentages for distribution of such costs.

Additional Capacity. Shown in Column 4 of Table B-2 are the additional capacities included in the design capacities of aqueduct reaches, over-and-above those required as a minimum

under executed water supply contracts. Because of the project-wide character of the additional capacities provided, the reimbursable costs of such capacities are herein included in costs distributed among water supply contractors by the proportionate use ratios developed from the capacities proportionately used, as summarized in Columns 1 and 3. The additional capacities are made up of the following components:

1. Capacity required to convey water consumed in specific recreation and fish and wildlife enhancement developments located adjacent to the project transportation facilities. It was pointed out on page 32 of Bulletin No. 153-65 that, under the Department's present criteria, the costs allocated to reimbursable and nonreimbursable purposes of a project transportation facility will be distributed among reaches in proportion to the total capital or minimum operation and maintenance costs of such reaches. Therefore, the capacities of aqueduct reaches used for nonreimbursable purposes are not used to determine nonreimbursable costs, and are not related to distribution of reimbursable costs.

   About 74 cubic feet per second is provided for the conveyance of water for specific recreation and fish and wildlife enhancement developments adjacent to the California Aqueduct from the Delta to near Tupman, and 28 cubic feet per second from Tupman to Cedar Springs reservoir.

2. Capacity provided as a general allowance for operational contingencies considering the project transportation facilities as an entity. A general allowance for operational contingencies is provided in the project transportation facilities of the California Aqueduct in the amounts of 82 cubic feet per second from the Delta to the Tehachapi Pumping Plant and 34 cubic feet per second from the Tehachapi Pumping Plant to Perris reservoir. Included therein for this appendix is 48 cubic feet per second of capacity to convey cooling water requirements for a possible nuclear powerplant located adjacent to the Tehachapi Pumping Plant. If the nuclear powerplant is constructed at that site, the costs associated with the conveyance of cooling water will be allocated to the power generation function.

3. Capacity included due to practical design considerations. The final design capacities of aqueduct reaches of the California Aqueduct south of Kettleman City have been increased generally above the theoretical required

capacity to the nearest multiple of 50 cubic feet per second. This additional allowance recognizes the practical limitations in estimating accurately coefficients and efficiencies inherently involved in the design procedure.

Maximum Use of Aqueduct Reaches by Contractors

The data and computations required to determine the proportionate use by each water supply contractor under full project development of each aqueduct reach of the project transportation facilities are summarized in Tables B-3 and B-4.

Table B-3 presents the following three main types of information with respect to the capital cost component:

1. Schematic diagrams showing the relative location of each aqueduct reach, turnouts from each reach for contractors, and major features included within each reach;

2. Derivations of required reach capacities, summarized in Column 1 of Table B-2, and the maximum annual quantity of water conveyed from or through each reach including allowances for operational water losses; and

3. Results of computations determining for each reach (a) the quantity and capacity related to each contractor's use, (b) the proportions of such measures of use to the total quantity conveyed by and capacity of the reach, expressed as ratios, and (c) the average of quantity and capacity proportionate use ratios for each contractor.

The ratios developed in Table B-3 are used to distribute among contractors the capital costs of each aqueduct reach.

Table B-4 contains, for the minimum operation and maintenance component, data similar to that in Table B-3. As explained above, capacities of certain reaches were modified by the inclusion of excess capacity for the Metropolitan Water District. Proportionate use ratios developed in Table B-4 are used to distribute the minimum operation, maintenance, power, and replacement costs of each aqueduct reach among contractors.

Water losses incidental to aqueduct operation occurring within each reach have been prorated among users of the reach. This has been done, both with regard to the maximum annual quantity of the loss and to the reach capacity required

to compensate for the loss, in proportion to the quantities diverted from or flowing out of the reach for each contractor. Therefore, the computations to account for losses were initiated at the farthest downstream reach in the aqueduct system and were performed progressively upstream. This was done in order that the true gross requirements of each contractor for maximum water quantities and maximum aqueduct capacities might be reflected in the proportionate use factors for each reach of the project transportation facilities constructed to serve that contractor.

Reserve capacity to compensate for routine and emergency aqueduct outages, and the maximum annual quantity to be conveyed through such capacity, are likewise associated with the specific requirements for each water supply contractor and are reflected in the contractor's gross requirements in upstream reaches.

Basis for Variable Annual Use of Facilities

The annual water quantities conveyed through each electro-mechanical plant of the project transportation facilities form the basis for cost allocations involving the annual use of facilities in the variable operation and maintenance category. Such allocations include:

1. The allocations of the annual operating costs of electro-mechanical plants (exclusive of salaries of operation and maintenance personnel) between those associated with the conveyance of operational losses (included in the minimum operation and maintenance category) and those associated with the conveyance of water delivered (included in the variable operation and maintenance category);

2. The allocation of operating costs included in the variable category among project purposes; and

3. The distribution of the variable operating costs allocated to water supply among water supply contractors and, in certain instances, to the capital costs of facilities.

The annual water quantities estimated to be conveyed through the project transportation facilities include actual deliveries to and future entitlements for water supply contractors, deliveries to specific recreation and enhancement developments adjacent to the facilities, water losses incidental to the operation of facilities, and water utilized for construction purposes. These items are discussed in Chapter VII, "Project Yield".

Annual Reach Deliveries for Each Water Supply Contractor

The annual deliveries at each major delivery structure are used to estimate charges under the variable operation, maintenance, power and replacement components for future years of the project repayment period. These estimated charges are set forth in Tables F of the water supply contracts in compliance with Article 26(c) of the contracts. Long-term requests by the contractors for the annual quantities to be delivered through each turnout are not specifically required by the standard provisions. It has therefore been necessary for the Department to assume the annual quantities to be desired at each location for those contractors served by more than one such structure. Table B-5 presents these assumed annual deliveries for each contractor from each aqueduct reach.

Table B-6 presents a summary of the annual quantities conveyed through each pumping or power recovery plant of the project transportation facilities. The values shown are divided into the following four categories with respect to usage in downstream reaches:

1. Water utilized for construction purposes, including the initial filling of reservoir storage;

2. Water delivered to water supply contractors;

3. Water delivered to recreation and fish and wildlife enhancement developments; and

4. Water losses incidental to the operation of downstream facilities.

The deliveries to water supply contractors conveyed through each plant represent the cumulative values of Table B-5 proceeding upstream from the end of each aqueduct or branch aqueduct.

Reach Costs by Category

Chapter XI, "Project Costs", develops the actual and projected costs of the project transportation facilities allocated to water supply, which are included in State Utility Programs. Tables 18 and 19 summarize these annual capital and operating costs, respectively. This section describes the distribution of these costs among aqueduct reaches and the further subdivision of annual operating costs into the minimum and variable categories.

Capital Costs

The capital costs of the project transportation facilities which are reimbursable by water supply contractors are of two types (1) those associated with excess peaking capacity requested and borne by The Metropolitan Water District of Southern California, and (2) those proportionately distributed among all water supply contractors.

The estimated annual amounts of capital costs allocated to the Metropolitan Water District for excess capacity, together with the gross annual amounts of advances required, are shown in Table B-7 for each aqueduct reach between Kettleman City and Castaic reservoir.

The remaining annual capital costs which are proportionately borne by all water supply contractors are shown for each aqueduct reach in Table B-8.

Annual Operation and Maintenance Costs

The annual operation and maintenance costs of project transportation facilities are divided into two categories:

1. Minimum Costs, including those items which are incurred irrespective of the actual amount of water delivered during a particular year; and

2. Variable Costs, including those items which vary with, or are dependent upon, annual water deliveries.

The annual operating costs of pumping and power recovery plants constitute the major portion of the annual operation and maintenance costs of the project transportation facilities and warrant special discussion. Furthermore, these particular costs are allocated annually between the minimum and variable categories. Estimated direct operating costs associated with pumping and power recovery plants, exclusive of salaries of operating and maintenance personnel, are presented in Table B-9. Prior to the allocation of such costs between the minimum and variable categories, the power capacity charges associated with the excess capacity by the Metropolitan Water District must be removed. Estimates of these costs, which are to be borne by the District, are shown in Table B-10. The remaining direct operating costs associated with pumping and power recovery plants are then allocated between the minimum and variable categories in proportion to annual amounts conveyed through each plant for downstream losses or deliveries, respectively, as shown by the data in Table B-6.

The costs included in the minimum operation and maintenance category, which are allocated to water supply, are summarized in Table B-11 for each reach of the project transportation facilities. In addition to the operating costs associated with the conveyance of losses, these costs include:

1. Salaries of operation and maintenance personnel associated with pumping and power recovery plants;

2. Direct annual operation and maintenance costs of the remaining features of reaches of the project transportation facilities; and

3. General project operation and maintenance costs, allocated among reaches in proportion to the annual values of (1) and (2) above under conditions of full project utilization.

The allocation percentages applicable to the project purpose of water supply, developed in Bulletin No. 153-65, have been applied to the totals of the above-itemized costs in determining the values of Table B-11.

The total operation and maintenance costs included in the variable category for all project purposes are shown by aqueduct reach in Table B-12.

Costs Allocated to Water Supply Contractors

The accumulation by category, of the annual reach costs allocated to each contractor, forms the basis for the annual components of the Transportation Charge for the respective contractors.

Allocated Capital Costs

Table B-13 summarizes for each water supply contracting agency its total annual share of reach capital costs, as presented in Table B-8, which are allocated by the average proportionate use of facilities ratios for each reach, as presented in Table B-3.

Capital Cost Components

Table B-14 presents the repayment schedule for each water supply contractor corresponding to the allocated capital costs of Table B-13.

Criteria as to the types of repayment schedules used for each water supply contractor, under the payment provisions of its contract, are summarized in the following tabulation:

Water supply contractor	Schedule type no.
Alameda County Flood Control and Water Conservation District, Zone 7	2
Alameda County Water District	1
Antelope Valley-East Kern Water Agency	1
Butte County	10
City of West Covina	4
City of Yuba City	10
Coachella Valley County Water District	4
Crestline-Lake Arrowhead Water Agency	4
Desert Water Agency	3
Devil's Den Water District	8
Dudley Ridge Water District	8
Empire West Side Irrigation District	8
Hacienda Water District	8
Kern County Water Agency:	
Agricultural Use	8
Municipal Use	6
Littlerock Creek Irrigation District	4
The Metropolitan Water District of Southern California	1
Mojave Water Agency	4
Napa County Flood Control and Water Conservation District	7
Palmdale Irrigation District	4
Plumas County Flood Control and Water Conservation District	10
San Bernardino Valley Municipal Water District	1
San Gabriel Valley Municipal Water District	3
San Gorgonio Pass Water Agency	3
San Luis Obispo County Flood Control and Water Conservation District	5
Santa Barbara County Flood Control and Water Conservation District	5
Santa Clara County Flood Control and Water District	1
Solano County Flood Control and Water Conservation District	9
Tulare Lake Basin Water Storage District	8
Upper Santa Clara Valley Water Agency	4
Ventura County Flood Control District	4

Type no.	Description
1.	Repayment of allocated capital costs in 50 equal annual installments, with initial payment due in calendar year 1963.
2.	Repayment of allocated capital costs in 50 equal annual installments, with initial payment due in calendar year 1963 and with principal payments on each annual capital cost prior to 1971 delayed until calendar year 1972, except payments for 1963.
3.	Repayment of allocated capital costs in 50 equal annual installments, with initial payment due in calendar year 1963 but deferred and added to the 1964 payment with accrued interest.
4.	Repayment of allocated capital costs in 50 equal annual installments, with initial payment due in calendar year 1964.
5.	Repayment of allocated capital costs in 50 equal annual installments, with initial payment due in calendar year 1964, except that all principal and interest payments for costs of the "Coastal stub" are assumed deferred until 1976.
6.	Repayment of allocated capital costs in 50 equal annual installments, with initial payment due in calendar year 1965.
7.	Repayment of allocated capital costs in 50 equal annual installments, with initial payment due in calendar year 1966.
8.	Repayment of allocated capital costs on the basis of equivalent unit rate applied to annual entitlements within the project repayment period.
9.	Repayment of allocated capital costs in 50 equal annual installments with initial payment due in calendar year 1967.
10.	Payments on the Delta Water Charge only, (Plumas County Flood Control and Water Conservation District may eventually be assessed a Transportation Charge).

The project interest rate derived in Chapter XII, "Project Revenues", is 3.531 percent per annum. The annual payments in Table B-14 reflect the application of this rate throughout the project repayment period.

Minimum Operation, Maintenance, Power and Replacement Components

Table B-15 summarizes, for each water supply contractor, its annual share of total minimum operation and maintenance costs. These values are derived from data presented in Table B-11 by application of the average proportionate use of facilities ratios for each reach presented in Table B-4.

Variable Operation, Maintenance, Power and Replacement Components

Article 26(a) of the standard contract provisions indicates the manner in which the variable operation and maintenance component is to be computed for each contractor. This is as follows:

1. An annual unit charge per acre-foot of deliveries from or through each reach is determined. This is to recover the estimated variable operation, maintenance, power and replacement costs for each year applicable to each reach.

2. The total charge to any contractor for a given reach is obtained by multiplying the unit charge associated with that reach by the quantity of water delivered from or through the reach to the contractor.

The annual unit charges referred to in (1) above are presented in Table B-16. Data in that table have been computed by dividing the annual reach costs in the variable category, shown in Table B-12, by the total annual quantities delivered from or through the reach as shown in Table B-6. The unit variable charges presented in Table B-16 have been accumulated, from the Delta through the particular pumping and power recovery plant listed in the headings of the table, to facilitate their usage.

The annual total component of each water supply contractor is obtained by multiplying the appropriate reach deliveries of Table B-5 by the unit charges of Table B-16. The resulting variable operating components are summarized in Table B-17.

Total Annual Transportation Charges

Table B-18 presents the estimated total annual Transportation Charges for the entire project repayment period for each water supply contractor (exclusive of advances by The Metropolitan Water District of Southern California for requested excess peaking capacity). Table B-18 constitutes the sum of the computed values shown in Tables B-14, B-15, and B-17. These total charges are as calculated on the date of this bulletin. They do not include adjustments for overpayments or underpayments by water supply contractors who have made, or are under obligation to make, payments through the current calendar year. As indicated in the introduction to this appendix, these adjustments will be set forth in separate attachments to the individual statements of charges for each contractor.

TABLE B-1

WATER SUPPLY CONTRACTORS AND MAXIMUM ANNUAL ENTITLEMENTS
AS OF MARCH 1, 1965

Contractor	Maximum Annual Entitlement, in Acre-feet
FEATHER RIVER SERVICE AREA	
City of Yuba City	9,600
County of Butte	27,500
Plumas County Flood Control and Water Conservation District	2,700
Area Total	39,800
NORTH BAY SERVICE AREA	
Napa County Flood Control and Water Conservation District	25,000
Solano County Flood Control and Water Conservation District	42,000
Area Total	67,000
SOUTH BAY SERVICE AREA	
Alameda County Flood Control and Water Conservation District, Zone 7	46,000
Alameda County Water District	42,000
Santa Clara County Flood Control and Water District	100,000
Area Total	188,000
SAN JOAQUIN VALLEY SERVICE AREA	
Devil's Den Water District	12,700
Dudley Ridge Water District	57,700
Empire West Side Irrigation District	3,000
Hacienda Water District	8,500
Kern County Water Agency	1,153,400
Tulare Lake Basin Water Storage District	110,000
Area Total	1,345,300
CENTRAL COASTAL SERVICE AREA	
San Luis Obispo County Flood Control and Water Conservation District	25,000
Santa Barbara County Flood Control and Water Conservation District	57,700
Area Total	82,700
SOUTHERN CALIFORNIA SERVICE AREA	
Antelope Valley-East Kern Water Agency	138,400
City of West Covina	11,500
Coachella Valley County Water District	23,100
Crestline-Lake Arrowhead Water Agency	5,800
Desert Water Agency	38,100
Littlerock Creek Irrigation District	2,300
Mojave Water Agency	50,800
Palmdale Irrigation District	17,300
San Bernardino Valley Municipal Water District	98,000
San Gabriel Valley Municipal Water District	28,800
San Gorgonio Pass Water Agency	17,300
The Metropolitan Water District of Southern California	2,000,000
Upper Santa Clara Valley Water Agency	26,500
Ventura County Flood Control District	20,000
Area Total	2,477,900
GRAND TOTAL	4,200,700

TABLE B-2

PROJECT TRANSPORTATION FACILITIES
AQUEDUCT REACHES, MAJOR FEATURES AND CAPACITIES

(in cubic feet per second)

Reach Number	Description	Features	Capacity Proportionately Used, Capital Cost Component 1/	Requested Excess Capacity 2/	Capacity Proportionately Used, Minimum OMP&R Component 3/	Additional Capacity 4/	Total Reach Capacity
			(1)	(2)	(3)	(4)	(5)
	NORTH BAY AQUEDUCT						
1	Lindsey Slough to Suisun City	Intake Channel, Fish Protective Facilities, Calhoun Pumping Plant, Aqueduct	117	-	117	-	117
2	Suisun City to Cordelia Pumping Plant	Aqueduct	115	-	115	-	115
3	Cordelia Pumping Plant to Napa Terminus	Cordelia Pumping Plant, Surge Tank, Pipeline	46	-	46	-	46
	SOUTH BAY AQUEDUCT						
1	Bethany Reservoir to Altamont Turnout	South Bay Pumping Plant, Brushy Creek Pipeline	300	-	300	-	300
2	Altamont Turnout thru Patterson Reservoir	Dyer Canal, Altamont Pipeline, Alameda Canal, Patterson Reservoir	300	-	300	-	300
4	Patterson Reservoir to Del Valle Junction	Alameda Canal, Del Valle Siphon	300	-	300	-	300
5	Del Valle Junction thru Del Valle Reservoir	Del Valle Branch Pipeline, Pumping Plant, Reservoir	-	-	-	-	-
6	Del Valle Junction to South Livermore Turnout	Del Valle Siphon	332	-	332	31	363
7	South Livermore Turnout to Vallecitos Turnout	La Costa Tunnel, Sunol Pipeline	279	-	279	26	305
8	Vallecitos Turnout to Alameda-Bayside Turnout	Sunol Pipeline, Mission Tunnel	246	-	246	9	255
9	Alameda-Bayside Turnout to Santa Clara Terminus	Santa Clara Pipeline	184	-	184	-	184
	CALIFORNIA AQUEDUCT						
1	Delta thru Bethany Reservoir	Intake Channel, Fish Protective Facilities, Delta Pumping Plant, Bethany Reservoir	8,520	0 5/	8,520	156	10,300 6/
2	Bethany Reservoir to San Luis Forebay	Aqueduct	8,219	0 5/	8,219	156	10,000 6/
3	San Luis Forebay to Mile 18 Pumping Plant	Forebay, Aqueduct	7,929	238	8,167	156	6,862 7/
4	Mile 18 Pumping Plant to Panoche Creek	Mile 18 Pumping Plant, Aqueduct, Little Panoche Creek Detention Reservoir, Little Panoche Creek Siphon	7,917	238	8,155	156	7,100 7/
5	Panoche Creek to Five Points	Panoche Creek Siphon, Panoche Creek Detention Reservoir, Aqueduct	7,902	238	8,140	156	7,100 7/
6	Five Points to Arroyo Pasajero	Aqueduct	7,877	238	8,115	156	7,051 7/
7	Arroyo Pasajero to Kettleman City	Aqueduct	7,867	238	8,105	156	7,050 7/
8	Kettleman City to Avenal Gap	Aqueduct, Junction Coastal Aqueduct	7,663	238	7,901	199	8,100 8/
9	Avenal Gap to Twisselman Road	Aqueduct	6,873	238	7,111	189	7,300 8/

Footnotes shown on Sheet 4.

TABLE B-2 (Continued)

PROJECT TRANSPORTATION FACILITIES
AQUEDUCT REACHES, MAJOR FEATURES AND CAPACITIES

(in cubic feet per second)

Reach Number	Description	Features	Capacity Proportionately Used, Capital Cost Component 1/	Requested Excess Capacity 2/	Capacity Proportionately Used, Minimum OMP&R Component 3/	Additional Capacity 4/	Total Reach Capacity
	CALIFORNIA AQUEDUCT (Continued)						
10A	Twisselman Road to near Lost Hills	Aqueduct	6,721	238	6,959	191	7,150 8/
11B	Near Lost Hills to near Seventh Standard Road	Aqueduct	5,918	238	6,156	194	6,350 8/
12D	Near Seventh Standard Road to Elk Hills Road	Aqueduct	5,534	238	5,772	178	5,950 8/
12E	Elk Hills Road to Tupman	Aqueduct	5,514	238	5,752	198	5,950 8/
13B	Tupman to Buena Vista Pumping Plant	Aqueduct	4,753	238	4,991	159	5,150
14A	Buena Vista Pumping Plant to Santiago Creek	Buena Vista Intake Channel and Pumping Plant, Sunset R. R. Siphon, Aqueduct	4,605	238	4,843	157	5,000
14B	Santiago Creek to Old River Road	Aqueduct	4,548	238	4,786	114	4,900
14C	Old River Road to Wheeler Ridge Pumping Plant	Old River Road Siphon, Maricopa Highway Siphon, Aqueduct	4,445	238	4,683	117	4,800
15	Wheeler Ridge Pumping Plant to Wind Gap Pumping Plant	Wheeler Ridge Intake Channel and Pumping Plant, Aqueduct	4,149	238	4,387	113	4,500
16	Wind Gap Pumping Plant to Tehachapi Pumping Plant	Wind Gap Intake Channel and Pumping Plant, Standard Oil Road Siphon, Grapevine Creek Siphon, Aqueduct	4,027	238	4,265	135	4,400
17C	Tehachapi Pumping Plant to South Portal Tehachapi Tunnel No. 3	Tehachapi Forebay, Intake Channel and Pumping Plant, Penstocks, Tunnel No. 1, Siphon No. 1, Tunnel No. 2, Pastoria Siphon, Tunnel No. 3	3,792	238	4,030	70	4,100
17D	South Portal Tehachapi Tunnel No. 3 to Junction, East and West Branches	Tehachapi Siphon No. 3, Carley V. Porter Tunnel, Tehachapi Afterbay, Junction West Branch Aqueduct.	3,783	238	4,021	79	4,100
	EAST BRANCH DIVISION						
18A	Junction, East and West Branches to Cottonwood Powerplant	Cottonwood Intake Channel, Powerplant and Tailrace Canal, Aqueduct	1,415	-	1,415	85	1,500
19	Cottonwood Powerplant to Fairmont	Neenach Fill, Aqueduct	1,413	-	1,413	87	1,500
20	Fairmont to Palmdale	Myrick Siphon, Willow Springs Siphon, Johnson Siphon, Ritter Ridge Siphon, Leone Siphon, Aqueduct	1,409	-	1,409	91	1,500
21	Palmdale to Littlerock Creek	Soledad Pass Siphon, Cheseboro Siphon, Aqueduct	1,374	-	1,374	76	1,450
22A	Littlerock Creek to Pearblossom Pumping Plant	Littlerock Creek Siphon, Aqueduct	1,368	-	1,368	82	1,450
22B	Pearblossom Pumping Plant to West Fork Mojave River Siphon	Pearblossom Forebay, Intake Channel and Pumping Plant, Fort Tejon Siphon, Big Rock Wash Siphon, Manzanita Siphon, Oak Siphon, Oro Grande Wash Siphon, Antelope Wash Siphon, Aqueduct	1,367	-	1,367	83	1,450
23	West Fork Mojave River Siphon to Cedar Springs Reservoir	Mojave River Siphon	1,354	-	1,354	96	1,450

Footnotes shown on Sheet 4.

TABLE B-2 (Continued)

PROJECT TRANSPORTATION FACILITIES
AQUEDUCT REACHES, MAJOR FEATURES AND CAPACITIES

(in cubic feet per second)

Reach Number	Description	Features	Capacity Proportionately Used, Capital Cost Component 1/	Requested Excess Capacity 2/	Capacity Proportionately Used, Minimum OMP&R Component 3/	Additional Capacity 4/	Total Reach Capacity
	CALIFORNIA AQUEDUCT (Continued) EAST BRANCH DIVISION (Continued)						
24	Cedar Springs Dam and Reservoir	Cedar Springs Inlet Tunnel, Dam and Reservoir	-	-	-	-	-
25	Cedar Springs Reservoir to South Portal, San Bernardino Tunnel	San Bernardino Tunnel	1,193	-	1,193	57	1,250
26	South Portal San Bernardino Tunnel thru Upper Devil Canyon Powerplant	Upper Devil Canyon Intake Channel, Powerplant and Tailrace Canal	1,162	-	1,162	38	1,200
27	Upper Devil Canyon Powerplant thru Lower Devil Canyon Powerplant	Lower Devil Canyon Intake Channel, Powerplant and Tailrace Canal	1,162	-	1,162	38	1,200
28A	Lower Devil Canyon Powerplant to Mill Avenue	Santa Ann Valley Siphon	598	-	598	52	650
28B	Mill Avenue to Perris Reservoir	Santa Ann Valley Siphon	419	-	419	81	500
28C	Perris Dam and Reservoir	Perris Dam and Reservoir	-	-	-	-	-
	WEST BRANCH DIVISION						
29A	Junction, East and West Branches thru Oso Pumping Plant	Antelope Siphon, Oso Canal, Pumping Plant and Penstocks, Aqueduct	2,314	809	3,123	-	3,150
29B	Oso Pumping Plant to State Route 138	Quail Regulation Pool, Quail Canal, Aqueduct	2,277	809	3,086	-	3,100
29C	State Route 138 thru Pyramid Powerplant	Peace Valley Pipeline, Pyramid Tunnel, Intake and Powerplant	2,267	809	3,076	-	3,100
29D	Pyramid Dam and Reservoir	Pyramid Dam and Reservoir	-	-	-	-	-
29E	Pyramid Reservoir thru Castaic Powerplant	Ridge Basin Tunnel, Castaic Tunnel, Castaic Powerplant and Tailrace Canal	2,254	809	3,063	-	3,100
30	Castaic Dam and Reservoir	Castaic Dam and Reservoir	-	-	-	-	-
	COASTAL BRANCH DIVISION						
31A	Avenal Gap to Devil's Den Pumping Plant	Las Perillas Pumping Plant, Avenal Gap Canal, Badger Hill Pumping Plant, Devil's Den Canal	435	-	435	-	435
33A	Devil's Den Pumping Plant thru San Luis Obispo Powerplant	Devil's Den Pumping Plant, Sawtooth Canal, Pumping Plant, Polonio Canal and Pumping Plant, San Luis Obispo Pipeline, San Luis Obispo Intake Canal, Powerplant and Tailrace	126	-	126	-	126
34	San Luis Obispo Powerplant to Arroyo Grande	San Luis Obispo Pipeline	110	-	110	-	110
35	Arroyo Grande to Santa Maria Terminus	San Luis Obispo Pipeline	102	-	102	-	102

Footnotes shown on Sheet 4.

TABLE B-2 (Continued)

PROJECT TRANSPORTATION FACILITIES
AQUEDUCT REACHES, MAJOR FEATURES AND CAPACITIES

1/ Capacities proportionately used by water supply contractors for purposes of distributing the capital costs of aqueduct reaches. Use by each contractor developed in Table B-3 "Reach Summary of Proportionate Use of Project Transportation Facilities, Capital Cost Component".

2/ Excess capacity in aqueduct reaches below Kettleman City for The Metropolitan Water District of Southern California in accordance with Amendment No. 2 to its water supply contract, dated February 23, 1965. Such capacity is herein assumed to extend to the Sacramento-San Joaquin Delta for purposes of defining maximum use by the District under full project development.

3/ Capacities proportionately used by water supply contractors for purposes of distributing the minimum operation, maintenance, power, and replacement costs of aqueduct reaches. Use by each contractor developed in Table B-4.

4/ Additional capacity provided for general operational flexibility, for practical design considerations and for project purposes other than water supply.

5/ Assumed requested capacity of 238 cubic feet per second included in Column 1.

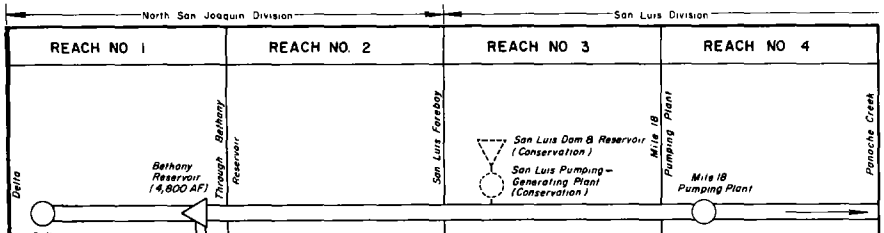
6/ Total reach capacities for both project conservation facilities and project transportation facilities. Required capacities for project transportation facilities are 8,676 cubic feet per second in Reach No. 1 and 8,375 cubic feet per second in Reach No. 2.

7/ Capacities in San Luis Division established by right to use factors listed in "Agreement Between the United States of America and the Department of Water Resources of the State of California for the Construction and Operation of the Joint-Use Facilities of the San Luis Unit", dated December 30, 1961. The additional capacity necessary to convey the required maximum annual entitlements. together with losses, excess capacity and additional operational flexibility that cannot be conveyed in the capacity allocated to the State in joint use facilities herein assumed to be supplied by a parallel facility which will be defined at a later date. The estimated costs of the parallel facility are included in this analysis.

8/ Capacities established by the report "Design Capacities of the California Aqueduct, Kettleman City to (1) Junction, East and West Branches (2) Devil's Den Pumping Plant", dated April 1965.

REACH SUMMARY OF PROPORTIONATE USE OF PROJECT TRANSPORTATION FACILITIES CAPITAL COST COMPONENT

North San Joaquin Division | San Luis Division



LEGEND
- ○ PUMPING PLANT
- ● POWER RECOVERY PLANT
- ▽ REGULATION RESERVOIR
- ➡ CONTRACTOR TURNOUT
- ⇨ AQUEDUCT BRANCH
- ③ AGENCY IDENTIFICATION NO.

SCHEMATIC DIAGRAM

REACH WATER SUMMARY

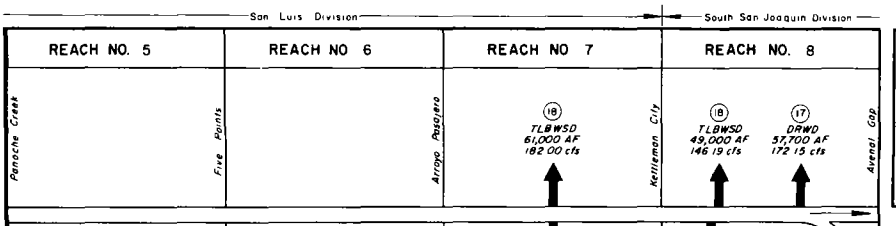
QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	
4,305,348.0	8,218.57861	4,274,148.0	7,929.64552	4,266,948.0	7,917.79484	4,257,448.0	7,902.15846	INFLOW TO DOWNSTREAM REACH
217,193.0	300.00000	-	-	-	-	-	-	AQUEDUCT BRANCH TURNOUT
-	-	-	-	-	-	-	-	CONTRACTOR TURNOUT
600.0	0.98759	31,200.0	51.35309	7,200.0	11.85068	9,500.0	15.63638	REACH EVAP & SEEPAGE LOSSES
-	-	-	237.58000	-	-	-	-	EXCESS CAPACITY, REQUESTED
4,523,141.0	8,519.56620	4,305,348.0	8,218.57861	4,274,148.0	7,929.64552	4,266,948.0	7,917.79484	TOTAL, INFLOW FROM UPSTREAM REACH

REACH PARTICIPATION BY CONTRACTOR

2,286,489.9 0.50550931 0.45361209	2,422,43648 0.40171488	2,286,193.8 0.53101255 0.47369003	3,421,94912 0.41636751	2,269,990.6 0.53109780 0.46465614	3,157,69975 0.39821449	2,266,251.6 0.53111770 0.46657548	3,151,54561 0.39803325	① The Metropolitan Water District of Southern California (MWD-SC)
113,226.1 0.02503263 0.02177906	157.82916 0.01892949	113,211.4 0.02629553 0.02274827	157.80496 0.01920101	112,408.4 0.02629960 0.02301678	156.48328 0.01973396	112,223.1 0.02630056 0.02301276	156.17829 0.01972497	② San Bernardino Valley Municipal Water District (SBVMWD)
13,286.2 0.00293738 0.00255564	18.53068 0.00217390	13,284.5 0.00308558 0.00266938	18.51788 0.00225317	13,190.3 0.00308607 0.00270089	18.36283 0.00231972	13,168.6 0.00308619 0.00270043	18.32711 0.00231468	③ City of West Covina (WC)
33,274.5 0.00735650 0.00640035	46.38227 0.00544421	33,270.2 0.00772765 0.00668519	46.37519 0.00564273	33,034.2 0.00772884 0.00676409	45.98675 0.00579935	32,979.7 0.00772911 0.00676290	45.89705 0.00579670	④ San Gabriel Valley Municipal Water District (SGVMWD)
19,988.6 0.00441919 0.00384477	27.86204 0.00327036	19,986.0 0.00464213 0.00401587	27.85776 0.00338961	19,844.2 0.00464284 0.00406326	27.62437 0.00348368	19,811.5 0.00464301 0.00406256	27.57055 0.00348210	⑤ San Gorgonio Pass Water Agency (SGPWA)
6,700.9 0.00148147 0.00128892	9.34056 0.00109637	6,700.0 0.00155620 0.00134627	9.33908 0.00113634	6,652.5 0.00155645 0.00136217	9.26090 0.00116788	6,641.5 0.00155650 0.00136192	9.24279 0.00116734	⑥ Crestline – Lake Arrowhead Water Agency (C-LAWA)
26,392.3 0.00583495 0.00507492	36.76099 0.00431489	26,388.9 0.00612933 0.00530078	36.75539 0.00447223	26,201.9 0.00613032 0.00536335	36.44760 0.00459637	26,158.7 0.00613054 0.00536241	36.37650 0.00459427	⑦ Coachella Valley County Water District (CVCWD)
43,531.5 0.00962418 0.00837047	60.63183 0.00711677	43,525.9 0.01010973 0.00874301	60.62261 0.00737629	43,217.4 0.01011135 0.00884619	60.11484 0.00758102	43,146.2 0.01011172 0.00884465	59.99765 0.00757757	⑧ Desert Water Agency (DWA)
58,041.3 0.01283208 0.01116055	80.84237 0.00948902	58,033.8 0.01347947 0.01165725	80.83003 0.00983504	57,622.5 0.01348163 0.01179483	80.15306 0.01010803	57,527.6 0.01348214 0.01179278	79.99686 0.01010343	⑨ Mojave Water Agency (MWA)
2,595.3 0.00057378 0.00049890	3.61239 0.00042401	2,595.0 0.00060274 0.00052111	3.61190 0.00043948	2,576.6 0.00060283 0.00052725	3.58161 0.00045167	2,572.4 0.00060287 0.00052717	3.57470 0.00045148	⑩ Littlerock Creek Irrigation District (LCID)
19,488.1 0.00430853 0.00374566	27.11590 0.00318278	19,485.6 0.00452591 0.00391237	27.11179 0.00329884	19,347.6 0.00452666 0.00395853	26.88465 0.00339040	19,315.8 0.00452684 0.00395785	26.83231 0.00338886	⑪ Palmdale Irrigation District (PID)
153,986.4 0.03404413 0.02958562	214.07203 0.02512710	153,966.5 0.03576168 0.03090251	214.03927 0.02604334	152,877.4 0.03576792 0.03126707	212.24669 0.02676423	152,626.0 0.03576936 0.03126169	211.83291 0.02675403	⑫ Antelope Valley – East Kern Water Agency (AVEKWA)
29,983.2 0.00662885 0.00576363	41.73232 0.00489841	29,979.3 0.00696327 0.00602015	41.72590 0.00507702	29,767.0 0.00696443 0.00609119	41.37647 0.00521795	29,718.0 0.00696470 0.00609013	41.29582 0.00521557	⑬ Upper Santa Clara Valley Water Agency (USCVWA)
22,628.5 0.00500283 0.00434988	31.49618 0.00369692	22,625.6 0.00525523 0.00454348	31.49141 0.00383173	22,465.4 0.00525611 0.00459711	31.22773 0.00393810	22,428.4 0.00525631 0.00459631	31.16683 0.00393630	⑭ Ventura County Flood Control District (VCFCD)
146,300.0 0.03234478 0.03178260	265.98437 0.03122041	146,279.7 0.03397628 0.03316800	265.95095 0.03235973	145,170.2 0.03396471 0.03363662	264.12478 0.03330852	144,914.1 0.03396200 0.03363357	263.70326 0.03330514	⑮ Kern County Water Agency – M & I (KCWA-M&I)
1,040,552.4 0.23005684 0.29499817	3,045.95722 0.35982951	1,040,408.1 0.24165482 0.30731463	3,065.31970 0.37297443	1,032,516.3 0.24157243 0.31324944	3,052.33033 0.38492645	1,030,695.1 0.24155324 0.31333862	3,049.33278 0.38512400	⑯ Kern County Water Agency – Ag (KCWA-AG)
58,912.4 0.01302471 0.01673279	174.14738 0.02044087	58,904.4 0.01368168 0.01743476	174.13388 0.02118783	58,457.6 0.01367702 0.01777207	173.39848 0.02186712	58,354.5 0.01367593 0.01777717	173.22878 0.02187841	⑰ Dudley Ridge Water District (DRWD)
112,205.2 0.02480692 0.03187754	331.82142 0.03894816	112,189.7 0.02605822 0.03321483	331.79590 0.04037145	111,338.8 0.02604936 0.03385760	330.39537 0.04166584	111,142.4 0.02604728 0.03386733	330.07211 0.04168738	⑱ Tulare Lake Basin Water Storage District (TLBWSD)
8,678.6 0.00191871 0.00246496	25.65423 0.00301121	8,677.4 0.00201549 0.00256837	25.65225 0.00312125	8,611.6 0.00201481 0.00261807	25.54395 0.00322132	8,596.4 0.00201465 0.00261882	25.51893 0.00322298	⑲ Hacienda Water District (HWD)
65,470.2 0.01447450 0.01256621	91.14163 0.01069792	65,461.7 0.01520474 0.01314637	91.12764 0.01108801	64,998.0 0.01520724 0.01330150	90.36442 0.01139577	64,891.0 0.01520783 0.01329520	90.18831 0.01139058	⑳ Santa Barbara County Flood Control and Water Conservation District (SBCFC & WCD)
28,064.6 0.00620447 0.00539350	39.03952 0.00458234	28,061.0 0.00651771 0.00563357	39.03360 0.00474943	27,862.3 0.00651880 0.00570002	38.70656 0.00488125	27,814.5 0.00651906 0.00569905	38.63117 0.00487903	㉑ San Luis Obispo County Flood Control and Water Conservation District (SLOCFC & WCD)
13,063.8 0.00288821 0.00370303	38.49802 0.00481784	13,062.0 0.00303390 0.00385842	38.48706 0.00468293	12,962.9 0.00303286 0.00393293	38.32395 0.00483300	12,940.0 0.00303261 0.00393404	38.28626 0.00483547	㉒ Devil's Den Water District (DDWD)
3,057.9 0.00067606 0.00086892	9.04600 0.00106179	3,057.5 0.00071016 0.00090538	9.04534 0.00110060	3,034.3 0.00070992 0.00092290	9.00715 0.00113588	3,028.9 0.00070985 0.00092316	8.99826 0.00113646	㉓ Empire West Side Irrigation District (EWSID)
103,599.7 0.02290437 0.01985076	143.10435 0.01679714							㉔ Santa Clara County Flood Control and Water District (SCCFC & WD)
43,329.7 0.00957956 0.00830224	59.84935 0.00702493							㉕ Alameda County Water District (ACWD)
22,764.7 0.00503294 0.00436193	31.44496 0.00369091							㉖ Future Contractor (FC)
47,528.8 0.01050792 0.00910689	65.65055 0.00770586							㉗ Alameda County Flood Control and Water Conservation District (ACFC & WCD)

REACH SUMMARY OF PROPORTIONATE USE OF PROJECT TRANSPORTATION FACILITIES CAPITAL COST COMPONENT

SCHEMATIC DIAGRAM



LEGEND
- ○ PUMPING PLANT
- ● POWER RECOVERY PLANT
- ▽ REGULATION RESERVOIR
- ➡ CONTRACTOR TURNOUT
- ⇨ AQUEDUCT BRANCH
- (3) AGENCY IDENTIFICATION NO

REACH WATER SUMMARY

REACH NO. 5 QUANTITY FROM OR THRU REACH (AF, annually)	REACH NO. 5 ASSOCIATED CAPACITY (cfs)	REACH NO 6 QUANTITY FROM OR THRU REACH (AF, annually)	REACH NO 6 ASSOCIATED CAPACITY (cfs)	REACH NO 7 QUANTITY FROM OR THRU REACH (AF, annually)	REACH NO 7 ASSOCIATED CAPACITY (cfs)	REACH NO. 8 QUANTITY FROM OR THRU REACH (AF, annually)	REACH NO. 8 ASSOCIATED CAPACITY (cfs)	
4,242,548.0	7,877.63409	4,236,548.0	7,867.75850	4,164,148.0	7,662.98472	3,847,045.0	6,873.48978	INFLOW TO DOWNSTREAM REACH
-	-	-	-	-	-	195,103.0	434.59631	AQUEDUCT BRANCH TURNOUT
-	-	-	-	64,000.0	190.94795	115,200.0	343.70630	CONTRACTOR TURNOUT
14,900.0	24.52437	6,000.0	9.87559	8,400.0	13.82583	6,800.0	11.19233	REACH EVAP & SEEPAGE LOSSES
4,257,448.0	7,902.15846	4,242,548.0	7,877.63409	4,236,548.0	7,867.75850	4,164,148.0	7,662.98472	TOTAL, INFLOW FROM UPSTREAM REACH

REACH PARTICIPATION BY CONTRACTOR

REACH NO. 5		REACH NO 6		REACH NO 7		REACH NO. 8		
2,261,317.9	3,143.42508	2,253,579.8	3,130.68869	2,250,464.1	3,125.56046	2,246,101.7	3,118.38025	(1) The Metropolitan Water District of Southern California (MWD-SC)
0.53114399	0.39779322	0.53118546	0.39741484	0.53120232	0.39726187	0.53939046	0.40694069	
0.46446861		0.46430015		0.46423209		0.47316557		
111,978.6	155.77584	111,595.1	155.14465	111,440.7	154.89052	111,224.5	154.53467	(2) San Bernardino Valley Municipal Water District (SBVMWD)
0.02630181	0.01971308	0.02630379	0.01969432	0.02630460	0.01968674	0.02671003	0.02016638	
0.02300745		0.02299906		0.02299567		0.02343820		
13,139.9	18.27987	13,094.9	18.20580	13,076.8	18.17601	13,051.4	18.13420	(3) City of West Covina (WC)
0.00308633	0.00231328	0.00308657	0.00231107	0.00308666	0.00231019	0.00313423	0.00236647	
0.00269980		0.00269882		0.00269843		0.00275035		
32,907.8	45.77871	32,795.1	45.59321	32,749.7	45.51848	32,686.2	45.41396	(4) San Gabriel Valley Municipal Water District (SGVMWD)
0.00772947	0.00579319	0.00773005	0.00578768	0.00773028	0.00578544	0.00784943	0.00592641	
0.00676133		0.00675886		0.00675786		0.00688792		
19,768.3	27.49945	19,700.6	27.38802	19,673.3	27.34309	19,635.1	27.28022	(5) San Gorgonio Pass Water Agency (SGPWA)
0.00464323	0.00347999	0.00464358	0.00347668	0.00464371	0.00347533	0.00471527	0.00356000	
0.00406161		0.00406013		0.00405952		0.00413764		
6,627.0	9.21892	6,604.3	9.18156	6,595.2	9.16658	6,582.4	9.14551	(6) Crestline – Lake Arrowhead Water Agency (C-LAWA)
0.00155657	0.00116663	0.00155668	0.00116552	0.00155674	0.00116508	0.00158073	0.00119347	
0.00136160		0.00136110		0.00136091		0.00138710		
26,101.8	36.28285	26,012.5	36.13587	25,976.5	36.07662	25,926.1	35.99367	(7) Coachella Valley County Water District (CVCWD)
0.00613086	0.00459151	0.00613134	0.00458715	0.00613153	0.00458538	0.00622603	0.00469708	
0.00536118		0.00535924		0.00535845		0.00546156		
43,052.3	59.84310	42,905.0	59.60065	42,845.7	59.50305	42,762.6	59.36627	(8) Desert Water Agency (DWA)
0.01011223	0.00757301	0.01011303	0.00756581	0.01011335	0.00756290	0.01026923	0.00774715	
0.00884262		0.00883942		0.00883812		0.00900819		
57,402.4	79.79079	57,206.0	79.46753	57,126.9	79.33734	57,016.2	79.15514	(9) Mojave Water Agency (MWA)
0.01348282	0.01009734	0.01348388	0.01008774	0.01348430	0.01008386	0.01369217	0.01032954	
0.01179008		0.01178581		0.01178408		0.01201085		
2,566.8	3.56548	2,558.0	3.55100	2,554.5	3.54524	2,549.6	3.53717	(10) Littlerock Creek Irrigation District (LCID)
0.00060290	0.00045120	0.00060294	0.00045077	0.00060297	0.00045060	0.00061227	0.00046159	
0.00052705		0.00052685		0.00052679		0.00053693		
19,273.8	26.76318	19,207.9	26.65471	19,181.4	26.61109	19,144.3	26.55003	(11) Palmdale Irrigation District (PID)
0.00452708	0.00338682	0.00452744	0.00338359	0.00452760	0.00338230	0.00459741	0.00346471	
0.00395695		0.00395552		0.00395495		0.00403106		
152,294.4	211.28712	151,774.3	210.43107	151,564.9	210.08642	151,271.7	209.60383	(12) Antelope Valley – East Kern Water Agency (AVEKWA)
0.03577129	0.02673790	0.03577433	0.02671247	0.03577557	0.02670219	0.03632717	0.02735277	
0.03125459		0.03124340		0.03123888		0.03183997		
29,653.4	41.18949	29,552.0	41.02259	29,511.2	40.95544	29,454.0	40.86129	(13) Upper Santa Clara Valley Water Agency (USCVWA)
0.00696506	0.00521243	0.00696562	0.00520748	0.00696586	0.00520548	0.00707324	0.00533229	
0.00608875		0.00608655		0.00608567		0.00620277		
22,379.6	31.08651	22,303.1	30.96060	22,272.3	30.90991	22,229.2	30.83897	(14) Ventura County Flood Control District (VCFCD)
0.00525658	0.00393393	0.00525701	0.00393019	0.00525718	0.00392868	0.00533823	0.00402441	
0.00459525		0.00459360		0.00459293		0.00468132		
144,576.2	263.14711	144,046.3	262.27493	143,832.8	261.92352	143,534.1	261.43187	(15) Kern County Water Agency – M & I (KCWA-M&I)
0.03395842	0.03330066	0.03395278	0.03329362	0.03395047	0.03329074	0.03446902	0.03411619	
0.03362954		0.03362320		0.03362061		0.03429261		
1,028,292.3	3,045.37792	1,024,523.6	3,039.17490	1,023,005.8	3,036.67669	1,020,881.1	3,033.17958	(16) Kern County Water Agency – Ag (KCWA-AG)
0.24152786	0.38598558	0.24148780	0.38579793	0.24147155	0.38594465	0.24515966	0.39582221	
0.31345672		0.31364286		0.31371610		0.32049094		
58,218.5	173.00493	58,005.1	172.65369	57,919.2	172.51230	57,798.9	172.31429	(17) Dudley Ridge Water District (DRWD)
0.01367450	0.02189338	0.01367223	0.02191695	0.01367132	0.02192649	0.01388013	0.02248658	
0.01778394		0.01779459		0.01779890		0.01818335		
110,883.3	329.64564	110,476.9	328.97674	110,313.2	328.70730	49,084.0	146.33279	(18) Tulare Lake Basin Water Storage District (TLBWSD)
0.02604454	0.04171590	0.02604022	0.04176085	0.02603846	0.04177903	0.01178728	0.01909606	
0.03388022		0.03390054		0.03390875		0.01544167		
8,576.4	25.48601	8,545.0	25.43433	8,532.3	25.41343	8,514.6	25.38430	(19) Hacienda Water District (HWD)
0.00201444	0.00322520	0.00201412	0.00322868	0.00201397	0.00323007	0.00204474	0.00331259	
0.00261982		0.00262140		0.00262202		0.00267866		
64,749.8	89.95590	64,528.3	89.59133	64,439.1	89.44451	64,314.3	89.23910	(20) Santa Barbara County Flood Control and Water Conservation District (SBCFC & WCD)
0.01520859	0.01138371	0.01520980	0.01137287	0.01521028	0.01138849	0.01544477	0.01164547	
0.01329615		0.01329133		0.01328939		0.01354512		
27,755.9	38.53142	27,661.0	38.37522	27,622.8	38.31235	27,569.3	38.22430	(21) San Luis Obispo County Flood Control and Water Conservation District (SLOCFC & WCD)
0.00651937	0.00487606	0.00651990	0.00487141	0.00652012	0.00486954	0.00662063	0.00498817	
0.00569772		0.00569566		0.00569483		0.00580440		
12,909.8	38.23655	12,862.5	38.15870	12,843.4	38.12726	12,816.7	38.08331	(22) Devil's Den Water District (DDWD)
0.00303229	0.00483875	0.00303179	0.00484393	0.00303157	0.00484601	0.00307787	0.00496977	
0.00393552		0.00393786		0.00393879		0.00402382		
3,021.8	8.98657	3,010.7	8.96830	3,006.2	8.96089			(23) Empire West Side Irrigation District (EWSID)
0.00070977	0.00113723	0.00070964	0.00113845	0.00070959	0.00113894			
0.00092350		0.00092405		0.00092426				

South San Joaquin Division

REACH SUMMARY OF PROPORTIONATE USE OF PROJECT TRANSPORTATION FACILITIES CAPITAL COST COMPONENT

SCHEMATIC DIAGRAM

REACH NO 9	REACH NO 10A	REACH NO 11B	REACH NO 12D
Avenal Gap — Twisselman Road	Near Lost Hills	Near 7th Standard Road	Elk Hills Road
KCWA-AG 47,300 AF 141 12 cfs (16)	KCWA-AG 265,700 AF 792 73 cfs (16)	KCWA-AG 126,400 AF 377 12 cfs (16)	KCWA-AG 3,600 AF 10 74 cfs (16)

LEGEND
- ○ PUMPING PLANT
- ● POWER RECOVERY PLANT
- ▽ REGULATION RESERVOIR
- ➡ CONTRACTOR TURNOUT
- ⇨ AQUEDUCT BRANCH
- (3) AGENCY IDENTIFICATION NO

REACH WATER SUMMARY

QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	
3,793,345.0	6,721.83334	3,521,145.0	5,918.40241	3,390,845.0	5,534.86107	3,381,345.0	5,524.70025	INFLOW TO DOWNSTREAM REACH
-	-	-	-	-	-	-	-	AQUEDUCT BRANCH TURNOUT
47,300.0	141.12247	265,700.0	792.73237	126,400.0	377.12221	3,600.0	10.74062	CONTRACTOR TURNOUT
6,400.0	10.53397	6,500.0	10.60856	3,000.0	6.41013	5,000.0	6.71200	REACH EVAP & SEEPAGE LOSSES
3,847,045.0	6,873.48978	3,793,345.0	6,721.83334	3,521,145.0	5,918.40241	3,390,845.0	5,534.86107	TOTAL, INFLOW FROM UPSTREAM REACH

REACH PARTICIPATION BY CONTRACTOR

REACH NO 9	REACH NO 10A	REACH NO 11B	REACH NO 12D		
2,242,513.5 0.58291845 3,112.47432 0.45282301 0.51787073	2,238,855.5 0.59020614 3,108.45351 0.46214379 0.52617496	2,235,091.6 0.63476273 3,100.25839 0.52383366 0.57929819	2,232,653.4 0.65843570 3,096.24528 0.55940795 0.60892182	(1)	The Metropolitan Water District of Southern California (MWD-SC)
111,046.7 0.02886545 154.24202 0.02244013 0.02565279	110,865.4 0.02922629 153.94361 0.02290203 0.02606416	110,678.9 0.03143264 153.63664 0.02595914 0.02869589	110,558.1 0.03260483 153.43781 0.02772207 0.03016348	(2)	San Bernardino Valley Municipal Water District (SBVMWD)
13,030.5 0.00338715 18.09980 0.00263328 0.00301021	13,009.2 0.00342948 18.06474 0.00268747 0.00305848	12,987.3 0.00368837 18.02869 0.00304621 0.00336729	12,973.1 0.00382592 18.00532 0.00325308 0.00353950	(3)	City of West Covina (WC)
32,633.9 0.00848285 45.32788 0.00659460 0.00753872	32,580.6 0.00858888 45.24015 0.00673033 0.00765961	32,525.8 0.00923728 45.14995 0.00742874 0.00843301	32,490.3 0.00958177 45.09152 0.00814682 0.00886430	(4)	San Gabriel Valley Municipal Water District (SGVMWD)
19,603.7 0.00509578 27.22854 0.00396139 0.00452858	19,571.7 0.00515948 27.17587 0.00404293 0.00460120	19,538.8 0.00554899 27.12172 0.00458261 0.00506580	19,517.5 0.00575594 27.08666 0.00489383 0.00532488	(5)	San Gorgonio Pass Water Agency (SGPWA)
6,571.9 0.00170830 9.12823 0.00132803 0.00151817	6,561.2 0.00172966 9.11062 0.00135538 0.00154252	6,550.2 0.00186025 9.09251 0.00153631 0.00169828	6,543.0 0.00192961 9.08066 0.00164063 0.00178512	(6)	Crestline - Lake Arrowhead Water Agency (C-LAWA)
25,884.7 0.00672846 35.92553 0.00522668 0.00597757	25,842.5 0.00681259 35.85607 0.00533427 0.00607343	25,799.1 0.00732691 35.78464 0.00604433 0.00668662	25,771.0 0.00760017 35.73839 0.00645696 0.00702857	(7)	Coachella Valley County Water District (CVCWD)
42,694.3 0.01109795 59.25385 0.00862064 0.00985929	42,624.7 0.01123671 59.13929 0.00879809 0.01001740	42,553.0 0.01208499 59.02128 0.00997250 0.01102875	42,506.6 0.01253570 58.94491 0.01064975 0.01159272	(8)	Desert Water Agency (DWA)
56,925.1 0.01479710 79.00520 0.01149419 0.01314565	56,832.3 0.01498211 78.85246 0.01173080 0.01335645	56,736.8 0.01611317 78.69527 0.01329671 0.01470494	56,674.9 0.01671409 78.59339 0.01419970 0.01545690	(9)	Mojave Water Agency (MWA)
2,545.5 0.00066168 3.53042 0.00051363 0.00058765	2,541.4 0.00066996 3.52367 0.00052421 0.00059709	2,537.1 0.00072053 3.51659 0.00055418 0.00065736	2,534.3 0.00074739 3.51198 0.00063452 0.00069096	(10)	Littlerock Creek Irrigation District (LCID)
19,113.7 0.00496841 26.49966 0.00385534 0.00441188	19,082.6 0.00503055 26.44847 0.00393471 0.00448263	19,050.6 0.00541034 26.39580 0.00445995 0.00493515	19,029.8 0.00561211 26.36156 0.00476282 0.00518747	(11)	Palmdale Irrigation District (PID)
151,030.5 0.03925883 209.20683 0.03043677 0.03484780	150,784.6 0.03974977 208.80209 0.03106326 0.03540652	150,531.6 0.04275075 208.38568 0.03520979 0.03898027	150,367.7 0.04434520 208.11591 0.03760093 0.04097306	(12)	Antelope Valley—East Kern Water Agency (AVEKWA)
29,407.0 0.00764405 40.78393 0.00593351 0.00678878	29,359.1 0.00773963 40.70509 0.00605565 0.00689764	29,309.8 0.00832394 40.62395 0.00686401 0.00759397	29,277.9 0.00863440 40.57144 0.00733016 0.00798228	(13)	Upper Santa Clara Valley Water Agency (USCVWA)
22,193.7 0.00576902 30.78054 0.00447815 0.00512359	22,157.5 0.00584115 30.72096 0.00457032 0.00520574	22,120.3 0.00628213 30.65973 0.00518041 0.00573127	22,096.2 0.00651643 30.62006 0.00553222 0.00602432	(14)	Ventura County Flood Control District (VCFCD)
143,288.4 0.03724635 261.02746 0.03797597 0.03761116	143,037.9 0.03770759 260.61515 0.03877144 0.03823951	142,780.2 0.04054927 260.19098 0.04396304 0.04225620	142,613.3 0.04205834 259.91628 0.04695986 0.04450910	(15)	Kern County Water Agency — M & I (KCWA-M&I)
928,561.9 0.24137017 2,760.97557 0.40168468 0.32152743	879,638.8 0.23189001 2,617.18159 0.38935532 0.31062266	612,353.9 0.17390761 1,821.84059 0.30782641 0.24086701	485,237.9 0.14310235 1,443.53990 0.26080870 0.20195552	(16)	Kern County Water Agency - Ag (KCWA-AG)

South San Joaquin Division

REACH SUMMARY OF PROPORTIONATE USE OF PROJECT TRANSPORTATION FACILITIES CAPITAL COST COMPONENT

SCHEMATIC DIAGRAM

Elk Hills Road — Tupman — Buena Vista Pumping Plant — Santiago Creek — Old River Road

Buena Vista Pumping Plant

REACH NO 12E		REACH NO 13B		REACH NO 14A		REACH NO 14B	
KCWA-AG 191,800 AF 572 25 cfs (16)	KCWA-MBI 100,000 AF 182 33 cfs (15)	KCWA-AG 31,400 AF 93 68 cfs (16)	KCWA-MBI 25,000 AF 45 58 cfs (15)	KCWA-AG 16,300 AF 48 63 cfs (16)		KCWA-AG 32,600 AF 92 26 cfs (16)	

LEGEND
- ○ PUMPING PLANT
- ● POWER RECOVERY PLANT
- ▽ REGULATION RESERVOIR
- ➡ CONTRACTOR TURNOUT
- ⇨ AQUEDUCT BRANCH
- (3) AGENCY IDENTIFICATION NO

REACH WATER SUMMARY

QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	INFLOW TO DOWNSTREAM REACH
-	-	-	-	-	-	-	-	AQUEDUCT BRANCH TURNOUT
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	CONTRACTOR TURNOUT
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	REACH EVAP & SEEPAGE LOSSES
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	TOTAL INFLOW FROM UPSTREAM REACH

REACH PARTICIPATION BY CONTRACTOR

REACH NO 12E		REACH NO 13B		REACH NO 14A		REACH NO 14B			
2,228,819.1	3,089.93428	2,226,477.2	3,086.07968	2,222,467.6	3,079.48015	2,218,743.3	3,073.35021	(1)	The Metropolitan Water District of Southern California (MWD-SC)
0.65915164	0.56033822	0.72148959	0.64916689	0.73495636	0.66866366	0.73895422	0.67569943		
0.60974493		0.68532824		0.70181001		0.70732683			
110,368.1	153.12508	110,252.0	152.93399	110,053.3	152.60694	109,888.7	152.30310	(2)	San Bernardino Valley Municipal Water District (SBVMWD)
0.03264030	0.02776818	0.03572715	0.03217016	0.03639395	0.03313634	0.03659186	0.03348500		
0.03020424		0.03394865		0.03476515		0.03503843			
12,950.8	17.96862	12,937.2	17.94624	12,913.9	17.90789	12,892.2	17.87217	(3)	City of West Covina (WC)
0.00383007	0.00325848	0.00419230	0.00377505	0.00427055	0.00388843	0.00429378	0.00392933		
0.00354428		0.00398368		0.00407949		0.00411154			
32,434.5	44.99968	32,400.4	44.94355	32,342.0	44.84743	32,287.8	44.75822	(4)	San Gabriel Valley Municipal Water District (SGVMWD)
0.00959219	0.00816036	0.01049935	0.00945402	0.01069530	0.00973796	0.01075348	0.00984044		
0.00887628		0.00997668		0.01021663		0.01029696			
19,484.0	27.03152	19,463.5	26.99778	19,428.4	26.94001	19,395.8	26.88635	(5)	San Gorgonio Pass Water Agency (SGPWA)
0.00576220	0.00490198	0.00630714	0.00567957	0.00642485	0.00584963	0.00645979	0.00591117		
0.00533209		0.00599311		0.00613724		0.00618548			
6,531.8	9.06223	6,524.9	9.05087	6,513.1	9.03145	6,502.2	9.01351	(6)	Crestline - Lake Arrowhead Water Agency (C-LAWA)
0.00193172	0.00164337	0.00211439	0.00190388	0.00215384	0.00196105	0.00216556	0.00198169		
0.00178754		0.00200914		0.00205744		0.00207363			
25,726.7	35.66548	25,699.7	35.62104	25,653.4	35.54483	25,610.4	35.47405	(7)	Coachella Valley County Water District (CVCWD)
0.00760842	0.00646769	0.00832798	0.00749300	0.00848342	0.00771804	0.00852956	0.00779924		
0.00703805		0.00791049		0.00810073		0.00816440			
42,433.6	58.82476	42,389.0	58.75135	42,312.7	58.62577	42,241.8	58.50907	(8)	Desert Water Agency (DWA)
0.01254932	0.01066746	0.01373615	0.01235854	0.01399255	0.01272972	0.01406867	0.01286366		
0.01160839		0.01304734		0.01336113		0.01346616			
56,577.6	78.43324	56,518.2	78.33547	56,416.4	78.16791	56,321.9	78.01237	(9)	Mojave Water Agency (MWA)
0.01673228	0.01422333	0.01831471	0.01647812	0.01865656	0.01697301	0.01875805	0.01715161		
0.01547780		0.01739642		0.01781478		0.01795483			
2,530.0	3.50490	2,527.3	3.50046	2,522.8	3.49305	2,518.6	3.48614	(10)	Littlerock Creek Irrigation District (LCID)
0.00074822	0.00063559	0.00081897	0.00073633	0.00083427	0.00075846	0.00083882	0.00076645		
0.00069191		0.00077765		0.00079637		0.00080264			
18,997.2	26.30790	18,977.3	26.27515	18,943.2	26.21902	18,911.5	26.16684	(11)	Palmdale Irrigation District (PID)
0.00561824	0.00477076	0.00614959	0.00552706	0.00626440	0.00569307	0.00629849	0.00575298		
0.00519450		0.00583833		0.00597874		0.00622573			
150,110.0	207.69175	149,952.6	207.43268	149,683.1	206.98910	149,432.8	206.57712	(12)	Antelope Valley - East Kern Water Agency (AVEKWA)
0.04439358	0.03766346	0.04859212	0.04363414	0.04949928	0.04494463	0.04976871	0.04541755		
0.04102852		0.04611313		0.04722195		0.04759313			
29,227.7	40.48881	29,197.0	40.43828	29,144.5	40.35187	29,095.7	40.27155	(13)	Upper Santa Clara Valley Water Agency (USCVWA)
0.00864381	0.00734237	0.00946128	0.00850633	0.00963791	0.00876181	0.00969035	0.00885401		
0.00799309		0.00898380		0.00919986		0.00927218			
22,058.3	30.55768	22,035.1	30.51949	21,995.4	30.45415	21,958.6	30.39358	(14)	Ventura County Flood Control District (VCFCD)
0.00652353	0.00554142	0.00714047	0.00641988	0.00727374	0.00661267	0.00731333	0.00668226		
0.00603248		0.00678017		0.00694321		0.00699779			
142,350.9	259.48439	42,190.5	76.89162	17,109.0	31.17529	17,078.3	31.12476	(15)	Kern County Water Agency - M & I (KCWA-MBI)
0.04209890	0.04709570	0.01367183	0.01617440	0.00565784	0.00676925	0.00568794	0.00684301		
0.04457730		0.01492311		0.00621355		0.00626548			
480,744.7	1,431.32893	288,403.1	858.19036	256,446.2	763.58989	239,685.4	714.19938	(16)	Kern County Water Agency - Ag (KCWA-AG)
0.14217558	0.25956161	0.09345698	0.18052313	0.08480518	0.16580227	0.07982741	0.15702217		
0.20086860		0.13699006		0.12530372		0.11842479			

REACH SUMMARY OF PROPORTIONATE USE OF PROJECT TRANSPORTATION FACILITIES CAPITAL COST COMPONENT

South San Joaquin Division — Tehachapi Division

REACH NO. 14C	REACH NO 15	REACH NO 16	REACH NO. 17C
Old River Road — Wheeler Ridge Pumping Plant	Wheeler Ridge Pumping Plant — Wind Gap Pumping Plant	Wind Gap Pumping Plant — Tehachapi Pumping Plant	Tehachapi Pumping Plant — South Portal Tehachapi Tunnel No 3
KCWA-AG 97,600 AF 291.20 cfs (16)	KCWA-AG 40,300 AF 120.24 cfs (16)	KCWA-AG 68,500 AF 204.37 cfs (16); KCWA-MBI 12,000 AF 21.88 cfs (15)	KCWA-MBI 5,000 AF 9.12 cfs (15)

LEGEND
- ○ PUMPING PLANT
- ● POWER RECOVERY PLANT
- ▽ REGULATION RESERVOIR
- ➡ CONTRACTOR TURNOUT
- ⇨ AQUEDUCT BRANCH
- (3) AGENCY IDENTIFICATION NO

SCHEMATIC DIAGRAM

REACH WATER SUMMARY

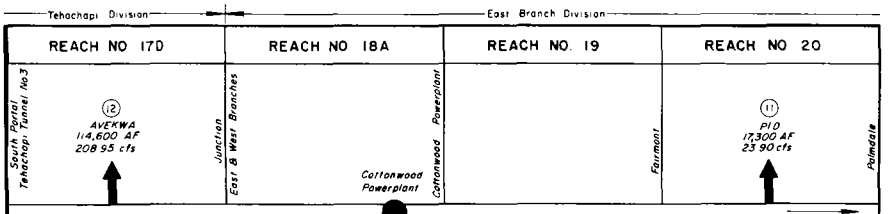
QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	
2,865,945.0	4,140.40471	2,824,745.0	4,027.68583	2,739,045.0	3,792.87354	2,734,045.0	3,783.75710	INFLOW TO DOWNSTREAM REACH
-	-	-	-	-	-	-	-	AQUEDUCT BRANCH TURNOUT
97,600.0	291.10563	40,300.0	120.23754	80,500.0	225.25344	5,000.0	9.11644	CONTRACTOR TURNOUT
2,900.0	4.77321	900.0	1.48134	5,200.0	8.55565	0	0	REACH EVAP & SEEPAGE LOSSES
2,966,445.0	4,145.37355	2,865,945.0	4,140.40471	2,824,745.0	4,027.68583	2,739,045.0	3,792.87354	TOTAL, INFLOW FROM UPSTREAM REACH

REACH PARTICIPATION BY CONTRACTOR

REACH 14C	REACH 15	REACH 16	REACH 17C		
2,216,172.7	2,214,017.7	2,213,324.6	2,209,258.7	(1)	The Metropolitan Water District of Southern California (MWD-SC)
3,069.11917	3,065.57218	3,064.43138	3,057.73918		
0.74708033	0.77252624	0.78354846	0.80657992		
0.69040748	0.73879807	0.76084171	0.80618010		
0.71874391	0.75566215	0.77219509	0.80638001		
109,741.3	109,634.5	109,600.2	109,398.7	(2)	San Bernardino Valley Municipal Water District (SBVMWD)
152.09341	151.91762	151.86116	151.52950		
0.03699421	0.03825422	0.03880003	0.03994046		
0.03421387	0.03661191	0.03770432	0.03995111		
0.03560404	0.03743307	0.03825218	0.03994578		
12,877.3	12,864.8	12,860.8	12,837.2	(3)	City of West Covina (WC)
17.84765	17.82708	17.82050	17.78166		
0.00434099	0.00448885	0.00455291	0.00448674		
0.00401488	0.00429630	0.00442450	0.00468818		
0.00417793	0.00439258	0.00448870	0.00468746		
32,250.4	32,219.0	32,208.9	32,149.7	(4)	San Gabriel Valley Municipal Water District (SGVMWD)
44.69666	44.64498	44.62836	44.53092		
0.01087173	0.01124202	0.01140241	0.01173756		
0.01005465	0.01075937	0.01108040	0.01174068		
0.01046319	0.01100069	0.01124140	0.01173912		
19,373.3	19,354.4	19,348.3	19,312.7	(5)	San Gorgonio Pass Water Agency (SGPWA)
26.84932	26.81821	26.80817	26.74957		
0.00653081	0.00675324	0.00684957	0.00705089		
0.00603983	0.00646315	0.00665597	0.00705259		
0.00628532	0.00660819	0.00675277	0.00705174		
6,494.7	6,488.4	6,486.4	6,474.5	(6)	Crestline - Lake Arrowhead Water Agency (C-LAWA)
9.00117	8.99080	8.98751	8.96792		
0.00218939	0.00226396	0.00229628	0.00236378		
0.00202484	0.00216677	0.00223143	0.00236441		
0.00210711	0.00221537	0.00226386	0.00236410		
25,580.7	25,555.8	25,547.8	25,500.9	(7)	Coachella Valley County Water District (CVCWD)
35.42517	35.38419	35.37102	35.29383		
0.00862335	0.00891706	0.00904429	0.00931014		
0.00796900	0.00852753	0.00878197	0.00930530		
0.00829617	0.00872230	0.00891313	0.00930772		
42,192.9	42,151.9	42,138.7	42,061.3	(8)	Desert Water Agency (DWA)
58.42858	58.36110	58.33937	58.21197		
0.01422339	0.01470785	0.01491770	0.01535619		
0.01314368	0.01406493	0.01448459	0.01534772		
0.01368354	0.01438639	0.01470114	0.01535196		
56,256.6	56,201.9	56,184.3	56,081.1	(9)	Mojave Water Agency (MWA)
77.90489	77.81486	77.78589	77.61603		
0.01896432	0.01961025	0.01989004	0.02047469		
0.01752494	0.01875326	0.01931280	0.02046365		
0.01824463	0.01918176	0.01960142	0.02046917		
2,515.7	2,513.3	2,512.5	2,507.9	(10)	Littlerock Creek Irrigation District (LCID)
3.48137	3.47742	3.47610	3.46853		
0.00084803	0.00087695	0.00088966	0.00091561		
0.00078314	0.00083805	0.00086305	0.00091449		
0.00081560	0.00085750	0.00087626	0.00091505		
18,889.6	18,871.3	18,865.4	18,830.8	(11)	Palmdale Irrigation District (PID)
26.13079	26.10067	26.09096	26.03401		
0.00636776	0.00658467	0.00667862	0.00687495		
0.00587820	0.00629022	0.00647790	0.00686393		
0.00612298	0.00643744	0.00657826	0.00686944		
149,260.0	149,115.2	149,068.6	148,795.3	(12)	Antelope Valley - East Kern Water Agency (AVEKWA)
206.29271	206.05437	205.97768	205.52785		
0.05031612	0.05203003	0.05277241	0.05432379		
0.04640616	0.04965878	0.05114046	0.05418790		
0.04836114	0.05084440	0.05195443	0.05423584		
29,062.0	29,033.8	29,024.7	28,971.4	(13)	Upper Santa Clara Valley Water Agency (USCVWA)
40.21608	40.16966	40.15468	40.06695		
0.00979691	0.01013062	0.01027516	0.01057719		
0.00904673	0.00968082	0.00996967	0.01056374		
0.00942182	0.00990572	0.01012241	0.01057047		
21,933.2	21,911.9	21,905.0	21,864.8	(14)	Ventura County Flood Control District (VCFCD)
30.35177	30.31671	30.30535	30.23918		
0.00739377	0.00764561	0.00775468	0.00798264		
0.00682772	0.00730628	0.00752426	0.00797263		
0.00711074	0.00747595	0.00763947	0.00797763		
17,057.1	17,039.3	17,033.6	5,000.0	(15)	Kern County Water Agency - M & I (KCWA-MBI)
31.08987	31.06057	31.05119	9.11644		
0.00575001	0.00594544	0.00603014	0.00182545		
0.00699376	0.00748555	0.00770944	0.00240357		
0.00637189	0.00671549	0.00686979	0.00211451		
206,787.5	108,971.8	68,635.2		(16)	Kern County Water Agency - Ag (KCWA-AG)
616.44494	324.89429	204.59451			
0.06970886	0.03802299	0.02429784			
0.13867112	0.07829901	0.05079753			
0.10418999	0.05816100	0.03754769			

REACH SUMMARY OF PROPORTIONATE USE OF PROJECT TRANSPORTATION FACILITIES CAPITAL COST COMPONENT

SCHEMATIC DIAGRAM



LEGEND
- ○ PUMPING PLANT
- ● POWER RECOVERY PLANT
- ▽ REGULATION RESERVOIR
- ➡ CONTRACTOR TURNOUT
- ⇨ AQUEDUCT BRANCH
- (3) AGENCY IDENTIFICATION NO

REACH WATER SUMMARY

QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	
983,751.0	1,414.88936	942,651.0	1,413.46572	938,851.0	1,408.54769	913,453.0	1,374 05869	INFLOW TO DOWNSTREAM REACH
1,665,313.0	2,313.61882	-	-	-	-	-	-	AQUEDUCT BRANCH TURNOUT
114,600.0	158.29452	-	-	-	-	17,300.0	23.89612	CONTRACTOR TURNOUT
0	0	1,100.0	1.51941	3,800.0	5.24886	6,800.0	9.39269	REACH EVAP & SEEPAGE LOSSES
-	-109.927681/	-	-0.19509	-	-0.67394	-	-1.20603	COMPENSATING REGULATORY CAP 3/
10,381.0	6.882082/	0	0.09932	0	0.34311	1,298.0	2.40622	CHANGE IN RESERVE CAPACITY
2,734,045.0	3,783.75710	943,751.0	1,414.88936	942,651.0	1,413.46572	938,851.0	1,408.54769	TOTAL, INFLOW FROM UPSTREAM REACH

REACH PARTICIPATION BY CONTRACTOR

2,209,258.7	3,057.73918	618,596.2	857.84197	617,874.8	856.90832	615,382.7	853.68300
0.80805499	0.80812248	0.65546548	0.60629615	0.65546506	0.60624627	0.65546365	0.60607320
0.80808873		0.63088082		0.63085567		0.63076842	
109,398.7	151.52950	109,398.7	151.52950	109,271.3	151.36462	108,831.1	150.79491
0.04001350	0.04004736	0.11591903	0.10709636	0.11591915	0.10708758	0.11591946	0.10705701
0.04003043		0.11150769		0.11150336		0.11148824	
12,837.2	17.78166	12,837.2	17.78166	12,822.2	17.76225	12,770.5	17.69534
0.00469531	0.00469947	0.01360232	0.01256753	0.01360228	0.01256645	0.01360226	0.01256283
0.00469739		0.01308492		0.01308436		0.01308255	
32,149.7	44.53092	32,149.7	44.53092	32,112.3	44.48252	31,982.9	44.31505
0.01175902	0.01176897	0.03406587	0.03147307	0.03406595	0.03147053	0.03406600	0.03146152
0.01176400		0.03276947		0.03276824		0.03276376	
19,312.7	26.74957	19,312.7	26.74957	19,290.2	26.72045	19,212.5	26.61989
0.00706378	0.00706958	0.02046377	0.01890577	0.02046378	0.01890421	0.02046384	0.01889882
0.00706668		0.01968477		0.01968399		0.01968133	
6,474.5	8.96792	6,474.5	8.96792	6,467.0	8.95821	6,440.9	8.92443
0.00236810	0.00237011	0.00686039	0.00633825	0.00686044	0.00633776	0.00686041	0.00633591
0.00236911		0.00659932		0.00659910		0.00659816	
25,500.9	35.29383	25,500.9	35.29383	25,471.2	35.25539	25,368.7	35.12273
0.00932717	0.00932772	0.02702079	0.02494458	0.02702082	0.02494252	0.02702101	0.02493542
0.00932744		0.02598269		0.02598167		0.02597821	
42,061.3	58.21197	42,061.3	58.21197	42,012.3	58.14855	41,843.2	57.92970
0.01538428	0.01538470	0.04456822	0.04114242	0.04456824	0.04113899	0.04456852	0.04112725
0.01538449		0.04285532		0.04285362		0.04284789	
56,081.1	77.61603	56,081.1	77.61603	56,015.8	77.53152	55,790.3	77.23967
0.02051214	0.02051295	0.05942362	0.05485661	0.05942369	0.05485207	0.05942402	0.05483639
0.02051254		0.05714011		0.05713788		0.05713020	
2,507.9	3.46853	2,507.9	3.46853	2,505.0	3.46477	2,494.9	3.45170
0.00091729	0.00091669	0.00265737	0.00245145	0.00265740	0.00245126	0.00265740	0.00245054
0.00091699		0.00255441		0.00255433		0.00255397	
18,830.8	26.03401	18,830.8	26.03401	18,808.9	26.00567	18,733.3	25.90782
0.00688752	0.00688047	0.01995314	0.01840003	0.01995319	0.01839851	0.01995343	0.01839329
0.00688399		0.01917659		0.01917586		0.01917336	
148,795.3	205.52785	0.0	106.86345	0.0	106.86345	0.0	106.86345
0.05442313	0.05431846	0.00000000	0.07552778	0.00000000	0.07560385	0.00000000	0.07586782
0.05437080		0.03776389		0.03780192		0.03793391	
28,971.4	40.06695						
0.01059653	0.01058920						
0.01059287							
21,864.8	30.23918						
0.00799724	0.00799184						
0.00799454							

(1)	The Metropolitan Water District of Southern California (MWD-SC)
(2)	San Bernardino Valley Municipal Water District (SBVMWD)
(3)	City of West Covina (WC)
(4)	San Gabriel Valley Municipal Water District (SGVMWD)
(5)	San Gorgonio Pass Water Agency (SGPWA)
(6)	Crestline - Lake Arrowhead Water Agency (C-LAWA)
(7)	Coachella Valley County Water District (CVCWD)
(8)	Desert Water Agency (DWA)
(9)	Mojave Water Agency (MWA)
(10)	Littlerock Creek Irrigation District (LCID)
(11)	Palmdale Irrigation District (PID)
(12)	Antelope Valley - East Kern Water Agency (AVEKWA)
(13)	Upper Santa Clara Valley Water Agency (USCVWA)
(14)	Ventura County Flood Control District (VCFCD)

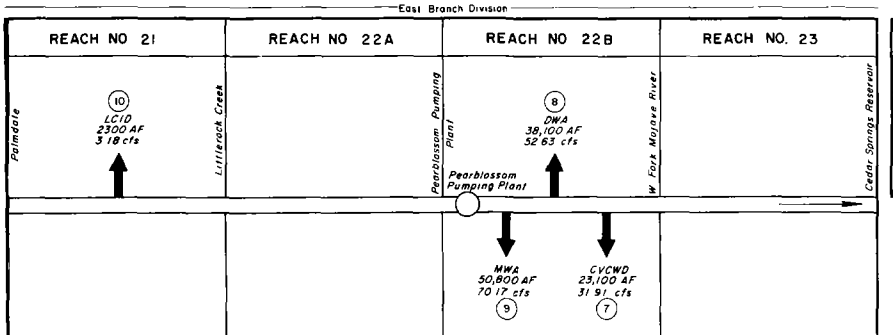
1/ Compensating Regulatory Capacity for AVEKWA.

2/ Change due to Reserve Capacity reduction associated with the change in AVEKWA's Compensating Regulatory Capacity and the addition of Reserve Capacity for AVEKWA's Maximum Annual Entitlement.

3/ Change in Compensating Regulatory Capacity.

REACH SUMMARY OF PROPORTIONATE USE OF PROJECT TRANSPORTATION FACILITIES CAPITAL COST COMPONENT

SCHEMATIC DIAGRAM



LEGEND
- ○ PUMPING PLANT
- ● POWER RECOVERY PLANT
- ▽ REGULATION RESERVOIR
- ➡ CONTRACTOR TURNOUT
- ⇨ AQUEDUCT BRANCH
- (3) AGENCY IDENTIFICATION NO

REACH WATER SUMMARY

QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	
909,181.0	1,368.31391	908,481.0	1,367.40794	777,781.0	1,354.07751	777,781.0	1,354.07751	INFLOW TO DOWNSTREAM REACH
-	-	-	-	-	-	-	-	AQUEDUCT BRANCH TURNOUT
2,300.0	3.17694	-	-	112,000.0	154.70320	-	-	CONTRACTOR TURNOUT
1,800.0	2.48630	700.0	0.96689	10,300.0	14.22717	0	0	REACH EVAP & SEEPAGE LOSSES
-	-0.31926	-	-0.12413	-	-156.52997	-	0	COMPENSATING REGULATORY CAP 3/
172.0	0.40080	0	0.06321	8,400.0	0.93003	0	0	CHANGE IN RESERVE CAPACITY
913,453.0	1,374.05869	909,181.0	1,368.31391	908,481.0	1,367.40794	777,781.0	1,354.07751	TOTAL, INFLOW FROM UPSTREAM REACH

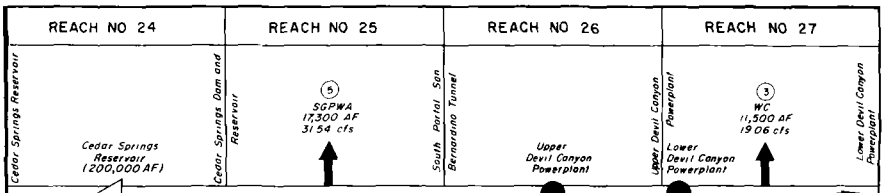
REACH PARTICIPATION BY CONTRACTOR

REACH NO 21	REACH NO 22A	REACH NO 22B	REACH NO. 23		
610,923.0 0.66880617 0.61708513 0.64294565	609,718.7 0.67062411 0.61853684 0.64458047	609,249.0 0.67062382 0.61850209 0.64456296	602,338.0 0.77443136 0.61798556 0.69620846	(1)	The Metropolitan Water District of Southern California (MWD-SC)
108,043.3 0.11828009 0.10900213 0.11364111	107,830.5 0.11860180 0.10925850 0.11393015	107,747.5 0.11860182 0.10925233 0.11392707	106,526.8 0.13696246 0.10916115 0.12306180	(2)	San Bernardino Valley Municipal Water District (SBVMWD)
12,678.1 0.01387931 0.01279113 0.01333522	12,653.1 0.01391703 0.01282119 0.01336911	12,643.4 0.01391708 0.01282051 0.01336879	12,500.1 0.01607149 0.01280975 0.01444062	(3)	City of West Covina (WC)
31,751.4 0.03475975 0.03203316 0.03339646	31,688.9 0.03485434 0.03210854 0.03348144	31,664.5 0.03485433 0.03210672 0.03348053	31,305.8 0.04025015 0.03207996 0.03616505	(4)	San Gabriel Valley Municipal Water District (SGVMWD)
19,073.4 0.02088055 0.01924216 0.02006136	19,035.8 0.02093731 0.01928739 0.02011235	19,021.2 0.02093737 0.01928634 0.02011186	18,805.7 0.02417866 0.01927024 0.02172445	(5)	San Gorgonio Pass Water Agency (SGPWA)
6,394.3 0.00700014 0.00645104 0.00672559	6,381.7 0.00701917 0.00646621 0.00674269	6,376.8 0.00701919 0.00646585 0.00674252	6,304.6 0.00810588 0.00646049 0.00728319	(6)	Crestline – Lake Arrowhead Water Agency (C-LAWA)
25,185.2 0.02757142 0.02538847 0.02647995	25,135.6 0.02764642 0.02544815 0.02654728	25,116.3 0.02764648 0.02544674 0.02654661	0.0 0.00000000 0.02542552 0.01271276	(7)	Coachella Valley County Water District (CVCWD)
41,540.6 0.04547645 0.04187454 0.04367549	41,458.9 0.04560027 0.04197307 0.04378667	41,427.0 0.04560029 0.04197069 0.04378549	0.0 0.00000000 0.04193561 0.02096780	(8)	Desert Water Agency (DWA)
55,386.8 0.06063654 0.05583273 0.05823363	55,277.8 0.06079955 0.05596404 0.05838180	55,235.3 0.06079962 0.05596089 0.05838025	0.0 0.00000000 0.05591415 0.02795708	(9)	Mojave Water Agency (MWA)
2,476.9 0.00271158 0.00249509 0.00260333	0.0 0.00000000 0.00000500 0.00000250	0.0 0.00000000 0.00000500 0.00000250	0.0 0.00000000 0.00000505 0.00000253	(10)	Littlerock Creek Irrigation District (LCID)
0.0 0.00000000 0.00003231 0.00001615	0.0 0.00000000 0.00003244 0.00001622	0.0 0.00000000 0.00003246 0.00001623	0.0 0.00000000 0.00003278 0.00001639	(11)	Palmdale Irrigation District (PID)
0.0 0.00000000 106.86345 0.00000000 0.07777211 0.03888606	0.0 0.00000000 106.86345 0.00000000 0.07809863 0.03904932	0.0 0.00000000 106.86345 0.00000000 0.07815038 0.03907519	0.0 0.00000000 106.86345 0.00000000 0.07891974 0.03945987	(12)	Antelope Valley – East Kern Water Agency (AVEKWA)

3/ Change in Compensating Regulatory Capacity.

REACH SUMMARY OF PROPORTIONATE USE OF PROJECT TRANSPORTATION FACILITIES CAPITAL COST COMPONENT

East Branch Division



LEGEND
- ○ PUMPING PLANT
- ● POWER RECOVERY PLANT
- ▽ REGULATION RESERVOIR
- ➡ CONTRACTOR TURNOUT
- ⇨ AQUEDUCT BRANCH
- (3) AGENCY IDENTIFICATION NO

SCHEMATIC DIAGRAM

REACH WATER SUMMARY

QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (AF)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	
[illegible]	-	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	INFLOW TO DOWNSTREAM REACH
-	-	-	-	-	-	-	-	AQUEDUCT BRANCH TURNOUT
[illegible]	[illegible] 4/	[illegible]	[illegible]	-	-	[illegible]	[illegible]	CONTRACTOR TURNOUT
[illegible]	[illegible] 5/	0	0	0	0	0	0	REACH EVAP & SEEPAGE LOSSES
-	-	-	-	-	-	-	-	COMPENSATING REGULATORY CAP 3/
[illegible]	-	0	0	0	0	0	0	CHANGE IN RESERVE CAPACITY
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	TOTAL, INFLOW FROM UPSTREAM REACH

REACH PARTICIPATION BY CONTRACTOR

	REACH NO 24	REACH NO 25	REACH NO 26	REACH NO 27
(1) The Metropolitan Water District of Southern California (MWD-SC)	602,338.0 104,008 0.77443136 0.58761582 0.68102359	575,238.0 916,02597 0.78709372 0.76780203 0.77744788	575,238.0 916,02597 0.80617711 0.78865313 0.79741512	575,238.0 916,02597 0.80617711 0.78865313 0.79741512
(2) San Bernardino Valley Municipal Water District (SBVMWD)	106,526.8 32,573 0.13696246 0.18402825 0.16049535	98,000.0 178,68220 0.13409264 0.14976929 0.14193097	98,000.0 178,68220 0.13734377 0.15383655 0.14559016	98,000.0 178,68220 0.13734377 0.15383655 0.14559016
(3) City of West Covina (WC)	12,500.1 1,986 0.01607149 0.01065537 0.01336343	11,500.0 19,06164 0.01573536 0.01597724 0.01585630	11,500.0 19,06164 0.01611687 0.01641113 0.01626400	11,500.0 19,06164 0.01611687 0.01641113 0.01626400
(4) San Gabriel Valley Municipal Water District (SGVMWD)	31,305.8 4,724 0.04025015 0.02668926 0.03346971	28,800.0 47,73699 0.03940682 0.04001258 0.03970969	28,800.0 47,73699 0.04036225 0.04109919 0.04073072	28,800.0 47,73699 0.04036225 0.04109919 0.04073072
(5) San Gorgonio Pass Water Agency (SGPWA)	18,805.7 3,442 0.02417866 0.01944633 0.02181249	17,300.0 31,54288 0.02367146 0.02643886 0.02505516		
(6) Crestline – Lake Arrowhead Water Agency (C-LAWA)	6,304.6 1,928 0.00810588 0.01089265 0.00949927			
(7) Coachella Valley County Water District (CVCWD)	0.0 2,640 0.00000000 0.01491525 0.00745763			
(8) Desert Water Agency (DWA)	0.0 4,355 0.00000000 0.02460452 0.01230226			
(9) Mojave Water Agency (MWA)	0.0 5,808 0.00000000 0.03281356 0.01640678			
(10) Littlerock Creek Irrigation District (LCID)	0.0 2 0.00000000 0.00001130 0.00000565			
(11) Palmdale Irrigation District (PID)	0.0 12 0.00000000 0.00006780 0.00003390			
(12) Antelope Valley—East Kern Water Agency (AVEKWA)	0.0 15,622 0.00000000 0.08825989 0.04412994			

3/ Change in Compensating Regulatory Capacity.

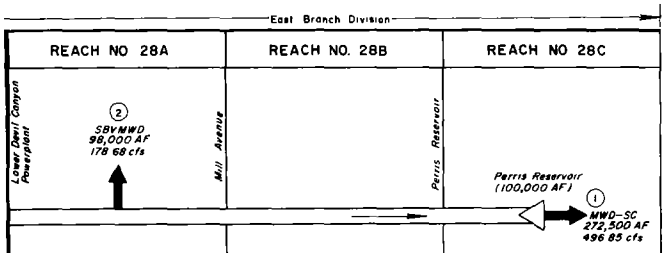
4/ Regulatory and Emergency Storage Capacity in Acre-feet.

5/ Regulatory Storage Capacity in Acre-feet.

REACH SUMMARY OF PROPORTIONATE USE OF PROJECT TRANSPORTATION FACILITIES CAPITAL COST COMPONENT

SCHEMATIC DIAGRAM

East Branch Division



LEGEND
- ○ PUMPING PLANT
- ● POWER RECOVERY PLANT
- ▽ REGULATION RESERVOIR
- ➡ CONTRACTOR TURNOUT
- ⇨ AQUEDUCT BRANCH
- ③ AGENCY IDENTIFICATION NO

REACH WATER SUMMARY

	Reach 28A Quantity From or Thru Reach (AF, annually)	Reach 28A Associated Capacity (cfs)	Reach 28B Quantity From or Thru Reach (AF, annually)	Reach 28B Associated Capacity (cfs)	Reach 28C Quantity From or Thru Reach (AF, annually)	Reach 28C Associated Capacity (AF)
INFLOW TO DOWNSTREAM REACH	302,738.0	419.18006	302,738.0	419.18006	-	-
AQUEDUCT BRANCH TURNOUT	-	-	-	-	-	-
CONTRACTOR TURNOUT	98,000.0	178.68220	-	-	272,500.0	95,999 4/
REACH EVAP & SEEPAGE LOSSES	0	0	0	0	9,800.0	3,001 5/
COMPENSATING REGULATORY CAP 3/	-	-	-	-	-	-
CHANGE IN RESERVE CAPACITY	-	-	-	-	-	-
TOTAL, INFLOW FROM UPSTREAM REACH	0	0	0	0	20,438.0	-
	400,738.0	597.86226	302,738.0	419.18006	302,738.0	99,000

REACH PARTICIPATION BY CONTRACTOR

Reach 28A Quantity	Reach 28A Capacity	Reach 28B Quantity	Reach 28B Capacity	Reach 28C Quantity	Reach 28C Capacity
302,738.0	419.18006	302,738.0	419.18006	302,738.0	99.000
0.75545119	0.70113150	1.00000000	1.00000000	1.00000000	1.00000000
0.72829134		1.00000000		1.00000000	
98,000.0	178.68220				
0.24454881	0.29886850				
0.27170866					

(1) The Metropolitan Water District of Southern California (MWD-SC)

(2) San Bernardino Valley Municipal Water District (SBVMWD)

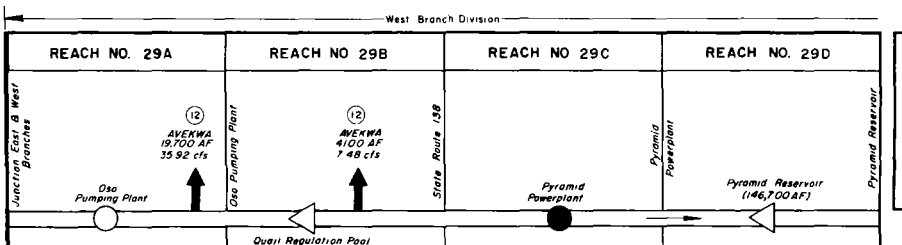
3/ Change in Compensating Regulatory Capacity.

4/ Regulatory and Emergency Storage Capacity in Acre-feet.

5/ Regulatory Storage Capacity in Acre-feet.

REACH SUMMARY OF PROPORTIONATE USE OF PROJECT TRANSPORTATION FACILITIES CAPITAL COST COMPONENT

SCHEMATIC DIAGRAM



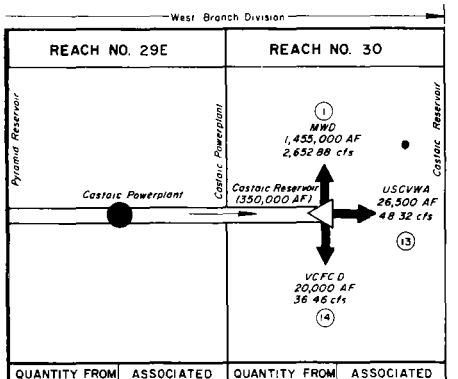
LEGEND
- ○ PUMPING PLANT
- ● POWER RECOVERY PLANT
- ▽ REGULATION RESERVOIR
- ➡ CONTRACTOR TURNOUT
- ⇨ AQUEDUCT BRANCH
- (3) AGENCY IDENTIFICATION NO

REACH WATER SUMMARY

QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (AF)	
1,645,113.0	2,277.05295	1,638,513.0	2,266.34193	1,637,213.0	2,263.83962	1,630,313.0	-	INFLOW TO DOWNSTREAM REACH
-	-	-	-	-	-	-	-	AQUEDUCT BRANCH TURNOUT
19,700.0	35.91877	4,100.0	7.47548	-	-	-	136,872 4/	CONTRACTOR TURNOUT
500.0	0.69064	2,500.0	3.45320	1,300.0	1.79566	6,900.0	2,328 5/	REACH EVAP & SEEPAGE LOSSES
-	-0.08868	-	-0.44339	-	0.53207	-	-	COMPENSATING REGULATORY CAP 3/
0	0.04514	0	0.22573	0	0.17458	-	-	CHANGE IN RESERVE CAPACITY
1,665,313.0	2,313.61882	1,645,113.0	2,277.05295	1,638,513.0	2,266.34193	1,637,213.0	139,200	TOTAL, INFLOW FROM UPSTREAM REACH

REACH PARTICIPATION BY CONTRACTOR

1,590,662.5	2,199.89721	1,590,185.4	2,199.27974	1,587,769.3	2,196.15278	1,586,509.6	135,583	(1) The Metropolitan Water District of Southern California (MWD-SC)
0.95517329	0.95084687	0.96661166	0.96584480	0.96903064	0.96902976	0.96903067	0.97401580	
0.95301008		0.96622822		0.96903020		0.97152324		
23,814.3	43.41548	4,106.7	7.48688	0.0	0.00273	0.0	1	(12) Antelope Valley—East Kern Water Agency (AVEKWA)
0.01430020	0.01876518	0.00249630	0.00328797	0.00000000	0.00000120	0.00000000	0.00000718	
0.01653269		0.00289214		0.00000060		0.00000359		
28,971.4	40.06695	28,962.7	40.05569	28,918.7	39.99875	28,895.7	2.453	(13) Upper Santa Clara Valley Water Agency (USCVWA)
0.01739697	0.01731787	0.01760529	0.01759102	0.01764936	0.01764904	0.01764932	0.01762213	
0.01735742		0.01759816		0.01764920		0.01763572		
21,864.8	30.23918	21,858.2	30.23064	21,825.0	30.18767	21,807.7	1.163	(14) Ventura County Flood Control District (VCFCD)
0.01312954	0.01307008	0.01328675	0.01327621	0.01332000	0.01332000	0.01332001	0.00835489	
0.01309981		0.01328148		0.01332000		0.01083745		



REACH WATER SUMMARY

QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (AF)	
1,630,213.0	2,253.44549	-	-	INFLOW TO DOWNSTREAM REACH
-	-	-	-	AQUEDUCT BRANCH TURNOUT
-	-	1,501,500.0	329,065 4/	CONTRACTOR TURNOUT
100.0	0.13812	16,100.0	4,935 5/	REACH EVAP & SEEPAGE LOSSES
-	-	-	-	COMPENSATING REGULATORY CAP 3/
0	0.01036	112,613.0	-	CHANGE IN RESERVE CAPACITY
1,630,313.0	2,253.59397	1,630,213.0	334,000	TOTAL, INFLOW FROM UPSTREAM REACH

REACH PARTICIPATION BY CONTRACTOR

1,579,823.3	2,183.80235	1,579,726.4	325,324
0.96903067	0.96903097	0.96903067	0.97402395
0.96903082		0.97152731	
28,773.9	39.77369	28,772.1	5.889
0.01764931	0.01764900	0.01764929	0.01763174
0.01764916		0.01764051	
21,715.8	30.01793	21,714.5	2.787
0.01332002	0.01332003	0.01332004	0.00834431
0.01332002		0.01083218	

(1) The Metropolitan Water District of Southern California (MWD-SC)

(13) Upper Santa Clara Valley Water Agency (USCVWA)

(14) Ventura County Flood Control District (VCFCD)

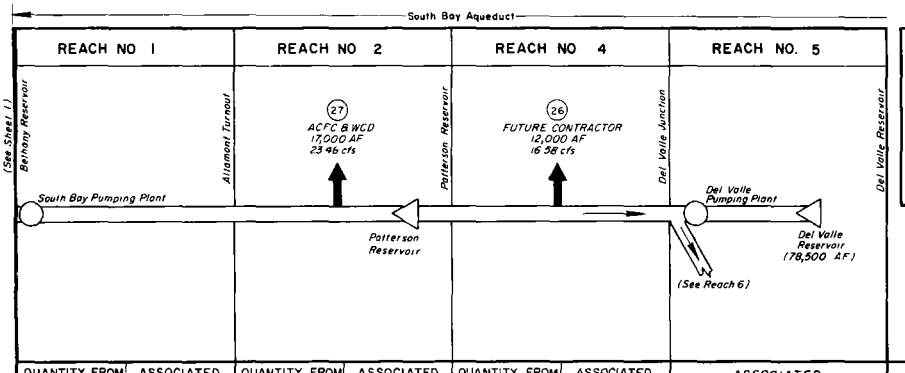
3/ Change in Compensating Regulatory Capacity.

4/ Regulatory and Emergency Storage Capacity in Acre-feet.

5/ Regulatory Storage Capacity in Acre-feet.

REACH SUMMARY OF PROPORTIONATE USE OF PROJECT TRANSPORTATION FACILITIES CAPITAL COST COMPONENT

SCHEMATIC DIAGRAM



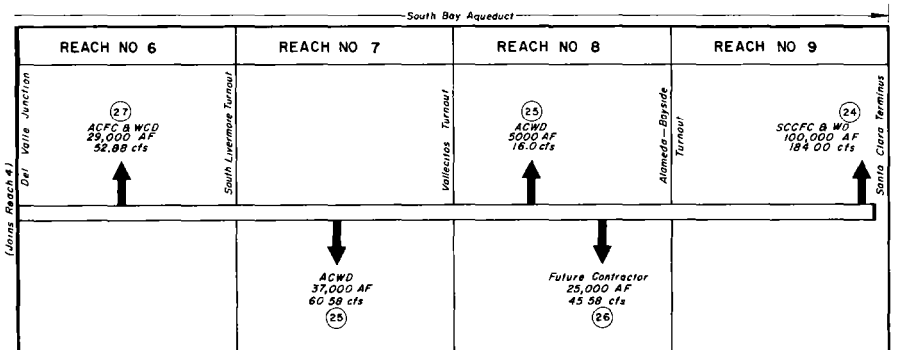
LEGEND
- ○ PUMPING PLANT
- ● POWER RECOVERY PLANT
- ▽ REGULATION RESERVOIR
- ➡ CONTRACTOR TURNOUT
- ⇨ AQUEDUCT BRANCH
- (3) AGENCY IDENTIFICATION NO

REACH WATER SUMMARY

QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	ASSOCIATED CAPACITY (AF)	
217,013.0	300.00000	199,773.0	300.00000	184,500.0	254.84579	28,485 5/	INFLOW TO DOWNSTREAM REACH
-	-	-		-	-	-	CHANGE IN FUTURE CONTRACTOR
-	-	17,000.0	23.48173	12,000.0	16.57534	-	CONTRACTOR TURNOUT
180.0	0.24863	240.0	0.33151	810.0	1.11883	1,134 6/	REACH EVAP & SEEPAGE LOSSES
-	-	-	-23.48173	-	23.48173	-	COMPENSATING REGULATORY CAP 3/
0	-0.24863	0	-0.33151	2,463.0	3.97831	381	CHANGE IN ALLOWANCE FOR CONTINGENCIES
217,193.0	300.00000	217,013.0	300.00000	199,773.0	300.00000	30,000	TOTAL, INFLOW FROM UPSTREAM REACH

REACH PARTICIPATION BY CONTRACTOR

103,585.5 0.47692835 0.47693248	143.08098 0.47693660	103,499.7 0.47692857 0.47693271	143.08105 0.47693684	103,488.5 0.51803046 0.49775603	143.24448 0.47748150	15,366 0.51220000	(24) Santa Clara County Flood Control and Water District (SCCFC & WD)
43,323.7 0.19947098 0.19946794	59.83947 0.19946490	43,287.8 0.19947100 0.19946796	59.83948 0.19946493	43,283.3 0.21666241 0.20817755	59.90781 0.19969270	4,902 0.16340000	(25) Alameda County Water District (ACWD)
22,761.6 0.10479896 0.10479924	31.43986 0.10479953	22,742.7 0.10479879 0.10479906	31.43980 0.10479933	22,740.3 0.11383070 0.10937502	31.47580 0.10491933	3,149 0.10496667	(26) Future Contractor (FC)
47,522.2 0.21880171 0.21880034	65.63969 0.21879897	47,482.8 0.21880164 0.21880027	65.63967 0.21879890	30,260.9 0.15147643 0.18469140	65.37191 0.21790637	6,583 0.21943333	(27) Alameda County Flood Control and Water Conservation District (ACFC & WCD)



REACH WATER SUMMARY

QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	
152,000.0	305.00000	130,000.0	255.00000	100,000.0	184.00000	-	-	INFLOW TO DOWNSTREAM REACH
-	-	-15,000.0	- 27.34931	-	-	-	-	CHANGE IN FUTURE CONTRACTOR
29,000.0	58.00000 7/	37,000.0	77.34931 8/	30,000.0	71.00000	100,000.0	184.00000	CONTRACTOR TURNOUT
-	-	-	-	-	-	-	-	REACH EVAP & SEEPAGE LOSSES
-	-	-	-	-	-	-	-	COMPENSATING REGULATORY CAP 3/
-	-	-	-	-	-	-	-	CHANGE IN ALLOWANCE FOR CONTINGENCIES
181,000.0	363.00000	152,000.0	305.00000	130,000.0	255.00000	100,000.0	184.00000	TOTAL, INFLOW FROM UPSTREAM REACH

REACH PARTICIPATION BY CONTRACTOR

100,000.0 0.55248619 0.52968662	184.00000 0.50688705	100,000.0 0.65789474 0.63058671	184.00000 0.60327869	100,000.0 0.76923077 0.74539969	184.00000 0.72156852	100,000.0 1.00000000 1.00000000	184.00000 1.00000000	(24) Santa Clara County Flood Control and Water District (SCCFC & WD)
42,000.0 0.23204420 0.22150155	76.57808 0.21095890	42,000.0 0.27631579 0.26369573	76.57808 0.25107567	5,000.0 0.03846154 0.05060332	16.00000 0.06274510			(25) Alameda County Water District (ACWD)
10,000.0 0.05524862 0.05273847	18.23288 0.05022832	10,000.0 0.06578947 0.06278470	18.23288 0.05977993	25,000.0 0.19230769 0.18553069	45.58219 0.17875369			(26) Future Contractor (FC)
29,000.0 0.16022099 0.15294154	52.87534 0.14566209							(27) Alameda County Flood Control and Water Conservation District (ACFC & WCD)
0.0 0.00000000 0.04313182	31.31370 0.08626364	0.0 0.00000000 0.04293286	26.18904 0.08586571	0.0 0.00000000 0.01846630	9.41781 0.03693259			Excess

3/ Change in Compensating Regulatory Capacity.

5/ Regulatory Storage Capacity in Acre-feet.

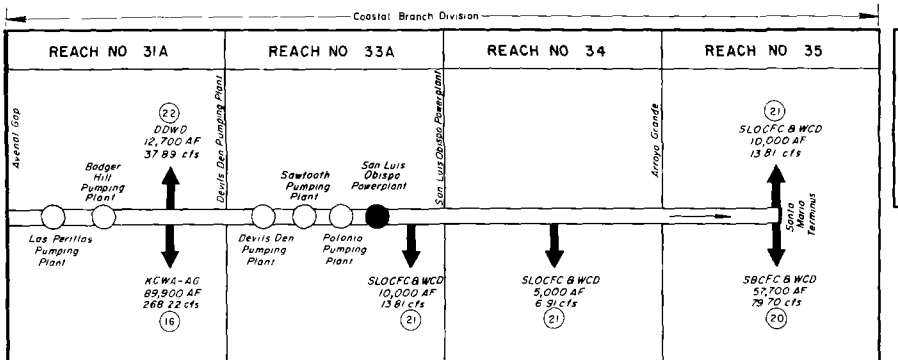
6/ Capacity in acre-feet required to regulate losses.

7/ Increase in capacity allocated to ACFC & WCD and to excess.

8/ Increase in capacity allocated to ACWD and to excess.

REACH SUMMARY OF PROPORTIONATE USE OF PROJECT TRANSPORTATION FACILITIES CAPITAL COST COMPONENT

SCHEMATIC DIAGRAM



LEGEND
- ○ PUMPING PLANT
- ● POWER RECOVERY PLANT
- ▽ REGULATION RESERVOIR
- ➡ CONTRACTOR TURNOUT
- ⇨ AQUEDUCT BRANCH
- (3) AGENCY IDENTIFICATION NO

REACH WATER SUMMARY

QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	
91,103.0	126.17859	79,653.0	110.17769	73,778.0	102.01088	-	-	INFLOW TO DOWNSTREAM REACH
-	-	-	-	-	-	-	-	AQUEDUCT BRANCH TURNOUT
102,600.0	306.11343	10,000.0	13.81279	5,000.0	6.90639	67,700.0	93.51256	CONTRACTOR TURNOUT
1,400.0	2.30429	700.0	1.15215	500.0	0.69064	1,000.0	1.38128	REACH EVAP & SEEPAGE LOSSES
0	0	750.0	1.03596	375.0	0.56978	5,078.0	7.11704	CHANGE IN RESERVE CAPACITY
195,103.0	434.59631	91,103.0	126.17859	79,653.0	110.17769	73,778.0	102.01088	TOTAL, INFLOW FROM UPSTREAM REACH

REACH PARTICIPATION BY CONTRACTOR

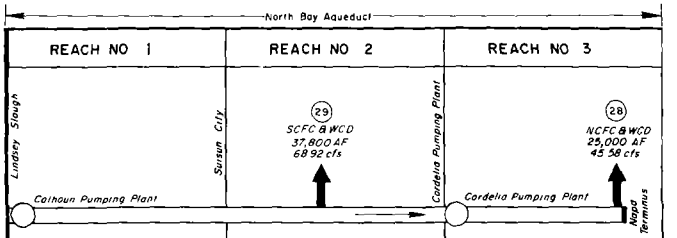
90,571.3	269.32711						
0.46422300	0.61971789						
0.54197045							
64,211.6	89.07006	63,767.8	88.33960	63,277.6	87.53276	62,880.3	86.94282
0.32911641	0.20494896	0.69995280	0.70011561	0.79441578	0.79446901	0.85229066	0.85228968
0.26703269		0.70003420		0.79444239		0.85229017	
27,525.3	38.15188	27,335.2	37.83899	16,375.4	22.64493	10,897.7	15.06806
0.14108087	0.08778694	0.30004720	0.29988439	0.20558422	0.20553099	0.14770934	0.14771032
0.11443390		0.29996580		0.20555761		0.14770983	
12,794.8	38.04726						
0.06557972	0.08754621						
0.07656296							

(16) Kern County Water Agency – Ag (KCWA-AG)

(20) Santa Barbara County Flood Control and Water Conservation District (SBCFC & WCD)

(21) San Luis Obispo County Flood Control and Water Conservation District (SLOCFC & WCD)

(22) Devil's Den Water District (DDWD)



REACH WATER SUMMARY

QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	
65,300	115.16081	25,000	45.58210	-	-	INFLOW TO DOWNSTREAM REACH
-	-	-	-	-	-	AQUEDUCT BRANCH TURNOUT
-	-	37,800	68.92028	25,000	45.58210	CONTRACTOR TURNOUT
1,000	1.64503	100	0.65837	-	-	REACH EVAP & SEEPAGE LOSSES
63,300	113.50677	63,200	113.15084	25,000	45.58210	TOTAL, INFLOW FROM UPSTREAM REACH

REACH PARTICIPATION BY CONTRACTOR

25,557.0	46.49897	25,159.0	45.84389	25,000.0	45.58210	
0.39808411	0.39808455	0.39808544	0.39808576	1.00000000	1.00000000	
0.39808433		0.39808560		1.00000000		
38,643.0	70.30780	38,041.0	69.31695			
0.60191589	0.60191545	0.60191456	0.60191424			
0.60191567		0.60191440				

(28) Napa County Flood Control and Water Conservation District (NCFC & WCD)

(29) Solano County Flood Control and Water Conservation District (SCFC & WCD)

REACH SUMMARY OF PROPORTIONATE USE OF PROJECT TRANSPORTATION FACILITIES

Table B-4

MINIMUM O.M.P. & R. COMPONENT

Sheet 1 of 12

North San Joaquin Division				San Luis Division					
REACH NO. 1		REACH NO. 2		REACH NO 3		REACH NO. 4			
QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)		
4,305,348.0	8,218.57861	4,274,148.0	8,167.22552	4,266,948.0	8,155.37484	4,257,448.0	8,139.73846	INFLOW TO DOWNSTREAM REACH	REACH WATER SUMMARY
217,193.0	300.00000	-	-	-	-	-	-	AQUEDUCT BRANCH TURNOUT	
-	-	-	-	-	-	-	-	CONTRACTOR TURNOUT	
600.0	0.98759	31,200.0	51.35309	7,200.0	11.85068	9,500.0	15.63638	REACH EVAP & SEEPAGE LOSSES	
4,523,141.0	8,519.56620	4,305,348.0	8,218.57861	4,274,148.0	8,167.22552	4,266,948.0	8,155.37484	TOTAL, INFLOW FROM UPSTREAM REACH	
2,286,489.9 0.50550931 0.45361209	3,422.43648 0.40171488	2,286,193.8 0.53101255 0.47369003	3,421.94912 0.41636751	2,269,990.6 0.53109780 0.47340895	3,395.27975 0.41572009	2,266,251.6 0.53121770 0.47334363	3,389.12561 0.41556957	(1) The Metropolitan Water District of Southern California (MWD-SC)	REACH PARTICIPATION BY CONTRACTORS
113,226.1 0.02503263 0.02177906	157.82916 0.01852549	113,211.4 0.02629553 0.02274827	157.80496 0.01920101	112,408.4 0.02629960 0.02272976	156.48328 0.01915991	112,223.1 0.02630056 0.02272545	156.17829 0.01915035	(2) San Bernardino Valley Municipal Water District (SBVMWD)	
13,286.2 0.00293738 0.00255564	18.52068 0.00217390	13,284.5 0.00308558 0.00266938	18.51788 0.00225317	13,190.3 0.00308607 0.00266721	18.36283 0.00224836	13,168.6 0.00308619 0.00266672	18.32711 0.00224724	(3) City of West Covina (WC)	
33,274.5 0.00735650 0.00640035	46.38227 0.00544421	33,270.2 0.00772765 0.00668519	46.37519 0.00564273	33,034.2 0.00772884 0.00667974	45.98675 0.00563065	32,979.7 0.00772911 0.00667847	45.89705 0.00562783	(4) San Gabriel Valley Municipal Water District (SGVMWD)	
19,988.6 0.00441919 0.00384477	27.86204 0.00327036	19,986.0 0.00464213 0.00401587	27.85776 0.00338961	19,844.2 0.00464284 0.00401260	27.62437 0.00338234	19,811.5 0.00464301 0.00401184	27.57055 0.00338066	(5) San Gorgonio Pass Water Agency (SGPWA)	
6,700.9 0.00148147 0.00128892	9.34056 0.00109637	6,700.0 0.00155620 0.00134627	9.33908 0.00113634	6,652.5 0.00155645 0.00134518	9.26090 0.00113391	6,641.5 0.00155650 0.00134492	9.24279 0.00113334	(6) Crestline – Lake Arrowhead Water Agency (C-LAWA)	
26,392.3 0.00583495 0.00507492	36.76099 0.00431489	26,388.9 0.00612933 0.00530078	36.75539 0.00447223	26,201.9 0.00613032 0.00529650	36.44760 0.00446267	26,158.7 0.00613054 0.00529549	36.37650 0.00446043	(7) Coachella Valley County Water District (CVCWD)	
43,531.5 0.00962418 0.00837047	60.63183 0.00711677	43,525.9 0.01010973 0.00874301	60.62261 0.00737629	43,217.4 0.01011135 0.00873592	60.11484 0.00736050	43,146.2 0.01011172 0.00873427	59.99765 0.00735682	(8) Desert Water Agency (DWA)	
58,041.3 0.01283208 0.01116055	80.84237 0.00948902	58,033.8 0.01347947 0.01165725	80.83003 0.00983504	57,622.5 0.01348163 0.01164781	80.15306 0.00981399	57,527.6 0.01348214 0.01164562	79.99686 0.00980910	(9) Mojave Water Agency (MWA)	
2,595.3 0.00057378 0.00049890	3.61239 0.00042401	2,595.0 0.00060274 0.00052111	3.61190 0.00043948	2,576.6 0.00060283 0.00052068	3.58161 0.00043853	2,572.4 0.00060287 0.00052059	3.57470 0.00043833	(10) Littlerock Creek Irrigation District (LCID)	
19,488.1 0.00430853 0.00374566	27.11590 0.00318278	19,485.6 0.00452591 0.00391237	27.11179 0.00329884	19,347.6 0.00452666 0.00390921	26.88465 0.00329177	19,315.8 0.00452684 0.00390849	26.83231 0.00329014	(11) Palmdale Irrigation District (PID)	
153,986.4 0.03404413 0.02958562	214.07203 0.02512710	153,966.5 0.03576168 0.03090251	214.03927 0.02604334	152,877.4 0.03576792 0.03087777	212.24669 0.02598761	152,626.0 0.03576938 0.03087200	211.83291 0.02597464	(12) Antelope Valley—East Kern Water Agency (AVEKWA)	
29,983.2 0.00662885 0.00576363	41.73232 0.00489841	29,979.3 0.00696327 0.00602015	41.72590 0.00507702	29,767.0 0.00696443 0.00601529	41.37647 0.00506616	29,718.0 0.00696470 0.00601416	41.29582 0.00506363	(13) Upper Santa Clara Valley Water Agency (USCVWA)	
22,628.5 0.00500283 0.00434988	31.49618 0.00369692	22,625.6 0.00525523 0.00454348	31.49141 0.00383173	22,465.4 0.00525611 0.00453983	31.22773 0.00382354	22,428.4 0.00525631 0.00453897	31.16683 0.00382163	(14) Ventura County Flood Control District (VCFCD)	
146,300.0 0.03234478 0.03178260	265.98437 0.03122041	146,279.7 0.03397628 0.03316800	265.95095 0.03235973	145,170.2 0.03396471 0.03315215	264.12478 0.03233960	144,914.1 0.03396200 0.03314845	263.70326 0.03233490	(15) Kern County Water Agency – M & I (KCWA-M&I)	
1,040,552.4 0.23005084 0.29493817	3,065.55722 0.35982551	1,040,408.1 0.24165482 0.30731463	3,065.31970 0.37297443	1,032,536.3 0.24157243 0.30765079	3,052.33033 0.37372916	1,030,695.1 0.24155324 0.30772896	3,049.33278 0.37390468	(16) Kern County Water Agency – Ag (KCWA-AG)	
58,912.6 0.01302471 0.01673279	174.14738 0.02044087	58,904.4 0.01368168 0.01743476	174.13388 0.02118783	58,457.6 0.01367702 0.01745402	173.39848 0.02123101	58,354.5 0.01367593 0.01745850	173.22878 0.02124106	(17) Dudley Ridge Water District (DRWD)	
112,205.2 0.02480692 0.03187754	331.82142 0.03894816	112,189.7 0.02605822 0.03321483	331.79590 0.04037145	111,338.8 0.02604936 0.03325158	330.39537 0.04045381	111,142.4 0.02604728 0.03326012	330.07211 0.04047295	(18) Tulare Lake Basin Water Storage District (TLBWSD)	
8,678.6 0.00191871 0.00246496	25.65423 0.00301121	8,677.4 0.00201549 0.00256837	25.65225 0.00312125	8,611.6 0.00201481 0.00257121	25.54395 0.00312762	8,596.4 0.00201465 0.00257187	25.51893 0.00312909	(19) Hacienda Water District (HWD)	
65,470.2 0.01447450 0.01258621	91.14163 0.01069792	65,461.7 0.01520474 0.01314637	91.12764 0.01108801	64,998.0 0.01520724 0.01313576	90.36442 0.01106427	64,891.0 0.01520783 0.01313329	90.18831 0.01105876	(20) Santa Barbara County Flood Control and Water Conservation District (SBCFC & WCD)	
28,064.6 0.00620467 0.00539350	39.03952 0.00458234	28,061.0 0.00651771 0.00563357	39.03360 0.00474943	27,862.3 0.00651880 0.00562903	38.70656 0.00473925	27,816.5 0.00651906 0.00562798	38.63117 0.00473690	(21) San Luis Obispo County Flood Control and Water Conservation District (SLOCFC & WCD)	
13,063.8 0.00288821 0.00370303	38.49002 0.00451784	13,062.0 0.00303390 0.00385842	38.48706 0.00468293	12,962.9 0.00303286 0.00386243	38.32395 0.00459241	12,940.0 0.00303261 0.00386361	38.28626 0.00469460	(22) Devil's Den Water District (DDWD)	
3,057.9 0.00067606 0.00086892	9.04600 0.00106179	3,057.5 0.00071016 0.00090538	9.04534 0.00110060	3,034.3 0.00070992 0.00090638	9.00715 0.00110284	3,028.9 0.00070985 0.00090660	8.99826 0.00110335	(23) Empire West Side Irrigation District (EWSID)	
103,599.7 0.02290637 0.01985076	143.10435 0.01679714							(24) Santa Clara County Flood Control and Water District (SCCFC & WD)	
43,329.7 0.00957956 0.00830224	59.84935 0.00702493							(25) Alameda County Water District (ACWD)	
22,764.7 0.00503294 0.00436193	31.44496 0.00369091							(26) Future Contractor (FC)	
47,528.8 0.01050792 0.00910689	65.65055 0.00770586							(27) Alameda County Flood Control and Water Conservation District (ACFC & WCD)	

REACH SUMMARY OF PROPORTIONATE USE OF PROJECT TRANSPORTATION FACILITIES

Table B-4

MINIMUM O.M.P. & R. COMPONENT

San Luis Division → | ← South San Joaquin

REACH NO. 5		REACH NO 6		REACH NO 7		REACH NO. 8		
QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	
4,242,548.0	8,115.21409	4,236,548.0	8,105.33350	4,164,148.0	7,900.56472	3,847,045.0	7,111.06978	INFLOW TO DOWNSTREAM REACH
-	-	-	-	-	-	195,103.0	434.59631	AQUEDUCT BRANCH TURNOUT
-	-	-	-	64,000.0	190.94795	115,200.0	343.70630	CONTRACTOR TURNOUT
14,900.0	24.52437	6,000.0	9.87559	8,400.0	13.82583	6,800.0	11.19233	REACH EVAP & SEEPAGE LOSSES
4,257,448.0	8,139.73846	4,242,548.0	8,115.21409	4,236,548.0	8,105.33850	4,164,148.0	7,900.56472	TOTAL, INFLOW FROM UPSTREAM REACH

REACH WATER SUMMARY

REACH PARTICIPATION BY CONTRACTORS

REACH NO. 5		REACH NO 6		REACH NO 7		REACH NO. 8			
2,261,317.9	3,381.00508	2,253,579.8	3,368.26869	2,250,464.1	3,363.14046	2,246,101.7	3,355.96025	(1)	The Metropolitan Water District of Southern California (MWD-SC)
0.53114399	0.41537023	0.53118546	0.41505605	0.53120232	0.41492906	0.53939046	0.42477473		
0.47325711		0.47312075		0.47306569		0.48208260			
111,978.6	155.77586	111,595.1	155.14465	111,440.7	154.89052	111,224.5	154.53467	(2)	San Bernardino Valley Municipal Water District (SBVMWD)
0.02630181	0.01913770	0.02630379	0.01911775	0.02630460	0.01910969	0.02671003	0.01955995		
0.02271976		0.02271077		0.02270715		0.02313499			
13,139.9	18.27987	13,094.9	18.20580	13,076.8	18.17601	13,051.4	18.13420	(3)	City of West Covina (WC)
0.00308633	0.00224576	0.00308657	0.00224342	0.00308666	0.00224247	0.00313423	0.00229530		
0.00266604		0.00266499		0.00266457		0.00271477			
32,907.8	45.77871	32,795.1	45.59321	32,749.7	45.51848	32,686.2	45.41396	(4)	San Gabriel Valley Municipal Water District (SGVMWD)
0.00772947	0.00562410	0.00773005	0.00561824	0.00773028	0.00561586	0.00784943	0.00574819		
0.00667678		0.00667414		0.00667307		0.00679881			
19,768.3	27.49945	19,700.6	27.38802	19,673.3	27.34309	19,635.1	27.28022	(5)	San Gorgonio Pass Water Agency (SGPWA)
0.00464323	0.00337842	0.00464358	0.00337490	0.00464371	0.00337347	0.00471527	0.00345295		
0.00401082		0.00400924		0.00400859		0.00408411			
6,627.0	9.21892	6,604.3	9.18156	6,595.2	9.16658	6,582.4	9.14551	(6)	Crestline – Lake Arrowhead Water Agency (C-LAWA)
0.00155657	0.00113258	0.00155668	0.00113140	0.00155674	0.00113093	0.00158073	0.00115758		
0.00134457		0.00134404		0.00134384		0.00136915			
26,101.8	36.28285	26,012.5	36.13587	25,976.5	36.07662	25,926.1	35.99367	(7)	Coachella Valley County Water District (CVCWD)
0.00613086	0.00445750	0.00613134	0.00445286	0.00613153	0.00445097	0.00622603	0.00455884		
0.00529418		0.00529210		0.00529125		0.00539093			
43,052.3	59.84310	42,905.0	59.60065	42,845.7	59.50305	42,762.6	59.36627	(8)	Desert Water Agency (DWA)
0.01011223	0.00735197	0.01011303	0.00734431	0.01011335	0.00734122	0.01026923	0.00751418		
0.00873210		0.00872867		0.00872728		0.00889171			
57,402.4	79.79079	57,206.0	79.46753	57,126.9	79.33734	57,016.2	79.15514	(9)	Mojave Water Agency (MWA)
0.01348282	0.00980262	0.01348388	0.00979241	0.01348430	0.00978828	0.01369217	0.01001892		
0.01164272		0.01163815		0.01163629		0.01185554			
2,566.8	3.56548	2,558.0	3.55100	2,554.5	3.54524	2,549.6	3.53717	(10)	Littlerock Creek Irrigation District (LCID)
0.00060290	0.00043803	0.00060294	0.00043757	0.00060297	0.00043740	0.00061227	0.00044771		
0.00052047		0.00052026		0.00052018		0.00052999			
19,273.8	26.76318	19,207.9	26.65471	19,181.4	26.61109	19,144.3	26.55003	(11)	Palmdale Irrigation District (PID)
0.00452708	0.00328797	0.00452744	0.00328454	0.00452760	0.00328316	0.00459741	0.00336052		
0.00390752		0.00390599		0.00390538		0.00397897			
152,294.4	211.28712	151,774.3	210.43107	151,564.9	210.08642	151,271.7	209.60383	(12)	Antelope Valley – East Kern Water Agency (AVEKWA)
0.03577129	0.02595748	0.03577433	0.02593044	0.03577557	0.02591951	0.03632717	0.02653023		
0.03086439		0.03085238		0.03084754		0.03142870			
29,653.4	41.18949	29,552.0	41.02259	29,511.2	40.95544	29,454.0	40.86129	(13)	Upper Santa Clara Valley Water Agency (USCVWA)
0.00696506	0.00506030	0.00696562	0.00505502	0.00696586	0.00505290	0.00707324	0.00517195		
0.00601268		0.00601032		0.00600938		0.00612259			
22,379.6	31.08651	22,303.1	30.96060	22,272.3	30.90991	22,229.2	30.83897	(14)	Ventura County Flood Control District (VCFCD)
0.00525658	0.00381910	0.00525701	0.00381513	0.00525718	0.00381353	0.00533823	0.00390339		
0.00453784		0.00453607		0.00453535		0.00462081			
144,576.2	263.14711	144,046.3	262.27493	143,832.8	261.92352	143,534.1	261.43187	(15)	Kern County Water Agency – M & I (KCWA-M&I)
0.03395842	0.03232869	0.03395278	0.03231892	0.03395047	0.03231494	0.03446902	0.03309028		
0.03314356		0.03313385		0.03313271		0.03377965			
1,028,292.3	3,045.37792	1,024,523.6	3,039.17490	1,023,005.8	3,036.67669	1,020,881.1	3,033.17958	(16)	Kern County Water Agency – Ag (KCWA-AG)
0.24152786	0.37413707	0.24148780	0.37450335	0.24147155	0.37465143	0.24515966	0.38391934		
0.30783247		0.30799558		0.30806149		0.31453950			
58,218.5	173.00493	58,005.1	172.65369	57,919.2	172.51230	57,798.9	172.31429	(17)	Dudley Ridge Water District (DRWD)
0.01367450	0.02125436	0.01367223	0.02127531	0.01367132	0.02128379	0.01388013	0.02161038		
0.01746443		0.01747377		0.01747755		0.01784525			
110,883.3	329.64564	110,476.9	328.97674	110,313.2	328.70730	49,084.0	146.33279	(18)	Tulare Lake Basin Water Storage District (TLBWSD)
0.02604454	0.04049831	0.02604022	0.04053827	0.02603846	0.04055442	0.01178728	0.01852181		
0.03327143		0.03328925		0.03329644		0.01515455			
8,576.4	25.48601	8,545.0	25.43433	8,532.3	25.41343	8,514.6	25.38430	(19)	Hacienda Water District (HWD)
0.00201444	0.00313106	0.00201412	0.00313415	0.00201397	0.00313539	0.00204474	0.00321297		
0.00257275		0.00257414		0.00257468		0.00262886			
64,749.8	89.95590	64,528.3	89.59133	64,439.1	89.44451	64,314.3	89.23910	(20)	Santa Barbara County Flood Control and Water Conservation District (SBCFC & WCD)
0.01520859	0.01105145	0.01520980	0.01103992	0.01521028	0.01103526	0.01544477	0.01129528		
0.01313002		0.01312486		0.01312277		0.01337002			
27,755.9	38.53142	27,661.0	38.37522	27,622.8	38.31235	27,569.3	38.22430	(21)	San Luis Obispo County Flood Control and Water Conservation District (SLOCFC & WCD)
0.00651937	0.00473374	0.00651990	0.00472880	0.00652012	0.00472680	0.00662063	0.00483817		
0.00562656		0.00562435		0.00562346		0.00572940			
12,909.8	38.23655	12,862.5	38.15870	12,843.4	38.12726	12,816.7	38.08331	(22)	Devil's Den Water District (DDWD)
0.00303229	0.00469752	0.00303179	0.00470212	0.00303157	0.00470397	0.00307787	0.00482033		
0.00386490		0.00386695		0.00386777		0.00394910			
3,021.8	8.98657	3,010.7	8.96830	3,006.2	8.96085			(23)	Empire West Side Irrigation District (EWSID)
0.00070977	0.00110404	0.00070964	0.00110512	0.00070959	0.00110555				
0.00090690		0.00090738		0.00090757					

REACH SUMMARY OF PROPORTIONATE USE OF PROJECT TRANSPORTATION FACILITIES

Table B-4

MINIMUM O.M.P. & R. COMPONENT

South San Joaquin Division

REACH NO 9		REACH NO. 10A		REACH NO 11B		REACH NO. 12D		
QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	
3,793,345.0	6,959.41334	3,521,145.0	6,155.98241	3,390,845.0	5,772.44107	3,381,345.0	5,751.98925	INFLOW TO DOWNSTREAM REACH
-	-	-	-	-	-	-	-	AQUEDUCT BRANCH TURNOUT
47,300.0	141.12247	265,700.0	792.73237	126,400.0	377.12221	3,600.0	10.74082	CONTRACTOR TURNOUT
6,400.0	10.53397	6,500.0	10.69856	3,900.0	6.41913	5,900.0	9.71100	REACH EVAP & SEEPAGE LOSSES
3,847,045.0	7,111.06978	3,793,345.0	6,959.41334	3,521,145.0	6,155.98241	3,390,845.0	5,772.44107	TOTAL, INFLOW FROM UPSTREAM REACH

REACH WATER SUMMARY

REACH PARTICIPATION BY CONTRACTORS

REACH NO 9		REACH NO. 10A		REACH NO 11B		REACH NO. 12D			
2,242,513.5	3,350.05432	2,238,855.5	3,344.03351	2,235,091.6	3,337.83839	2,232,653.4	3,333.82528	(1)	The Metropolitan Water District of Southern California (MWD-SC)
0.58291845	0.47110413	0.59020614	0.48050509	0.63476273	0.54221051	0.65843570	0.57754167		
0.52701129		0.53535561		0.58848662		0.61798869			
111,046.7	154.24202	110,865.4	153.94361	110,678.9	153.63664	110,558.1	153.43781	(2)	San Bernardino Valley Municipal Water District (SBVMWD)
0.02886545	0.02169041	0.02922629	0.02212020	0.03143264	0.02495729	0.03260488	0.02658110		
0.02527793		0.02567324		0.02819497		0.02959299			
13,030.5	18.09980	13,009.2	18.06474	12,987.3	18.02869	12,973.1	18.00532	(3)	City of West Covina (WC)
0.00338715	0.00254530	0.00342948	0.00259573	0.00368837	0.00292865	0.00382592	0.00311919		
0.00296622		0.00301260		0.00330851		0.00347255			
32,633.9	45.32788	32,580.6	45.24015	32,525.8	45.14995	32,490.3	45.09152	(4)	San Gabriel Valley Municipal Water District (SGVMWD)
0.00848285	0.00637427	0.00858888	0.00650057	0.00923728	0.00733432	0.00958177	0.00781152		
0.00742856		0.00754473		0.00828580		0.00869664			
19,603.7	27.22854	19,571.7	27.17587	19,538.8	27.12172	19,517.5	27.08666	(5)	San Gorgonio Pass Water Agency (SGPWA)
0.00509578	0.00382904	0.00515948	0.00390491	0.00554899	0.00440575	0.00575594	0.00469241		
0.00446241		0.00453220		0.00497737		0.00522417			
6,571.9	9.12823	6,561.2	9.11062	6,550.2	9.09251	6,543.0	9.08066	(6)	Crestline – Lake Arrowhead Water Agency (C-LAWA)
0.00170830	0.00128366	0.00172966	0.00130911	0.00186025	0.00147702	0.00192961	0.00157311		
0.00149598		0.00151938		0.00166863		0.00175136			
25,884.7	35.92553	25,842.5	35.85607	25,799.1	35.78464	25,771.0	35.73839	(7)	Coachella Valley County Water District (CVCWD)
0.00672846	0.00505206	0.00681259	0.00515217	0.00732691	0.00581299	0.00760017	0.00619121		
0.00589026		0.00598238		0.00656995		0.00689569			
42,694.3	59.25385	42,624.7	59.13929	42,553.0	59.02128	42,506.6	58.94491	(8)	Desert Water Agency (DWA)
0.01109795	0.00833262	0.01123671	0.00849774	0.01208499	0.00958763	0.01253570	0.01021144		
0.00971529		0.00986722		0.01083631		0.01137357			
56,925.1	79.00520	56,832.3	78.85246	56,736.8	78.69527	56,674.9	78.59339	(9)	Mojave Water Agency (MWA)
0.01479710	0.01111017	0.01498211	0.01133033	0.01611317	0.01278354	0.01671409	0.01361528		
0.01295363		0.01315622		0.01444836		0.01516469			
2,545.5	3.53042	2,541.4	3.52367	2,537.1	3.51659	2,534.3	3.51198	(10)	Littlerock Creek Irrigation District (LCID)
0.00066168	0.00049647	0.00066996	0.00050632	0.00072053	0.00057125	0.00074739	0.00060840		
0.00057907		0.00058814		0.00064589		0.00067790			
19,113.7	26.49966	19,082.6	26.44847	19,050.6	26.39580	19,029.8	26.36156	(11)	Palmdale Irrigation District (PID)
0.00496841	0.00372654	0.00503055	0.00380039	0.00541034	0.00428783	0.00561211	0.00456679		
0.00434747		0.00441547		0.00484909		0.00508945			
151,030.5	209.20683	150,784.6	208.80209	150,531.6	208.38568	150,367.7	208.11591	(12)	Antelope Valley – East Kern Water Agency (AVEKWA)
0.03925883	0.02941988	0.03974977	0.03000283	0.04275075	0.03385092	0.04434520	0.03605336		
0.03433936		0.03487630		0.03830084		0.04019928			
29,407.0	40.78393	29,359.1	40.70509	29,309.8	40.62395	29,277.9	40.57144	(13)	Upper Santa Clara Valley Water Agency (USCVWA)
0.00764405	0.00573527	0.00773963	0.00584892	0.00832394	0.00659910	0.00863440	0.00702847		
0.00668966		0.00679428		0.00746152		0.00783143			
22,193.7	30.78054	22,157.5	30.72096	22,120.3	30.65973	22,096.2	30.62006	(14)	Ventura County Flood Control District (VCFCD)
0.00576902	0.00432854	0.00584115	0.00441430	0.00628213	0.00498048	0.00651643	0.00530452		
0.00504878		0.00512773		0.00563130		0.00591048			
143,288.4	261.02746	143,037.9	260.61515	142,780.2	260.19098	142,613.3	259.91628	(15)	Kern County Water Agency – M & I (KCWA-M&I)
0.03724635	0.03670720	0.03770759	0.03744786	0.04054937	0.04226636	0.04205834	0.04502710		
0.03697678		0.03757773		0.04140786		0.04354272			
928,561.9	2,760.97557	879,638.8	2,617.18159	612,353.9	1,821.84059	485,237.9	1,443.53990	(16)	Kern County Water Agency – Ag (KCWA-AG)
0.24137017	0.38826444	0.23189001	0.37606353	0.17390761	0.29594636	0.14310235	0.25007443		
0.31481731		0.30397677		0.23492698		0.19658839			

REACH SUMMARY OF PROPORTIONATE USE OF PROJECT TRANSPORTATION FACILITIES

MINIMUM O.M.P. & R. COMPONENT

South San Joaquin Division

REACH NO 12E		REACH NO 13B		REACH NO 14A		REACH NO 14B			
QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)		
3,085,945.0	4,991.48801	3,023,945.0	4,843.00475	3,002,545.0	4,785.97842	2,966,445.0	4,682.95355	INFLOW TO DOWNSTREAM REACH	REACH WATER SUMMARY
-	-	-	-	-	-	-	-	AQUEDUCT BRANCH TURNOUT	
291,800.0	754.57590	56,400.0	139.26604	16,300.0	48.63207	32,600.0	97.26411	CONTRACTOR TURNOUT	
3,600.0	5.92534	5,600.0	9.21722	5,100.0	3.39426	3,500.0	5.76076	REACH EVAP & SEEPAGE LOSSES	
3,381,345.0	5,751.98925	3,085,945.0	4,991.48801	3,023,945.0	4,843.00475	3,002,545.0	4,785.97842	TOTAL, INFLOW FROM UPSTREAM REACH	
2,228,819.1 0.65915164 0.61882482	3,327.51426 0.57849800	2,226,477.2 0.77148959 0.69367755	3,323.65968 0.66586550	2,222,467.6 0.73495636 0.70993708	3,317.06015 0.68491780	2,218,743.3 0.73895422 0.71537610	3,310.93021 0.69179798	(1) The Metropolitan Water District of Southern California (MWD-SC)	REACH PARTICIPATION BY CONTRACTORS
110,368.1 0.03264030 0.02963077	153.12506 0.02662124	110,252.0 0.03572715 0.03318305	152.93399 0.03063896	110,093.3 0.03639395 0.03395237	152.60694 0.03151080	109,868.7 0.03159186 0.03420732	152.30310 0.03182277	(2) San Bernardino Valley Municipal Water District (SBVMWD)	
12,950.8 0.00383007 0.00347699	17.96862 0.00312390	12,937.2 0.00419230 0.00389383	17.94624 0.00359537	12,913.9 0.00427055 0.00398411	17.90789 0.00369768	12,892.2 0.00429376 0.00401402	17.87217 0.00373428	(3) City of West Covina (WC)	
32,434.5 0.00959219 0.00870776	44.99966 0.00782333	32,400.4 0.01049935 0.00975169	44.94355 0.00900404	32,342.0 0.01069530 0.00997777	44.84743 0.00926025	32,287.8 0.01075348 0.01005271	44.75822 0.00935195	(4) San Gabriel Valley Municipal Water District (SGVMWD)	
19,484.0 0.00576220 0.00523086	27.03152 0.00469951	19,463.5 0.00630714 0.00585795	26.99778 0.00540876	19,428.4 0.00642485 0.00599376	26.94001 0.00556266	19,395.8 0.00645979 0.00603876	26.88635 0.00561773	(5) San Gorgonio Pass Water Agency (SGPWA)	
6,531.8 0.00193172 0.00175361	9.06223 0.00157545	6,524.9 0.00211439 0.00196383	9.05087 0.00181326	6,513.1 0.00215384 0.00200934	9.03145 0.00186484	6,502.2 0.00216556 0.00202444	9.01351 0.00188332	(6) Crestline – Lake Arrowhead Water Agency (C-LAWA)	
25,726.7 0.00760842 0.00690448	35.66548 0.00620055	25,699.7 0.00832798 0.00773217	35.62104 0.00713636	25,653.4 0.00848342 0.00791142	35.54483 0.00733942	25,610.4 0.00852956 0.00797082	35.47405 0.00741208	(7) Coachella Valley County Water District (CVCWD)	
42,433.6 0.01254932 0.01138809	58.82476 0.01022685	42,389.0 0.01373615 0.01275323	58.75135 0.01177031	42,312.7 0.01399255 0.01304890	58.62577 0.01210525	42,241.8 0.01406867 0.01314688	58.50907 0.01222510	(8) Desert Water Agency (DWA)	
56,577.6 0.01673228 0.01518406	78.43324 0.01363585	56,518.2 0.01831471 0.01700426	78.33547 0.01569381	56,416.4 0.01865656 0.01739847	78.16791 0.01614037	56,321.9 0.01875805 0.01752912	78.01237 0.01630019	(9) Mojave Water Agency (MWA)	
2,530.0 0.00074822 0.00067878	3.50490 0.00060934	2,527.3 0.00081897 0.00076013	3.50046 0.00070129	2,522.8 0.00083427 0.00077777	3.49305 0.00072126	2,518.6 0.00083882 0.00078362	3.48614 0.00072841	(10) Littlerock Creek Irrigation District (LCID)	
18,997.2 0.00561824 0.00509597	26.30790 0.00457370	18,977.3 0.00614959 0.00570679	26.27515 0.00526399	18,943.2 0.00626440 0.00583910	26.21902 0.00541379	18,911.5 0.00629849 0.00588294	26.16684 0.00546740	(11) Palmdale Irrigation District (PID)	
150,110.0 0.04439358 0.04025069	207.69175 0.03610781	149,952.6 0.04859212 0.04507470	207.43268 0.04155728	149,683.1 0.04949928 0.04611954	206.98910 0.04273981	149,432.8 0.04976871 0.04646585	206.57712 0.04316298	(12) Antelope Valley – East Kern Water Agency (AVEKWA)	
29,227.7 0.00864381 0.00784145	40.48881 0.00703910	29,197.0 0.00946128 0.00878137	40.43828 0.00810145	29,144.5 0.00963791 0.00898495	40.35187 0.00833199	29,095.7 0.00969035 0.00905242	40.27155 0.00841449	(13) Upper Santa Clara Valley Water Agency (USCVWA)	
22,058.3 0.00652353 0.00591803	30.55768 0.00531254	22,035.1 0.00714047 0.00662739	30.51949 0.00611431	21,995.4 0.00727374 0.00678101	30.45415 0.00628828	21,958.6 0.00731333 0.00683194	30.39358 0.00635055	(14) Ventura County Flood Control District (VCFCD)	
142,350.9 0.04209890 0.04360551	259.48439 0.04511211	42,190.5 0.01367183 0.01453819	76.89162 0.01540455	17,109.0 0.00565784 0.00604751	31.17529 0.00643718	17,078.3 0.00568794 0.00609563	31.12476 0.00650332	(15) Kern County Water Agency – M & I (KCWA-M&I)	
480,744.7 0.14217558 0.19550813	1,431.32893 0.24884068	288,403.1 0.09345698 0.13269387	858.19036 0.17193076	256,446.2 0.08480518 0.12123690	763.58989 0.15766862	239,685.4 0.07982741 0.11452743	714.19938 0.14922745	(16) Kern County Water Agency – Ag (KCWA-AG)	

REACH SUMMARY OF PROPORTIONATE USE OF PROJECT TRANSPORTATION FACILITIES

MINIMUM O.M.P. & R. COMPONENT

South San Joaquin Division						Tehachapi Division		
REACH NO. 14C		REACH NO 15		REACH NO 16		REACH NO. 17C		
QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	
2,865,945.0	4,386.98471	2,824,745.0	4,265.26583	2,739,045.0	4,030.45354	2,734,045.0	4,021.33710	INFLOW TO DOWNSTREAM REACH
-	-	-	-	-	-	-	-	AQUEDUCT BRANCH TURNOUT
97,600.0	291.19563	40,300.0	120.23754	80,500.0	226.25344	5,000.0	9.11644	CONTRACTOR TURNOUT
2,900.0	4.77321	900.0	1.48134	5,200.0	8.55885	0	0	REACH EVAP & SEEPAGE LOSSES
2,966,445.0	4,682.95355	2,865,945.0	4,386.98471	2,824,745.0	4,265.26583	2,739,045.0	4,030.45354	TOTAL, INFLOW FROM UPSTREAM REACH

REACH WATER SUMMARY

REACH PARTICIPATION BY CONTRACTORS

2,216,172.7 0.74708033 0.72659718	3,306.69917 0.70611402	2,214,017.7 0.77252624 0.76273493	3,303.15218 0.75294363	2,213,324.6 0.78354846 0.77885578	3,302.01138 0.77416309	2,209,258.7 0.80657992 0.81209249	3,295.31918 0.81760505	(1) The Metropolitan Water District of Southern California (MWD-SC)
109,741.3 0.03699421 0.03473615	152.09341 0.03247810	109,634.5 0.03825422 0.03644169	151.91762 0.03462917	109,600.2 0.03880003 0.03720209	151.86116 0.03560415	109,398.7 0.03994046 0.03876830	151.52950 0.03759614	(2) San Bernardino Valley Municipal Water District (SBVMWD)
12,877.3 0.00434099 0.00407609	17.84765 0.00381120	12,864.8 0.00448885 0.00427624	17.82708 0.00406363	12,860.8 0.00455291 0.00436548	17.82050 0.00417805	12,837.2 0.00468674 0.00454928	17.78166 0.00441183	(3) City of West Covina (WC)
32,250.4 0.01087173 0.01020814	44.69666 0.00954455	32,219.0 0.01124202 0.01070935	44.64498 0.01017669	32,208.9 0.01140241 0.01093281	44.62836 0.01046321	32,149.7 0.01173756 0.01139309	44.53092 0.01104861	(4) San Gabriel Valley Municipal Water District (SGVMWD)
19,373.3 0.00653081 0.00613211	26.84932 0.00573342	19,354.4 0.00675324 0.00643318	26.81821 0.00611313	19,348.3 0.00684957 0.00656740	26.80817 0.00628523	19,312.7 0.00705089 0.00684388	26.74957 0.00663687	(5) San Gorgonio Pass Water Agency (SGPWA)
6,494.7 0.00218939 0.00205575	9.00117 0.00192211	6,488.4 0.00226396 0.00215670	8.99080 0.00204943	6,486.4 0.00229628 0.00220171	8.98751 0.00210714	6,474.5 0.00236378 0.00229441	8.96792 0.00222504	(6) Crestline - Lake Arrowhead Water Agency (C-LAWA)
25,580.7 0.00862335 0.00809403	35.42517 0.00756471	25,555.8 0.00891706 0.00849139	35.38419 0.00806572	25,547.8 0.00904429 0.00866855	35.37102 0.00829281	25,500.9 0.00931014 0.00903347	35.29383 0.00875679	(7) Coachella Valley County Water District (CVCWD)
42,192.9 0.01422339 0.01335013	58.42858 0.01247686	42,151.9 0.01470785 0.01400555	58.36110 0.01330324	42,138.7 0.01491770 0.01429774	58.33937 0.01367778	42,061.3 0.01535619 0.01489961	58.21197 0.01444303	(8) Desert Water Agency (DWA)
56,256.6 0.01896432 0.01780008	77.90489 0.01663584	56,201.9 0.01961025 0.01867396	77.81486 0.01773766	56,184.3 0.01989004 0.01906355	77.78589 0.01823706	56,081.1 0.02047469 0.01986604	77.61603 0.01925739	(9) Mojave Water Agency (MWA)
2,515.7 0.00084805 0.00079573	3.48137 0.00074341	2,513.3 0.00087695 0.00083481	3.47742 0.00079267	2,512.5 0.00088946 0.00085222	3.47610 0.00081498	2,507.9 0.00091561 0.00088809	3.46853 0.00086058	(10) Littlerock Creek Irrigation District (LCID)
18,889.6 0.00636776 0.00597387	26.13079 0.00557998	18,871.3 0.00658467 0.00626712	26.10067 0.00594957	18,865.4 0.00667862 0.00639785	26.09096 0.00611708	18,830.8 0.00687495 0.00666714	26.03401 0.00645933	(11) Palmdale Irrigation District (PID)
149,260.0 0.05031612 0.04718398	206.29271 0.04405184	149,115.2 0.05203003 0.04949975	206.05437 0.04696947	149,068.6 0.05277241 0.05053214	205.97768 0.04829187	148,795.3 0.05432379 0.05265876	205.52785 0.05099373	(12) Antelope Valley—East Kern Water Agency (AVEKWA)
29,062.0 0.00979691 0.00919234	40.21608 0.00858776	29,033.8 0.01013062 0.00964359	40.16966 0.00915655	29,024.7 0.01027516 0.00984475	40.15468 0.00941434	28,971.4 0.01057719 0.01025912	40.06695 0.00994105	(13) Upper Santa Clara Valley Water Agency (USCVWA)
21,933.2 0.00739377 0.00693755	30.35177 0.00648133	21,911.9 0.00764561 0.00727811	30.31671 0.00691060	21,905.0 0.00775468 0.00742991	30.30535 0.00710515	21,864.8 0.00798264 0.00774265	30.23918 0.00750267	(14) Ventura County Flood Control District (VCFCD)
17,057.1 0.00575001 0.00619448	31.08987 0.00663894	17,039.3 0.00594544 0.00651280	31.06057 0.00708016	17,033.6 0.00603014 0.00665507	31.05119 0.00728001	5,000.0 0.00182545 0.00204367	9.11644 0.00226189	(15) Kern County Water Agency — M & I (KCWA-M&I)
206,787.5 0.06970886 0.10067239	616.44494 0.13163593	108,971.8 0.03802299 0.05604083	324.89429 0.07405868	68,635.2 0.02429784 0.03613295	204.59651 0.04796805			(16) Kern County Water Agency-Ag (KCWA-AG)

REACH SUMMARY OF PROPORTIONATE USE OF PROJECT TRANSPORTATION FACILITIES

MINIMUM O.M.P. & R. COMPONENT

Tehachapi Division		East Branch Division							
REACH NO 17D		REACH NO. 18A		REACH NO 19		REACH NO. 20			
QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)		
943,751.0	1,414.88936	942,651.0	1,413.46572	938,851.0	1,408.54769	913,453.0	1,374.05869	INFLOW TO DOWNSTREAM REACH	REACH WATER SUMMARY
1,665,313.0	2,551.19882	-	-	-	-	-	-	AQUEDUCT BRANCH TURNOUT	
114,600.0	158.29452	-	-	-	-	17,300.0	23.89612	CONTRACTOR TURNOUT	
0	0	1,100.0	1.51941	3,800.0	5.24886	6,800.0	9.39269	REACH EVAP & SEEPAGE LOSSES	
-	-109.92768 1/	-	-0.19509	-	-0.67394	-	-1.20603	COMPENSATING REGULATORY CAP 3/	
10,381.0	6.88208 2/	0	0.09932	0	0.34311	1,298.0	2.40622	CHANGE IN RESERVE CAPACITY	
2,734,045.0	4,021.33710	943,751.0	1,414.88936	942,651.0	1,413.46572	938,851.0	1,408.54769	TOTAL, INFLOW FROM UPSTREAM REACH	

							REACH PARTICIPATION BY CONTRACTORS
2,209,258.7 0.80805499 0.81375678	3,295.31918 0.81945858	618,596.2 0.65546548 0.63088082	857.84197 0.60629615	617,874.8 0.65546506 0.63085567	856.90832 0.60624627	615,382.7 0.65546365 0.63076842	853.68300 0.60607320	(1)	The Metropolitan Water District of Southern California (MWD-SC)
109,398.7 0.04001350 0.03884744	151.52950 0.03768137	109,398.7 0.11591903 0.11150769	151.52950 0.10709636	109,271.3 0.11591915 0.11150336	151.36462 0.10708758	108,831.1 0.11591946 0.11148824	150.79491 0.10705701	(2)	San Bernardino Valley Municipal Water District (SBVMWD)
12,837.2 0.00469531 0.00455857	17.78166 0.00442183	12,837.2 0.01360232 0.01308492	17.78166 0.01256753	12,822.2 0.01360228 0.01308436	17.76225 0.01256645	12,770.5 0.01360226 0.01308255	17.69534 0.01256283	(3)	City of West Covina (WC)
32,149.7 0.01175902 0.01141634	44.53092 0.01107366	32,149.7 0.03406587 0.03276947	44.53092 0.03147307	32,112.3 0.03406595 0.03276824	44.48252 0.03147053	31,982.9 0.03406600 0.03276376	44.31505 0.03146152	(4)	San Gabriel Valley Municipal Water District (SGVMWD)
19,312.7 0.00706378 0.00685785	26.74957 0.00665191	19,312.7 0.02046377 0.01968477	26.74957 0.01890577	19,290.2 0.02046378 0.01968399	26.72045 0.01890421	19,212.5 0.02046384 0.01968133	26.61989 0.01889882	(5)	San Gorgonio Pass Water Agency (SGPWA)
6,474.5 0.00236810 0.00229909	8.96792 0.00223008	6,474.5 0.00686039 0.00659932	8.96792 0.00633825	6,467.0 0.00686044 0.00659910	8.95821 0.00633776	6,440.9 0.00686041 0.00659816	8.92443 0.00633591	(6)	Crestline – Lake Arrowhead Water Agency (C-LAWA)
25,500.9 0.00932717 0.00905190	35.29383 0.00877664	25,500.9 0.02702079 0.02598269	35.29383 0.02494458	25,471.2 0.02702082 0.02598167	35.25539 0.02494252	25,368.7 0.02702101 0.02597821	35.12273 0.02493542	(7)	Coachella Valley County Water District (CVCWD)
42,061.3 0.01538428 0.01493003	58.21197 0.01447578	42,061.3 0.04456822 0.04285532	58.21197 0.04114242	42,012.3 0.04456824 0.04285362	58.14655 0.04113899	41,843.2 0.04456852 0.04284789	57.92970 0.04112725	(8)	Desert Water Agency (DWA)
56,081.1 0.02051214 0.01990659	77.61603 0.01930105	56,081.1 0.05942362 0.05714011	77.61603 0.05485661	56,015.8 0.05942369 0.05713788	77.53152 0.05485207	55,790.3 0.05942402 0.05713020	77.23967 0.05483639	(9)	Mojave Water Agency (MWA)
2,507.9 0.00091729 0.00088991	3.46853 0.00086253	2,507.9 0.00265737 0.00255441	3.46853 0.00245145	2,505.0 0.00265740 0.00255433	3.46477 0.00245126	2,494.9 0.00265740 0.00255397	3.45170 0.00245054	(10)	Littlerock Creek Irrigation District (LCID)
18,830.8 0.00688752 0.00668075	26.03401 0.00647397	18,830.8 0.01995314 0.01917659	26.03401 0.01840003	18,808.9 0.01995319 0.01917586	26.00567 0.01839851	18,733.3 0.01995343 0.01917336	25.90782 0.01839329	(11)	Palmdale Irrigation District (PID)
148,795.3 0.05442313 0.05276623	205.52785 0.05110933	0.0 0.00000000 0.03776389	106.86345 0.07552778	0.0 0.00000000 0.03780192	106.86345 0.07560385	0.0 0.00000000 0.03793391	106.86345 0.07586782	(12)	Antelope Valley – East Kern Water Agency (AVEKWA)
28,971.4 0.01059653 0.01028006	40.06695 0.00996359							(13)	Upper Santa Clara Valley Water Agency (USCVWA)
21,864.8 0.00799724 0.00775846	30.23918 0.00751968							(14)	Ventura County Flood Control District (VCFCD)

1/ Compensating Regulatory Capacity for AVEKWA.

2/ Change due to Reserve Capacity reduction associated with the change in AVEKWA's Compensating Regulatory Capacity and the addition of Reserve Capacity for AVEKWA's Maximum Annual Entitlement.

3/ Change in Compensating Regulatory Capacity.

REACH SUMMARY OF PROPORTIONATE USE OF PROJECT TRANSPORTATION FACILITIES

Table B-4

MINIMUM O.M.P. & R. COMPONENT

East Branch Division

REACH NO. 21		REACH NO 22A		REACH NO 22B		REACH NO 23		
QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	
909,181.0	1,368.31391	908,481.0	1,367.40794	777,781.0	1,354.07751	777,781.0	1,354.07751	INFLOW TO DOWNSTREAM REACH
-	-	-	-	-	-	-	-	AQUEDUCT BRANCH TURNOUT
2,300.0	3.17694	-	-	112,000.0	154.70320	-	-	CONTRACTOR TURNOUT
1,800.0	2.48630	700.0	0.96689	10,300.0	14.22717	0	0	REACH EVAP & SEEPAGE LOSSES
-	-0.31926	-	-0.12413	-	-156.52997	-	0	COMPENSATING REGULATORY CAP 3/
172.0	0.40080	0	0.06321	8,400.0	0.93003	0	0	CHANGE IN RESERVE CAPACITY
913,453.0	1,374.05869	909,181.0	1,368.31391	908,481.0	1,367.40794	777,781.0	1,354.07751	TOTAL, INFLOW FROM UPSTREAM REACH

REACH WATER SUMMARY

REACH PARTICIPATION BY CONTRACTORS

610,923.0 0.66880617 0.64294565	847.91118 0.61708513	609,718.7 0.67062411 0.64458047	846.35256 0.61853684	609,249.0 0.67062382 0.64456296	845.74467 0.61850209	602,338.0 0.77443136 0.69620846	836.80034 0.61798556	(1) The Metropolitan Water District of Southern California (MWD-SC)
108,043.3 0.11828009 0.11364111	149.77533 0.10900213	107,830.5 0.11860180 0.11393015	149.49992 0.10925850	107,747.5 0.11860182 0.11392707	149.39250 0.10925233	106,526.8 0.13696246 0.12306180	147.81265 0.10916115	(2) San Bernardino Valley Municipal Water District (SBVMWD)
12,678.1 0.01387931 0.01333522	17.57576 0.01279113	12,653.1 0.01391703 0.01336911	17.54341 0.01282119	12,643.4 0.01391708 0.01336879	17.53086 0.01282051	12,500.1 0.01607149 0.01444062	17.34540 0.01280975	(3) City of West Covina (WC)
31,751.4 0.03475975 0.03339646	44.01544 0.03203316	31,688.9 0.03485434 0.03348144	43.93456 0.03210854	31,664.5 0.03485433 0.03348053	43.90298 0.03210672	31,305.8 0.04025015 0.03616505	43.43875 0.03207996	(4) San Gabriel Valley Municipal Water District (SGVMWD)
19,073.4 0.02088055 0.02006136	26.43986 0.01924216	19,035.8 0.02093731 0.02011235	26.39120 0.01928739	19,021.2 0.02093737 0.02011186	26.37230 0.01928634	18,805.1 0.02417866 0.02172445	26.09340 0.01927024	(5) San Gorgonio Pass Water Agency (SGPWA)
6,394.3 0.00700014 0.00672559	8.86411 0.00645104	6,381.7 0.00701917 0.00674269	8.84780 0.00646621	6,376.8 0.00701919 0.00674252	8.84145 0.00646585	6,304.6 0.00810588 0.00728319	8.74801 0.00646049	(6) Crestline – Lake Arrowhead Water Agency (C-LAWA)
25,185.2 0.02757142 0.02647995	34.88525 0.02538847	25,135.6 0.02764642 0.02654728	34.82106 0.02544815	25,116.3 0.02764648 0.02654661	34.79608 0.02544674	0.0 0.00000000 0.01271276	34.42813 0.02542552	(7) Coachella Valley County Water District (CVCWD)
41,540.6 0.04547645 0.04367549	57.53807 0.04187454	41,458.9 0.04560027 0.04378667	57.43234 0.04197307	41,427.0 0.04560029 0.04378549	57.39105 0.04197069	0.0 0.00000000 0.02096780	56.78406 0.04193561	(8) Desert Water Agency (DWA)
55,386.8 0.06063454 0.05823363	76.71745 0.05583273	55,277.8 0.06079955 0.05838180	76.57638 0.05596404	55,235.3 0.06079962 0.05838025	76.52137 0.05596089	0.0 0.00000000 0.02795708	75.71209 0.05591415	(9) Mojave Water Agency (MWA)
2,476.9 0.00271158 0.00260333	3.42840 0.00249509	0.0 0.00000000 0.00000250	0.00684 0.00000500	0.0 0.00000000 0.00000250	0.00684 0.00000500	0.0 0.00000000 0.00000253	0.00684 0.00000505	(10) Littlerock Creek Irrigation District (LCID)
0.0 0.00000000 0.00001615	0.04439 0.00003231	0.0 0.00000000 0.00001622	0.04439 0.00003244	0.0 0.00000000 0.00001623	0.04439 0.00003246	0.0 0.00000000 0.00001639	0.04439 0.00003278	(11) Palmdale Irrigation District (PID)
0.0 0.00000000 0.03888606	106.86345 0.07777211	0.0 0.00000000 0.03904932	106.86345 0.07809863	0.0 0.00000000 0.03907519	106.86345 0.07815038	0.0 0.00000000 0.03945987	106.86345 0.07891974	(12) Antelope Valley – East Kern Water Agency (AVEKWA)

3/ Change in Compensating Regulatory Capacity.

REACH SUMMARY OF PROPORTIONATE USE OF PROJECT TRANSPORTATION FACILITIES

Table B-4

MINIMUM O.M.P. & R. COMPONENT

East Branch Division

REACH NO 24		REACH NO 25		REACH NO 26		REACH NO 27		
QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (AF)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	
730,838.0	-	713,538.0	1,161.50680	713,538.0	1,161.50680	400,738.0	597.86226	INFLOW TO DOWNSTREAM REACH
-	-	-	-	-	-	-	-	AQUEDUCT BRANCH TURNOUT
5,800.0	173,004 4/	17,300.0	31.54288	-	-	312,800.0	563.64454	CONTRACTOR TURNOUT
8,600.0	3,996 5/	0	0	0	0	0	0	REACH EVAP & SEEPAGE LOSSES
-	-	-	-	-	-	-	-	COMPENSATING REGULATORY CAP 3/
32,543.0	-	0	0	0	0	0	0	CHANGE IN RESERVE CAPACITY
777,781.0	177,000	730,838.0	1,193.04968	713,538.0	1,161.50680	713,538.0	1,161.50680	TOTAL, INFLOW FROM UPSTREAM REACH
602,338.0 0.77443136 0.68104359	104.008 0.58761582	575,238.0 0.78709372 0.77744788	916.02597 0.76780203	575,238.0 0.80617711 0.79741512	916.02597 0.78865313	575,238.0 0.80617711 0.79741512	916.02597 0.78865313	1 The Metropolitan Water District of Southern California (MWD-SC)
106,526.8 0.13696246 0.16049535	32.573 0.18402825	98,000.0 0.13409264 0.14193097	178.68220 0.14976929	98,000.0 0.13734377 0.14559016	178.68220 0.15383655	98,000.0 0.13734377 0.14559016	178.68220 0.15383655	2 San Bernardino Valley Municipal Water District (SBVMWD)
12,500.1 0.01607149 0.01336343	1.886 0.01065537	11,500.0 0.01573536 0.01585630	19.06164 0.01597724	11,500.0 0.01611687 0.01626400	19.06164 0.01641113	11,500.0 0.01611687 0.01626400	19.06164 0.01641113	3 City of West Covina (WC)
31,305.8 0.04025015 0.03346971	4.724 0.02668926	28,800.0 0.03940682 0.03970969	47.73699 0.04001258	28,800.0 0.04036225 0.04073072	47.73699 0.04109919	28,800.0 0.04036225 0.04073072	47.73699 0.04109919	4 San Gabriel Valley Municipal Water District (SGVMWD)
18,805.7 0.02417866 0.02181249	3.442 0.01944633	17,300.0 0.02367146 0.02505516	31.54288 0.02643886					5 San Gorgonio Pass Water Agency (SGPWA)
6,304.6 0.00810588 0.00949927	1.928 0.01089265							6 Crestline – Lake Arrowhead Water Agency (C-LAWA)
0.0 0.00000000 0.00745763	2.640 0.01491525							7 Coachella Valley County Water District (CVCWD)
0.0 0.00000000 0.01230226	4.355 0.02460452							8 Desert Water Agency (DWA)
0.0 0.00000000 0.01640678	5.808 0.03281356							9 Mojave Water Agency (MWA)
0.0 0.00000000 0.00000565	2 0.00001130							10 Littlerock Creek Irrigation District (LCID)
0.0 0.00000000 0.00003390	12 0.00006780							11 Palmdale Irrigation District (PID)
0.0 0.00000000 0.04412994	15.622 0.08825989							12 Antelope Valley—East Kern Water Agency (AVEKWA)

REACH WATER SUMMARY

REACH PARTICIPATION BY CONTRACTORS

3/ Change in Compensating Regulatory Capacity.

4/ Regulatory and Emergency Storage Capacity in Acre-feet.

5/ Regulatory Storage Capacity in acre-feet.

REACH SUMMARY OF PROPORTIONATE USE OF PROJECT TRANSPORTATION FACILITIES

MINIMUM O.M.P. & R. COMPONENT

East Branch Division

	REACH NO 28A		REACH NO 28B		REACH NO. 28C	
	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (AF)
INFLOW TO DOWNSTREAM REACH	302,738.0	419.18006	302,738.0	419.18006	-	-
AQUEDUCT BRANCH TURNOUT	-	-	-	-	-	-
CONTRACTOR TURNOUT	98,000.0	178.68220	-	-	272,500.0	95,999 4/
REACH EVAP & SEEPAGE LOSSES	0	0	0	0	9,800.0	3,001 5/
COMPENSATING REGULATORY CAP 3/	-	-	-	-	-	-
CHANGE IN RESERVE CAPACITY	0	0	0	0	20,438.0	-
TOTAL, INFLOW FROM UPSTREAM REACH	400,738.0	597.86226	302,738.0	419.18006	302,738.0	99,000

REACH WATER SUMMARY

302,738.0	419.18006	302,738.0	419.18006	302,738.0	99,000
0.75545119	0.70113150	1.00000000	1.00000000	1.00000000	1.00000000
0.72829134		1.00000000		1.00000000	
98,000.0	178.68220				
0.24454881	0.29886850				
0.27170866					

REACH PARTICIPATION BY CONTRACTORS

(1) The Metropolitan Water District of Southern California (MWD-SC)

(2) San Bernardino Valley Municipal Water District (SBVMWD)

3/ Change in Compensating Regulatory Capacity.

4/ Regulatory and Emergency Storage Capacity in Acre-feet.

5/ Regulatory Storage Capacity in acre-feet.

REACH SUMMARY OF PROPORTIONATE USE OF PROJECT TRANSPORTATION FACILITIES

Table B-4

MINIMUM O.M.P. & R. COMPONENT

West Branch Division

REACH NO 29A		REACH NO 29B		REACH NO 29C		REACH NO 29D		
QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (AF)	
1,645,113.0	3,086,31295	1,638,513.0	3,075,60193	1,637,213.0	3,073.09962	1,630,313.0	-	INFLOW TO DOWNSTREAM REACH
-	-	-	-	-	-	-	-	AQUEDUCT BRANCH TURNOUT
19,700.0	35.91877	4,100.0	7.47548	-	-	-	136,872 4/	CONTRACTOR TURNOUT
500.0	0.69064	2,500.0	3.45320	1,300.0	1.79566	6,900.0	2,328 5/	REACH EVAP & SEEPAGE LOSSES
-	-0.08868	-	-0.44339	-	0.53207	-	-	COMPENSATING REGULATORY CAP 3/
0	0.04514	0	0.22573	0	0.17458	-	-	CHANGE IN RESERVE CAPACITY
1,665,313.0	3,122.87882	1,645,113.0	3,086.31295	1,638,513.0	3,075.60193	1,637,213.0	139,200	TOTAL, INFLOW FROM UPSTREAM REACH
1,590,662.5 0.95517329 0.96358437 0.95937883	3,009.15721	1,590,185.4 0.96661166 0.97480061 0.97070613	3,008.53974	1,587,769.3 0.96903064 0.97717873 0.97310468	3,005.41278	1,586,509.6 0.96903067 0.97401580 0.97152324	135,583	(1) The Metropolitan Water District of Southern California (MWD-SC)
23,814.3 0.01430020 0.01390239 0.01410129	43.41548	4,106.7 0.00249630 0.00242583 0.00246107	7.48688	0.0 0.00000000 0.00000089 0.00000044	0.00273	0.0 0.00000000 0.00000718 0.00000359	1	(12) Antelope Valley—East Kern Water Agency (AVEKWA)
28,971.4 0.01739697 0.01283013 0.01511355	40.06695	28,962.7 0.01760529 0.01297849 0.01529189	40.05569	28,918.7 0.01764936 0.01300518 0.01532727	39.99875	28,895.7 0.01764932 0.01762213 0.01763572	2.453	(13) Upper Santa Clara Valley Water Agency (USCVWA)
21,864.8 0.01312954 0.00968311 0.01140633	30.23918	21,858.2 0.01328675 0.00979507 0.01154091	30.23064	21,825.0 0.01332000 0.00981520 0.01156761	30.18767	21,807.7 0.01332001 0.00835489 0.01083745	1.163	(14) Ventura County Flood Control District (VCFCD)

REACH WATER SUMMARY

REACH PARTICIPATION BY CONTRACTORS

West Branch Division

REACH NO. 29E		REACH NO. 30		
QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (AF)	
1,630,213.0	3,062.70549	-	-	INFLOW TO DOWNSTREAM REACH
-	-	-	-	AQUEDUCT BRANCH TURNOUT
-	-	1,501,500.0	329,065 4/	CONTRACTOR TURNOUT
100.0	0.13812	16,100.0	4,935 5/	REACH EVAP & SEEPAGE LOSSES
-	-	-	-	COMPENSATING REGULATORY CAP 3/
0	0.01036	112,613.0	-	CHANGE IN RESERVE CAPACITY
1,630,313.0	3,062.85397	1,630,213.0	334,000	TOTAL, INFLOW FROM UPSTREAM REACH
1,579,823.3 0.96903067 0.97721353 0.97312210	2,993.06235	1,579,726.4 0.96903067 0.97402395 0.97152731	325.324	(1) The Metropolitan Water District of Southern California (MWD-SC)
28,773.9 0.01764931 0.01298583 0.01531757	39.77369	28,772.1 0.01764929 0.01763174 0.01764051	5.889	(13) Upper Santa Clara Valley Water Agency (USCVWA)
21,715.8 0.01332002 0.00980064 0.01156033	30.01793	21,714.5 0.01332004 0.00834431 0.01083218	2.787	(14) Ventura County Flood Control District (VCFCD)

REACH WATER SUMMARY

REACH PARTICIPATION BY CONTRACTORS

3/ Change in Compensating Regulatory Capacity.

4/ Regulatory and Emergency Storage Capacity in Acre-feet

5/ Regulatory Storage Capacity in acre-feet.

REACH SUMMARY OF PROPORTIONATE USE OF PROJECT TRANSPORTATION FACILITIES

MINIMUM O.M.P. & R. COMPONENT

South Bay Aqueduct

REACH NO 1		REACH NO 2		REACH NO 4		REACH NO. 5		
QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	ASSOCIATED CAPACITY (AF)		REACH WATER SUMMARY
217,013.0	300.00000	199,773.0	300.00000	184,500.0	254.84579	28,485 5/	INFLOW TO DOWNSTREAM REACH	
-	-	-	-	-	-	-	CHANGE IN FUTURE CONTRACTOR	
-	-	17,000.0	23.48173	12,000.0	16.57534	-	CONTRACTOR TURNOUT	
180.0	0.24863	240.0	0.33151	810.0	1.11883	1,134 6/	REACH EVAP & SEEPAGE LOSSES	
-	-	-	-23.48173	-	23.48173	-	COMPENSATING REGULATORY CAP 3/	
0	-0.24863	0	-0.33151	2,463.0	3.97831	381	ALLOWANCE FOR CONTINGENCIES	
217,193.0	300.00000	217,013.0	300.00000	199,773.0	300.00000	30,000	TOTAL, INFLOW FROM UPSTREAM REACH	
103,585.5 0.47692835 0.47693248	143.08098 0.47693660	103,499.7 0.47692857 0.47693271	143.08105 0.47693684	103,488.5 0.51803046 0.49775603	143.24448 0.47748160	15,366 0.51220000	(24) Santa Clara County Flood Control and Water District (SCCFC & WD)	REACH PARTICIPATION BY CONTRACTORS
43,323.7 0.19947098 0.19946794	59.83947 0.19946490	43,287.8 0.19947100 0.19946796	59.83948 0.19946493	43,283.3 0.21666241 0.20817755	59.90781 0.19969270	4,902 0.16340000	(25) Alameda County Water District (ACWD)	
22,761.6 0.10479896 0.10479924	31.43986 0.10479953	22,742.7 0.10479879 0.10479906	31.43980 0.10479933	22,740.3 0.11383070 0.10937502	31.47580 0.10491933	3,149 0.10496667	(26) Future Contractor (FC)	
47,522.2 0.21880171 0.21880034	65.63969 0.21879897	47,482.8 0.21880164 0.21880027	65.63967 0.21879890	30,260.9 0.15147643 0.18469140	65.37191 0.21790637	6,583 0.21943333	(27) Alameda County Flood Control and Water Conservation District (ACFC & WCD)	

South Bay Aqueduct

REACH NO 6		REACH NO 7		REACH NO 8		REACH NO. 9		
QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	
152,000.0	305.00000	130,000.0	255.00000	100,000.0	184.00000	-	-	INFLOW TO DOWNSTREAM REACH
-	-	-15,000.0	-27.34931	-	-	-	-	CHANGE IN FUTURE CONTRACTOR
29,000.0	58.00000 7/	37,000.0	77.34931 8/	30,000.0	71.00000	100,000.0	184.00000	CONTRACTOR TURNOUT
-	-	-	-	-	-	-	-	REACH EVAP & SEEPAGE LOSSES
-	-	-	-	-	-	-	-	COMPENSATING REGULATORY CAP 3/
-	-	-	-	-	-	-	-	ALLOWANCE FOR CONTINGENCIES
181,000.0	363.00000	152,000.0	305.00000	130,000.0	255.00000	100,000.0	184.00000	TOTAL, INFLOW FROM UPSTREAM REACH
100,000.0 0.55248619 0.52968662	184.00000 0.50688705	100,000.0 0.65789474 0.63058671	184.00000 0.60327869	100,000.0 0.76923077 0.74539969	184.00000 0.72156862	100,000.0 1.00000000 1.00000000	184.00000 1.00000000	(24) Santa Clara County Flood Control and Water District (SCCFC & WD)
42,000.0 0.23204420 0.22150155	76.57808 0.21095890	42,000.0 0.27631579 0.26369573	76.57808 0.25107567	5,000.0 0.03846154 0.05060332	16.00000 0.06274510			(25) Alameda County Water District (ACWD)
10,000.0 0.05524862 0.05273847	18.23288 0.05022832	10,000.0 0.06578947 0.06278470	18.23288 0.05977993	25,000.0 0.19230769 0.18553069	45.58219 0.17875369			(26) Future Contractor (FC)
29,000.0 0.16022099 0.15294154	52.87534 0.14566209							(27) Alameda County Flood Control and Water Conservation District (ACFC & WCD)
0.0 0.00000000 0.04313182	31.31370 0.08626364	0.0 0.00000000 0.04293286	26.18904 0.08586571	0.0 0.00000000 0.01846630	9.41781 0.03693259			Excess

3/ Change in Compensating Regulatory Capacity.
5/ Regulatory Storage Capacity in Acre-feet.
6/ Capacity in acre-feet required to regulate losses.
7/ Increase in capacity allocated to ACWD and to excess.
8/ Increase in capacity allocated to ACFC & WCD and to excess.

REACH SUMMARY OF PROPORTIONATE USE OF PROJECT TRANSPORTATION FACILITIES

Table B-4

MINIMUM O.M.P. & R COMPONENT

Coastal Branch Division

REACH NO 31A		REACH NO 33A		REACH NO 34		REACH NO 35		
QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	
91,103.0	126.17859	79,653.0	110.17769	73,778.0	102.01088	-	-	INFLOW TO DOWNSTREAM REACH
-	-	-	-	-	-	-	-	AQUEDUCT BRANCH TURNOUT
102,600.0	306.11343	10,000.0	13.81279	5,000.0	6.90639	67,700.0	93.51256	CONTRACTOR TURNOUT
1,400.0	2.30429	700.0	1.15215	500.0	0.69064	1,000.0	1.38128	REACH EVAP & SEEPAGE LOSSES
0	0	750.0	1.03596	375.0	0.56978	5,078.0	7.11704	CHANGE IN RESERVE CAPACITY
195,103.0	434.59631	91,103.0	126.17859	79,653.0	110.17769	73,778.0	102.01088	TOTAL, INFLOW FROM UPSTREAM REACH
90,571.3 0.46422300 0.54197045	269.32711 0.61971789							(16) Kern County Water Agency - Ag (KCWA-AG)
64,211.6 0.32911641 0.26703269	89.07006 0.20494896	63,767.8 0.69995280 0.70003420	88.33960 0.70011561	63,277.6 0.79441578 0.79444239	87.53276 0.79446901	62,880.3 0.85229066 0.85229017	86.94282 0.85228968	(20) Santa Barbara County Flood Control and Water Conservation District (SBCFC & WCD)
27,525.3 0.14108087 0.11443390	38.15188 0.08778694	27,335.2 0.30004720 0.29996580	37.83899 0.29988439	16,375.4 0.20558422 0.20555761	22.64493 0.20553099	10,697.7 0.14770934 0.14770983	15.06806 0.14771032	(21) San Luis Obispo County Flood Control and Water Conservation District (SLOCFC & WCD)
12,794.8 0.06557972 0.07656296	38.04726 0.08754621							(22) Devil's Den Water District (DDWD)

REACH WATER SUMMARY

REACH PARTICIPATION BY CONTRACTORS

North Bay Aqueduct

REACH NO 1		REACH NO 2		REACH NO. 3		
QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	QUANTITY FROM OR THRU REACH (AF, annually)	ASSOCIATED CAPACITY (cfs)	
63,200.0	115.16084	25,000.0	45.58219	-	-	INFLOW TO DOWNSTREAM REACH
-	-	-	-	-	-	AQUEDUCT BRANCH TURNOUT
-	-	37,800.0	68.92028	25,000.0	45.58219	CONTRACTOR TURNOUT
1,000.0	1.64593	400.0	0.65837	-	-	REACH EVAP & SEEPAGE LOSSES
64,200.0	116.80677	63,200.0	115.16084	25,000.0	45.58219	TOTAL, INFLOW FROM UPSTREAM REACH
25,557.0 0.39808411 0.39808433	46.49837	25,159.0 0.39805544 0.39808560	45.84389	25,000.0 1.00000000 1.00000000	45.58219	(28) Napa County Flood Control and Water Conservation District (NCFC & WCD)
38,642.0 0.60191589 0.60191567	70.30780 0.60191545	38,041.0 0.60191456 0.60191440	69.31695 0.60191424			(29) Solano County Flood Control and Water Conservation District (SCFC & WCD)

REACH WATER SUMMARY

REACH PARTICIPATION BY CONTRACTORS

TABLE B-5

ANNUAL QUANTITIES DELIVERED FROM EACH REACH FOR EACH CONTRACTOR

(in acre-feet)

Calendar Year	NORTH BAY AQUEDUCT		TOTAL NORTH BAY AQUEDUCT 2/	SOUTH BAY AQUEDUCT								TOTAL SOUTH BAY AQUEDUCT
	Reach 2	Reach 3		Reach 1		Reach 2	Reach 4	Reach 6	Reach 7	Reach 8	Reach 9	
	SC FC & WCD	NC FC & WCD 2/		AC FC & WCD	ACWD	AC FC & WCD	AC FC & WCD	AC FC & WCD	ACWD	ACWD	SCC FC & WD	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1962	0	0	0	141	8,412	353	0	0	0	0	0	8,906
63	0	0	0	814	10,914	917	0	0	0	0	0	12,645
64	0	0	0	248	19,238	1,425	0	0	0	0	0	20,911
65	0	0	0	1,460	24,850	1,640	500	0	0	0	25,600	54,050
66	0	0	0	1,236	0	1,864	500	0	19,400	0	38,100	61,100
67	0	0	0	1,394	0	2,106	500	0	14,300	0	50,600	68,900
68	0	900	900	2,100	0	4,900	500	0	15,000	0	88,000	110,500
69	0	1,900	1,900	2,600	0	5,700	500	0	15,500	0	88,000	112,300
1970	0	2,800	2,800	3,300	0	6,200	0	500	15,700	500	88,000	114,200
71	0	3,800	3,800	3,400	0	6,300	0	1,500	16,000	1,000	88,000	116,200
72	0	4,800	4,800	3,500	0	6,400	0	2,500	16,400	1,500	88,000	118,300
73	0	5,800	5,800	3,500	0	6,600	0	3,500	16,800	2,000	88,000	120,400
74	0	6,700	6,700	0	0	10,300	0	4,500	17,100	2,500	88,000	122,400
75	0	7,700	7,700	0	0	10,500	0	5,500	17,500	3,000	88,000	124,500
76	0	8,600	8,600	0	0	10,700	0	6,500	17,800	3,500	88,000	126,500
77	0	9,600	9,600	0	0	10,900	0	7,500	18,200	4,000	88,000	128,600
78	0	10,500	10,500	0	0	11,200	0	8,400	18,600	4,500	88,000	130,700
79	0	11,500	11,500	0	0	11,500	0	9,300	18,900	5,000	88,000	132,700
1980	6,750	12,500	19,250	0	0	11,900	0	10,100	19,800	5,000	88,000	134,800
81	8,000	13,750	21,750	0	0	12,200	0	10,800	21,000	5,000	88,000	137,000
82	9,400	15,000	24,400	0	0	12,400	0	11,600	22,200	5,000	88,000	139,200
83	10,800	16,250	27,050	0	0	12,600	0	12,400	23,400	5,000	88,000	141,400
84	12,100	17,500	29,600	0	0	12,800	0	13,200	24,600	5,000	88,000	143,600
85	14,000	18,750	32,750	0	0	13,000	0	14,000	25,800	5,000	88,000	145,800
86	16,500	20,000	36,500	0	0	13,200	0	14,800	27,100	5,000	88,000	148,100
87	20,000	21,250	41,250	0	0	13,400	0	15,600	28,300	5,000	88,000	150,300
88	27,000	22,500	49,500	0	0	13,600	0	16,400	29,500	5,000	88,000	152,500
89	34,500	23,750	58,250	0	0	13,800	0	17,200	30,700	5,000	90,000	156,700
1990	37,800	25,000	62,800	0	0	14,000	0	18,000	31,900	5,000	92,000	160,900
91	37,800	25,000	62,800	0	0	14,200	0	19,800	33,400	5,000	94,000	166,400
92	37,800	25,000	62,800	0	0	14,400	0	21,600	34,900	5,000	96,000	171,900
93	37,800	25,000	62,800	0	0	14,700	0	23,300	36,400	5,000	98,000	177,400
94	37,800	25,000	62,800	0	0	15,000	0	25,000	37,000	5,000	100,000	182,000
95	37,800	25,000	62,800	0	0	15,300	0	26,700	37,000	5,000	100,000	184,000
96	37,800	25,000	62,800	0	0	16,000	0	28,000	37,000	5,000	100,000	186,000
97	37,800	25,000	62,800	0	0	17,000	0	29,000	37,000	5,000	100,000	188,000
98	37,800	25,000	62,800	0	0	17,000	0	29,000	37,000	5,000	100,000	188,000
99	37,800	25,000	62,800	0	0	17,000	0	29,000	37,000	5,000	100,000	188,000
2000 1/	37,800	25,000	62,800	0	0	17,000	0	29,000	37,000	5,000	100,000	188,000

1/ And thereafter for the remainder of the project repayment period.

2/ Between 1968 and 1979 inclusive, annual quantities delivered are non-project water pumped thru an interim facility.

Note: Abbreviations for titles of contractors are shown in Table B-3.

Table B-5 (Continued)

ANNUAL QUANTITIES DELIVERED FROM EACH REACH FOR EACH CONTRACTOR

(in acre-feet)

Calendar Year	CALIFORNIA AQUEDUCT										
	SAN LUIS DIVISION		SOUTH SAN JOAQUIN DIVISION								
	Reach 7		Reach 8			Reach 9	Reach 10A	Reach 11B	Reach 12D	Reach 12E	
	EWSID	TLBWSD	TLBWSD	HWD	DRWD	KCWA (Ag.)	KCWA (Ag.)	KCWA (Ag.)	KCWA (Ag.)	KCWA (Ag.)	KCWA (M&I)
	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
1962	0	0	0	0	0	0	0	0	0	0	0
63	0	0	0	0	0	0	0	0	0	0	0
64	0	0	0	0	0	0	0	0	0	0	0
65	0	0	0	0	0	0	0	0	0	0	0
66	0	0	0	0	0	0	0	0	0	0	0
67	0	0	0	0	0	0	0	0	0	0	0
68	3,000	14,900	12,000	1,300	11,500	20,100	16,300	22,600	0	0	0
69	3,000	16,300	13,000	1,600	13,600	21,400	20,400	24,900	0	0	0
1970	3,000	17,600	14,200	2,000	15,700	21,400	29,200	34,000	0	3,200	14,000
71	3,000	19,000	15,200	2,300	17,900	21,400	48,600	34,100	0	26,000	14,000
72	3,000	20,300	16,400	2,600	20,000	22,300	69,700	39,200	0	37,700	21,000
73	3,000	21,700	17,400	2,900	22,000	22,300	56,900	44,300	0	58,500	24,000
74	3,000	23,800	19,200	3,300	24,100	22,300	30,200	49,600	0	118,400	25,000
75	3,000	26,000	20,900	3,600	26,200	25,900	43,900	54,700	0	114,300	28,000
76	3,000	28,200	22,600	3,900	28,300	29,900	55,300	59,700	1,700	108,300	31,000
77	3,000	30,400	24,400	4,200	30,400	31,600	72,400	67,000	1,900	111,800	33,000
78	3,000	32,600	26,100	4,600	32,500	33,400	87,600	74,300	2,100	111,300	34,000
79	3,000	34,700	27,900	4,900	34,600	35,200	97,800	81,700	2,300	109,000	36,000
1980	3,000	36,900	29,600	5,200	36,700	35,200	118,700	89,000	2,600	121,100	38,000
81	3,000	39,000	31,400	5,600	38,800	35,200	134,900	93,600	2,700	138,900	45,000
82	3,000	41,200	33,100	5,900	41,000	35,200	150,000	96,800	2,800	155,800	53,000
83	3,000	43,400	34,800	6,200	42,900	37,200	213,800	102,900	3,000	125,700	59,000
84	3,000	45,500	36,600	6,500	45,100	39,500	226,100	107,100	3,100	136,700	65,000
85	3,000	47,700	38,300	6,900	47,200	41,900	237,900	112,400	3,200	147,100	70,000
86	3,000	49,900	40,100	7,200	49,300	44,200	220,200	115,200	3,300	167,100	76,000
87	3,000	52,100	41,800	7,500	51,400	46,500	235,900	118,000	3,400	174,100	81,000
88	3,000	54,200	43,600	7,800	53,500	46,500	246,800	120,800	3,500	180,700	89,000
89	3,000	56,400	45,300	8,200	55,600	46,800	256,800	123,600	3,500	185,600	95,000
1990	3,000	61,000	49,000	8,500	57,700	47,300	265,700	126,400	3,600	191,800	100,000
91	3,000	61,000	49,000	8,500	57,700	47,300	265,700	126,400	3,600	191,800	100,000
92	3,000	61,000	49,000	8,500	57,700	47,300	265,700	126,400	3,600	191,800	100,000
93	3,000	61,000	49,000	8,500	57,700	47,300	265,700	126,400	3,600	191,800	100,000
94	3,000	61,000	49,000	8,500	57,700	47,300	265,700	126,400	3,600	191,800	100,000
95	3,000	61,000	49,000	8,500	57,700	47,300	265,700	126,400	3,600	191,800	100,000
96	3,000	61,000	49,000	8,500	57,700	47,300	265,700	126,400	3,600	191,800	100,000
97	3,000	61,000	49,000	8,500	57,700	47,300	265,700	126,400	3,600	191,800	100,000
98	3,000	61,000	49,000	8,500	57,700	47,300	265,700	126,400	3,600	191,800	100,000
99	3,000	61,000	49,000	8,500	57,700	47,300	265,700	126,400	3,600	191,800	100,000
2000 1/	3,000	61,000	49,000	8,500	57,700	47,300	265,700	126,400	3,600	191,800	100,000

1/ And thereafter for the remainder of the project repayment period.

Table B-5 (Continued)

ANNUAL QUANTITIES DELIVERED FROM EACH REACH FOR EACH CONTRACTOR

(in acre-feet)

Calendar Year	CALIFORNIA AQUEDUCT (Continued)									
	SOUTH SAN JOAQUIN DIVISION (Continued)								TEHACHAPI DIVISION	
	Reach 13B		Reach 14A	Reach 14B	Reach 14C	Reach 15	Reach 16		Reach 17C	Reach 17D
	KCWA (Ag.)	KCWA (M&I)	KCWA (Ag.)	KCWA (Ag.)	KCWA (Ag.)	KCWA (Ag.)	KCWA (Ag.)	KCWA (M&I)	KCWA (M&I)	AVEKWA
	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)
1962	0	0	0	0	0	0	0	0	0	0
63	0	0	0	0	0	0	0	0	0	0
64	0	0	0	0	0	0	0	0	0	0
65	0	0	0	0	0	0	0	0	0	0
66	0	0	0	0	0	0	0	0	0	0
67	0	0	0	0	0	0	0	0	0	0
68	0	0	0	0	0	0	0	0	0	0
69	0	0	0	0	0	0	0	0	0	0
1970	0	14,300	0	0	0	0	0	0	0	0
71	2,400	14,800	0	0	0	0	0	0	0	0
72	5,000	15,300	2,300	6,800	11,600	8,800	0	0	0	16,561
73	11,100	15,900	2,700	5,500	16,100	7,200	13,000	0	0	20,700
74	16,500	16,400	1,900	3,900	11,400	3,400	13,000	0	0	24,841
75	16,100	16,900	3,100	6,200	18,300	5,100	16,000	0	0	28,981
76	15,300	17,500	4,200	8,400	24,800	6,700	19,000	5,000	5,000	36,433
77	16,100	18,000	5,200	10,400	30,700	10,000	21,000	5,500	5,000	41,402
78	16,100	18,500	6,100	12,100	35,900	14,900	27,000	6,000	5,000	47,198
79	15,900	19,100	6,900	13,600	40,600	15,800	35,000	6,500	5,000	52,166
1980	18,000	19,600	7,300	14,500	43,200	16,600	35,000	7,000	5,000	57,300
81	21,000	20,100	8,000	15,800	47,200	17,800	35,000	7,500	5,000	62,102
82	23,900	20,700	8,600	17,000	50,900	18,900	35,000	8,000	5,000	67,319
83	18,800	21,200	9,500	19,000	56,500	23,600	37,700	8,500	5,000	72,618
84	20,200	21,700	10,300	20,500	61,500	25,600	41,100	9,000	5,000	77,835
85	21,400	22,300	11,100	22,100	66,400	27,600	44,500	9,500	5,000	83,134
86	26,600	22,800	12,900	25,900	77,400	34,600	50,000	10,000	5,000	88,351
87	27,900	23,300	14,000	27,900	83,500	38,100	53,000	10,500	5,000	93,567
88	29,200	23,900	14,900	29,700	89,100	38,600	60,000	11,000	5,000	98,867
89	30,100	24,400	15,600	31,000	92,900	38,900	63,000	11,500	5,000	104,083
1990	31,400	25,000	16,300	32,600	97,600	40,300	68,500	12,000	5,000	109,383
91	31,400	25,000	16,300	32,600	97,600	40,300	68,500	12,000	5,000	114,600
92	31,400	25,000	16,300	32,600	97,600	40,300	68,500	12,000	5,000	114,600
93	31,400	25,000	16,300	32,600	97,600	40,300	68,500	12,000	5,000	114,600
94	31,400	25,000	16,300	32,600	97,600	40,300	68,500	12,000	5,000	114,600
95	31,400	25,000	16,300	32,600	97,600	40,300	68,500	12,000	5,000	114,600
96	31,400	25,000	16,300	32,600	97,600	40,300	68,500	12,000	5,000	114,600
97	31,400	25,000	16,300	32,600	97,600	40,300	68,500	12,000	5,000	114,600
98	31,400	25,000	16,300	32,600	97,600	40,300	68,500	12,000	5,000	114,600
99	31,400	25,000	16,300	32,600	97,600	40,300	68,500	12,000	5,000	114,600
2000 1/	31,400	25,000	16,300	32,600	97,600	40,300	68,500	12,000	5,000	114,600

1/ And thereafter for the remainder of the project repayment period.

Table B-5 (Continued)

ANNUAL QUANTITIES DELIVERED FROM EACH REACH FOR EACH CONTRACTOR

(in acre-feet)

Calendar Year	CALIFORNIA AQUEDUCT (Continued)											
	EAST BRANCH DIVISION											
	Reach 20	Reach 21	Reach 22B			Reach 24	Reach 25	Reach 27			Reach 28A	Reach 28C
	PID	LCID	MWA	CVCWD	DWA	CLAWA	SGPWA	WC	SGVMWD	MWD-SC	SBVMWD	MWD-SC
	(34)	(35)	(36)	(37)	(38)	(39)	(40)	(41)	(42)	(43)	(44)	(45)
1962	0	0	0	0	0	0	0	0	0	0	0	0
63	0	0	0	0	0	0	0	0	0	0	0	0
64	0	0	0	0	0	0	0	0	0	0	0	0
65	0	0	0	0	0	0	0	0	0	0	0	0
66	0	0	0	0	0	0	0	0	0	0	0	0
67	0	0	0	0	0	0	0	0	0	0	0	0
68	0	0	0	0	0	0	0	0	0	0	0	0
69	0	0	0	0	0	0	0	0	0	0	0	0
1970	0	0	0	0	0	0	0	0	0	0	0	0
71	0	0	0	0	0	0	0	0	0	0	0	0
72	1,620	170	8,400	5,200	8,000	580	1,000	4,200	10,600	37,600	45,541	37,600
73	2,940	290	10,700	5,800	9,000	870	1,700	4,600	11,500	54,350	47,559	54,350
74	4,260	400	13,100	6,400	10,000	1,160	2,400	4,900	12,300	71,100	49,806	71,100
75	5,580	520	15,400	7,000	11,000	1,450	3,100	5,200	13,100	87,800	51,826	87,800
76	6,900	640	17,800	7,600	12,000	1,740	3,800	5,600	14,000	104,550	53,842	104,550
77	8,220	730	20,200	8,421	13,000	2,030	4,500	5,900	14,800	121,300	55,860	121,300
78	9,340	920	22,500	9,242	14,000	2,320	5,200	6,300	15,700	138,050	57,878	138,050
79	10,260	1,040	24,900	10,063	15,000	2,610	5,900	6,600	16,600	154,750	60,010	154,750
1980	11,180	1,150	27,200	10,884	17,000	2,900	6,800	7,000	17,400	171,500	61,913	171,500
81	11,700	1,270	29,600	12,105	19,000	3,190	7,800	7,300	18,300	182,700	64,161	182,700
82	12,320	1,380	31,900	13,326	21,000	3,480	8,800	7,600	19,100	193,950	64,161	193,950
83	12,940	1,500	34,300	14,547	23,000	3,770	9,800	8,000	19,900	205,150	64,161	205,150
84	13,560	1,610	36,700	15,768	25,000	4,060	10,800	8,300	20,700	216,350	64,161	216,350
85	14,180	1,730	39,000	16,989	27,000	4,350	11,800	8,700	21,800	227,600	64,161	227,600
86	14,800	1,840	41,400	18,210	29,000	4,640	12,900	9,300	23,200	238,850	66,179	238,850
87	15,420	1,960	43,700	19,431	31,500	4,930	14,000	9,800	24,600	250,050	72,462	250,050
88	16,040	2,070	46,000	20,652	34,000	5,220	15,100	10,400	26,000	261,250	78,745	261,250
89	16,660	2,190	48,500	21,873	36,500	5,510	16,200	11,000	27,400	272,500	89,915	272,500
1990	17,300	2,300	50,800	23,100	38,100	5,800	17,300	11,500	28,800	272,500	91,198	272,500
91	17,300	2,300	50,800	23,100	38,100	5,800	17,300	11,500	28,800	272,500	98,000	272,500
92	17,300	2,300	50,800	23,100	38,100	5,800	17,300	11,500	28,800	272,500	98,000	272,500
93	17,300	2,300	50,800	23,100	38,100	5,800	17,300	11,500	28,800	272,500	98,000	272,500
94	17,300	2,300	50,800	23,100	38,100	5,800	17,300	11,500	28,800	272,500	98,000	272,500
95	17,300	2,300	50,800	23,100	38,100	5,800	17,300	11,500	28,800	272,500	98,000	272,500
96	17,300	2,300	50,800	23,100	38,100	5,800	17,300	11,500	28,800	272,500	98,000	272,500
97	17,300	2,300	50,800	23,100	38,100	5,800	17,300	11,500	28,800	272,500	98,000	272,500
98	17,300	2,300	50,800	23,100	38,100	5,800	17,300	11,500	28,800	272,500	98,000	272,500
99	17,300	2,300	50,800	23,100	38,100	5,800	17,300	11,500	28,800	272,500	98,000	272,500
2000 1/	17,300	2,300	50,800	23,100	38,100	5,800	17,300	11,500	28,800	272,500	98,000	272,500

1/ And thereafter for the remainder of the project repayment period.

Table B-5 (Continued)

ANNUAL QUANTITIES DELIVERED FROM EACH REACH FOR EACH CONTRACTOR

(in acre-feet)

Calendar Year	CALIFORNIA AQUEDUCT (Continued)											
	WEST BRANCH DIVISION					COASTAL BRANCH DIVISION						TOTAL CALIFORNIA AQUEDUCT
	Reach 29A	Reach 29B	Reach 30			Reach 31A		Reach 33A	Reach 34	Reach 35		
	AVEKWA	AVEKWA	USCVWA	VCFCD	MWD-SC	DDWD	KCWA (Ag.)	SLOC FC&WCD	SLOC FC&WCD	SLOC FC&WCD	SBC FC&WCD	
	(46)	(47)	(48)	(49)	(50)	(51)	(52)	(53)	(54)	(55)	(56)	(57)
1962	0	0	0	0	0	0	0	0	0	0	0	0
63	0	0	0	0	0	0	0	0	0	0	0	0
64	0	0	0	0	0	0	0	0	0	0	0	0
65	0	0	0	0	0	0	0	0	0	0	0	0
66	0	0	0	0	0	0	0	0	0	0	0	0
67	0	0	0	0	0	0	0	0	0	0	0	0
68	0	0	0	0	0	3,700	28,000	0	0	0	0	133,400
69	0	0	0	0	0	4,700	29,000	0	0	0	0	147,900
1970	0	0	0	0	0	5,700	29,000	0	0	0	0	203,300
71	0	0	1,000	0	250,000	6,700	29,000	0	0	0	0	505,400
72	2,847	592	2,600	0	274,800	7,700	31,000	0	0	0	0	798,611
73	3,559	741	3,900	0	341,300	8,700	33,000	0	0	0	0	960,059
74	4,270	889	5,200	0	407,800	9,700	35,000	0	0	0	0	1,120,026
75	4,982	1,037	6,500	0	474,400	10,700	37,000	0	0	0	0	1,281,576
76	6,263	1,304	7,800	0	540,900	11,700	41,000	0	0	0	0	1,456,222
77	7,117	1,481	9,100	0	607,400	12,700	44,000	0	0	0	0	1,631,461
78	8,113	1,689	10,400	0	673,900	12,700	50,000	0	0	0	0	1,806,600
79	8,967	1,867	12,500	0	740,500	12,700	63,500	0	0	0	0	1,980,183
1980	9,850	2,050	13,700	1,000	807,000	12,700	63,700	400	200	400	1,200	2,158,127
81	10,676	2,222	15,500	2,000	884,600	12,700	63,700	400	200	400	2,300	2,342,126
82	11,572	2,409	17,100	3,000	962,100	12,700	63,700	800	400	800	4,600	2,523,267
83	12,483	2,599	18,600	4,000	1,039,700	12,700	63,700	1,200	600	1,200	6,900	2,710,218
84	13,380	2,785	19,800	5,000	1,117,300	12,700	68,200	1,800	900	1,800	10,400	2,894,359
85	14,291	2,975	21,000	6,000	1,194,800	12,700	72,600	3,000	1,500	3,000	17,300	3,082,710
86	15,188	3,161	22,500	8,000	1,272,300	12,700	77,000	4,000	2,000	4,000	23,100	3,272,169
87	16,084	3,349	24,000	10,000	1,349,900	12,700	81,400	5,000	2,500	5,000	28,800	3,468,103
88	16,995	3,538	25,100	13,000	1,427,500	12,700	85,900	6,200	3,100	6,200	35,800	3,662,427
89	17,892	3,725	26,500	16,000	1,455,000	12,700	88,600	8,000	4,000	8,000	46,100	3,803,548
1990	18,803	3,914	26,500	20,000	1,455,000	12,700	89,900	10,000	5,000	10,000	57,700	3,892,798
91	19,700	4,100	26,500	20,000	1,455,000	12,700	89,900	10,000	5,000	10,000	57,700	3,905,900
92	19,700	4,100	26,500	20,000	1,455,000	12,700	89,900	10,000	5,000	10,000	57,700	3,905,900
93	19,700	4,100	26,500	20,000	1,455,000	12,700	89,900	10,000	5,000	10,000	57,700	3,905,900
94	19,700	4,100	26,500	20,000	1,455,000	12,700	89,900	10,000	5,000	10,000	57,700	3,905,900
95	19,700	4,100	26,500	20,000	1,455,000	12,700	89,900	10,000	5,000	10,000	57,700	3,905,900
96	19,700	4,100	26,500	20,000	1,455,000	12,700	89,900	10,000	5,000	10,000	57,700	3,905,900
97	19,700	4,100	26,500	20,000	1,455,000	12,700	89,900	10,000	5,000	10,000	57,700	3,905,900
98	19,700	4,100	26,500	20,000	1,455,000	12,700	89,900	10,000	5,000	10,000	57,700	3,905,900
99	19,700	4,100	26,500	20,000	1,455,000	12,700	89,900	10,000	5,000	10,000	57,700	3,905,900
2000 1/	19,700	4,100	26,500	20,000	1,455,000	12,700	89,900	10,000	5,000	10,000	57,700	3,905,900

1/ And thereafter for the remainder of the project repayment period.

TABLE B-6

ANNUAL QUANTITIES CONVEYED
THROUGH EACH PUMPING AND POWER RECOVERY PLANT

(in acre-feet)

Calendar Year	NORTH BAY AQUEDUCT										SOUTH BAY AQUEDUCT				
	CALHOUN PUMPING PLANT					CORDELIA PUMPING PLANT					SOUTH BAY PUMPING PLANT				
	Const. water	Operat'l losses	Deliveries: Water supply	Deliveries: Recreation	Total	Const. water	Operat'l losses	Deliveries: Water supply 2/	Deliveries: Recreation	Total 2/	Const. water	Operat'l losses	Deliveries: Water supply	Deliveries: Recreation	Total
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
1962	0	0	0	0	0	0	0	0	0	0	9	272	8,906	0	9,187
63	0	0	0	0	0	0	0	0	0	0	71	185	12,645	[illegible]	12,901
64	0	0	0	0	0	0	0	0	0	0	171	152	20,911	0	21,234
65	0	0	0	0	0	0	0	0	0	0	130	1,230	54,050	0	55,410
66	0	0	0	0	0	0	0	0	0	0	0	1,230	61,100	0	62,330
67	0	0	0	0	0	0	0	0	0	0	0	1,230	68,900	0	70,130
68	0	0	0	0	0	7	0	900	0	907	8,000	3,230	110,500	0	121,730
69	0	0	0	0	0	0	0	1,900	0	1,900	2,000	4,730	112,300	0	119,030
1970	0	0	0	0	0	0	0	2,800	0	2,800	0	4,730	114,200	0	118,930
71	0	0	0	0	0	0	0	3,800	0	3,800	0	4,730	116,200	0	120,930
72	0	0	0	0	0	0	0	4,800	0	4,800	0	4,730	118,300	0	123,030
73	0	0	0	0	0	0	0	5,800	0	5,800	0	4,730	120,400	0	125,130
74	0	0	0	0	0	0	0	6,700	0	6,700	0	4,730	122,400	0	127,130
75	0	0	0	0	0	0	0	7,700	0	7,700	0	4,730	124,500	0	129,230
76	0	0	0	0	0	0	0	8,600	0	8,600	0	4,730	126,500	0	131,230
77	0	0	0	0	0	0	0	9,600	0	9,600	0	4,730	128,600	0	133,330
78	0	0	0	0	0	0	0	10,500	0	10,500	0	4,730	130,700	0	135,430
79	0	0	0	0	0	0	0	11,500	0	11,500	0	4,730	132,700	0	137,430
1980	120	1,400	19,250	0	20,770	0	0	12,500	0	12,500	0	4,730	134,800	0	139,530
81	0	1,400	21,750	0	23,150	0	0	13,750	0	13,750	0	4,730	137,000	0	141,730
82	0	1,400	24,400	0	25,800	0	0	15,000	0	15,000	0	4,730	139,200	0	143,930
83	0	1,400	27,050	0	28,450	0	0	16,250	0	16,250	0	4,730	141,400	0	146,130
84	0	1,400	29,600	0	31,000	0	0	17,500	0	17,500	0	4,730	143,600	0	148,330
85	0	1,400	32,750	0	34,150	0	0	18,750	0	18,750	0	4,730	145,800	0	150,530
86	0	1,400	36,500	0	37,900	0	0	20,000	0	20,000	0	4,730	148,100	0	152,830
87	0	1,400	41,250	0	42,650	0	0	21,250	0	21,250	0	4,730	150,300	0	155,030
88	0	1,400	49,500	0	50,900	0	0	22,500	0	22,500	0	4,730	152,500	0	157,230
89	0	1,400	58,250	0	59,650	0	0	23,750	0	23,750	0	4,730	156,700	0	161,430
1990	0	1,400	62,800	0	64,200	0	0	25,000	0	25,000	0	4,730	160,900	0	165,630
91	0	1,400	62,800	0	64,200	0	0	25,000	0	25,000	0	4,730	166,400	0	171,130
92	0	1,400	62,800	0	64,200	0	0	25,000	0	25,000	0	4,730	171,900	0	176,630
93	0	1,400	62,800	0	64,200	0	0	25,000	0	25,000	0	4,730	177,400	0	182,130
94	0	1,400	62,800	0	64,200	0	0	25,000	0	25,000	0	4,730	182,000	0	186,730
95	0	1,400	62,800	0	64,200	0	0	25,000	0	25,000	0	4,730	184,000	0	188,730
96	0	1,400	62,800	0	64,200	0	0	25,000	0	25,000	0	4,730	186,000	0	190,730
97	0	1,400	62,800	0	64,200	0	0	25,000	0	25,000	0	4,730	188,000	0	192,730
98	0	1,400	62,800	0	64,200	0	0	25,000	0	25,000	0	4,730	188,000	0	192,730
99	0	1,400	62,800	0	64,200	0	0	25,000	0	25,000	0	4,730	188,000	0	192,730
2000 1/	0	1,400	62,800	0	64,200	0	0	25,000	0	25,000	0	4,730	188,000	0	192,730

1/ And thereafter for the remainder of the project repayment period.

2/ Between 1968 and 1979 inclusive, annual quantities delivered are non-project water pumped thru an interim facility.

TABLE B-6 (Continued)

ANNUAL QUANTITIES CONVEYED
THROUGH EACH PUMPING AND POWER RECOVERY PLANT

(in acre-feet)

Calendar year	CALIFORNIA AQUEDUCT														
	NORTH SAN JOAQUIN DIVISION					SAN LUIS DIVISION					SOUTH SAN JOAQUIN DIVISION				
	DELTA PUMPING PLANT					MILE 18 PUMPING PLANT					BUENA VISTA PUMPING PLANT				
	Const. water	Operat'l losses	Deliveries: Water supply	Deliveries: Recreation	Total	Const. water	Operat'l losses	Deliveries: Water supply	Deliveries: Recreation	Total	Const. water	Operat'l losses	Deliveries: Water supply	Deliveries: Recreation	Total
	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)
1962	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
63	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
64	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
66	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
67	0	1,930	68,900	0	70,830	0	0	0	0	0	0	0	0	0	0
68	413,775	152,230	243,900	0	809,905	11,775	63,800	133,400	0	208,975	0	0	0	0	0
69	576,000	153,730	260,200	0	989,930	0	63,800	147,900	0	211,700	0	0	0	0	0
1970	195,576	158,595	317,500	0	671,671	63,576	68,665	203,300	0	335,541	57,026	2,865	0	0	59,891
71	108,751	248,946	621,600	9,500	988,797	108,751	159,016	505,400	9,500	782,667	108,751	80,116	251,000	0	439,867
72	114,087	267,330	916,900	29,500	1,327,817	114,087	177,400	798,600	29,500	1,119,587	114,087	98,500	487,400	20,000	719,987
73	208,609	274,230	1,080,450	29,500	1,592,789	208,609	184,300	960,050	29,500	1,382,459	208,609	105,400	618,350	20,000	952,359
74	92,585	274,230	1,242,450	29,500	1,638,765	92,585	184,300	1,120,050	29,500	1,426,435	92,585	105,400	723,550	20,000	941,535
75	125,619	274,230	1,406,100	29,500	1,835,449	125,619	184,300	1,281,600	29,500	1,621,019	125,619	105,400	854,400	20,000	1,105,419
76	113,109	291,730	1,582,700	29,500	2,017,039	113,109	201,800	1,456,200	29,500	1,800,609	113,109	122,900	998,800	20,000	1,254,809
77	0	291,730	1,760,050	29,500	2,081,280	0	201,800	1,631,450	29,500	1,862,750	0	122,900	1,130,550	20,000	1,273,450
78	0	291,730	1,937,300	29,500	2,258,530	0	201,800	1,806,600	29,500	2,037,900	0	122,900	1,267,800	20,000	1,410,700
79	0	291,730	2,112,900	29,500	2,434,130	0	201,800	1,980,200	29,500	2,211,500	0	122,900	1,401,900	20,000	1,544,800
1980	204	293,930	2,292,950	45,500	2,632,584	204	204,000	2,158,150	45,500	2,407,854	0	122,900	1,525,950	20,000	1,668,850
81	0	293,930	2,479,150	45,500	2,818,580	0	204,000	2,342,150	45,500	2,591,650	0	122,900	1,653,250	20,000	1,796,150
82	0	293,930	2,662,450	45,500	3,001,880	0	204,000	2,523,250	45,500	2,772,750	0	122,900	1,777,850	20,000	1,920,750
83	0	293,930	2,851,600	45,500	3,191,030	0	204,000	2,710,200	45,500	2,959,700	0	122,900	1,912,000	20,000	2,054,900
84	0	293,930	3,037,950	45,500	3,377,380	0	204,000	2,894,350	45,500	3,143,850	0	122,900	2,042,450	20,000	2,185,350
85	0	293,930	3,228,500	45,500	3,567,930	0	204,000	3,082,700	45,500	3,332,200	0	122,900	2,173,300	20,000	2,316,200
86	0	293,930	3,420,250	45,500	3,759,680	0	204,000	3,272,150	45,500	3,521,650	0	122,900	2,324,450	20,000	2,467,350
87	0	293,930	3,618,400	45,500	3,957,830	0	204,000	3,468,100	45,500	3,717,600	0	122,900	2,466,800	20,000	2,609,700
88	0	293,930	3,814,950	45,500	4,154,380	0	204,000	3,662,450	45,500	3,911,950	0	122,900	2,610,050	20,000	2,752,950
89	0	293,930	3,960,250	45,500	4,299,680	0	204,000	3,803,550	45,500	4,053,050	0	122,900	2,701,850	20,000	2,844,750
1990	0	293,930	4,053,700	45,500	4,393,130	0	204,000	3,892,800	45,500	4,142,300	0	122,900	2,737,100	20,000	2,880,000
91	0	293,930	4,072,300	45,500	4,411,730	0	204,000	3,905,900	45,500	4,155,400	0	122,900	2,750,200	20,000	2,893,100
92	0	293,930	4,077,800	45,500	4,417,230	0	204,000	3,905,900	45,500	4,155,400	0	122,900	2,750,200	20,000	2,893,100
93	0	293,930	4,083,300	45,500	4,422,730	0	204,000	3,905,900	45,500	4,155,400	0	122,900	2,750,200	20,000	2,893,100
94	0	293,930	4,087,900	45,500	4,427,330	0	204,000	3,905,900	45,500	4,155,400	0	122,900	2,750,200	20,000	2,893,100
95	0	293,930	4,089,900	45,500	4,429,330	0	204,000	3,905,900	45,500	4,155,400	0	122,900	2,750,200	20,000	2,893,100
96	0	293,930	4,091,900	45,500	4,431,330	0	204,000	3,905,900	45,500	4,155,400	0	122,900	2,750,200	20,000	2,893,100
97	0	293,930	4,093,900	45,500	4,433,330	0	204,000	3,905,900	45,500	4,155,400	0	122,900	2,750,200	20,000	2,893,100
98	0	293,930	4,093,900	45,500	4,433,330	0	204,000	3,905,900	45,500	4,155,400	0	122,900	2,750,200	20,000	2,893,100
99	0	293,930	4,093,900	45,500	4,433,330	0	204,000	3,905,900	45,500	4,155,400	0	122,900	2,750,200	20,000	2,893,100
2000 1/	0	293,930	4,093,900	45,500	4,433,330	0	204,000	3,905,900	45,500	4,155,400	0	122,900	2,750,200	20,000	2,893,100

1/ And thereafter for the remainder of the project repayment period.

TABLE B-6 (Continued)

ANNUAL QUANTITIES CONVEYED
THROUGH EACH PUMPING AND POWER RECOVERY PLANT

(in acre-feet)

Calendar year	CALIFORNIA AQUEDUCT (Continued)														
	SOUTH SAN JOAQUIN DIVISION (Continued)										TEHACHAPI DIVISION				
	WHEELER RIDGE PUMPING PLANT					WIND GAP PUMPING PLANT					TEHACHAPI PUMPING PLANT				
	Const. water	Operat'l losses	Deliveries: Water supply	Deliveries: Recreation	Total	Const. water	Operat'l losses	Deliveries: Water supply	Deliveries: Recreation	Total	Const. water	Operat'l losses	Deliveries: Water supply	Deliveries: Recreation	Total
	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)	(39)	(40)	(41)	(42)	(43)	(44)	(45)
1962	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
63	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
64	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
66	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
67	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
68	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
69	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1970	52,162	1,365	0	0	53,527	51,842	1,248	0	0	53,090	49,799	572	0	0	50,371
71	108,751	68,616	251,000	0	428,367	108,751	67,716	251,000	0	427,467	108,751	45,016	251,000	0	404,767
72	114,087	87,000	466,700	20,000	687,787	114,087	86,100	457,900	20,000	678,087	114,087	63,400	457,900	20,000	655,387
73	208,609	93,900	594,050	20,000	916,559	208,609	93,000	586,850	20,000	908,459	208,609	70,300	573,850	20,000	872,759
74	92,585	93,900	706,350	20,000	912,835	92,585	93,000	702,950	20,000	908,535	92,585	70,300	689,950	20,000	872,835
75	125,619	93,900	826,800	20,000	1,066,319	125,619	93,000	821,700	20,000	1,060,319	125,619	70,300	805,700	20,000	1,021,619
76	113,109	111,400	961,400	20,000	1,205,909	113,109	110,500	954,700	20,000	1,198,309	113,109	70,300	930,700	20,000	1,134,109
77	0	111,400	1,084,250	20,000	1,215,650	0	110,500	1,074,250	20,000	1,204,750	0	70,300	1,047,750	20,000	1,138,050
78	0	111,400	1,213,700	20,000	1,345,100	0	110,500	1,198,800	20,000	1,329,300	0	70,300	1,165,800	20,000	1,256,100
79	0	111,400	1,340,800	20,000	1,472,200	0	110,500	1,325,000	20,000	1,455,500	0	70,300	1,283,500	20,000	1,373,800
1980	0	111,400	1,460,950	20,000	1,592,350	0	110,500	1,444,350	20,000	1,574,850	0	70,300	1,402,350	20,000	1,492,650
81	0	111,400	1,582,250	20,000	1,713,650	0	110,500	1,564,450	20,000	1,694,950	0	70,300	1,521,950	20,000	1,612,250
82	0	111,400	1,701,350	20,000	1,832,750	0	110,500	1,682,450	20,000	1,812,950	0	70,300	1,639,450	20,000	1,729,750
83	0	111,400	1,827,000	20,000	1,958,400	0	110,500	1,803,400	20,000	1,933,900	0	70,300	1,757,200	20,000	1,847,500
84	0	111,400	1,950,150	20,000	2,081,550	0	110,500	1,924,550	20,000	2,055,050	0	70,300	1,874,450	20,000	1,964,750
85	0	111,400	2,073,700	20,000	2,205,100	0	110,500	2,046,100	20,000	2,176,600	0	70,300	1,992,100	20,000	2,082,400
86	0	111,400	2,208,250	20,000	2,339,650	0	110,500	2,173,650	20,000	2,304,150	0	70,300	2,113,650	20,000	2,203,950
87	0	111,400	2,341,400	20,000	2,472,800	0	110,500	2,303,300	20,000	2,433,800	0	70,300	2,239,800	20,000	2,330,100
88	0	111,400	2,476,350	20,000	2,607,750	0	110,500	2,437,750	20,000	2,568,250	0	70,300	2,366,750	20,000	2,457,050
89	0	111,400	2,562,350	20,000	2,693,750	0	110,500	2,523,450	20,000	2,653,950	0	70,300	2,448,950	20,000	2,539,250
1990	0	111,400	2,590,600	20,000	2,722,000	0	110,500	2,550,300	20,000	2,680,800	0	70,300	2,469,800	20,000	2,560,100
91	0	111,400	2,603,700	20,000	2,735,100	0	110,500	2,563,400	20,000	2,693,900	0	70,300	2,482,900	20,000	2,573,200
92	0	111,400	2,603,700	20,000	2,735,100	0	110,500	2,563,400	20,000	2,693,900	0	70,300	2,482,900	20,000	2,573,200
93	0	111,400	2,603,700	20,000	2,735,100	0	110,500	2,563,400	20,000	2,693,900	0	70,300	2,482,900	20,000	2,573,200
94	0	111,400	2,603,700	20,000	2,735,100	0	110,500	2,563,400	20,000	2,693,900	0	70,300	2,482,900	20,000	2,573,200
95	0	111,400	2,603,700	20,000	2,735,100	0	110,500	2,563,400	20,000	2,693,900	0	70,300	2,482,900	20,000	2,573,200
96	0	111,400	2,603,700	20,000	2,735,100	0	110,500	2,563,400	20,000	2,693,900	0	70,300	2,482,900	20,000	2,573,200
97	0	111,400	2,603,700	20,000	2,735,100	0	110,500	2,563,400	20,000	2,693,900	0	70,300	2,482,900	20,000	2,573,200
98	0	111,400	2,603,700	20,000	2,735,100	0	110,500	2,563,400	20,000	2,693,900	0	70,300	2,482,900	20,000	2,573,200
99	0	111,400	2,603,700	20,000	2,735,100	0	110,500	2,563,400	20,000	2,693,900	0	70,300	2,482,900	20,000	2,573,200
2000 1/	0	111,400	2,603,700	20,000	2,735,100	0	110,500	2,563,400	20,000	2,693,900	0	70,300	2,482,900	20,000	2,573,200

1/ And thereafter for the remainder of the project repayment period.

TABLE B-6 (Continued)

ANNUAL QUANTITIES CONVEYED
THROUGH EACH PUMPING AND POWER RECOVERY PLANT

(in acre-feet)

Calendar year	CALIFORNIA AQUEDUCT (Continued)														
	EAST BRANCH DIVISION														
	COTTONWOOD POWERPLANT					PEARBLOSSOM PUMPING PLANT					UPPER AND LOWER DEVIL CANYON POWERPLANTS				
	Const. water	Operat'l losses	Deliveries		Total	Const. water	Operat'l losses	Deliveries		Total	Const. water	Operat'l losses	Deliveries		Total
			Water supply	Recreation				Water supply	Recreation				Water supply	Recreation	
	(46)	(47)	(48)	(49)	(50)	(51)	(52)	(53)	(54)	(55)	(56)	(57)	(58)	(59)	(60)
1962	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
63	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
64	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
66	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
67	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
68	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
69	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1970	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71	76,013	23,416	0	0	99,429	67,401	11,616	0	0	79,017	7,260	1,273	0	0	8,533
72	27,422	41,800	160,500	20,000	249,722	27,422	28,700	158,750	20,000	234,872	20,000	9,800	135,550	0	165,350
73	81,649	41,800	203,650	20,000	347,099	81,659	28,700	200,400	20,000	330,759	0	9,800	172,350	0	182,150
74	34,287	41,800	246,900	20,000	342,987	34,287	28,700	242,250	20,000	325,237	0	9,800	209,200	0	219,000
75	39,951	41,800	289,800	20,000	391,551	39,951	28,700	283,700	20,000	372,351	20,875	9,800	245,750	0	276,425
76	52,125	41,800	333,050	20,000	446,975	52,125	28,700	325,500	20,000	426,325	52,125	9,800	282,550	0	344,475
77	0	41,800	376,250	20,000	438,050	0	28,700	367,300	20,000	416,000	0	9,800	319,150	0	328,950
78	0	41,800	419,500	20,000	481,300	0	28,700	409,250	20,000	457,950	0	9,800	356,000	0	365,800
79	0	41,800	462,450	20,000	524,250	0	28,700	451,150	20,000	499,850	0	9,800	392,700	0	402,500
1980	0	41,800	506,450	20,000	568,250	0	28,700	494,100	20,000	542,800	0	9,800	429,300	0	439,100
81	0	41,800	539,800	20,000	601,600	0	28,700	526,850	20,000	575,550	0	9,800	455,150	0	464,950
82	0	41,800	571,000	20,000	632,800	0	28,700	557,300	20,000	606,000	0	9,800	478,750	0	488,550
83	0	41,800	602,200	20,000	664,000	0	28,700	587,750	20,000	636,450	0	9,800	502,350	0	512,150
84	0	41,800	633,300	20,000	695,100	0	28,700	618,150	20,000	666,850	0	9,800	525,850	0	535,650
85	0	41,800	664,950	20,000	726,750	0	28,700	649,000	20,000	697,700	0	9,800	549,850	0	559,650
86	0	41,800	699,200	20,000	761,000	0	28,700	682,550	20,000	731,250	0	9,800	576,400	0	586,200
87	0	41,800	737,900	20,000	799,700	0	28,700	720,550	20,000	769,250	0	9,800	606,950	0	616,750
88	0	41,800	776,700	20,000	838,500	0	28,700	758,600	20,000	807,300	0	9,800	637,650	0	647,450
89	0	41,800	820,700	20,000	882,500	0	28,700	801,850	20,000	850,550	0	9,800	673,300	0	683,100
1990	0	41,800	831,200	20,000	893,000	0	28,700	811,600	20,000	860,300	0	9,800	676,500	0	686,300
91	0	41,800	838,000	20,000	899,800	0	28,700	818,400	20,000	867,100	0	9,800	683,300	0	693,100
92	0	41,800	838,000	20,000	899,800	0	28,700	818,400	20,000	867,100	0	9,800	683,300	0	693,100
93	0	41,800	838,000	20,000	899,800	0	28,700	818,400	20,000	867,100	0	9,800	683,300	0	693,100
94	0	41,800	838,000	20,000	899,800	0	28,700	818,400	20,000	867,100	0	9,800	683,300	0	693,100
95	0	41,800	838,000	20,000	899,800	0	28,700	818,400	20,000	867,100	0	9,800	683,300	0	693,100
96	0	41,800	838,000	20,000	899,800	0	28,700	818,400	20,000	867,100	0	9,800	683,300	0	693,100
97	0	41,800	838,000	20,000	899,800	0	28,700	818,400	20,000	867,100	0	9,800	683,300	0	693,100
98	0	41,800	838,000	20,000	899,800	0	28,700	818,400	20,000	867,100	0	9,800	683,300	0	693,100
99	0	41,800	838,000	20,000	899,800	0	28,700	818,400	20,000	867,100	0	9,800	683,300	0	693,100
2000 1/	0	41,800	838,000	20,000	899,800	0	28,700	818,400	20,000	867,100	0	9,800	683,300	0	693,100

1/ And thereafter for the remainder of the project repayment period.

TABLE B-6 (Continued)

ANNUAL QUANTITIES CONVEYED
THROUGH EACH PUMPING AND POWER RECOVERY PLANT

(in acre-feet)

Calendar year	CALIFORNIA AQUEDUCT (Continued)														
	WEST BRANCH DIVISION														
	OSO PUMPING PLANT					PYRAMID POWERPLANT					CASTAIC POWERPLANT				
	Const. water	Operat'l losses	Deliveries		Total	Const. water	Operat'l losses	Deliveries		Total	Const. water	Operat'l losses	Deliveries		Total
			Water supply	Recreation				Water supply	Recreation				Water supply	Recreation	
	(61)	(62)	(63)	(64)	(65)	(66)	(67)	(68)	(69)	(70)	(71)	(72)	(73)	(74)	(75)
1962	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
63	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
64	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
66	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
67	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
68	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
69	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1970	49,044	507	0	0	49,551	45,567	22	0	0	45,589	45,414	0	0	0	45,414
71	32,721	20,000	251,000	0	303,721	32,721	16,200	251,000	0	299,921	32,721	16,100	251,000	0	299,821
72	86,665	20,000	280,850	0	387,515	86,665	16,200	277,400	0	380,265	86,665	16,100	277,400	0	380,165
73	126,950	26,900	349,510	0	503,360	126,950	23,100	345,200	0	495,250	0	16,100	345,200	0	361,300
74	58,298	26,900	418,170	0	503,368	58,298	23,100	413,000	0	494,498	38,548	16,100	413,000	0	467,648
75	85,668	26,900	486,930	0	599,498	85,668	23,100	480,900	0	589,668	85,668	16,100	480,900	0	582,668
76	60,984	26,900	556,260	0	644,144	60,984	23,100	548,700	0	632,784	60,984	16,100	548,700	0	625,784
77	0	26,900	625,120	0	652,020	0	23,100	616,500	0	639,600	0	16,100	616,500	0	632,600
78	0	26,900	694,110	0	721,010	0	23,100	684,300	0	707,400	0	16,100	684,300	0	700,400
79	0	26,900	763,820	0	790,720	0	23,100	753,000	0	776,100	0	16,100	753,000	0	769,100
1980	0	26,900	833,600	0	860,500	0	23,100	821,700	0	844,800	0	16,100	821,700	0	837,800
81	0	26,900	914,980	0	941,880	0	23,100	902,100	0	925,200	0	16,100	902,100	0	918,200
82	0	26,900	996,170	0	1,023,070	0	23,100	982,200	0	1,005,300	0	16,100	982,200	0	998,300
83	0	26,900	1,077,380	0	1,104,280	0	23,100	1,062,300	0	1,085,400	0	16,100	1,062,300	0	1,078,400
84	0	26,900	1,158,280	0	1,185,180	0	23,100	1,142,100	0	1,165,200	0	16,100	1,142,100	0	1,158,200
85	0	26,900	1,239,090	0	1,265,990	0	23,100	1,221,800	0	1,244,900	0	16,100	1,221,800	0	1,237,900
86	0	26,900	1,321,140	0	1,348,040	0	23,100	1,302,800	0	1,325,900	0	16,100	1,302,800	0	1,318,900
87	0	26,900	1,403,330	0	1,430,230	0	23,100	1,383,900	0	1,407,000	0	16,100	1,383,900	0	1,400,000
88	0	26,900	1,486,150	0	1,513,050	0	23,100	1,465,600	0	1,488,700	0	16,100	1,465,600	0	1,481,700
89	0	26,900	1,519,140	0	1,546,040	0	23,100	1,497,500	0	1,520,600	0	16,100	1,497,500	0	1,513,600
1990	0	26,900	1,524,200	0	1,551,100	0	23,100	1,501,500	0	1,524,600	0	16,100	1,501,500	0	1,517,600
91	0	26,900	1,525,300	0	1,552,200	0	23,100	1,501,500	0	1,524,600	0	16,100	1,501,500	0	1,517,600
92	0	26,900	1,525,300	0	1,552,200	0	23,100	1,501,500	0	1,524,600	0	16,100	1,501,500	0	1,517,600
93	0	26,900	1,525,300	0	1,552,200	0	23,100	1,501,500	0	1,524,600	0	16,100	1,501,500	0	1,517,600
94	0	26,900	1,525,300	0	1,552,200	0	23,100	1,501,500	0	1,524,600	0	16,100	1,501,500	0	1,517,600
95	0	26,900	1,525,300	0	1,552,200	0	23,100	1,501,500	0	1,524,600	0	16,100	1,501,500	0	1,517,600
96	0	26,900	1,525,300	0	1,552,200	0	23,100	1,501,500	0	1,524,600	0	16,100	1,501,500	0	1,517,600
97	0	26,900	1,525,300	0	1,552,200	0	23,100	1,501,500	0	1,524,600	0	16,100	1,501,500	0	1,517,600
98	0	26,900	1,525,300	0	1,552,200	0	23,100	1,501,500	0	1,524,600	0	16,100	1,501,500	0	1,517,600
99	0	26,900	1,525,300	0	1,552,200	0	23,100	1,501,500	0	1,524,600	0	16,100	1,501,500	0	1,517,600
2000 1/	0	26,900	1,525,300	0	1,552,200	0	23,100	1,501,500	0	1,524,600	0	16,100	1,501,500	0	1,517,600

1/ And thereafter for the remainder of the project repayment period.

TABLE B-6 (Continued)

ANNUAL QUANTITIES CONVEYED
THROUGH EACH PUMPING AND POWER RECOVERY PLANT

(in acre-feet)

Calendar year	CALIFORNIA AQUEDUCT (Continued)														
	COASTAL BRANCH DIVISION														
	LAS PERILLAS AND BADGER HILL PUMPING PLANTS					DEVIL'S DEN AND SAWTOOTH PUMPING PLANTS					POLONIO PUMPING PLANT AND SAN LUIS OBISPO POWERPLANT				
	Const. water	Operat'l losses	Deliveries		Total	Const. water	Operat'l losses	Deliveries		Total	Const. water	Operat'l losses	Deliveries		Total
			Water supply	Recreation				Water supply	Recreation				Water supply	Recreation	
	(76)	(77)	(78)	(79)	(80)	(81)	(82)	(83)	(84)	(85)	(86)	(87)	(88)	(89)	(90)
1962	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
63	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
64	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
66	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
67	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
68	253	1,100	31,700	0	33,053	0	0	0	0	0	0	0	0	0	0
69	0	1,100	33,700	0	34,800	0	0	0	0	0	0	0	0	0	0
1970	0	1,100	34,700	0	35,800	0	0	0	0	0	0	0	0	0	0
71	0	1,100	35,700	0	36,800	0	0	0	0	0	0	0	0	0	0
72	0	1,100	38,700	0	39,800	0	0	0	0	0	0	0	0	0	0
73	0	1,100	41,700	0	42,800	0	0	0	0	0	0	0	0	0	0
74	0	1,100	44,700	0	45,800	0	0	0	0	0	0	0	0	0	0
75	0	1,100	47,700	0	48,800	0	0	0	0	0	0	0	0	0	0
76	0	1,100	52,700	0	53,800	0	0	0	0	0	0	0	0	0	0
77	0	1,100	56,700	0	57,800	0	0	0	0	0	0	0	0	0	0
78	0	1,100	62,700	0	63,800	0	0	0	0	0	0	0	0	0	0
79	0	1,100	76,200	0	77,300	0	0	0	0	0	0	0	0	0	0
1980	204	3,300	78,600	0	82,104	204	2,200	2,200	0	4,604	179	1,500	2,200	0	3,879
81	0	3,300	79,700	0	83,000	0	2,200	3,300	0	5,500	0	1,500	3,300	0	4,800
82	0	3,300	83,000	0	86,300	0	2,200	6,600	0	8,800	0	1,500	6,600	0	8,100
83	0	3,300	86,300	0	89,600	0	2,200	9,900	0	12,100	0	1,500	9,900	0	11,400
84	0	3,300	95,800	0	99,100	0	2,200	14,900	0	17,100	0	1,500	14,900	0	16,400
85	0	3,300	110,100	0	113,400	0	2,200	24,800	0	27,000	0	1,500	24,800	0	26,300
86	0	3,300	122,800	0	126,100	0	2,200	33,100	0	35,300	0	1,500	33,100	0	34,600
87	0	3,300	135,400	0	138,700	0	2,200	41,300	0	43,500	0	1,500	41,300	0	42,800
88	0	3,300	149,900	0	153,200	0	2,200	51,300	0	53,500	0	1,500	51,300	0	52,800
89	0	3,300	167,400	0	170,700	0	2,200	66,100	0	68,300	0	1,500	66,100	0	67,600
1990	0	3,300	185,300	0	188,600	0	2,200	82,700	0	84,900	0	1,500	82,700	0	84,200
91	0	3,300	185,300	0	188,600	0	2,200	82,700	0	84,900	0	1,500	82,700	0	84,200
92	0	3,300	185,300	0	188,600	0	2,200	82,700	0	84,900	0	1,500	82,700	0	84,200
93	0	3,300	185,300	0	188,600	0	2,200	82,700	0	84,900	0	1,500	82,700	0	84,200
94	0	3,300	185,300	0	188,600	0	2,200	82,700	0	84,900	0	1,500	82,700	0	84,200
95	0	3,300	185,300	0	188,600	0	2,200	82,700	0	84,900	0	1,500	82,700	0	84,200
96	0	3,300	185,300	0	188,600	0	2,200	82,700	0	84,900	0	1,500	82,700	0	84,200
97	0	3,300	185,300	0	188,600	0	2,200	82,700	0	84,900	0	1,500	82,700	0	84,200
98	0	3,300	185,300	0	188,600	0	2,200	82,700	0	84,900	0	1,500	82,700	0	84,200
99	0	3,300	185,300	0	188,600	0	2,200	82,700	0	84,900	0	1,500	82,700	0	84,200
2000 1/	0	3,300	185,300	0	188,600	0	2,200	82,700	0	84,900	0	1,500	82,700	0	84,200

1/ And thereafter for the remainder of the project repayment period.

TABLE B-7

ANNUAL TOTAL ADVANCE PAYMENTS AND ALLOCATED COSTS
FOR REQUESTED EXCESS CAPACITY IN THE CALIFORNIA AQUEDUCT

(in dollars)

REACH NUMBER	REACH DESCRIPTION	ITEM	CALENDAR YEAR 1952-1965 1/	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	TOTAL REACH VALUE: REACH COST	TOTAL REACH VALUE: INCREMENTAL COST	TOTAL REACH VALUE: ADVANCE PAYMENT	TOTAL CAPACITY (cfs)	RATIO OF INCREMENTAL CAPACITY TO TOTAL CAPACITY
8	Kettleman City to Avenal Gap	Total Reach Cost	1,782,906	7,504,000	3,240,000	117,000	15,000	0	0	0	0	0	0	11,958,906	-	-	8,056.56472	02948899
		Incremental Cost	1,000	97,000	47,000	0	0	0	0	0	0	0	0	-	145,000	-		
		Advanced Payment	2,432	235,915	114,309	0	0	0	0	0	0	0	0	-	-	352,656		
9	Avenal Gap to Twisselman Road	Total Reach Cost	2,086,884	3,404,000	3,004,000	88,000	15,000	0	0	0	0	0	0	9,197,884	-	-	7,267 06978	03269267
		Incremental Cost	18,000	37,000	35,000	0	0	0	0	0	0	0	0	-	90,000	-		
		Advanced Payment	60,141	123,622	116,940	0	0	0	0	0	0	0	0	-	-	300,703		
10A	Twisselman Road to near Lost Hills	Total Reach Cost	2,693,760	3,075,000	3,962,000	79,000	15,000	0	0	0	0	0	0	9,824,760	-	-	7,115.51334	03338948
		Incremental Cost	25,000	46,000	46,000	0	0	0	0	0	0	0	0	-	117,000	-		
		Advanced Payment	70,094	128,975	128,975	0	0	0	0	0	0	0	0	-	-	328,044		
11B	Near Lost Hills to near Seventh Standard Road	Total Reach Cost	2,513,684	2,524,000	2,475,000	611,000	84,000	0	0	0	0	0	0	8,207,684	-	-	6,311 98241	03763951
		Incremental Cost	25,000	15,000	28,000	69,000	0	0	0	0	0	0	0	-	137,000	-		
		Advanced Payment	56,374	33,825	63,139	155,594	0	0	0	0	0	0	0	-	-	308,932		
12D	Near Seventh Standard Road to Elk Hills Road	Total Reach Cost	2,395,856	776,000	3,381,000	3,621,200	1,954,200	0	0	0	0	0	0	12,128,256	-	-	5,928.44107	04007460
		Incremental Cost	36,000	21,000	41,000	56,000	44,000	0	0	0	0	0	0	-	198,000	-		
		Advanced Payment	88,370	51,549	100,644	137,464	108,008	0	0	0	0	0	0	-	-	486,035		
12E	Elk Hills Road to Tupman	Total Reach Cost	1,358,678	454,000	2,470,000	2,681,100	1,429,100	0	0	0	0	0	0	8,392,878	-	-	5,907.98925	04021333
		Incremental Cost	17,000	2,000	20,000	59,000	52,000	0	0	0	0	0	0	-	150,000	-		
		Advanced Payment	38,251	4,500	45,001	132,752	117,002	0	0	0	0	0	0	-	-	337,506		
13B	Tupman to Buena Vista Pumping Plant	Total Reach Cost	1,244,657	367,000	2,734,000	4,027,200	1,808,200	0	0	0	0	0	0	10,181,057	-	-	5,118.48801	04641604
		Incremental Cost	19,000	3,000	23,000	70,000	61,000	0	0	0	0	0	0	-	176,000	-		
		Advanced Payment	51,015	8,055	61,756	187,952	163,786	0	0	0	0	0	0	-	-	472,564		
14A	Buena Vista Pumping Plant to Santiago Creek	Total Reach Cost	6,464,626	3,627,800	4,112,000	7,095,700	11,025,700	4,111,000	4,124,000	3,093,000	0	0	1,030,000	44,683,826	-	-	4,953 00475	04796683
		Incremental Cost	75,000	41,000	34,000	70,000	488,000	0	0	0	0	0	0	-	708,000	-		
		Advanced Payment	227,049	124,120	102,929	211,912	1,477,331	0	0	0	0	0	0	-	-	2,143,341		
14B	Santiago Creek to Old River Road	Total Reach Cost	3,477,212	865,000	388,000	2,611,100	6,030,100	71,700	0	0	0	0	0	13,443,112	-	-	4,895 97842	.04852552
		Incremental Cost	51,000	19,000	22,000	9,000	120,000	0	0	0	0	0	0	-	221,000	-		
		Advanced Payment	150,539	56,083	64,938	26,566	354,208	0	0	0	0	0	0	-	-	652,334		
14C	Old River Road to Wheeler Ridge Pumping Plant	Total Reach Cost	2,876,408	773,000	343,000	2,436,000	5,097,000	58,500	0	0	0	0	0	11,583,908	-	-	4,792 95355	.04956858
		Incremental Cost	77,000	35,000	32,000	2,000	136,000	0	0	0	0	0	0	-	282,000	-		
		Advanced Payment	156,785	71,266	65,157	4,072	276,918	0	0	0	0	0	0	-	-	574,198		
15	Wheeler Ridge Pumping Plant to Wind Gap Pumping Plant	Total Reach Cost	3,174,260	1,708,100	2,034,000	2,471,500	9,351,500	7,255,000	5,074,000	4,143,000	2,021,000	100,000	1,010,000	38,342,360	-	-	4,496 98471	05283094
		Incremental Cost	28,000	18,000	24,000	107,000	260,000	314,000	0	0	0	0	0	-	751,000	-		
		Advanced Payment	75,524	48,551	64,735	288,610	701,295	846,948	0	0	0	0	0	-	-	2,025,663		
16	Wind Gap Pumping Plant to Tehachapi Pumping Plant	Total Reach Cost	4,715,316	3,669,100	3,750,000	10,522,100	14,479,100	10,061,100	6,400,000	3,130,000	192,000	1,604,000	100,000	58,622,716	-	-	4,375 26983	05430068
		Incremental Cost	50,000	35,000	36,000	113,000	203,000	823,000	0	0	0	0	0	-	1,260,000	-		
		Advanced Payment	126,320	88,424	90,950	285,482	512,857	2,079,220	0	0	0	0	0	-	-	3,183,253		
17C	Tehachapi Pumping Plant to South Portal Tehachapi Tunnel No. 3	Total Reach Cost	8,468,168	14,909,500	35,735,000	47,192,500	23,680,500	16,333,500	8,939,000	1,629,000	1,489,000	1,489,000	0	159,865,168	-	-	4,092.45354	05805317
		Incremental Cost	587,000	580,000	821,000	1,400,000	3,915,000	0	0	0	0	0	0	-	7,303,000	-		
		Advanced Payment	745,962	737,066	1,043,330	1,779,125	4,975,197	0	0	0	0	0	0	-	-	9,280,680		
17D	South Portal Tehachapi Tunnel No. 3 to Junction East and West Branches	Total Reach Cost	4,847,210	11,865,000	11,858,000	11,907,000	9,478,000	524,000	0	0	0	0	0	50,479,210	-	-	4,083.33710	.05818278
		Incremental Cost	571,000	557,000	556,000	137,000	0	0	0	0	0	0	0	-	1,821,000	-		
		Advanced Payment	920,944	898,364	896,751	220,962	0	0	0	0	0	0	0	-	-	2,937,021		
29A	Junction, East and West Branches thru Oso Pumping Plant	Total Reach Cost	754,082	892,000	2,343,000	2,076,000	4,149,000	4,050,000	1,250,000	0	47,000	615,000	615,000	16,791,082	-	-	3,122 87882	25913800
		Incremental Cost	271,000	612,000	1,277,000	0	591,000	774,000	172,000	0	11,000	168,000	132,000	-	4,008,000	-		
		Advanced Payment	294,206	664,406	1,386,350	0	641,608	840,278	186,728	0	11,942	182,386	143,303	-	-	4,351,207		
29B	Oso Pumping Plant to State Route 138	Total Reach Cost	346,312	130,000	131,000	2,173,000	3,254,000	51,500	3,000	0	0	0	0	6,088,812	-	-	3,086 31295	26220821
		Incremental Cost	28,000	30,000	30,000	540,000	804,000	0	0	0	0	0	0	-	1,432,000	-		
		Advanced Payment	31,217	33,447	33,447	602,046	896,379	0	0	0	0	0	0	-	-	1,596,536		
29C	State Route 138 thru Pyramid Powerplant	Total Reach Cost	2,849,792	1,612,000	9,663,000	26,928,000	18,746,000	5,908,700	2,793,000	0	0	0	0	68,300,492	-	-	3,075 60193	26312137
		Incremental Cost	0	386,000	7,139,000	7,051,000	3,212,000	0	0	0	0	0	0	-	17,788,000	-		
		Advanced Payment	0	389,978	7,212,573	7,123,666	3,245,102	0	0	0	0	0	0	-	-	17,971,319		
29E	Pyramid Reservoir thru Castaic Powerplant	Total Reach Cost	4,403,946	8,895,000	15,815,000	19,171,000	17,961,000	3,225,900	326,000	3,536,000	3,536,000	0	0	76,869,846	-	-	3,062 85397	26421651
		Incremental Cost	621,000	493,000	4,923,000	10,044,000	1,850,000	0	77,000	998,000	998,000	0	0	-	20,004,000	-		
		Advanced Payment	630,508	500,540	4,998,376	10,197,784	1,878,325	0	78,179	1,013,281	1,013,281	0	0	-	-	20,310,282		
TOTALS		Total Reach Cost	56,153,757	67,050,500	107,438,000	145,808,400	128,572,400	51,650,900	28,909,000	15,531,000	7,285,000	3,808,000	2,755,000	614,961,957	-	-	-	-
		Incremental Cost	2,500,000	3,027,000	15,134,000	19,727,000	11,736,000	1,911,000	249,000	998,000	1,009,000	168,000	132,000	-	56,591,000	-		
		Advanced Payment	3,725,731	4,198,694	16,590,300	21,353,987	15,348,016	3,766,446	264,907	1,013,281	1,025,223	182,386	143,303	-	-	67,612,274 2/		

1/ Total reach costs during the period 1952 to 1964 are compounded to 1965 at 3.531% interest.

2/ Excluding any interest credits.

TABLE B-8

ACTUAL AND PROJECTED CAPITAL COSTS
ALLOCATED TO TRANSPORTATION FOR EACH AQUEDUCT REACH

(in dollars)

	NORTH BAY AQUEDUCT				SOUTH BAY AQUEDUCT						
CALENDAR YEAR	Reach 1	Reach 2	Reach 3	TOTAL NORTH BAY AQUEDUCT	Reach 1	Reach 2	Reach 4	Reach 5	Reach 6	Reach 7	Reach 8
1952	0	0	0	0	62	22	18	59	5	43	41
1953	0	0	0	0	311	108	92	293	27	214	205
1954	0	0	0	0	1,016	352	300	955	88	698	671
1955	0	0	0	0	1,393	495	392	1,269	118	930	894
1956	0	0	0	0	18,221	6,332	4,972	15,875	1,465	11,589	11,137
1957	10,348	3,019	7,513	20,880	41,489	14,388	11,332	36,140	3,334	26,376	25,346
1958	15,183	4,429	21,269	40,881	161,331	70,567	6,660	21,231	1,959	15,500	14,895
1959	6,072	1,770	14,751	22,593	423,681	118,856	22,501	24,415	602	5,667	6,269
1960	11,160	3,253	4,591	19,004	1,163,602	57,479	70,477	100,266	1,276	12,013	13,301
1961	9,938	2,899	3,032	15,869	3,132,076	514,816	305,109	121,677	2,184	20,571	24,219
1962	3,242	945	1,502	5,689	1,482,688	188,748	879,134	61,668	19,230	181,084	161,188
1963	8,879	2,580	4,011	15,470	437,584	75,763	1,714,701	267,168	55,324	2,707,846	271,030
1964	8,112	4,385	10,756	23,253	2,527,690	46,030	146,386	412,960	1,316,049	720,609	1,965,119
1965	35,100	23,000	112,400	170,500	544,000	21,000	73,000	565,800	17,000	181,000	403,000
1966	90,200	61,000	696,700	847,900	143,000	23,000	67,000	2,150,200	2,000	2,000	14,000
1967	105,100	59,000	1,176,700	1,340,800	93,000	0	15,000	2,768,900	0	0	6,000
1968	88,200	46,100	64,000	198,300	5,000	0	0	1,856,500	0	0	0
1969	18,400	10,200	0	28,600	0	0	0	540,000	0	0	0
1970	18,500	10,200	0	28,700	0	0	0	94,000	0	0	0
1971	18,500	9,200	0	27,700	0	0	0	0	0	0	0
1972	18,500	9,200	0	27,700	0	0	0	0	0	0	0
1973	18,500	9,200	0	27,700	0	0	0	0	0	0	0
1974	18,500	9,200	0	27,700	0	0	0	0	0	0	0
1975	18,500	9,200	0	27,700	0	0	0	0	0	0	0
1976	44,500	24,200	21,000	89,700	0	0	0	0	0	0	0
1977	253,500	173,200	60,000	486,700	0	0	0	0	0	0	0
1978	1,093,500	793,200	521,000	2,407,700	0	0	0	0	0	0	0
1979	1,547,500	1,069,200	774,000	3,390,700	0	0	0	0	0	0	0
1980	0	0	0	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0	0	0	0
1985	0	0	0	0	0	0	0	0	0	0	0
1986	0	0	0	0	0	0	0	0	0	0	0
1987	0	0	0	0	12,000	0	0	0	0	0	0
1988	0	0	0	0	100,000	0	0	0	0	0	0
1989	0	0	0	0	160,000	0	0	0	0	0	0
1990	0	0	0	0	0	0	0	0	0	0	0
1991	0	0	0	0	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0	0	0	0	0
1994	0	0	0	0	0	0	0	0	0	0	0
1995	0	0	0	0	0	0	0	0	0	0	0
1996	0	0	0	0	0	0	0	0	0	0	0
1997	0	0	0	0	0	0	0	0	0	0	0
1998	0	0	0	0	0	0	0	0	0	0	0
1999	0	0	0	0	0	0	0	0	0	0	0
2000	0	0	0	0	0	0	0	0	0	0	0
TOTAL	3,459,934	2,338,580	3,493,225	9,291,739	10,448,144	1,137,956	3,317,074	9,039,376	1,420,661	3,886,140	2,917,315

TABLE B-8 (Continued)

ACTUAL AND PROJECTED CAPITAL COSTS
ALLOCATED TO TRANSPORTATION FOR EACH AQUEDUCT REACH

(in dollars)

SOUTH BAY AQUEDUCT (Continued) CALIFORNIA AQUEDUCT

CALENDAR YEAR	Reach 9	TOTAL SOUTH BAY AQUEDUCT	NORTH SAN JOAQUIN DIVISION			SAN LUIS DIVISION					
			Reach 1	Reach 2	Subtotal	Reach 3	Reach 4	Reach 5	Reach 6	Reach 7	Subtotal
1952	83	333	4,258	5,128	9,386	1,339	3,199	3,630	923	1,138	10,229
1953	411	1,661	10,481	12,602	23,083	3,561	8,507	9,653	2,454	3,027	27,202
1954	1,345	5,425	13,066	15,623	28,689	4,240	10,131	11,494	2,922	3,604	32,391
1955	1,796	7,287	6,988	8,324	15,312	2,064	4,931	5,595	1,422	1,754	15,766
1956	29,570	99,161	10,358	8,346	18,704	2,663	5,112	5,800	1,475	1,819	16,869
1957	560,181	718,586	12,259	8,929	21,188	2,865	5,475	6,212	1,579	1,948	18,079
1958	549,512	841,655	23,323	27,178	50,501	10,563	23,321	26,654	6,720	8,520	75,778
1959	128,706	730,697	147,660	164,840	312,500	24,912	53,834	61,443	15,466	19,695	175,350
1960	261,253	1,679,667	181,239	211,069	392,308	29,701	56,771	61,938	16,103	25,060	189,573
1961	17,084	4,137,736	210,676	218,676	429,352	109,084	257,678	197,278	61,897	91,363	717,300
1962	267,329	3,241,069	401,139	789,444	1,190,583	429,925	588,263	448,716	142,065	204,031	1,813,000
1963	256,379	5,785,795	3,476,016	2,431,697	5,907,713	1,767,071	2,907,734	2,628,107	7,542	-62,823	7,247,631
1964	3,134,884	10,269,727	5,757,886	3,504,604	9,262,490	2,510,288	4,955,561	2,407,448	579,899	1,137,162	11,590,358
1965	2,221,000	4,025,800	8,051,600	13,023,400	21,075,000	2,940,000	7,524,700	3,761,200	1,110,900	1,506,100	16,842,900
1966	82,000	2,483,200	6,804,000	18,248,000	25,052,000	1,441,000	7,726,000	6,768,000	2,490,000	3,690,000	22,115,000
1967	60,000	2,942,900	7,752,000	17,905,000	25,657,000	523,000	3,829,000	5,495,000	1,727,000	5,439,000	17,013,000
1968	35,000	1,896,500	2,915,000	153,000	3,068,000	578,000	1,246,000	1,920,000	667,000	1,053,000	5,464,000
1969	0	540,000	70,000	0	70,000	51,000	110,000	167,000	57,000	92,000	477,000
1970	0	94,000	131,000	0	131,000	0	0	0	0	0	0
1971	0	0	0	0	0	0	0	0	0	0	0
1972	0	0	82,000	0	82,000	0	0	0	0	0	0
1973	0	0	2,829,000	0	2,829,000	0	0	0	0	0	0
1974	0	0	2,829,000	0	2,829,000	0	0	0	0	0	0
1975	0	0	0	0	0	0	0	0	0	0	0
1976	0	0	0	0	0	0	0	0	0	0	0
1977	0	0	0	0	0	0	0	0	0	0	0
1978	0	0	0	0	0	0	0	0	0	0	0
1979	0	0	0	0	0	0	0	0	0	0	0
1980	0	0	0	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	178,000	501,000	404,000	120,000	227,000	1,430,000
1984	0	0	0	0	0	356,000	1,001,000	906,000	240,000	454,000	2,957,000
1985	0	0	0	0	0	712,000	2,003,000	1,812,000	479,000	908,000	5,914,000
1986	0	0	0	0	0	535,000	1,500,000	918,000	356,000	684,000	3,993,000
1987	0	12,000	0	0	0	0	0	0	0	0	0
1988	0	100,000	0	0	0	0	0	0	0	0	0
1989	0	160,000	0	0	0	0	0	0	0	0	0
1990	0	0	0	0	0	0	0	0	0	0	0
1991	0	0	0	0	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0	0	0	0	0
1994	0	0	0	0	0	0	0	0	0	0	0
1995	0	0	0	0	0	0	0	0	0	0	0
1996	0	0	0	0	0	0	0	0	0	0	0
1997	0	0	0	0	0	0	0	0	0	0	0
1998	0	0	0	0	0	0	0	0	0	0	0
1999	0	0	0	0	0	0	0	0	0	0	0
2000	0	0	0	0	0	0	0	0	0	0	0
TOTAL	7,606,533	39,773,199	41,718,949	56,735,860	98,454,809	12,212,276	34,321,217	28,025,168	8,087,367	15,489,398	98,135,426

TABLE B-8 (Continued)

ACTUAL AND PROJECTED CAPITAL COSTS
ALLOCATED TO TRANSPORTATION FOR EACH AQUEDUCT REACH

(in dollars)

CALIFORNIA AQUEDUCT (Continued)

CALENDAR YEAR	SOUTH SAN JOAQUIN DIVISION										
	Reach 8	Reach 9	Reach 10A	Reach 11B	Reach 12D	Reach 12E	Reach 13B	Reach 14A	Reach 14B	Reach 14C	Reach 15
1952	625	813	813	1,155	1,836	912	1,506	568	193	202	1,099
1953	2,300	2,990	2,990	4,248	6,757	3,354	5,542	2,090	709	744	4,044
1954	2,973	3,865	3,865	5,490	8,732	4,334	7,162	2,701	916	961	5,225
1955	1,384	1,799	1,799	2,555	4,064	2,017	3,333	1,257	426	447	2,432
1956	3,353	4,359	4,359	6,191	9,848	4,888	8,077	3,113	1,055	1,108	5,893
1957	9,333	12,132	12,132	17,234	27,414	13,606	22,484	9,455	3,205	3,365	16,405
1958	15,646	20,360	20,360	39,109	62,209	30,875	51,022	29,224	9,906	10,402	51,403
1959	17,718	22,790	22,790	59,320	94,359	46,832	77,390	53,805	18,186	19,095	94,747
1960	46,871	38,806	59,856	52,340	83,256	41,321	68,284	59,193	18,385	19,305	111,638
1961	77,949	40,280	76,765	79,480	126,427	62,747	103,691	116,010	40,541	42,568	186,260
1962	169,748	67,183	59,713	69,613	110,731	54,957	90,818	105,173	35,652	41,988	175,680
1963	181,491	89,268	62,043	102,170	162,518	81,280	134,318	264,478	108,415	114,015	429,538
1964	119,770	155,981	151,847	232,944	370,539	126,154	208,471	1,129,149	579,358	521,069	1,098,613
1965	332,000	2,085,000	2,059,000	1,668,000	1,096,000	769,000	305,000	4,318,900	2,468,000	1,898,000	693,600
1966	7,212,000	3,278,000	2,949,000	2,443,000	735,000	440,000	354,000	3,492,800	824,000	718,000	1,646,100
1967	3,109,000	2,891,000	3,813,000	2,383,000	3,252,000	2,386,000	2,640,000	3,971,000	356,000	302,000	1,957,000
1968	114,000	86,000	77,000	526,000	3,471,200	2,552,100	3,852,200	6,841,700	2,534,100	2,371,000	2,300,500
1969	15,000	15,000	15,000	82,000	1,859,200	1,340,100	1,701,200	10,250,700	5,753,100	4,829,000	8,848,500
1970	0	0	0	0	0	0	0	4,004,000	69,700	56,500	6,752,000
1971	0	0	0	0	0	0	0	4,017,000	0	0	4,942,000
1972	0	0	0	0	0	0	0	3,013,000	0	0	4,035,000
1973	0	0	0	0	0	0	0	0	0	0	1,971,000
1974	0	0	0	0	0	0	0	0	0	0	97,000
1975	0	0	0	0	0	0	0	1,003,000	0	0	984,000
1976	0	0	0	0	0	0	0	0	0	0	0
1977	0	0	0	0	0	0	0	0	0	0	0
1978	0	0	0	0	0	0	0	0	0	0	0
1979	0	0	0	0	0	0	0	0	0	0	0
1980	0	0	0	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0	0	0	0
1985	0	0	0	0	0	0	0	0	0	0	0
1986	0	0	0	0	0	0	0	0	0	0	0
1987	0	0	0	0	0	0	0	0	0	0	0
1988	0	0	0	0	0	0	0	0	0	0	0
1989	0	0	0	0	0	0	0	0	0	0	0
1990	0	0	0	0	0	0	0	0	0	0	0
1991	0	0	0	0	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0	0	0	0	0
1994	0	0	0	0	0	0	0	0	0	0	0
1995	0	0	0	0	0	0	0	0	0	0	0
1996	0	0	0	0	0	0	0	0	0	0	0
1997	0	0	0	0	0	0	0	0	0	0	0
1998	0	0	0	0	0	0	0	0	0	0	0
1999	0	0	0	0	0	0	0	0	0	0	0
2000	0	0	0	0	0	0	0	0	0	0	0
TOTAL	11,431,161	8,815,626	9,392,332	7,773,849	11,482,090	7,960,477	9,634,498	42,688,316	12,821,847	10,949,769	36,409,677

TABLE B-8 (Continued)

ACTUAL AND PROJECTED CAPITAL COSTS
ALLOCATED TO TRANSPORTATION FOR EACH AQUEDUCT REACH

(in dollars)

CALIFORNIA AQUEDUCT (Continued)

CALENDAR YEAR	SOUTH SAN JOAQUIN DIVISION (Continued)		TEHACHAPI DIVISION			EAST BRANCH DIVISION					
	Reach 16	Subtotal	Reach 17C	Reach 17D	Subtotal	Reach 18A	Reach 19	Reach 20	Reach 21	Reach 22A	Reach 22B
1952	4,172	13,894	7,879	3,657	11,536	4,477	1,663	3,779	6,334	160	2,381
1953	15,351	51,119	24,943	11,577	36,520	15,003	5,575	12,667	21,231	537	7,982
1954	19,838	66,062	45,906	21,306	67,212	16,617	6,174	14,032	23,520	595	8,843
1955	9,233	30,746	29,791	13,827	43,618	6,415	2,384	5,419	9,082	230	3,415
1956	22,374	74,618	36,806	17,083	53,889	5,647	2,098	4,767	7,990	202	3,004
1957	62,280	209,045	98,017	45,493	143,510	19,932	7,406	16,823	28,199	713	10,602
1958	128,395	468,911	137,309	63,729	201,038	32,794	12,186	27,680	46,396	1,173	17,444
1959	177,397	704,429	114,175	52,992	167,167	36,218	20,564	37,743	53,776	1,390	20,671
1960	147,960	747,215	132,800	61,636	194,436	34,045	27,556	84,323	127,367	3,692	54,914
1961	220,644	1,173,362	334,586	155,141	489,727	44,167	44,080	200,536	330,776	10,485	187,813
1962	207,059	1,188,315	322,208	149,538	471,746	79,864	43,387	79,172	120,532	6,566	167,772
1963	443,720	2,173,254	958,308	444,778	1,403,086	58,783	84,663	293,575	469,215	19,745	290,955
1964	1,534,221	6,228,116	1,320,204	1,189,195	2,509,399	460,540	217,242	228,438	281,770	97,509	259,224
1965	1,252,400	18,944,900	3,712,200	1,720,800	5,433,000	960,600	836,700	547,400	187,000	132,000	965,000
1966	3,539,100	27,631,000	13,941,500	11,000,000	24,941,500	2,067,000	549,000	953,000	576,000	73,000	2,220,000
1967	3,616,000	30,676,000	33,985,000	10,994,000	44,979,000	740,000	4,716,000	878,000	590,000	169,000	2,671,000
1968	10,135,100	34,860,900	44,565,500	11,460,000	56,025,500	1,337,000	4,698,000	8,122,000	1,997,000	182,000	6,343,000
1969	13,900,100	48,608,900	19,149,500	9,232,000	28,381,500	1,847,000	1,208,000	8,149,000	2,527,000	1,192,000	13,815,000
1970	8,976,100	19,858,300	15,908,500	510,000	16,418,500	715,000	211,000	231,900	65,200	1,546,900	17,090,900
1971	6,234,000	15,193,000	8,707,000	0	8,707,000	44,500	151,000	165,900	47,200	40,900	5,539,900
1972	3,049,000	10,097,000	1,587,000	0	1,587,000	0	0	0	0	0	0
1973	187,000	2,158,000	1,450,000	0	1,450,000	0	0	0	0	0	0
1974	1,562,000	1,659,000	1,450,000	0	1,450,000	0	0	0	0	0	0
1975	97,000	2,084,000	0	0	0	0	0	0	0	0	0
1976	0	0	0	0	0	0	0	0	0	0	0
1977	0	0	0	0	0	0	0	0	0	0	0
1978	0	0	0	0	0	0	0	0	0	0	0
1979	0	0	0	0	0	0	0	0	0	0	0
1980	0	0	0	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0	0	0	0
1985	0	0	0	0	0	0	0	0	0	0	0
1986	0	0	0	0	0	0	0	0	0	0	0
1987	0	0	0	0	0	0	0	0	0	0	0
1988	0	0	0	0	0	0	0	0	0	0	0
1989	0	0	0	0	0	0	0	0	0	0	0
1990	0	0	0	0	0	0	0	0	0	0	0
1991	0	0	0	0	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0	0	0	0	0
1994	0	0	0	0	0	0	0	0	0	0	0
1995	0	0	0	0	0	0	0	0	0	0	0
1996	0	0	0	0	0	0	0	0	0	0	0
1997	0	0	0	0	0	0	0	0	0	0	0
1998	0	0	0	0	0	0	0	0	0	0	0
1999	0	0	0	0	0	0	0	0	0	0	0
2000	0	0	0	0	0	0	0	0	0	0	0
TOTAL	55,540,444	224,900,086	148,019,132	47,146,752	195,165,884	8,525,602	12,844,678	20,056,154	7,515,588	3,478,797	49,679,820

TABLE B-8 (Continued)

ACTUAL AND PROJECTED CAPITAL COSTS
ALLOCATED TO TRANSPORTATION FOR EACH AQUEDUCT REACH

(in dollars)

CALIFORNIA AQUEDUCT (Continued)

CALENDAR YEAR	EAST BRANCH DIVISION (Continued)									WEST BRANCH DIVISION	
	Reach 23	Reach 24	Reach 25	Reach 26	Reach 27	Reach 28A	Reach 28B	Reach 28C	Subtotal	Reach 29A	Reach 29B
1952	1,969	2,640	3,647	3,239	2,889	2,336	7,320	3,323	46,157	362	325
1953	6,601	8,849	12,225	10,856	9,683	7,831	24,538	11,138	154,716	1,216	1,091
1954	7,313	9,803	13,543	12,026	10,727	8,675	27,183	12,338	171,389	1,349	1,210
1955	2,824	3,785	5,230	4,644	4,142	3,350	10,497	4,764	66,181	518	465
1956	2,484	3,330	4,601	4,085	3,644	2,947	9,234	4,191	58,224	454	407
1957	8,767	11,753	16,237	14,418	12,861	10,401	32,590	14,793	205,495	1,614	1,448
1958	14,425	19,338	26,716	23,723	21,161	17,113	53,621	24,339	338,109	2,655	2,383
1959	17,273	45,646	35,527	27,638	24,672	20,487	64,192	37,682	443,479	5,047	4,530
1960	29,728	98,306	74,320	52,527	47,326	45,922	143,890	74,105	898,021	7,647	6,863
1961	83,398	212,470	161,433	116,110	112,231	38,783	121,519	64,716	1,728,517	7,769	6,972
1962	63,978	103,940	60,013	58,768	71,801	39,393	123,430	63,276	1,081,892	32,107	28,814
1963	115,240	427,483	238,027	201,104	214,289	136,581	427,949	665,383	3,642,992	58,956	52,909
1964	43,238	326,926	77,561	181,895	180,611	103,798	158,618	124,423	2,741,793	107,512	96,485
1965	1,000	936,000	761,000	183,000	204,000	196,000	276,000	758,000	6,943,700	218,000	89,000
1966	64,000	5,037,000	369,000	238,000	309,000	67,000	278,000	719,000	13,519,000	257,000	97,000
1967	139,000	4,591,000	7,249,000	219,000	281,000	4,000	10,000	1,537,000	23,794,000	1,005,000	98,000
1968	151,000	9,205,000	7,251,000	1,970,000	176,000	716,000	4,964,000	2,547,000	49,659,000	2,022,000	1,577,000
1969	2,634,000	9,218,000	7,263,200	1,264,000	957,000	271,000	396,000	7,859,000	58,600,200	3,450,000	2,365,000
1970	3,505,000	9,221,000	21,200	4,398,300	10,298,200	11,226,000	5,264,100	6,702,100	70,496,800	3,171,000	51,000
1971	878,000	741,900	1,000	1,787,300	1,291,200	2,815,000	19,551,100	6,770,100	39,825,000	1,046,000	3,000
1972	0	94,000	0	82,000	59,000	0	4,856,000	253,000	5,344,000	0	0
1973	0	1,034,000	0	1,291,000	942,000	0	0	0	3,267,000	35,000	0
1974	0	434,000	0	1,291,000	942,000	0	0	0	2,667,000	431,000	0
1975	0	242,000	0	0	0	0	0	264,000	506,000	467,000	0
1976	0	0	0	0	0	0	0	660,000	660,000	0	0
1977	0	0	0	0	0	0	0	0	0	0	0
1978	0	0	0	0	0	0	0	0	0	0	0
1979	0	0	0	0	0	0	0	0	0	0	0
1980	0	0	0	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0	0	0	0
1985	0	0	0	0	0	0	0	0	0	0	0
1986	0	0	0	0	0	0	0	0	0	0	0
1987	0	0	0	0	0	0	0	0	0	0	0
1988	0	0	0	0	0	0	0	0	0	0	0
1989	0	0	0	0	0	0	0	0	0	0	0
1990	0	0	0	0	0	0	0	0	0	0	0
1991	0	0	0	0	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0	0	0	0	0
1994	0	0	0	0	0	0	0	0	0	0	0
1995	0	0	0	0	0	0	0	0	0	0	0
1996	0	0	0	0	0	0	0	0	0	0	0
1997	0	0	0	0	0	0	0	0	0	0	0
1998	0	0	0	0	0	0	0	0	0	0	0
1999	0	0	0	0	0	0	0	0	0	0	0
2000	0	0	0	0	0	0	0	0	0	0	0
TOTAL	7,769,238	42,028,169	23,644,480	13,434,633	16,175,437	15,732,617	36,799,781	29,173,671	286,858,665	12,329,206	4,483,902

TABLE B-8 (Continued)

ACTUAL AND PROJECTED CAPITAL COSTS
ALLOCATED TO TRANSPORTATION FOR EACH AQUEDUCT REACH

(in dollars)

CALIFORNIA AQUEDUCT (Continued)

CALENDAR YEAR	WEST BRANCH DIVISION (Continued)					COASTAL BRANCH DIVISION					TOTAL CALIFORNIA AQUEDUCT
	Reach 29C	Reach 29D	Reach 29E	Reach 30	Subtotal	Reach 31A	Reach 33A	Reach 34	Reach 35	Subtotal	
1952	1,152	1,013	1,794	1,540	6,186	0	0	0	0	0	97,388
1953	3,866	3,398	6,017	5,166	20,754	0	0	0	0	0	313,394
1954	4,288	3,769	6,674	5,730	23,020	0	0	0	0	0	388,763
1955	1,647	1,448	2,563	2,262	8,903	0	0	0	0	0	180,526
1956	1,442	1,268	2,245	1,988	7,804	0	0	0	0	0	230,108
1957	5,131	4,510	7,986	6,856	27,545	0	0	0	0	0	624,862
1958	8,442	7,420	13,139	11,280	45,319	0	0	0	0	0	1,179,656
1959	16,048	14,107	24,978	32,698	97,408	17,329	28,599	4,526	4,526	54,980	1,955,313
1960	24,315	21,374	37,845	44,300	142,344	34,168	59,021	7,832	11,317	112,338	2,676,235
1961	24,701	21,713	38,445	88,038	187,638	18,691	35,600	2,466	5,896	62,653	4,788,549
1962	102,084	89,735	158,888	225,119	636,747	25,899	57,168	2,363	4,996	90,426	6,472,709
1963	187,449	164,774	291,755	214,739	970,582	47,480	105,882	5,123	11,347	169,832	21,515,090
1964	341,832	300,481	532,045	765,211	2,143,566	334,566	114,581	6,198	13,827	469,172	34,944,894
1965	1,800,000	194,000	2,453,000	6,897,000	11,651,000	504,000	64,000	3,000	7,000	578,000	81,468,500
1966	1,184,000	341,000	8,171,000	12,081,000	22,131,000	4,039,000	106,000	4,000	12,000	4,161,000	139,550,500
1967	2,273,000	1,108,000	10,481,000	30,498,000	45,463,000	4,402,000	99,000	4,000	12,000	4,517,000	192,099,000
1968	19,177,000	1,269,000	8,629,000	24,611,000	57,285,000	297,000	113,300	4,000	13,000	427,300	206,789,700
1969	15,047,000	4,463,000	15,644,000	21,123,000	62,092,000	94,000	77,300	3,000	8,000	182,300	198,411,900
1970	5,755,000	6,509,000	3,142,000	633,000	19,261,000	0	53,300	2,000	5,000	60,300	126,225,900
1971	2,720,000	6,492,000	241,000	419,000	10,921,000	0	52,300	2,000	22,000	76,300	74,722,300
1972	0	6,490,000	2,446,000	1,098,000	10,034,000	0	255,300	32,000	71,000	358,300	27,502,300
1973	0	1,607,000	2,446,000	0	4,088,000	0	345,300	45,000	159,000	549,300	14,341,300
1974	0	250,000	0	488,000	1,169,000	0	769,300	44,000	191,000	1,004,300	10,778,300
1975	0	0	0	1,085,000	1,552,000	0	2,070,300	44,000	177,000	2,291,300	6,433,300
1976	0	0	0	772,000	772,000	40,000	6,020,300	44,000	97,000	6,201,300	7,633,300
1977	0	0	0	0	0	390,000	7,313,300	429,000	154,000	8,286,300	8,286,300
1978	0	0	0	0	0	139,000	9,678,300	1,616,000	2,982,000	14,415,300	14,415,300
1979	0	0	0	0	0	0	3,998,300	415,000	2,917,000	7,330,300	7,330,300
1980	0	0	0	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	60,000	0	0	60,000	1,490,000
1984	0	0	0	0	0	0	815,000	0	0	815,000	3,772,000
1985	0	0	0	0	0	0	260,000	0	0	260,000	6,174,000
1986	0	0	0	0	0	0	0	0	0	0	3,993,000
1987	0	0	0	0	0	0	0	0	0	0	0
1988	0	0	0	0	0	0	0	0	0	0	0
1989	0	0	0	0	0	0	0	0	0	0	0
1990	0	0	0	0	0	0	0	0	0	0	0
1991	0	0	0	0	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0	0	0	0	0
1994	0	0	0	0	0	0	0	0	0	0	0
1995	0	0	0	0	0	0	0	0	0	0	0
1996	0	0	0	0	0	0	0	0	0	0	0
1997	0	0	0	0	0	0	0	0	0	0	0
1998	0	0	0	0	0	0	0	0	0	0	0
1999	0	0	0	0	0	0	0	0	0	0	0
2000	0	0	0	0	0	0	0	0	0	0	0
TOTAL	48,678,397	29,358,010	54,777,374	101,109,927	250,736,816	10,383,133	32,551,451	2,719,508	6,878,909	52,533,001	1,206,784,687

TABLE B-9

DIRECT ANNUAL OPERATING COSTS[1/] OF PUMPING AND POWER RECOVERY PLANTS

(in dollars)

CALENDAR YEAR	NORTH BAY AQUEDUCT		SOUTH BAY AQUEDUCT	CALIFORNIA AQUEDUCT					
	Calhoun PP	Cordelia PP	South Bay & Del Valle PP's	Delta PP	Mile 18 PP	Buena Vista PP	Wheeler Ridge PP	Wind Gap PP	Tehachapi PP
1960	0	0	0	0	0	0	0	0	0
1961	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0	0	0
1964	0	0	0	0	0	0	0	0	0
1965	0	0	191,000	0	0	0	0	0	0
1966	0	0	241,000	0	0	0	0	0	0
1967	0	0	248,000	159,000	0	0	0	0	0
1968	0	36,000	359,000	398,000	358,000	0	0	0	0
1969	0	39,000	357,000	476,000	372,000	0	0	0	0
1970	0	39,000	361,000	456,000	431,000	238,000	233,000	464,000	2,478,000
1971	0	40,000	382,000	448,000	558,000	474,000	451,000	1,055,000	4,653,000
1972	0	40,000	387,000	723,000	661,000	551,000	594,000	1,206,000	5,000,000
1973	0	40,000	373,000	918,000	813,000	752,000	760,000	1,562,000	5,823,000
1974	0	53,000	375,000	934,000	837,000	753,000	789,000	1,562,000	5,845,000
1975	0	53,000	378,000	1,117,000	956,000	916,000	957,000	1,963,000	7,278,000
1976	0	54,000	394,000	1,226,000	1,070,000	1,062,000	1,125,000	2,316,000	7,492,000
1977	0	54,000	399,000	1,298,000	1,157,000	1,175,000	1,232,000	2,467,000	9,318,000
1978	0	54,000	402,000	1,378,000	1,269,000	1,315,000	1,389,000	2,807,000	10,566,000
1979	0	56,000	400,000	1,450,000	1,382,000	1,469,000	1,505,000	3,149,000	11,791,000
1980	12,000	59,000	401,000	1,484,000	1,501,000	1,604,000	1,660,000	3,485,000	13,047,000
1981	15,000	60,000	406,000	2,179,000	1,383,000	1,652,000	1,772,000	3,749,000	14,300,000
1982	15,000	60,000	422,000	2,806,000	1,483,000	1,789,000	1,895,000	3,995,000	14,734,000
1983	15,000	60,000	427,000	3,321,000	1,569,000	1,883,000	2,053,000	4,333,000	15,979,000
1984	15,000	62,000	431,000	3,946,000	1,699,000	2,021,000	2,195,000	4,670,000	17,225,000
1985	15,000	62,000	434,000	4,720,000	1,800,000	2,158,000	2,352,000	4,950,000	18,457,000
1986	15,000	63,000	440,000	4,422,000	1,903,000	2,319,000	2,469,000	5,278,000	19,717,000
1987	16,000	65,000	444,000	4,232,000	1,977,000	2,461,000	2,630,000	5,623,000	20,994,000
1988	18,000	65,000	448,000	4,060,000	2,095,000	2,604,000	2,819,000	5,974,000	22,273,000
1989	18,000	67,000	457,000	3,862,000	2,155,000	2,682,000	2,887,000	6,204,000	22,577,000
1990	22,000	67,000	480,000	4,018,000	2,074,000	2,653,000	2,899,000	6,231,000	22,654,000
1991	22,000	67,000	488,000	4,026,000	2,078,000	2,658,000	2,904,000	6,244,000	22,702,000
1992	22,000	67,000	494,000	4,028,000	2,078,000	2,658,000	2,904,000	6,244,000	22,702,000
1993	22,000	67,000	501,000	4,031,000	2,078,000	2,658,000	2,904,000	6,244,000	22,702,000
1994	22,000	67,000	506,000	4,033,000	2,078,000	2,658,000	2,904,000	6,244,000	22,702,000
1995	22,000	67,000	509,000	4,034,000	2,078,000	2,658,000	2,904,000	6,244,000	22,702,000
1996	22,000	67,000	511,000	4,035,000	2,078,000	2,658,000	2,904,000	6,244,000	22,702,000
1997	22,000	67,000	514,000	4,036,000	2,078,000	2,658,000	2,904,000	6,244,000	22,702,000
1998	22,000	67,000	514,000	4,036,000	2,078,000	2,658,000	2,904,000	6,244,000	22,702,000
1999	22,000	67,000	514,000	4,036,000	2,078,000	2,658,000	2,904,000	6,244,000	22,702,000
2000[2/]	22,000	67,000	514,000	4,036,000	2,078,000	2,658,000	2,904,000	6,244,000	22,702,000

1/ Includes only the costs of the project transportation facilities for electrical power and energy, materials, supplies and replacements associated with the operation of electro-mechanical units, prior to allocation between construction water, losses, deliveries, recreation, and excess capacity.

2/ And thereafter for the remainder of the project repayment period.

TABLE B-9 (Continued)

DIRECT ANNUAL OPERATING COSTS[1] OF PUMPING AND POWER RECOVERY PLANTS

(in dollars)

CALENDAR YEAR	CALIFORNIA AQUEDUCT								GRAND TOTAL
	Cottonwood Pwp	Pearblossom PP	Upper & Lower Devil Canyon Pwp's	Oso PP	Pyramid Pwp	Castaic Pwp	Las Perillas & Badger Hill PP's	Devil's Den Sawtooth & Polonio PP's & San Luis Obispo Pwp	
1960	0	0	0	0	0	0	0	0	0
1961	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0	0	0
1964	0	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0	191,000
1966	0	0	0	0	0	0	0	0	241,000
1967	0	0	0	0	0	0	0	0	407,000
1968	0	0	0	0	0	0	134,000	0	1,285,000
1969	0	0	0	0	0	0	137,000	0	1,381,000
1970	0	0	0	168,000	-222,000	-138,000	119,000	0	4,627,000
1971	- 4,000	352,000	- 11,000	385,000	-387,000	-741,000	124,000	0	7,779,000
1972	- 19,000	622,000	- 503,000	355,000	-83,000	-1,055,000	154,000	0	8,633,000
1973	- 32,000	724,000	- 545,000	402,000	-220,000	-1,028,000	155,000	0	10,497,000
1974	- 31,000	718,000	- 682,000	489,000	-238,000	-1,237,000	157,000	0	10,324,000
1975	- 38,000	756,000	- 816,000	527,000	-390,000	-1,631,000	159,000	0	12,185,000
1976	- 44,000	827,000	-1,072,000	638,000	-478,000	-1,776,000	160,000	0	12,994,000
1977	- 43,000	815,000	- 992,000	641,000	-521,000	-1,830,000	164,000	0	15,334,000
1978	- 68,000	1,050,000	-1,139,000	741,000	-672,000	-2,065,000	165,000	0	17,192,000
1979	- 73,000	1,095,000	-1,257,000	857,000	-805,000	-2,282,000	223,000	0	18,960,000
1980	- 89,000	1,139,000	-1,393,000	884,000	-958,000	-2,375,000	189,000	173,000	20,823,000
1981	-112,000	1,378,000	-1,486,000	990,000	-1,119,000	-2,471,000	131,000	175,000	23,002,000
1982	-115,000	1,411,000	-1,584,000	1,095,000	-1,270,000	-2,575,000	132,000	181,000	24,474,000
1983	-139,000	1,632,000	-1,665,000	1,199,000	-1,429,000	-2,670,000	132,000	190,000	26,890,000
1984	-142,000	1,669,000	-1,726,000	1,319,000	-1,590,000	-2,774,000	153,000	258,000	29,431,000
1985	-146,000	1,698,000	-1,759,000	1,351,000	-1,749,000	-2,867,000	160,000	280,000	31,916,000
1986	-170,000	1,923,000	-1,805,000	1,456,000	-1,920,000	-2,963,000	165,000	347,000	33,659,000
1987	-174,000	1,964,000	-1,849,000	1,562,000	-2,081,000	-3,069,000	172,000	407,000	35,374,000
1988	-180,000	2,004,000	-1,890,000	1,682,000	-2,280,000	-3,165,000	180,000	444,000	37,151,000
1989	-204,000	2,240,000	-1,940,000	1,695,000	-2,340,000	-3,215,000	215,000	536,000	37,896,000
1990	-205,000	2,251,000	-1,943,000	1,697,000	-2,344,000	-3,219,000	196,000	644,000	38,175,000
1991	-206,000	2,257,000	-1,955,000	1,698,000	-2,344,000	-3,219,000	196,000	644,000	38,260,000
1992	-206,000	2,257,000	-1,955,000	1,698,000	-2,344,000	-3,219,000	196,000	644,000	38,268,000
1993	-206,000	2,257,000	-1,955,000	1,698,000	-2,344,000	-3,219,000	196,000	644,000	38,278,000
1994	-206,000	2,257,000	-1,955,000	1,698,000	-2,344,000	-3,219,000	196,000	644,000	38,285,000
1995	-206,000	2,257,000	-1,955,000	1,698,000	-2,344,000	-3,219,000	196,000	644,000	38,289,000
1996	-206,000	2,257,000	-1,955,000	1,698,000	-2,344,000	-3,219,000	196,000	644,000	38,292,000
1997	-206,000	2,257,000	-1,955,000	1,698,000	-2,344,000	-3,219,000	196,000	644,000	38,296,000
1998	-206,000	2,257,000	-1,955,000	1,698,000	-2,344,000	-3,219,000	196,000	644,000	38,296,000
1999	-206,000	2,257,000	-1,955,000	1,698,000	-2,344,000	-3,219,000	196,000	644,000	38,296,000
2000[2]	-206,000	2,257,000	-1,955,000	1,698,000	-2,344,000	-3,219,000	196,000	644,000	38,296,000

1/ Includes only the costs of the project transportation facilities for electrical power and energy, materials, supplies and replacements associated with the operation of electro-mechanical units, prior to allocation between construction water, losses, deliveries, recreation, and excess capacity.

2/ And thereafter for the remainder of the project repayment period.

TABLE B-10

POWER CAPACITY CHARGES ALLOCATED TO EXCESS CAPACITY

(in dollars)

Calendar Year	CALIFORNIA AQUEDUCT								Total Power Capacity Charges
	Reach 4	Reach 14 A	Reach 15	Reach 16	Reach 17 A	Reach 29 A	Reach 29 C	Reach 29 E	
	Mile 18 PP	Buena Vista PP	Wheeler Ridge PP	Wind Gap PP	Tehachapi PP	Oso PP	Pyramid Pwp	Castaic Pwp	
1962	0	0	0	0	0	0	0	0	0
63	0	0	0	0	0	0	0	0	0
64	0	0	0	0	0	0	0	0	0
65	0	0	0	0	0	0	0	0	0
66	0	0	0	0	0	0	0	0	0
67	0	0	0	0	0	0	0	0	0
68	0	0	0	0	0	0	0	0	0
69	0	0	0	0	0	0	0	0	0
1970	0	0	0	0	0	0	0	0	0
71	0	0	0	0	0	0	0	0	0
72	0	0	0	0	0	34,000	-55,000	-75,000	-96,000
73	0	0	0	0	0	49,000	-80,000	-108,000	-139,000
74	0	0	0	0	0	64,000	-104,000	-142,000	-182,000
75	0	0	0	0	0	79,000	-129,000	-176,000	-226,000
76	0	0	0	0	0	94,000	-153,000	-209,000	-268,000
77	28,000	64,000	78,000	176,000	716,000	109,000	-178,000	-242,000	751,000
78	28,000	64,000	78,000	176,000	716,000	124,000	-203,000	-276,000	707,000
79	28,000	64,000	78,000	176,000	716,000	140,000	-227,000	-310,000	665,000
1980	28,000	64,000	78,000	176,000	716,000	155,000	-252,000	-343,000	622,000
81	28,000	64,000	78,000	176,000	716,000	165,000	-268,000	-366,000	593,000
82	28,000	64,000	78,000	176,000	716,000	175,000	-285,000	-388,000	564,000
83	28,000	64,000	78,000	176,000	716,000	185,000	-301,000	-410,000	536,000
84	28,000	64,000	78,000	176,000	716,000	195,000	-318,000	-433,000	506,000
85	28,000	64,000	78,000	176,000	716,000	205,000	-334,000	-455,000	478,000
86	28,000	64,000	78,000	176,000	716,000	215,000	-350,000	-477,000	450,000
87	28,000	64,000	78,000	176,000	716,000	226,000	-367,000	-500,000	421,000
88	28,000	64,000	78,000	176,000	716,000	236,000	-384,000	-522,000	392,000
89	28,000	64,000	78,000	176,000	716,000	246,000	-400,000	-545,000	363,000
1990	28,000	64,000	78,000	176,000	716,000	246,000	-400,000	-545,000	363,000
91	28,000	64,000	78,000	176,000	716,000	246,000	-400,000	-545,000	363,000
92	28,000	64,000	78,000	176,000	716,000	246,000	-400,000	-545,000	363,000
93	28,000	64,000	78,000	176,000	716,000	246,000	-400,000	-545,000	363,000
94	28,000	64,000	78,000	176,000	716,000	246,000	-400,000	-545,000	363,000
95	28,000	64,000	78,000	176,000	716,000	246,000	-400,000	-545,000	363,000
96	28,000	64,000	78,000	176,000	716,000	246,000	-400,000	-545,000	363,000
97	28,000	64,000	78,000	176,000	716,000	246,000	-400,000	-545,000	363,000
98	28,000	64,000	78,000	176,000	716,000	246,000	-400,000	-545,000	363,000
99	28,000	64,000	78,000	176,000	716,000	246,000	-400,000	-545,000	363,000
2000*	28,000	64,000	78,000	176,000	716,000	246,000	-400,000	-545,000	363,000

* And thereafter for the remainder of the project repayment period.

TABLE B-11

ACTUAL AND PROJECTED MINIMUM OPERATION, MAINTENANCE, POWER, AND REPLACEMENT COSTS ALLOCATED TO TRANSPORTATION FOR EACH AQUEDUCT REACH

(in dollars)

	NORTH BAY AQUEDUCT				SOUTH BAY AQUEDUCT						
CALENDAR YEAR	Reach 1	Reach 2	Reach 3	TOTAL NORTH BAY AQUEDUCT	Reach 1	Reach 2	Reach 4	Reach 5	Reach 6	Reach 7	Reach 8
1960	0	0	0	0	0	0	0	0	0	0	0
1961	0	0	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	63,000	6,000	0	0	0	0	0
1963	0	0	0	0	135,000	18,000	0	0	0	0	0
1964	0	0	0	0	137,000	30,000	0	0	0	0	0
1965	0	0	0	0	111,000	13,000	49,000	0	1,000	6,000	12,000
1966	0	0	0	0	131,000	15,000	57,000	0	1,000	6,000	14,000
1967	0	0	0	0	108,000	11,000	41,000	0	1,000	6,000	10,000
1968	0	0	25,000	25,000	93,000	10,000	37,000	0	1,000	4,000	9,000
1969	0	0	25,000	25,000	104,000	10,000	38,000	5,000	1,000	4,000	9,000
1970	0	0	25,000	25,000	103,000	11,000	40,000	6,000	1,000	4,000	10,000
1971	0	0	25,000	25,000	102,000	11,000	44,000	5,000	1,000	6,000	10,000
1972	0	0	25,000	25,000	100,000	12,000	44,000	5,000	1,000	6,000	11,000
1973	0	0	25,000	25,000	99,000	12,000	44,000	5,000	1,000	6,000	11,000
1974	0	0	25,000	25,000	99,000	12,000	44,000	5,000	1,000	6,000	11,000
1975	0	0	25,000	25,000	99,000	12,000	44,000	5,000	1,000	6,000	11,000
1976	0	0	25,000	25,000	97,000	12,000	44,000	5,000	1,000	6,000	11,000
1977	0	0	25,000	25,000	97,000	12,000	44,000	5,000	1,000	6,000	11,000
1978	0	0	25,000	25,000	97,000	12,000	44,000	5,000	1,000	6,000	11,000
1979	0	0	25,000	25,000	97,000	12,000	44,000	5,000	1,000	6,000	11,000
1980	90,000	48,000	25,000	163,000	96,000	11,000	42,000	5,000	1,000	6,000	10,000
1981	90,000	48,000	25,000	163,000	96,000	11,000	42,000	5,000	1,000	6,000	10,000
1982	90,000	48,000	25,000	163,000	96,000	11,000	42,000	5,000	1,000	6,000	10,000
1983	90,000	48,000	25,000	163,000	96,000	11,000	42,000	5,000	1,000	6,000	10,000
1984	90,000	48,000	25,000	163,000	96,000	11,000	42,000	5,000	1,000	6,000	10,000
1985	90,000	48,000	25,000	163,000	96,000	11,000	42,000	5,000	1,000	6,000	10,000
1986	90,000	48,000	25,000	163,000	96,000	11,000	42,000	5,000	1,000	6,000	10,000
1987	90,000	48,000	25,000	163,000	96,000	11,000	42,000	5,000	1,000	6,000	10,000
1988	90,000	48,000	25,000	163,000	95,000	11,000	42,000	5,000	1,000	6,000	10,000
1989	90,000	48,000	25,000	163,000	95,000	11,000	42,000	5,000	1,000	6,000	10,000
1990	90,000	48,000	25,000	163,000	95,000	11,000	42,000	5,000	1,000	6,000	10,000
1991	90,000	48,000	25,000	163,000	95,000	11,000	42,000	5,000	1,000	6,000	10,000
1992	90,000	48,000	25,000	163,000	95,000	11,000	42,000	5,000	1,000	6,000	10,000
1993	90,000	48,000	25,000	163,000	95,000	11,000	42,000	5,000	1,000	6,000	10,000
1994	90,000	48,000	25,000	163,000	95,000	11,000	42,000	5,000	1,000	6,000	10,000
1995	90,000	48,000	25,000	163,000	95,000	11,000	42,000	5,000	1,000	6,000	10,000
1996	90,000	48,000	25,000	163,000	95,000	11,000	42,000	5,000	1,000	6,000	10,000
1997	90,000	48,000	25,000	163,000	95,000	11,000	42,000	5,000	1,000	6,000	10,000
1998	90,000	48,000	25,000	163,000	95,000	11,000	42,000	5,000	1,000	6,000	10,000
1999	90,000	48,000	25,000	163,000	95,000	11,000	42,000	5,000	1,000	6,000	10,000
2000*	90,000	48,000	25,000	163,000	95,000	11,000	42,000	5,000	1,000	6,000	10,000

* And thereafter for the remainder of the project repayment period.

TABLE B-11 (Continued)

ACTUAL AND PROJECTED MINIMUM OPERATION, MAINTENANCE, POWER, AND REPLACEMENT COSTS ALLOCATED TO TRANSPORTATION FOR EACH AQUEDUCT REACH

(in dollars)

SOUTH BAY AQUEDUCT (Continued) CALIFORNIA AQUEDUCT

CALENDAR YEAR	Reach 9	TOTAL SOUTH BAY AQUEDUCT	NORTH SAN JOAQUIN DIVISION			SAN LUIS DIVISION					
			Reach 1	Reach 2	Subtotal	Reach 3	Reach 4	Reach 5	Reach 6	Reach 7	Subtotal
1960	0	0	0	0	0	0	0	0	0	0	0
1961	0	0	0	0	0	0	0	0	0	0	0
1962	0	69,000	0	0	0	0	0	0	0	0	0
1963	0	153,000	0	0	0	0	0	0	0	0	0
1964	0	167,000	0	0	0	0	0	0	0	0	0
1965	21,000	213,000	0	0	0	0	0	0	0	0	0
1966	26,000	250,000	0	0	0	0	0	0	0	0	0
1967	20,000	197,000	636,000	0	636,000	0	0	0	0	0	0
1968	16,000	170,000	1,101,000	518,000	1,619,000	37,000	332,000	121,000	41,000	67,000	598,000
1969	18,000	189,000	1,076,000	540,000	1,616,000	45,000	339,000	151,000	51,000	82,000	668,000
1970	19,000	194,000	1,038,000	572,000	1,610,000	47,000	322,000	156,000	53,000	86,000	664,000
1971	20,000	199,000	1,000,000	606,000	1,606,000	49,000	349,000	162,000	55,000	89,000	704,000
1972	20,000	199,000	1,012,000	616,000	1,628,000	53,000	342,000	175,000	60,000	96,000	726,000
1973	20,000	198,000	1,022,000	616,000	1,638,000	53,000	345,000	175,000	60,000	96,000	729,000
1974	20,000	198,000	1,021,000	616,000	1,637,000	53,000	345,000	175,000	60,000	96,000	729,000
1975	20,000	198,000	1,029,000	616,000	1,645,000	53,000	346,000	175,000	60,000	96,000	730,000
1976	19,000	195,000	1,029,000	610,000	1,639,000	52,000	352,000	174,000	59,000	95,000	732,000
1977	19,000	195,000	1,033,000	610,000	1,643,000	52,000	354,000	174,000	59,000	95,000	734,000
1978	19,000	195,000	1,029,000	610,000	1,639,000	52,000	355,000	174,000	59,000	95,000	735,000
1979	19,000	195,000	1,025,000	610,000	1,635,000	52,000	356,000	174,000	59,000	95,000	736,000
1980	18,000	189,000	1,016,000	584,000	1,600,000	52,000	357,000	174,000	59,000	95,000	737,000
1981	18,000	189,000	1,069,000	584,000	1,653,000	52,000	340,000	174,000	59,000	95,000	720,000
1982	18,000	189,000	1,109,000	584,000	1,693,000	52,000	340,000	174,000	59,000	95,000	720,000
1983	18,000	189,000	1,136,000	584,000	1,720,000	52,000	340,000	174,000	59,000	95,000	720,000
1984	18,000	189,000	1,167,000	584,000	1,751,000	52,000	342,000	174,000	59,000	95,000	722,000
1985	18,000	189,000	1,206,000	584,000	1,790,000	52,000	342,000	174,000	59,000	95,000	722,000
1986	18,000	189,000	1,169,000	584,000	1,753,000	52,000	342,000	174,000	59,000	95,000	722,000
1987	18,000	189,000	1,142,000	584,000	1,726,000	52,000	340,000	174,000	59,000	95,000	720,000
1988	18,000	188,000	1,119,000	584,000	1,703,000	52,000	341,000	174,000	59,000	95,000	721,000
1989	18,000	188,000	1,099,000	584,000	1,683,000	52,000	340,000	174,000	59,000	95,000	720,000
1990	18,000	188,000	1,103,000	584,000	1,687,000	52,000	335,000	174,000	59,000	95,000	715,000
1991	18,000	188,000	1,102,000	584,000	1,686,000	52,000	335,000	174,000	59,000	95,000	715,000
1992	18,000	188,000	1,102,000	584,000	1,686,000	52,000	335,000	174,000	59,000	95,000	715,000
1993	18,000	188,000	1,102,000	584,000	1,686,000	52,000	335,000	174,000	59,000	95,000	715,000
1994	18,000	188,000	1,102,000	584,000	1,686,000	52,000	335,000	174,000	59,000	95,000	715,000
1995	18,000	188,000	1,102,000	584,000	1,686,000	52,000	335,000	174,000	59,000	95,000	715,000
1996	18,000	188,000	1,102,000	584,000	1,686,000	52,000	335,000	174,000	59,000	95,000	715,000
1997	18,000	188,000	1,102,000	584,000	1,686,000	52,000	335,000	174,000	59,000	95,000	715,000
1998	18,000	188,000	1,102,000	584,000	1,686,000	52,000	335,000	174,000	59,000	95,000	715,000
1999	18,000	188,000	1,102,000	584,000	1,686,000	52,000	335,000	174,000	59,000	95,000	715,000
2000*	18,000	188,000	1,102,000	584,000	1,686,000	52,000	335,000	174,000	59,000	95,000	715,000

* And thereafter for the remainder of the project repayment period.

TABLE B-11 (Continued)

ACTUAL AND PROJECTED MINIMUM OPERATION, MAINTENANCE, POWER, AND REPLACEMENT COSTS ALLOCATED TO TRANSPORTATION FOR EACH AQUEDUCT REACH

(in dollars)

CALIFORNIA AQUEDUCT (Continued)

CALENDAR YEAR	SOUTH SAN JOAQUIN DIVISION										
	Reach 8	Reach 9	Reach 10A	Reach 11B	Reach 12D	Reach 12E	Reach 13B	Reach 14A	Reach 14B	Reach 14C	Reach 15
1960	0	0	0	0	0	0	0	0	0	0	0
1961	0	0	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0	0	0	0	0
1964	0	0	0	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	0	0	0	0	0
1967	0	0	0	0	0	0	0	0	0	0	0
1968	88,000	85,000	88,000	61,000	0	0	0	0	0	0	0
1969	81,000	79,000	81,000	57,000	0	0	0	0	0	0	0
1970	75,000	72,000	75,000	52,000	90,000	56,000	76,000	0	0	0	0
1971	88,000	87,000	88,000	62,000	107,000	66,000	90,000	370,000	77,000	61,000	277,000
1972	106,000	104,000	107,000	74,000	128,000	79,000	108,000	367,000	90,000	72,000	269,000
1973	106,000	104,000	107,000	74,000	128,000	79,000	108,000	362,000	90,000	72,000	259,000
1974	106,000	104,000	107,000	74,000	128,000	79,000	108,000	358,000	90,000	72,000	257,000
1975	106,000	104,000	107,000	74,000	128,000	79,000	108,000	361,000	90,000	72,000	260,000
1976	105,000	103,000	106,000	73,000	126,000	78,000	107,000	372,000	89,000	72,000	275,000
1977	105,000	103,000	106,000	73,000	126,000	78,000	107,000	375,000	89,000	72,000	276,000
1978	105,000	103,000	106,000	73,000	126,000	78,000	107,000	377,000	89,000	72,000	279,000
1979	105,000	103,000	106,000	73,000	126,000	78,000	107,000	379,000	89,000	72,000	278,000
1980	103,000	101,000	104,000	72,000	125,000	77,000	106,000	379,000	88,000	70,000	281,000
1981	103,000	101,000	104,000	72,000	125,000	77,000	106,000	375,000	88,000	70,000	280,000
1982	103,000	101,000	104,000	72,000	125,000	77,000	106,000	376,000	88,000	70,000	280,000
1983	103,000	101,000	104,000	72,000	125,000	77,000	106,000	375,000	88,000	70,000	282,000
1984	103,000	101,000	104,000	72,000	125,000	77,000	106,000	376,000	88,000	70,000	283,000
1985	103,000	101,000	104,000	72,000	125,000	77,000	106,000	377,000	88,000	70,000	284,000
1986	103,000	101,000	104,000	72,000	125,000	77,000	106,000	378,000	88,000	70,000	284,000
1987	103,000	101,000	104,000	72,000	125,000	77,000	106,000	378,000	88,000	70,000	284,000
1988	103,000	101,000	104,000	72,000	125,000	77,000	106,000	378,000	88,000	70,000	286,000
1989	103,000	101,000	104,000	72,000	125,000	77,000	106,000	378,000	88,000	70,000	285,000
1990	103,000	101,000	104,000	72,000	125,000	77,000	106,000	376,000	88,000	70,000	284,000
1991	103,000	101,000	104,000	72,000	125,000	77,000	106,000	376,000	88,000	70,000	284,000
1992	103,000	101,000	104,000	72,000	125,000	77,000	106,000	376,000	88,000	70,000	284,000
1993	103,000	101,000	104,000	72,000	125,000	77,000	106,000	376,000	88,000	70,000	284,000
1994	103,000	101,000	104,000	72,000	125,000	77,000	106,000	376,000	88,000	70,000	284,000
1995	103,000	101,000	104,000	72,000	125,000	77,000	106,000	376,000	88,000	70,000	284,000
1996	103,000	101,000	104,000	72,000	125,000	77,000	106,000	376,000	88,000	70,000	284,000
1997	103,000	101,000	104,000	72,000	125,000	77,000	106,000	376,000	88,000	70,000	284,000
1998	103,000	101,000	104,000	72,000	125,000	77,000	106,000	376,000	88,000	70,000	284,000
1999	103,000	101,000	104,000	72,000	125,000	77,000	106,000	376,000	88,000	70,000	284,000
2000*	103,000	101,000	104,000	72,000	125,000	77,000	106,000	376,000	88,000	70,000	284,000

* And thereafter for the remainder of the project repayment period.

TABLE B-11 (Continued)

ACTUAL AND PROJECTED MINIMUM OPERATION, MAINTENANCE, POWER, AND REPLACEMENT COSTS ALLOCATED TO TRANSPORTATION FOR EACH AQUEDUCT REACH

(in dollars)

CALIFORNIA AQUEDUCT (Continued)

CALENDAR YEAR	SOUTH SAN JOAQUIN DIVISION (Continued)		TEHACHAPI DIVISION			EAST BRANCH DIVISION					
	Reach 16	Subtotal	Reach 17C	Reach 17D	Subtotal	Reach 18A	Reach 19	Reach 20	Reach 21	Reach 22A	Reach 22B
1960	0	0	0	0	0	0	0	0	0	0	0
1961	0	0	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0	0	0	0	0
1964	0	0	0	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	0	0	0	0	0
1967	0	0	0	0	0	0	0	0	0	0	0
1968	0	322,000	0	0	0	0	0	0	0	0	0
1969	0	298,000	0	0	0	0	0	0	0	0	0
1970	0	496,000	0	0	0	0	0	0	0	0	0
1971	642,000	2,015,000	1,757,000	8,000	1,765,000	0	0	0	0	0	0
1972	619,000	2,123,000	1,622,000	10,000	1,632,000	35,000	149,000	164,000	46,000	41,000	563,000
1973	599,000	2,088,000	1,515,000	10,000	1,525,000	31,000	149,000	164,000	46,000	41,000	532,000
1974	589,000	2,072,000	1,484,000	10,000	1,494,000	27,000	149,000	164,000	46,000	41,000	517,000
1975	600,000	2,089,000	1,511,000	10,000	1,521,000	27,000	149,000	164,000	46,000	41,000	512,000
1976	629,000	2,135,000	1,462,000	10,000	1,472,000	26,000	147,000	163,000	45,000	40,000	505,000
1977	627,000	2,137,000	1,522,000	10,000	1,532,000	26,000	147,000	163,000	45,000	40,000	505,000
1978	635,000	2,150,000	1,540,000	10,000	1,550,000	24,000	147,000	163,000	45,000	40,000	514,000
1979	641,000	2,157,000	1,554,000	10,000	1,564,000	24,000	147,000	163,000	45,000	40,000	511,000
1980	645,000	2,151,000	1,567,000	10,000	1,577,000	23,000	147,000	163,000	45,000	40,000	508,000
1981	646,000	2,147,000	1,577,000	10,000	1,587,000	23,000	147,000	163,000	45,000	40,000	517,000
1982	646,000	2,148,000	1,557,000	10,000	1,567,000	23,000	147,000	163,000	45,000	40,000	515,000
1983	650,000	2,153,000	1,567,000	10,000	1,577,000	22,000	147,000	163,000	45,000	40,000	521,000
1984	654,000	2,159,000	1,576,000	10,000	1,586,000	22,000	147,000	163,000	45,000	40,000	519,000
1985	654,000	2,161,000	1,583,000	10,000	1,593,000	23,000	147,000	163,000	45,000	40,000	517,000
1986	656,000	2,164,000	1,589,000	10,000	1,599,000	22,000	147,000	163,000	45,000	40,000	522,000
1987	658,000	2,166,000	1,595,000	10,000	1,605,000	22,000	147,000	163,000	45,000	40,000	520,000
1988	661,000	2,171,000	1,599,000	10,000	1,609,000	22,000	147,000	163,000	45,000	40,000	518,000
1989	662,000	2,171,000	1,588,000	10,000	1,598,000	21,000	147,000	163,000	45,000	40,000	522,000
1990	661,000	2,167,000	1,587,000	10,000	1,597,000	21,000	147,000	163,000	45,000	40,000	522,000
1991	660,000	2,166,000	1,585,000	10,000	1,595,000	21,000	147,000	163,000	45,000	40,000	522,000
1992	660,000	2,166,000	1,585,000	10,000	1,595,000	21,000	147,000	163,000	45,000	40,000	522,000
1993	660,000	2,166,000	1,585,000	10,000	1,595,000	21,000	147,000	163,000	45,000	40,000	522,000
1994	660,000	2,166,000	1,585,000	10,000	1,595,000	21,000	147,000	163,000	45,000	40,000	522,000
1995	660,000	2,166,000	1,585,000	10,000	1,595,000	21,000	147,000	163,000	45,000	40,000	522,000
1996	660,000	2,166,000	1,585,000	10,000	1,595,000	21,000	147,000	163,000	45,000	40,000	522,000
1997	660,000	2,166,000	1,585,000	10,000	1,595,000	21,000	147,000	163,000	45,000	40,000	522,000
1998	660,000	2,166,000	1,585,000	10,000	1,595,000	21,000	147,000	163,000	45,000	40,000	522,000
1999	660,000	2,166,000	1,585,000	10,000	1,595,000	21,000	147,000	163,000	45,000	40,000	522,000
2000*	660,000	2,166,000	1,585,000	10,000	1,595,000	21,000	147,000	163,000	45,000	40,000	522,000

* And thereafter for the remainder of the project repayment period.

TABLE B-11 (Continued)

ACTUAL AND PROJECTED MINIMUM OPERATION, MAINTENANCE, POWER, AND REPLACEMENT COSTS ALLOCATED TO TRANSPORTATION FOR EACH AQUEDUCT REACH

(in dollars)

CALIFORNIA AQUEDUCT (Continued)

CALENDAR YEAR	EAST BRANCH DIVISION (Continued)									WEST BRANCH DIVISION	
	Reach 23	Reach 24	Reach 25	Reach 26	Reach 27	Reach 28A	Reach 28B	Reach 28C	Subtotal	Reach 29A	Reach 29B
1960	0	0	0	0	0	0	0	0	0	0	0
1961	0	0	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0	0	0	0	0
1964	0	0	0	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	0	0	0	0	0
1967	0	0	0	0	0	0	0	0	0	0	0
1968	0	0	0	0	0	0	0	0	0	0	0
1969	0	0	0	0	0	0	0	0	0	0	0
1970	0	0	0	0	0	0	0	0	0	0	0
1971	0	0	0	0	0	0	0	0	0	172,000	29,000
1972	4,000	29,000	14,000	154,000	101,000	14,000	41,000	36,000	1,391,000	173,000	34,000
1973	4,000	29,000	14,000	132,000	88,000	14,000	41,000	36,000	1,321,000	159,000	34,000
1974	4,000	29,000	14,000	116,000	78,000	14,000	41,000	36,000	1,276,000	150,000	34,000
1975	4,000	29,000	14,000	116,000	79,000	14,000	41,000	36,000	1,272,000	147,000	34,000
1976	4,000	29,000	14,000	113,000	76,000	14,000	40,000	35,000	1,251,000	148,000	34,000
1977	4,000	29,000	14,000	114,000	76,000	14,000	40,000	35,000	1,252,000	147,000	34,000
1978	4,000	29,000	14,000	113,000	76,000	14,000	40,000	35,000	1,258,000	148,000	34,000
1979	4,000	29,000	14,000	113,000	76,000	14,000	40,000	35,000	1,255,000	149,000	34,000
1980	4,000	29,000	14,000	113,000	76,000	14,000	40,000	35,000	1,251,000	148,000	34,000
1981	4,000	29,000	14,000	113,000	76,000	14,000	40,000	35,000	1,260,000	149,000	34,000
1982	4,000	29,000	14,000	112,000	76,000	14,000	40,000	35,000	1,257,000	149,000	34,000
1983	4,000	29,000	14,000	112,000	76,000	14,000	40,000	35,000	1,262,000	150,000	34,000
1984	4,000	29,000	14,000	112,000	76,000	14,000	40,000	35,000	1,260,000	151,000	34,000
1985	4,000	29,000	14,000	113,000	76,000	14,000	40,000	35,000	1,260,000	149,000	34,000
1986	4,000	29,000	14,000	114,000	76,000	14,000	40,000	35,000	1,265,000	150,000	34,000
1987	4,000	29,000	14,000	114,000	77,000	14,000	40,000	35,000	1,264,000	150,000	34,000
1988	4,000	29,000	14,000	114,000	77,000	14,000	40,000	35,000	1,262,000	151,000	34,000
1989	4,000	29,000	14,000	115,000	77,000	14,000	40,000	35,000	1,266,000	150,000	34,000
1990	4,000	29,000	14,000	115,000	77,000	14,000	40,000	35,000	1,266,000	150,000	34,000
1991	4,000	29,000	14,000	115,000	77,000	14,000	40,000	35,000	1,266,000	150,000	34,000
1992	4,000	29,000	14,000	115,000	77,000	14,000	40,000	35,000	1,266,000	150,000	34,000
1993	4,000	29,000	14,000	115,000	77,000	14,000	40,000	35,000	1,266,000	150,000	34,000
1994	4,000	29,000	14,000	115,000	77,000	14,000	40,000	35,000	1,266,000	150,000	34,000
1995	4,000	29,000	14,000	115,000	77,000	14,000	40,000	35,000	1,266,000	150,000	34,000
1996	4,000	29,000	14,000	115,000	77,000	14,000	40,000	35,000	1,266,000	150,000	34,000
1997	4,000	29,000	14,000	115,000	77,000	14,000	40,000	35,000	1,266,000	150,000	34,000
1998	4,000	29,000	14,000	115,000	77,000	14,000	40,000	35,000	1,266,000	150,000	34,000
1999	4,000	29,000	14,000	115,000	77,000	14,000	40,000	35,000	1,266,000	150,000	34,000
2000*	4,000	29,000	14,000	115,000	77,000	14,000	40,000	35,000	1,266,000	150,000	34,000

* And thereafter for the remainder of the project repayment period.

TABLE B-11 (Continued)

ACTUAL AND PROJECTED MINIMUM OPERATION, MAINTENANCE, POWER, AND REPLACEMENT COSTS ALLOCATED TO TRANSPORTATION FOR EACH AQUEDUCT REACH

(in dollars)

CALIFORNIA AQUEDUCT (Continued)

CALENDAR YEAR	WEST BRANCH DIVISION (Continued)					COASTAL BRANCH DIVISION					TOTAL CALIFORNIA AQUEDUCT
	Reach 29C	Reach 29D	Reach 29E	Reach 30	Subtotal	Reach 31A	Reach 33A	Reach 34	Reach 35	Subtotal	
1960	0	0	0	0	0	0	0	0	0	0	0
1961	0	0	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0	0	0	0	0
1964	0	0	0	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	0	0	0	0	0
1967	0	0	0	0	0	0	0	0	0	0	636,000
1968	0	0	0	0	0	75,000	0	0	0	75,000	2,614,000
1969	0	0	0	0	0	69,000	0	0	0	69,000	2,651,000
1970	0	0	0	0	0	71,000	0	0	0	71,000	2,841,000
1971	332,000	19,000	416,000	53,000	1,021,000	84,000	0	0	0	84,000	7,195,000
1972	371,000	19,000	443,000	53,000	1,093,000	93,000	0	0	0	93,000	8,686,000
1973	341,000	23,000	386,000	53,000	996,000	92,000	0	0	0	92,000	8,389,000
1974	292,000	23,000	345,000	53,000	897,000	91,000	0	0	0	91,000	8,196,000
1975	288,000	23,000	343,000	53,000	888,000	91,000	0	0	0	91,000	8,236,000
1976	281,000	23,000	337,000	53,000	876,000	89,000	0	0	0	89,000	8,194,000
1977	281,000	23,000	337,000	53,000	875,000	89,000	0	0	0	89,000	8,262,000
1978	278,000	23,000	336,000	53,000	872,000	89,000	0	0	0	89,000	8,293,000
1979	276,000	23,000	336,000	53,000	871,000	89,000	0	0	0	89,000	8,307,000
1980	275,000	23,000	338,000	53,000	871,000	92,000	222,000	9,000	26,000	349,000	8,536,000
1981	273,000	23,000	340,000	53,000	872,000	90,000	210,000	9,000	26,000	335,000	8,574,000
1982	271,000	23,000	341,000	53,000	871,000	90,000	187,000	9,000	26,000	312,000	8,568,000
1983	270,000	23,000	342,000	53,000	872,000	90,000	177,000	9,000	26,000	302,000	8,606,000
1984	269,000	23,000	343,000	53,000	873,000	90,000	175,000	9,000	26,000	300,000	8,651,000
1985	268,000	23,000	345,000	53,000	872,000	90,000	167,000	9,000	26,000	292,000	8,690,000
1986	267,000	23,000	346,000	53,000	873,000	89,000	166,000	9,000	26,000	290,000	8,666,000
1987	266,000	23,000	346,000	53,000	872,000	89,000	165,000	9,000	26,000	289,000	8,642,000
1988	265,000	23,000	347,000	53,000	873,000	89,000	162,000	9,000	26,000	286,000	8,625,000
1989	265,000	23,000	348,000	53,000	873,000	89,000	162,000	9,000	26,000	286,000	8,597,000
1990	265,000	23,000	348,000	53,000	873,000	88,000	161,000	9,000	26,000	284,000	8,589,000
1991	265,000	23,000	348,000	53,000	873,000	88,000	161,000	9,000	26,000	284,000	8,585,000
1992	265,000	23,000	348,000	53,000	873,000	88,000	161,000	9,000	26,000	284,000	8,585,000
1993	265,000	23,000	348,000	53,000	873,000	88,000	161,000	9,000	26,000	284,000	8,585,000
1994	265,000	23,000	348,000	53,000	873,000	88,000	161,000	9,000	26,000	284,000	8,585,000
1995	265,000	23,000	348,000	53,000	873,000	88,000	161,000	9,000	26,000	284,000	8,585,000
1996	265,000	23,000	348,000	53,000	873,000	88,000	161,000	9,000	26,000	284,000	8,585,000
1997	265,000	23,000	348,000	53,000	873,000	88,000	161,000	9,000	26,000	284,000	8,585,000
1998	265,000	23,000	348,000	53,000	873,000	88,000	161,000	9,000	26,000	284,000	8,585,000
1999	265,000	23,000	348,000	53,000	873,000	88,000	161,000	9,000	26,000	284,000	8,585,000
2000*	265,000	23,000	348,000	53,000	873,000	88,000	161,000	9,000	26,000	284,000	8,585,000

* And thereafter for the remainder of the project repayment period.

TABLE B-12

ACTUAL AND PROJECTED VARIABLE OPERATION, MAINTENANCE, POWER, AND REPLACEMENT COSTS ALLOCATED TO TRANSPORTATION FOR EACH AQUEDUCT REACH

(in dollars)

	NORTH BAY AQUEDUCT				SOUTH BAY AQUEDUCT						
CALENDAR YEAR	Reach 1	Reach 2	Reach 3	TOTAL NORTH BAY AQUEDUCT	Reach 1	Reach 2	Reach 4	Reach 5	Reach 6	Reach 7	Reach 8
1960	0		0	0	0						
1961	0		0	0	0						
1962	0		0	0	40,455						
1963	0		0	0	62,780						
1964	0		0	0	84,104						
1965	0		0	0	186,000						
1966	0		0	0	236,000						
1967	0		0	0	244,000						
1968	0		36,000	36,000	326,000						
1969	0		39,000	39,000	337,000						
1970	0		39,000	39,000	347,000						
1971	0		40,000	40,000	367,000						
1972	0		40,000	40,000	372,000						
1973	0		40,000	40,000	359,000						
1974	0		53,000	53,000	361,000						
1975	0		53,000	53,000	364,000						
1976	0		54,000	54,000	380,000						
1977	0		54,000	54,000	385,000						
1978	0		54,000	54,000	388,000						
1979	0		56,000	56,000	386,000						
1980	11,000		59,000	70,000	387,000						
1981	14,000		60,000	74,000	392,000						
1982	14,000		60,000	74,000	408,000						
1983	14,000		60,000	74,000	413,000						
1984	14,000		62,000	76,000	417,000						
1985	14,000		62,000	76,000	420,000						
1986	14,000		63,000	77,000	426,000						
1987	15,000		65,000	80,000	430,000						
1988	18,000		65,000	83,000	435,000						
1989	18,000		67,000	85,000	444,000						
1990	22,000		67,000	89,000	466,000						
1991	22,000		67,000	89,000	475,000						
1992	22,000		67,000	89,000	481,000						
1993	22,000		67,000	89,000	488,000						
1994	22,000		67,000	89,000	493,000						
1995	22,000		67,000	89,000	496,000						
1996	22,000		67,000	89,000	498,000						
1997	22,000		67,000	89,000	501,000						
1998	22,000		67,000	89,000	501,000						
1999	22,000		67,000	89,000	501,000						
2000*	22,000		67,000	89,000	501,000						

* And thereafter for the remainder of the project repayment period.

TABLE B-12 (Continued)

ACTUAL AND PROJECTED VARIABLE OPERATION, MAINTENANCE, POWER, AND REPLACEMENT COSTS ALLOCATED TO TRANSPORTATION FOR EACH AQUEDUCT REACH

(in dollars)

SOUTH BAY AQUEDUCT (Continued) CALIFORNIA AQUEDUCT

CALENDAR YEAR	Reach 9	TOTAL SOUTH BAY AQUEDUCT	NORTH SAN JOAQUIN DIVISION			SAN LUIS DIVISION					
			Reach 1	Reach 2	Subtotal	Reach 3	Reach 4	Reach 5	Reach 6	Reach 7	Subtotal
1960		0	0		0		0				0
1961		0	0		0		0				0
1962		40,455	0		0		0				0
1963		62,780	0		0		0				0
1964		84,104	0		0		0				0
1965		186,000	0		0		0				0
1966		236,000	0		0		0				0
1967		244,000	155,000		155,000		0				0
1968		326,000	263,000		263,000		229,000				229,000
1969		337,000	335,000		335,000		260,000				260,000
1970		347,000	293,000		293,000		261,000				261,000
1971		367,000	295,000		295,000		360,000				360,000
1972		372,000	517,000		517,000		472,000				472,000
1973		359,000	641,000		641,000		565,000				565,000
1974		361,000	729,000		729,000		657,000				657,000
1975		364,000	878,000		878,000		756,000				756,000
1976		380,000	985,000		985,000		865,000				865,000
1977		385,000	1,122,000		1,122,000		989,000				989,000
1978		388,000	1,207,000		1,207,000		1,100,000				1,100,000
1979		386,000	1,283,000		1,283,000		1,212,000				1,212,000
1980		387,000	1,316,000		1,316,000		1,320,000				1,320,000
1981		392,000	1,948,000		1,948,000		1,224,000				1,224,000
1982		408,000	2,528,000		2,528,000		1,324,000				1,324,000
1983		413,000	3,011,000		3,011,000		1,411,000				1,411,000
1984		417,000	3,599,000		3,599,000		1,538,000				1,538,000
1985		420,000	4,327,000		4,327,000		1,639,000				1,639,000
1986		426,000	4,073,000		4,073,000		1,742,000				1,742,000
1987		430,000	3,915,000		3,915,000		1,818,000				1,818,000
1988		435,000	3,770,000		3,770,000		1,935,000				1,935,000
1989		444,000	3,596,000		3,596,000		1,996,000				1,996,000
1990		466,000	3,747,000		3,747,000		1,923,000				1,923,000
1991		475,000	3,756,000		3,756,000		1,927,000				1,927,000
1992		481,000	3,758,000		3,758,000		1,927,000				1,927,000
1993		488,000	3,761,000		3,761,000		1,927,000				1,927,000
1994		493,000	3,763,000		3,763,000		1,927,000				1,927,000
1995		496,000	3,764,000		3,764,000		1,927,000				1,927,000
1996		498,000	3,765,000		3,765,000		1,927,000				1,927,000
1997		501,000	3,766,000		3,766,000		1,927,000				1,927,000
1998		501,000	3,766,000		3,766,000		1,927,000				1,927,000
1999		501,000	3,766,000		3,766,000		1,927,000				1,927,000
2000*		501,000	3,766,000		3,766,000		1,927,000				1,927,000

* And thereafter for the remainder of the project repayment period.

TABLE B-12 (Continued)

ACTUAL AND PROJECTED VARIABLE OPERATION, MAINTENANCE, POWER, AND REPLACEMENT COSTS ALLOCATED TO TRANSPORTATION FOR EACH AQUEDUCT REACH

(in dollars)

CALIFORNIA AQUEDUCT (Continued)

CALENDAR YEAR	SOUTH SAN JOAQUIN DIVISION										
	Reach 8	Reach 9	Reach 10A	Reach 11B	Reach 12D	Reach 12E	Reach 13B	Reach 14A	Reach 14B	Reach 14C	Reach 15
1960								0			0
1961								0			0
1962								0			0
1963								0			0
1964								0			0
1965								0			0
1966								0			0
1967								0			0
1968								0			0
1969								0			0
1970								0			0
1971								271,000			264,000
1972								373,000			403,000
1973								488,000			493,000
1974								579,000			611,000
1975								708,000			742,000
1976								845,000			897,000
1977								986,000			1,029,000
1978								1,124,000			1,183,000
1979								1,275,000			1,300,000
1980								1,408,000			1,451,000
1981								1,462,000			1,564,000
1982								1,597,000			1,687,000
1983								1,692,000			1,843,000
1984								1,829,000			1,984,000
1985								1,965,000			2,138,000
1986								2,124,000			2,257,000
1987								2,266,000			2,416,000
1988								2,408,000			2,603,000
1989								2,487,000			2,672,000
1990								2,461,000			2,685,000
1991								2,466,000			2,690,000
1992								2,466,000			2,690,000
1993								2,466,000			2,690,000
1994								2,466,000			2,690,000
1995								2,466,000			2,690,000
1996								2,466,000			2,690,000
1997								2,466,000			2,690,000
1998								2,466,000			2,690,000
1999								2,466,000			2,690,000
2000*								2,466,000			2,690,000

* And thereafter for the remainder of the project repayment period.

TABLE B-12 (Continued)

ACTUAL AND PROJECTED VARIABLE OPERATION, MAINTENANCE, POWER, AND REPLACEMENT COSTS ALLOCATED TO TRANSPORTATION FOR EACH AQUEDUCT REACH

(in dollars)

CALIFORNIA AQUEDUCT (Continued)

CALENDAR YEAR	SOUTH SAN JOAQUIN DIVISION (Continued)		TEHACHAPI DIVISION			EAST BRANCH DIVISION					
	Reach 16	Subtotal	Reach 17C	Reach 17D	Subtotal	Reach 18A	Reach 19	Reach 20	Reach 21	Reach 22A	Reach 22B
1960	0	0	0		0	0					0
1961	0	0	0		0	0					0
1962	0	0	0		0	0					0
1963	0	0	0		0	0					0
1964	0	0	0		0	0					0
1965	0	0	0		0	0					0
1966	0	0	0		0	0					0
1967	0	0	0		0	0					0
1968	0	0	0		0	0					0
1969	0	0	0		0	0					0
1970	0	0	0		0	0					0
1971	619,000	1,154,000	2,885,000		2,885,000	0-					0
1972	814,000	1,590,000	3,493,000		3,493,000	12,000-					420,000
1973	1,009,000	1,990,000	3,829,000		3,829,000	19,000-					438,000
1974	1,209,000	2,399,000	4,620,000		4,620,000	22,000-					535,000
1975	1,521,000	2,971,000	5,740,000		5,740,000	28,000-					576,000
1976	1,845,000	3,587,000	6,148,000		6,148,000	33,000-					631,000
1977	2,043,000	4,058,000	7,920,000		7,920,000	37,000-					720,000
1978	2,373,000	4,680,000	9,142,000		9,142,000	59,000-					938,000
1979	2,706,000	5,281,000	10,347,000		10,347,000	64,000-					988,000
1980	3,035,000	5,894,000	11,585,000		11,585,000	79,000-					1,037,000
1981	3,298,000	6,324,000	12,823,000		12,823,000	100,000-					1,261,000
1982	3,544,000	6,828,000	13,286,000		13,286,000	104,000-					1,298,000
1983	3,876,000	7,411,000	14,517,000		14,517,000	126,000-					1,507,000
1984	4,208,000	8,021,000	15,750,000		15,750,000	129,000-					1,547,000
1985	4,488,000	8,591,000	16,972,000		16,972,000	134,000-					1,579,000
1986	4,813,000	9,194,000	18,223,000		18,223,000	156,000-					1,795,000
1987	5,155,000	9,837,000	19,492,000		19,492,000	161,000-					1,840,000
1988	5,503,000	10,514,000	20,765,000		20,765,000	167,000-					1,883,000
1989	5,732,000	10,891,000	21,084,000		21,084,000	190,000-					2,112,000
1990	5,760,000	10,906,000	21,164,000		21,164,000	191,000-					2,124,000
1991	5,774,000	10,930,000	21,214,000		21,214,000	192,000-					2,130,000
1992	5,774,000	10,930,000	21,214,000		21,214,000	192,000-					2,130,000
1993	5,774,000	10,930,000	21,214,000		21,214,000	192,000-					2,130,000
1994	5,774,000	10,930,000	21,214,000		21,214,000	192,000-					2,130,000
1995	5,774,000	10,930,000	21,214,000		21,214,000	192,000-					2,130,000
1996	5,774,000	10,930,000	21,214,000		21,214,000	192,000-					2,130,000
1997	5,774,000	10,930,000	21,214,000		21,214,000	192,000-					2,130,000
1998	5,774,000	10,930,000	21,214,000		21,214,000	192,000-					2,130,000
1999	5,774,000	10,930,000	21,214,000		21,214,000	192,000-					2,130,000
2000*	5,774,000	10,930,000	21,214,000		21,214,000	192,000-					2,130,000

* And thereafter for the remainder of the project repayment period.

TABLE B-12 (Continued)

ACTUAL AND PROJECTED VARIABLE OPERATION, MAINTENANCE, POWER, AND REPLACEMENT COSTS ALLOCATED TO TRANSPORTATION FOR EACH AQUEDUCT REACH

(in dollars)

CALIFORNIA AQUEDUCT (Continued)

CALENDAR YEAR	EAST BRANCH DIVISION (Continued)									WEST BRANCH DIVISION	
	Reach 23	Reach 24	Reach 25	Reach 26	Reach 27	Reach 28A	Reach 28B	Reach 28C	Subtotal	Reach 29A	Reach 29B
1960				0	0				0	0	
1961				0	0				0	0	
1962				0	0				0	0	
1963				0	0				0	0	
1964				0	0				0	0	
1965				0	0				0	0	
1966				0	0				0	0	
1967				0	0				0	0	
1968				0	0				0	0	
1969				0	0				0	0	
1970				0	0				0	0	
1971				0	0				0	318,000	
1972				251,000-	161,000-				4,000-	233,000	
1973				321,000-	195,000-				97,000-	245,000	
1974				398,000-	253,000-				138,000-	353,000	
1975				444,000-	281,000-				177,000-	364,000	
1976				534,000-	345,000-				281,000-	470,000	
1977				591,000-	371,000-				279,000-	510,000	
1978				678,000-	430,000-				229,000-	594,000	
1979				747,000-	479,000-				302,000-	693,000	
1980				824,000-	538,000-				404,000-	706,000	
1981				884,000-	571,000-				294,000-	801,000	
1982				951,000-	601,000-				358,000-	896,000	
1983				990,000-	643,000-				252,000-	989,000	
1984				1,028,000-	666,000-				276,000-	1,098,000	
1985				1,048,000-	680,000-				283,000-	1,122,000	
1986				1,081,000-	694,000-				136,000-	1,216,000	
1987				1,108,000-	712,000-				141,000-	1,311,000	
1988				1,133,000-	728,000-				145,000-	1,420,000	
1989				1,163,000-	749,000-				10,000	1,424,000	
1990				1,165,000-	750,000-				18,000	1,426,000	
1991				1,184,000-	743,000-				11,000	1,427,000	
1992				1,184,000-	743,000-				11,000	1,427,000	
1993				1,184,000-	743,000-				11,000	1,427,000	
1994				1,184,000-	743,000-				11,000	1,427,000	
1995				1,184,000-	743,000-				11,000	1,427,000	
1996				1,184,000-	743,000-				11,000	1,427,000	
1997				1,184,000-	743,000-				11,000	1,427,000	
1998				1,184,000-	743,000-				11,000	1,427,000	
1999				1,184,000-	743,000-				11,000	1,427,000	
2000*				1,184,000-	743,000-				11,000	1,427,000	

* And thereafter for the remainder of the project repayment period.

TABLE B-12 (Continued)

ACTUAL AND PROJECTED VARIABLE OPERATION, MAINTENANCE, POWER, AND REPLACEMENT COSTS ALLOCATED TO TRANSPORTATION FOR EACH AQUEDUCT REACH

(in dollars)

CALIFORNIA AQUEDUCT (Continued)

CALENDAR YEAR	WEST BRANCH DIVISION (Continued)					COASTAL BRANCH DIVISION					TOTAL CALIFORNIA AQUEDUCT
	Reach 29C	Reach 29D	Reach 29E	Reach 30	Subtotal	Reach 31A	Reach 33A	Reach 34	Reach 35	Subtotal	
1960	0-		0-		0	0	0			0	0
1961	0-		0-		0	0	0			0	0
1962	0-		0-		0	0	0			0	0
1963	0-		0-		0	0	0			0	0
1964	0-		0-		0	0	0			0	0
1965	0-		0-		0	0	0			0	0
1966	0-		0-		0	0	0			0	0
1967	0-		0-		0	0	0			0	155,000
1968	0-		0-		0	129,000	0			129,000	621,000
1969	0-		0-		0	133,000	0			133,000	728,000
1970	0-		0-		0	115,000	0			115,000	669,000
1971	324,000-		620,000-		626,000-	120,000	0			120,000	4,188,000
1972	21,000-		715,000-		503,000-	150,000	0			150,000	5,715,000
1973	97,000-		879,000-		731,000-	151,000	0			151,000	6,348,000
1974	112,000-		967,000-		726,000-	153,000	0			153,000	7,694,000
1975	213,000-		1,201,000-		1,050,000-	155,000	0			155,000	9,273,000
1976	282,000-		1,374,000-		1,186,000-	157,000	0			157,000	10,275,000
1977	331,000-		1,548,000-		1,369,000-	161,000	0			161,000	12,602,000
1978	454,000-		1,748,000-		1,608,000-	162,000	0			162,000	14,454,000
1979	561,000-		1,931,000-		1,799,000-	220,000	0			220,000	16,242,000
1980	687,000-		1,993,000-		1,974,000-	181,000	90,000			271,000	18,008,000
1981	830,000-		2,068,000-		2,097,000-	126,000	112,000			238,000	20,166,000
1982	962,000-		2,152,000-		2,218,000-	127,000	141,000			268,000	21,658,000
1983	1,104,000-		2,226,000-		2,341,000-	127,000	160,000			287,000	24,044,000
1984	1,247,000-		2,308,000-		2,457,000-	148,000	230,000			378,000	26,553,000
1985	1,389,000-		2,381,000-		2,648,000-	155,000	260,000			415,000	29,013,000
1986	1,543,000-		2,456,000-		2,783,000-	161,000	328,000			489,000	30,802,000
1987	1,686,000-		2,539,000-		2,914,000-	168,000	389,000			557,000	32,564,000
1988	1,867,000-		2,614,000-		3,061,000-	176,000	429,000			605,000	34,383,000
1989	1,911,000-		2,642,000-		3,129,000-	211,000	521,000			732,000	35,180,000
1990	1,915,000-		2,646,000-		3,135,000-	193,000	630,000			823,000	35,446,000
1991	1,915,000-		2,646,000-		3,134,000-	193,000	630,000			823,000	35,527,000
1992	1,915,000-		2,646,000-		3,134,000-	193,000	630,000			823,000	35,529,000
1993	1,915,000-		2,646,000-		3,134,000-	193,000	630,000			823,000	35,532,000
1994	1,915,000-		2,646,000-		3,134,000-	193,000	630,000			823,000	35,534,000
1995	1,915,000-		2,646,000-		3,134,000-	193,000	630,000			823,000	35,535,000
1996	1,915,000-		2,646,000-		3,134,000-	193,000	630,000			823,000	35,536,000
1997	1,915,000-		2,646,000-		3,134,000-	193,000	630,000			823,000	35,537,000
1998	1,915,000-		2,646,000-		3,134,000-	193,000	630,000			823,000	35,537,000
1999	1,915,000-		2,646,000-		3,134,000-	193,000	630,000			823,000	35,537,000
2000*	1,915,000-		2,646,000-		3,134,000-	193,000	630,000			823,000	35,537,000

* And thereafter for the remainder of the project repayment period.

TABLE B-13

ALLOCATED CAPITAL COSTS TO EACH CONTRACTOR

(in dollars)

CALENDAR YEAR	NORTH BAY AREA			SOUTH BAY AREA				SAN JOAQUIN VALLEY AREA			
	Napa County FC & WCD	Solano County FC & WCD	Total	Alameda County FC & WCD Zone 7	Alameda County Water District	Santa Clara County FC & WD	Total	Devil's Den Water District	Dudley Ridge Water District	Empire West Side Irrigation District	Hacienda Water District
1952	0	0	0	75	79	307	461	77	353	18	51
1953	0	0	0	272	310	1317	1899	204	921	45	134
1954	0	0	0	696	837	3882	5415	247	1120	55	164
1955	0	0	0	846	1040	4996	6882	124	567	28	84
1956	0	0	0	10092	12557	68478	91127	149	679	32	100
1957	12834	8046	20880	22871	28488	648517	699876	188	852	36	125
1958	29076	11805	40881	57140	56582	696680	810402	551	2497	116	368
1959	17873	4720	22593	129658	120063	422661	672382	3272	8785	439	1293
1960	10329	8675	19004	304037	280250	951826	1536113	5036	10936	522	1611
1961	8142	7727	15869	883245	819720	2006963	3709928	6192	21509	1043	3169
1962	3169	2520	5689	548206	589989	1786158	2924353	14331	55802	2737	8219
1963	8573	6897	15470	527755	1271888	3499422	5299065	55135	232709	11913	34280
1964	15731	7522	23253	934498	1240101	7377355	9551954	106545	365708	18878	53874
1965	135529	34971	170500	337185	359083	3399972	4096240	186263	667305	34338	98303
1966	756890	91010	847900	582790	456569	1443673	2483032	520897	956443	42856	140896
1967	1242026	98774	1340800	701304	538775	1688407	2928486	514301	801039	38663	118003
1968	117463	80837	198300	435019	328550	1046149	1809718	56087	150695	7716	22198
1969	11385	17215	28600	119131	88817	277978	485926	9393	9926	502	1462
1970	11425	17275	28700	21820	16446	50747	89013	485	2192	114	323
1971	11027	16673	27700	0	0	0	0	0	0	0	0
1972	11027	16673	27700	747	681	1628	3056	304	1372	71	202
1973	11027	16673	27700	25763	23487	56158	105408	10476	47337	2458	6973
1974	11027	16673	27700	25763	23487	56158	105408	10476	47337	2458	6973
1975	11027	16673	27700	0	0	0	0	0	0	0	0
1976	48349	41351	89700	0	0	0	0	3063	0	0	0
1977	229862	256838	486700	0	0	0	0	29860	0	0	0
1978	1272066	1135634	2407700	0	0	0	0	10642	0	0	0
1979	1815669	1575031	3390700	0	0	0	0	0	0	0	0
1980	0	0	0	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	5628	25429	1321	3746
1984	0	0	0	0	0	0	0	11637	52586	2731	7745
1985	0	0	0	0	0	0	0	23273	105171	5461	15493
1986	0	0	0	0	0	0	0	15714	71010	3688	10460
1987	0	0	0	2626	2394	5723	10743	0	0	0	0
1988	0	0	0	21880	19947	47693	89520	0	0	0	0
1989	0	0	0	35008	31915	76309	143232	0	0	0	0
1990	0	0	0	0	0	0	0	0	0	0	0
TOTAL	5801526	3490213	9291739	5728427	6312055	25619157	37659639	1600550	3640280	178239	536249

TABLE B-13 (Continued)

ALLOCATED CAPITAL COSTS TO EACH CONTRACTOR

(in dollars)

CALENDAR YEAR	SAN JOAQUIN VALLEY AREA (Continued)				SOUTHERN CALIFORNIA AREA							
	Kern County Water Agency		Tulare Lake Basin Water Storage District	Total	Antelope Valley-East Kern Water Agency	City of West Covina	Coachella Valley County Water District	Crestline-Lake Arrowhead Water Agency	Desert Water Agency	Littlerock Creek Irrigation District	Mojave Water Agency	Palmdale Irrigation District
	Agriculture	Urban										
1952	8125	985	662	10271	2775	633	855	245	1412	72	1883	425
1953	23173	2891	1710	29078	8915	2077	2801	807	4620	238	6159	1372
1954	28734	3635	2078	36033	11918	2476	3452	982	5696	298	7594	1780
1955	14180	1797	1053	17833	6023	1080	1578	443	2601	139	3470	871
1956	22119	2962	1231	27272	8523	1227	1938	529	3202	178	4266	1171
1957	43392	6268	1443	52304	22471	3679	5543	1535	9145	496	12194	3173
1958	105771	14656	4456	128415	42828	6558	10127	2776	16701	914	22270	5965
1959	255059	31009	16395	316252	65536	9377	14669	4146	24195	1328	32258	8931
1960	313079	35923	19935	387042	80020	14257	20398	6049	33641	1746	44852	10603
1961	540446	63243	39483	675085	159003	31061	43838	13090	72302	3533	96406	20067
1962	1140105	126637	103045	1450876	197367	26703	43912	12203	72428	3706	96568	25475
1963	4367131	475028	439851	5616047	651525	84142	136181	38308	224611	12121	299482	81843
1964	7295367	774571	694409	9309352	1149927	125160	227453	60431	375155	21140	500205	153192
1965	15283063	1656450	1264904	19190626	2471324	276315	494347	132680	815371	45054	1087157	334603
1966	22729768	2305715	1683648	28380223	4401624	507118	880587	262222	1452430	76847	1936578	565630
1967	21511419	2303378	1466368	26753171	5641332	750799	1156675	329257	1907797	102791	2543731	760147
1968	6655541	892341	284902	8069480	6278071	1002581	1515189	455459	2499138	125064	3332202	899779
1969	4638316	517173	18625	5195397	5619541	1033439	1533772	470346	2529792	101669	3373073	713771
1970	1284229	170486	4176	1462005	3271898	842492	965772	329635	1592940	35271	2123943	263377
1971	1024849	119385	0	1144234	1555563	259537	387739	107683	639529	21934	852703	163712
1972	750888	72726	2614	828177	598553	54900	102665	26791	169337	10025	225781	75258
1973	956036	107500	90182	1220962	318514	73660	54423	21687	89765	4598	119690	34511
1974	898671	104361	90182	1160458	274736	63582	45858	14948	75638	4192	100852	31472
1975	186552	13506	0	200058	120835	12083	19378	6763	31960	1729	42614	12977
1976	21679	0	0	24742	0	0	0	0	0	0	0	0
1977	211368	0	0	241228	0	0	0	0	0	0	0	0
1978	75334	0	0	85976	0	0	0	0	0	0	0	0
1979	0	0	0	0	0	0	0	0	0	0	0	0
1980	0	0	0	0	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0	0	0	0	0
1983	448228	48091	48448	580891	44695	3862	7667	1946	12645	754	16859	5660
1984	926863	99444	100180	1201186	92421	7984	15853	4027	26147	1559	34865	11701
1985	1853726	198888	200361	2402373	184843	15967	31707	8053	52297	3116	69728	23402
1986	1251589	134285	135279	1622025	124803	10781	21408	5437	35310	2104	47078	15800
1987	0	0	0	0	0	0	0	0	0	0	0	0
1988	0	0	0	0	0	0	0	0	0	0	0	0
1989	0	0	0	0	0	0	0	0	0	0	0	0
1990	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	94864800	10283334	6715620	117819072	33405584	5223530	7745785	2318478	12775805	582616	17034461	4226668

TABLE B-13 (Continued)

ALLOCATED CAPITAL COSTS TO EACH CONTRACTOR

(in dollars)

CALENDAR YEAR	SOUTHERN CALIFORNIA AREA (Continued)							CENTRAL COASTAL AREA			GRAND TOTAL
	San Bernardino Valley Municipal Water District	San Gabriel Valley Municipal Water District	San Gorgonio Pass Water Agency	The Metropolitan Water District of S. California	Upper Santa Clara Valley Water Agency	Ventura County Flood Control District	Total	San Luis Obispo County FC & WCD	Santa Barbara County FC & WCD	Total	
1952	6192	1576	807	68870	471	346	86562	114	265	379	97673
1953	20463	5201	2655	224976	1501	1110	282895	295	690	985	314857
1954	24170	6205	3204	279621	2059	1531	350986	361	840	1201	393635
1955	10380	2706	1424	129209	1070	799	161793	183	426	609	187117
1956	11512	3076	1671	161635	1572	1178	201678	217	510	727	320804
1957	35007	9206	4904	456680	4067	3038	571138	272	638	910	1345108
1958	61908	16415	8829	838622	7827	5859	1047599	802	1869	2671	2029968
1959	88227	23492	12953	1272004	12670	9443	1579229	14989	38697	53686	2644142
1960	139762	35707	19262	1747121	14509	10786	2178713	28416	74520	102936	4223808
1961	287833	77786	41698	3139240	25639	19080	4030576	21102	53017	74119	8505577
1962	244418	66873	37225	3966897	44439	32756	4870970	39263	94904	134167	9386055
1963	778609	210725	117434	12502198	130106	97252	15364537	114725	275102	389827	26684946
1964	1113083	313446	180069	20092251	246740	183575	24741827	193513	460550	654063	44280449
1965	2459470	691994	408729	50618829	651106	473804	60960783	293221	688748	981969	85400118
1966	4580913	1270025	758571	89511077	1155129	840970	108199721	803951	1883412	2687363	142598239
1967	6666133	1880291	1133815	136444841	1784269	1268192	162370070	793677	1859429	2653106	196045633
1968	9231849	2510866	1480208	165460021	1976283	1427317	198194027	119093	285772	404865	208676390
1969	9375107	2588140	1524828	161012783	1861282	1341279	193078822	38927	95841	134768	198923513
1970	10762514	2109934	923633	100247962	708994	517424	124695789	17844	44811	62655	126338162
1971	3032702	649977	316390	64770897	433400	310000	73501766	19349	56951	76300	74750000
1972	473216	137490	79301	23862618	292795	202205	26310935	94088	265686	359774	27529642
1973	691523	184472	57944	10535979	125167	90493	12402426	151572	448592	600164	14356660
1974	577673	159232	41758	6935913	68903	50173	8444930	283280	771884	1055164	10793660
1975	114254	30262	18593	3450361	47202	32931	3941942	656209	1635091	2291300	6461000
1976	0	0	0	1410019	13618	8363	1432000	1833834	4342724	6176558	7723000
1977	0	0	0	0	0	0	0	2349300	5695772	8045072	8773000
1978	0	0	0	0	0	0	0	3691717	10637607	14329324	16823000
1979	0	0	0	0	0	0	0	1715529	5614771	7330300	10721000
1980	0	0	0	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0	0	0	0
1983	32901	9669	5808	664203	8706	6570	821945	26147	61017	87164	1490000
1984	68035	19994	12012	1373460	18004	13588	1699650	261320	609844	871164	3772000
1985	136069	39987	24021	2746920	36010	27176	3399296	111687	260644	372331	6174000
1986	91871	26998	16219	1854662	24313	18348	2295132	22750	53093	75843	3993000
1987	0	0	0	0	0	0	0	0	0	0	10743
1988	0	0	0	0	0	0	0	0	0	0	89520
1989	0	0	0	0	0	0	0	0	0	0	143232
1990	0	0	0	0	0	0	0	0	0	0	0
TOTAL	51115794	13081745	7233965	865779869	9697851	6995586	1037217737	13697747	36313717	50011464	1251999651

TABLE B-14

CAPITAL COST COMPONENTS OF EACH CONTRACTOR*

(in dollars)

Calendar Year	NORTH BAY AREA			SOUTH BAY AREA				SAN JOAQUIN VALLEY AREA	
	Napa County FC & WCD	Solano County FC & WCD	Total	Alameda County FC & WCD, Zone 7	Alameda County Water District	Santa Clara County FC & WD	Total	Devil's Den Water District	Dudley Ridge Water District
1962	0	0	0	0	0	0	0	0	0
1963	0	0	0	87466	85299	302508	475273	0	0
1964	0	0	0	90128	139828	452537	682493	0	0
1965	0	0	0	123125	192994	768822	1084941	0	0
1966	11240	0	11240	135031	208389	914587	1258007	0	0
1967	43690	8502	52192	155609	227963	976481	1360053	0	0
1968	96939	12737	109676	180372	251062	1048367	1480301	20563	38783
1969	101975	16203	118178	195733	265148	1093718	1554599	26121	45865
1970	102463	16941	119404	199940	268956	1105636	1574532	31679	52947
1971	102953	17682	120635	200710	269661	1107812	1578183	37236	60366
1972	103426	18397	121823	258609	269661	1107812	1636082	42794	67449
1973	103899	19112	123011	258641	269690	1107882	1636213	48351	74193
1974	104372	19827	124199	259746	270697	1110290	1640733	53909	81275
1975	104845	20542	125387	260851	271704	1112698	1545253	59467	88358
1976	105318	21257	126575	260851	271704	1112698	1645253	65025	95440
1977	107391	23030	130421	260851	271704	1112698	1645253	70582	102522
1978	117246	34041	151287	260851	271704	1112698	1645253	70582	109604
1979	171783	82728	254511	260851	271704	1112698	1645253	70582	116686
1980	249625	150253	399878	260851	271704	1112698	1645253	70582	123768
1981	249625	150253	399878	260851	271704	1112698	1645253	70582	130850
1982	249625	150253	399878	260851	271704	1112698	1645253	70582	138269
1983	249625	150253	399878	260851	271704	1112698	1645253	70582	144677
1984	249625	150253	399878	260851	271704	1112698	1645253	70582	152096
1985	249625	150253	399878	260851	271704	1112698	1645253	70582	159179
1986	249625	150253	399878	260851	271704	1112698	1645253	70582	166260
1987	249625	150253	399878	260851	271704	1112698	1645253	70582	173343
1988	249625	150253	399878	260964	271807	1112943	1645714	70582	180425
1989	249625	150253	399878	261902	272662	1114988	1649552	70582	187507
1990	249625	150253	399878	263403	274030	1118260	1655693	70582	194589
1991	249625	150253	399878	263403	274030	1118260	1655693	70582	194589
1992	249625	150253	399878	263403	274030	1118260	1655693	70582	194589
1993	249625	150253	399878	263403	274030	1118260	1655693	70582	194589
1994	249625	150253	399878	263403	274030	1118260	1655693	70582	194589
1995	249625	150253	399878	263403	274030	1118260	1655693	70582	194589
1996	249625	150253	399878	263403	274030	1118260	1655693	70582	194589
1997	249625	150253	399878	263403	274030	1118260	1655693	70582	194589
1998	249625	150253	399878	263403	274030	1118260	1655693	70582	194589
1999	249625	150253	399878	263403	274030	1118260	1655693	70582	194589
2000	249625	150253	399878	263403	274030	1118260	1655693	70582	194589
2001	249625	150253	399878	263403	274030	1118260	1655693	70582	194589
2002	249625	150253	399878	263403	274030	1118260	1655693	70582	194589
2003	249625	150253	399878	263403	274030	1118260	1655693	70582	194589
2004	249625	150253	399878	263403	274030	1118260	1655693	70582	194589
2005	249625	150253	399878	263403	274030	1118260	1655693	70582	194589
2006	249625	150253	399878	263403	274030	1118260	1655693	70582	194589
2007	249625	150253	399878	263403	274030	1118260	1655693	70582	194589
2008	249625	150253	399878	263403	274030	1118260	1655693	70582	194589
2009	249625	150253	399878	263403	274030	1118260	1655693	70582	194589
2010	249625	150253	399878	263403	274030	1118260	1655693	70582	194589
2011	249625	150253	399878	263403	274030	1118260	1655693	70582	194589
2012	249625	150253	399878	263403	274030	1118260	1655693	70582	194589
2013	249625	150253	399878	168484	188731	815752	1172967	70582	194589
2014	249625	150253	399878	144903	134202	665723	944828	70582	194589
2015	249625	150253	399878	102332	81036	349438	532806	70582	194589
2016	238385	150253	388638	87122	65641	203673	356436	70582	194589
2017	205935	141751	347686	61080	46067	141779	248926	70582	194589
2018	152686	137516	290202	30023	22968	69393	122384	70582	194589
2019	147650	134050	281700	10924	8882	24542	44348	70582	194589
2020	147162	133312	280474	5737	5074	12624	23435	70582	194589
2021	146672	132571	279243	4794	4369	10448	19611	70582	194589
2022	146199	131856	278055	4794	4369	10448	19611	70582	194589
2023	145726	131141	276867	4762	4340	10378	19480	70582	194589
2024	145253	130426	275679	3657	3333	7970	14960	70582	194589
2025	144780	129711	274491	2552	2326	5562	10440	70582	194589
2026	144307	128996	273303	2552	2326	5562	10440	70582	194589
2027	142234	127223	269457	2552	2326	5562	10440	70582	194589
2028	132379	116212	248591	2552	2326	5562	10440	70582	194589
2029	77842	67525	145367	2552	2326	5562	10440	70582	194589
2030	0	0	0	2552	2326	5562	10440	70582	194589
2031	0	0	0	2552	2326	5562	10440	70582	194589
2032	0	0	0	2552	2326	5562	10440	70582	194589
2033	0	0	0	2552	2326	5562	10440	70582	194589
2034	0	0	0	2552	2326	5562	10440	70582	194589
2035	0	0	0	2552	2326	5562	10440	70582	194589
2036	0	0	0	2552	2326	5562	10440	70582	194589
2037	0	0	0	2552	2326	5562	10440	70582	194589
2038	0	0	0	2439	2223	5317	9979	70582	194589
2039	0	0	0	1501	1368	3272	6141	70582	194589

* Unadjusted for prior overpayments or underpayments of charges.

TABLE B-14 (continued)

CAPITAL COST COMPONENTS OF EACH CONTRACTOR*

(in dollars)

Calendar Year	SAN JOAQUIN VALLEY AREA (Continued)						SOUTHERN CALIFORNIA AREA		
	Empire West Side Irrigation District	Hacienda Water District	Kern County Water Agency		Tulare Lake Basin Water Storage District	Total	Antelope Valley-East Kern Water Agency	City of West Covina	Coachella Valley County Water District
			Agriculture	Urban					
1962	0	0	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	27714	0	0
1964	0	0	0	0	0	0	55646	8328	12925
1965	0	0	0	68327	0	68327	104946	13694	22676
1966	0	0	0	139343	0	139343	210898	25540	43870
1967	0	0	0	238195	0	238195	399606	47281	81623
1968	6920	4482	467049	336946	88940	963683	641463	79470	131212
1969	6920	5516	513754	375203	96875	1070254	910619	122453	196172
1970	6920	6895	627027	397375	105141	1227984	1151542	166759	261928
1971	6920	7930	866994	404684	113076	1497206	1291816	202879	303333
1972	6920	8964	1258349	409802	121342	1915620	1358507	214006	319956
1973	6920	9998	1452685	412920	129277	2134344	1384168	216360	324357
1974	6920	11377	1640578	417529	142172	2353760	1397823	219518	326690
1975	6920	12412	1828472	422003	155066	2572698	1409602	222244	328656
1976	6920	13446	2009386	422582	167961	2780760	1414782	222762	329487
1977	6920	14480	2265995	422582	181186	3064267	1414782	222762	329487
1978	6920	15859	2527435	422582	194081	3347063	1414782	222762	329487
1979	6920	16894	2777065	422582	206975	3617704	1414782	222762	329487
1980	6920	17928	3032600	422582	219870	3894250	1414782	222762	329487
1981	6920	19307	3295114	422582	232765	4178120	1414782	222762	329487
1982	6920	20341	3535618	422582	245659	4439971	1414782	222762	329487
1983	6920	21375	3819069	422582	258554	4743759	1414782	222762	329487
1984	6920	22410	4079435	424644	271448	5027535	1416698	222928	329816
1985	6920	23789	4338728	428907	284343	5312448	1420660	223270	330496
1986	6920	24823	4586748	437434	297568	5590335	1428585	223955	331855
1987	6920	25857	4851409	443191	310463	5881765	1433936	224417	332773
1988	6920	26892	5076881	443191	323357	6128248	1433936	224417	332773
1989	6920	28271	5241690	443191	336253	6314414	1433936	224417	332773
1990	6920	29305	5429584	443191	363695	6537866	1433936	224417	332773
1991	6920	29305	5429584	443191	363695	6537866	1433936	224417	332773
1992	6920	29305	5429584	443191	363695	6537866	1433936	224417	332773
1993	6920	29305	5429584	443191	363695	6537866	1433936	224417	332773
1994	6920	29305	5429584	443191	363695	6537866	1433936	224417	332773
1995	6920	29305	5429584	443191	363695	6537866	1433936	224417	332773
1996	6920	29305	5429584	443191	363695	6537866	1433936	224417	332773
1997	6920	29305	5429584	443191	363695	6537866	1433936	224417	332773
1998	6920	29305	5429584	443191	363695	6537866	1433936	224417	332773
1999	6920	29305	5429584	443191	363695	6537866	1433936	224417	332773
2000	6920	29305	5429584	443191	363695	6537866	1433936	224417	332773
2001	6920	29305	5429584	443191	363695	6537866	1433936	224417	332773
2002	6920	29305	5429584	443191	363695	6537866	1433936	224417	332773
2003	6920	29305	5429584	443191	363695	6537866	1433936	224417	332773
2004	6920	29305	5429584	443191	363695	6537866	1433936	224417	332773
2005	6920	29305	5429584	443191	363695	6537866	1433936	224417	332773
2006	6920	29305	5429584	443191	363695	6537866	1433936	224417	332773
2007	6920	29305	5429584	443191	363695	6537866	1433936	224417	332773
2008	6920	29305	5429584	443191	363695	6537866	1433936	224417	332773
2009	6920	29305	5429584	443191	363695	6537866	1433936	224417	332773
2010	6920	29305	5429584	443191	363695	6537866	1433936	224417	332773
2011	6920	29305	5429584	443191	363695	6537866	1433936	224417	332773
2012	6920	29305	5429584	443191	363695	6537866	1433936	224417	332773
2013	6920	29305	5429584	443191	363695	6537866	1406222	224417	332773
2014	6920	29305	5429584	443191	363695	6537866	1378290	216089	319848
2015	6920	29305	5429584	374864	363695	6469539	1328990	210723	310097
2016	6920	29305	5429584	303848	363695	6398523	1223038	198877	288903
2017	6920	29305	5429584	204996	363695	6299671	1034330	177136	251150
2018	6920	29305	5429584	106245	363695	6200920	792473	144947	201561
2019	6920	29305	5429584	67988	363695	6162663	523317	101964	136601
2020	6920	29305	5429584	45816	363695	6140491	282394	57658	70845
2021	6920	29305	5429584	38507	363695	6133182	142120	21538	29440
2022	6920	29305	5429584	33389	363695	6128064	75429	10411	12817
2023	6920	29305	5429584	30271	363695	6124946	49768	8057	8416
2024	6920	29305	5429584	25662	363695	6120337	36113	4899	6083
2025	6920	29305	5429584	21188	363695	6115863	24334	2173	4117
2026	6920	29305	5429584	20609	363695	6115284	19154	1655	3286
2027	6920	29305	5429584	20609	363695	6115284	19154	1655	3286
2028	6920	29305	5429584	20609	363695	6115284	19154	1655	3286
2029	6920	29305	5429584	20609	363695	6115284	19154	1655	3286
2030	6920	29305	5429584	20609	363695	6115284	19154	1655	3286
2031	6920	29305	5429584	20609	363695	6115284	19154	1655	3286
2032	6920	29305	5429584	20609	363695	6115284	19154	1655	3286
2033	6920	29305	5429584	20609	363695	6115284	19154	1655	3286
2034	6920	29305	5429584	18547	363695	6113222	17238	1489	2957
2035	6920	29305	5429584	14284	363695	6108959	13276	1147	2277
2036	6920	29305	5429584	5757	363695	6100432	5351	462	918
2037	6920	29305	5429584	0	363695	6094675	0	0	0
2038	6920	29305	5429584	0	363695	6094675	0	0	0
2039	6920	29305	5429584	0	363695	6094675	0	0	0

* Unadjusted for prior overpayments or underpayments of charges.

TABLE B-14 (continued)

CAPITAL COST COMPONENTS OF EACH CONTRACTOR*

(in dollars)

Calendar Year	SOUTHERN CALIFORNIA AREA (Continued)							
	Crestline-Lake Arrowhead Water Agency	Desert Water Agency	Littlerock Creek Irrigation District	Mojave Water Agency	Palmdale Irrigation District	San Bernardino Valley Municipal Water District	San Gabriel Valley Municipal Water District	San Gorgonio Pass Water Agency
1962	0	0	0	0	0	0	0	0
1963	0	11290	0	0	0	42827	11418	6185
1964	3676	20920	1122	28425	7305	76208	20452	11220
1965	6267	37004	2028	49870	13873	123929	33890	18940
1966	11955	71961	3960	96479	28218	229372	63557	36463
1967	23197	134230	7255	179505	52468	425767	118006	68985
1968	37313	216022	11662	288561	85057	711560	198619	117594
1969	56840	323166	17024	431420	123633	1107352	306266	181054
1970	77005	431624	21383	576032	154234	1509285	417226	246427
1971	91137	499917	22895	667091	165526	1970700	507684	286025
1972	95754	527335	23835	703648	172545	2100719	535550	299589
1973	96903	534595	24265	713328	175771	2121007	541445	302989
1974	97833	538443	24462	718459	177251	2150654	549354	305473
1975	98474	541686	24642	722783	178600	2175420	556181	307263
1976	98764	543056	24716	724610	179156	2180318	557478	308060
1977	98764	543056	24716	724610	179156	2180318	557478	308060
1978	98764	543056	24716	724610	179156	2180318	557478	308060
1979	98764	543056	24716	724610	179156	2180318	557478	308060
1980	98764	543056	24716	724610	179156	2180318	557478	308060
1981	98764	543056	24716	724610	179156	2180318	557478	308060
1982	98764	543056	24716	724610	179156	2180318	557478	308060
1983	98764	543056	24716	724610	179156	2180318	557478	308060
1984	98847	543598	24748	725333	179399	2181729	557893	308309
1985	99020	544719	24815	726828	179901	2184646	558750	308824
1986	99365	546961	24949	729817	180904	2190480	560464	309854
1987	99598	548475	25039	731835	181581	2194419	561621	310549
1988	99598	548475	25039	731835	181581	2194419	561621	310549
1989	99598	548475	25039	731835	181581	2194419	561621	310549
1990	99598	548475	25039	731835	181581	2194419	561621	310549
1991	99598	548475	25039	731835	181581	2194419	561621	310549
1992	99598	548475	25039	731835	181581	2194419	561621	310549
1993	99598	548475	25039	731835	181581	2194419	561621	310549
1994	99598	548475	25039	731835	181581	2194419	561621	310549
1995	99598	548475	25039	731835	181581	2194419	561621	310549
1996	99598	548475	25039	731835	181581	2194419	561621	310549
1997	99598	548475	25039	731835	181581	2194419	561621	310549
1998	99598	548475	25039	731835	181581	2194419	561621	310549
1999	99598	548475	25039	731835	181581	2194419	561621	310549
2000	99598	548475	25039	731835	181581	2194419	561621	310549
2001	99598	548475	25039	731835	181581	2194419	561621	310549
2002	99598	548475	25039	731835	181581	2194419	561621	310549
2003	99598	548475	25039	731835	181581	2194419	561621	310549
2004	99598	548475	25039	731835	181581	2194419	561621	310549
2005	99598	548475	25039	731835	181581	2194419	561621	310549
2006	99598	548475	25039	731835	181581	2194419	561621	310549
2007	99598	548475	25039	731835	181581	2194419	561621	310549
2008	99598	548475	25039	731835	181581	2194419	561621	310549
2009	99598	548475	25039	731835	181581	2194419	561621	310549
2010	99598	548475	25039	731835	181581	2194419	561621	310549
2011	99598	548475	25039	731835	181581	2194419	561621	310549
2012	99598	548475	25039	731835	181581	2194419	561621	310549
2013	99598	537185	25039	731835	181581	2151592	550203	304364
2014	95922	527555	23917	703410	174276	2118211	541169	299329
2015	93331	511471	23011	681965	167708	2070490	527731	291609
2016	87643	476514	21079	635356	153363	1965047	498064	274086
2017	76401	414245	17784	552330	129113	1768652	443615	241564
2018	62285	332453	13377	443274	96524	1482859	363002	192955
2019	42758	225309	8015	300415	57948	1087067	255355	129495
2020	22593	116851	3656	155803	27347	685134	144395	64122
2021	8461	48558	2144	64744	16055	223719	53937	24524
2022	3844	21140	1204	28187	9036	93700	26071	10960
2023	2695	13880	774	18507	5810	73412	20176	7560
2024	1765	10032	577	13376	4330	43765	12267	5076
2025	1124	6789	397	9052	2981	18999	5440	3286
2026	834	5419	323	7225	2425	14101	4143	2489
2027	834	5419	323	7225	2425	14101	4143	2489
2028	834	5419	323	7225	2425	14101	4143	2489
2029	834	5419	323	7225	2425	14101	4143	2489
2030	834	5419	323	7225	2425	14101	4143	2489
2031	834	5419	323	7225	2425	14101	4143	2489
2032	834	5419	323	7225	2425	14101	4143	2489
2033	834	5419	323	7225	2425	14101	4143	2489
2034	751	4877	291	6502	2182	12690	3728	2240
2035	578	3756	224	5007	1680	9773	2871	1725
2036	233	1514	90	2018	677	3939	1157	695
2037	0	0	0	0	0	0	0	0
2038	0	0	0	0	0	0	0	0
2039	0	0	0	0	0	0	0	0

* Unadjusted for prior overpayments or underpayments of charges.

TABLE B-14 (continued)

CAPITAL COST COMPONENTS OF EACH CONTRACTOR*

(in dollars)

Calendar Year	SOUTHERN CALIFORNIA AREA (Continued)				CENTRAL COASTAL AREA			GRAND TOTAL
	The Metropolitan Water District of Southern California	Upper Santa Clara Valley Water Agency	Ventura County Flood Control District	Total	San Luis Obispo County FC & WCD	Santa Barbara County FC & WCD	Total	
1962	0	0	0	0	0	0	0	0
1963	563587	0	0	663021	0	0	0	1138294
1964	1099586	11045	8226	1365084	9098	22441	31539	2079116
1965	1960989	21623	16096	2425825	15753	38356	54109	3633202
1966	4131140	49537	36409	5039359	25851	62114	87965	6535914
1967	7968695	99060	72463	9678141	40503	96621	137124	11465705
1968	13818413	175556	126833	16639335	52933	125944	178877	19371872
1969	20912081	260284	188026	25136390	56582	134796	191378	28070799
1970	27815085	340082	245530	33414142	57790	137829	195619	36531681
1971	32112956	370478	267713	38760150	58555	139750	198305	42154479
1972	34889840	389059	281003	41911346	59385	142192	201577	45786448
1973	35912888	401612	289672	43039360	63419	153583	217002	47149930
1974	36364591	406978	293552	43571081	69917	172815	242732	47932505
1975	36661950	409932	295703	43933136	82062	205908	287970	48564444
1976	36809875	411956	297115	44102135	175242	427795	603037	49257760
1977	36870326	412540	297474	44163529	253863	613978	867841	49871311
1978	36870326	412540	297474	44163529	354583	858169	1212752	50519884
1979	36870326	412540	297474	44163529	512856	1314229	1827085	51508082
1980	36870326	412540	297474	44163529	586405	1554948	2141353	52244263
1981	36870326	412540	297474	44163529	586405	1554948	2141353	52528133
1982	36870326	412540	297474	44163529	586405	1554948	2141353	52789984
1983	36870326	412540	297474	44163529	586405	1554948	2141353	53093772
1984	36898802	412913	297756	44198769	587526	1557564	2145090	53416525
1985	36957686	413685	298339	44271639	598729	1583709	2182438	53811656
1986	37075453	415229	299504	44417375	603517	1594883	2198400	54251241
1987	37154967	416271	300291	44515772	604492	1597159	2201651	54644319
1988	37154967	416271	300291	44515772	604492	1597159	2201651	54891263
1989	37154967	416271	300291	44515772	604492	1597159	2201651	55081267
1990	37154967	416271	300291	44515772	604492	1597159	2201651	55310860
1991	37154967	416271	300291	44515772	604492	1597159	2201651	55310860
1992	37154967	416271	300291	44515772	604492	1597159	2201651	55310860
1993	37154967	416271	300291	44515772	604492	1597159	2201651	55310860
1994	37154967	416271	300291	44515772	604492	1597159	2201651	55310860
1995	37154967	416271	300291	44515772	604492	1597159	2201651	55310860
1996	37154967	416271	300291	44515772	604492	1597159	2201651	55310860
1997	37154967	416271	300291	44515772	604492	1597159	2201651	55310860
1998	37154967	416271	300291	44515772	604492	1597159	2201651	55310860
1999	37154967	416271	300291	44515772	604492	1597159	2201651	55310860
2000	37154967	416271	300291	44515772	604492	1597159	2201651	55310860
2001	37154967	416271	300291	44515772	604492	1597159	2201651	55310860
2002	37154967	416271	300291	44515772	604492	1597159	2201651	55310860
2003	37154967	416271	300291	44515772	604492	1597159	2201651	55310860
2004	37154967	416271	300291	44515772	604492	1597159	2201651	55310860
2005	37154967	416271	300291	44515772	604492	1597159	2201651	55310860
2006	37154967	416271	300291	44515772	604492	1597159	2201651	55310860
2007	37154967	416271	300291	44515772	604492	1597159	2201651	55310860
2008	37154967	416271	300291	44515772	604492	1597159	2201651	55310860
2009	37154967	416271	300291	44515772	604492	1597159	2201651	55310860
2010	37154967	416271	300291	44515772	604492	1597159	2201651	55310860
2011	37154967	416271	300291	44515772	604492	1597159	2201651	55310860
2012	37154967	416271	300291	44515772	604492	1597159	2201651	55310860
2013	36591380	416271	300291	43852751	604492	1597159	2201651	54165113
2014	36055381	405226	292065	43150688	595394	1574718	2170112	53203372
2015	35193978	394648	284195	42089947	588739	1558803	2147542	51639712
2016	33023827	366734	263882	39476413	578641	1535045	2113686	48733696
2017	29186272	317211	227828	34837631	563989	1500538	2064527	43798441
2018	23336554	240715	173458	27876437	551559	1471215	2022774	36512717
2019	16242886	155987	112265	19379382	547910	1462363	2010273	27878366
2020	9339882	76189	54761	11101630	546702	1459330	2006032	19552062
2021	5042011	45793	32578	5755622	545937	1457409	2003346	14191004
2022	2265127	27212	19288	2604426	545107	1454967	2000074	11030230
2023	1242079	14659	10619	1476412	541073	1443576	1984649	9882354
2024	790376	9293	6739	944691	534575	1424344	1958919	9314586
2025	493017	6339	4588	582636	522430	1391251	1913681	8897111
2026	345092	4315	3176	413637	429250	1169364	1598614	8411278
2027	284641	3731	2817	352243	350629	983181	1333810	8081234
2028	284641	3731	2817	352243	249909	738990	988899	7715457
2029	284641	3731	2817	352243	91636	282930	374566	6997900
2030	284641	3731	2817	352243	18087	42211	60298	6538265
2031	284641	3731	2817	352243	18087	42211	60298	6538265
2032	284641	3731	2817	352243	18087	42211	60298	6538265
2033	284641	3731	2817	352243	18087	42211	60298	6538265
2034	256165	3358	2535	317003	16966	39595	56561	6497226
2035	197281	2586	1952	244133	5763	13450	19213	6382745
2036	79514	1042	787	98397	975	2276	3251	6212520
2037	0	0	0	0	0	0	0	6105115
2038	0	0	0	0	0	0	0	6104654
2039	0	0	0	0	0	0	0	6100816

* Unadjusted for prior overpayments or underpayments of charges.

TABLE B-15

MINIMUM OPERATION, MAINTENANCE, POWER, AND REPLACEMENT COMPONENTS
OF EACH CONTRACTOR*

(in dollars)

Calendar Year	NORTH BAY AREA			SOUTH BAY AREA				SAN JOAQUIN VALLEY AREA	
	Napa County FC & WCD	Solano County FC & WCD	Total	Alameda County FC & WCD, Zone 7	Alameda County Water District	Santa Clara County FC & WD	Total	Devil's Den Water District	Dudley Ridge Water District
1962	0	0	0	15097	13764	0	28861	0	0
1963	0	0	0	33476	30519	72971	136966	0	0
1964	0	0	0	36540	33311	79648	149499	0	0
1965	0	0	0	36335	37345	117788	191468	0	0
1966	0	0	0	42626	43499	138754	224879	0	0
1967	0	0	0	39555	39861	121556	200972	2355	10642
1968	25000	0	25000	39548	39121	115158	193827	14478	39466
1969	25000	0	25000	43010	42132	124966	210108	14252	40528
1970	25000	0	25000	43255	42446	127464	213165	14350	40276
1971	25000	0	25000	43208	43128	129974	216310	15540	41161
1972	25000	0	25000	43098	43080	130480	216658	16469	42243
1973	25000	0	25000	42970	42963	130202	216135	16441	42462
1974	25000	0	25000	42961	42955	130183	216099	16361	42445
1975	25000	0	25000	43034	43021	130342	216397	16395	42597
1976	25000	0	25000	42597	42622	128387	213606	16221	42509
1977	25000	0	25000	42633	42655	128466	213754	16243	42611
1978	25000	0	25000	42597	42622	128387	213606	16232	42562
1979	25000	0	25000	42560	42589	128307	213456	16221	42512
1980	79936	83064	163000	41672	41647	124434	207753	16313	41890
1981	79936	83064	163000	42154	42087	125486	209727	16292	42480
1982	79936	83064	163000	42519	42419	126280	211218	16440	43150
1983	79936	83064	163000	42764	42643	126816	212223	16540	43602
1984	79936	83064	163000	43047	42901	127432	213380	16662	44155
1985	79936	83064	163000	43402	43224	128206	214832	16806	44808
1986	79936	83064	163000	43065	42917	127471	213453	16592	44189
1987	79936	83064	163000	42819	42693	126935	212447	16485	43702
1988	79936	83064	163000	42391	42302	126003	210696	16403	43334
1989	79936	83064	163000	42208	42136	125606	209950	16326	42982
1990	79936	83064	163000	42245	42169	125685	210099	16244	42962
1991	79936	83064	163000	42236	42161	125665	210062	16241	42945
1992	79936	83064	163000	42236	42161	125665	210062	16241	42945
1993	79936	83064	163000	42236	42161	125665	210062	16241	42945
1994	79936	83064	163000	42236	42161	125665	210062	16241	42945
1995	79936	83064	163000	42236	42161	125665	210062	16241	42945
1996	79936	83064	163000	42236	42161	125665	210062	16241	42945
1997	79936	83064	163000	42236	42161	125665	210062	16241	42945
1998	79936	83064	163000	42236	42161	125665	210062	16241	42945
1999	79936	83064	163000	42236	42161	125665	210062	16241	42945
2000	79936	83064	163000	42236	42161	125665	210062	16241	42945
2001	79936	83064	163000	42236	42161	125665	210062	16241	42945
2002	79936	83064	163000	42236	42161	125665	210062	16241	42945
2003	79936	83064	163000	42236	42161	125665	210062	16241	42945
2004	79936	83064	163000	42236	42161	125665	210062	16241	42945
2005	79936	83064	163000	42236	42161	125665	210062	16241	42945
2006	79936	83064	163000	42236	42161	125665	210062	16241	42945
2007	79936	83064	163000	42236	42161	125665	210062	16241	42945
2008	79936	83064	163000	42236	42161	125665	210062	16241	42945
2009	79936	83064	163000	42236	42161	125665	210062	16241	42945
2010	79936	83064	163000	42236	42161	125665	210062	16241	42945
2011	79936	83064	163000	42236	42161	125665	210062	16241	42945
2012	79936	83064	163000	42236	42161	125665	210062	16241	42945
2013	79936	83064	163000	42236	42161	125665	210062	16241	42945
2014	79936	83064	163000	42236	42161	125665	210062	16241	42945
2015	79936	83064	163000	42236	42161	125665	210062	16241	42945
2016	79936	83064	163000	42236	42161	125665	210062	16241	42945
2017	79936	83064	163000	42236	42161	125665	210062	16241	42945
2018	79936	83064	163000	42236	42161	125665	210062	16241	42945
2019	79936	83064	163000	42236	42161	125665	210062	16241	42945
2020	79936	83064	163000	42236	42161	125665	210062	16241	42945
2021	79936	83064	163000	42236	42161	125665	210062	16241	42945
2022	79936	83064	163000	42236	42161	125665	210062	16241	42945
2023	79936	83064	163000	42236	42161	125665	210062	16241	42945
2024	79936	83064	163000	42236	42161	125665	210062	16241	42945
2025	79936	83064	163000	42236	42161	125665	210062	16241	42945
2026	79936	83064	163000	42236	42161	125665	210062	16241	42945
2027	79936	83064	163000	42236	42161	125665	210062	16241	42945
2028	79936	83064	163000	42236	42161	125665	210062	16241	42945
2029	79936	83064	163000	42236	42161	125665	210062	16241	42945
2030	79936	83064	163000	42236	42161	125665	210062	16241	42945
2031	79936	83064	163000	42236	42161	125665	210062	16241	42945
2032	79936	83064	163000	42236	42161	125665	210062	16241	42945
2033	79936	83064	163000	42236	42161	125665	210062	16241	42945
2034	79936	83064	163000	42236	42161	125665	210062	16241	42945
2035	79936	83064	163000	42236	42161	125665	210062	16241	42945
2036	79936	83064	163000	42236	42161	125665	210062	16241	42945
2037	79936	83064	163000	42236	42161	125665	210062	16241	42945
2038	79936	83064	163000	42236	42161	125665	210062	16241	42945
2039	79936	83064	163000	42236	42161	125665	210062	16241	42945

* Unadjusted for prior overpayments or underpayments of charges.

TABLE B-15 (continued)

MINIMUM OPERATION, MAINTENANCE, POWER, AND REPLACEMENT COMPONENTS OF EACH CONTRACTOR*

(in dollars)

Calendar Year	SAN JOAQUIN VALLEY AREA (Continued)						SOUTHERN CALIFORNIA AREA		
	Empire West Side Irrigation District	Hacienda Water District	Kern County Water Agency		Tulare Lake Basin Water Storage District	Total	Antelope Valley-East Kern Water Agency	City of West Covina	Coachella Valley County Water District
			Agriculture	Urban					
1962	0	0	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0	0	0
1964	0	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	0	0	0
1967	553	1568	187581	20214	20274	243187	18816	1625	3228
1968	1969	5813	804147	83944	73530	1023347	78130	6750	13401
1969	2029	5970	814678	85311	75686	1038454	79406	6860	13619
1970	2022	5932	844795	91601	75315	1074291	87616	7569	15030
1971	2056	6063	984197	108878	76760	1234655	257366	22021	43722
1972	2095	6222	1032080	114159	78479	1291747	295611	39919	69973
1973	2107	6254	1033523	114128	78898	1293813	287071	38281	67849
1974	2106	6252	1031726	113930	78866	1291686	283756	37393	66926
1975	2114	6275	1035323	114382	79154	1296240	286051	37562	67228
1976	2109	6264	1034230	114206	79007	1294546	285223	37261	66827
1977	2115	6278	1036372	114533	79200	1297352	288637	37572	67415
1978	2112	6272	1036199	114561	79106	1297044	290430	37782	67861
1979	2110	6264	1035732	114542	79012	1296393	291322	37827	67951
1980	2080	6172	1024390	113120	77864	1281829	290642	37736	67758
1981	2110	6259	1033202	114238	78988	1293569	292396	37974	68235
1982	2145	6358	1045120	115474	80263	1308950	292494	37946	68212
1983	2168	6424	1053220	116387	81124	1319465	294285	38151	68617
1984	2197	6506	1063299	117496	82179	1332494	295972	38276	68864
1985	2231	6602	1074978	118763	83422	1347610	297521	38417	69114
1986	2199	6510	1063717	117619	82243	1333069	297061	38433	69112
1987	2173	6439	1055210	116720	81315	1322044	296540	38383	68983
1988	2154	6385	1048957	116064	80616	1313913	296287	38340	68899
1989	2136	6333	1042730	115371	79944	1305822	295190	38294	68770
1990	2135	6331	1041494	115306	79906	1304378	294910	38269	68724
1991	2134	6328	1041163	115263	79874	1303948	294724	38252	68692
1992	2134	6328	1041163	115263	79874	1303948	294724	38252	68692
1993	2134	6328	1041163	115263	79874	1303948	294724	38252	68692
1994	2134	6328	1041163	115263	79874	1303948	294724	38252	68692
1995	2134	6328	1041163	115263	79874	1303948	294724	38252	68692
1996	2134	6328	1041163	115263	79874	1303948	294724	38252	68692
1997	2134	6328	1041163	115263	79874	1303948	294724	38252	68692
1998	2134	6328	1041163	115263	79874	1303948	294724	38252	68692
1999	2134	6328	1041163	115263	79874	1303948	294724	38252	68692
2000	2134	6328	1041163	115263	79874	1303948	294724	38252	68692
2001	2134	6328	1041163	115263	79874	1303948	294724	38252	68692
2002	2134	6328	1041163	115263	79874	1303948	294724	38252	68692
2003	2134	6328	1041163	115263	79874	1303948	294724	38252	68692
2004	2134	6328	1041163	115263	79874	1303948	294724	38252	68692
2005	2134	6328	1041163	115263	79874	1303948	294724	38252	68692
2006	2134	6328	1041163	115263	79874	1303948	294724	38252	68692
2007	2134	6328	1041163	115263	79874	1303948	294724	38252	68692
2008	2134	6328	1041163	115263	79874	1303948	294724	38252	68692
2009	2134	6328	1041163	115263	79874	1303948	294724	38252	68692
2010	2134	6328	1041163	115263	79874	1303948	294724	38252	68692
2011	2134	6328	1041163	115263	79874	1303948	294724	38252	68692
2012	2134	6328	1041163	115263	79874	1303948	294724	38252	68692
2013	2134	6328	1041163	115263	79874	1303948	294724	38252	68692
2014	2134	6328	1041163	115263	79874	1303948	294724	38252	68692
2015	2134	6328	1041163	115263	79874	1303948	294724	38252	68692
2016	2134	6328	1041163	115263	79874	1303948	294724	38252	68692
2017	2134	6328	1041163	115263	79874	1303948	294724	38252	68692
2018	2134	6328	1041163	115263	79874	1303948	294724	38252	68692
2019	2134	6328	1041163	115263	79874	1303948	294724	38252	68692
2020	2134	6328	1041163	115263	79874	1303948	294724	38252	68692
2021	2134	6328	1041163	115263	79874	1303948	294724	38252	68692
2022	2134	6328	1041163	115263	79874	1303948	294724	38252	68692
2023	2134	6328	1041163	115263	79874	1303948	294724	38252	68692
2024	2134	6328	1041163	115263	79874	1303948	294724	38252	68692
2025	2134	6328	1041163	115263	79874	1303948	294724	38252	68692
2026	2134	6328	1041163	115263	79874	1303948	294724	38252	68692
2027	2134	6328	1041163	115263	79874	1303948	294724	38252	68692
2028	2134	6328	1041163	115263	79874	1303948	294724	38252	68692
2029	2134	6328	1041163	115263	79874	1303948	294724	38252	68692
2030	2134	6328	1041163	115263	79874	1303948	294724	38252	68692
2031	2134	6328	1041163	115263	79874	1303948	294724	38252	68692
2032	2134	6328	1041163	115263	79874	1303948	294724	38252	68692
2033	2134	6328	1041163	115263	79874	1303948	294724	38252	68692
2034	2134	6328	1041163	115263	79874	1303948	294724	38252	68692
2035	2134	6328	1041163	115263	79874	1303948	294724	38252	68692
2036	2134	6328	1041163	115263	79874	1303948	294724	38252	68692
2037	2134	6328	1041163	115263	79874	1303948	294724	38252	68692
2038	2134	6328	1041163	115263	79874	1303948	294724	38252	68692
2039	2134	6328	1041163	115263	79874	1303948	294724	38252	68692

* Unadjusted for prior overpayments or underpayments of charges.

TABLE B-15 (continued)

MINIMUM OPERATION, MAINTENANCE, POWER, AND REPLACEMENT COMPONENTS
OF EACH CONTRACTOR *

(in dollars)

Calendar Year	SOUTHERN CALIFORNIA AREA (Continued)							
	Crestline-Lake Arrowhead Water Agency	Desert Water Agency	Littlerock Creek Irrigation District	Mojave Water Agency	Palmdale Irrigation District	San Bernardino Valley Municipal Water District	San Gabriel Valley Municipal Water District	San Gorgonio Pass Water Agency
1962	0	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0	0
1964	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	0	0
1967	820	5324	317	7098	2382	13851	4071	2445
1968	3404	22104	1317	29472	9894	57514	16901	10152
1969	3460	22467	1339	29955	10052	58454	17178	10322
1970	3818	24786	1479	33051	11093	64496	18955	11387
1971	11103	72111	4300	96149	32267	187632	55142	33126
1972	18008	115415	5279	153888	38725	347223	99975	53885
1973	17468	111912	5151	149216	37763	333007	95869	52274
1974	17233	110390	5100	147189	37375	325262	93646	51575
1975	17309	110887	5142	147851	37696	326703	94069	51803
1976	17213	110223	5120	146966	37579	324107	93317	51501
1977	17360	111193	5178	148260	38013	326776	94099	51947
1978	17473	111929	5199	149237	38166	328541	94619	52283
1979	17497	112079	5215	149439	38291	328933	94735	52352
1980	17447	111758	5207	149012	38207	328103	94491	52206
1981	17567	112544	5228	150062	38383	330150	95093	52567
1982	17562	112507	5231	150012	38405	329905	95024	52550
1983	17663	113176	5256	150899	38587	331640	95533	52856
1984	17727	113583	5284	151444	38808	332700	95844	53044
1985	17792	113996	5315	151995	39031	333921	96200	53234
1986	17792	113992	5301	151992	38933	334060	96240	53231
1987	17759	113781	5295	151707	38877	333651	96118	53134
1988	17737	113638	5291	151520	38852	333285	96010	53069
1989	17705	113432	5268	151244	38681	332892	95893	52974
1990	17693	113353	5262	151137	38646	332684	95831	52937
1991	17685	113300	5260	151067	38622	332548	95791	52912
1992	17685	113300	5260	151067	38622	332548	95791	52912
1993	17685	113300	5260	151067	38622	332548	95791	52912
1994	17685	113300	5260	151067	38622	332548	95791	52912
1995	17685	113300	5260	151067	38622	332548	95791	52912
1996	17685	113300	5260	151067	38622	332548	95791	52912
1997	17685	113300	5260	151067	38622	332548	95791	52912
1998	17685	113300	5260	151067	38622	332548	95791	52912
1999	17685	113300	5260	151067	38622	332548	95791	52912
2000	17685	113300	5260	151067	38622	332548	95791	52912
2001	17685	113300	5260	151067	38622	332548	95791	52912
2002	17685	113300	5260	151067	38622	332548	95791	52912
2003	17685	113300	5260	151067	38622	332548	95791	52912
2004	17685	113300	5260	151067	38622	332548	95791	52912
2005	17685	113300	5260	151067	38622	332548	95791	52912
2006	17685	113300	5260	151067	38622	332548	95791	52912
2007	17685	113300	5260	151067	38622	332548	95791	52912
2008	17685	113300	5260	151067	38622	332548	95791	52912
2009	17685	113300	5260	151067	38622	332548	95791	52912
2010	17685	113300	5260	151067	38622	332548	95791	52912
2011	17685	113300	5260	151067	38622	332548	95791	52912
2012	17685	113300	5260	151067	38622	332548	95791	52912
2013	17685	113300	5260	151067	38622	332548	95791	52912
2014	17685	113300	5260	151067	38622	332548	95791	52912
2015	17685	113300	5260	151067	38622	332548	95791	52912
2016	17685	113300	5260	151067	38622	332548	95791	52912
2017	17685	113300	5260	151067	38622	332548	95791	52912
2018	17685	113300	5260	151067	38622	332548	95791	52912
2019	17685	113300	5260	151067	38622	332548	95791	52912
2020	17685	113300	5260	151067	38622	332548	95791	52912
2021	17685	113300	5260	151067	38622	332548	95791	52912
2022	17685	113300	5260	151067	38622	332548	95791	52912
2023	17685	113300	5260	151067	38622	332548	95791	52912
2024	17685	113300	5260	151067	38622	332548	95791	52912
2025	17685	113300	5260	151067	38622	332548	95791	52912
2026	17685	113300	5260	151067	38622	332548	95791	52912
2027	17685	113300	5260	151067	38622	332548	95791	52912
2028	17685	113300	5260	151067	38622	332548	95791	52912
2029	17685	113300	5260	151067	38622	332548	95791	52912
2030	17685	113300	5260	151067	38622	332548	95791	52912
2031	17685	113300	5260	151067	38622	332548	95791	52912
2032	17685	113300	5260	151067	38622	332548	95791	52912
2033	17685	113300	5260	151067	38622	332548	95791	52912
2034	17685	113300	5260	151067	38622	332548	95791	52912
2035	17685	113300	5260	151067	38622	332548	95791	52912
2036	17685	113300	5260	151067	38622	332548	95791	52912
2037	17685	113300	5260	151067	38622	332548	95791	52912
2038	17685	113300	5260	151067	38622	332548	95791	52912
2039	17685	113300	5260	151067	38622	332548	95791	52912

* Unadjusted for prior overpayments or underpayments of charges.

TABLE B-15 (continued)

MINIMUM OPERATION, MAINTENANCE, POWER, AND REPLACEMENT COMPONENTS OF EACH CONTRACTOR *

(in dollars)

Calendar Year	SOUTHERN CALIFORNIA AREA (Continued)				CENTRAL COASTAL AREA			GRAND TOTAL
	The Metropolitan Water District of Southern California	Upper Santa Clara Valley Water Agency	Ventura County Flood Control District	Total	San Luis Obispo County FC & WCD	Santa Barbara County FC & WCD	Total	
1962	0	0	0	0	0	0	0	28861
1963	0	0	0	0	0	0	0	136966
1964	0	0	0	0	0	0	0	149499
1965	0	0	0	0	0	0	0	191468
1966	0	0	0	0	0	0	0	224879
1967	288497	3666	2767	354907	3430	8005	11435	810501
1968	1198049	15221	11488	1473797	21308	49723	71031	2787002
1969	1217621	15470	11674	1497877	20964	48921	69885	2841324
1970	1343900	17068	12882	1653130	21112	49264	70376	3035962
1971	4912870	65427	49198	5842434	22883	53406	76289	7394688
1972	5917395	66183	49771	7271250	24263	56619	80882	8885537
1973	5665080	63349	47623	6971913	24220	56517	80737	8587598
1974	5498158	61358	46118	6781479	24101	56238	80339	8394603
1975	5526031	61712	46387	6816431	24149	56351	80500	8434568
1976	5493984	61464	46197	6776982	23891	55752	79643	8389777
1977	5546645	62116	46690	6841901	23923	55829	79752	8457759
1978	5570668	62364	46876	6873428	23908	55791	79699	8488777
1979	5583105	62542	47011	6888299	23892	55754	79646	8502794
1980	5572816	62443	46934	6874760	96317	240806	337123	8864465
1981	5600868	62727	47150	6910944	92680	232314	324994	8902234
1982	5600420	62747	47165	6910180	85996	216716	302712	8896060
1983	5628915	63070	47408	6946056	83142	210056	293198	8933942
1984	5655491	63426	47677	6978140	82720	209073	291793	8978807
1985	5679533	63728	47903	7007700	80531	203964	284495	9017637
1986	5674240	63619	47822	7001828	79917	202531	282448	8993798
1987	5666011	63517	47745	6991501	79460	201464	280924	8969916
1988	5662831	63494	47729	6986982	78441	199089	277530	8952121
1989	5647128	63262	47552	6968285	78328	198823	277151	8924208
1990	5642801	63207	47512	6962966	77906	197842	275748	8916191
1991	5639944	63173	47485	6959455	77901	197829	275730	8912195
1992	5639944	63173	47485	6959455	77901	197829	275730	8912195
1993	5639944	63173	47485	6959455	77901	197829	275730	8912195
1994	5639944	63173	47485	6959455	77901	197829	275730	8912195
1995	5639944	63173	47485	6959455	77901	197829	275730	8912195
1996	5639944	63173	47485	6959455	77901	197829	275730	8912195
1997	5639944	63173	47485	6959455	77901	197829	275730	8912195
1998	5639944	63173	47485	6959455	77901	197829	275730	8912195
1999	5639944	63173	47485	6959455	77901	197829	275730	8912195
2000	5639944	63173	47485	6959455	77901	197829	275730	8912195
2001	5639944	63173	47485	6959455	77901	197829	275730	8912195
2002	5639944	63173	47485	6959455	77901	197829	275730	8912195
2003	5639944	63173	47485	6959455	77901	197829	275730	8912195
2004	5639944	63173	47485	6959455	77901	197829	275730	8912195
2005	5639944	63173	47485	6959455	77901	197829	275730	8912195
2006	5639944	63173	47485	6959455	77901	197829	275730	8912195
2007	5639944	63173	47485	6959455	77901	197829	275730	8912195
2008	5639944	63173	47485	6959455	77901	197829	275730	8912195
2009	5639944	63173	47485	6959455	77901	197829	275730	8912195
2010	5639944	63173	47485	6959455	77901	197829	275730	8912195
2011	5639944	63173	47485	6959455	77901	197829	275730	8912195
2012	5639944	63173	47485	6959455	77901	197829	275730	8912195
2013	5639944	63173	47485	6959455	77901	197829	275730	8912195
2014	5639944	63173	47485	6959455	77901	197829	275730	8912195
2015	5639944	63173	47485	6959455	77901	197829	275730	8912195
2016	5639944	63173	47485	6959455	77901	197829	275730	8912195
2017	5639944	63173	47485	6959455	77901	197829	275730	8912195
2018	5639944	63173	47485	6959455	77901	197829	275730	8912195
2019	5639944	63173	47485	6959455	77901	197829	275730	8912195
2020	5639944	63173	47485	6959455	77901	197829	275730	8912195
2021	5639944	63173	47485	6959455	77901	197829	275730	8912195
2022	5639944	63173	47485	6959455	77901	197829	275730	8912195
2023	5639944	63173	47485	6959455	77901	197829	275730	8912195
2024	5639944	63173	47485	6959455	77901	197829	275730	8912195
2025	5639944	63173	47485	6959455	77901	197829	275730	8912195
2026	5639944	63173	47485	6959455	77901	197829	275730	8912195
2027	5639944	63173	47485	6959455	77901	197829	275730	8912195
2028	5639944	63173	47485	6959455	77901	197829	275730	8912195
2029	5639944	63173	47485	6959455	77901	197829	275730	8912195
2030	5639944	63173	47485	6959455	77901	197829	275730	8912195
2031	5639944	63173	47485	6959455	77901	197829	275730	8912195
2032	5639944	63173	47485	6959455	77901	197829	275730	8912195
2033	5639944	63173	47485	6959455	77901	197829	275730	8912195
2034	5639944	63173	47485	6959455	77901	197829	275730	8912195
2035	5639944	63173	47485	6959455	77901	197829	275730	8912195
2036	5639944	63173	47485	6959455	77901	197829	275730	8912195
2037	5639944	63173	47485	6959455	77901	197829	275730	8912195
2038	5639944	63173	47485	6959455	77901	197829	275730	8912195
2039	5639944	63173	47485	6959455	77901	197829	275730	8912195

* Unadjusted for prior overpayments or underpayments of charges.

TABLE B-16

UNIT VARIABLE OPERATION, MAINTENANCE, POWER AND REPLACEMENT CHARGES1/

(in dollars per acre-foot)

CALENDAR YEAR	NORTH BAY AQUEDUCT		SOUTH BAY AQUEDUCT	CALIFORNIA AQUEDUCT					
	Calhoun PP	Cordelia PP	South Bay & Del Valle PP's 2/	Delta PP	Mile 18 PP	Buena Vista PP	Wheeler Ridge PP	Wind Gap PP	Tehachapi PP
1962			4.5424433						
1963			4.9648082						
1964			4.0219980						
1965			3.4412581						
1966			3.8625205						
1967			5.7910015	2.2496372					
1968		40.0000000	4.0285370	1.0783108	2.7949525				
1969		20.5263158	4.2883617	1.2874712	3.0454158				
1970		13.9285714	3.9613635	.9228346	2.2066516				
1971		10.5263158	3.6329294	.4745817	1.1868888	2.2665701	3.3183629	5.7844984	17.2785223
1972		8.3333333	3.7083975	.5638497	1.1548759	1.9201438	2.7836332	4.5612712	12.1893911
1973		6.8965517	3.5749940	.5932664	1.1817719	1.9709575	2.8008414	4.5201641	11.1925348
1974		7.9104478	3.5361017	.5867553	1.1733488	1.9735965	2.8386362	4.5585897	11.2549600
1975		6.8831169	3.5481276	.6244328	1.2143315	2.0430065	2.9404684	4.7915630	11.9160150
1976		6.2790698	3.6262982	.6223456	1.2163484	2.0623450	2.9953380	4.9278377	11.5334622
1977		5.6250000	3.6312571	.6374779	1.2436830	2.1158164	3.0648499	4.9666224	12.5255982
1978		5.1428571	3.5916626	.6230321	1.2319107	2.1184859	3.0931913	5.0726708	13.6502651
1979		4.8695652	3.5160441	.6072272	1.2192918	2.1287828	3.0983655	5.1406559	13.2023131
1980	.5714286	5.2914286	3.4448588	.5739389	1.1855804	2.1082982	3.1015032	5.2028279	13.4640965
1981	.6436782	5.0073146	3.6470747	.7857608	1.3083629	2.1926945	3.1811753	5.2892967	13.7148049
1982	.5737705	4.5737705	3.8805298	.9494953	1.4742119	2.3724793	3.3640349	5.4704655	13.5743188
1983	.5175601	4.2098678	3.9766839	1.0558918	1.5765141	2.4614430	3.4701906	5.6194427	13.8807967
1984	.4729730	4.0158301	4.0885766	1.1846769	1.7160554	2.6115446	3.6288975	5.8153724	14.2177968
1985	.4274809	3.7341476	4.2209051	1.3402467	1.8719218	2.7760726	3.8070750	6.0005055	14.5201154
1986	.3835616	3.5335616	4.0672768	1.1908420	1.7232106	2.6369677	3.6590352	5.8732638	14.4947651
1987	.3636364	3.4224599	3.9429138	1.0819690	1.6061749	2.5247728	3.5566328	5.7947231	14.4972742
1988	.3636364	3.2525253	3.8406824	.9882234	1.5165616	2.4391574	3.4903110	5.7477418	14.5214618
1989	.3090129	3.1300655	3.7414636	.9080239	1.4327971	2.3532782	3.3960718	5.6675670	14.2769781
1990	.3503185	3.0303185	3.8205500	.9243412	1.4183304	2.3174579	3.3538981	5.6124577	14.1815795
1991	.3503185	3.0303185	3.7768962	.9223289	1.4156851	2.3123472	3.3454923	5.5979695	14.1420107
1992	.3503185	3.0303185	3.7197139	.9215754	1.4149316	2.3115937	3.3447388	5.5972160	14.1412572
1993	.3503185	3.0303185	3.6719142	.9210687	1.4144249	2.3110870	3.3442321	5.5967093	14.1407505
1994	.3503185	3.0303185	3.6293127	.9205215	1.4138777	2.3105398	3.3436849	5.5961621	14.1402033
1995	.3503185	3.0303185	3.6159681	.9203159	1.4136721	2.3103342	3.3434793	5.5959565	14.1399977
1996	.3503185	3.0303185	3.5975299	.9201105	1.4134667	2.3101288	3.3432739	5.5957511	14.1397923
1997	.3503185	3.0303185	3.5847988	.9199052	1.4132614	2.3099235	3.3430686	5.5955458	14.1395870
1998	.3503185	3.0303185	3.5847988	.9199052	1.4132614	2.3099235	3.3430686	5.5955458	14.1395870
1999	.3503185	3.0303185	3.5847988	.9199052	1.4132614	2.3099235	3.3430686	5.5955458	14.1395870
2000 3/	.3503185	3.0303185	3.5847988	.9199052	1.4132614	2.3099235	3.3430686	5.5955458	14.1395870

1/ Rates as shown constitute the total rate, cumulative from the Sacramento-San Joaquin Delta, applicable to deliveries downstream from the indicated pumping and power recovery plants.

2/ The relatively minor estimated costs of the Del Valle Pumping Plant have been combined with those of the South Bay Pumping Plant to simplify the allocation procedure. The increase in the unit rate in 1967 reflects use of commercial power, rather than power currently supplied by the Bureau of Reclamation.

3/ And thereafter for the remainder of the project repayment period.

TABLE B-16 (Continued)

UNIT VARIABLE OPERATION, MAINTENANCE, POWER AND REPLACEMENT CHARGES1/

(in dollars per acre-foot)

CALENDAR YEAR	CALIFORNIA AQUEDUCT (Continued)								
	Cottonwood Pwp	Pearblossom PP	Upper Devil Canyon Pwp	Lower Devil Canyon Pwp	Oso PP	Pyramid Pwp	Castaic Pwp	Las Perillas & Badger Hill PP's	Devil's Den Sawtooth & Polonio PP's & San Luis Obispo Pwp
1962									
1963									
1964									
1965									
1966									
1967									
1968								6.8643531	
1969								6.9920033	
1970								5.5207726	
1971					18.5454546	17.2546179	14.7844984	4.5482333	
1972	12.1146299	14.7607826	12.9089444	11.7211119	13.0190479	12.9433449	10.3658395	5.0308449	
1973	11.0992416	13.2845541	11.4221622	10.2908027	11.8935362	11.6125397	9.0661898	4.8028750	
1974	11.1658645	13.3741810	11.4717499	10.2624156	12.0991365	11.8279501	9.4865457	4.5961676	
1975	11.8193886	13.8498741	12.0429835	10.8994334	12.6635726	12.2206531	9.7232524	4.4638074	
1976	11.4343696	13.3730329	11.4830484	10.2619910	12.3783802	11.8644382	9.3603376	4.1954755	
1977	12.4272622	14.3874540	12.5357182	11.3732918	13.3414703	12.8045684	10.2936195	4.0831892	
1978	13.5096215	15.8016751	13.8970630	12.6891232	14.5060471	13.8425954	11.2881602	3.8156428	
1979	13.0639296	15.2537284	13.3515614	12.1318318	14.1095783	13.3645584	10.8001494	4.1064309	
1980	13.3081017	15.4068799	13.4875343	12.2343694	14.3110255	13.4749539	11.0494945	3.4883794	44.3974703
1981	13.5295600	15.9230034	13.9808335	12.7263323	14.5902166	13.6701412	11.3777124	2.8892914	36.8286853
1982	13.3921717	15.7213963	13.7350190	12.4796954	14.4737537	13.4943198	11.3033200	3.0043324	24.3679688
1983	13.6715701	16.2354633	14.2647689	12.9848129	14.7987627	13.7595083	11.6640550	3.0481248	19.2097410
1984	14.0141208	16.5165917	14.5617025	13.2952081	15.1657664	14.0739181	12.0530793	3.2609406	18.6971822
1985	14.3185844	16.7515582	14.8456220	13.6089458	15.4256362	14.2887889	12.3400248	3.2797329	13.7636039
1986	14.2716431	16.9015680	15.0260659	13.8219970	15.4151760	14.2308039	12.3456335	3.0342855	12.9436511
1987	14.2790883	16.8327889	15.0073039	13.8342486	15.4314787	14.2131826	12.3785125	2.8469430	12.2658292
1988	14.3064570	16.7886054	15.0117546	13.8700535	15.4769617	14.2030807	12.4195108	2.6906777	11.0532508
1989	14.0454820	16.6792334	14.9519586	13.8395521	15.2143648	13.9382379	12.1739641	2.6932511	10.5752481
1990	13.9517907	16.5688499	14.8467458	13.7380951	15.1171418	13.8417505	12.0795127	2.4598846	10.0777806
1991	13.9128938	16.5155331	14.7827656	13.6953955	15.0775644	13.8021731	12.0399353	2.4572393	10.0751353
1992	13.9121403	16.5147796	14.7820121	13.6946420	15.0768109	13.8014196	12.0391818	2.4564858	10.0743818
1993	13.9116336	16.5142729	14.7815054	13.6941353	15.0763042	13.8009129	12.0386751	2.4559791	10.0738751
1994	13.9110864	16.5137257	14.7809582	13.6935881	15.0757570	13.8003657	12.0381279	2.4554319	10.0733279
1995	13.9108808	16.5135201	14.7807526	13.6933825	15.0755514	13.8001601	12.0379223	2.4552263	10.0731223
1996	13.9106754	16.5133147	14.7805472	13.6931771	15.0753460	13.7999547	12.0377169	2.4550209	10.0729169
1997	13.9104701	16.5131094	14.7803419	13.6929718	15.0751407	13.7997494	12.0375116	2.4548156	10.0727116
1998	13.9104701	16.5131094	14.7803419	13.6929718	15.0751407	13.7997494	12.0375116	2.4548156	10.0727116
1999	13.9104701	16.5131094	14.7803419	13.6929718	15.0751407	13.7997494	12.0375116	2.4548156	10.0727116
2000 3/	13.9104701	16.5131094	14.7803419	13.6929718	15.0751407	13.7997494	12.0375116	2.4548156	10.0727116

1/ Rates as shown constitute the total rate, cumulative from the Sacramento-San Joaquin Delta, applicable to deliveries downstream from the indicated pumping and power recovery plants.
3/ And thereafter for the remainder of the project repayment period.

TABLE B-17

VARIABLE OPERATION, MAINTENANCE, POWER, AND REPLACEMENT COMPONENTS OF EACH CONTRACTOR*

(in dollars)

Calendar Year	NORTH BAY AREA			SOUTH BAY AREA				SAN JOAQUIN VALLEY AREA	
	Napa County FC & WCD	Solano County FC & WCD	Total	Alameda County FC & WCD, Zone 7	Alameda County Water District	Santa Clara County FC & WD	Total	Devil's Den Water District	Dudley Ridge Water District
1962	0	0	0	2244	38211	0	40455	0	0
1963	0	0	0	8594	54186	0	62780	0	0
1964	0	0	0	6729	77375	0	84104	0	0
1965	0	0	0	12389	85515	88096	186000	0	0
1966	0	0	0	13905	74933	147162	236000	0	0
1967	0	0	0	23163	82812	293025	399000	0	0
1968	36000	0	36000	30214	60428	354511	445153	25398	32142
1969	39000	0	39000	37738	66470	377375	481583	32862	41418
1970	39000	0	39000	39613	64174	348600	452387	31468	34645
1971	40000	0	40000	40688	61760	319698	422146	30473	21245
1972	40000	0	40000	45984	66381	326339	438704	38738	23097
1973	40000	0	40000	48619	67210	314599	430428	41786	25999
1974	53000	0	53000	52334	69307	311177	432818	44583	28278
1975	53000	0	53000	56770	72737	312235	441742	47762	31815
1976	54000	0	54000	62372	77240	319115	458727	49088	34422
1977	54000	0	54000	66815	80614	319551	466980	51857	37808
1978	54000	0	54000	70396	82967	316067	469430	48459	40037
1979	56000	0	56000	73133	84034	309412	466579	52152	42187
1980	66143	3857	70000	75787	85433	303148	464368	44303	43510
1981	68851	5149	74000	83882	94824	320943	499649	36694	50765
1982	68607	5393	74000	93133	105550	341487	540170	38155	60442
1983	68410	5590	74000	99417	112937	349948	562302	38711	67633
1984	70277	5723	76000	106302	121022	359795	587119	41414	77394
1985	70015	5985	76000	113965	130003	371440	615408	41652	88355
1986	70671	6329	77000	113883	130560	357920	602363	38535	84955
1987	72727	7273	80000	114344	131299	346976	592619	36156	82557
1988	73182	9818	83000	115221	132504	337980	585705	34171	81136
1989	74339	10661	85000	115986	133570	336731	586287	34205	79663
1990	75758	13242	89000	122258	140978	351490	614726	31240	81837
1991	75758	13242	89000	128414	145032	355029	628475	31208	81685
1992	75758	13242	89000	133910	148417	357092	639419	31198	81642
1993	75758	13242	89000	139533	152017	359848	651398	31192	81613
1994	75758	13242	89000	145173	152431	362931	660535	31185	81581
1995	75758	13242	89000	151870	151871	361597	665338	31182	81569
1996	75758	13242	89000	158291	151097	359753	669141	31179	81557
1997	75758	13242	89000	164901	150562	358479	673942	31177	81546
1998	75758	13242	89000	164901	150562	358479	673942	31177	81546
1999	75758	13242	89000	164901	150562	358479	673942	31177	81546
2000	75758	13242	89000	164901	150562	358479	673942	31177	81546
2001	75758	13242	89000	164901	150562	358479	673942	31177	81546
2002	75758	13242	89000	164901	150562	358479	673942	31177	81546
2003	75758	13242	89000	164901	150562	358479	673942	31177	81546
2004	75758	13242	89000	164901	150562	358479	673942	31177	81546
2005	75758	13242	89000	164901	150562	358479	673942	31177	81546
2006	75758	13242	89000	164901	150562	358479	673942	31177	81546
2007	75758	13242	89000	164901	150562	358479	673942	31177	81546
2008	75758	13242	89000	164901	150562	358479	673942	31177	81546
2009	75758	13242	89000	164901	150562	358479	673942	31177	81546
2010	75758	13242	89000	164901	150562	358479	673942	31177	81546
2011	75758	13242	89000	164901	150562	358479	673942	31177	81546
2012	75758	13242	89000	164901	150562	358479	673942	31177	81546
2013	75758	13242	89000	164901	150562	358479	673942	31177	81546
2014	75758	13242	89000	164901	150562	358479	673942	31177	81546
2015	75758	13242	89000	164901	150562	358479	673942	31177	81546
2016	75758	13242	89000	164901	150562	358479	673942	31177	81546
2017	75758	13242	89000	164901	150562	358479	673942	31177	81546
2018	75758	13242	89000	164901	150562	358479	673942	31177	81546
2019	75758	13242	89000	164901	150562	358479	673942	31177	81546
2020	75758	13242	89000	164901	150562	358479	673942	31177	81546
2021	75758	13242	89000	164901	150562	358479	673942	31177	81546
2022	75758	13242	89000	164901	150562	358479	673942	31177	81546
2023	75758	13242	89000	164901	150562	358479	673942	31177	81546
2024	75758	13242	89000	164901	150562	358479	673942	31177	81546
2025	75758	13242	89000	164901	150562	358479	673942	31177	81546
2026	75758	13242	89000	164901	150562	358479	673942	31177	81546
2027	75758	13242	89000	164901	150562	358479	673942	31177	81546
2028	75758	13242	89000	164901	150562	358479	673942	31177	81546
2029	75758	13242	89000	164901	150562	358479	673942	31177	81546
2030	75758	13242	89000	164901	150562	358479	673942	31177	81546
2031	75758	13242	89000	164901	150562	358479	673942	31177	81546
2032	75758	13242	89000	164901	150562	358479	673942	31177	81546
2033	75758	13242	89000	164901	150562	358479	673942	31177	81546
2034	75758	13242	89000	164901	150562	358479	673942	31177	81546
2035	75758	13242	89000	164901	150562	358479	673942	31177	81546
2036	75758	13242	89000	164901	150562	358479	673942	31177	81546
2037	75758	13242	89000	164901	150562	358479	673942	31177	81546
2038	75758	13242	89000	164901	150562	358479	673942	31177	81546
2039	75758	13242	89000	164901	150562	358479	673942	31177	81546

* Unadjusted for prior overpayments or underpayments of charges.

TABLE B-17 (continued)

VARIABLE OPERATION, MAINTENANCE, POWER, AND REPLACEMENT COMPONENTS OF EACH CONTRACTOR*

(in dollars)

Calendar Year	SAN JOAQUIN VALLEY AREA (Continued)						SOUTHERN CALIFORNIA AREA		
	Empire West Side Irrigation District	Hacienda Water District	Kern County Water Agency		Tulare Lake Basin Water Storage District	Total	Antelope Valley-East Kern Water Agency	City of West Covina	Coachella Valley County Water District
			Agriculture	Urban					
1962	0	0	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0	0	0
1964	0	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	0	0	0
1967	0	0	0	0	0	0	0	0	0
1968	8385	3634	357104	0	75184	501847	0	0	0
1969	9136	4873	405897	0	89231	583417	0	0	0
1970	6620	4414	353847	62448	70171	563613	0	0	0
1971	3561	2729	289162	34183	40592	421945	0	0	0
1972	3465	3003	421033	41922	42384	573642	246641	49228	76755
1973	3545	3427	513518	47152	46208	681635	282828	47337	77050
1974	3520	3872	541808	48577	50454	721092	342005	50285	85595
1975	3643	4372	622742	54523	56952	821809	421560	56679	96949
1976	3649	4744	691500	141299	61790	986492	513866	57469	101637
1977	3731	5223	786670	153373	68154	1106816	633296	67103	121157
1978	3696	5667	888567	159684	72313	1218423	744514	75307	139238
1979	3658	5974	1036580	166608	76327	1383486	841574	80072	153498
1980	3557	6164	1048806	172029	78841	1397210	941794	85641	167689
1981	3925	7327	1139234	193419	92109	1523473	1039901	92902	192750
1982	4422	8698	1312689	220284	109534	1754224	1116167	94847	209502
1983	4730	9774	1487602	243606	123284	1975340	1231191	103879	236176
1984	5148	11154	1709495	272210	140888	2257703	1351798	110351	260434
1985	5616	12916	1942280	302383	160985	2554187	1473454	118399	284593
1986	5169	12407	1953924	301458	155089	2551537	1563481	128544	307778
1987	4819	12047	1963995	300855	150820	2551249	1656345	135574	327078
1988	4550	11829	1988478	307053	148319	2575536	1753482	144249	346717
1989	4298	11749	1982229	307638	145715	2565497	1814879	152236	364824
1990	4255	12056	2025159	315547	156017	2626111	1894641	157988	382741
1991	4247	12033	2021079	314846	155725	2620823	1979519	157497	381509
1992	4245	12026	2020316	314739	155642	2619808	1979415	157488	381491
1993	4243	12022	2019804	314667	155587	2619128	1979345	157482	381480
1994	4242	12017	2019250	314589	155526	2618390	1979269	157476	381467
1995	4241	12016	2019042	314560	155504	2618114	1979241	157474	381462
1996	4240	12014	2018835	314531	155481	2617837	1979212	157471	381458
1997	4240	12012	2018627	314502	155459	2617563	1979184	157469	381453
1998	4240	12012	2018627	314502	155459	2617563	1979184	157469	381453
1999	4240	12012	2018627	314502	155459	2617563	1979184	157469	381453
2000	4240	12012	2018627	314502	155459	2617563	1979184	157469	381453
2001	4240	12012	2018627	314502	155459	2617563	1979184	157469	381453
2002	4240	12012	2018627	314502	155459	2617563	1979184	157469	381453
2003	4240	12012	2018627	314502	155459	2617563	1979184	157469	381453
2004	4240	12012	2018627	314502	155459	2617563	1979184	157469	381453
2005	4240	12012	2018627	314502	155459	2617563	1979184	157469	381453
2006	4240	12012	2018627	314502	155459	2617563	1979184	157469	381453
2007	4240	12012	2018627	314502	155459	2617563	1979184	157469	381453
2008	4240	12012	2018627	314502	155459	2617563	1979184	157469	381453
2009	4240	12012	2018627	314502	155459	2617563	1979184	157469	381453
2010	4240	12012	2018627	314502	155459	2617563	1979184	157469	381453
2011	4240	12012	2018627	314502	155459	2617563	1979184	157469	381453
2012	4240	12012	2018627	314502	155459	2617563	1979184	157469	381453
2013	4240	12012	2018627	314502	155459	2617563	1979184	157469	381453
2014	4240	12012	2018627	314502	155459	2617563	1979184	157469	381453
2015	4240	12012	2018627	314502	155459	2617563	1979184	157469	381453
2016	4240	12012	2018627	314502	155459	2617563	1979184	157469	381453
2017	4240	12012	2018627	314502	155459	2617563	1979184	157469	381453
2018	4240	12012	2018627	314502	155459	2617563	1979184	157469	381453
2019	4240	12012	2018627	314502	155459	2617563	1979184	157469	381453
2020	4240	12012	2018627	314502	155459	2617563	1979184	157469	381453
2021	4240	12012	2018627	314502	155459	2617563	1979184	157469	381453
2022	4240	12012	2018627	314502	155459	2617563	1979184	157469	381453
2023	4240	12012	2018627	314502	155459	2617563	1979184	157469	381453
2024	4240	12012	2018627	314502	155459	2617563	1979184	157469	381453
2025	4240	12012	2018627	314502	155459	2617563	1979184	157469	381453
2026	4240	12012	2018627	314502	155459	2617563	1979184	157469	381453
2027	4240	12012	2018627	314502	155459	2617563	1979184	157469	381453
2028	4240	12012	2018627	314502	155459	2617563	1979184	157469	381453
2029	4240	12012	2018627	314502	155459	2617563	1979184	157469	381453
2030	4240	12012	2018627	314502	155459	2617563	1979184	157469	381453
2031	4240	12012	2018627	314502	155459	2617563	1979184	157469	381453
2032	4240	12012	2018627	314502	155459	2617563	1979184	157469	381453
2033	4240	12012	2018627	314502	155459	2617563	1979184	157469	381453
2034	4240	12012	2018627	314502	155459	2617563	1979184	157469	381453
2035	4240	12012	2018627	314502	155459	2617563	1979184	157469	381453
2036	4240	12012	2018627	314502	155459	2617563	1979184	157469	381453
2037	4240	12012	2018627	314502	155459	2617563	1979184	157469	381453
2038	4240	12012	2018627	314502	155459	2617563	1979184	157469	381453
2039	4240	12012	2018627	314502	155459	2617563	1979184	157469	381453

* Unadjusted for prior overpayments or underpayments of charges.

TABLE B-17 (continued)

VARIABLE OPERATION, MAINTENANCE, POWER, AND REPLACEMENT COMPONENTS OF EACH CONTRACTOR*

(in dollars)

Calendar Year	SOUTHERN CALIFORNIA AREA (Continued)							
	Crestline-Lake Arrowhead Water Agency	Desert Water Agency	Littlerock Creek Irrigation District	Mojave Water Agency	Palmdale Irrigation District	San Bernardino Valley Municipal Water District	San Gabriel Valley Municipal Water District	San Gorgonio Pass Water Agency
1962	0	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	0	0
1964	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	0	0
1967	0	0	0	0	0	0	0	0
1968	0	0	0	0	0	0	0	0
1969	0	0	0	0	0	0	0	0
1970	0	0	0	0	0	0	0	0
1971	0	0	0	0	0	0	0	0
1972	8563	118086	2059	123990	19626	533789	124245	14760
1973	11557	119562	3220	142145	32632	489420	118344	22584
1974	15515	133743	4467	175201	47567	511130	126226	32098
1975	20082	152348	6148	213289	65952	564874	142782	42935
1976	23269	160476	7318	238039	78897	552528	143668	50817
1977	29206	187037	9071	290626	102152	635312	168326	64744
1978	34953	210923	11752	338982	119308	691837	187667	78342
1979	39813	228805	13586	379816	134036	728033	201387	89998
1980	44680	261918	15304	419067	148785	757467	212877	104767
1981	50794	302535	17182	471321	158296	816534	232892	124200
1982	54711	330150	18481	501513	164991	800710	238362	138350
1983	61208	373416	20507	556877	176910	833120	258396	159108
1984	67057	412915	22563	606160	190031	853032	275212	178380
1985	72868	452292	24772	653311	203038	873165	296675	197668
1986	78424	490146	26259	699726	211221	914727	320670	218031
1987	82986	530232	27986	735593	220183	1002459	340324	235659
1988	87637	570811	29616	772276	229475	1092198	360623	253506
1989	91903	608792	30761	808943	233998	1244383	379204	270203
1990	96099	631272	32089	841698	241366	1252888	395658	286641
1991	95790	629243	31999	838988	240693	1342150	394428	285719
1992	95785	629214	31998	838950	240680	1342077	394406	285706
1993	95782	629195	31996	838924	240671	1342027	394392	285697
1994	95779	629174	31995	838897	240662	1341973	394376	285688
1995	95778	629166	31995	838886	240658	1341953	394370	285685
1996	95777	629158	31994	838876	240655	1341933	394364	285681
1997	95775	629150	31994	838865	240651	1341913	394358	285677
1998	95775	629150	31994	838865	240651	1341913	394358	285677
1999	95775	629150	31994	838865	240651	1341913	394358	285677
2000	95775	629150	31994	838865	240651	1341913	394358	285677
2001	95775	629150	31994	838865	240651	1341913	394358	285677
2002	95775	629150	31994	838865	240651	1341913	394358	285677
2003	95775	629150	31994	838865	240651	1341913	394358	285677
2004	95775	629150	31994	838865	240651	1341913	394358	285677
2005	95775	629150	31994	838865	240651	1341913	394358	285677
2006	95775	629150	31994	838865	240651	1341913	394358	285677
2007	95775	629150	31994	838865	240651	1341913	394358	285677
2008	95775	629150	31994	838865	240651	1341913	394358	285677
2009	95775	629150	31994	838865	240651	1341913	394358	285677
2010	95775	629150	31994	838865	240651	1341913	394358	285677
2011	95775	629150	31994	838865	240651	1341913	394358	285677
2012	95775	629150	31994	838865	240651	1341913	394358	285677
2013	95775	629150	31994	838865	240651	1341913	394358	285677
2014	95775	629150	31994	838865	240651	1341913	394358	285677
2015	95775	629150	31994	838865	240651	1341913	394358	285677
2016	95775	629150	31994	838865	240651	1341913	394358	285677
2017	95775	629150	31994	838865	240651	1341913	394358	285677
2018	95775	629150	31994	838865	240651	1341913	394358	285677
2019	95775	629150	31994	838865	240651	1341913	394358	285677
2020	95775	629150	31994	838865	240651	1341913	394358	285677
2021	95775	629150	31994	838865	240651	1341913	394358	285677
2022	95775	629150	31994	838865	240651	1341913	394358	285677
2023	95775	629150	31994	838865	240651	1341913	394358	285677
2024	95775	629150	31994	838865	240651	1341913	394358	285677
2025	95775	629150	31994	838865	240651	1341913	394358	285677
2026	95775	629150	31994	838865	240651	1341913	394358	285677
2027	95775	629150	31994	838865	240651	1341913	394358	285677
2028	95775	629150	31994	838865	240651	1341913	394358	285677
2029	95775	629150	31994	838865	240651	1341913	394358	285677
2030	95775	629150	31994	838865	240651	1341913	394358	285677
2031	95775	629150	31994	838865	240651	1341913	394358	285677
2032	95775	629150	31994	838865	240651	1341913	394358	285677
2033	95775	629150	31994	838865	240651	1341913	394358	285677
2034	95775	629150	31994	838865	240651	1341913	394358	285677
2035	95775	629150	31994	838865	240651	1341913	394358	285677
2036	95775	629150	31994	838865	240651	1341913	394358	285677
2037	95775	629150	31994	838865	240651	1341913	394358	285677
2038	95775	629150	31994	838865	240651	1341913	394358	285677
2039	95775	629150	31994	838865	240651	1341913	394358	285677

* Unadjusted for prior overpayments or underpayments of charges.

TABLE B-17 (continued)

VARIABLE OPERATION, MAINTENANCE, POWER, AND REPLACEMENT COMPONENTS OF EACH CONTRACTOR*

(in dollars)

Calendar Year	SOUTHERN CALIFORNIA AREA (Continued)				CENTRAL COASTAL AREA			GRAND TOTAL
	The Metropolitan Water District of Southern California	Upper Santa Clara Valley Water Agency	Ventura County Flood Control District	Total	San Luis Obispo County FC & WCD	Santa Barbara County FC & WCD	Total	
1962	0	0	0	0	0	0	0	40455
1963	0	0	0	0	0	0	0	62780
1964	0	0	0	0	0	0	0	84104
1965	0	0	0	0	0	0	0	186000
1966	0	0	0	0	0	0	0	236000
1967	0	0	0	0	0	0	0	399000
1968	0	0	0	0	0	0	0	983000
1969	0	0	0	0	0	0	0	1104000
1970	0	0	0	0	0	0	0	1055000
1971	3696124	14785	0	3710909	0	0	0	4595000
1972	3729961	26951	0	5074654	0	0	0	6127000
1973	4212901	35357	0	5594937	0	0	0	6747000
1974	5327928	49330	0	6901090	0	0	0	8108000
1975	6526650	63201	0	8373449	0	0	0	9690000
1976	7208788	73009	0	9209781	0	0	0	10709000
1977	9011504	93670	0	11413204	0	0	0	13041000
1978	10411579	109745	0	13154147	0	0	0	14896000
1979	11752314	135003	0	14777935	0	0	0	16684000
1980	13113331	151377	11050	16435747	44398	53277	97675	18465000
1981	14714926	176354	22756	18413343	36829	84706	121535	20632000
1982	15715797	193286	33910	19610777	48735	112094	160829	22140000
1983	17454785	216952	46656	21729181	57630	132547	190177	24531000
1984	19219741	238651	60265	23846590	84137	194451	278588	27046000
1985	20938654	259140	74039	25922068	103227	238110	341337	29509000
1986	22310117	277776	98765	27645665	129437	298998	428435	31305000
1987	23628263	297084	123786	29343552	153324	353256	506580	33074000
1988	24975955	311729	161454	31089728	171325	395706	567031	34901000
1989	25255671	322612	194784	31773193	211504	487519	699023	35709000
1990	25062952	320109	241589	31837731	251945	581487	833432	36001000
1991	24982096	319059	240799	31919489	251878	581335	833213	36091000
1992	24980589	319039	240784	31917622	251859	581292	833151	36099000
1993	24979575	319025	240773	31916364	251847	581263	833110	36109000
1994	24978481	319011	240763	31915011	251833	581231	833064	36116000
1995	24978070	319005	240758	31914501	251828	581219	833047	36120000
1996	24977659	319000	240754	31913992	251823	581207	833030	36123000
1997	24977248	318994	240750	31913481	251818	581196	833014	36127000
1998	24977248	318994	240750	31913481	251818	581196	833014	36127000
1999	24977248	318994	240750	31913481	251818	581196	833014	36127000
2000	24977248	318994	240750	31913481	251818	581196	833014	36127000
2001	24977248	318994	240750	31913481	251818	581196	833014	36127000
2002	24977248	318994	240750	31913481	251818	581196	833014	36127000
2003	24977248	318994	240750	31913481	251818	581196	833014	36127000
2004	24977248	318994	240750	31913481	251818	581196	833014	36127000
2005	24977248	318994	240750	31913481	251818	581196	833014	36127000
2006	24977248	318994	240750	31913481	251818	581196	833014	36127000
2007	24977248	318994	240750	31913481	251818	581196	833014	36127000
2008	24977248	318994	240750	31913481	251818	581196	833014	36127000
2009	24977248	318994	240750	31913481	251818	581196	833014	36127000
2010	24977248	318994	240750	31913481	251818	581196	833014	36127000
2011	24977248	318994	240750	31913481	251818	581196	833014	36127000
2012	24977248	318994	240750	31913481	251818	581196	833014	36127000
2013	24977248	318994	240750	31913481	251818	581196	833014	36127000
2014	24977248	318994	240750	31913481	251818	581196	833014	36127000
2015	24977248	318994	240750	31913481	251818	581196	833014	36127000
2016	24977248	318994	240750	31913481	251818	581196	833014	36127000
2017	24977248	318994	240750	31913481	251818	581196	833014	36127000
2018	24977248	318994	240750	31913481	251818	581196	833014	36127000
2019	24977248	318994	240750	31913481	251818	581196	833014	36127000
2020	24977248	318994	240750	31913481	251818	581196	833014	36127000
2021	24977248	318994	240750	31913481	251818	581196	833014	36127000
2022	24977248	318994	240750	31913481	251818	581196	833014	36127000
2023	24977248	318994	240750	31913481	251818	581196	833014	36127000
2024	24977248	318994	240750	31913481	251818	581196	833014	36127000
2025	24977248	318994	240750	31913481	251818	581196	833014	36127000
2026	24977248	318994	240750	31913481	251818	581196	833014	36127000
2027	24977248	318994	240750	31913481	251818	581196	833014	36127000
2028	24977248	318994	240750	31913481	251818	581196	833014	36127000
2029	24977248	318994	240750	31913481	251818	581196	833014	36127000
2030	24977248	318994	240750	31913481	251818	581196	833014	36127000
2031	24977248	318994	240750	31913481	251818	581196	833014	36127000
2032	24977248	318994	240750	31913481	251818	581196	833014	36127000
2033	24977248	318994	240750	31913481	251818	581196	833014	36127000
2034	24977248	318994	240750	31913481	251818	581196	833014	36127000
2035	24977248	318994	240750	31913481	251818	581196	833014	36127000
2036	24977248	318994	240750	31913481	251818	581196	833014	36127000
2037	24977248	318994	240750	31913481	251818	581196	833014	36127000
2038	24977248	318994	240750	31913481	251818	581196	833014	36127000
2039	24977248	318994	240750	31913481	251818	581196	833014	36127000

* Unadjusted for prior overpayments or underpayments of charges.

TABLE B-18

TOTAL TRANSPORTATION CHARGES OF EACH CONTRACTOR*

(in dollars)

Calendar Year	NORTH BAY AREA			SOUTH BAY AREA				SAN JOAQUIN VALLEY AREA	
	Napa County FC & WCD	Solano County FC & WCD	Total	Alameda County FC & WCD, Zone 7	Alameda County Water District	Santa Clara County FC & WD	Total	Devil's Den Water District	Dudley Ridge Water District
1962	0	0	0	17341	51975	0	69316	0	0
1963	0	0	0	129536	170004	375479	675019	0	0
1964	0	0	0	133397	250514	532185	916096	0	0
1965	0	0	0	171849	315854	974706	1462409	0	0
1966	11240	0	11240	191562	326821	1200503	1718886	0	0
1967	43690	8502	52192	218327	350636	1391062	1960025	2355	10642
1968	157939	12737	170676	250134	350611	1518536	2119281	60439	110391
1969	165975	16203	182178	276481	373750	1596059	2246290	73235	127811
1970	166463	16941	183404	282808	375576	1581700	2240084	77497	127868
1971	167953	17682	185635	284606	374549	1557484	2216639	83249	122772
1972	168426	18397	186823	347691	379122	1564631	2291444	98001	132789
1973	168899	19112	188011	350230	379863	1552683	2282776	106578	142654
1974	182372	19827	202199	355041	382959	1551650	2289650	114853	151998
1975	182845	20542	203387	360655	387462	1555275	2303392	123624	162770
1976	184318	21257	205575	365820	391566	1560200	2317586	130334	172371
1977	186391	23030	209421	370299	394973	1560715	2325987	138682	182941
1978	196246	34041	230287	373844	397293	1557152	2328289	135273	192203
1979	252783	82728	335511	376544	398327	1550417	2325288	138955	201385
1980	395704	237174	632878	378310	398784	1540280	2317374	131198	209168
1981	398412	238466	636878	386887	408615	1559127	2354629	123568	224095
1982	398168	238710	636878	396503	419673	1580465	2396641	125177	241861
1983	397971	238907	636878	403032	427284	1589462	2419778	125833	255912
1984	399838	239040	638878	410200	435627	1599925	2445752	128658	273645
1985	399576	239302	638878	418218	444931	1612344	2475493	129040	292342
1986	400232	239646	639878	417799	445181	1598089	2461069	125709	295404
1987	402288	240590	642878	418014	445696	1586609	2450319	123223	299602
1988	402743	243135	645878	418576	446613	1576926	2442115	121156	304895
1989	403900	243978	647878	420096	448368	1577325	2445789	121113	310152
1990	405319	246559	651878	427906	457177	1595435	2480518	118066	319388
1991	405319	246559	651878	434053	461223	1598954	2494230	118031	319219
1992	405319	246559	651878	439549	464608	1601017	2505174	118021	319176
1993	405319	246559	651878	445172	468208	1603773	2517153	118015	319147
1994	405319	246559	651878	450812	468622	1606856	2526290	118008	319115
1995	405319	246559	651878	457509	468062	1605522	2531093	118005	319103
1996	405319	246559	651878	463930	467288	1603678	2534896	118002	319091
1997	405319	246559	651878	470540	466753	1602404	2539697	118000	319080
1998	405319	246559	651878	470540	466753	1602404	2539697	118000	319080
1999	405319	246559	651878	470540	466753	1602404	2539697	118000	319080
2000	405319	246559	651878	470540	466753	1602404	2539697	118000	319080
2001	405319	246559	651878	470540	466753	1602404	2539697	118000	319080
2002	405319	246559	651878	470540	466753	1602404	2539697	118000	319080
2003	405319	246559	651878	470540	466753	1602404	2539697	118000	319080
2004	405319	246559	651878	470540	466753	1602404	2539697	118000	319080
2005	405319	246559	651878	470540	466753	1602404	2539697	118000	319080
2006	405319	246559	651878	470540	466753	1602404	2539697	118000	319080
2007	405319	246559	651878	470540	466753	1602404	2539697	118000	319080
2008	405319	246559	651878	470540	466753	1602404	2539697	118000	319080
2009	405319	246559	651878	470540	466753	1602404	2539697	118000	319080
2010	405319	246559	651878	470540	466753	1602404	2539697	118000	319080
2011	405319	246559	651878	470540	466753	1602404	2539697	118000	319080
2012	405319	246559	651878	470540	466753	1602404	2539697	118000	319080
2013	405319	246559	651878	375621	381454	1299896	2056971	118000	319080
2014	405319	246559	651878	352040	326925	1149867	1828832	118000	319080
2015	405319	246559	651878	309469	273759	833582	1416810	118000	319080
2016	394079	246559	640638	294259	258364	687817	1240440	118000	319080
2017	361629	238057	599686	268217	238790	625923	1132930	118000	319080
2018	308380	233822	542202	237160	215691	553537	1006388	118000	319080
2019	303344	230356	533700	218061	201605	508686	928352	118000	319080
2020	302856	229618	532474	212874	197797	496768	907439	118000	319080
2021	302366	228877	531243	211931	197092	494592	903615	118000	319080
2022	301893	228162	530055	211931	197092	494592	903615	118000	319080
2023	301420	227447	528867	211899	197063	494522	903484	118000	319080
2024	300947	226732	527679	210794	196056	492114	898964	118000	319080
2025	300474	226017	526491	209689	195049	489706	894444	118000	319080
2026	300001	225302	525303	209689	195049	489706	894444	118000	319080
2027	297928	223529	521457	209689	195049	489706	894444	118000	319080
2028	288073	212518	500591	209689	195049	489706	894444	118000	319080
2029	233536	163831	397367	209689	195049	489706	894444	118000	319080
2030	155694	96306	252000	209689	195049	489706	894444	118000	319080
2031	155694	96306	252000	209689	195049	489706	894444	118000	319080
2032	155694	96306	252000	209689	195049	489706	894444	118000	319080
2033	155694	96306	252000	209689	195049	489706	894444	118000	319080
2034	155694	96306	252000	209689	195049	489706	894444	118000	319080
2035	155694	96306	252000	209689	195049	489706	894444	118000	319080
2036	155694	96306	252000	209689	195049	489706	894444	118000	319080
2037	155694	96306	252000	209689	195049	489706	894444	118000	319080
2038	155694	96306	252000	209576	194946	489461	893983	118000	319080
2039	155694	96306	252000	208638	194091	487416	890145	118000	319080

* Unadjusted for prior overpayments or underpayments of charges.

TABLE B-18 (continued)

TOTAL TRANSPORTATION CHARGES OF EACH CONTRACTOR*

(in dollars)

Calendar Year	SAN JOAQUIN VALLEY AREA (Continued)						SOUTHERN CALIFORNIA AREA		
	Empire West Side Irrigation District	Hacienda Water District	Kern County Water Agency		Tulare Lake Basin Water Storage District	Total	Antelope Valley-East Kern Water Agency	City of West Covina	Coachella Valley County Water District
			Agriculture	Urban					
1962	0	0	0	0	0	0	0	0	0
1963	0	0	0	0	0	0	27714	0	0
1964	0	0	0	0	0	0	55646	8328	12925
1965	0	0	0	68327	0	68327	104946	13694	22676
1966	0	0	0	139343	0	139343	210898	25540	43870
1967	553	1568	187581	258409	20274	481382	418422	48906	84851
1968	17274	13929	1628300	420890	237654	2488877	719593	86220	144613
1969	18085	16359	1734329	460514	261792	2692125	990025	129313	209791
1970	15562	17241	1825669	551424	250627	2865888	1239158	174328	276958
1971	12537	16722	2140353	547745	230428	3153806	1549182	224900	347055
1972	12480	18189	2711462	565883	242205	3781009	1900759	303153	466684
1973	12572	19679	2999726	574200	254383	4109792	1954067	301978	469256
1974	12546	21501	3214112	580036	271492	4366538	2023584	307196	479211
1975	12677	23059	3486537	590908	291172	4690747	2117213	316485	492833
1976	12678	24454	3735116	678087	308758	5061798	2213871	317492	497951
1977	12766	25981	4089037	690488	328540	5468435	2336715	327437	518059
1978	12728	27798	4452201	696827	345500	5862530	2449726	335851	536586
1979	12688	29132	4849377	703732	362314	6297583	2547678	340661	550936
1980	12557	30264	5105796	707731	376575	6573289	2647218	346139	564934
1981	12955	32893	5467550	730239	403862	6995162	2747079	353638	590472
1982	13487	35397	5893427	758340	435456	7503145	2823443	355555	607201
1983	13818	37573	6359891	782575	462962	8038564	2940258	364792	634280
1984	14265	40070	6852229	814350	494515	8617732	3064468	371555	659114
1985	14767	43307	7355986	850053	528750	9214245	3191635	380086	684203
1986	14288	43740	7604389	856511	534900	9474941	3289127	390932	708745
1987	13912	44343	7870614	860766	542598	9755058	3386821	398374	728834
1988	13624	45106	8114316	866308	552292	10017697	3483705	407006	748389
1989	13354	46353	8266649	866200	561912	10185733	3544005	414947	766367
1990	13310	47692	8496237	874044	599618	10468355	3623487	420674	784238
1991	13301	47666	8491826	873300	599294	10462637	3708179	420166	782974
1992	13299	47659	8491063	873193	599211	10461622	3708075	420157	782956
1993	13297	47655	8490551	873121	599156	10460942	3708005	420151	782945
1994	13296	47650	8489997	873043	599095	10460204	3707929	420145	782932
1995	13295	47649	8489789	873014	599073	10459928	3707901	420143	782927
1996	13294	47647	8489582	872985	599050	10459651	3707872	420140	782923
1997	13294	47645	8489374	872956	599028	10459377	3707844	420138	782918
1998	13294	47645	8489374	872956	599028	10459377	3707844	420138	782918
1999	13294	47645	8489374	872956	599028	10459377	3707844	420138	782918
2000	13294	47645	8489374	872956	599028	10459377	3707844	420138	782918
2001	13294	47645	8489374	872956	599028	10459377	3707844	420138	782918
2002	13294	47645	8489374	872956	599028	10459377	3707844	420138	782918
2003	13294	47645	8489374	872956	599028	10459377	3707844	420138	782918
2004	13294	47645	8489374	872956	599028	10459377	3707844	420138	782918
2005	13294	47645	8489374	872956	599028	10459377	3707844	420138	782918
2006	13294	47645	8489374	872956	599028	10459377	3707844	420138	782918
2007	13294	47645	8489374	872956	599028	10459377	3707844	420138	782918
2008	13294	47645	8489374	872956	599028	10459377	3707844	420138	782918
2009	13294	47645	8489374	872956	599028	10459377	3707844	420138	782918
2010	13294	47645	8489374	872956	599028	10459377	3707844	420138	782918
2011	13294	47645	8489374	872956	599028	10459377	3707844	420138	782918
2012	13294	47645	8489374	872956	599028	10459377	3707844	420138	782918
2013	13294	47645	8489374	872956	599028	10459377	3680130	420138	782918
2014	13294	47645	8489374	872956	599028	10459377	3652198	411810	769993
2015	13294	47645	8489374	804629	599028	10391050	3602898	406444	760242
2016	13294	47645	8489374	733613	599028	10320034	3496946	394598	739048
2017	13294	47645	8489374	634761	599028	10221182	3308238	372857	701295
2018	13294	47645	8489374	536010	599028	10122431	3066381	340668	651706
2019	13294	47645	8489374	497753	599028	10084174	2797225	297685	586746
2020	13294	47645	8489374	475581	599028	10062002	2556302	253379	520990
2021	13294	47645	8489374	468272	599028	10054693	2416028	217259	479585
2022	13294	47645	8489374	463154	599028	10049575	2349337	206132	462962
2023	13294	47645	8489374	460036	599028	10046457	2323676	203778	458561
2024	13294	47645	8489374	455427	599028	10041848	2310021	200620	456228
2025	13294	47645	8489374	450953	599028	10037374	2298242	197894	454262
2026	13294	47645	8489374	450374	599028	10036795	2293062	197376	453431
2027	13294	47645	8489374	450374	599028	10036795	2293062	197376	453431
2028	13294	47645	8489374	450374	599028	10036795	2293062	197376	453431
2029	13294	47645	8489374	450374	599028	10036795	2293062	197376	453431
2030	13294	47645	8489374	450374	599028	10036795	2293062	197376	453431
2031	13294	47645	8489374	450374	599028	10036795	2293062	197376	453431
2032	13294	47645	8489374	450374	599028	10036795	2293062	197376	453431
2033	13294	47645	8489374	450374	599028	10036795	2293062	197376	453431
2034	13294	47645	8489374	448312	599028	10034733	2291146	197210	453102
2035	13294	47645	8489374	444049	599028	10030470	2287184	196868	452422
2036	13294	47645	8489374	435522	599028	10021943	2279259	196183	451063
2037	13294	47645	8489374	429765	599028	10016186	2273908	195721	450145
2038	13294	47645	8489374	429765	599028	10016186	2273908	195721	450145
2039	13294	47645	8489374	429765	599028	10016186	2273908	195721	450145

* Unadjusted for prior overpayments or underpayments of charges.

TABLE B-18 (continued)

TOTAL TRANSPORTATION CHARGES OF EACH CONTRACTOR*

(in dollars)

Calendar Year	SOUTHERN CALIFORNIA AREA (Continued)							
	Crestline-Lake Arrowhead Water Agency	Desert Water Agency	Littlerock Creek Irrigation District	Mojave Water Agency	Palmdale Irrigation District	San Bernardino Valley Municipal Water District	San Gabriel Valley Municipal Water District	San Gorgonio Pass Water Agency
1962	0	0	0	0	0	0	0	0
1963	0	11290	0	0	0	42827	11418	6185
1964	3676	20920	1122	28425	7305	76208	20452	11220
1965	6267	37004	2028	49870	13873	123929	33890	18940
1966	11955	71961	3960	96479	28218	229372	63557	36463
1967	24017	139554	7572	186603	54850	439618	122077	71430
1968	40717	238126	12979	318033	94951	769074	215520	127746
1969	60300	345633	18363	461375	133685	1165806	323444	191376
1970	80823	456410	22862	609083	165327	1573781	436181	257814
1971	102240	572028	27195	763240	197793	2158332	562826	319151
1972	122325	760836	31173	981526	230896	2981731	759770	368234
1973	125928	766069	32636	1004689	246166	2943434	755658	377847
1974	130581	782576	34029	1040849	262193	2987046	769226	389146
1975	135865	804921	35932	1083923	282248	3066997	793032	402001
1976	139246	813755	37154	1109615	295632	3056953	794463	410378
1977	145330	841286	38965	1163496	319321	3142406	819903	424751
1978	151190	865908	41667	1212829	336630	3200696	839764	438685
1979	156074	883940	43517	1253865	351483	3237284	853600	450410
1980	160891	916732	45227	1292689	366148	3265888	864846	465033
1981	167125	958135	47126	1345993	375835	3327002	885463	484827
1982	171037	985713	48428	1376135	382552	3310933	890864	498960
1983	177635	1029648	50479	1432386	394653	3345078	911407	520024
1984	183631	1070096	52595	1482937	408238	3367461	928949	539733
1985	189680	1111007	54902	1532134	421970	3391732	951625	559726
1986	195581	1151099	56509	1581535	431058	3439267	977374	581116
1987	200343	1192488	58320	1619135	440641	3530529	998063	599342
1988	204972	1232924	59946	1655631	449908	3619902	1018254	617124
1989	209206	1270699	61068	1692022	454260	3771694	1036718	633726
1990	213390	1293100	62390	1724670	461593	3779991	1053110	650127
1991	213073	1291018	62298	1721890	460896	3869117	1051840	649180
1992	213068	1290989	62297	1721852	460883	3869044	1051818	649167
1993	213065	1290970	62295	1721826	460874	3868994	1051804	649158
1994	213062	1290949	62294	1721799	460865	3868940	1051788	649149
1995	213061	1290941	62294	1721788	460861	3868920	1051782	649146
1996	213060	1290933	62293	1721778	460858	3868900	1051776	649142
1997	213058	1290925	62293	1721767	460854	3868880	1051770	649138
1998	213058	1290925	62293	1721767	460854	3868880	1051770	649138
1999	213058	1290925	62293	1721767	460854	3868880	1051770	649138
2000	213058	1290925	62293	1721767	460854	3868880	1051770	649138
2001	213058	1290925	62293	1721767	460854	3868880	1051770	649138
2002	213058	1290925	62293	1721767	460854	3868880	1051770	649138
2003	213058	1290925	62293	1721767	460854	3868880	1051770	649138
2004	213058	1290925	62293	1721767	460854	3868880	1051770	649138
2005	213058	1290925	62293	1721767	460854	3868880	1051770	649138
2006	213058	1290925	62293	1721767	460854	3868880	1051770	649138
2007	213058	1290925	62293	1721767	460854	3868880	1051770	649138
2008	213058	1290925	62293	1721767	460854	3868880	1051770	649138
2009	213058	1290925	62293	1721767	460854	3868880	1051770	649138
2010	213058	1290925	62293	1721767	460854	3868880	1051770	649138
2011	213058	1290925	62293	1721767	460854	3868880	1051770	649138
2012	213058	1290925	62293	1721767	460854	3868880	1051770	649138
2013	213058	1279635	62293	1721767	460854	3826053	1040352	642953
2014	209382	1270005	61171	1693342	453549	3792672	1031318	637918
2015	206791	1253921	60265	1671897	446981	3744951	1017880	630198
2016	201103	1218964	58333	1625288	432636	3639508	988213	612675
2017	189861	1156695	55038	1542262	408386	3443113	933764	580153
2018	175745	1074903	50631	1433206	375797	3157320	853151	531544
2019	156218	967759	45269	1290347	337221	2761528	745504	468084
2020	136053	859301	40910	1145735	306620	2359595	634544	402711
2021	121921	791008	39398	1054676	295328	1898180	544086	363113
2022	117304	763590	38458	1018119	288309	1768161	516220	349549
2023	116155	756330	38028	1008439	285083	1747873	510325	346149
2024	115225	752482	37831	1003308	283603	1718226	502416	343665
2025	114584	749239	37651	998984	282254	1693460	495589	341875
2026	114294	747869	37577	997157	281698	1688562	494292	341078
2027	114294	747869	37577	997157	281698	1688562	494292	341078
2028	114294	747869	37577	997157	281698	1688562	494292	341078
2029	114294	747869	37577	997157	281698	1688562	494292	341078
2030	114294	747869	37577	997157	281698	1688562	494292	341078
2031	114294	747869	37577	997157	281698	1688562	494292	341078
2032	114294	747869	37577	997157	281698	1688562	494292	341078
2033	114294	747869	37577	997157	281698	1688562	494292	341078
2034	114211	747327	37545	996434	281455	1687151	493877	340829
2035	114038	746206	37478	994939	280953	1684234	493020	340314
2036	113693	743964	37344	991950	279950	1678400	491306	339284
2037	113460	742450	37254	989932	279273	1674461	490149	338589
2038	113460	742450	37254	989932	279273	1674461	490149	338589
2039	113460	742450	37254	989932	279273	1674461	490149	338589

* Unadjusted for prior overpayments or underpayments of charges.

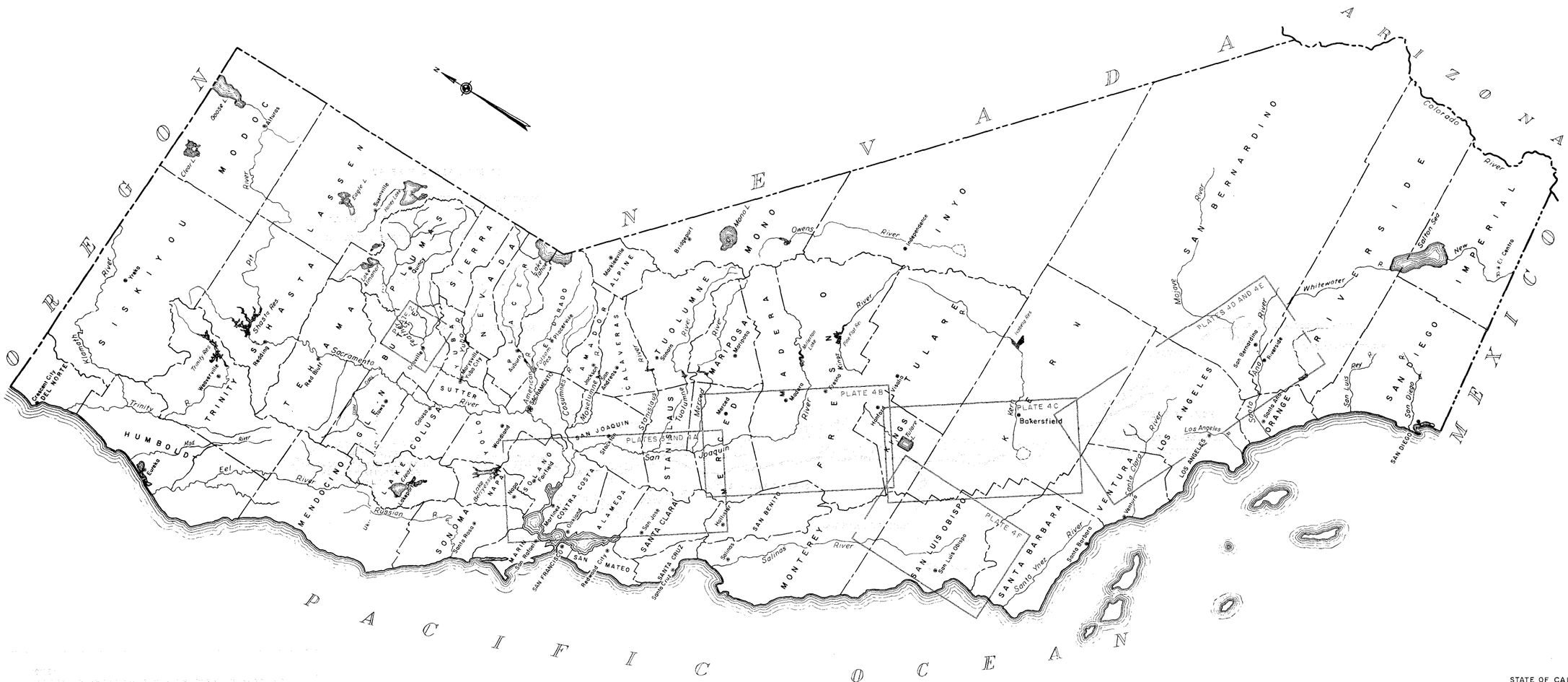
TABLE B-18 (continued)

TOTAL TRANSPORTATION CHARGES OF EACH CONTRACTOR*

(in dollars)

Calendar Year	SOUTHERN CALIFORNIA AREA (Continued)				CENTRAL COASTAL AREA			GRAND TOTAL
	The Metropolitan Water District of Southern California	Upper Santa Clara Valley Water Agency	Ventura County Flood Control District	Total	San Luis Obispo County FC & WCD	Santa Barbara County FC & WCD	Total	
1962	0	0	0	0	0	0	0	69316
1963	563587	0	0	663021	0	0	0	1338040
1964	1099586	11045	8226	1365084	9098	22441	31539	2312719
1965	1960989	21623	16096	2425825	15753	38356	54109	4010670
1966	4131140	49537	36409	5039359	25851	62114	87965	6996793
1967	8257192	102726	75230	10033048	43933	104626	148559	12675206
1968	15016462	190777	138321	18113132	74241	175667	249908	23141874
1969	22129702	275754	199700	26634267	77546	183717	261263	32016123
1970	29158985	357150	258412	35067272	78902	187093	265995	40622643
1971	40721950	450690	316911	48313493	81438	193156	274594	54144167
1972	44537196	482193	330774	54257250	83648	198811	282459	60798985
1973	45790869	500318	337295	55606210	87639	210100	297739	62484528
1974	47190677	517666	339670	57253650	94018	229053	323071	64435108
1975	48714631	534845	342090	59123016	106211	262259	368470	66689012
1976	49512647	546429	343312	60088898	199133	483547	682680	68356537
1977	51428475	568326	344164	62418634	277786	669807	947593	71370070
1978	52852573	584649	344350	64191104	378491	913960	1292451	73904661
1979	54205745	610085	344485	65829763	536748	1369983	1906731	76694876
1980	55556473	626360	355458	67474036	727120	1849031	2576151	79573728
1981	57186120	651621	367380	69487816	715914	1871968	2587882	82062367
1982	58186543	668573	378549	70684486	721136	1883758	2604894	83826044
1983	59954026	692562	391538	72838766	727177	1897551	2624728	86558714
1984	61774034	714990	405698	75023499	754383	1961088	2715471	89441332
1985	63575873	736553	420281	77201407	782487	2025783	2808270	92338293
1986	65059810	756624	446091	79064868	812871	2096412	2909283	94550039
1987	66449241	776872	471822	80850825	837276	2151879	2989155	96688235
1988	67793753	791494	509474	82592482	854258	2191954	3046212	98744384
1989	68057766	802145	542627	83257250	894324	2283501	3177825	99714475
1990	67860720	799587	589392	83316469	934343	2376488	3310831	100228051
1991	67777007	798503	588575	83394716	934271	2376323	3310594	100314055
1992	67775500	798483	588560	83392849	934252	2376280	3310532	100322055
1993	67774486	798469	588549	83391591	934240	2376251	3310491	100332055
1994	67773392	798455	588539	83390238	934226	2376219	3310445	100339055
1995	67772981	798449	588534	83389728	934221	2376207	3310428	100343055
1996	67772570	798444	588530	83389219	934216	2376195	3310411	100346055
1997	67772159	798438	588526	83388708	934211	2376184	3310395	100350055
1998	67772159	798438	588526	83388708	934211	2376184	3310395	100350055
1999	67772159	798438	588526	83388708	934211	2376184	3310395	100350055
2000	67772159	798438	588526	83388708	934211	2376184	3310395	100350055
2001	67772159	798438	588526	83388708	934211	2376184	3310395	100350055
2002	67772159	798438	588526	83388708	934211	2376184	3310395	100350055
2003	67772159	798438	588526	83388708	934211	2376184	3310395	100350055
2004	67772159	798438	588526	83388708	934211	2376184	3310395	100350055
2005	67772159	798438	588526	83388708	934211	2376184	3310395	100350055
2006	67772159	798438	588526	83388708	934211	2376184	3310395	100350055
2007	67772159	798438	588526	83388708	934211	2376184	3310395	100350055
2008	67772159	798438	588526	83388708	934211	2376184	3310395	100350055
2009	67772159	798438	588526	83388708	934211	2376184	3310395	100350055
2010	67772159	798438	588526	83388708	934211	2376184	3310395	100350055
2011	67772159	798438	588526	83388708	934211	2376184	3310395	100350055
2012	67772159	798438	588526	83388708	934211	2376184	3310395	100350055
2013	67208572	798438	588526	82725687	934211	2376184	3310395	99204308
2014	66672573	787393	580300	82023624	925113	2353743	3278856	98242567
2015	65811170	776815	572430	80962883	918458	2337828	3256286	96678907
2016	63641019	748901	552117	78349349	908360	2314070	3222430	93772891
2017	59803464	699378	516063	73710567	893708	2279563	3173271	88837636
2018	53953746	622882	461693	66749373	881278	2250240	3131518	81551912
2019	46860078	538154	400500	58252318	877629	2241388	3119017	72917561
2020	39957074	458356	342996	49974566	876421	2238355	3114776	64591257
2021	35659203	427960	320813	44628558	875656	2236434	3112090	59230199
2022	32882319	409379	307523	41477362	874826	2233992	3108818	56069425
2023	31859271	396826	298854	40349348	870792	2222601	3093393	54921549
2024	31407568	391460	294974	39817627	864294	2203369	3067663	54353781
2025	31110209	388506	292823	39455572	852149	2170276	3022425	53936306
2026	30962284	386482	291411	39286573	758969	1948389	2707358	53450473
2027	30901833	385898	291052	39225179	680348	1762206	2442554	53120429
2028	30901833	385898	291052	39225179	579628	1518015	2097643	52754652
2029	30901833	385898	291052	39225179	421355	1061955	1483310	52037095
2030	30901833	385898	291052	39225179	347806	821236	1169042	51577460
2031	30901833	385898	291052	39225179	347806	821236	1169042	51577460
2032	30901833	385898	291052	39225179	347806	821236	1169042	51577460
2033	30901833	385898	291052	39225179	347806	821236	1169042	51577460
2034	30873357	385525	290770	39189939	346685	818620	1165305	51536421
2035	30814473	384753	290187	39117069	335482	792475	1127957	51421940
2036	30696706	383209	289022	38971333	330694	781301	1111995	51251715
2037	30617192	382167	288235	38872936	329719	779025	1108744	51144310
2038	30617192	382167	288235	38872936	329719	779025	1108744	51143849
2039	30617192	382167	288235	38872936	329719	779025	1108744	51140011

* Unadjusted for prior overpayments or underpayments of charges.



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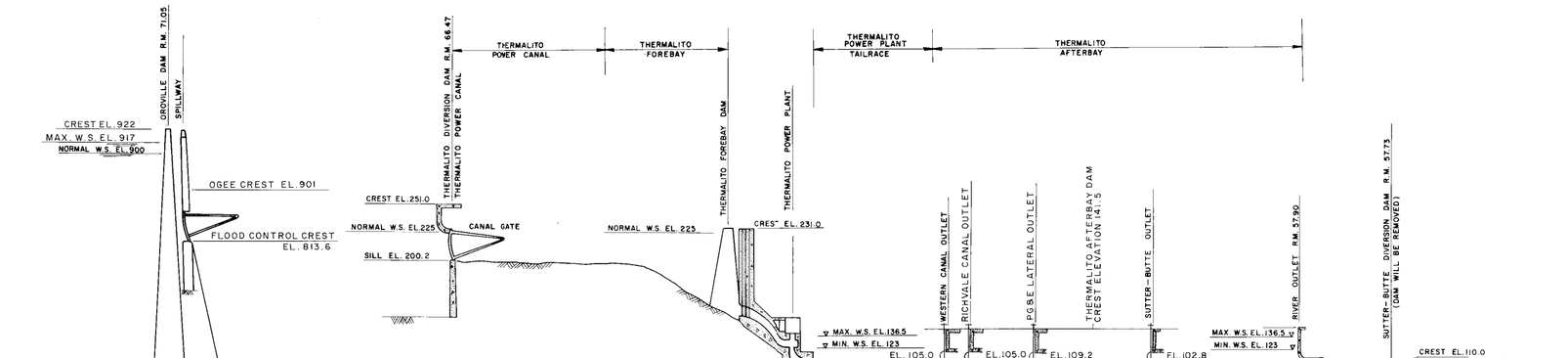
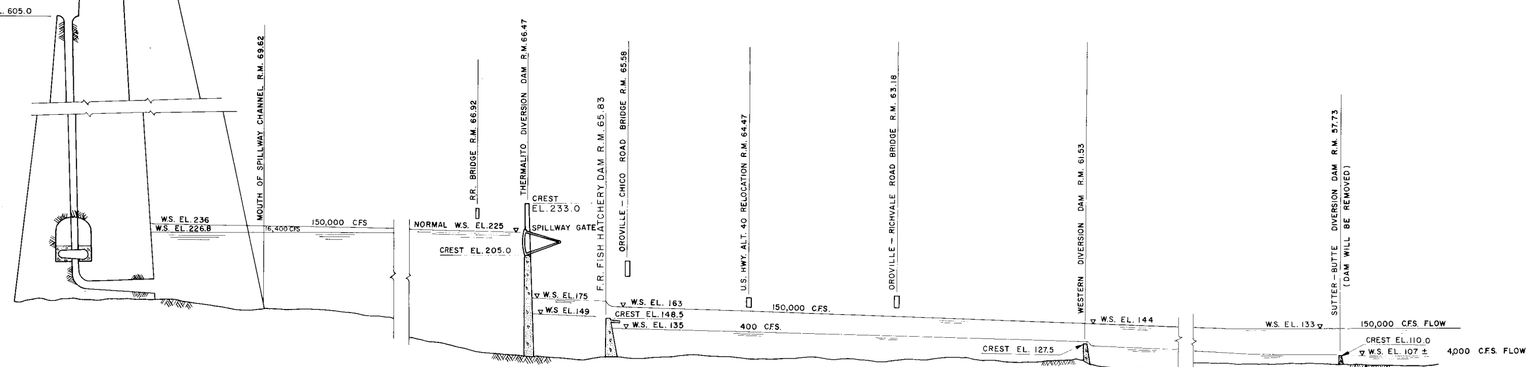


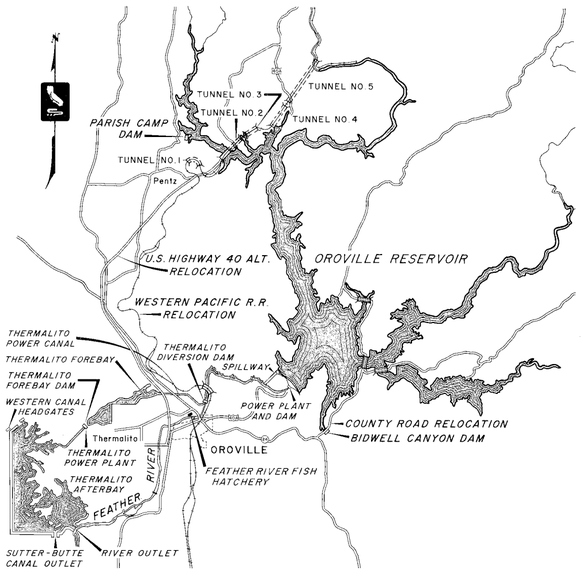
PROFILE OF AFTERBAY SYSTEM



NOTE: ELEVATIONS SHOWN REFER TO U.S.C.&G.S. DATUM 1929 ADJUSTMENT
RIVER MILE 00 IS AT MOUTH OF FEATHER RIVER

PROFILE OF RIVER CHANNEL

SCHEMATIC DIAGRAM



PLAN

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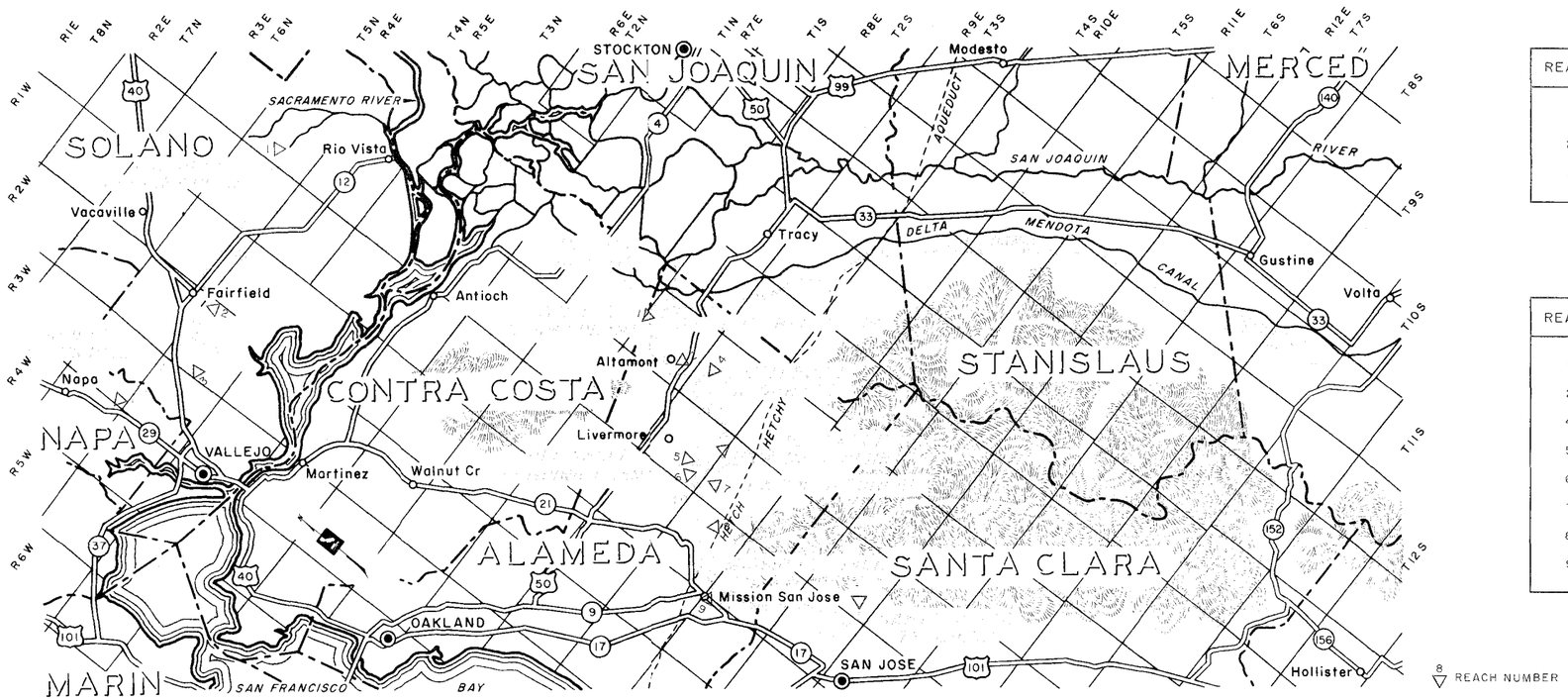
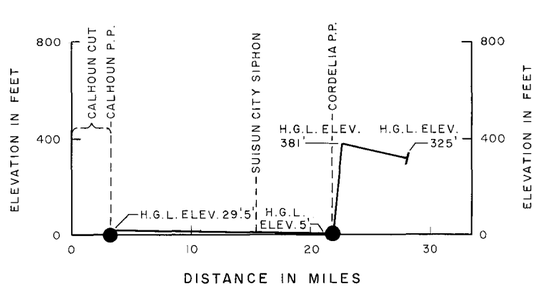
OROVILLE DIVISION

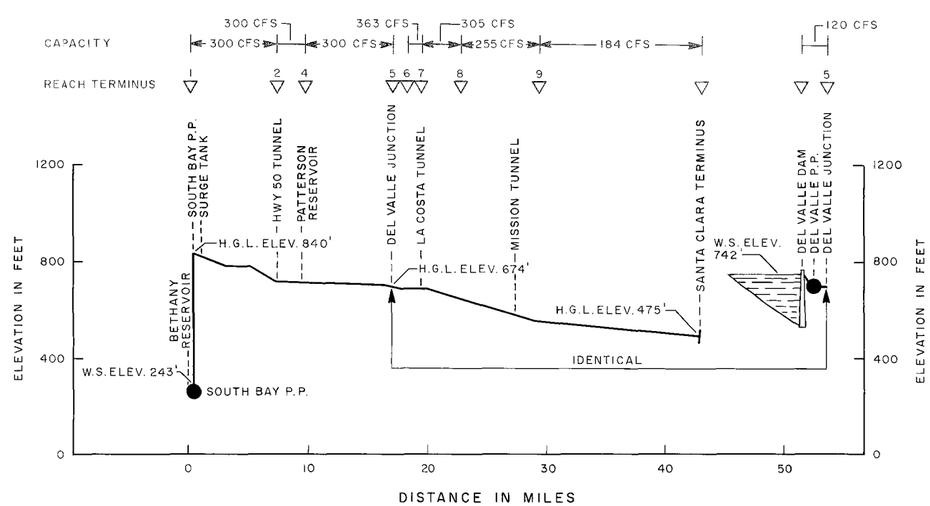
PLAN AND SCHEMATIC DIAGRAM



REACH	NORTH BAY AQUEDUCT
1	LINDSEY SLOUGH TO SUISUN CITY
2	SUISUN CITY TO CORDELIA PUMPING PLANT
3	CORDELIA PUMPING PLANT TO NAPA TERMINUS

REACH	SOUTH BAY AQUEDUCT
1	BETHANY RESERVOIR TO ALTAMONT TURNOUT
2	ALTAMONT TURNOUT THRU PATTERSON RESERVOIR
4	PATTERSON RESERVOIR TO DEL VALLE JUNCTION
5	DEL VALLE JUNCTION THRU DEL VALLE RESERVOIR
6	DEL VALLE JUNCTION TO SOUTH LIVERMORE TURNOUT
7	SOUTH LIVERMORE TURNOUT TO VALLECITOS TURNOUT
8	VALLECITOS TURNOUT TO ALAMEDA-BAYSIDE TURNOUT
9	ALAMEDA-BAYSIDE TURNOUT TO SANTA CLARA TERMINUS





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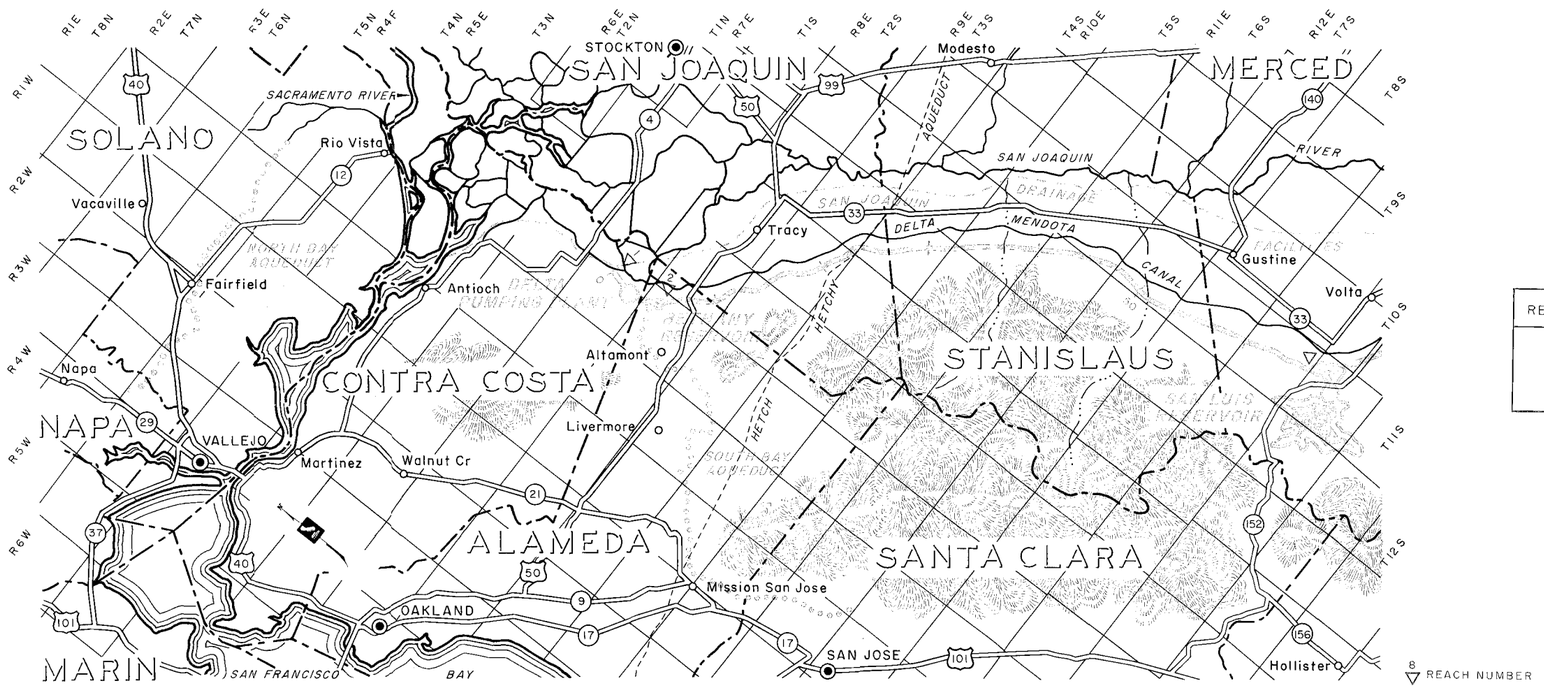
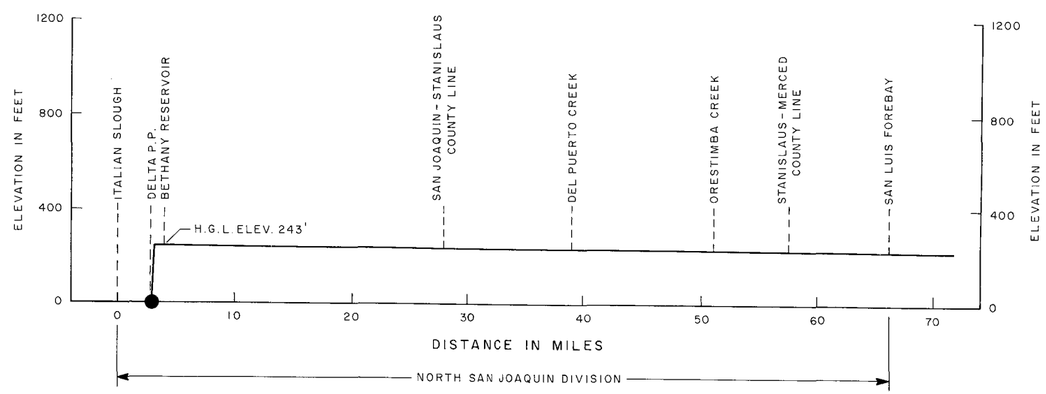
NORTH AND SOUTH BAY AQUEDUCTS
PLAN AND PROFILE

SCALE OF MILES
10 5 0 10

APRIL 1965



REACH	CALIFORNIA AQUEDUCT
1	DELTA THRU BETHANY RESERVOIR
2	BETHANY RESERVOIR TO SAN LUIS FOREBAY



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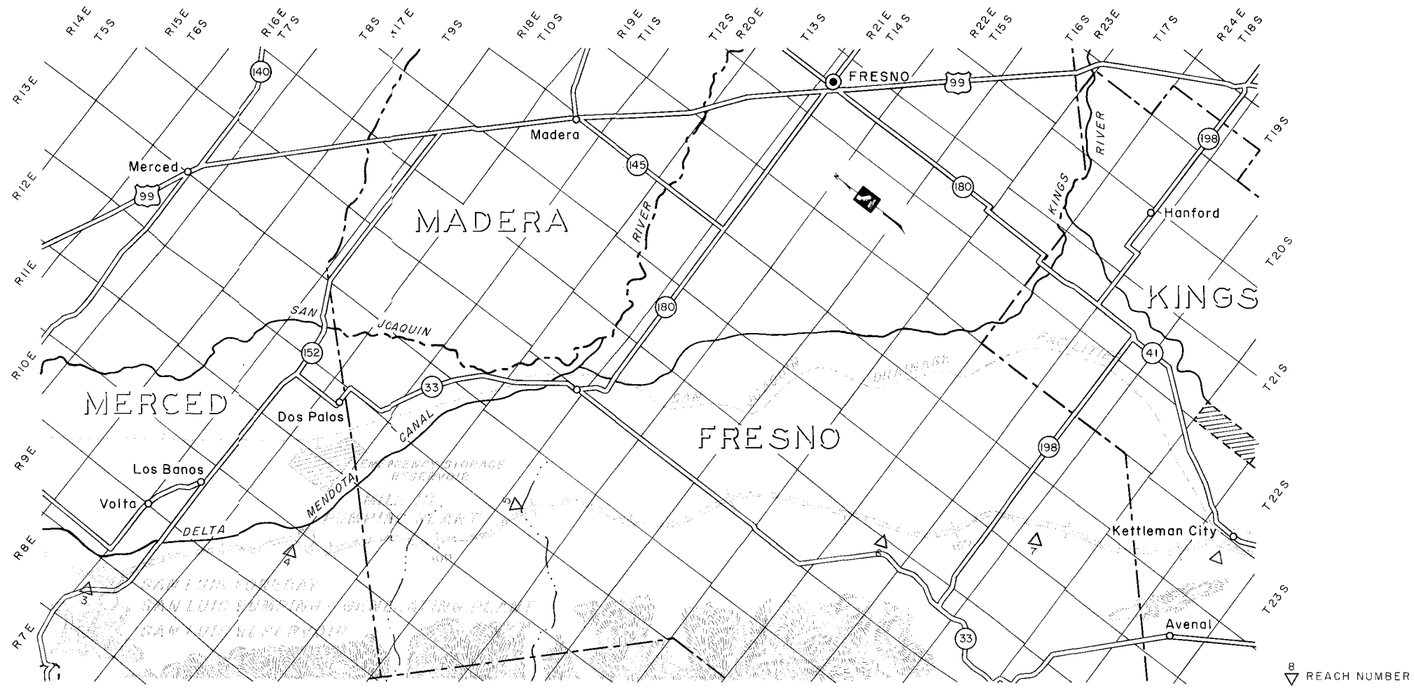
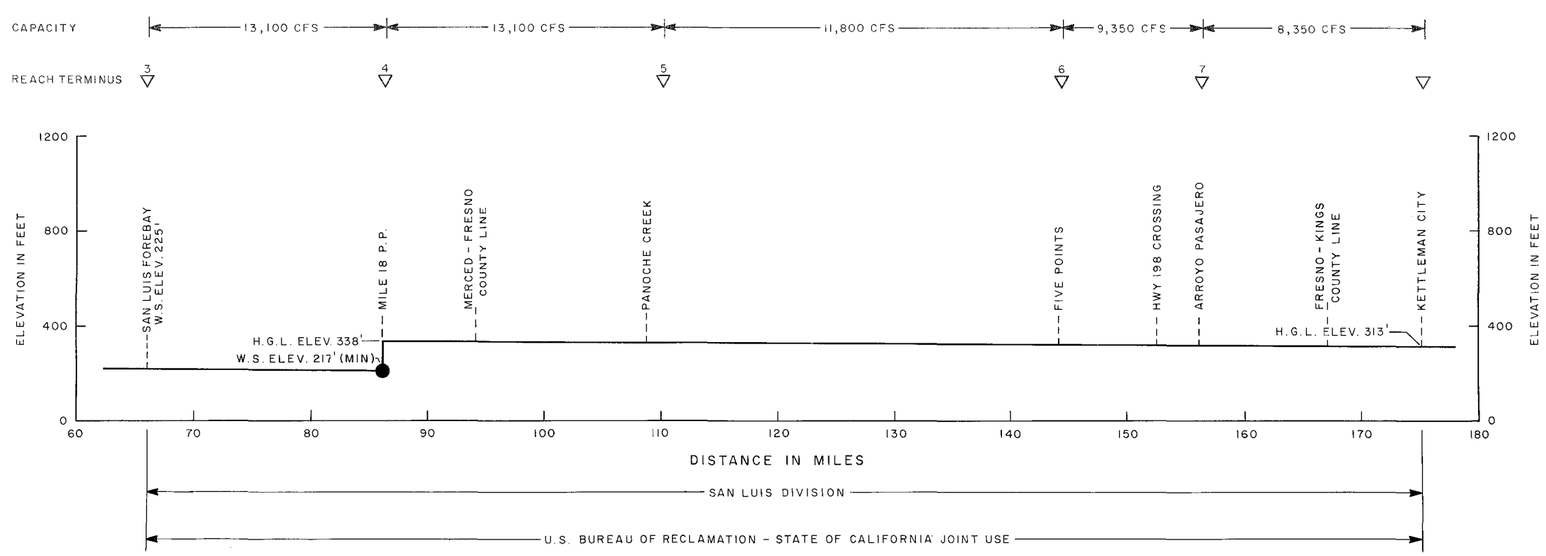


REACH	CALIFORNIA AQUEDUCT
3	SAN LUIS FOREBAY TO MILE 18 PUMPING PLANT
4	MILE 18 PUMPING PLANT TO PANOCHE CREEK
5	PANOCHE CREEK TO FIVE POINTS
6	FIVE POINTS TO ARROYO PASAJERO
7	ARROYO PASAJERO TO KETTLEMAN CITY



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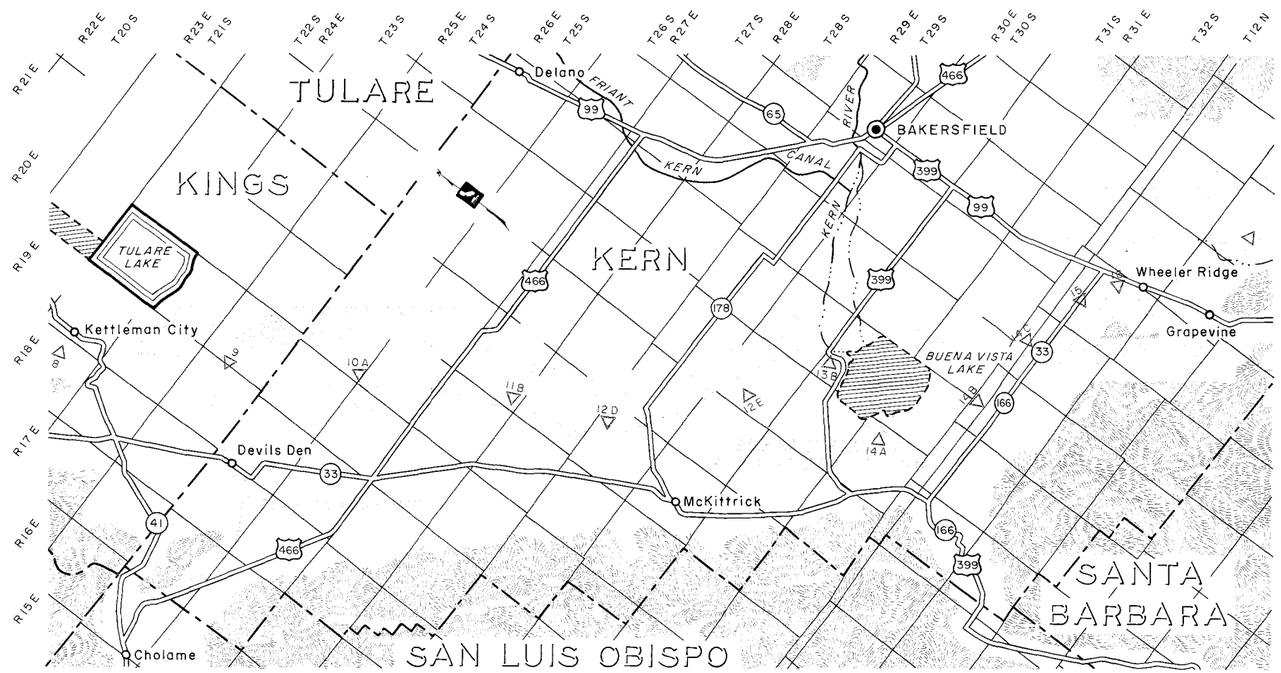
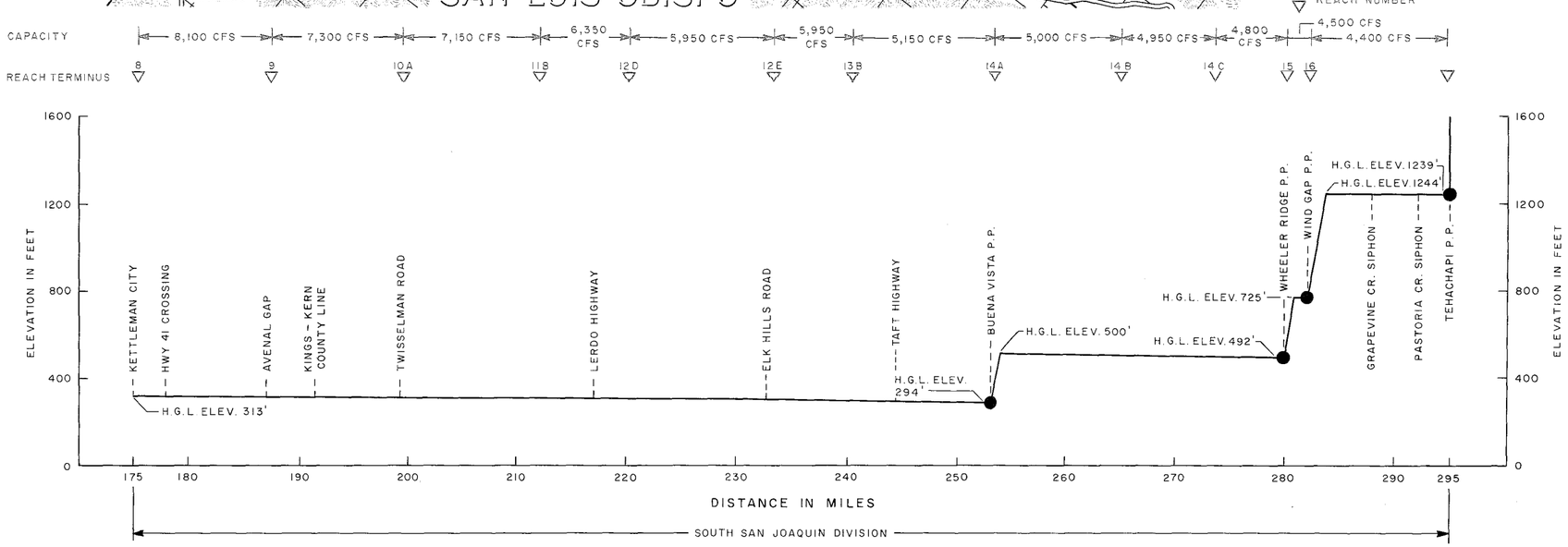


REACH	CALIFORNIA AQUEDUCT
8	KETTLEMAN CITY TO AVENAL GAP
9	AVENAL GAP TO TWISSELMAN ROAD
10A	TWISSELMAN ROAD TO NEAR LOST HILLS
11B	NEAR LOST HILLS TO NEAR SEVENTH STANDARD ROAD
12D	NEAR SEVENTH STANDARD ROAD TO ELK HILLS ROAD
12E	ELK HILLS ROAD TO TUPMAN
13B	TUPMAN TO BUENA VISTA PUMPING PLANT
14A	BUENA VISTA PUMPING PLANT TO SANTIAGO CREEK
14B	SANTIAGO CREEK TO OLD RIVER ROAD
14C	OLD RIVER ROAD TO WHEELER RIDGE PUMPING PLANT
15	WHEELER RIDGE PUMPING PLANT TO WIND GAP PUMPING PLANT
16	WIND GAP PUMPING PLANT TO TEHACHAPI PUMPING PLANT



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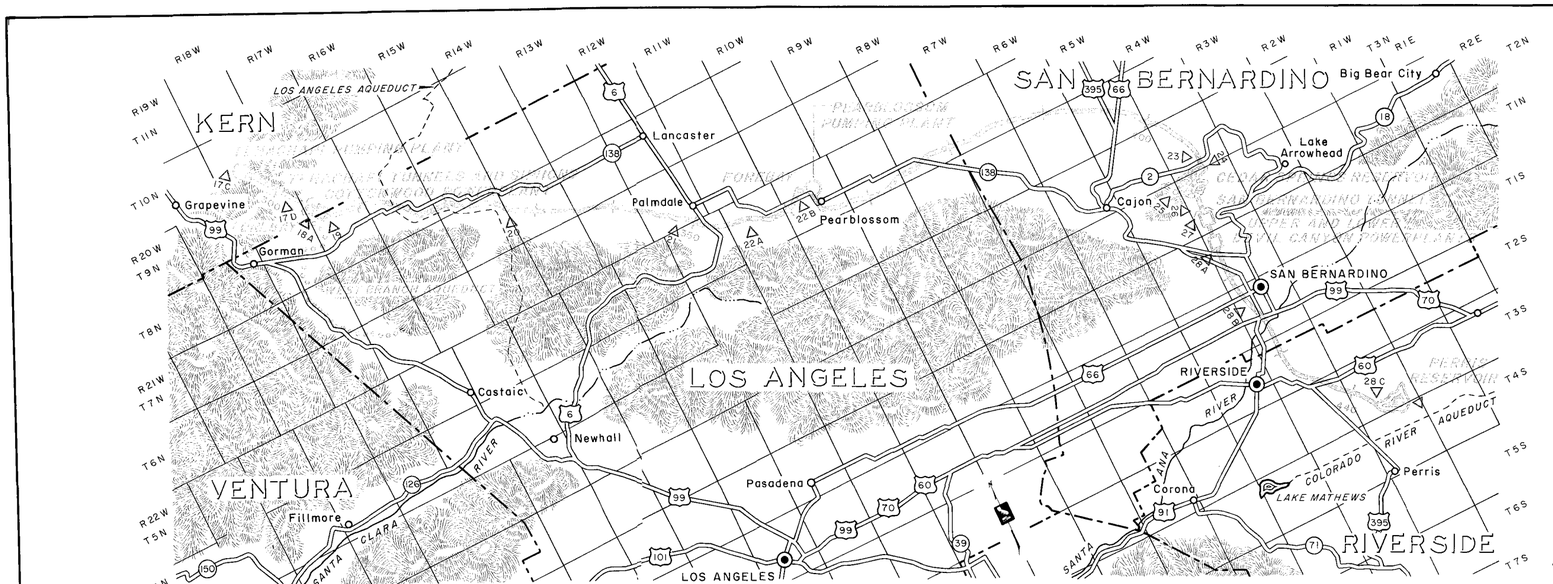
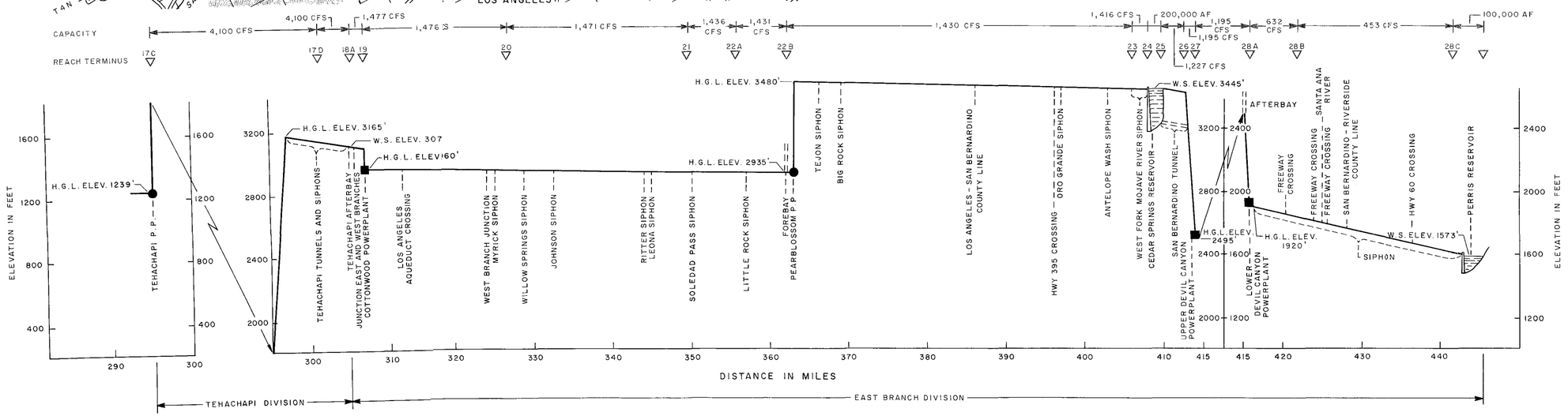


REACH	CALIFORNIA AQUEDUCT
17C	TEHACHAPI PUMPING PLANT TO SOUTH PORTAL TEHACHAPI TUNNEL No. 3
17D	SOUTH PORTAL TEHACHAPI TUNNEL No. 3 TO JUNCTION EAST AND WEST BRANCHES
18A	JUNCTION EAST AND WEST BRANCHES THRU COTTONWOOD POWERPLANT
19	COTTONWOOD POWERPLANT TO FAIRMONT
20	FAIRMONT TO PALMDALE
21	PALMDALE TO LITTLEROCK CREEK
22 A	LITTLEROCK CREEK TO PEARBLOSSOM PUMPING PLANT
22 B	PEARBLOSSOM PUMPING PLANT TO WEST FORK MOJAVE RIVER
23	WEST FORK MOJAVE RIVER TO CEDAR SPRINGS RESERVOIR
24	CEDAR SPRINGS DAM AND RESERVOIR
25	CEDAR SPRINGS RESERVOIR TO SOUTH PORTAL SAN BERNARDINO TUNNEL
26	SOUTH PORTAL SAN BERNARDINO TUNNEL THRU UPPER DEVIL CANYON POWERPLANT
27	UPPER DEVIL CANYON POWERPLANT THRU LOWER DEVIL CANYON POWERPLANT
28 A	LOWER DEVIL CANYON POWERPLANT TO MILL AVENUE
28 B	MILL AVENUE TO PERRIS RESERVOIR
28 C	PERRIS DAM AND RESERVOIR



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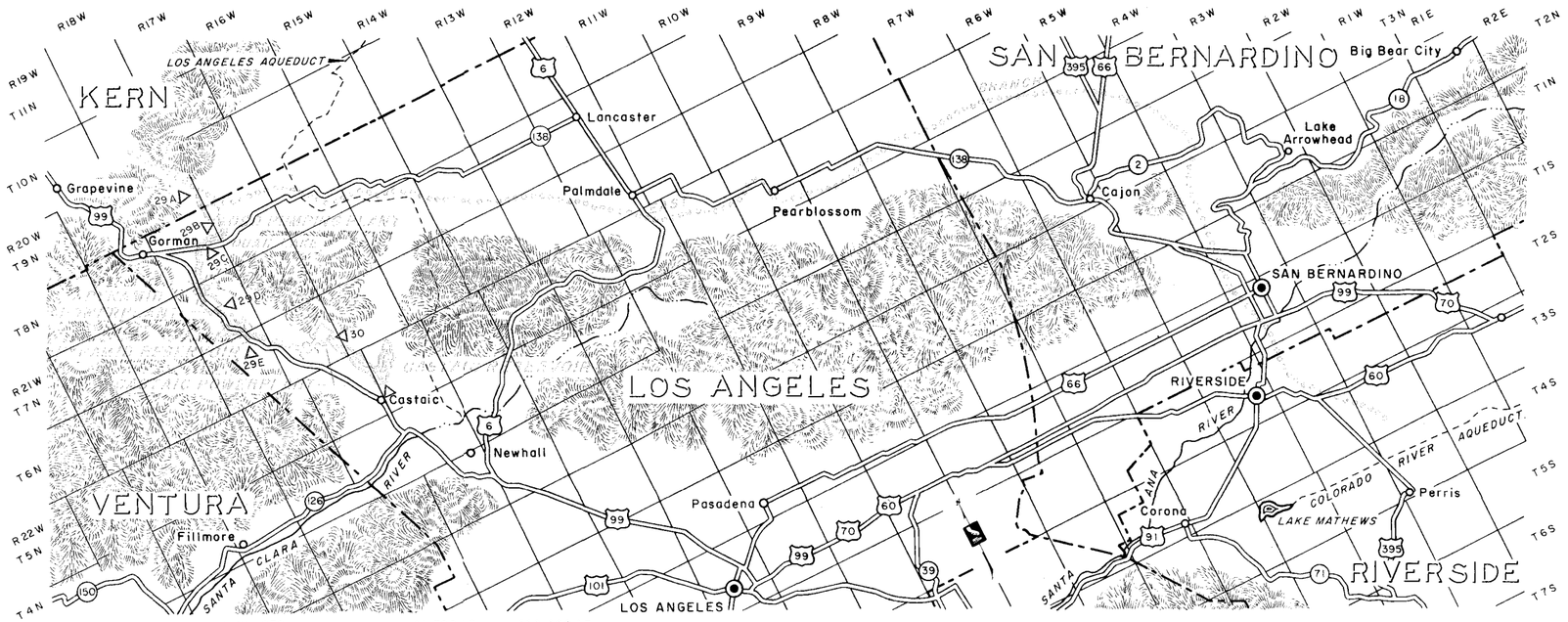

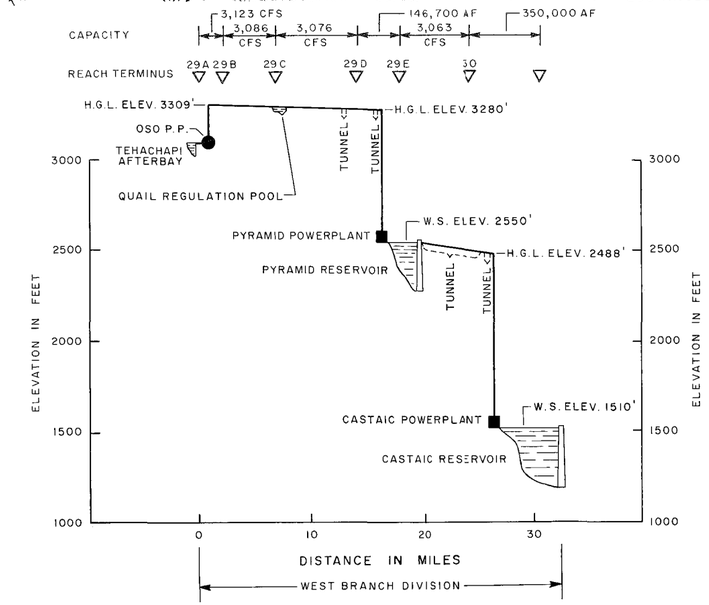

REACH	CALIFORNIA AQUEDUCT
29A	JUNCTION EAST AND WEST BRANCH THRU OSO PUMPING PLANT
29B	OSO PUMPING PLANT TO STATE ROUTE 138
29C	STATE ROUTE 138 THRU PYRAMID POWERPLANT
29D	PYRAMID DAM AND RESERVOIR
29E	PYRAMID RESERVOIR THRU CASTAIC POWERPLANT
30	CASTAIC DAM AND RESERVOIR

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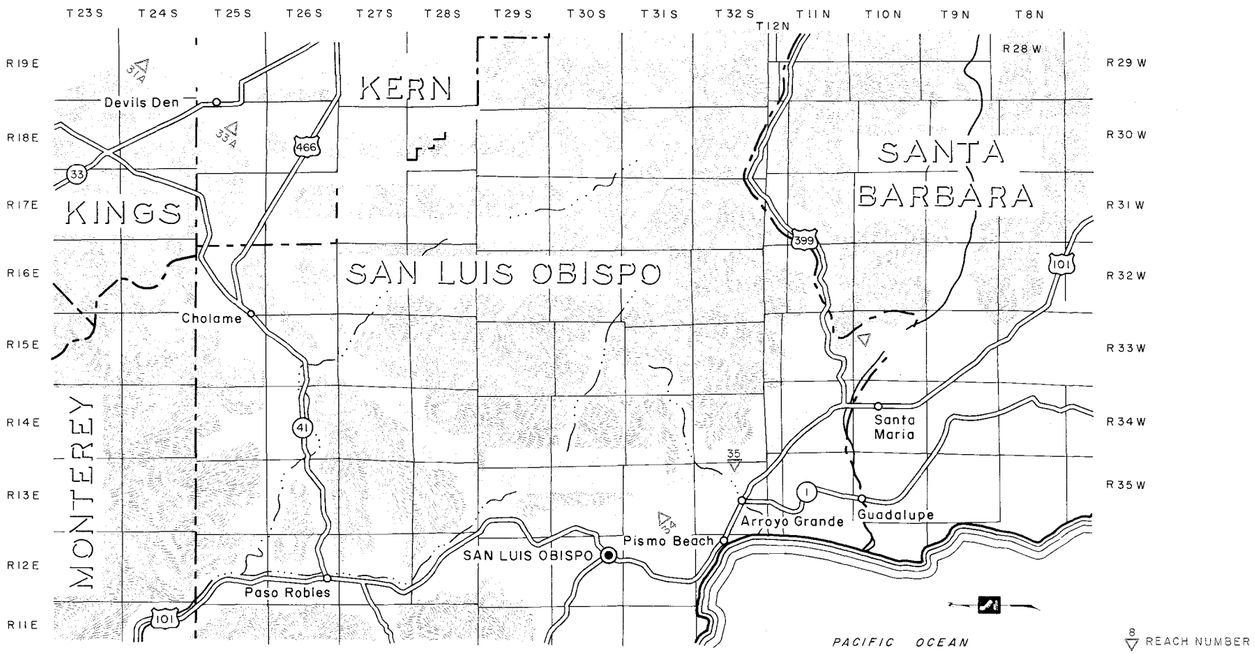
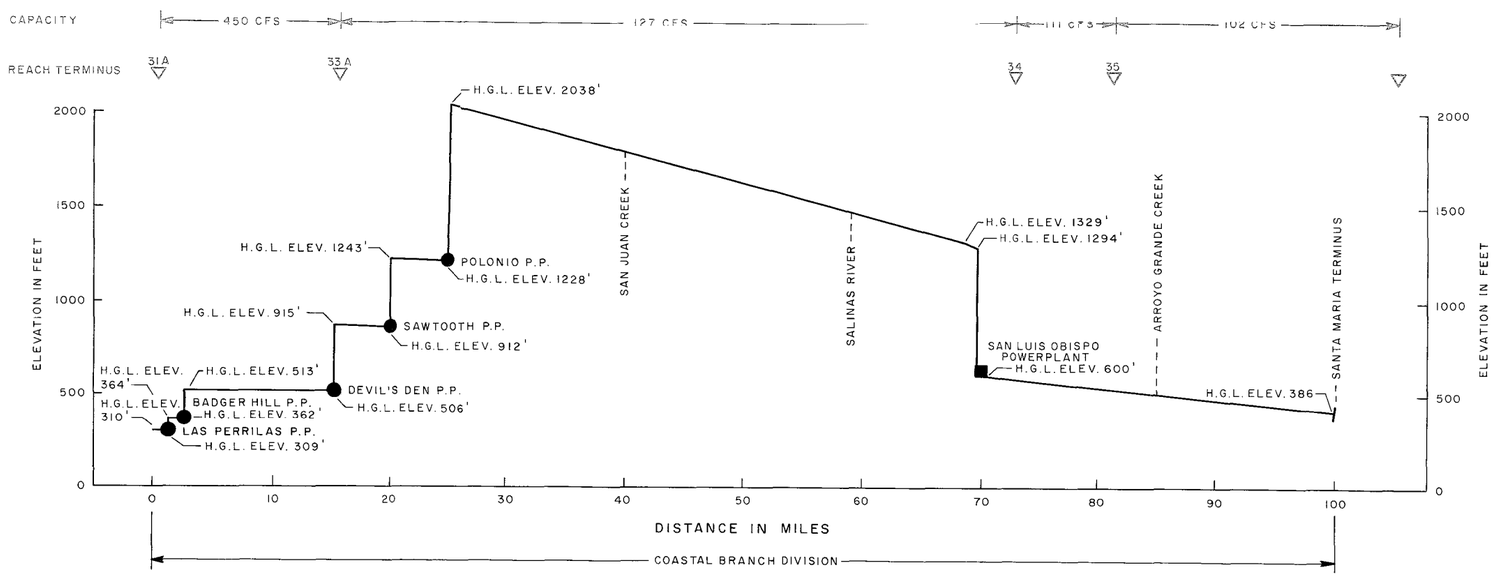
SCALE OF MILES
10 5 0 10



REACH	CALIFORNIA AQUEDUCT
31 A	AVENAL GAP TO DEVIL'S DEN PUMPING PLANT
33 A	DEVIL'S DEN PUMPING PLANT THRU SAN LUIS OBISPO POWERPLANT
34	SAN LUIS OBISPO POWERPLANT TO ARROYO GRANDE
35	ARROYO GRANDE TO SANTA MARIA TERMINUS



STATE OF CALIFORNIA
THE RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
DIVISION OF OPERATIONS

THE CALIFORNIA STATE WATER PROJECT
IN 1965

CALIFORNIA AQUEDUCT
PLAN AND PROFILE

SCALE OF MILES
10 5 0 10

LOCATION OF WATER SUPPLY CONTRACTING AGENCIES

LEGEND

	FEATHER RIVER AND UPPER FEATHER RIVER	MAXIMUM ANNUAL ENTITLEMENT Acre Feet
1	Plumas County Flood Control & Water Conservation District	2,700
2	Butte County	27,500
3	Last Chance Creek Water District (Annual Interim Contract)	0
4	City of Yuba City	9,600
	Subtotal	39,800
	NORTH BAY	
5	Napa County Flood Control & Water Conservation District	25,000
6	Solano County Flood Control & Water Conservation District	42 000
	Subtotal	67,000
	SOUTH BAY	
7	Alameda County Flood Control & Water Conservation District-Zone 7	46,000
8	Alameda County Water District	42,000
9	Santa Clara County Flood Control & Water District	100,000
	Subtotal	188,000
	SAN JOAQUIN VALLEY	
10	Oak Flat Water District	5 700
11	Empire West Side Irrigation District	3 000
12	Tulare Lake Basin Water Storage District	110,000
13	Hacienda Water District	8,500
14	Dudley Ridge Water District	57,700
15	Devils Den Water District	12 700
16	Kern County Water Agency	1,153,400
	Subtotal	1,351,000
	CENTRAL COASTAL	
17	San Luis Obispo County Flood Control & Water Conservation District	25,000
18	Santa Barbara County Flood Control & Water Conservation District	57,700
	Subtotal	82 700
	SOUTHERN CALIFORNIA	
19	Mojave Water Agency	50,800
20	Antelope Valley-East Kern Water Agency	138,400
21	Palmdale Irrigation District	17,300
22	Littlerock Creek Irrigation District	2,300
23	Crestline-Lake Arrowhead Water Agency	5,800
24	San Bernardino Valley Municipal Water District	98,000
25	Desert Water Agency	38,100
26	Coachella Valley County Water District	23,100
27	San Gorgonio Pass Water Agency	17,300
28	Ventura County Flood Control District	20,000
29	Upper Santa Clara Valley Water Agency	26,500
30	San Gabriel Valley Municipal Water District	28,800
31	City of West Covina	11,500
32	The Metropolitan Water District of Southern California	2,000,000
	Subtotal	2,477 900
	Total	4,206,400

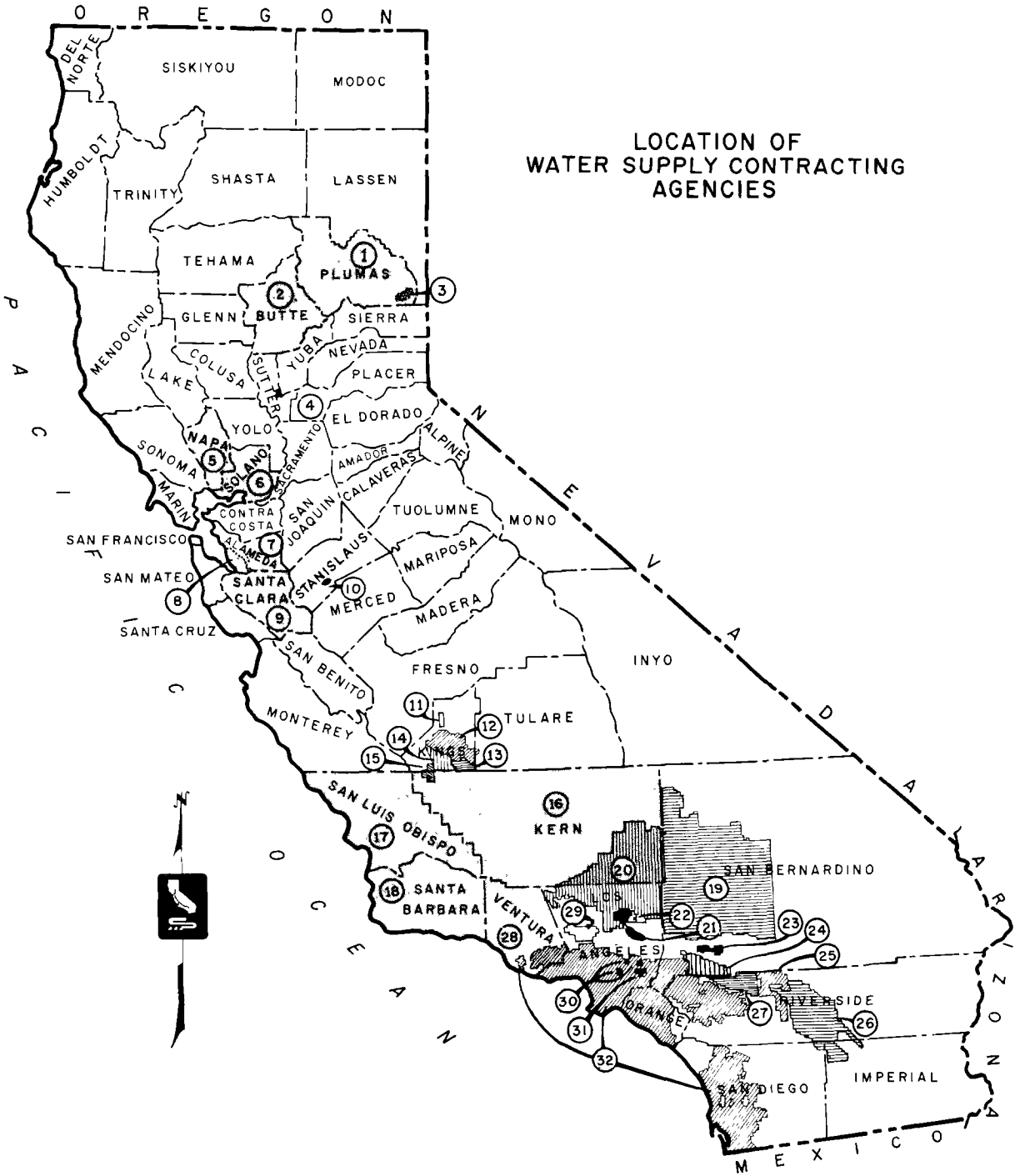
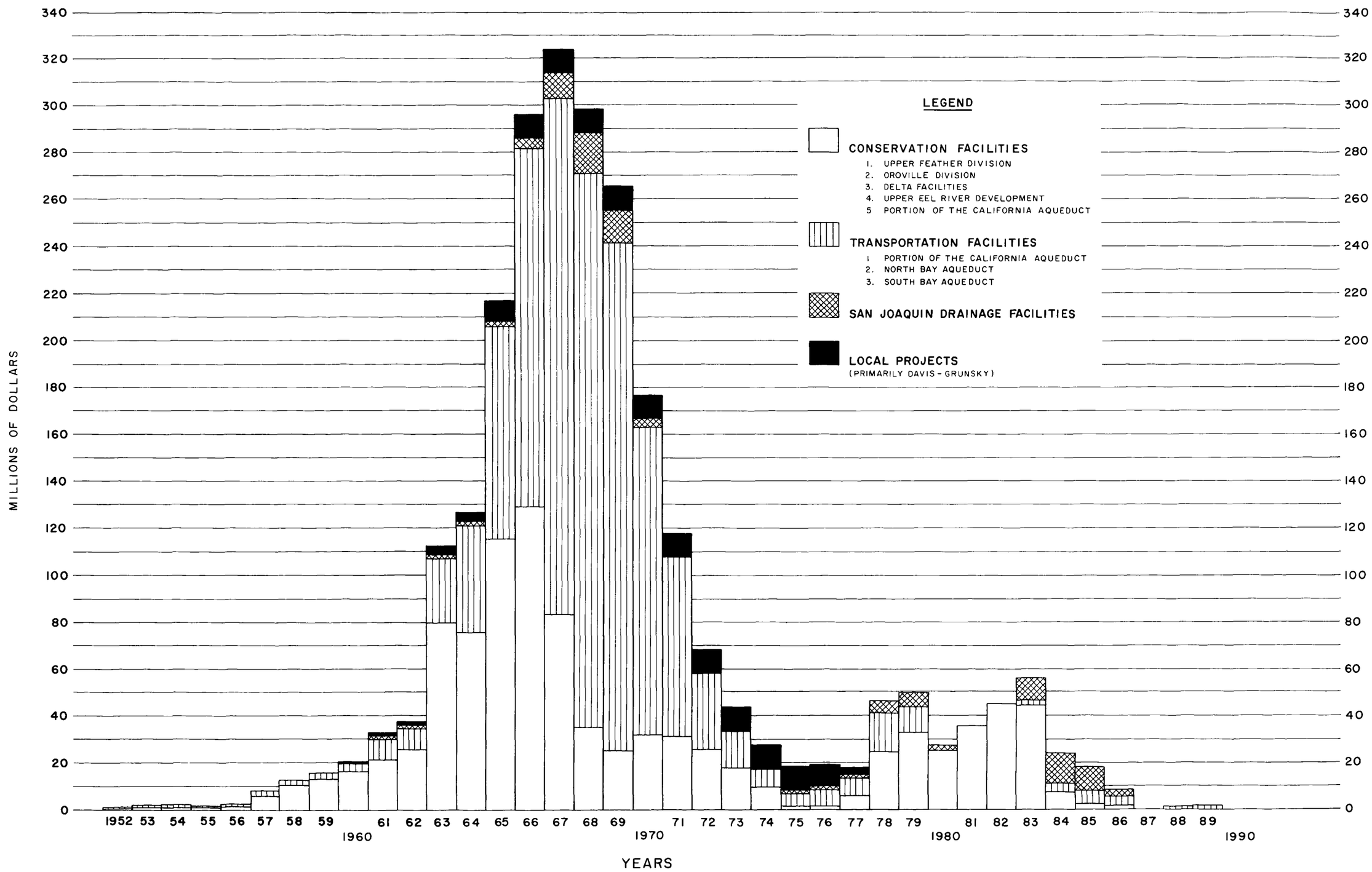
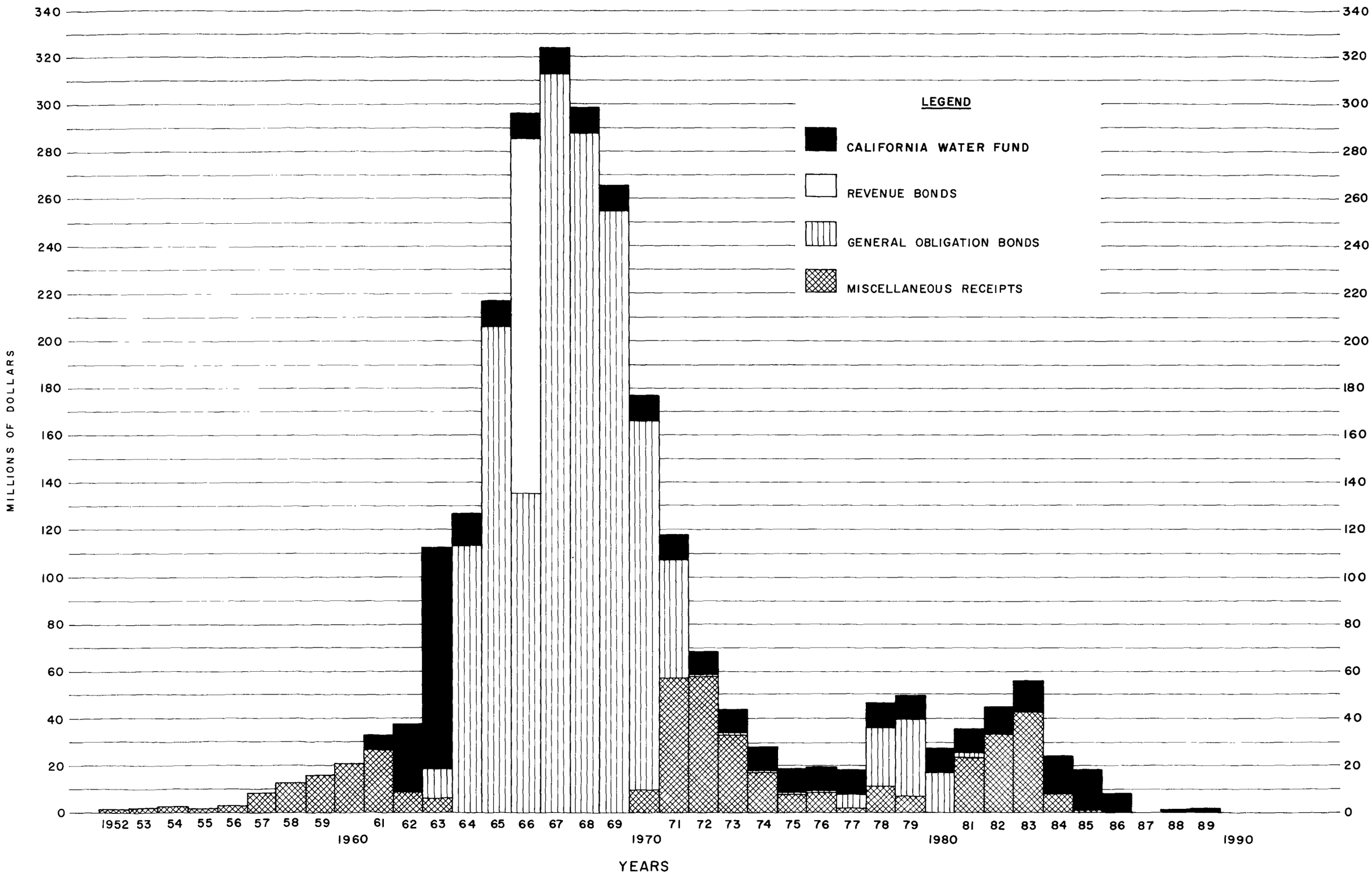


PLATE 5

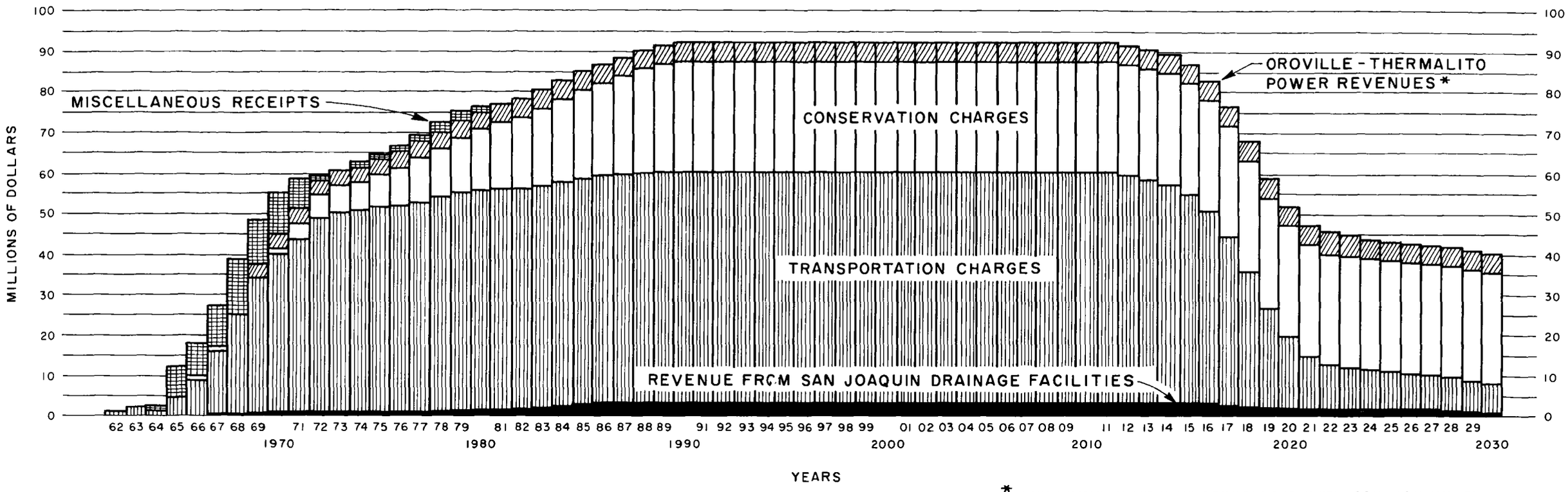
ANNUAL CAPITAL EXPENDITURES

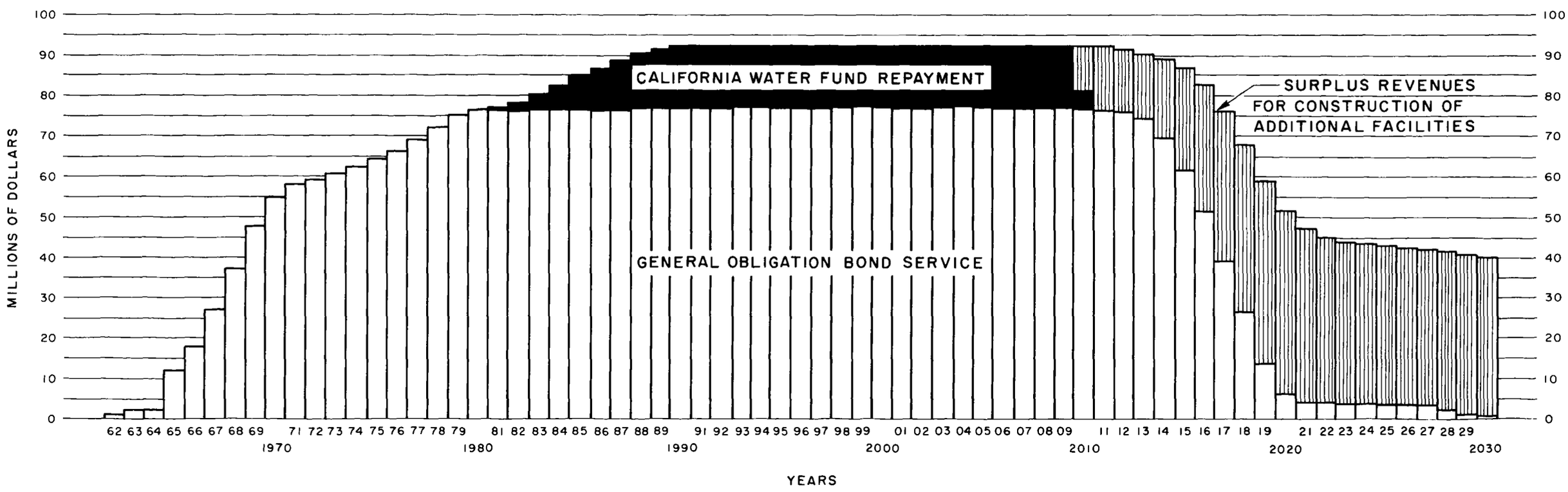


FINANCING OF CAPITAL EXPENDITURES



NET OPERATING REVENUES



*EXCLUDING REVENUES ASSOCIATED WITH 400,000 KW OF GENERATION RESERVED FOR COVERAGE OF REVENUE BONDS

APPLICATION OF NET OPERATING REVENUES