

SAN DIEGO COUNTY
WATER AUTHORITY



FIFTEENTH ANNUAL REPORT
1961

SAN DIEGO COUNTY WATER AUTHORITY

FIFTEENTH
ANNUAL REPORT
of Authority Operations

For

Fiscal Year Ending June 30, 1961

Richard S. Holmgren
General Manager and Chief Engineer

SAN DIEGO, CALIFORNIA

1961

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SAN DIEGO COUNTY WATER AUTHORITY

Member Agencies, Date of Entry and

Representatives on Board of Directors on June 30, 1961

Cities

Escondido..... Oct. 9, 1950..... Lloyd M. Mitchell
 National City..... June 9, 1944..... Charles G. Kerch
 Oceanside..... June 9, 1944..... Robert A. Weese
 San Diego..... June 9, 1944..... Paul Beermann
 Morton J. Cohn
 John A. Donnelley
 Fred A. Heilbron
 George R. Henderson
 C. Hap Halliday
 George Kerrigan
 H. Fred Landgraf
 Fred W. Simpson
 Arthur C. Wells

Irrigation Districts

Helix..... June 9, 1944..... Harry Griffen
 Wm. G. Sloan
 San Dieguito..... Dec. 13, 1948..... Charles W. Hales
 Santa Fe..... Dec. 13, 1948..... R. E. Badger
 South Bay..... Nov. 3, 1952..... Lloyd L. Lee
 (Includes City of Chula Vista, an independent
 member agency, from June 9, 1944 to Nov. 3, 1952)

Municipal Water Districts

Bueno Colorado... June 11, 1954..... Hans H. Doe
 Carlsbad..... June 16, 1954..... Mac Carnohan
 Olivenhain..... July 25, 1960..... Clarke R. Thomas
 Otay..... Oct. 26, 1956..... Lawrence C. Kuebler
 Poway..... April 21, 1954..... David R. Shepardson
 Rainbow..... April 10, 1954..... Guy C. Earl, Jr.
 Ramona..... August 27, 1957..... John E. Langan
 Rincon del Diablo.. June 14, 1954..... Charles A. Crytser
 Rio San Diego..... June 7, 1956..... Charles C. Price
 (Includes Lakeside I. D., an independent member
 agency from June 9, 1944 to June 7, 1956)
 Valley Center..... May 9, 1955..... Wm. C. Jordan

Public Utility District

Fallbrook..... June 9, 1944..... Franz R. Sachse

OFFICERS OF BOARD OF DIRECTORS

1960-61



Chairman
 Fred A. Heilbron
 San Diego
 7-44 to 6-61



Secretary
 Hans H. Doe
 Bueno Colorado
 Municipal Water District
 6-54 to 6-61



Vice Chairman
 R. E. Badger
 Santa Fe
 Irrigation District
 9-57 to 6-61



Treasurer
 Harry Griffen
 Helix
 Irrigation District
 7-56 to 6-61

EXECUTIVE OFFICERS



Richard S. Holmgren
 General Manager and
 Chief Engineer



W. H. Jennings
 General Counsel

BOARD OF DIRECTORS

1960-61

For Officers, see Page 5



Paul Beermann
San Diego
2-53 to 6-61



Baylor Brooks
San Diego
5-54 to 10-60



Donald Burnham
San Diego
5-54 to 10-60



Mac Carnohan
Carlsbad Municipal
Water District
12-59 to 6-61



Herbert H. Carter
Ramona Municipal
Water District
10-57 to 3-61



Morton J. Cohn
San Diego
3-61 to 6-61



Vice Chairman
W. Ray Coyle
South Bay
Irrigation District
6-53 to 3-61



Charles A. Crytser
Rincon del Diablo
Municipal Water District
6-54 to 6-61



John A. Donnelley
San Diego
4-61 to 6-61



Guy C. Earl, Jr.
Rainbow Municipal
Water District
12-58 to 6-61



Harold C. Foster
Otay Municipal
Water District
5-60 to 1-61



Charles W. Hales
San Dieguito
Irrigation District
6-58 to 6-61



G. R. Henderson
San Diego
10-55 to 6-61



C. Hap Holliday
San Diego
6-59 to 6-61



Wm. C. Jordan
Valley Center
Municipal Water
District
3-61 to 6-61



C. P. Kane
Valley Center
Municipal Water
District
2-59 to 3-61

BOARD OF DIRECTORS

1960-61

(Continued)



Charles G. Kerch
National City
5-57 to 6-61



George Kerrigan
San Diego
9-53 to 6-61



Lawrence C. Kuebler
Otay Municipal
Water District
2-61 to 6-61



H. Fred Landgraf
San Diego
10-55 to 6-61



John E. Langan
Ramona Municipal
Water District
4-61 to 6-61



C. A. Larsen
San Diego
5-59 to 1-61



Lloyd L. Lee
South Bay
Irrigation District
4-61 to 6-61



Lloyd M. Mitchell
Escondido
12-56 to 6-61



Charles C. Price
Rio San Diego
Municipal
Water District
7-58 to 6-61



Franz R. Sachse
Fallbrook Public
Utility District
10-56 to 6-61



David R. Shepardson
Poway Municipal
Water District
4-54 to 6-61



Fred W. Simpson
San Diego
7-44 to 6-61



Wm. G. Sloan
Helix
Irrigation District
11-59 to 6-61



Clarke R. Thomas
Olivenhain
Municipal Water
District
8-60 to 6-61



Robert A. Weese
Oceanside
3-53 to 6-61



Arthur C. Wells
San Diego
2-53 to 6-61

COMMITTEES OF THE BOARD

June 30, 1961

ENGINEERING AND OPERATIONS

Paul Beermann, Chairman
Robert A. Weese, Vice Chairman
R. E. Badger
Mac Carnohan
Hans H. Doe
Charles W. Hales
George R. Henderson
Lawrence C. Kuebler
Lloyd L. Lee
Wm. G. Sloan
Clarke R. Thomas

FINANCE AND INSURANCE

Arthur C. Wells, Chairman
Harry Griffen, Vice Chairman
Morton J. Cohn
Charles A. Crytser
John A. Donnelley
C. Hap Holliday
George Kerrigan
H. Fred Landgraf
John E. Langan
Lloyd M. Mitchell
Charles C. Price

LEGAL AND CLAIMS

Franz R. Sachse, Chairman
David R. Shepardson,
Vice Chairman
Mac Carnohan
Morton J. Cohn
John A. Donnelley
Guy C. Earl, Jr.
C. Hap Holliday
Chas. G. Kerch
George Kerrigan
H. Fred Landgraf
Arthur C. Wells

EXECUTIVE OFFICERS AND OPERATING STAFF

General Manager and Chief Engineer..... Richard S. Holmgren
General Counsel..... William H. Jennings
Assistant Chief Engineer..... Allen H. Jones
Controller..... Charles L. Royer
Treasurer..... Harry Griffen
Executive Secretary and Asst. Treasurer..... Dorothy D. Miller
Superintendent, Maintenance and Operation..... Joseph E. Lester

WATER PROBLEMS

Hans H. Doe, Chairman
Geo. R. Henderson, Vice Chairman
R. E. Badger
Paul Beermann
Charles A. Crytser
Harry Griffen
Fred A. Heilbron
Wm. C. Jordan
Lloyd L. Lee
Lloyd M. Mitchell
Franz R. Sachse
Fred W. Simpson

ORGANIZATION, PERSONNEL AND PUBLIC RELATIONS

Fred W. Simpson, Chairman
David R. Shepardson, Vice Chairman
Guy C. Earl, Jr.
Charles W. Hales
Charles G. Kerch
Lawrence C. Kuebler
John E. Langan
Charles C. Price
Wm. G. Sloan
Clarke R. Thomas
Robert A. Weese

LANDS AND RIGHTS OF WAY

Lloyd M. Mitchell, Chairman
Chas. G. Kerch, Vice Chairman
Harry Griffen
Wm. C. Jordan
H. Fred Landgraf
Franz R. Sachse
David R. Shepardson

*Dedication Exercises at Terminal
Structure - Olay Reservoir*



Board of Directors
San Diego County Water Authority
B u i l d i n g

Gentlemen:

Transmitted herewith is the Fifteenth Annual Report of Authority activities for fiscal year ending June 30, 1961.

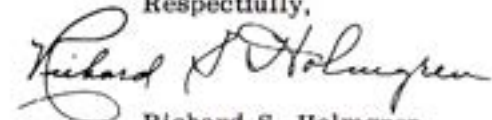
As anticipated, the boundaries of the Authority continued to expand, as reflected in an increase of over 100,000 acres to a total of 650,943 acres. Also, the population residing within this area increased to over 1,000,000 persons for the first time. The area served by the Authority extends from the Riverside County line to the Mexican border, with an assessed valuation of taxable property in excess of 1,442 million dollars. A new district, the Olivenhain Municipal Water District, was annexed to the Authority during the fiscal year, increasing the number of member agencies to nineteen.

The outstanding activity which occurred during the fiscal year was the completion of the Second San Diego Aqueduct, dedicated to the service of the people of the County of San Diego December 1, 1960. Completion of the aqueduct at this time was most opportune, since the prevailing drought conditions for the last seventeen years continue unbroken. The additional supply of water enabled the Authority to meet all consumer demands, which would not have been possible had the aqueduct not been completed at this time. A new delivery peak was reached during the fiscal year, with a total of 198,257 acre feet having been delivered.

With the combined capacity of the First and Second San Diego Aqueducts, the Authority now has the ability to import water at a rate of 450 cubic feet per second, capable of delivering 320,000 acre feet annually if operated to full capacity throughout the year. The Authority has ample capacity to meet the demands of its agencies until northern water is scheduled for delivery to this area.

Careful attention has been given and assistance provided wherever possible to furthering the State Water Plan for bringing Northern California water to Southern California. Funds have been provided for this project by the sale of \$1.75 billion in bonds, approved in a statewide vote November 8, 1960. The inhabitants of the County of San Diego can look forward to the future, assured that ample water will be available to meet its ever-increasing growth.

Respectfully,



Richard S. Holmgren
General Manager and Chief Engineer

December 1, 1961

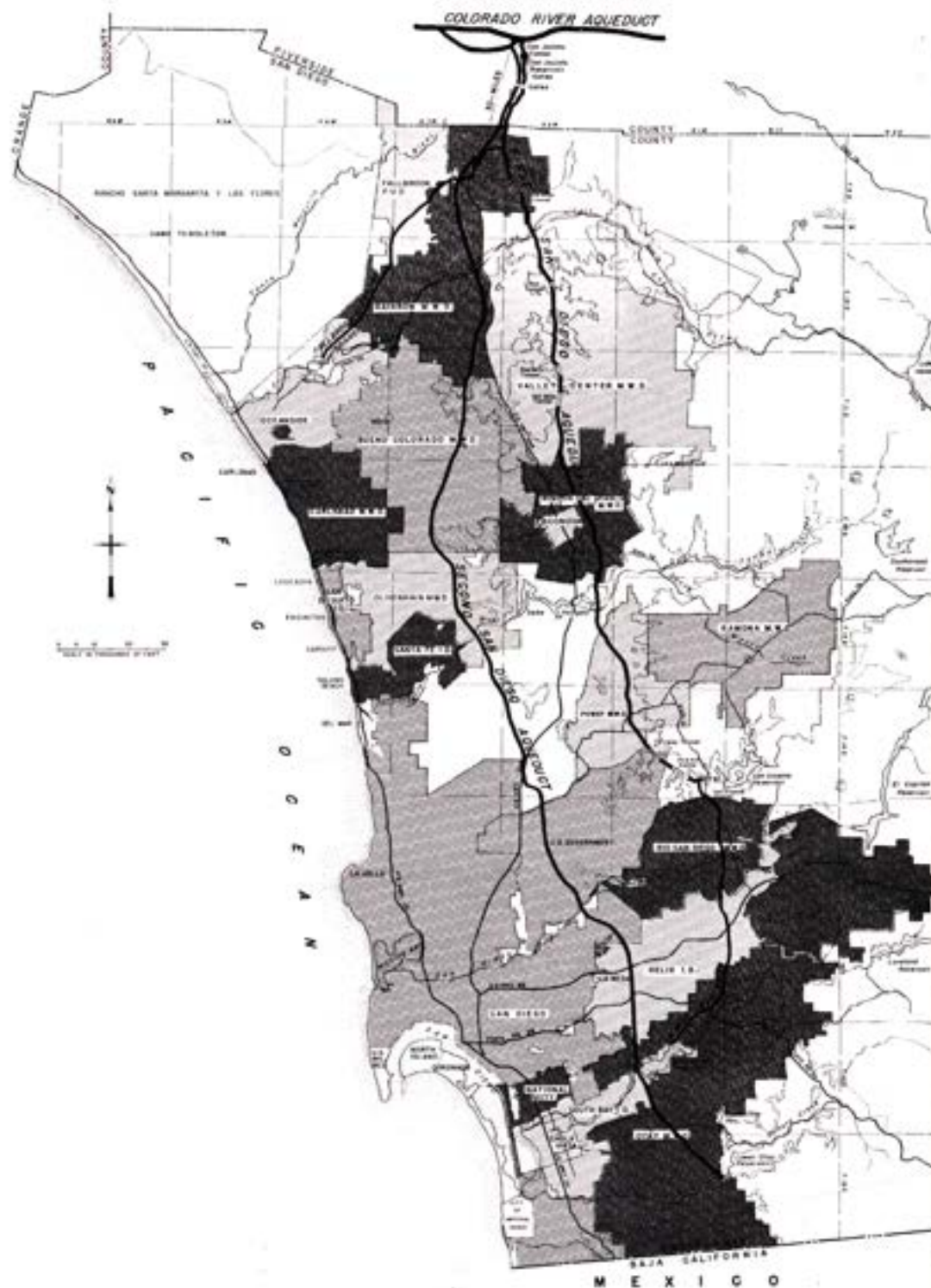


Figure A. Authority area within San Diego County

AUTHORITY HIGHLIGHTS IN BRIEF

	1960-61	1959-60	Percent Change
GROWTH OF AREA			
Number of Agencies	19	18	
Total Area—Acres	650,943	543,606	+19.7
Population	1,015,500	956,400	+ 6.2
Assessed Valuation	\$1,443,958,940*	\$1,259,627,500	+14.6
OPERATIONS			
Water Imported by Authority—ac. ft.	198,257	142,241	+39.4
Water Production of Agencies—ac. ft.	205,540	186,115	+10.4
Local Water Used—ac. ft.	22,940	59,532	-61.5
Authority Water Used—ac. ft.	182,600	126,583	+44.3
Miles of Pipe Line	161	161	0
Miles of Patrol Roads Maintained	49	48	+ 2.1
Number of Service Connections ..	37	25	+48.0
Number of Employees	26	54	-51.9
FINANCIAL			
Receipts:			
Water Revenue	\$ 3,209,224	\$ 2,587,025	+24.1
Other Revenue	791,869	864,345	- 8.4
Taxes	1,590,959	1,412,428	+12.6
Expenditures:			
Operation and Maintenance ...	\$ 173,170	\$ 164,082	+ 5.5
Purchase of Water	2,960,274	2,049,840	+44.4
New Construction	316,892	13,320,753	-97.6
Payments on Outstanding Debt	1,089,208	1,029,208	+ 5.8
Total Investment in Plant:			
Total Fixed Assets	\$ 90,142,643	\$ 85,412,294	+ 5.5
Long-Term Obligations	64,235,028	65,482,143	- 1.9

*Includes \$1,644,000 Assessed Valuation for Olivenhain M. W. D.

SAN DIEGO COUNTY WATER AUTHORITY

REPORT OF ACTIVITIES

FISCAL YEAR 1960 - 61

ADMINISTRATION

Board of Directors

The affairs of the Authority are administered by a Board of Directors, membership of which consists of a minimum of one representative appointed from each of the Authority's nineteen member agencies, with an additional representative thereafter for each \$90 million of assessed valuation.

At present there are twenty-nine Directors serving on the Authority's Board of Directors, with two member agencies being represented by more than one Director; namely, the Helix Irrigation District which has two representatives, and the City of San Diego which has ten.

Director Fred A. Heilbron continues to serve as Chairman of the Board of Directors, which office he has held for the last seventeen years, or since formation of the Authority in 1944. The office of Vice Chairman was held by Director W. Ray Coyle, who represented the South Bay Irrigation District, until his untimely death on March 4, 1961. Director Ray E. Badger was elected by the Board to fill this office. Director Hans H. Doe continues to serve as Secretary of the Board, which office he has held for the last five years.

The Committee system is practiced by the Board in handling much of the detail of its activities. Most matters coming before the Board are generally referred to an appropriate committee for study, and recommendation for action is then made to the Board for consideration prior to taking action.

There are five standing committees; namely, Engineering and Operations, of which Director Paul Beermann is Chairman; Finance and Insurance, of which Director Arthur C. Wells is Chairman; Legal and Claims, of which Director Franz R. Sachse is Chairman; Organization and Personnel, of which Director Fred W. Simpson is Chairman; and Water Problems, of which Director Hans H. Doe is Chairman.



Conference on Aqueduct Location: Chairman Heilbron, Vice Chairman Coyle, General Manager and Chief Engineer Holmgren and Secretary Doe

During fiscal year ended June 30, 1961 six Board membership changes occurred, with one additional Director being appointed to the Authority Board of Directors. Director Lloyd L. Lee was appointed by the South Bay Irrigation District on March 7, 1961 to fill the unexpired term created by the death of Director Coyle. Directors J. A. Donnelley and Rabbi Morton J. Cohn succeeded Directors Baylor Brooks and Donald C. Burnham, respectively, as representatives from the City of San Diego. Director John E. Langan succeeded Director Herbert H. Carter as representative from the Ramona Municipal Water District. On March 9, 1961 Mr. William C. Jordan was appointed by the Valley Center Municipal Water District to fill the unexpired term of Director C. P. Kane, who resigned from the Authority Board. Director Lawrence C. Kuebler succeeded Director Harold C. Foster as representative from the Otay Municipal Water District. Mr. Clarke E. Thomas became a member of the Board on August 18, 1960 as a representative from the newly annexed Olivenhain Municipal Water District, the nineteenth member agency of the Authority.

Administrative Staff

No change occurred in the Authority's administrative staff during the fiscal year. Mrs. Dorothy D. Miller, Executive Secretary of the Board of Directors for the past twelve years, is planning to retire July 31, 1961.

On July 14, 1960 the Board approved the hiring of the firm of Griffenhagen-Kroeger, Inc. to make a study of the administrative affairs of the Authority. The firm rendered its report to the Board on December 15, 1960, which in general commended the administrative activities of the Authority. The most serious problem found by the firm was the multiplicity of administrative ordinances, in many cases conflicting and indefinite in delegation of authority. The Board referred the report to a special committee for review and report back to the Board, with Director Lloyd C. Mitchell as Chairman.

At the end of the fiscal year the committee, together with the General Manager and Chief Engineer and the General Counsel, was in the process of preparing an administrative code, under which the Authority can more efficiently operate, for adoption by the Board of Directors.

Employee Relations

With completion of the Rainbow Chlorination Station in March of 1961, construction of the Second San Diego Aqueduct and its pertinent facilities were completed, releasing a large number of persons employed on the construction project. At this time the number of personnel employed by the Authority is twenty-six, seven of whom have been with the Authority in excess of ten years. The low personnel turnover is an exemplification of good employee relationship and working conditions. The Authority maintains a contract with the California Physicians Service at its expense, under which all employees are members, receiving substantial medical and hospital benefits. By contract with the State of California, employees are also members of the State Retirement System, which provides substantial benefits to retiring members. Holidays, both federal and state, together with annual and sick leaves, are generously provided for by the Board.

Public Relations

Since the scarcity of water in Southern California and the means being taken by the Authority to overcome this scarcity have always been a subject of vital interest to the citizenry and industry of this area, members of the Board and the Staff consider it a privilege to relate the activities and plans of the Authority for meeting the water problems of this area, speaking to service clubs and group gatherings when requested. In considering future plans for this area, special emphasis has been placed upon the activities of the State of California, by which surplus Northern California water will ultimately be delivered into Southern California to supply the anticipated growth of this area.

It has been the policy of the Authority Staff and Board members, as well as The Metropolitan Water District of Southern California, of which the Authority is a constituent member agency, to acknowledge all requests for information as to existing water conditions in Southern California and future sources of supply. Mainly, these requests are from students in schools and colleges and from group members, who are generally preparing papers on the subject of water supply, or preparing for a public speech.

In addition to many public appearances of the Staff and Board members, a number of films has been made available to the public--one in particular, The Colorado River Life Line, has been

SAN DIEGO COUNTY WATER AUTHORITY

enthusiastically received by many interested groups. This film was prepared by the Metropolitan Water District, and it depicts the formation and growth of the District system to date, including the work accomplished under the District's \$220 million expansion program. The film dramatizes the long, hazardous route over which Colorado River water is ultimately received.

Annually the Authority Board sponsors a number of inspection trips over the District's Colorado River Aqueduct system as guests of the District. Interesting sections of the San Diego Aqueduct are also visited. By this means key persons are kept informed on the tremendous and intricate installations required by the District to provide water to the Authority area, and what the Colorado River means to the County of San Diego.

Members of the Authority Board and Staff publicly urged support of Proposition One on the November 1960 ballot, which would authorize the issuance of \$1,750,000,000 in state bonds for construction of a state water project. Proposition One was approved throughout the State of California with a 1.06 to 1 majority vote, with the County of San Diego voting 4.1 to 1 in favor of the bond issue.

The Authority is a member of the Six-Agency Committee, composed of six Southern California agencies for the purpose of protecting the rights of these agencies to Colorado River water. The Authority contributes two percent of all funds expended for this purpose. These funds are administered by the Colorado River Board, of which Authority Director Fred W. Simpson is Chairman and the Authority is a member.

The newspapers, both local and county, continue to function as a medium for water news. Numerous well-written articles concerning the Authority and its activities have been published this year.

GROWTH OF AUTHORITY

Area

A total of 107,257 acres was annexed to the Authority during the year for a combined total area of 650,943 acres. The increase resulted primarily from the inclusion of three large areas. The Olivenhain Municipal Water District, with a total acreage of 24,260

GROWTH OF AUTHORITY

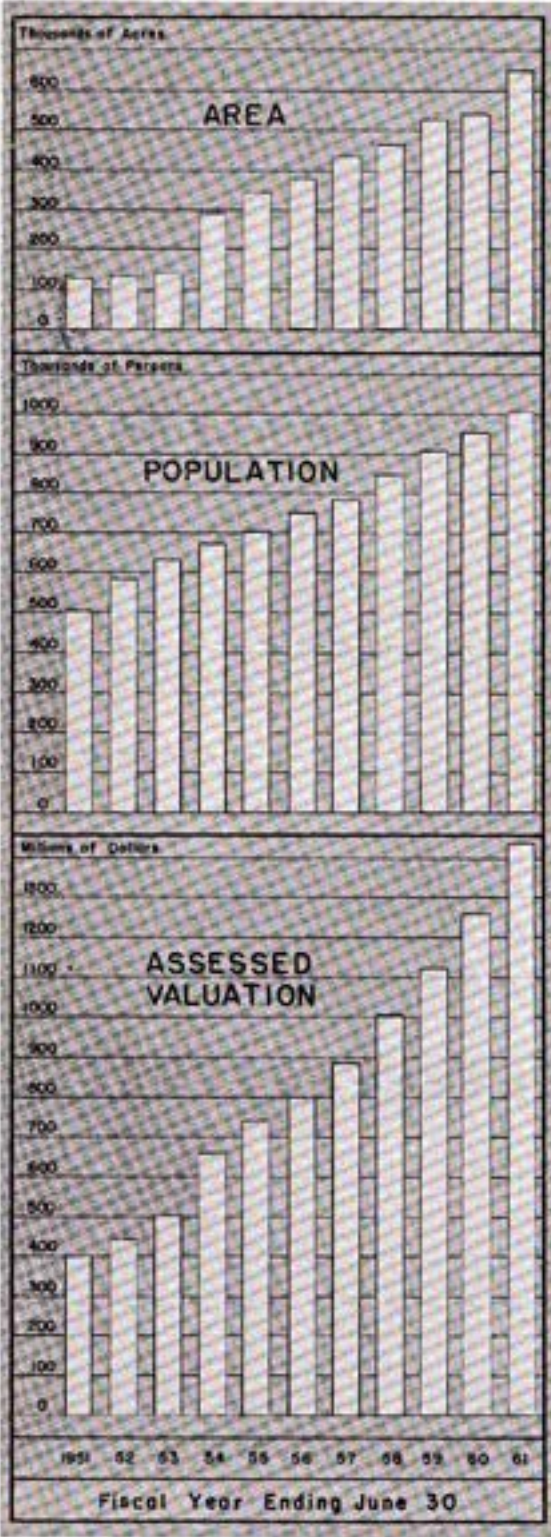
acres, became the nineteenth member agency of the Authority. A total of 26,650 acres was annexed by the Rio San Diego Municipal Water District, which included the Alpine, Harbison Canyon and Suncrest areas. A total of 28,043 acres was annexed by the City of San Diego, consisting primarily of the Camp Elliott area and the lands lying directly westerly thereof, between Camp Elliott and the former City boundaries. Smaller areas were annexed to a number of Authority member agencies.

The area of Authority member agencies extends along the coastal plain of San Diego County, from the Riverside County line to the Mexican border and inland a maximum of 32 miles, in several instances becoming contiguous to the Cleveland National Forest. The area lying within the boundaries of the Authority represents 23.9 percent of the area within the County and approximately 72 percent of the County area lying west of the mountain divide and sloping toward the Pacific Ocean, as shown on Figure A.

There are within the boundaries of the Authority several overlapping areas. These are lands annexed to a member agency and later annexed to a second member agency in order to better serve that particular area with water. These overlapping areas lie within the boundaries of the City of Escondido and the Rincon del Diablo Municipal Water District; the City of Oceanside and the Carlsbad, Bueno Colorado and Rainbow Municipal Water Districts; the City of National City and the South Bay Irrigation District; the City of San Diego and the Helix Irrigation District; the South Bay Irrigation District and the Otay Municipal Water District. The acreage involved in these overlapping areas is 10,554 acres, of which 5,623 acres lie within the City of San Diego and the Otay Municipal Water District. These overlapping areas will ultimately be excluded from the District which does not serve the area with water.

The area of each member agency and its percentage of the entire Authority area are shown in Table 1.

The smallest member agency in area continues to be the City of Escondido, totaling 4,340 acres. The largest is the City of San Diego, totaling 153,870 acres, representing 23.64 percent of the entire Authority area.



As of June 30, 1961 the Board of Directors had informally approved the following requests for concurrent annexation to the Authority: The Rincon No. 2 Annexation, consisting of 803 acres lying south of the present district area and north of Lake Hodges; the Ramona No. 2 Annexation, consisting of 9,200 acres, lying southerly of the present district; the Ramona No. 3 Annexation, consisting of two parcels of land totaling 2,265 acres, lying northerly and easterly of the present district boundaries; and the concurrent annexation of the proposed Yuima Municipal Water District to the Authority, which, when annexed, will be the twentieth member agency of the Authority. The proposed Yuima District includes 14,800 acres, located in the upper San Luis Rey River Valley, northeast of the Valley Center District.

The Authority's Statement of Change of Boundaries for 1960, required by state law to be filed by the Secretary of the Board of Directors prior to February 1, 1961, was filed with the State Board of Equalization January 30, 1961; the County of San Diego January 27, 1961; and The Metropolitan Water District of Southern California January 27, 1961. The annual certificate enumerates all changes made in the

GROWTH OF AUTHORITY

boundaries of the Authority, either by annexation or exclusion, forming the basis of Authority tax levies, set by the Assessor of San Diego County.

Population

The population residing within the area of the Authority dating back to 1946 and the member agencies as of 1961 are shown in Tables 2 and 3. These tables show that a population increase of 59,100 occurred during the past year, resulting in an estimated total of 1,015,500 persons residing within the County Water Authority. This figure shows that 91 percent of all persons residing within the county live within the boundaries of the Authority. More than half of the population residing within the boundaries of the Authority, a total of 588,000 persons, live in the City of San Diego. The Olivenhain District, annexed this year, has the smallest population of any member agency--only 280 persons. The City of National City has the highest density of population -- 4,221 persons per square mile, whereas the Olivenhain District has only 7 persons per square mile, the lowest density within any of the member agencies. Average density in the area of the Authority as a whole dropped substantially during the year, from 1,126 to 998 persons per square mile. This resulted from the large areas of undeveloped and uninhabited land annexed during the year.

Assessed Valuation

The assessed valuation of taxable land and improvements, used by the Authority for its tax purposes, is that determined by the Assessor of San Diego County. The assessed valuation for each member agency was certified to the Authority by the County Auditor in August of 1960, forming the basis for the tax levy of the Authority for fiscal year 1960-61. A tabulation showing the assessed valuation as so certified, compared with that of the previous year, is shown in Table 4.

As shown in Table 4, the total assessed valuation of land lying within the boundaries of the Authority as of February 1, 1960 is \$1,442,314,940, an increase of about \$182.7 million, or 14.5 percent from that of the previous year. However, in spite of this substantial increase in total assessed valuation, again due to the annexation of large areas of undeveloped low-valued land and government lands such as Camp Elliott, which are not now on the tax roll, the average assessed valuation per acre dropped from \$2,317 to \$2,216.

SAN DIEGO COUNTY WATER AUTHORITY

The greatest percentage increase occurred in the Otay District where the total assessed valuation increased to \$15,511,560, an increase of 149 percent over the \$6,229,360 of the previous year. The lowest increase of only 1.4 percent occurred in the Rincon District, due in part to the loss of taxable lands annexed by the City of Escondido.

The assessed valuation of taxable property lying within the boundaries of each member agency of the Authority as of February 1, 1961 was certified to the Authority by the Acting Auditor of San Diego County in August of 1961. For reference the assessed valuations so determined have been included in Table 4. Again, these figures show a substantial increase during the year to \$1,567,210,470 in assessed valuation of taxable property lying within the boundaries of the Authority. This is an increase of \$124.9 million or 8.7 percent. This increase is only about one-half that of the previous year, reflecting a slowing down of construction activities within the County. The 1961-62 figures show that 94 percent of the assessed valuation of taxable property lying within the County now lies within the area of the Authority.

WATER SUPPLY AND CONSUMPTION

Water Supply and System

The Authority delivers Colorado River water only to its member agencies. This water is made available to the Authority by The Metropolitan Water District of Southern California as a member agency of that District. Metropolitan receives its water from the Colorado River by right to 1,212,000 acre feet per year. In addition, the District has contracted with the State of California for 1,500,000 acre feet of Feather River water per year with delivery estimated to begin in 1970, bringing the total combined Metropolitan water supply to 2,712,000 acre feet per year. The Authority has a preferential right in the total water supply of Metropolitan, as set forth in the District Act.

Water is delivered to the Authority at the District's delivery point, six miles south of the Riverside-San Diego County line, through the District's portion of the First and Second San Diego Aqueducts. The First San Diego Aqueduct, with a design capacity of 180 c.f.s., has delivered as much as 196 c.f.s. for substantial

WATER SUPPLY AND CONSUMPTION

periods of time throughout the year.

The Second San Diego Aqueduct has a design capacity of 250 c.f.s. To date it has carried not more than 170 c.f.s., so that its actual operating capacity is unknown. Therefore, there is a combined minimum capacity of 446 c.f.s. available for delivery to the Authority by the District. On a continuous delivery basis this will make possible an importation of about 320,000 acre feet of water annually, about 122,000 acre feet in excess of that delivered during fiscal year 1960-61.

Rights of way for construction of the first pipeline of the Second San Diego Aqueduct were acquired sufficient in width to permit construction of a second pipeline, anticipating the time when such a pipeline will be constructed, estimated to be sometime in the mid-1970's.

A total of 198,257 acre feet of water was received from the Metropolitan Water District during the fiscal year, with a maximum and minimum monthly take of 20,178 acre feet in July of 1960 and 9,114 acre feet in February of 1961. The total and average flow for each month are shown in Table 5.

Water Deliveries and Rates

The Authority delivered water each month of the year to its member agencies with the exception of the newly annexed Olivenhain Municipal Water District. During the latter part of the fiscal year delivery was made to the Olivenhain District for the purpose of testing portions of its distribution system. A small amount of water was also discharged through a blowoff into the San Luis Rey River and carried in the stream bed to an intake located a short distance downstream for relief of shortage in that area. A monthly breakdown of deliveries to Authority member agencies is shown in Table 5.

Total Authority deliveries to its member agencies amounted to 188,662 acre feet for the fiscal year, varying in monthly flows from a maximum of 20,240 acre feet in July of 1960 to a minimum of 9,060 acre feet in February of 1961, with the City of San Diego taking 88,323 acre feet, or 47 percent of the total Authority deliveries.

A total of 1,367,184 acre feet of water has been delivered to

SAN DIEGO COUNTY WATER AUTHORITY

Authority member agencies since 1947, when the Authority began delivery of water, divided as shown in Table 6. The greatest quantity delivered occurred in fiscal year 1960-61, 20 percent greater than in fiscal year 1959-60, the previous high year.

The Authority continues to deliver water through its system to two governmental agencies for the Metropolitan Water District under contract. The agencies receiving the contract water are the State Forestry Camp, which lies in the hills east of Rainbow, and the Convair Missile Testing Facility, located in Sycamore Canyon on land owned by the United States Government. The total amount delivered is small, totaling only 115 acre feet during the entire year.

The Authority water rate continues to be fixed at \$2.00, above the rate charged by the Metropolitan Water District. The Authority receives only untreated Colorado River water. From July to December of 1960, inclusive, the Authority's rate for untreated Colorado River water was \$17.00 per acre foot, which was increased to \$19.00 on January 1, 1961. The Metropolitan Water District allowed a rebate of \$3.00 per acre foot on water used for agricultural purposes for the first six months of the year, later increasing its rebate for agricultural water by \$1.25 to \$4.25 per acre foot. Justification for the reduced rates results from a determination that water used for agriculture is surplus water and therefore interruptible. The rates for untreated water used for domestic and municipal purposes were increased \$2.00 per acre foot on January 1, 1961. The District notified its constituent members that in the next fiscal year the rate for domestic and municipal water will be further increased by \$2.00 on January 1, 1962, which will result in a \$21.00 per acre foot water rate for Authority deliveries. The rebate for agricultural use of water will increase by \$1.25 to \$5.50 per acre at that time.

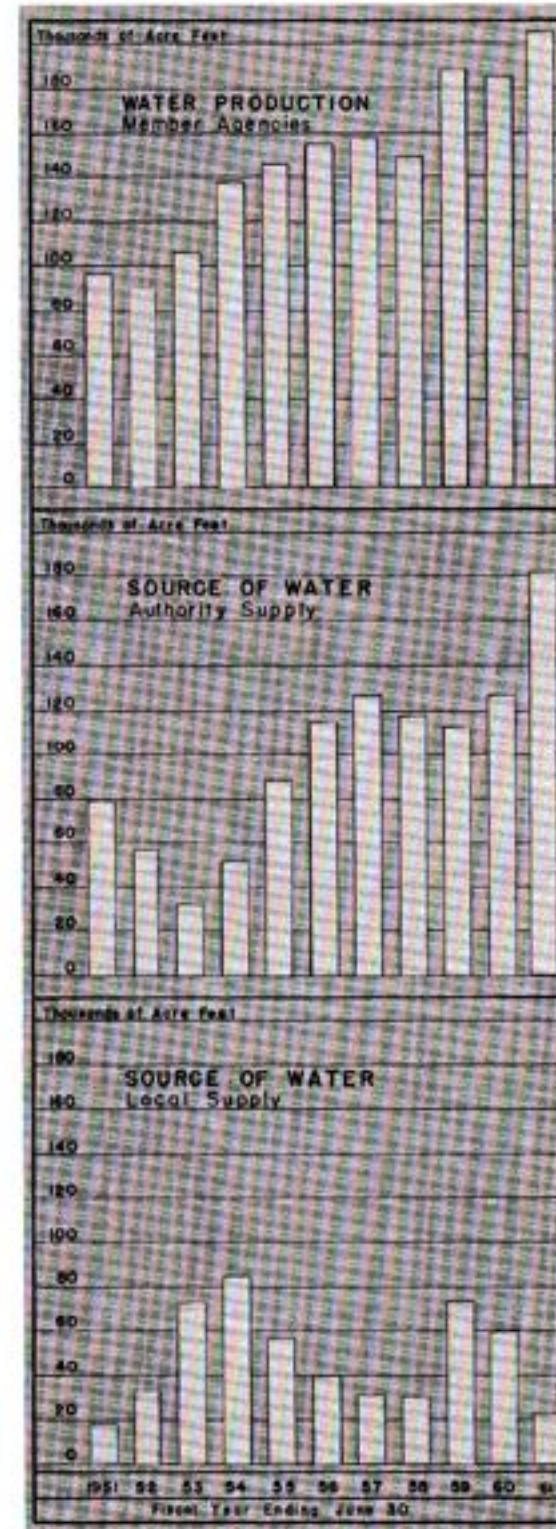
Water Production of Member Agencies

Water production of a member agency is the quantity of water produced by that agency to meet its consumer demands, together with the losses occurring in its transmission and distribution systems. Included are waters obtained from all available sources, such as water from local wells, water diverted from impounding reservoirs on local streams, in which runoff is stored for future use, and water received from the Authority system.

The annual water production of each member agency of the Authority for the past eleven years is shown in Table 7. The total combined water production during fiscal year ending 1961 was 205,540 acre feet, an increase of about 10 percent above production of the previous year. A substantial increase was recorded by each member agency, not including Otay and Olivenhain Districts, where distribution systems are being installed. The largest percent increase in water production occurred in the Valley Center District, from 1,358 acre feet to 2,124 acre feet per year, or an increase of 56 percent.

Of the 205,540 acre feet of water produced by the agencies, only 22,940 acre feet were obtained from local sources. This is substantially below the heretofore assumed safe yield of local sources, estimated at about 90,000 acre feet annually. This deficiency resulted mainly from local supplies having been badly overdrawn in recent years. However, since the present dry period is apparently more severe than the 1896-1904 period, which has been used heretofore for safe yield determination, a reduction in safe yield will probably result if recomputed from records of this period.

The amount and percentage of local water and Authority



SAN DIEGO COUNTY WATER AUTHORITY

water produced by each member agency are shown in Table 8. Of the total water produced, 88.8 percent was obtained from the Authority system. Table 8 shows that the following six agencies--Olivenhain, Otay, Poway, San Dieguito, Santa Fe and Valley Center Districts--did not have a supply of local water, depending entirely on the Authority for water. The agency using the smallest percentage of Authority water was the Rincon del Diablo Municipal Water District, which was able to obtain 30.7 percent of its requirement from local sources, primarily from Lake Henshaw and Lake Wohlford storage, obtaining 69.3 percent from the Authority.

Of the 650,943 acres of land lying within the boundaries of the Authority, it is estimated about 249,620 acres are at present served with water. The balance represents lands not yet reached by the agencies' distribution systems, or lands too rugged for development. On the basis of area served, rounded out to include roads, parks, and areas with water available and now in use, the gross water production per acre is 0.80 of an acre foot per acre per year, varying from a high of 1.22 acre feet in the Fallbrook District, the City of San Diego and the South Bay areas, to a low of 0.08 in the Otay District, where development of its distribution system is just commencing.

On the basis of population, the average production in the area of the Authority is 0.20 of an acre foot per year, varying from a maximum of 2.92 acre feet per capita in the Rainbow District to a minimum of 0.09 of an acre foot in the Ramona District. A determination of water production per acre and per capita for each member agency is shown in Table 9.

The wide difference in use per capita among the agencies results from the extent of agricultural activities within the agencies. The County of San Diego ranks high in the United States as an agricultural county, and much of the water produced by the member agencies is used for that purpose. The Metropolitan Water District has established a reduced rate for surplus water used for agricultural purposes, definable as growing crops on areas in lands in excess of one acre for the commercial market.

A breakdown showing water used for agricultural purposes, if any, is shown in Table 10. It will be noted that 32 percent of all water produced by Authority member agencies was used for agricultural purposes.

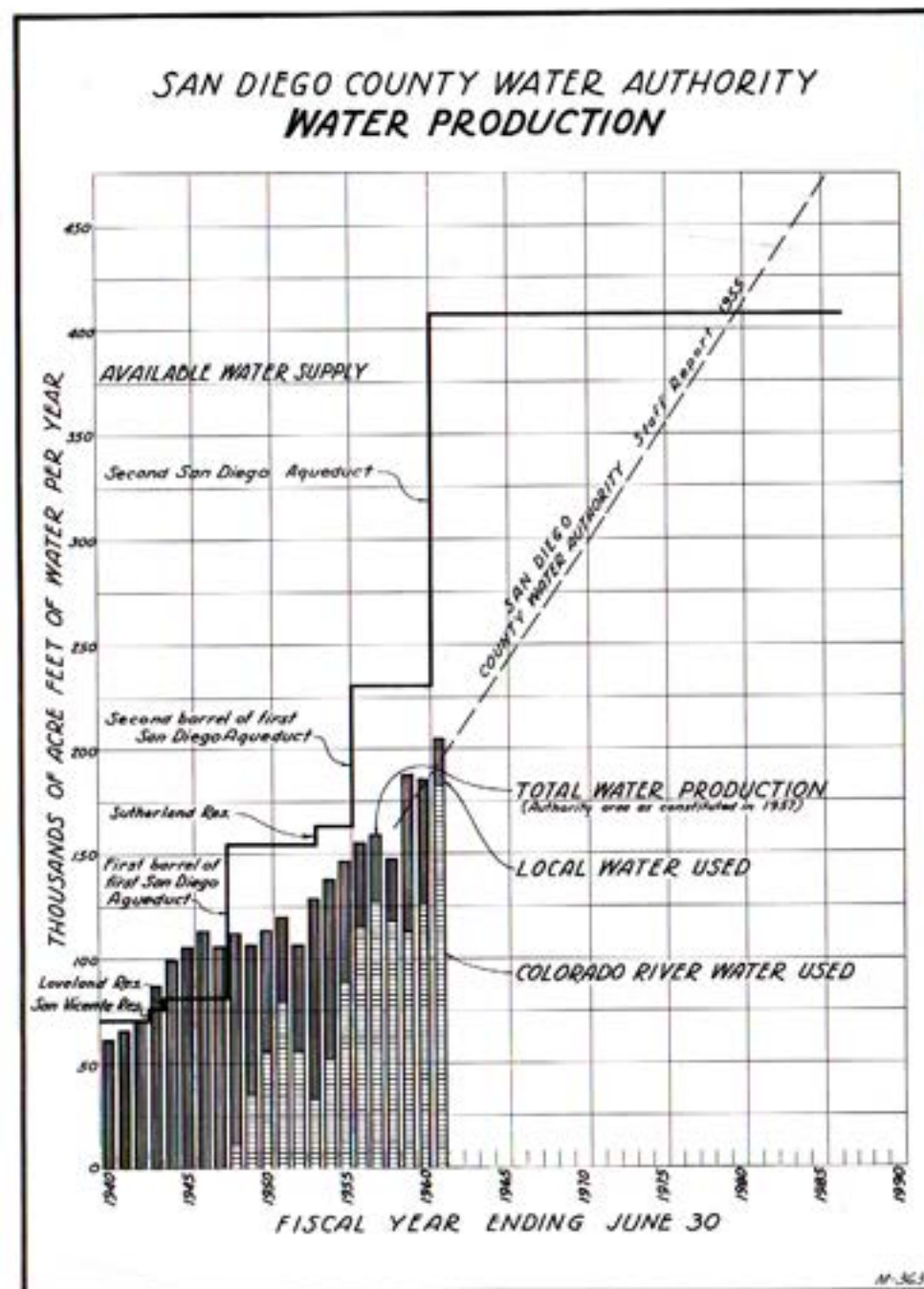


Figure B. Water Production of Authority Member Agencies

Facilities

The Authority system consists of the First and Second San Diego Aqueducts and two Branch Lines. The Authority's portion of the First Aqueduct begins at a point six miles south of the San Diego-Riverside County line, terminating in the San Vicente Reservoir. The Authority's portion of the Second Aqueduct also begins at a point six miles south of the San Diego-Riverside County line, terminating in the Otay Reservoir, both reservoirs owned by the City of San Diego. The Fallbrook-Oceanside Branch Line take-off extends southwesterly from the First Aqueduct at Rainbow, terminating at the City of Oceanside. The La Mesa-Sweetwater Branch Line take-off extends southerly from the First Aqueduct at Slaughterhouse Canyon, terminating in the Sweetwater Reservoir, owned by the California Water and Telephone Company.

The Authority does not own any storage facilities. Deliveries from its system to its member agencies are made on an as ordered basis, with a sufficient time allowance required between water ordered and delivery to permit the Metropolitan Water District to increase or decrease deliveries into the San Diego Aqueducts at its diversion points as required to meet the Authority's requests.

By agreement with the City of San Diego, the Authority has the privilege of storing up to 20,000 acre feet of water for its member agencies in the City's San Vicente Reservoir, the terminus of the First San Diego Aqueduct. Water is stored to an agency's account only when requested by the agency. Deliveries to agencies of water stored in the reservoir are made on an in-lieu-of basis, whereby delivery is diverted to an agency from current aqueduct flow, and equivalent water is delivered from reservoir storage to the agency for which the diverted flow was on order, usually the City of San Diego. The Authority pays the City of San Diego \$2.20 per acre foot per year for the maximum amount of water in storage during the year, plus the cost of pumping the water from the reservoir, agreed as being 50 cents per acre foot on the amount transferred to the City. Evaporation losses on Authority stored water is assumed by the Authority. These costs are passed on to the agencies having water stored to their accounts on a prorata basis. The agreement prohibits the Authority from storing water in the reservoir if the space is needed by the City of San Diego. Should heavy runoff occur and the reservoir fills to capacity, the first water over the spillway

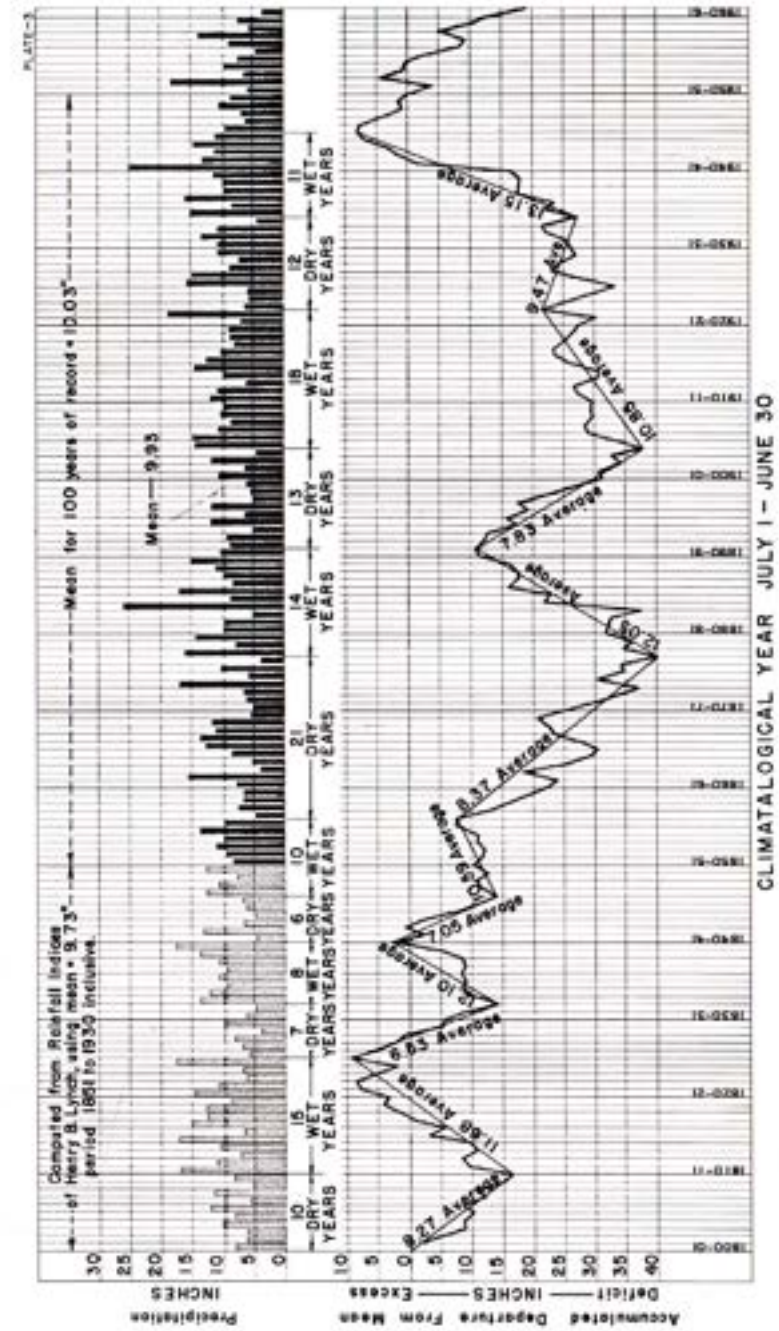


Figure C. Rainfall Record at San Diego, California

SAN DIEGO COUNTY WATER AUTHORITY

will be that stored by the Authority. A total of 10,556 acre feet of water was placed in storage to Authority member agency accounts, distributed among ten agencies as indicated in Table 11.

The Authority also has an agreement with the City of San Diego, under which it has the privilege of storing up to 2,500 acre feet of water in the Lower Otay Reservoir, the terminus of the Second San Diego Aqueduct. This agreement is for operational purposes only and does not provide storage capacity for the member agencies. Under this agreement, the Authority must annually pay the City of San Diego the sum of \$1.00 per acre foot for the maximum amount of Authority water stored in the reservoir during any 12-month period, or part thereof, with a minimum annual charge of \$1,000.00 for use of the reservoir capacity, and the City agrees to take stored water in lieu of direct delivery whenever the Authority has water stored in the reservoir. The Authority also agrees to pay the City pumping charges on a sliding scale for in-lieu stored water, based on the elevation of the reservoir at the time the water is transferred to the City. The cost ranges from \$2.25 per acre foot at minimum reservoir elevation to \$1.50 at maximum reservoir elevation, depending on the water elevation at the time the transfer is made.

Water Quality

The Metropolitan Water District maintains a laboratory at La Verne, California, at which periodic samples of current flow taken at San Jacinto and various points throughout the District system are analyzed.

Tables 12 and 27 give a chemical breakdown of the samples taken at San Jacinto, point of delivery to the Authority's First Aqueduct. The total hardness of water delivered to the Authority expressed as p. p. m. of Ca CO₃ varied from a low of 318 in September of 1960 to a high of 337 in June of 1961, with an average of 328 p.p.m. Monthly water temperature readings are also given in this table, showing the usual fluctuation from 51^o Fahrenheit in February to 82^o Fahrenheit in August.

Chlorination

The Authority chlorinates water solely for the purpose of preventing deposits of bacteriological slime from accumulating within the pipes of the aqueduct. Such accumulation would result in a reduced carrying capacity of the aqueducts. The Authority does not

WATER SUPPLY AND CONSUMPTION

attempt to meet any of the requirements of the State Health Department by chlorinating for a potable water, this being the obligation of its member agencies after receiving delivery from the aqueducts.

In the past years the Metropolitan Water District has done a great deal of research on how to prevent deposits of slime-forming organisms on the interior of its pipelines. This research indicates that intermittent chlorination twice weekly in rather large quantities is probably the best method of preventing formation of these deposits.

A new chlorination station has been constructed by the Authority at Rainbow Gap, adjacent to the three pipelines which comprise the two San Diego Aqueducts. The station is a reinforced concrete structure, housing two Wallace & Tiernan 5,000-pound chlorinators and one evaporator, and is ample to meet the current intermittent operation of the Authority. Space has been provided for the installation of additional equipment when the Second Aqueduct is completed to design capacity, capable of continuous chlorination, should the Authority adopt a policy of continuous chlorination. The station was placed in operation in April 1961, and since that date has functioned satisfactorily on an intermittent basis.

Allocation of Water Among Member Agencies

Under the Authority Act each agency has a preferential right to the water supply of the Authority in proportion to the taxes received from the agency compared to the total taxes received from all agencies. In computing an allocation, the Authority includes unpaid annexation charges, together with the taxes already paid by the agency. The allocations arrived at by this procedure for all member agencies of the Authority are shown in Table 13.

It will be noted that the City of San Diego has by far the largest right, equivalent to 65.21 percent; and the Helix Irrigation District, with a right of 10.25 percent, has the second largest right. The smallest right of any member agency is that of the Olivenhain Municipal Water District, which has only 0.12 percent.

The above method of allocation is also used as a basis for dividing water available for storage in San Vicente Reservoir, or for dividing pipeline capacity when the demands cannot be met. All

deliveries are made on the basis of need. Allocations, based on preferential right, are invoked only when the demand for water by the agencies exceed the capacity of the Authority to deliver.

Future Supplies

As indicated on Figure C, the existing drought conditions in this area have not abated. Many of the safe yields of local supplies, when figured for the past 15 years, will be substantially reduced from the safe yields based on the 1896-1904 period.

Since completion of the Second San Diego Aqueduct and appurtenant structures on March 24, 1961, the Authority has had sufficient capacity to meet all annual demands placed upon it, with sufficient capacity to meet peak summer flows for several years, provided the present drought is broken. With the replenishment of local supply, it is thought that demands upon the Authority by its member agencies can be met until late 1970's as shown on Figure B. Studies made by the Metropolitan Water District indicate that its Colorado River supply will meet the needs of its constituent member agencies, including the Authority, until the early 1970's.

In view of the above determinations, there must be made available to the Authority an additional water supply sometime in the early part of the 1970's. It is thought that water from the State of California's Feather River Project, by Metropolitan Water District-State of California contract, will be available to the Authority in 1972.

OPERATION AND MAINTENANCE

Maintenance Headquarters

The Authority system consists of two aqueducts, two branch lines and a large number of patrol and access roads, all maintained by the maintenance crew, located at 660 West Fifth Avenue, Escondido, California, approximately the center of the Authority system.

The Authority maintains a service crew of 11 men at its field headquarters in Escondido. The residence of the superintendent, who is on call 24 hours a day, together with the various repair and storage buildings, are also located there. It is from this location that the patrolmen and maintenance crew work the entire system.

Patrol and Inspection of Aqueducts

The aqueduct system consists of 126 miles of pipeline--a portion of which is double barreled; appurtenant structures--housing blowoff valves; air valves; manholes and open vents. Deliveries to member agencies are made through service connections, varying in capacities from 2 c.f.s. to 180 c.f.s. When requested by an agency, changes are usually made by the patrolman during his regular trip over the line.

A thorough examination of the entire aqueduct system is made twice annually. Patrolmen observe all equipment, structures and indications of erosion and leaks. Because of the rugged terrain on certain stretches of the system, the patrolmen cannot travel by car. At these locations, inspection is continued on foot.

Maintenance of System

The first concern of the maintenance crew is to be certain that access roads to all parts of the system are available at any time of the year and in any kind of weather. This means that the 90 miles of patrol roads, all of which are gravel surfaced, must be passable--particularly in wet weather when there is danger of washouts which could cause serious delays. To maintain usable patrol roads at all times, it is necessary that the crew strive constantly to improve the grades, surface, and drainage structures.

The maintenance crew continues to service all Authority equipment at its Escondido headquarters--such as mechanical, construction and automotive.

SECOND SAN DIEGO AQUEDUCT PROJECT

Construction of the San Diego Aqueduct, which was designed to carry Northern California water, was completed November 30, 1960. At the present time the Authority receives only Colorado River water.

An attractive and informative brochure was prepared for use at the dedication exercises. The following pages from the brochure indicate some of the problems which have confronted the Authority since the date of its inception; and that they have been met and solved, as will those of the future, by the high integrity of the men who constitute the Authority.

DEDICATION PROGRAM

Thursday, December 1, 1960 - 11:00 A. M.

BAND SELECTIONS **NAVAL TRAINING CENTER BAND**
Director, Chief Band Master Frederick O. Le Grande

INVOCATION **THE REVEREND FRANCIS E. COOK**
First Methodist Church, Chula Vista

OPENING REMARKS **W. RAY COYLE**
Program Chairman

INTRODUCTIONS **FRED A. HEILBRON**
Chairman of the Board of Directors,
San Diego County Water Authority

FEATURES OF SECOND AQUEDUCT **RICHARD S. HOLMGREN**
General Manager & Chief Engineer
San Diego County Water Authority

ROBERT B. DIEMER
General Manager and Chief Engineer,
Metropolitan Water District

REMARKS **FRANK A. GIBSON**
Chairman, Board of Supervisors,
San Diego County

JOSEPH JENSEN
Chairman, Metropolitan Water District

HARVEY O. BANKS
Director, State Water Resources Board

WILLIAM E. WARNE
Director, Department of Agriculture
(Will succeed Harvey O. Banks January 1)

HONORABLE EDMUND G. BROWN
Governor, State of California

UNVEILING OF PLAQUE *Fred A. Heilbron
*Arthur H. Marston
*Fred W. Simpson
*William H. Jennings
*Charter Directors
San Diego County Water Authority
Organized 1944

ADJOURNED TO BUFFET LUNCHEON Courtesy of Contractors

GENERAL CONTRACTORS

Young and Anderson Co. E. A. Irish, Contractor Foster-Marsch Corporation

PIPE MANUFACTURERS

American Pipe and Construction Co. Consolidated Western Steel Co.
Kaiser Steel Co. United Concrete Pipe Corp.



SAN DIEGO COUNTY WATER AUTHORITY
ORGANIZED JUNE 9, 1944
COMMEMORATING THE COMPLETION OF THE SECOND SAN DIEGO AQUEDUCT
NOVEMBER, 1950

DEDICATED TO THE SERVICE OF THE PEOPLE OF SAN DIEGO COUNTY WATER AUTHORITY
FOR THE DELIVERY OF WATER FROM THE COLORADO RIVER, THE FEATHER RIVER
AND NORTHERN CALIFORNIA TO INSURE THE FUTURE GROWTH OF THE AREA
AND THE WELFARE AND PROSPERITY OF THE PEOPLE

WITHOUT WATER WE CEASE TO EXIST

COST: \$30,000,000 LENGTH: 60 MILES
CAPACITY: INITIAL-100,000 ACRE FEET PER YEAR ULTIMATE-360,000 ACRE FEET PER YEAR

BOARD OF DIRECTORS

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SAN DIEGO	RAYLOR BROOKS	SAN DIEGO	C. A. LARSEN
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FALLBROOK PUBLIC UTILITY DISTRICT FRANK R. SACHSE

DIRECTORS WHO SERVED DURING A PORTION OF CONSTRUCTION
D. MATLAND BAKERWELL, RALPH E. BARDEN, CHARLES R. CONSIDINE, WILLIAM B. DENNIS,
JOSEPH F. HALEY, TOM HARRINGTON, R. M. LEVY, ARTHUR W. MARSTON, JACK E. MOLEAN,
WILLIAM W. ROGERS, T. FRANKLIN SCHNEIDER

RICHARD S. HOLMGREN
GENERAL MANAGER AND CHIEF ENGINEER

JOHN D. HIGG	ALLEN H. JONES	JAMES P. LARRET
PROJECT ENGINEER	ASSISTANT CHIEF ENGINEER	DESIGN ENGINEER
WILLIAM H. JENNINGS	HARRY L. HALL	CHARLES L. ROYER
GENERAL COUNSEL	TREASURER	CONTROLLER

GENERAL CONTRACTORS
YOUNG AND ANDERSON CO. - E. A. IRISH, CONTRACTOR - FOSTER - MARSCH CORPORATION

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AMERICAN PIPE AND CONSTRUCTION CO. - CONSOLIDATED WESTERN STEEL CO.
KAISER STEEL CO. - UNITED CONCRETE PIPE CORP.

"CIVILIZATION BEGAN AT THE SPRING;
THE HISTORY OF MAN IS THE STORY OF WATER;
THE STORY WILL END WHEN THE SPRING RUNS DRY."

"CIVILIZATION BEGAN AT THE SPRING;
THE HISTORY OF MAN IS THE STORY OF WATER;
THE STORY WILL END WHEN THE SPRING RUNS DRY."

The San Diego County Water Authority is in its 17th year of operation. Through the years it has successfully carried out the objective for which it was organized—that of bringing Colorado River water into San Diego County—first, by building the First and Second Barrels of the First Aqueduct at a cost of approximately 31 million dollars and now the Second Aqueduct, at a cost of 30 million dollars.

The San Diego County Water Authority in planning to build the Second Aqueduct was looking to the future and planning ahead to provide for our water needs well in advance of the time when additional supplies would be required, with the objective of having this project serve as an integral part of the State Water Plan.

The Aqueduct which we are dedicating today is, in fact, the Southern End of the Feather River project, and will one day carry Northern California water. Believe it or not, the State of California is not spending one dime in San Diego County. The State project ends at Perris Reservoir, in Riverside County.

The building of these great projects for importing a vital and necessary water supply has resulted in the miraculous growth and prosperity of this entire area. This result has been accomplished only with the support and wholehearted cooperation of the people of San Diego County. Their faith and confidence in the men who have through the years served on the Board of Directors has made possible the successful completion of the Second Aqueduct.

On behalf of the Board of Directors, may I take this opportunity to express our appreciation and thanks to all of the people for their support and cooperation in helping to make this project a success, and to the staff and employees of the Water Authority who have faithfully and loyally carried out the policies of the Board of Directors, and also to the staff of The Metropolitan Water District, and its Board of Directors for their support and cooperation in building the northern portion of the Aqueduct in Riverside County.

FRED A. HEILBRON
*Chairman of the Board
San Diego County Water Authority*

The growth of the San Diego County Water Authority has paced that of the county in assets, in service and in plans. Without the CWA this semiarid land would have remained dry and without industry.

Local sources of water always have become inadequate to meet the local demand. With authorization of the California Legislature, the CWA was activated in June 1944 for the purpose of developing resources outside the county.

The success of its activities can be judged by these figures: In 1944, all developed water resources by organized agencies in San Diego County yielded 78,000 acre-feet a year far less than needed.

In 1958-59, the Authority had facilities to bring in 142,000 acre-feet a year from the Colorado River. With the completion of the 94-mile Second Aqueduct—canal, steel and reinforced concrete pipe—the Authority can transport an additional 250 second feet or 180,000 acre feet a year. The Metropolitan Water District built the northern 25 miles of this aqueduct. The CWA, with its own staff, designed, contracted for and supervised construction

of the remaining 59 miles, at a cost of about \$30 million. No outside engineering firms were used.

In 1944 the population served by the authority and its ten original members totalled about 400,000. Today there are 19 agencies, serving approximately a million people. Land area has grown from 94,000 acres in 1944 to 595,650 today.

Assessed valuation of land within the boundaries of the Authority was approximately \$270 million in 1944. It is \$1,442,314,940 today.

Without water none of this would have been possible.

We are certain that history will repeat itself in the future: that more and more people will move here, bringing more industry and new demands for additional water.

The augmented supply represented by this new pipeline will serve us until we can carry out plans to develop and share additional sources. These plans have been started, for we know that without ample water now and tomorrow, San Diego County, like a landlocked pond will stagnate and die.

RICHARD S. HOLMGREN
General Manager and Chief Engineer

"CIVILIZATION BEGAN AT THE SPRING;
THE HISTORY OF MAN IS THE STORY OF WATER;
THE STORY WILL END WHEN THE SPRING RUNS DRY."

Since the days of the Padres, there always have been problems in connection with water for the agriculture, industry and residents of this area.

After Father Serra established California's first mission in the San Diego River valley, water was needed for orchards, vineyards and fields of grain, but there were no legal problems when the missionaries built a dam in Mission Gorge and channeled water into the area closer to the coast.

That dam long since has fallen into disuse, but it met the needs of the day.

In the days before the CWA was organized, there was a fear that a county-wide organization would seize all local resources, and channel it to a favored few. This fear resulted eventually in the enabling act's provisions restricting the Authority to developing a water supply from outside the county.

This is why the Authority's original activity in the early 40's was to evaluate two source studies: whether it would be best to build a link to the Metropolitan Water District's Colorado River Aqueduct, or construct a mountain crossing to the Imperial Valley's All-American canal.

The Federal Government's war-time decision to build a connection with the MWD aqueduct brought a parallel decision that the CWA look to the MWD

for a permanent supply of water.

The problems have been many and varied: how to transfer the entitlement of the City of San Diego to the CWA; how to continue with the aqueduct construction after the war, when the Navy and Federal Government lost interest; how to legally arrange annexation of, or provide service to, several types of agencies — cities, irrigation districts, water districts, public utility districts, private agencies and foreign communities.

There were problems of converting the organization authorized by the Legislature into a going agency that could obtain water, supervise construction, distribute water, contract with other agencies. There were problems associated with elections, and with legislation on state and Federal levels.

All these have been accomplished, without a single serious litigation.

We have built solidly. There still are problems, and there will be in the future. But we have become one of the state's most important water organizations, have helped establish legal precedents, and have grown in experience, know-how, financial stability and public confidence.

On these foundations we can build for the future.

WILLIAM JENNINGS
General Counsel

Public exercises commemorating completion of the 60-mile aqueduct were held at the Second Aqueduct terminal structure, located in the County's Otay Park. Approximately 800 persons attended, most of whom were concerned with water supply. A large number of State and County officials attended the exercises, several of whom addressed the audience. Music was furnished by the local United States Naval Band. An excellent buffet luncheon was provided by the project contractors and pipe suppliers. The Authority's Chairman of the Board, Director Fred A. Heilbron, officiated as Master of Ceremonies.

A complete account of the Second Aqueduct construction activities to June 30, 1961 was recorded in the Authority's Fourteenth Annual Report. At that time three sections of the aqueduct and much of the fourth had been completed.

At the beginning of the fiscal year all concrete pipe had been laid, except for 800 feet in the vicinity of Central Avenue in Spring Valley, with 1,060 feet of the steel pipe remaining to be laid across Sweetwater Gorge.



*Second Aqueduct
Activities*



By August all of the concrete pipe had been laid, but some delay was experienced in laying the steel pipe sections, due to a national concrete strike, which prevented the Authority from securing delivery of premix concrete to construct the heavy anchor blocks as enclosures for the steel pipe across the Sweetwater River channel. On October 18, 1960 the last section of the steel pipe was placed, and all that remained to be done was some minor cleanup work.

A Certificate of Completion was filed by the Authority with the Recorder of San Diego County on February 8, 1961. On that date the Authority assumed responsibility for the operation and maintenance of Section 4, thereby assuming operation and maintenance of the entire Second San Diego Aqueduct.

CHLORINATION STATION PROJECT

As reported in the Fourteenth Annual Report, a contract in the amount of \$97,805 was awarded to Pascal and Ludwig, Inc., for construction of a chlorination station at Rainbow Gap, the most feasible site for serving the First and

*Pipe Laying on
Second Aqueduct*

CHLORINATION STATION PROJECT

Second Aqueducts. The contract price included construction of a concrete building, all piping within the building, and the connecting piping to the three pipelines.

As of July 1, 1961 the concrete walls of the sub-structure were completed, and the structure was ready for the pouring of the main floor slab. All of the concrete work had been completed by October, and the building was then ready for the installation of the piping and equipment, which was completed on February 16, 1961. The installation of the six nozzles by the Metropolitan Water District, referred to in the Fourteenth Annual Report, was completed in November.

On February 20, 1961 the station was placed in operation. Immediately trouble was encountered, due to the presence of air in the water. After experimenting to develop means of eliminating the air, at the request of the Authority the Metropolitan Water District installed a large air receiver with an air release valve on the suction line leading to the pumps, thereby successfully correcting the condition. The chlorination station was then placed in operation, with large slugs of chlorine injected intermittently twice weekly for periods of four hours each.

SERVICE CONNECTIONS

Three permanent service connections were installed on the aqueduct system during the 1960-61 fiscal year, with delivery capacities ranging from 22 to 64 c.f.s. This brings the total number of aqueduct connections to 32, ranging in capacities from 2 to 180 c.f.s. Venturi-type meters have been installed in all instances except two, one of which is a temporary installation.

Following is a brief description of the service connections installed during the fiscal year:

Fallbrook No. 5 Service Connection

This service connection is located at Rainbow, where it receives water from the Metropolitan Water District portion of the Second San Diego Aqueduct, which is discharged into the existing Fallbrook transmission line. Prior to this installation, the District transmission line carried First Aqueduct water to the Fallbrook system, but with the completion of this connection the District will



reserve its access to First Aqueduct water for emergency only. This is a joint connection which serves the Fallbrook Public Utility District, the Rainbow Municipal Water District and the Fallbrook-Oceanside Branch Line of the Authority.

The meter instrument has a capacity of 28 c.f.s., with delivery measured by a Builder's 20" x 11.4" Venturi Meter. Delivery of water is controlled by a 20-inch motor-operated Nordstrom Valve, which is activated by automatic equipment, installed in conjunction with the meter instrument, by which delivery is maintained at a set rate.

Rio No. 4 Service Connection

This service connection is located south on Mission Gorge Road where the aqueduct crosses the road. The connection will supply water to the old City of San Diego pipeline which originally delivered water from the El Capitan Reservoir to the City's University Heights Reservoir. That portion of the City pipeline lying between the installation and Lakeside was purchased by the Rio District as surplus when the City constructed a new line from Lakeside to its Alvarado Treatment Plant.

*Maintenance Crew
Constructing Service
Connections*



SERVICE CONNECTIONS

The meter instrument has a capacity of 22 c.f.s., with delivery measured by a Builder's 18" x 10.1" Venturi Meter, controlled by an 18" motor-operated Nordstrom Valve, which is activated by automatic equipment, installed in conjunction with the meter instrument, by which delivery is maintained at a set rate.

South Bay - National City Service Connection

This service connection has a delivery capacity of 64 c.f.s. It is located on the Second Aqueduct directly north of Sweetwater Gorge. The structure which houses the equipment was constructed by the Fred J. Early Construction Company, contractor for the California Water and Telephone Company's Treatment Plant. All piping was installed by the Authority maintenance crew.

Delivery to the South Bay-National City area is measured by a Builder's 24" x 16.5" Venturi Meter, controlled by a 24" motor-operated Nordstrom Valve, activated by automatic equipment, installed in conjunction with the meter instrument. This equipment permits delivery of water as requested by the District at a set rate.

Additional Service Connections

In addition to the above service connections installed during the fiscal year, the Authority is also in the process of constructing the following service connections:

1. Bueno No. 4 Service Connection, located at the upper end of Twin Oaks Valley, with a capacity of 15 c.f.s.
2. Olivenhain No. 1 Service Connection, being installed with funds deposited by the Authority and the District, this being the initial service connection for the District. The Authority is contributing a portion of the cost, the amount being determined from a formula adopted by the Board in 1954.
3. Poway No. 2 Service Connection, which replaces the Poway No. 2 Temporary Service Connection, originally installed in 1954.
4. Rainbow No. 4 Service Connection, which includes the metering and control equipment moved from the discontinued Rainbow No. 2 Service Connection.



5. Rincon No. 2 Service Connection on the First Aqueduct for temporary service, until such time as lands lying southerly to Lake Hodges are annexed by the District.

6. San Diego No. 5 Service Connection to supply water to the City's new Miramar Treatment Plant. All City area lying north of San Diego River will ultimately be served from this connection.

A more detailed description of these service connections will be given in the Sixteenth Annual Report.

LEGAL ACTIVITIES

To be certain that the activities of the Authority for fiscal year ending June 30, 1961 conformed with the Authority Act and such governmental codes as were applicable, each action was carefully reviewed by the General Counsel prior to its execution. All resolutions and ordinances adopted by the Board of Directors were prepared by the General Counsel, and any contracts entered into by the Authority were approved as to form.

*Installing Nozzle
on 68 Inch Reinforced
Concrete Pipe*

LEGAL ACTIVITIES

Rights of Way

The litigation referred to in the Fourteenth Annual Report, pertaining to acquisition of rights of way for construction of the Second San Diego Aqueduct, was completed with the exception of one or two minor cases, which action was finally abandoned.

Additional rights of way will be required for construction of access roads along the aqueduct, where the terrain is too rugged to travel by automobile. These rights of way will be acquired by the Authority staff members either by standard permanent right-of-way form or by temporary permit.

Annexations

Annexation of an area to the Authority can be accomplished by one of three procedures, all of which must be carefully observed to ascertain that all legal requirements have been fulfilled:

1. An area may become a unit member by annexing to the Authority as an independent agency. Such an area may lie within the boundaries of an existing municipality or it may be organized into an acceptable agency. The Olivenhain Municipal Water District was organized as an independent agency, and its annexation to the Authority was completed July 25, 1960. The City of Del Mar and the City of Imperial Beach requested permission to annex to the Authority, each of which was informed by the Board of Directors that annexation to the Authority as an independent member agency would be acceptable. To date no further action pointing toward ultimate annexation has been taken by either city.
2. An area may be annexed to the Authority by annexing to a member agency other than a city member. The member agency annexing the area must receive approval from the Authority and the Metropolitan Water District for concurrent annexation of the area, and meet terms and conditions set forth by the Authority and the District. A number of such annexations occurred during the fiscal year, each of which was carefully processed to meet rather stringent procedural requirements.

A variation of the above procedure of annexation, such as an area transferring from one member agency to another, is rapidly becoming more frequent. This usually occurs when the annexing agency can better serve the area with water. The Authority Board of Directors and the Boards of Directors of the two agencies involved can with the proper legal procedure, as set forth in the Authority Act, approve the transfer and retain the area within the Authority. Here again, careful legal procedure must be observed, or the area may find that it is neither in the Authority nor the Metropolitan Water District.

3. An area can automatically annex to the Authority by annexing to a city member agency of the Authority. A number of such annexations occurred by this procedure during the fiscal year to the City of San Diego, the City of Oceanside and the City of National City. The City of Escondido and the City of National City annexed areas which were already lying within the boundaries of the Authority as a part of the Rincon del Diablo Municipal Water District and the South Bay Irrigation District without exclusion from the districts, with the result that the areas became overlapping, lying within both the city and the district.

Whatever procedure is used to bring an area into the boundaries of the Authority, except by annexation to a city member agency, which automatically annexes the area to the Authority, a document is prepared which includes the transcripts of all action taken by the member agency, the Authority and the Metropolitan Water District. This document is then filed with the member agency, the Metropolitan Water District, the Assessor of San Diego County, the State Board of Equalization and in the annexation of a new member agency, with the California Secretary of State.

Proposed Agreement for Furnishing Water to Tijuana, Mexico

An inquiry from officials of the City of Tijuana, Baja California, lying directly across the border from San Diego, was made to the City of San Diego and the State of California, as to whether water could be made available to Tijuana through the Authority Aqueduct, since its water supply which originates from wells in the Tijuana River bed and the Rodriguez Reservoir, due to the prevailing

drought, have been practically depleted. The request was for temporary water, until such time as the wells and reservoir could be replenished by a more normal rainfall than has occurred in recent years. The Authority Board of Directors directed the General Counsel to determine what could legally be done by the Authority to serve the city with water.

Since the matter was international, the request of the officials was routed through the International Boundary and Water Commission of the United States and Mexico. The commission referred the matter to the City of San Diego, the Authority and the Metropolitan Water District. Working with the legal counsel of these organizations, the Commission arrived at an agreement whereby Mexican water flowing in the Colorado River could be transported through the Colorado River Aqueduct and the San Diego Aqueduct and delivered to the City of San Diego at the Otay terminus of the Authority Second Aqueduct for a total combined price of \$70.00 per acre foot. Through an additional agreement between the City of San Diego and the Commission, water was to be transported by the City of San Diego from the terminus of the Second Aqueduct to the border and there delivered to the City of Tijuana, Baja California.

On February 20, 1961, after the agreements had been approved by all American agencies concerned, they were informed by Commissioner L. H. Hewitt of the United States International Boundary Commission that the Mexican Government had decided to defer action for emergency water by way of California facilities, by which a portion of its Colorado River allocation was to have been delivered. No further action has been taken on this matter.

Legislative Action

During the State Legislature session the General Counsel kept in close contact with the Legislators from this area, informing them as to the Authority's position on all proposed legislation affecting the water supply of Southern California.

By direction of the Board of Directors, the General Counsel prepared and had introduced in the Assembly an amendment to Section 6 of the Authority Act. The amendment was passed by the Assembly but it did not come before the Senate prior to adjournment; therefore it did not become effective. Had the bill become effective, it would have raised the amount of assessed valuation of

SAN DIEGO COUNTY WATER AUTHORITY

a member agency from \$90 million to \$110 million before an additional representative of that agency could be appointed to the Authority Board of Directors.

Members of the Authority were extremely interested in S. B. 1280, which would, if passed by the Senate, amend Section 6, Paragraph 8, of the Metropolitan Water District Act, authorizing the District to fix different rates for water received from different sources.

On April 18, 1961 the Authority Board adopted a resolution approving a Memorandum of Understanding between the Water Authority and the Department of Water and Power of the City of Los Angeles (clarifying certain points of difference in the proposed legislation), both of which receive water from the Metropolitan Water District. The Memorandum of Understanding was submitted to a legislative committee at a hearing on the proposed amendment and read into the minutes of the meeting.

The following pertinent points were set forth in the Memo-randum:

- "1. The legislation is permissive only and does not require the Metropolitan Board to adopt such rates, but such adoption shall be entirely dependent upon the sound discretion of the members of the Board.
2. The two-rate price structure permitted by the legislation shall not be applied to the sale or delivery of water to any Metropolitan member until:
 - (a) Water from the State Water Development Project is physically and legally available to Metropolitan for distribution to its members, and
 - (b) Metropolitan shall have a distribution system through which it can physically deliver such water to such member.
3. Regardless of the availability of water from other sources, no member of Metropolitan should be required to pay the higher rate, if adopted, at any time when water from the cheaper source is available to Metropolitan in an amount sufficient to supply its members' uses.

LEGAL ACTIVITIES

4. The preferential right provisions of the Metropolitan Act should be amended at some subsequent legislative session to provide for the calculation of such rights, based upon each member's actual contribution, in any manner, to the District's capital costs."

Another piece of legislation affecting the Authority was the new uniform procedure in which the Code of Civil Procedure (A. B. 1412 and Chapt. 1479), which was made applicable to the judicial validation of County Water Authority bonds (A. B. 1442 and Chapt. 1505).

Contracts

All contracts entered into by the Authority are approved by the General Counsel.

Negotiations for the contract between the Metropolitan Water District and the State of California for 1.5 million acre feet of Northern California water annually were followed by the Authority and its General Counsel--even though the Authority is not a direct party to the contract. Through this contract, the Authority as a constituent member agency of the Metropolitan Water District, will receive additional water for delivery to its member agencies, thereby assuring the future growth of the Authority. This contract was entered into by the Metropolitan District and the State of California, to become effective ninety days after the adjournment of the Legislature.

FINANCIAL

As described in previous reports, the Authority's operating requirements are met primarily from sales of water to its member agencies. Requirements for contractual payments on the Authority's indebtedness to the United States Government and for service and retirement of bonded debt are provided primarily from tax levies. Receipts from the Metropolitan Water District, as its portion of contractual payments on the First Aqueduct, together with revenues from the investment of reserves and temporarily idle funds, have materially aided in minimizing such levies. Funds for construction of the Second Aqueduct have been provided from the sale of \$30,000,000 in general obligation bonds, of the \$35,000,000 authorized by the electorate July 9, 1957.

FINANCIAL

During 1960-1961 operating revenues amounted to \$3,212,612 while operating costs totaled \$2,988,267, leaving a net income of \$224,345 before depreciation and debt service expense. This represents an increase of \$54,291 (31.9%) over the same item for 1959-1960.

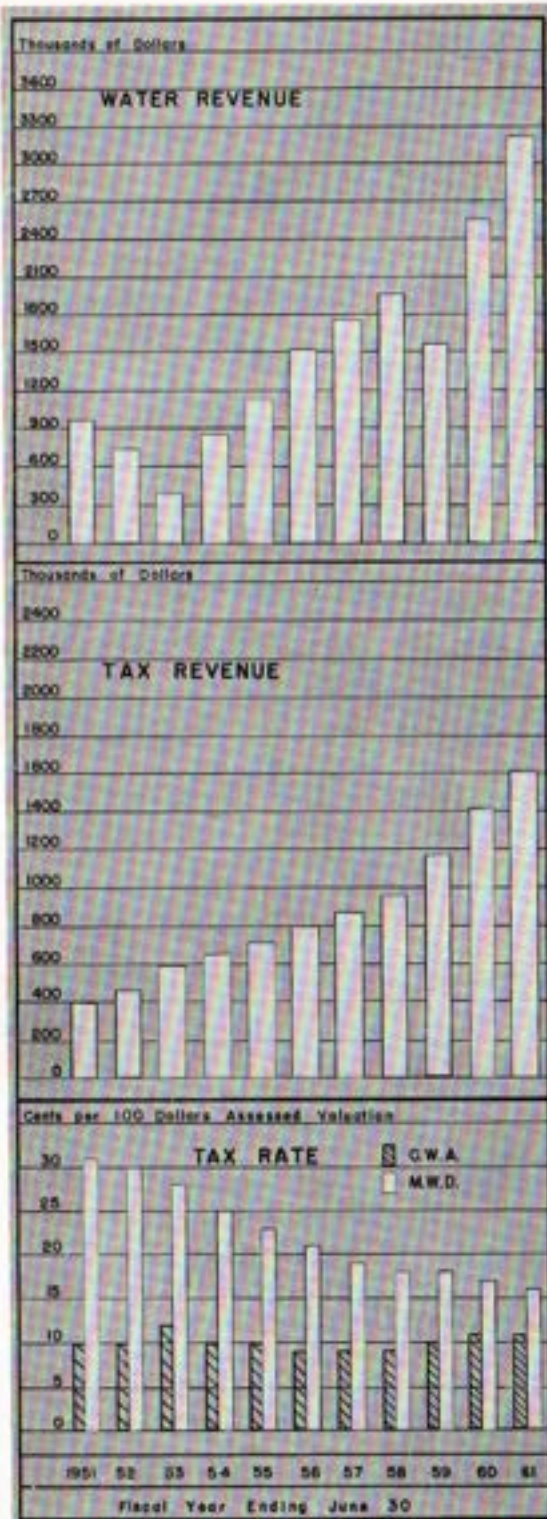
Depreciation and debt service expense during 1960-1961 amounted to \$652,529, the increase of \$174,602 over 1959-1960 being attributable to additional requirements for interest on the 1957 bond issue. Non-operating income amounted to \$176,734, which was \$28,946 less than the preceding year. This decrease occurred from (a) no tax revenues in the general fund, and (b) tax refunds on government owned personal property, in accordance with Superior Court decisions. The net result in utility operations for the year was a deficit of \$251,449, including an allowance of \$471,584 in depreciation which involved no expenditure or reduction of funds.

Cash and marketable securities at June 30, 1961 amounted to \$2,745,057, compared with \$5,772,333 at June 30, 1960, reflecting expenditures for construction of the Second Aqueduct. During 1960-1961 general fund current assets increased \$335,845, while current liabilities

increased \$124,079. Special fund assets decreased \$3,732,629, principally because of continued heavy bond fund expenditures for construction of the Second Aqueduct. Special fund liabilities decreased \$1,873,763 through final payments under construction contracts. Fixed assets increased \$1,333,564, reflecting completion of construction projects, while long-term obligations decreased \$1,247,115 through payments on outstanding debt. These changes in fixed assets and long-term obligations resulted in an increase of \$5,977,463 in the Authority's equity in fixed assets. Reserves for encumbrances decreased \$1,053,343 as contracts for aqueduct construction were completed, and reserves for debt redemption decreased \$465,443, primarily through reduction in the amount due from the Metropolitan Water District by its payments to the Authority on the First Aqueduct. Appropriated surplus decreased \$356,945, again primarily because of aqueduct construction, while unappropriated surplus increased \$228,632, primarily from utility operations. The net over-all result for the year was an increase of \$4,330,363 in the Authority's net reserves and equities.

In summary, the Authority continues to maintain a strong financial position. As stated earlier, operating requirements are financed from operating revenues. Provision for the orderly retirement of debt has been established by the Board's long-range policy previously referred to, and by the use of special funds. The Authority's financial stability is further strengthened by the maintenance of necessary and adequate reserves, the investment of which also aids in minimizing tax requirements. Decreases in reserves and balances of various special funds continue to represent principally reduction of long-term obligations, and expenditures for construction which ultimately reflect increases in fixed assets.

The Authority's accounting system conforms to the basic principles of municipal budgetary fund accounting, modified to the extent necessary to reflect the many conditions peculiar to the Authority. Accounts are maintained on the modified accrual basis; that is, revenues are recorded when earned, and expenditures and/or encumbrances are recorded when incurred, except accrued interest on outstanding indebtedness, which is payable from appropriations of the following year. All accounts have been regularly audited by the firm of Everts and Esenoff, Certified Public Accountants, whose certificate is included herein. In the report, as always, every effort has been made to present clearly and comprehensively the



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JOHN T. ORAN, C. P. A.
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Board of Directors
San Diego County Water Authority
San Diego, California

We have examined the balance sheet of the San Diego County Water Authority as of June 30, 1961 and the related statement of income and surplus for the year then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

The financial statements included in this report were prepared from accounting records kept on a modified accrual basis. In general, revenues are recorded when earned and expenditures are recorded upon incurrence of liability, except accrued interest on outstanding indebtedness, which is payable from appropriations of the following year.

In our opinion, the accompanying balance sheet and statement of income and surplus present fairly the financial position of the San Diego County Water Authority at June 30, 1961 and the results of its operations for the year then ended, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

Everts and Esenoff
Certified Public Accountants

San Diego, California
October 25, 1961

Authority's financial position and the results of its fiscal operations, and to reflect our continued conformity to the highest standards of accounting and reporting as promulgated by the Municipal Finance Officers Association and the National Committee on Government Accounting.

MEMBERSHIP IN THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Water delivered to member agencies of the Authority is that received by the Authority from The Metropolitan Water District of Southern California as a constituent member agency of that District. At present the District receives all of its water from the Colorado River through its Colorado River Aqueduct. This aqueduct diverts water from the river above Parker Dam and has a capacity of 1,650 c.f.s. It can if operated continuously carry into Southern California a total of 1,212,000 acre feet annually, the District's right in Colorado River water.

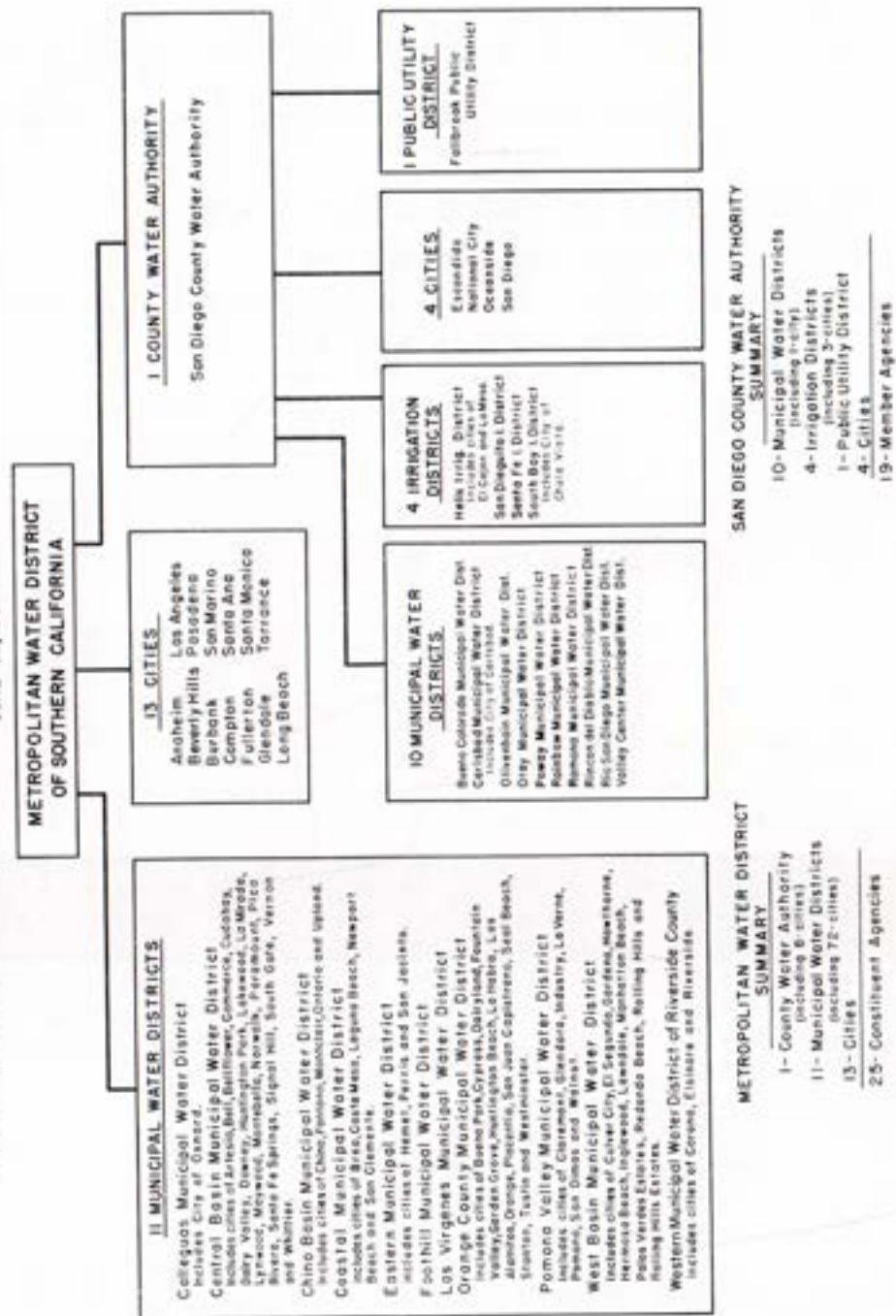
Because of the close relationship between the Metropolitan Water District and the Authority, a brief discussion of District activities seems appropriate in this report.

Government

The District Act is very similar to that of the Authority. The District is governed by a Board of Directors consisting of 43 members, which includes one representative from each constituent member agency and an additional one for each \$500 million of assessed valuation of a member agency.

The District consists of 25 member agencies, as enumerated on Figure D. Within these agencies there are a total of 93 incorporated cities. The Authority is represented on the District Board by three representatives. Mr. Fred A. Heilbron, Chairman of the Authority Board of Directors, is senior member of the Authority representation, having served on the District Board since 1946, when the Authority became a member agency of the District. He serves as Secretary of the Board of Directors, and is also a member of the Water Problems Committee, the Finance and Insurance Committee, and the Executive Committee. Mr. Richard S. Holmgren, General Manager and Chief Engineer of the Water Authority, is the second in seniority, having represented the Authority for the past eight

COMPOSITION OF THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA
JUNE 30, 1961



MEMBERSHIP IN THE METROPOLITAN WATER DISTRICT

years. Mr. Holmgren is Chairman of the Engineering and Operations Committee, and a member of the Organization, Personnel and Public Relations Committee. Mr. Hans H. Doe, Secretary of the Authority Board of Directors, is the third Authority representative, having served on the District Board for the past two years. Mr. Doe is a member of the Finance and Insurance Committee, and the Lands and Rights of Way Committee. As of June 30, 1961, the Authority had a total of 144 votes out of a combined representative total of 1382, or 10.44 percent representation. In actions taken by the Board, the votes of an agency are voted as a unit; that is, in accordance with the majority vote of the agency's delegation.

Constituent Member Agencies and Area

As indicated on Figure D, the District is composed of 25 member agencies. This includes two new districts annexed during the 1960-61 fiscal year: The Los Virgenes Municipal Water District, which is located in Los Angeles County adjacent to Ventura County, with an area of 117.0 square miles (74,880 acres), and the Calleguas Municipal Water District, located in Ventura County, with an area of 278.76 square miles (178,400 acres). The total area of these two annexations, plus that to existing member agencies, is 583.86 square miles, bringing the area served by the District to a total of 3,976.50 square miles. Of this increase, 107,257 acres, or 28.7 percent, is area annexed to the Authority. As of this date, the area served by the Authority is 1017.10 square miles (650,943 acres), or 25.6 percent of the District area.

Assessed Valuation

The assessed valuation of taxable property lying within the Metropolitan Water District as of June 30, 1961 is \$13,820,462,985. This represents an increase of \$1,106,569,395, or 8.7 percent over the previous year. During this same period the assessed valuation of taxable property in the Authority area increased \$182,678,390, or 14.5 percent over that of last fiscal year.

Water Supply

At present the entire water supply of the District is that from the Colorado River, of which the District has rights equal to 1,212,000 acre feet per year. During the past year the Colorado River Aqueduct for the first time operated much of the time at full capacity, with any water available above the needs of District member agencies for domestic and municipal use being sold as surplus at a reduced rate for underground storage and agricultural purposes.

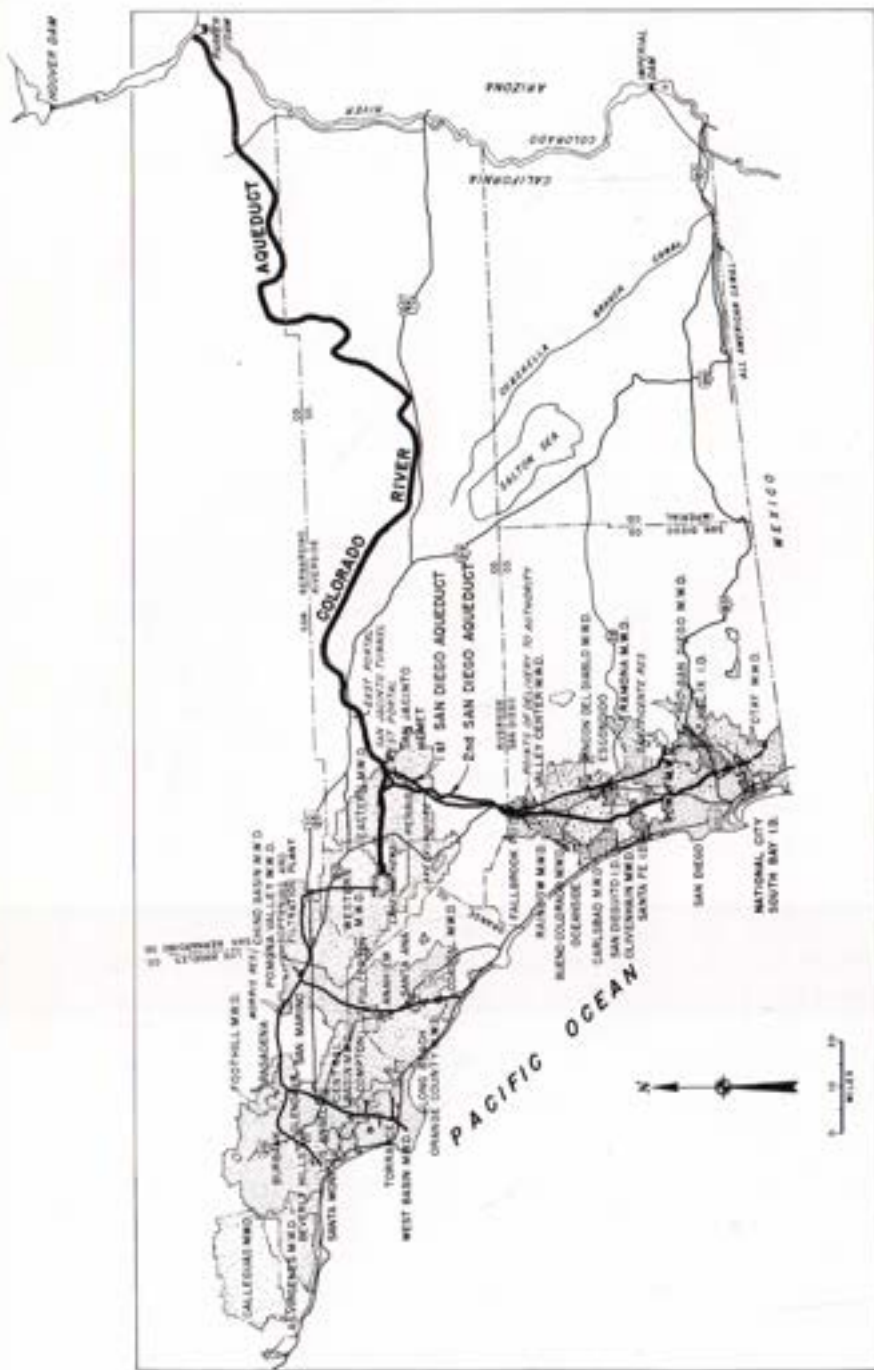


Figure E. Water Systems of Metropolitan Water District and San Diego County Water Authority

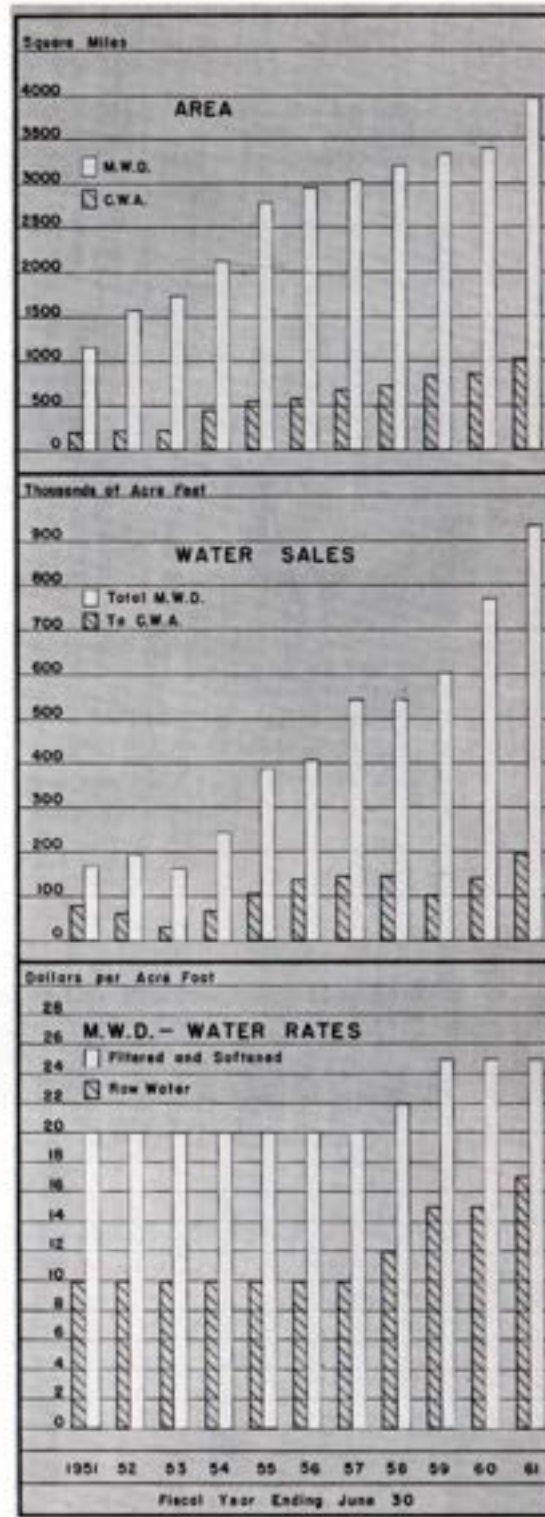
On November 4, 1960 the District entered into a contract with the State of California for delivery of water from the State Aqueduct System which is being constructed under the Burns-Porter Act, passed in 1958 by the California Legislature. Under this contract, the District will receive a total of 1,500,000 acre feet annually--the first of which will be made sometime in 1970. It is anticipated that the Colorado River supply will be sufficient to meet all domestic and municipal needs of the District member agencies until 1972, at which time water from the state project is scheduled to be available to the District.

Water Sales

A total of 929,728 acre feet of water was delivered by the District to its member agencies, of which 197,375 acre feet, or 21.2 percent, was delivered to the Authority. All water received by the Authority from the District was untreated water. A breakdown of District deliveries to its member agencies is shown in Table 26.

District Tax Rate

For the past 15 years the District tax rate has been reduced each year. The current rate is 16 cents, which represents a 34-cent decrease from the 50-cent rate in effect in 1947 when the Authority annexed to the District. The tax



rate for each year of District operation is shown in Table 28.

The combined 1960-61 tax levy of the District was \$28,400,865, of which \$2,981,119, or 10.5 percent, was levied against property lying within the boundaries of the Authority.

Included in the above levy is a special tax against districts which have annexed to the Metropolitan Water District and have elected to pay annexation charges over a period of years. As of June 30, 1961, a total of \$19,394,739 has been levied against the Authority, of which \$11,946,729 is still outstanding. The majority of areas annexed to the District have elected to pay annexation charges over a period of 30 years in substantially equal installments. Specific areas and their annexation charges are shown in Table 24.

Water Rates and Revenues

On January 1, 1961 the District base rate for untreated water was increased from \$15.00 to \$17.00 per acre foot. The rate for treated water was also increased from \$23.00 to \$25.00 per acre foot. A credit of \$4.25 per acre foot on the above prices is allowed for water used for agricultural purposes and underground replenishment.

On January 1, 1962 the base rate for untreated water will be raised to \$19.00 and on January 1, 1963 to \$21.00, with credits of \$5.50 and \$6.75, respectively, being allowed for surplus water used for agricultural water and underground storage. Treated water will be raised to \$27.00 and \$29.00 at the same time.

On September 27, 1960 the District Board passed Resolution 5821, which states that beginning January 1, 1964 at least one-half of all payments for capital charges which are not covered by revenues from annexation charges, plus all operation and maintenance costs, shall be met from revenues from the sale of water, at uniform rates to constituent members irrespective of the source or point of delivery of the water. Additional equitable surcharges shall be made to reflect the cost of any special services performed, such as the treatment of water.

Expansion Program

The District began a series of construction projects in 1952, aimed at completing the main Colorado River Aqueduct to its ultimate design capacity of 1,605 c.f.s., to meet the rapidly-growing demand for District water. This program will permit the District to bring into its area water from the Colorado River equal to its rights of 1,212,000 acre feet per year. The program included the enlargement of the five pumping stations on the aqueduct and the installation of six additional pumping units and delivery mains, bringing each station to its ultimate of nine pumping units. Parallel pipelines were installed at the siphons along the aqueduct, where a single pipe had originally been installed with one-half aqueduct design capacity.

The program also included the installation of additional pipelines and storage facilities within the distribution area. The most important of these projects is the enlargement of Mathews Dam at the terminus of the aqueduct. This work increases the storage capacity in Lake Mathews from 107,000 to 182,000 acre feet, to better meet peaking and emergency demands on the distribution system. Dedication ceremonies were held at Mathews Dam on May 10, 1961 to celebrate the completion of the work, at which almost 1,000 leading Southern California governmental, civic and business leaders were in attendance. Director Fred A. Heilbron, representing the San Diego County Water Authority, took part in the ceremonies as one of the speakers. Two bronze plaques, containing information about the dam and reservoir and the names of those who participated in the project, were unveiled. One plaque displays this inscription "BY THE VISION AND COURAGE OF THE PEOPLE IN THE METROPOLITAN WATER DISTRICT, WATER FLOWING INTO THIS RESERVOIR HAS BEEN BROUGHT ACROSS BARREN REACHES OF DESERT AND MOUNTAIN BARRIERS TO SERVE THE HOMES AND INDUSTRIES AND TO SUSTAIN THE LIVES OF MILLIONS OF PEOPLE NOW AND IN THE YEARS TO COME."

Upon completion of the enlargement work now under way at the La Verne Treatment Plant, the completion of the first stage of the treatment plant on the Lower Feeder, and the construction of pipelines now authorized, the expansion program will be completed. It is anticipated that this will occur by 1963.

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SAN DIEGO COUNTY WATER AUTHORITY

Table 1

AREA—AUTHORITY MEMBER AGENCIES

Member Agencies	Area Within Authority			Percent of Total Authority Area 6/30/61
	As of 6/30/60	Changes During Year	As of 6/30/61	
	acres	acres	acres	
Bueno Colorado M. W. D.	50,540 (2)	- 230	(3) 50,310	7.73
Carlsbad M. W. D.	20,668	- 9	(4) 20,659	3.17
In City of Carlsbad (1)	(5,248)	0	(5,248)	(0.01)
Escondido, City of (1)	4,061	+ 279	4,340	0.67
Fallbrook Public Utility District ..	15,469	0	15,469	2.38
Helix Irrigation District (1)	30,958	+ 26	(5) 30,984	4.76
In City of El Cajon (1)	(6,285)	(- 4)	(6,281)	(0.96)
In City of La Mesa (1)	(4,488)	(+ 321)	(4,809)	(0.74)
National City, City of (1)	4,781	+ 192	4,973	0.77
Oceanside, City of (1)	17,140	+ 2,405	19,545	3.00
Olivenhain M. W. D.	0	+ 24,260	24,260	3.73
Otay M. W. D.	49,841	+ 15,970	(6) 65,811	10.11
Poway M. W. D.	22,980	0	22,980	3.53
Rainbow M. W. D.	40,040	0	(7) 40,040	6.15
Ramona M. W. D.	29,900	0	29,900	4.59
Rincon del Diablo M. W. D. (8)	20,271	+ 2,731	(8) 23,002	3.53
Rio San Diego M. W. D.	27,655	+ 26,650	54,305	8.34
San Diego, City of (10)	125,827	+ 28,043	153,870	23.64
San Diego I. D.	4,948	0	4,948	0.76
Santa Fe I. D.	10,132	0	(9) 10,132	1.56
South Bay I. D.	15,315	+ 590	(10) 15,905	2.44
In City of Chula Vista (10)	(5,726)	(+ 104)	(5,830)	(0.90)
Valley Center M. W. D.	53,160	+ 6,350	59,510	9.14
Total Authority Area	543,686	+107,257	650,943	100.00
San Diego County			2,725,100	

- (1) Revised to conform with data received from agency
- (2) Includes area annexed by an adjacent city member agency but still in District, being an overlapping area and considered here as being a part of the City.
- (3) Does not include 1,590 acres overlapping in City of Oceanside.
- (4) Does not include 179 acres overlapping in City of Oceanside.
- (5) Does not include 167 acres overlapping in City of San Diego.
- (6) Does not include 5,623 acres overlapping in City of San Diego.
- (7) Does not include 160 acres overlapping in City of Oceanside.
- (8) Does not include 2,408 acres overlapping in City of Escondido.
- (9) Does not include 3 acres overlapping in City of San Diego.
- (10) Does not include 217 acres overlapping in City of San Diego, and 207 acres overlapping in City of National City.

TABLES

Table 2

POPULATION GROWTH—COUNTY AND AUTHORITY AREA
1910 to 1961

(Includes Resident Military Personnel)

Year (as of April 1)	COUNTY		AUTHORITY		Percent of County Population in Authority
	Total Population (1)	Average Annual Growth	Total Population (2)	Average Annual Growth	
1910.....	61,665				
		5,058			
1920.....	112,248				
		9,741			
1930.....	209,659				
		7,969			
1940.....	289,348				
1946.. (3)	502,804	26,746	(3) 440,659		88
				2,807	
1950.....	556,808		451,886		81
		44,671		50,451	
1960.....	1,003,520		956,400		95
		108,080		59,100	
1961.....	1,111,600		1,015,500		91

- (1) County population from U.S. Census Bureau Reports.
- (2) Authority population based on U.S. Census Bureau Reports.
- (3) Based on Special Census, U.S. Census Bureau, exclusive of emergency military personnel due to World War II.

Table 3
POPULATION—AUTHORITY MEMBER AGENCIES AND COUNTY
(Includes Resident Military Personnel)

Member Agencies	Population - U. S. Census						Annual Increase 1960-61	Per Sq. Acre	Density of Population 1961
	Area 6/30/61	1959	1960	Decade Increase	1961 Estimate	Percent			
	Acres	(1)	(2)	Percent	(2)	Percent			
Buena Colorado M. W. D.	50,310	---	31,500	---	33,850	7	0.67	431	
Carlsbad M. W. D.	20,659	---	10,000	---	10,000	0	0.48	310	
In City of Carlsbad	(5,245)	---	(9,400)	---	(9,400)	0	1.79	1,146	
Escondido, City of	4,340	6,605	16,500	160	19,780	7	4.56	2,917	
Fallbrook Public Utility District	15,469	5,500	10,000	82	10,000	0	0.65	414	
Helix Irrigation District	30,984	44,160	122,100	176	129,040	6	4.15	2,605	
In City of El Cajon	(6,231)	(5,600)	(37,300)	566	(37,600)	1	5.99	3,831	
In City of La Mesa	(4,809)	(10,946)	(29,900)	173	(31,180)	4	6.45	4,150	
National City, City of	4,973	21,200	32,300	52	32,800	2	6.60	4,221	
Oceanside, City of	19,545	12,880	24,700	92	27,000	9	1.38	854	
Olivenhain M. W. D.	24,260	---	---	---	280	---	0.01	7	
Otay M. W. D.	65,811	---	5,400	---	6,400	19	0.10	62	
Poway M. W. D.	22,980	---	4,800	---	6,500	35	0.28	181	
Rainbow M. W. D.	40,040	---	2,800	---	3,000	7	0.07	48	
Ramona M. W. D.	29,900	---	5,600	---	5,800	4	0.19	124	
Rincon del Diablo M. W. D.	23,002	---	14,000	---	14,300	2	0.62	398	
Rio San Diego M. W. D.	54,305	---	25,500	---	31,000	22	0.57	305	
San Diego, City of	153,870	334,387	557,200	67	588,000	6	3.82	2,446	
San Diego Irrigation District	4,945	6,223	15,000	141	17,000	13	3.44	2,199	
Santa Fe Irrigation District	10,132	3,000	7,700	157	7,850	2	0.77	496	
South Bay Irrigation District	15,905	28,930	64,300	122	66,800	4	4.20	2,688	
In City of Chula Vista	(5,830)	(15,930)	(42,400)	166	(44,800)	6	7.68	4,918	
Valley Center M. W. D.	59,510	---	5,000	---	6,100	22	0.10	66	
Total Authority	650,943	462,888	956,400	107	1,015,500	6	1.56	998	
San Diego County	2,725,100	556,810	1,003,520	80	1,111,600	11	0.41	2,611	

(1) Population in agencies other than cities was furnished by agencies.
(2) Estimated by agencies.

Table 4
ASSESSED VALUATIONS—AUTHORITY MEMBER AGENCIES AND COUNTY

Member Agencies	Assessed Valuation—Secured and Unsecured						Assessed Valuation 1961-62
	Area 6/30/61	1959-60	1960-61	Annual Increase	Per Acre	Total	
	Acres	Total	Total	Percent	Per Acre	Total	
Buena Colorado M. W. D.	50,310	\$ 34,725,530	\$ 39,545,620	13.9	\$ 786	\$ 43,629,880	
Carlsbad M. W. D.	20,659	28,124,700	35,083,710	24.7	1,698	36,060,310	
In City of Carlsbad	4,340	17,689,990	24,167,080	36.6	5,568	29,287,550	
Escondido, City of	15,469	9,115,600	9,983,810	9.7	645	19,526,740	
Fallbrook Public Utility District	30,984	144,393,860	178,637,880	23.7	5,765	192,740,210	
Helix Irrigation District	4,973	32,125,650	35,833,670	11.5	7,206	37,950,580	
National City, City of	19,545	31,945,750	34,591,680	10.7	1,770	38,148,040	
Oceanside, City of	24,260	*(1,400,000)	*(1,644,000)	17.4	68	1,961,700	
Olivenhain M. W. D.	65,811	6,229,360	15,511,560	149.0	236	23,579,340	
Otay M. W. D.	22,980	6,897,700	10,051,050	50.5	439	13,446,700	
Poway M. W. D.	40,040	4,515,790	5,381,880	19.2	134	9,973,230	
Rainbow M. W. D.	29,900	4,815,050	5,717,260	18.7	191	6,443,230	
Ramona M. W. D.	23,002	20,125,400	20,412,950	1.4	887	20,276,650	
Rincon del Diablo M. W. D.	54,305	14,910,330	27,124,260	81.9	499	35,627,070	
Rio San Diego M. W. D.	153,870	790,171,450	872,350,810	10.4	5,669	918,822,920	
San Diego, City of	4,948	13,154,840	20,029,840	52.3	4,048	22,315,240	
San Diego Irrigation District	10,132	15,659,250	17,636,190	12.6	1,741	18,580,180	
Santa Fe Irrigation District	15,905	81,602,030	85,457,410	4.7	5,373	98,945,440	
South Bay Irrigation District	59,510	4,325,370	4,769,560	10.2	80	5,895,400	
Valley Center M. W. D.	650,943	\$ 1,259,627,550	\$ 1,442,314,940	14.5	2,216	\$ 1,567,210,470	
Total Authority	(1) 1,250,000	\$ 1,356,920,650	\$ 1,542,586,670	13.7	1,234	\$ 1,663,495,210	
San Diego County							

(1) Excluding 1,475,100 acres of tax-exempt lands in San Diego County.
* Estimated, not on Authority tax roll

SAN DIEGO COUNTY WATER AUTHORITY

Table 5
SALES OF COLORADO RIVER WATER—FISCAL YEAR 1960-61
(All Figures in Acre Feet)

Member Agencies	July	August	Sept.	Oct.	Nov.	Dec.	Total 6 Months
Bueno Colorado M. W. D.	1,261.8	1,168.8	1,041.1	932.9	285.9	334.8	5,025.3
Carlsbad M. W. D.	785.6	835.1	832.2	695.8	148.3	121.1	3,418.1
Escondido, City of.....	283.2	261.7	263.6	213.4	135.2	150.6	1,307.7
Fallbrook P. U. D.	1,226.7	1,316.3	1,238.4	984.3	347.9	394.8	5,498.4
Helix I. D.	2,920.4	2,828.0	2,526.7	2,101.3	1,087.6	1,232.9	12,696.9
National City & South Bay I. D.	1,031.1	1,019.5	881.7	1,053.1	1,014.7	882.1	5,882.2
Oceanside, City of	370.1	369.4	348.9	340.7	230.8	251.7	1,911.6
Olivenhain M. W. D.	0	0	0	0	0	0	0
Otay M. W. D.	60.0	60.0	92.0	90.0	90.0	88.0	480.0
Poway M. W. D.	271.5	267.3	248.8	197.1	82.3	92.0	1,159.0
Rainbow M. W. D.	820.3	830.5	843.6	717.9	251.6	350.9	3,817.8
Ramona M. W. D.	60.9	60.7	52.7	34.3	19.7	11.3	239.6
Rincon del Diablo M. W. D. ..	864.8	866.9	632.4	691.9	243.5	349.5	3,649.0
Rio San Diego M. W. D.	409.4	361.5	348.9	253.6	138.8	121.7	1,633.9
San Diego, City of	8,939.0	8,792.1	8,964.0	9,137.9	6,981.4	4,711.4	47,545.8
San Dieguito I. D.	301.3	301.3	291.6	301.3	291.6	301.3	1,788.4
Santa Fe I. D.	276.7	276.7	267.8	276.7	267.8	276.7	1,642.4
Valley Center M. W. D.	337.3	324.6	245.2	179.4	47.5	49.1	1,183.1
Total Sales to Agencies	20,240.1	19,940.4	19,109.6	18,201.6	11,667.6	9,719.9	98,879.2
Total Sales to Others	3.2	8.5	12.7	17.2	10.4	8.1	60.1
Total Sales to Agencies and Others	20,243.3	19,948.9	19,122.3	18,218.8	11,678.0	9,728.0	98,939.3
Total to Authority Storage ... +	60.0	0	0	+ 641.7	+2,724.9	+3,063.3	+6,489.9
Total from Authority Storage -	125.1	0	0	0	0	0	- 125.1
Total Deliveries from Authority System	20,178.2	19,948.9	19,122.3	18,860.5	14,402.9	12,791.3	105,304.1
Rate of Flow:							
c. f. s. to Agencies and Others.....	329.2	324.4	321.4	296.3	196.3	158.2	271.1
c. f. s. to Authority Storage +	1.0	0	0	+ 10.4	+ 45.8	+ 49.8	+ 17.8
c. f. s. from Authority Storage	- 2.0	0	0	0	0	0	- 0.4
c. f. s. Deliveries from Authority System	328.2	324.4	321.4	306.7	242.1	208.0	288.5

The Metropolitan Water District delivered to Authority 197,375.4 ac. ft. (Plus 115.1 ac. ft. transported by Authority to others in San Diego County) or 766.7 ac. ft. less than total metered water deliveries to member agencies and to storage.

TABLES

Table 5 (Continued)

Jan.	Feb.	March	April	May	June	Total 6 Months	Yearly Total	Yearly Average c. f. s.
644.3	493.0	768.9	720.1	1,227.3	1,263.9	5,117.5	10,142.8	14.01
179.3	168.6	238.6	368.0	540.2	508.2	2,002.9	5,421.0	7.49
175.0	248.4	171.5	231.8	291.0	329.1	1,449.8	2,757.5	3.81
649.6	499.1	719.5	837.6	1,059.9	1,087.7	4,853.4	10,351.8	14.30
1,410.3	1,223.6	1,473.3	1,862.1	2,441.3	2,646.9	11,057.5	23,754.4	32.81
853.1	849.8	1,363.2	764.2	1,249.2	1,657.8	6,737.3	12,619.5	17.43
313.1	264.6	336.1	364.1	371.9	362.0	2,011.8	3,923.4	5.42
0	0	0	0	10.2	2.2	12.4	12.4	0.02
88.0	86.0	57.0	107.5	146.2	155.3	640.0	1,120.0	1.55
140.1	107.3	125.6	166.8	230.5	275.5	1,045.8	2,204.8	3.04
539.4	392.1	525.3	625.1	839.7	875.4	3,797.0	7,614.8	10.32
27.2	29.1	15.5	35.2	54.1	67.9	229.0	468.6	0.65
651.6	184.6	543.3	804.3	1,047.1	1,087.7	4,318.6	7,967.6	11.00
170.2	127.1	170.0	224.5	288.0	321.2	1,301.0	2,934.9	4.05
4,753.3	3,813.2	7,100.8	8,126.1	8,407.0	8,577.2	40,777.6	88,323.4	122.00
301.3	272.1	301.3	291.6	301.3	291.6	1,759.2	3,547.6	4.90
276.7	249.9	276.7	267.8	276.7	267.8	1,615.6	3,258.0	4.50
77.9	51.0	92.7	150.6	265.4	303.3	940.9	2,124.0	2.93
11,250.4	9,059.5	14,279.3	15,947.4	19,050.0	20,080.7	89,667.3	188,346.5	260.43
9.6	11.1	9.4	9.2	9.4	6.3	55.0	115.1	0.16
11,260.0	9,070.6	14,288.7	15,956.6	19,059.4	20,087.0	89,722.3	188,661.6	260.59
0	+ 136.6	+2,707.3	+1,125.4	+ 20.6	+ 87.9	+4,077.8	+10,567.7	+14.60
292.8	- 93.3	0	0	0	- 460.9	- 847.0	- 972.1	- 1.34
10,967.2	9,113.9	16,996.0	17,082.0	19,080.0	19,714.0	92,953.1	198,257.2	273.85
183.1	163.3	232.4	268.2	310.0	337.6	249.9	260.6	
0	+ 2.5	+ 44.0	+ 18.9	+ 0.3	+ 1.5	+ 11.4	+ 14.6	
- 4.7	- 1.7	0	0	0	- 7.8	- 2.4	- 1.3	
178.4	164.1	276.4	287.1	310.3	331.3	258.9	273.9	

Table 6
SALES OF COLORADO RIVER WATER—1947 to 1961
(All figures in acre feet)

Member Agencies	1947-53 (1)	1953-54	1954-55	1955-56	1956-57	1957-58	1958-59	1959-60	1960-61	Totals
Bueno Colorado M. W. D.	-	0	3,627	5,434	7,315	2,665	2,677	3,735	10,143	35,596
Carlsbad M. W. D.	-	54	1,600	1,417	975	1,989	3,111	3,588	5,421	18,155
Esccondido, City of	1,040	739	929	1,381	1,844	1,553	2,003	2,482	2,757	14,388
Fallbrook Public Utility District	15,573	5,720	7,031	6,567	7,228	5,446	9,032	8,106	10,352	75,057
Helix Irrigation District	36,027	5,311	11,610	13,553	14,968	14,399	14,176	23,754	23,754	147,858
National City and South Bay I. D.	44,734	4,806	5,706	12,274	10,823	16,680	5,509	10,656	12,619	117,597
Oceanside, City of	1,805	1,470	2,064	2,864	3,308	2,941	3,658	3,528	3,923	25,568
Olivehain M. W. D.	-	-	-	-	-	-	2	199	639	1,220
Otay M. W. D.	-	-	524	1,109	915	651	1,311	1,567	2,205	8,312
Poway M. W. D.	-	0	524	1,109	915	651	1,311	1,567	2,205	8,312
Rainbow M. W. D.	-	137	1,416	2,061	3,955	3,328	6,094	5,662	7,615	30,298
Ramona M. W. D.	-	-	-	-	-	29	169	322	469	959
Rincon del Diablo M. W. D.	-	0	2,905	4,633	5,601	2,603	3,043	2,244	7,968	29,049
Rio San Diego M. W. D. (2)	162	99	227	512	894	819	1,235	2,138	2,935	9,021
San Diego, City of	233,843	51,176	60,059	80,088	83,551	89,870	41,364	93,892	88,323	822,166
San Dieguito Irrigation District	3,841	33	913	598	2,013	1,171	0	1,488	3,548	13,605
Santa Fe Irrigation District	3,908	0	358	416	1,150	998	0	1,346	3,258	11,434
Valley Center M. W. D.	-	-	0	1	791	769	776	1,358	2,124	5,819
Total Sales to Agencies	340,935	69,635	98,969	132,958	145,361	139,604	94,589	156,587	188,546	1,367,184
Total Sales to Others	49	14	3	20	69	95	275	271	115	911
Total to Authority Storage	+18,850	- 1,722	+ 6,217	-10,608	+ 6,655	+10,452	+17,671	+ 4,968	-10,568	+87,711
Total from Authority Storage	-12,956	- 4,114	- 2,975	- 5,601	- 7,710	- 7,898	-11,057	-19,555	- 972	-72,868
Total deliveries from Authority System	346,878	67,287	102,214	137,985	144,375	142,253	101,478	142,241	198,257	1,382,938

Rate of Flow:
c.f.s. to Agencies and Others 84.1 96.2 136.7 183.2 200.3 193.0 131.0 216.1 260.6 138.9
c.f.s. to Authority Storage + 4.7 + 2.4 + 8.6 + 14.6 + 9.2 + 14.4 + 24.4 + 6.8 + 14.6 + 8.9
c.f.s. from Authority Storage - 3.2 - 5.7 - 4.1 - 7.7 - 10.6 - 10.9 - 15.2 - 27.0 - 1.3 - 7.4
c.f.s. deliveries from Authority System 85.6 92.9 141.2 190.1 198.9 196.5 140.2 195.9 273.9 140.4

(1) The operation of the First Aqueduct was formally initiated on November 27, 1947. For sales in intervening years see previous reports.

(2) Rio San Diego M.W.D., encompassing Lakeside I. D., was annexed to Authority June 7, 1956. Figures prior to that date are for Lakeside I. D. only.

Table 7
WATER PRODUCTION WITHIN AUTHORITY AGENCIES—FISCAL YEARS 1950-51 to 1960-61
(All Figures in Acre Feet)

Member Agencies	1950-51	1951-52	1952-53	1953-54	1954-55	1955-56	1956-57	1957-58	1958-59	1959-60	1960-61
Bueno Colorado M. W. D.	13,484	7,572	11,171	11,671	*12,707	13,043	13,058	11,098	15,000	13,116	14,066
Carlsbad M. W. D.	2,033	2,074	2,565	*2,961	2,445	2,972	2,891	2,607	3,923	4,980	7,091
Esccondido, City of	*1,034	1,033	1,238	1,398	1,712	1,741	1,816	1,730	2,213	2,694	3,136
Fallbrook Public Utility District	15,777	5,803	6,635	7,606	8,001	8,394	8,095	6,709	10,013	9,130	10,724
Helix Irrigation District	\$11,412	9,858	13,524	15,519	15,557	15,998	16,541	15,848	21,595	21,639	24,029
National City and South Bay I. D.	\$11,760	10,491	11,308	12,076	12,840	13,795	12,878	12,316	14,597	13,299	14,148
Oceanside, City of	\$3,035	2,955	3,533	3,954	4,099	4,653	4,369	4,204	5,107	5,081	5,374
Olivehain M. W. D.	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	12
Otay M. W. D.	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	2	146	470
Poway M. W. D.	(a)	(a)	(a)	(a)	*554	1,120	917	755	1,310	1,567	2,205
Rainbow M. W. D.	1,336	1,120	1,657	*1,697	2,830	3,535	4,834	4,032	6,976	6,748	8,771
Ramona M. W. D.	132	118	186	212	215	192	152	*178	351	520	541
Rincon del Diablo M. W. D.	6,905	5,577	7,710	8,401	*10,023	9,804	9,451	7,881	11,753	10,389	11,592
Rio San Diego M. W. D. (b)	\$183	197	292	292	365	1,501	1,457	1,438	2,311	2,886	3,526
San Diego, City of	\$54,935	53,784	60,552	63,258	66,000	68,715	71,250	70,052	80,060	80,796	84,345
Outside City (not in Authority)	2,051	1,406	2,396	2,373	2,610	3,001	2,856	2,609	3,598	4,178	4,840
San Dieguito Irrigation District	\$3,039	2,326	3,139	3,440	3,329	3,378	3,607	3,584	4,247	3,707	4,212
Santa Fe Irrigation District	\$3,515	2,539	3,356	3,255	3,361	3,663	3,509	2,807	3,863	3,457	3,927
Valley Center M. W. D.	(a)	(a)	(a)	(a)	(a)	* (a)	791	769	776	1,388	2,124
Total	120,621	106,853	129,264	138,113	146,638	155,505	158,472	148,579	187,839	186,115	205,540

† Delivery of water began prior to this year. See previous annual reports.

* Delivery of Colorado River Water began this year.

(a) Not available.

(b) Figures shown for Rio San Diego M. W. D. prior to 1955-56 are for Lakeside I. D. only.

Table 8
WATER PRODUCTION OF AUTHORITY AGENCIES—FISCAL YEAR 1960-61

Member Agencies	TOTAL WATER PRODUCTION					SOURCE OF WATER			
	Local Supply		Authority Supply		Per- cent	Local Supply		Authority Supply	
	as m, g. d.	as c. f. s.	as ac. ft. /yr.	as ac. ft.		Per- cent	Amount ac. ft.	Per- cent	
Bueno Colorado M. W. D.	12.56	19.43	14,065.7	3,917.5	27.9	10,148.2	72.1		
Carlsbad M. W. D.	6.33	9.79	7,090.5	1,669.5	23.5	5,421.0	76.5		
Escondido, City of	2.90	4.33	3,136.2	501.1	16.0	2,635.1	84.0		
Fallbrook Public Utility District	9.57	14.81	10,723.8	372.0	3.5	10,351.8	96.5		
Helix Irrigation District	21.45	33.19	24,029.0	275.0	1.1	23,754.0	98.9		
National City and South Bay I. D.	12.63	19.54	14,148.0	1,918.0	13.6	12,230.0	86.4		
Oceanside, City of	4.80	7.42	5,373.6	1,450.2	27.0	3,923.4	73.0		
Olivenhain M. W. D.	0.01	0.02	12.4	0	0	12.4	100.0		
Otay M. W. D.	0.86	1.34	967.0	0	0	967.0	100.0		
Poway M. W. D.	1.97	3.05	2,204.8	0	0	2,204.8	100.0		
Rainbow M. W. D.	7.83	12.12	8,771.4	1,169.2	13.3	7,602.2	86.7		
Ranoma M. W. D.	0.48	0.75	541.3	75.5	13.9	465.8	86.1		
Rincones del Diablo M. W. D.	10.27	15.89	11,502.0	3,534.0	30.7	7,968.0	69.3		
Rio San Diego M. W. D.	3.15	4.87	3,525.9	591.0	16.5	2,934.9	83.2		
San Diego, City of:									
Inside City	75.30	116.50	81,315.1	2,627.0	3.1	81,718.1	96.9		
Outside City (Not in Authority)	4.32	6.69	4,840.2	4,840.2	100.0	0	0		
San Dieguito Irrigation District	3.76	5.82	4,212.4	0	0	4,212.4	100.0		
Santa Fe Irrigation District	3.51	5.42	3,927.2	0	0	3,927.2	100.0		
Valley Center M. W. D.	1.90	2.93	2,124.0	0	0	2,124.0	100.0		
Total	193.50	283.91	205,540.5	22,940.2	11.2	182,600.3	88.8		

Note: This table is a compilation of data furnished by member agencies. Figures include losses in transmission and distribution systems but not in conservation reservoirs.

TABLES

Table 9
UNIT WATER PRODUCTION—PER ACRE AND PER CAPITA 1960-61

Member Agencies	Gross Area (2)	Total Production of Water	Estimated Area Served by Water System	Water Production	
				Per Net Area	Per Capita
	acres	ac. ft.	net acres	ac. ft./acre/yr.	ac. ft./cap./yr.
Bueno Colorado M. W. D.	50,310	14,065.7	15,580	0.90	0.42
Carlsbad M. W. D.	20,659	7,090.5	13,750	0.52	0.71
Escondido, City of	4,340	3,136.2	4,340	0.72	0.16
Fallbrook Public Utility District	15,469	10,723.8	8,800	1.22	1.07
Helix Irrigation District	30,948	24,029.0	28,350	0.85	0.19
National City, City of	4,973	3,445.0	4,830	0.71	0.11
Oceanside, City of	19,545	5,373.6	8,310	0.65	0.20
Olivenhain M. W. D.	24,260	12.4	0	0	0.04
Otay M. W. D.	65,811	967.0	12,050	0.08	0.15
Poway M. W. D.	22,980	2,204.8	6,800	0.34	0.34
Rainbow M. W. D.	40,040	8,771.4	24,370	0.35	2.92
Ranoma M. W. D.	29,900	541.3	1,100	0.49	0.09
Rincones del Diablo M. W. D.	23,002	11,502.0	10,620	1.08	0.80
Rio San Diego M. W. D.	54,305	3,525.9	7,480	0.47	0.11
San Diego, City of:	153,870	(1) 84,345.1	69,250	1.22	0.14
San Dieguito Irrigation District	4,948	4,212.4	4,100	1.03	0.25
Santa Fe Irrigation District	10,132	3,927.2	10,130	0.39	0.50
South Bay Irrigation District	15,905	10,703.0	8,740	1.22	0.16
Valley Center M. W. D.	59,510	2,124.0	10,720	0.20	0.35
Total and Average	650,943	200,700.3	249,620	0.80	0.20

(1) Does not include production by City of San Diego for areas outside City (not in Authority).

(2) Does not include overlapping areas as shown in Table 1.

Table 10
AGRICULTURAL USE OF WATER

Member Agencies	WATER USED FOR AGRICULTURAL PURPOSES					Percent of Agricultural Water to Total Production
	Total Water Production (ac. ft.)	From Local Supply (ac. ft.)	From Authority Supply (ac. ft.)	Total (ac. ft.)	From Authority Supply (%)	
Bueno Colorado M. W. D.	14,065.7	2,973.5	7,745.6	10,722.1	72.3	76.2
Carlsbad M. W. D.	7,090.5	1,301.2	4,378.9	5,680.1	77.1	80.1
Esccondido, City of	3,136.2	(a)	(a)	(a)		(a)
Fallbrook Public Utility District	10,723.8	334.6	9,412.0	9,746.6	96.5	90.9
Helix Irrigation District	24,029.0	139.4	9,194.8	9,334.2	98.5	38.8
National City & South Bay Irrig. Distr.	14,148.0	356.1	1,954.2	2,310.3	84.6	16.3
Oceanside, City of	5,373.6	(a)	(a)	(a)		(a)
Olivenhain M. W. D.	12.4	(a)	(a)	(a)		(a)
Otay M. W. D.	967.0	0	95.4	95.4	100.0	9.9
Poway M. W. D.	2,204.8	0	1,333.6	1,333.6	100.0	60.5
Rainbow M. W. D.	8,771.4	1,162.0	7,466.4	8,628.4	86.5	98.4
Ranoma M. W. D.	541.3	48.9	318.2	367.1	86.7	67.8
Rincon del Diabolo M. W. D.	11,502.0	2,831.2	7,091.2	9,922.4	71.5	86.3
Rio San Diego M. W. D.	3,525.9	46.7	287.5	334.2	86.0	9.5
San Diego, City of	89,185.3	364.7	5,020.6	5,385.3	93.2	6.0
San Dieguito Irrigation District	4,212.4	(b)	(b)	(b)		(b)
Santa Fe Irrigation District	3,927.2	(b)	(b)	(b)		(b)
Valley Center M. W. D.	2,124.0	0	1,898.5	1,898.5	100.0	89.4
Total	205,540.5	9,558.3	56,200.2	65,758.5	85.5	32.0

(a) No report was received from agency, assumed no agricultural use.
(b) Included in City of San Diego.

TABLES

Table 11
AUTHORITY STORAGE IN SAN VICENTE RESERVOIR
(Fiscal Year 1960-61)

Member Agencies	Total Quantity in Storage 7/1/60 (acre feet)	Placed into Storage during Fiscal Year (acre feet)	Emergency Account		Withdrawn during Fiscal Year		Total Quantity in Storage 6/30/61 (acre feet)
			Released to -		By Delivery (acre feet)	By Evaporation (acre feet)	
			Withdrawn from + (acre feet)	Withdrawn (acre feet)			
Bueno Colorado M. W. D.	131.9	0	0	0	0	10.0	121.9
Carlsbad M. W. D.	0	0	0	0	0	0	0
Escondido, City of	68.0	252.0	0	0	93.3	13.4	243.3
Fallbrook Public Utility District	0	0	0	0	0	0	0
Helix Irrigation District	629.4	477.5	0	0	0	66.2	1,040.7
National City & South Bay Irrig. Distr.	0	0	0	0	0	0	0
Oceanside, City of	0	0	0	0	0	0	0
Oilverhain M. W. D.	-	0	0	0	0	0	0
Otay M. W. D.	535.3	186.2	0	0	60.0	45.0	616.5
Poway M. W. D.	0	2,477.6	0	0	44.8	58.5	2,374.3
Rainbow M. W. D.	0	1,140.6	- 65.8	0	259.2	- 1.3	905.9
Ranoma M. W. D.	34.7	0	0	0	0	2.6	32.1
Rincon del Diabolo M. W. D.	306.9	600.0	0	0	458.7	26.8	421.4
Rio San Diego M. W. D.	35.3	4,938.8	0	0	0	155.4	4,818.7
San Diego, City of	0	0	0	0	0	0	0
San Dieguito Irrigation District	0	0	0	0	0	0	0
Santa Fe Irrigation District	0	0	0	0	0	0	0
Valley Center M. W. D.	31.7	453.4	0	0	56.1	19.5	409.5
Emergency Account	65.8	-	- 65.8	-	-	-	0
Total	1,839.0	10,556.1	-	-	972.1	433.7	10,984.3

Table 12
 CHEMICAL CHARACTER OF NATURAL COLORADO RIVER
 WATER AT WEST PORTAL OF SAN JACINTO TUNNEL
 Year Ending June 30, 1961
 Samples taken at entrance to San Diego Aqueduct by M. W. D.
 and analyzed at District Laboratory

Month	Total Hardness as P. P. M. CaCO ₃	Non Carbonate Hardness as P. P. M. CaCO ₃	Alkalinity as P. P. M. CaCO ₃		Magnesium as P. P. M. of Mg.	Hydrogen Ion Concentration	Temperature when sampled F ^o
			Total	Phenolphthalein			
July	326	203	123	1	27.0	8.4	80
August	323	205	118	1	27.5	8.2	82
September	318	201	117	1	27.0	8.2	79
October	320	205	115	2	27.5	8.3	76
November	325	205	120	1	28.0	8.2	68
December	330	209	121	0	28.0	8.5	57
January	330	210	120	1	27.5	8.3	54
February	330	207	123	2	28.0	8.4	51
March	335	212	123	0	27.5	8.3	60
April	333	208	125	2	27.5	8.4	64
May	333	209	124	1	27.0	8.4	67
June	337	213	124	2	28.5	8.4	70
Average	328	207	121	1	27.5	8.3	67
Maximum	337	213	125	2	28.5	8.5	82
Minimum	318	201	115	0	27.0	8.2	51

Table 13
 ALLOCATION OF RIGHT TO PURCHASE AUTHORITY WATER
 As of June 30, 1961

Member Agencies	Total Amount Paid by Each Member Agency to 6/30/61	Amount Remaining to be Paid under Terms of Annexation	Total Contributions Paid and Contracted for	Allocation	
				Percentage of Authority Supply	Equivalent Flow c. f. s.
Bueno Colorado M. W. D.	\$ 295,468.00	0	\$ 295,468.00	2.56	11.52
Carlsbad M. W. D.	204,898.17	0	204,898.17	1.77	7.97
Esccondido, City of	156,183.75	0	156,183.75	1.35	6.08
Failbrook Public Utility District	85,955.80	\$ 6,748.90	92,704.70	0.80	3.60
Helix Irrigation District	1,173,873.35	10,368.42	1,184,241.77	10.25	46.13
National City, City of	294,138.96	0	294,138.96	2.55	11.47
Oceanside, City of	265,155.48	0	265,155.48	2.30	10.35
Olivenhain M. W. D.	51,204.53	13,600.00	13,600.00	0.12	0.54
Otay M. W. D.	36,676.87	20,395.69	71,600.22	0.62	2.79
Poway M. W. D.	42,946.37	3,592.08	40,368.95	0.35	1.57
Rainbow M. W. D.	41,971.15	3,132.79	46,079.16	0.40	1.80
Ramona M. W. D.	181,548.41	22,080.16	64,051.31	0.55	2.48
Rincon del Diablo M. W. D.	114,217.91	62,036.64	181,548.41	1.57	7.06
Rio San Diego M. W. D.	7,531,866.22	0	196,294.53	1.70	7.65
San Diego, City of	128,630.20	7,530.14	7,531,866.22	65.21	293.45
San Dequito Irrigation District	120,914.80	0	136,160.34	1.18	5.31
Santa Fe Irrigation District	606,960.66	0	120,914.80	1.05	4.72
South Bay Irrigation District	43,688.39	3,900.00	606,960.66	5.26	23.67
Valley Center M. W. D.			47,588.39	0.41	1.84
Total Authority	\$11,376,299.02	\$173,384.82	\$11,549,683.84	100.00	450.00

SAN DIEGO COUNTY WATER AUTHORITY

Table 14

STATEMENT OF FINANCIAL POSITION

June 30, 1961

ASSETS		
CURRENT ASSETS--GENERAL FUND:		
Cash with treasurer	\$ 223,609.36	
Petty cash	100.00	
Accounts receivable	383,147.62	
Inventory of water in storage	172,730.10	
Investments	531,196.25	
Delinquent taxes receivable	\$ 469.73	
Less allowance for delinquency ..	469.73	
		\$ 1,310,783.33
SPECIAL FUND ASSETS:		
General reserve fund:		
Cash with treasurer	5,798.96	
Investments	391,404.33	397,203.29
Waterworks bonds, 1947, interest and sinking fund:		
Cash with treasurer	243.36	
Cash with fiscal agent, for bond interest	13,250.00	
Investments	532,710.38	
Delinquent taxes receivable	2,768.07	
Less allowance for delinquency ..	2,768.07	
		546,203.74
U.S. Government contract fund:		
Cash with treasurer	12,973.06	
Due from Metropolitan Water District	11,170,185.31	
Delinquent taxes receivable	17,943.25	
Less allowance for delinquency ..	17,943.25	
		11,183,158.37
Special tax fund:		
Cash with treasurer	21,818.01	
Investments	458,795.17	
Annexation charges receivable--not due	173,384.82	
Delinquent taxes receivable	3,034.55	
Less allowance for delinquency ..	3,034.55	
		653,998.00
Waterworks bonds, 1957, improvement fund:		
Cash with treasurer	404,264.87	
Investments	20,242.88	
Bonds authorized--unissued	5,000,000.00	5,424,507.75
Waterworks bonds, 1957, interest and redemption fund:		
Cash with treasurer	127,169.06	
Cash with fiscal agent, for bond interest	10,823.75	
Investments	14,831.31	
Delinquent taxes receivable	26,658.89	
Less allowance for delinquency ..	26,658.89	
		152,824.12
FIXED ASSETS:		
Participation rights in Metropolitan Water District	41,533,147.11	
Plant	50,690,621.95	
Less allowance for depreciation ..	2,196,361.22	
	48,494,360.73	
	90,027,507.84	
Work in progress	115,135.46	90,142,643.30
		<u>\$109,811,321.90</u>

TABLES

Table 14 (Continued)

STATEMENT OF FINANCIAL POSITION

June 30, 1961

LIABILITIES, RESERVES AND SURPLUS		
CURRENT LIABILITIES--GENERAL FUND:		
Accounts payable	\$ 307,917.58	
Unapplied credits for irrigation water	28,114.81	
Advances by agencies for construction	46,331.63	
Deposits by agencies for annexation	500.00	\$ 382,864.02
CURRENT LIABILITIES--SPECIAL FUNDS:		
Accounts payable		170.58
LONG-TERM OBLIGATIONS:		
General obligation bonds payable--not due	31,115,000.00	
Estimated balance on U.S. Government contract for repayment of First Aqueduct cost	21,173,298.86	
Balance of annexation charges to Metropolitan Water District	11,946,729.50	64,235,028.36
SURPLUS AND RESERVES:		
Net equity in fixed assets--schedule A-1		25,907,614.94
Reserve for encumbrances--general fund		14,642.12
Reserves for debt redemption:		
For retirement of general obligation bonds--schedule A-2	699,027.86	
For retirement of U.S. Government contract--schedule A-2	11,183,158.37	11,882,186.23
Appropriated surplus:		
For petty cash fund balance	100.00	
For general reserve fund balance--schedule A-2	397,203.29	
For special tax fund balance--schedule A-2	630,721.86	
For waterworks bonds, 1957, improvement fund--reserve for authorized expenditures--schedule A-2	5,424,340.32	
For incomplete projects (continuing appns.)--exhibit D:		
Special tax fund	23,272.99	6,475,638.46
Unappropriated surplus--exhibit B		913,177.19

\$109,811,321.90

SAN DIEGO COUNTY WATER AUTHORITY

Table 15

STATEMENT OF INCOME AND SURPLUS—
UTILITY OPERATIONS

For Fiscal Year Ended June 30, 1961

INCOME

WATER SALES:			
Gross revenues from water sales	\$3,390,755.23		
Less credits to agencies for agricultural water use	<u>181,530.72</u>		
Net revenue from water sales		\$3,209,224.51	
COST OF WATER SOLD:			
Inventory of water in storage, July 1, 1960		27,552.00	
Water purchased	\$3,141,805.60		
Less credits for agricultural water	<u>181,530.72</u>	2,960,274.88	
Storage charges		<u>1,000.00</u>	
		2,988,826.88	
Less inventory of water in storage June 30, 1961		<u>172,730.10</u>	
Cost of water sold			2,816,096.78
Gross margin			<u>393,127.73</u>
OTHER OPERATING INCOME:			
Water transportation charges		1,744.50	
Rentals of Authority properties		<u>1,643.50</u>	
Gross operating income			396,515.73
OPERATING EXPENSES—schedule B-1			
Net income before depreciation and debt service expense			<u>172,170.32</u>
DEPRECIATION AND DEBT SERVICE EXPENSE:			
Depreciation		471,584.72	
Debt service expense	365,789.00		
Less receipts from Metropolitan Water District	<u>184,844.00</u>	<u>180,945.00</u>	
Net operating income (deficit)			<u>652,529.72</u>
NON-OPERATING INCOME:			
Revenue from taxes (net after refunds)		(18,598.49)	
Earnings on investments		14,255.50	
Miscellaneous income		132.50	
Debt service expense provided by:			
Bond interest and sinking fund	27,000.00		
U.S. Government contract fund	<u>153,945.00</u>	<u>180,945.00</u>	
Net income (deficit) for the year to surplus			<u>\$ (251,449.80)</u>

TABLES

Table 15 (Continued)

STATEMENT OF INCOME AND SURPLUS—
UTILITY OPERATIONS

For Fiscal Year Ended June 30, 1961

SURPLUS

SURPLUS, JULY 1, 1960		\$695,752.29
Net income (deficit) for the year	\$(251,449.80)	
Refunds of prior year's expenditures	17,812.55	
Depreciation charged to income but entailing no expenditure of cash	<u>471,584.72</u>	<u>237,947.47</u>
		933,699.76
Expenditures from general fund for:		
Furniture, fixtures and equipment	16,721.45	
Construction work in progress	<u>3,701.12</u>	<u>20,422.57</u>
SURPLUS, JUNE 30, 1961—schedule A-2		<u>\$913,277.19</u>
CONSISTING OF:		
Appropriated surplus:		
For petty cash fund		\$ 100.00
Unappropriated surplus:		
Invested in water in storage	\$172,730.10	
Available for appropriation	<u>740,447.09</u>	<u>913,177.19</u>
Total as above		<u>\$913,277.19</u>

SAN DIEGO COUNTY WATER AUTHORITY

Table 17

STATEMENT OF REVENUES—ESTIMATED AND ACTUAL
Fiscal year ended June 30, 1961

Source	Estimated Revenues	Actual Revenues	Actual Over or (Under) Estimate
Taxes, secured, current levy.....	\$1,387,550.00	\$1,407,356.20	\$ 19,806.20
Taxes, unsecured, current levy.....	179,000.00	177,900.63	(1,099.37)
Taxes, secured, prior years' levies..	13,000.00	14,041.43	1,041.43
Taxes, unsecured, prior years' levies	500.00	(10,552.88)	(11,052.88)
Penalties on delinquent taxes	1,500.00	2,025.33	525.33
Miscellaneous tax on options78	.78
Receipts in lieu of taxes.....		2,300.00	2,300.00
Miscellaneous tax sales		187.45	187.45
Sale of water	3,042,300.00	3,209,224.51	(433,075.49)
Earnings on bank deposits		1,125.00	1,125.00
Earnings on investments.....	75,000.00	143,185.34	68,185.34
Rental of Authority properties.....	1,200.00	1,643.50	433.50
Water transportation charges	1,000.00	1,744.50	744.50
Contract payments from Metropolitan Water District	641,700.00	641,738.36	38.36
Miscellaneous		132.50	132.50
	<u>\$5,942,750.00</u>	<u>\$5,592,052.65</u>	<u>\$(350,697.35)</u>
Distribution by Funds:			
General fund	\$3,646,300.00	\$3,208,360.55	\$(437,939.45)
Waterworks bonds, 1947, interest and sinking fund.....	86,800.00	98,579.03	11,779.03
U. S. Government contract fund ..	1,209,300.00	1,217,964.71	8,664.71
General reserve fund	5,400.00	8,023.28	2,623.28
Waterworks bonds, 1957, interest and redemption fund.....	951,400.00	1,006,688.98	55,288.98
Special tax fund	43,550.00	52,436.10	8,886.10
	<u>\$5,942,750.00</u>	<u>\$5,592,052.65</u>	<u>\$(350,697.35)</u>

TABLES

Table 18
SUMMARY STATEMENT OF CASH RECEIPTS AND DISBURSEMENTS
Fiscal year ended June 30, 1961

	Cash Balance July 1, 1960	Cash Receipts	Cash Disbursements	Inter-Fund Transfers		Cash Balance June 30, 1961
				In	Out	
General Fund.....	\$265,490.62	\$ 3,855,767.04	\$ 3,973,183.86	\$ 231,020.15	\$ 165,484.59	\$223,609.36
Waterworks bonds, 1947, interest and sinking fund	14,125.90	680,352.94	749,108.33	54,872.85		243.36
U. S. Government contract fund	14,517.36	1,232,377.00	1,247,930.46	171,009.16	157,000.00	12,973.06
General reserve fund	70,233.02	238,026.07	337,480.13	150,000.00	115,000.00	5,798.96
Waterworks bonds, 1957, improvement fund.....	25,478.87	5,113,399.41	4,436,364.70	455,366.83	753,615.54	404,264.87
Waterworks bonds, 1957, interest and redemption fund	100,984.16	1,214,498.83	1,302,381.31	690,000.00	575,932.62	127,169.06
Special tax fund	56,329.73	404,345.30	453,620.76	24,760.84	9,997.08	21,818.01
Total all funds.....	\$547,179.66	\$12,748,766.59	\$12,500,069.57	\$1,777,029.83	\$ 1,777,029.83	\$ 795,876.68
TREASURY CASH ON DEPOSIT—June 30, 1961						
Demand deposits:						
First National Trust and Savings Bank						\$628,115.28
Bank of America National Trust and Savings Association						22,718.75
Time deposits:						\$650,834.03
First National Trust and Savings Bank						240,000.00
Bank of America National Trust and Savings Association						25,000.00
San Diego Trust and Savings Bank						50,000.00
Deposits in transit						315,000.00
						113.56
						965,947.61
Less:						
Outstanding warrants						147,362.18
Special deposits for payment of bond interest						\$24,073.75
Less charges in transit						1,355.00
Treasury cash, June 30, 1961, as above						170,070.93
						\$795,876.68

SAN DIEGO COUNTY WATER AUTHORITY

Table 19

STATEMENT OF BONDS PAYABLE

June 30, 1961

Description	Rate of Interest	Date of	
		Issue	Maturity
Waterworks bonds, 1947	2½-2 1/2%	1947	1971
Waterworks bonds, 1957	1½-6%	1957	1993

STATEMENT OF BONDED DEBT MATURITIES

Fiscal Year	Waterworks Bonds, 1947		
	Principal	Interest	Total
1961-62	\$ 150,000.00	\$ 24,500.00	\$ 174,500.00
1962-63	150,000.00	21,500.00	171,500.00
1963-64	150,000.00	18,500.00	168,500.00
1964-65	150,000.00	15,500.00	165,500.00
1965-66	150,000.00	12,500.00	162,500.00
1966-67	150,000.00	9,500.00	159,500.00
1967-68	100,000.00	7,000.00	107,000.00
1968-69	100,000.00	5,000.00	105,000.00
1969-70	100,000.00	3,000.00	103,000.00
1970-71	100,000.00	1,000.00	101,000.00
1971-72			
1972-73			
1973-74			
1974-75			
1975-76			
1976-77			
1977-78			
1978-79			
1979-80			
1980-81			
1981-82			
1982-83			
1983-84			
1984-85			
1985-86			
1986-87			
1987-88			
1988-89			
1989-90			
1990-91			
1991-92			
1992-93			
	<u>\$1,300,000.00</u>	<u>\$118,000.00</u>	<u>\$1,418,000.00</u>

TABLES

Table 19 (Continued)

STATEMENT OF BONDS PAYABLE

June 30, 1961

Bonds			Sinking Fund		
Authorized	Issued	Outstanding	Required	Actual	Excess
\$ 2,000,000.00	\$ 2,000,000.00	\$ 1,300,000.00	\$517,475.00	\$532,953.74	\$15,478.74
35,000,000.00	30,000,000.00	29,815,000.00			
<u>\$37,000,000.00</u>	<u>\$32,000,000.00</u>	<u>\$31,115,000.00</u>			

STATEMENT OF BONDED DEBT MATURITIES

Waterworks Bonds, 1957			Total		
Principal	Interest	Total	Principal	Interest	Total
\$ 120,000.00	\$ 1,169,700.00	\$ 1,289,700.00	\$ 270,000.00	\$ 1,194,200.00	\$ 1,464,200.00
120,000.00	1,162,500.00	1,282,500.00	270,000.00	1,184,000.00	1,454,000.00
140,000.00	1,155,300.00	1,295,300.00	290,000.00	1,173,800.00	1,463,800.00
160,000.00	1,146,900.00	1,306,900.00	310,000.00	1,162,400.00	1,472,400.00
180,000.00	1,137,300.00	1,317,300.00	330,000.00	1,149,800.00	1,479,800.00
210,000.00	1,126,500.00	1,336,500.00	360,000.00	1,136,000.00	1,496,000.00
240,000.00	1,113,900.00	1,353,900.00	340,000.00	1,120,900.00	1,460,900.00
310,000.00	1,099,500.00	1,409,500.00	410,000.00	1,104,500.00	1,514,500.00
370,000.00	1,080,900.00	1,450,900.00	470,000.00	1,083,900.00	1,553,900.00
440,000.00	1,058,700.00	1,498,700.00	540,000.00	1,059,700.00	1,599,700.00
570,000.00	1,035,300.00	1,605,300.00	570,000.00	1,035,300.00	1,605,300.00
640,000.00	1,009,425.00	1,649,425.00	640,000.00	1,009,425.00	1,649,425.00
700,000.00	980,425.00	1,680,425.00	700,000.00	980,425.00	1,680,425.00
750,000.00	952,545.00	1,702,545.00	750,000.00	952,545.00	1,702,545.00
830,000.00	922,645.00	1,752,645.00	830,000.00	922,645.00	1,752,645.00
920,000.00	888,820.00	1,808,820.00	920,000.00	888,820.00	1,808,820.00
990,000.00	851,245.00	1,841,245.00	990,000.00	851,245.00	1,841,245.00
1,035,000.00	810,655.00	1,845,655.00	1,035,000.00	810,655.00	1,845,655.00
1,100,000.00	767,930.00	1,867,930.00	1,100,000.00	767,930.00	1,867,930.00
1,160,000.00	727,435.00	1,887,435.00	1,160,000.00	727,435.00	1,887,435.00
1,230,000.00	685,010.00	1,915,010.00	1,230,000.00	685,010.00	1,915,010.00
1,290,000.00	639,515.00	1,929,515.00	1,290,000.00	639,515.00	1,929,515.00
1,350,000.00	591,770.00	1,941,770.00	1,350,000.00	591,770.00	1,941,770.00
1,420,000.00	541,775.00	1,961,775.00	1,420,000.00	541,775.00	1,961,775.00
1,470,000.00	488,610.00	1,958,610.00	1,470,000.00	488,610.00	1,958,610.00
1,530,000.00	433,570.00	1,963,570.00	1,530,000.00	433,570.00	1,963,570.00
1,595,000.00	376,112.00	1,971,112.00	1,595,000.00	376,112.00	1,971,112.00
1,660,000.00	316,190.00	1,976,190.00	1,660,000.00	316,190.00	1,976,190.00
1,730,000.00	253,620.00	1,983,620.00	1,730,000.00	253,620.00	1,983,620.00
1,800,000.00	188,407.00	1,988,407.00	1,800,000.00	188,407.00	1,988,407.00
1,850,000.00	120,552.00	1,970,552.00	1,850,000.00	120,552.00	1,970,552.00
1,905,000.00	50,737.00	1,955,737.00	1,905,000.00	50,737.00	1,955,737.00
<u>\$29,815,000.00</u>	<u>\$24,883,493.00</u>	<u>\$54,698,493.00</u>	<u>\$31,115,000.00</u>	<u>\$25,001,493.00</u>	<u>\$56,116,493.00</u>

Table 20

STATEMENT OF TAX ASSESSMENTS AND COLLECTIONS

July 1, 1943 to June 30, 1961

	Tax Assessments to Date	Adjustments to Tax Assessments	Tax Collections	Interest and Penalties	Tax on Options	Receipts in Lieu of Taxes	Miscellaneous Tax Sales	(Less) Refunds	Net Total Collections	Uncollected June 30, 1961
Fallbrook P. U. D.	\$ 82,718.11	\$ 1.42	\$ 82,258.46	\$ 379.71	\$ 52	\$ 3,420.09	\$ 7.42	\$ 10.40	\$ 85,953.80	\$ 461.07
Helix Irrigation District	1,176,872.32	(835.09)	1,187,894.61	2,438.42	89.25	3,510.00	583.86	262.42	1,173,873.33	8,319.71
City of National City ..	286,816.11	(195.19)	287,608.86	699.37	5.39	6,251.30	60.06	451.22	294,138.96	1,025.66
City of Oceanside	262,821.69	514.21	262,274.39	591.23	5.11	2,561.13	89.24	215.62	265,135.48	1,061.51
City of San Diego	7,409,043.91	9,103.86	7,396,551.69	19,520.63	41.57	161,149.21	1,958.41	28,356.19	7,531,666.22	21,896.18
Ranoma M. W. D.	42,465.92	333.77	41,888.66	82.84				35	41,971.13	931.03
Santa Fe I. D.	115,352.14	1,444.76	116,231.12	877.83	821.19	2,392.80	1,090.99	599.13	120,914.40	595.78
San Dieguito I. D.	129,026.36	171.18	127,243.01	371.00	3.88	1,123.14	104.20	215.63	128,639.20	964.45
City of Escandido	156,369.47	595.24	156,001.62	172.80			24.84	19.31	156,183.75	1,193.09
South Bay I. D.	698,954.75	(2,209.62)	692,190.21	905.77	.39	15,281.66	59.69	9,477.66	696,969.68	2,556.92
Rainbow M. W. D.	22,478.29	164.24	22,328.12	43.68				5.40	42,944.37	314.41
Poway M. W. D.	37,756.67	(3.05)	36,627.77	69.72				11.62	36,676.87	1,125.51
Buena Colorado M. W. D.	245,552.89	1,050.44	244,166.38	626.62	1.75	10,750.00	45.44	122.17	295,468.09	2,386.93
Rincon del Diabolo M. W. D.	130,593.95	1,176.59	129,546.22	268.13				14.31	131,548.41	1,184.32
Carlsbad M. W. D.	172,481.34	(87.14)	171,702.41	146.51				136.09	284,898.17	721.79
Valley Center M. W. D.	44,623.03	269.97	42,670.36	109.68	.05	270.00	13.87	5.51	43,688.39	662.45
Ric San Diego M. W. D.	117,696.68	164.83	115,650.97	339.55				24.84	114,217.91	4,252.54
Otay M. W. D.	52,170.19	269.97	51,218.43	76.32				111.69	51,204.33	1,321.33
Total member agencies.....	11,132,665.82	11,943.29	11,693,655.18	18,230.81	971.91	299,184.11	4,104.38	46,127.37	11,376,299.02	50,874.03
Withdrawn agencies	4,133.69	29.78	4,185.01	10.84	.15	186.64	2.49	5.35	4,379.78	.46
Total.....	\$11,136,721.51	\$11,973.17	\$11,097,820.19	\$18,541.65	\$972.06	\$299,370.75	\$4,106.87	\$46,132.72	\$11,380,678.80	\$50,874.49

ANALYSIS OF UNCOLLECTED TAXES BY FUNDS

General fund.....	\$ 469.73
Waterworks bonds, 1947, interest and sinking fund.....	2,768.07
U. S. Government contract fund.....	17,943.25
Waterworks bonds, 1957, interest and redemption fund.....	28,638.89
Special tax fund.....	3,034.55
	\$50,874.49

Table 21

STATEMENT OF ASSESSED VALUATIONS AND TAX RATES TO JUNE 30, 1961

Fiscal Year	Secured		Public Utilities	Unsecured Personal		Total(3)	Tax Rate per \$100	
	Real	Personal		Unsecured	Secured		Unsecured	
1945-1946.....	\$ 212,082,975	\$ 28,233,700	\$ 29,960,130	\$ 270,296,805	\$ 90.04	\$ 0.04		
1946-1947.....	208,715,150 (1)	29,433,450	30,665,910	268,814,510	0.04	0.04		
1947-1948.....	233,579,890	32,740,680	40,977,850	307,298,520 (2)	0.14	0.04		
1948-1949.....	254,227,570	37,482,020	47,177,300	338,886,890	0.14	0.14		
1949-1950.....	290,351,875	42,429,140	45,743,200	378,524,215	0.10	0.14		
1950-1951.....	306,104,930	43,595,730	44,717,740	394,418,400	0.10	0.10		
1951-1952.....	344,620,030	48,452,940	50,904,035	443,977,005	0.10	0.10		
1952-1953.....	382,948,860	53,205,220	63,996,330	500,153,410	0.12	0.10		
1953-1954.....	490,709,350	63,092,050	69,147,150	622,948,550	0.10	0.12		
1954-1955.....	546,272,880	69,243,550	79,629,790	695,146,220	0.10	0.10		
1955-1956.....	627,062,960	87,485,390	79,936,450	794,484,800	0.09	0.10		
1956-1957.....	680,824,400	101,224,250	97,950,800	879,999,450	0.09	0.09		
1957-1958.....	761,088,330	111,151,890	128,785,440	1,001,025,660	0.09	0.09		
1958-1959.....	965,283,080	128,479,290	128,124,720	1,121,887,090	0.10	0.09		
1959-1960.....	979,491,050	145,317,290	134,846,730	1,259,655,070	0.11	0.10		
1960-1961.....	1,116,723,530	165,666,720	159,954,740	1,442,345,290	0.11	0.11		
1961-1962*.....	1,220,810,650	191,276,650	155,149,890	1,567,237,190	0.11	0.11		

Debt limit 15 percent of last equalized assessed valuation of property.
Basis of assessment approximately 40 per cent of appraised value.

- (1) City of Coronado secured assessed valuation not included in this or subsequent tax levies by the Authority, having withdrawn from the Authority prior to 1946-47.
(2) City of Coronado not included in this or subsequent total valuation.
(3) Includes areas excluded from Authority.
* Data for 1961-1962 were available before completion of report and are included for convenience of reader.

TABLES

Table 22
TAX LEVIES AND TAX COLLECTIONS
Fiscal Years 1945-46 to 1960-61

Fiscal Year	Tax Levy (1)	Collection of Current Year's Taxes During Fiscal Year	Percentage of Levy Collected During Fiscal Year	Adjustments to Prior Years' Levies	Collection of Prior Years' Taxes During Fiscal Year	Total Tax Collections	Ratio of Total Collections to Adjusted Tax Levy (2)	Accumulated Delinquent Taxes	Ratio of Accumulated Delinquent Taxes to Adjusted Tax Levy (3)
1945-46	\$ 96,131.33	\$ 94,656.51	98.47	\$	\$ 1,080.25	\$ 94,656.51	98.47	\$ 1,474.82	1.53
1946-47	107,808.89	105,753.78	98.09		1,882.72	106,844.03	99.11	2,439.68	2.26
1947-48	389,591.57	351,563.14	97.94		5,916.41	383,445.86	98.42	8,585.39	2.20
1948-49	474,520.78	459,504.39	96.84		329.58	465,420.80	98.08	17,655.37	3.73
1949-50	401,112.07	392,732.15	97.91	373.44	8,217.82	406,074.70	101.15	13,062.32	3.25
1950-51	397,970.61	390,274.43	98.07	978.87	7,699.55	398,492.25	100.03	12,904.12	3.24
1951-52	450,405.19	441,242.12	97.97	(1,140.34)	12,567.93	448,941.67	99.46	15,346.51	3.40
1952-53	594,603.48	585,417.35	98.46	4,213.42	9,942.33	597,985.28	100.76	10,824.37	1.82
1953-54	652,335.08	640,239.42	98.15	1,295.13	12,638.30	650,181.75	99.03	17,191.12	2.62
1954-55	709,678.89	695,200.64	97.96	(2,009.58)	12,140.64	707,838.94	99.56	20,326.20	2.86
1955-56	803,375.25	789,734.26	97.41	576.90	13,056.01	800,874.90	99.95	20,726.97	2.59
1956-57	874,774.45	861,461.66	98.48	958.17	12,890.09	874,517.67	99.90	21,560.65	2.46
1957-58	965,006.37	946,443.55	98.08	(5,274.26)	13,347.45	959,335.64	99.31	28,189.75	2.92
1958-59	1,178,885.91	1,157,265.98	98.17	(5,720.61)	16,647.80	1,170,613.43	99.30	36,462.23	3.09
1959-60	1,436,270.69	1,408,277.57	98.05		21,501.85	1,424,925.37	99.58	42,533.29	2.97
1960-61	1,624,733.20	1,586,155.14	97.63			1,607,671.39	99.48	50,874.49	3.15

(1) Including adjustments to current year's levy.
(2) Including adjustments to current and prior years' levies.

SAN DIEGO COUNTY WATER AUTHORITY

Table 23
SAN DIEGO COUNTY WATER AUTHORITY
ANNEXATION CHARGES, ASSESSMENTS AND BALANCES

Annexation Charges Completed to June 30, 1960 Annexation Charges Outstanding as of June 30, 1960	Area	Date of Annexation	Amount of Annexation Charge	Special Assessments First Year	Period of Last Year	Special Assessments to 6/30/60	Fiscal Year 1960-61		Remaining Balance of Annexation Charges 6/30/61	
							Special Assessments	Balance of Annexation Charges		
.....	-----	\$370,880.00	-----	-----	\$370,880.00	\$	0	\$	0
Escondido, City of	10-9-50	27,500.00	1951-52	1960-61	25,409.39	2,000.61	1¢	0	0
Fallbrook P. U. D.	11-24-58	8,500.00	1959-60	1968-69	867.71	883.39	16¢	6,748.90	0
Helix I. D.	12-20-54	40,800.00	1955-56	1959-60	40,667.79	132.21	Cash	0	0
El Cajon Dry Island Annexation,	9-17-59	11,600.00	1960-61	1969-70	0	1,231.58	11¢	10,368.42	0
Sunynslope Heights Annexation,	8-10-60	1,700.00	1960-61	1960-61	0	1,700.00	Cash	0	0
Helix-Willis-Houston Annexation	7-25-60	13,600.00	1961-62	1970-71	0	0	0	13,600.00	0
Olivenhain M. W. D.	10-26-56	24,900.00	1957-58	1961-62	14,914.65	6,389.66	4¢	3,595.69	0
Oray M. W. D.	10-20-60	16,800.00	1961-62	1970-71	0	0	0	16,800.00	0
Poway M. W. D.	9-21-59	4,000.00	1960-61	1969-70	0	407.92	6¢	3,592.08	0
No. 1 Annexation of 1959	5-12-59	3,500.00	1960-61	1969-70	0	367.21	11¢	3,132.79	0
Rainbow M. W. D.	8-27-57	41,900.00	1958-59	1963-63	17,328.14	8,417.57	16¢	16,154.29	0
No. 1 Annexation of 1958	5-29-59	6,600.00	1960-61	1969-70	0	674.13	14¢	5,925.87	0
Ramona M. W. D.	12-12-60	600.00	1960-61	1960-61	0	600.00	Cash	0	0
Razon del Diablo M. W. D.	6-7-56	46,100.00	1957-58	1961-62	28,621.08	9,049.73	4¢	8,429.19	0
No. 1 Annexation of 1960	11-6-59	18,300.00	1960-61	1969-70	0	1,792.55	8¢	16,507.45	0
(Not including Lakeside I. D.)	10-17-60	57,100.00	1961-62	1970-71	0	0	0	57,100.00	0
No. 3 Annexation of 1960	9-15-59	8,400.00	1960-61	1969-70	0	869.86	13¢	7,530.14	0
San Dieguito I. D.	5-9-55	23,600.00	1956-57	1960-61	19,221.96	4,378.04	10¢	3,900.00	0
No. 1 Annexation of 1959	12-12-60	3,900.00	1961-62	1970-71	0	0	0	3,900.00	0
Valley Center M. W. D.									
No. 1 Annexation of 1960									
Total		\$730,280.00			\$517,910.72	\$38,984.46		\$173,384.82	

TABLES

Table 25
METROPOLITAN WATER DISTRICT ANNEXTION CHARGES,
ASSESSMENTS AND BALANCES ON AUTHORITY AREAS

Member Agencies	Date of Annexation	Period of Special Assessments		Amount of Annexation Charge	Special Assessments to 6/30/59	Fiscal Year 1960-61		Remaining Balance 6/30/61
		First Yr	Last Yr			Special Assessments	Tax Rate 6/30/61	
Annexation Charges Completed to June 30, 1960				\$ 87,414	\$ 87,414.00			
Outstanding as of June 30, 1960								
Chula Vista, City of	12-17-46	1947-48	1976-77	12,045,000	9,711,259.35	437,296.74	4	\$ 6,876,447.81
Fallbrook Public Utility District	6-11-54	1955-56	1964-65	1,072,330	160,860.26	35,374.36	9	851,895.36
Lakeside Irrigation District	8-16-54	1955-56	1964-65	545,309	83,148.50	17,795.46	5	437,243.54
National City, City of	10-9-50	1951-52	1960-61	366,600	116,863.10	12,193.17	6	254,623.73
Oceanside, City of	8-1-50	1953-52	1960-61	34,600	15,473.56	697.47	5	18,319.97
San Diego, City of	11-24-58	1959-60	1968-69	50,400	1,637.51	1,711.37	21	47,001.22
Bonito Colorado M. W. D.	12-13-48	1948-49	1978-79	10,500	3,893.10	318.33	4	6,289.37
Carlsbad M. W. D.	12-29-54	1955-56	1964-65	327,450	54,689.59	12,625.56	3	259,034.53
Escondido, City of	2-29-50	1960-61	1969-70	8,730	0	312.14	13	8,417.86
Fallbrook Public Utility District	8-17-50	1960-61	1969-70	38,230	0	1,343.54	12	36,886.46
Holla-Willsa-Ironston Amniation	8-18-60	1960-61	1965-61	2,400	0	2,400.00	Cash	0
Holla-Willsa-Ironston Amniation	7-25-60	1961-62	1969-70	81,880	27,731.75	9,456.71	6	53,880.00
Oliverbala M. W. D.	10-20-56	1957-58	1966-67	273,000	0	0	0	273,000.00
Oliverbala M. W. D.	10-20-56	1957-58	1966-67	98,100	0	0	0	98,100.00
1969 Amniation No. 3	10-20-59	1961-62	1969-70	91,800	15,857.05	2,638.92	3	73,884.03
Poway M. W. D.	4-21-54	1955-56	1964-65	37,150	0	0	0	37,150.00
1959 Amniation	9-21-59	1960-61	1969-70	27,150	28,286.87	5,685.08	11	26,388.29
Rainbow M. W. D.	4-10-54	1955-56	1964-65	187,700	0	0	0	187,700.00
1958 Amniation	8-12-58	1960-61	1969-70	34,300	22,780.42	11,638.82	22	23,463.42
Rancho M. W. D.	8-27-37	1958-59	1967-68	339,000	0	0	0	339,000.00
Rancho M. W. D.	8-27-37	1958-59	1967-68	42,330	1,444.56	39	39	40,885.44
1958 Amniation	8-28-58	1960-61	1969-70	737,300	126,580.44	23,293.28	19	605,323.17
Rincon del Diablo M. W. D.	8-14-54	1955-56	1964-65	4,250	0	4,655.00	Cash	0
1960 Amniation	12-12-60	1960-61	1960-61	4,250	0	4,655.00	Cash	0
Rio San Diego M. W. D.	6-7-56	1957-58	1966-67	372,980	37,444.44	13,269.65	6	322,665.81
(not including Lakeside I. D.)	11-26-58	1959-60	1968-69	109,110	0	3,699.17	37	105,260.83
1958 Amniation No. 3	10-17-46	1946-47	1965-66	289,890	0	0	0	289,890.00
1960 Amniation No. 3	10-17-46	1960-61	1969-70	187,200	69,267.43	5,829.29	3	111,903.27
San Diego Irrigation District	12-12-48	1949-50	1978-79	187,200	0	0	0	187,200.00
1958 Amniation	9-12-58	1960-61	1969-70	71,800	61,951.69	5,321.83	3	69,411.17
South Bay Irrigation District	12-13-46	1946-47	1978-79	167,000	0	0	0	167,000.00
South Bay Irrigation District	11-3-52	1953-54	1962-63	449,370	107,117.12	14,263.53	5	327,989.25
(not including City of Chula Vista)	8-9-55	1956-57	1965-66	265,640	27,784.70	6,698.49	14	171,268.81
Valley Center M. W. D.	12-12-40	1941-42	1960-61	33,730	0	0	0	33,730.00
1960 Amniation				\$19,394,729	\$4,780,878.02	\$657,431.45		\$11,946,729.50

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Table 25

WATER SALES BY METROPOLITAN WATER DISTRICT
Fiscal Years 1941-42 to 1960-61

Year	To Member Municipalities						
	Natural Water		Softened Water		Total to Agencies	To Others	Total
	Acro feet	Per cent	Acro feet	Per cent	Acro feet	Acro feet	Acro feet
1941-42...	0	0	9,372.6	100	9,372.6	70.7	9,443.3
1942-43...	0	0	14,457.8	100	14,457.8	2,626.4	17,084.2
1943-44...	0	0	15,874.9	100	15,874.9	3,301.8	19,176.7
1944-45...	0	0	30,591.3	100	30,591.3	1,715.7	32,307.0
1945-46...	0	0	46,685.8	100	46,685.8	1,264.2	47,950.0
1946-47...	0	0	59,861.8	100	59,861.8	524.0	60,385.8
1947-48...	41,093.5	36	71,995.4	64	113,088.9	116.8	113,255.7
1948-49...	71,642.6	49	73,237.1	51	144,879.7	128.4	145,008.1
1949-50...	69,308.0	49	72,936.0	51	142,244.0	23,371.6	165,615.6
1950-51...	75,000.9	54	63,493.1	46	138,494.0	26,978.6	165,472.6
1951-52...	66,674.3	44	84,616.1	56	151,290.4	42,464.2	193,754.6
1952-53...	30,845.3	24	99,589.6	76	130,434.9	31,682.4	162,117.3
1953-54...	120,773.0	51	115,550.6	49	236,323.6	7,820.7	244,144.3
1954-55...	192,544.7	59	134,923.3	41	327,468.0	58,184.5	385,652.5
1955-56...	190,337.2	53	169,506.4	47	359,843.6	45,562.9	405,406.5
1956-57...	286,059.1	60	191,110.7	40	477,169.8	66,074.1	543,243.9
1957-58...	266,024.1	57	197,900.0	43	463,924.1	75,612.8	539,536.9
1958-59...	244,354.2	46	282,248.1	54	526,602.3	74,107.1	600,709.4
1959-60...	425,019.0	58	304,874.8	42	729,893.8	3,523.2	733,417.0
1960-61...	594,521.1	64	335,207.2	36	929,728.3	4,099.4	933,827.7

Table 26
WATER PRODUCTION—METROPOLITAN WATER DISTRICT CONSTITUENT AREAS
 Figures Furnished by Metropolitan Water District

Constituent Areas	Total Water Production			Source of Water Produced—1960-61			
	1959-60	1960-61	Per cent	M. W. D.			
	Amount ac. ft.	Amount ac. ft.	Increase or Decrease	Amount ac. ft.	Percent of Total	Amount ac. ft.	Other
Anaheim	17,944	20,668	15.2	5,184	25.1	15,484	74.9
Beverly Hills	14,074	11,415	-18.9	3,548	31.1	7,867	68.9
Burbank	24,743	25,320	2.3	4,919	19.4	20,401	80.6
Calliguan M. W. D.	---	53,770	-	---	0	53,770	100.0
Central Basin M. W. D.	189,375	218,597	15.4	9,978 (b)	4.6	208,619	95.4
Chino Basin M. W. D.	116,692	135,635	16.2	4,909	3.6	130,726	96.4
Coastal M. W. D.	13,699	16,320	19.1	14,471	88.7	1,849	11.3
Compton	7,719	7,900	2.3	359	4.5	7,541	95.5
Eastern M. W. D.	141,604	141,511	- 0.1	39,635	28.0	101,876 (a)	72.0
Foothill M. W. D.	15,656	16,070	2.6	9,454	58.8	6,616	41.2
Fullerton	14,586	16,365	12.2	6,457	39.5	9,908	60.5
Glendale	23,810	24,013	0.9	2,772	11.5	21,241	88.5
Las Virgenes M. W. D.	---	700	-	---	0	700	100.0
Long Beach	52,767	54,175	2.7	15,768 (b)	29.1	38,407	70.9
Los Angeles	518,241	530,380	2.3	106,261 (b)	20.0	424,119	80.0
Orange County M. W. D.	229,151	223,662	- 2.4	47,562 (c)	21.3	176,100	78.7
Pasadena	33,319	34,603	3.9	21,518	62.2	13,085	37.8
Pomona Valley M. W. D.	50,105	54,926	9.6	8,664	15.8	46,262	84.2
San Diego C. W. A.	202,177	220,315	9.0	197,375 (e)	89.6	22,940	10.4
San Marino	5,260	5,600	6.5	10	0.2	5,590 (f)	99.8
Santa Ana	15,292	17,100	11.8	8,324	48.7	8,776	51.3
Santa Monica	14,912	14,413	- 3.3	10,913	75.7	3,500	24.3
Torrance	15,876	16,791	5.8	14,373	85.6	2,418	14.4
West Basin M. W. D.	123,366	149,770	21.4	72,495 (d)	48.4	77,275	51.6
Western M. W. D.	161,320	168,790	4.6	12,560	7.5	156,230	92.5
Totals	2,001,633	2,178,809	8.8	617,539	28.3	1,561,270	71.7

(a) Includes 4,639, 0 A. F. of tunnel seepage into San Jacinto Tunnel.

(b) Does not include 143, 185.4 A. F. of unsoftened water used to recharge the underground basin in Zone 1 and to be distributed as follows: 113, 597.6 A. F. to Central Basin MWD; 5, 767.5 A. F. to Compton; 22, 992.7 A. F. to Long Beach; and 827.6 A. F. to Los Angeles as directed by letter of L. A. C. F. D. dated July 13, 1961.

(c) Does not include 164, 511.9 A. F. of unsoftened water used to recharge the underground basin in Orange Co. but the above figure includes 27, 844.9 A. F. used for irrigation, etc.

(d) Does not include 4, 491.7 A. F. of softened water injected underground to form a fresh water barrier against salt water intrusion in West Basin MWD.

(e) Includes 14, 775.1 A. F. of water delivered but placed in storage.

(f) Includes 306.66 A. F. of water pumped by Huntington Library.

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Table 27
ANALYSIS OF COLORADO RIVER AQUEDUCT WATER
TAKEN AT WEST PORTAL OF SAN JACINTO TUNNEL
 For Year Ending June 30, 1961

Constituent	Symbol	ANALYSIS		
		Average	Maximum	Minimum
Silica.....	SiO ₂	9.7	14.0	6.6
Iron.....	Fe	Trace	--	--
Calcium.....	Ca	86	89	83
Magnesium.....	Mg	27.5	28.5	27
Sodium.....	Na	91	95	88
Potassium.....	K	4	5	4
Carbonate.....	CO ₃	1	2	0
Bicarbonate.....	HCO ₃	145	150	135
Sulfate.....	SO ₄	283	294	275
Chloride.....	Cl	83	87	78
Nitrate.....	NO ₃	1.6	2.2	1.0
Fluoride.....	F	0.4	0.5	0.4
Total Dissolved Solids		660	684	645
Hardness as CaCO₃				
Total.....		328	337	318
Carbonate.....		121	125	115
Noncarbonate.....		207	213	201
Alkalinity - Phenolphthalein ..		1	2	0
Alkalinity - Total.....		121	125	115
Free Carbon Dioxide.....	CO ₂	1	1	0
Hydrogen Ion Concentration... pH		8.3	8.5	8.2
Electrical Conductivity.....	ECx10 ⁶ @ 25°C	1040	1075	1010

NOTE: For analyses of monthly samples see Table 12.

SAN DIEGO COUNTY WATER AUTHORITY

Table 28

ASSESSED VALUATIONS AND TAX RATES OF THE
METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Fiscal Year	Area (acres)	Assessed Valuation Total (1)	Tax Rate	
			Per \$100 Secured	Per \$100 Unsecured
1929-30	-	\$ 2,439,836,920	\$0.04	\$0.00
1930-31	-	2,431,684,250	.03	.04
1931-32	-	2,382,184,445	.03	.03
1932-33	-	1,936,051,180	.04	.03
1933-34	-	1,654,403,890	.04	.04
1934-35	-	1,587,147,565	.10	.04
1935-36	-	1,783,531,020	.20	.10
1936-37	-	1,789,160,685	.37	.20
1937-38	-	1,827,765,725	.40	.37
1938-39	-	1,896,966,255	.40	.40
1939-40	-	1,910,152,190	.42	.40
1940-41	389,588	1,841,248,450	.49	.42
1941-42	399,875	1,900,599,934	.48	.49
1942-43	400,614	2,001,924,735	.48	.48
1943-44	401,190	2,005,496,430	.48	.48
1944-45	401,536	2,109,192,795	.48	.48
1945-46	402,779	2,159,731,425	.50	.48
1946-47	501,425	2,413,186,570	.48	.50
1947-48	546,573	3,443,212,822 (2)	.35	.48
1948-49	578,368	3,883,081,225	.34	.35
1949-50	585,184	4,181,812,855	.34	.34
1950-51	721,850	4,381,519,725	.31	.34
1951-52	995,130	4,674,664,040	.30	.31
1952-53	1,120,448	5,372,498,515	.28	.30
1953-54	1,368,038	6,015,691,980	.25	.28
1954-55	1,793,651	6,548,392,114	.23	.25
1955-56	1,876,256	8,514,868,335	.21	.23
1956-57	1,932,205	9,674,000,560	.19	.21
1957-58	2,046,189	11,235,906,510	.18	.19
1958-59	2,128,333	12,070,838,070	.18	.18
1959-60	2,171,290	12,714,205,470	.17	.18
1960-61	2,544,960	13,737,971,925	.16	.17
1961-62 (3)		14,803,202,587	.15	.16

(1) Includes secured, unsecured, and public utility valuations.

(2) First year in which Authority assessed valuation was included in district's assessed valuation.

(3) Data for 1961-62 were available before completion of report and are included for convenience of reader.