

SAN DIEGO COUNTY
WATER AUTHORITY



ELEVENTH ANNUAL REPORT
1957

SAN DIEGO COUNTY WATER AUTHORITY

ELEVENTH
ANNUAL REPORT
of Authority Operations

For

Fiscal Year Ending June 30, 1957

Richard S. Holmgren
General Manager and Chief Engineer

SAN DIEGO, CALIFORNIA

1957

TABLE OF CONTENTS

	<i>Page</i>
BOARD OF DIRECTORS	4
MEMBER AGENCIES	6
COMMITTEES OF THE BOARD	7
EXECUTIVE OFFICERS AND OPERATING STAFF	7
LETTER OF TRANSMITTAL	9
REPORT OF THE AUTHORITY AND ITS OPERATIONS	13
GROWTH OF AUTHORITY	13
Area	13
Population	13
Assessed Valuation	14
WATER SUPPLY AND CONSUMPTION	15
Flow in Metropolitan's San Diego County Feeder	15
Water Deliveries	17
Water Production of Member Agencies	19
Water Quality	21
Allocation of Water Among Member Agencies	22
OPERATION AND MAINTENANCE	23
Maintenance	25
Chlorination	25
PUBLIC RELATIONS	26
CONSTRUCTION PROGRAM	26
Valley Center No. 2 Service Connection	27
Bueno No. 2 Service Connection	27
Enlargement of Meter for Rincon No. 1 Service Connection	27
Helix (formerly La Mesa) No. 2 Service Connection	28
Rio No. 3 Service Connection	29
Valley Center No. 3 Service Connection	29
SECOND SAN DIEGO AQUEDUCT	30
AUTHORITY BUILDING	35
LEGAL AND LEGISLATIVE	35
Annexations	35
Legislation	35
State Water Development	36
MEMBERSHIP IN THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA	37
Area	37
Assessed Valuation	37
Water Supply and Sales	39
District Tax	41
Water Rates	42
FINANCIAL	42

TABLE OF CONTENTS

(Continued)

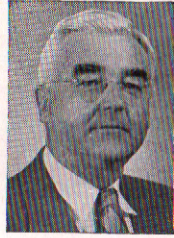
FIGURES

	<i>Page</i>
A. Authority Area Within San Diego County	12
B. Diagrammatic Layout of Authority System Showing Valves and Meters	16
C. Rainfall Record at San Diego, California	18
D. Composition of the Metropolitan Water District of Southern California	38
E. Water Systems of Metropolitan Water District and San Diego County Water Authority	40

TABLES

1. Area—Authority Member Agencies as of June 30	46
2. Population Growth—County and Authority Area—1910 to 1957	47
3. Population—Authority Member Agencies and County	48
4. Assessed Valuations—Authority Member Agencies and County	49
5. Sales of Colorado River Water—Fiscal Year 1956-57	50
6. Sales of Colorado River Water—1947 to 1957	52
7. Water Production of Authority Agencies—Fiscal Years 1944-45 to 1956-57	53
8. Water Production of Authority Agencies—Fiscal Year 1956-57	54
9. Unit Water Production—Per Acre and Per Capita 1956-57	55
10. Authority Storage in San Vicente Reservoir—Fiscal Year 1956-57	56
11. Chemical Character of Natural Colorado River Water at West Portal of San Jacinto Tunnel	57
12. Allocation of Right to Purchase Authority Water	58
13. Statement of Assessed Valuations and Tax Rates to June 30, 1957	59
14. Statement of Financial Position June 30, 1957	60
15. Statement of Income and Surplus July 1, 1956 to June 30, 1957	62
16. Statement of Revenues—Estimated and Actual	64
17. Statement of Appropriations and Expenditures	65
18. Summary Statement of Cash Receipts and Disbursements	66
19. Statement of Bonds Payable	67
20. Statement of Tax Assessments and Collections	68
21. Tax Levies and Tax Collections—Fiscal Years 1945-46 to 1956-57	69
22. San Diego County Water Authority Annexation Charges, Assessments and Balances	70
23. Metropolitan Water District Annexation Charges, Assessments and Balances on Authority Areas	71
24. Water Sales by Metropolitan Water District—Fiscal Year 1941-42 to 1956-57	72
25. Water Production—Metropolitan Water District Constituent Areas	73
26. Assessed Valuations and Tax Rates of the Metropolitan Water District	74

Members
of the
BOARD OF DIRECTORS
1956-57



Vice-Chairman
D. Maitland Bakewell
Sante Fe
Irrigation District
12-48 to 6-57



Chairman
Fred A. Heilbron
San Diego
7-44 to 6-57



Secretary
Hans H. Doe
Bueno Colorado
Municipal Water District
6-54 to 6-57



Ralph E. Barger
Otay Municipal
Water District
12-56 to 6-57



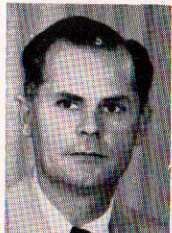
Paul Beermann
San Diego
2-53 to 6-57



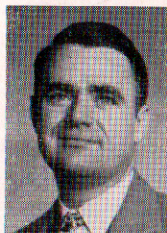
Baylor Brooks
San Diego
5-54 to 6-57



Donald Burnham
San Diego
5-54 to 6-57



Maurice Carrigan
National City
7-53 to 5-57



Charles R. Considine
Valley Center
Municipal Water
District
5-57 to 6-57



W. Ray Coyle
South Bay
Irrigation District
6-53 to 6-57



Charles A. Crytser
Rincon del Diablo
Municipal Water District
6-54 to 6-57



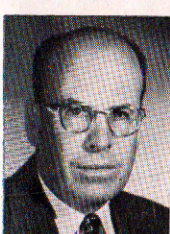
William B. Dennis
Rainbow Municipal
Water District
5-55 to 6-57



Harry Griffen
Helix
Irrigation District
7-56 to 6-57



Joseph P. Haley
Valley Center Municipal
Water District
4-56 to 4-57



Tom Harrington
San Dieguito
Irrigation District
1-54 to 6-57

Members
of the
BOARD OF DIRECTORS
1956-57
(Continued)



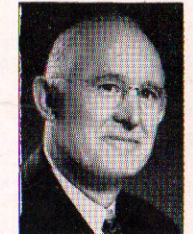
Otis P. Heald
Fallbrook Public
Utility District
12-50 to 10-56



G. R. Henderson
San Diego
10-55 to 6-57



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



George Kerrigan
San Diego
9-53 to 6-57



H. Fred Landgraf
San Diego
10-55 to 6-57



R. M. Levy
Helix
Irrigation District
5-53 to 6-57



Arthur H. Marston
San Diego
7-44 to 6-57



Jack E. McLean
Rio San Diego
Municipal
Water District
4-52 to 6-57



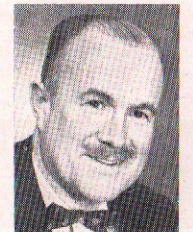
Lloyd M. Mitchell
Escondido
12-56 to 6-57



William W. Rogers
Carlsbad Municipal
Water District
6-54 to 6-57



Franz R. Sachse
Fallbrook Public
Utility District
10-56 to 6-57



T. Franklin Schneider
San Diego
11-54 to 6-57



David R. Shepardson
Poway Municipal Water
District
4-54 to 6-57



Fred W. Simpson
San Diego
7-44 to 6-57



Robert A. Weese
Oceanside
3-53 to 6-57



Arthur C. Wells
San Diego
2-53 to 6-57

SAN DIEGO COUNTY WATER AUTHORITY

MEMBER AGENCIES AS OF JUNE 30, 1957

<i>Member Agencies</i>	<i>Date of Entry</i>
Cities	
Escondido	Oct. 9, 1950
National City	June 9, 1944
Oceanside	June 9, 1944
San Diego	June 9, 1944
Irrigation Districts	
Helix	June 9, 1944
San Dieguito	Dec. 13, 1948
Santa Fe	Dec. 13, 1948
South Bay	Nov. 3, 1952
(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
Carlsbad	June 16, 1954
Otay	Oct. 26, 1956
Poway	April 21, 1954
Rainbow	April 10, 1954
Rincon del Diablo	June 14, 1954
Rio San Diego	June 7, 1956
(Includes Lakeside I.D., an independent member agency from June 9, 1944 to June 7, 1956.)	
Valley Center	May 9, 1955
Public Utility District	
Fallbrook	June 9, 1944

COMMITTEES OF THE BOARD

June 30, 1957

ENGINEERING AND OPERATIONS

Paul Beermann, Chairman
 Robert A. Weese, Vice Chairman
 Baylor Brooks
 Charles A. Crytser
 Hans H. Doe
 Tom Harrington
 George R. Henderson
 Arthur H. Marston
 Lloyd M. Mitchell

LEGAL AND CLAIMS

D. M. Bakewell, Chairman
 Donald C. Burnham, Vice Chairman
 W. B. Dennis
 Harry Griffen
 George Kerrigan
 H. Fred Landgraf
 William W. Rogers
 Franz R. Sachse
 T. Franklin Schneider
 David R. Shepardson
 Arthur C. Wells

WATER PROBLEMS

Arthur M. Marston, Chairman
 Hans H. Doe, Vice Chairman
 Paul Beermann
 W. Ray Coyle
 Fred A. Heilbron
 R. M. Levy
 William W. Rogers
 Franz R. Sachse
 Fred W. Simpson

FINANCE AND INSURANCE

Arthur C. Wells, Chairman
 D. M. Bakewell, Vice Chairman
 Ralph E. Barger
 Donald C. Burnham
 Charles R. Considine
 W. Ray Coyle
 Charles A. Crytser
 Harry Griffen
 George Kerrigan
 H. Fred Landgraf
 R. M. Levy
 Jack E. McLean
 Lloyd M. Mitchell
 T. Franklin Schneider

ORGANIZATION, PERSONNEL AND PUBLIC RELATIONS

Fred W. Simpson, Chairman
 D. M. Bakewell, Vice Chairman
 Ralph E. Barger
 Baylor Brooks
 W. Ray Coyle
 W. B. Dennis
 Tom Harrington
 George R. Henderson
 Jack E. McLean
 David R. Shepardson
 Robert A. Weese

LANDS AND RIGHTS OF WAY

Donald C. Burnham, Chairman
 Wm. W. Rogers, Vice Chairman
 Charles A. Crytser
 Harry Griffen
 H. Fred Landgraf
 Lloyd M. Mitchell
 Franz R. Sachse
 David R. Shepardson

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 L. Hall
 Executive Secretary.....Dorothy D. Miller
 Superintendent, Maintenance and Operation.....Joseph E. Lester



Board Room of Authority Directors

2750 Fourth Avenue
San Diego, California
October 15, 1957

Board of Directors
San Diego County Water Authority

Gentlemen:

Respectfully transmitted herewith is the Eleventh Annual Report, covering operations of the Authority for fiscal year 1956-57, as prescribed in Ordinance No. 2, adopted by the Board of Directors December 1, 1944.

Beginning of active work for importing additional water into Authority area by construction of a Second San Diego Aqueduct was by far the most important event of the year. Authorization to proceed with the project was given by the Board of Directors in January of 1957, and by June 30, 1957 the Authority staff had been expanded to include a total of 32 persons, actively engaged on the project. Preparation for an election to be held July 9, 1957 to authorize a \$35,000,000 bond issue was made for the purpose of financing the construction of the aqueduct. The bond issue was approved by a 93.2 per cent vote, with 91,465 voting yes and 6,647 voting no.

The extreme drought condition in the area, which began in 1945-46, interrupted only once (1951-52) in the past twelve years, continued throughout the fiscal year of 1956-57, with a recorded rainfall at Lindbergh Field, City of San Diego, of only 8.89 inches, or 82 per cent of the normal 10.86 inches. The percentage of normal rainfall in the mountain areas, from which the area derives its major local water supplies, was even smaller, with only 72 per cent of normal at Cuyamaca

Reservoir in the Laguna Mountains and 67 per cent at Lake Henshaw near Palomar Mountain, resulting in practically no runoff from the mountain areas into major impounding reservoirs of the County. The total quantity of water reserves in storage in the reservoirs of member agencies, however, dropped only 2,800 acre feet during the year—from 91,200 to 88,400 acre feet.

Both barrels of the San Diego Aqueduct were operated continuously and at full capacity throughout the year, resulting in a total of 144,375 acre feet of Colorado River water being brought into the area, the largest amount of supplemental water ever imported into San Diego County in any one year.

The total quantity of water produced from all available sources by member agencies to meet the need of consumers during the fiscal year, including water obtained from local underground and surface supplies and from the Authority aqueduct, was 158,320 acre feet, or 12,890 acre feet above the amount supplied by the Authority. The safe annual yield of the sources, from which local water is obtained, has been estimated at about 90,000 acre feet per year. Such yield is not presently available because of an overdraft in the years before Authority water was available, with no replenishment of reserves due to continued drought conditions.

The population continued to expand rapidly during the year, hence the need for additional water. The 1957 population in the County of San Diego is estimated to be 900,000, an increase of 62 per cent over the 556,800 reported in the 1950 U. S. Census Bureau. This represents an average of about 50,000 persons per year. The largest number of persons, totaling about 400,000, are employed in industry and federal service, primarily Navy and Marine Corps activities, with payrolls totaling about \$600,000,000. This represents a substantial increase in employment over the previous year. Agriculture also continues to ex-

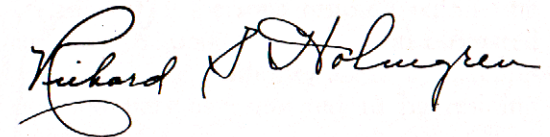
pand throughout the County, producing farm products in excess of \$93,000,000, ranking nineteenth highest of the 3,069 counties of the United States in dollar value of products produced.

The tremendous growth now taking place throughout the County is rapidly utilizing all presently available water supplies, including Authority imported water from the Colorado River. Continuation of growth appears inevitable, and to meet the additional water demand, construction of the Second San Diego Aqueduct must be carried forward diligently.

Studies made during the year indicate that if the present growth continues, additional imported water above that obtainable from the Colorado River will be needed in about fifteen years. The only source of such additional water appears to be from surplus water in Northern California streams, and the transfer of such water to deficient areas south of the Sacramento-San Joaquin Delta represents a real challenge to the State. The Authority directors and staff members assisted wherever possible in advancing this work, and will continue to maintain active interest in the project.

The staff continues to carry on efficiently routine activities of the Authority, and several new service outlets have been constructed by operation and maintenance personnel in addition to regular maintenance activities. The physical works of the Authority system are in excellent condition.

Very truly yours,



General Manager and Chief Engineer

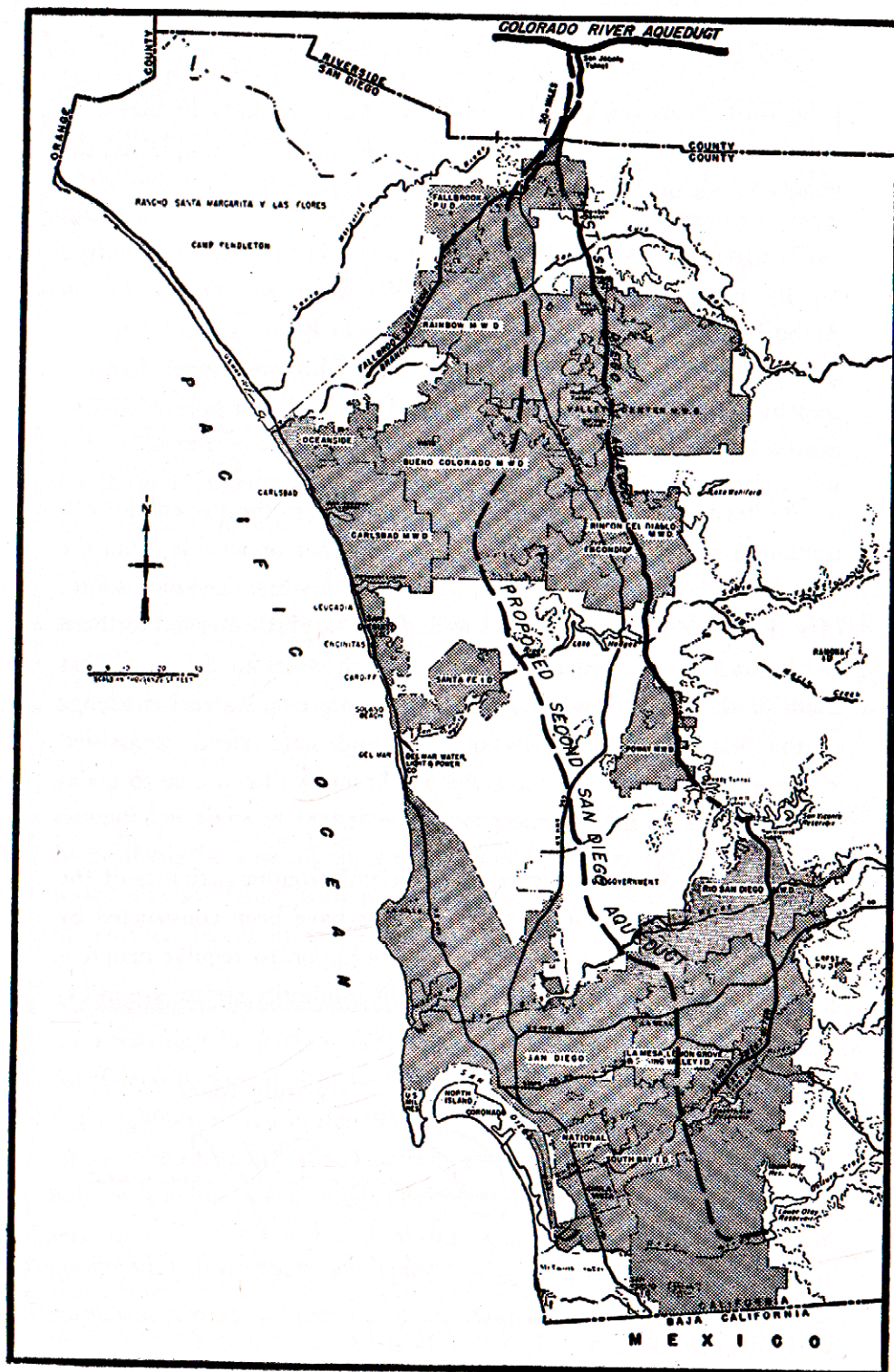


Figure A. Authority area within San Diego County

REPORT OF THE AUTHORITY AND ITS OPERATIONS

For the Fiscal Year 1956-57

GROWTH OF AUTHORITY

Area

The area of the Authority was substantially increased on October 26, 1956 by annexation of the Otay Municipal Water District, having an area of 55,500 acres. This area lies easterly and southerly of the South Bay Irrigation District and extends to the Mexican border. The Otay District is now the largest member agency in area in the Authority's boundaries. Other minor increases automatically occurred by annexation of small areas to the Cities of Escondido, National City, Oceanside, and San Diego. A total area of 55,896 acres was added to the Authority during the fiscal year, making a total of 434,534 acres lying within the boundary of the Authority as of June 30, 1957, equal to 16 per cent of the entire area of San Diego County.

A tabulation showing the area within the boundary of each member agency as of June 30, 1957 and the changes which occurred during the fiscal year is shown on Table 1.

The San Dieguito Irrigation District is the only member agency of the Authority which has annexed land to its District for local purposes only without making the land a part of the Authority. The District became a member agency of the Authority in 1948, and since then it has annexed a total of 28 acres for local purposes. Since this acreage is not within the boundary of the Authority, it is not eligible to receive Authority water.

Population

As of April 1, 1957, the number of persons residing within the Authority service area had increased 32,050, making a total estimated population of 783,550 persons within the Authority area. This represents 87 per cent of the 900,000 persons estimated to be residing within the County of San Diego.

A tabulation, showing the growth of population by decades (from 1910-50, as determined by the U. S. Census Bureau) residing within

the Authority area and the County, and the estimated figures for the past three years, is shown on Table 2.

A breakdown of the population of the Authority for each of its member agencies in 1940 and 1950, as determined by the U. S. Census Bureau, and the 1957 estimated population of each member agency, is shown on Table 3. The percentage increases in the decade 1940-50 and the present decade to date are also shown on this table. The average annual percentage population increase during the past seven years of the present decade in the Authority as a whole has averaged 10 per cent, with the highest increases occurring within the Helix and San Dieguito Irrigation Districts, where an average annual increase of 13 per cent occurred during the 7-year period.

The average density of population within the Authority in 1957 is shown on Table 3 as 1,154 persons per square mile, with the City of National City having the highest density of any member agency, equal to 3,787 persons per square mile, or 5.92 persons per acre. The City of Chula Vista, lying within the South Bay Irrigation District, has the highest population density of any city within the County of San Diego, equal to 5,350 persons per square mile, or 8.4 persons per acre. Otay Municipal Water District has the lowest population density, with an average of only 13 persons per square mile of area.

Assessed Valuation

The assessed valuation of taxable property lying within the Authority's boundary showed a substantial increase of \$86,336,030 in the year 1956-57, of which \$2,947,250 resulted from annexation of the Otay Municipal Water District to the Authority. The total of \$888,828,580 in assessed valuation is a new high for the Authority, and an increase of 10.4 per cent over that of the previous year. This is equivalent to an average assessed valuation of \$2,045 per acre for the entire Authority area.

A breakdown of the total assessed valuation of taxable property lying within the areas of member agencies, for fiscal years 1955-56 and 1956-57, together with percentage increases, is shown on Table 4.

The assessed valuation of taxable property within each member agency for the next fiscal year, 1957-58, as prepared and submitted to the Authority by the County Auditor, was received prior to publication of this report; therefore these figures have been included on Table 4 for convenience of reference. These figures show that large increases

have again been made in the 1957-58 fiscal year, with a total of \$1,001,006,270, or about 12.6 per cent above the prior year's assessed valuation of taxable property lying within the Authority's boundary.

WATER SUPPLY AND CONSUMPTION

Flow in Metropolitan's San Diego County Feeder

The Metropolitan Water District of Southern California diverts water for the Authority system from its Colorado River Aqueduct at the west portal of San Jacinto Tunnel into a 2-mile length of 96-inch pipeline, which carries the water under the San Jacinto River and discharges it into a small regulating reservoir, designated as the San Jacinto Reservoir, having a capacity of about 1,800 acre feet. Water is metered and released from the reservoir as demanded by the Authority, flowing through the District's system to the main point of delivery to the Authority, located about six miles south of the San Diego County line. Water is delivered to the Authority at a second point, located 1.5 miles south of the County line, for use in Rainbow and Fallbrook Districts and the City of Oceanside.

The District's feeder consists of two parallel pipelines, having delivery design capacities of 85 and 95 c.f.s., respectively, from San Jacinto Reservoir to a bifurcation structure, where flows are combined at the north end of a 6-foot tunnel under Rainbow Mountain, having a capacity of about 195 c.f.s. On leaving the tunnel, the flow is again divided by means of a similar bifurcation structure into two parallel and identical pipelines, from which it is received by the Authority at the delivery point, 5.9 miles south of the County line.

The Metropolitan Water District was requested to deliver to the Authority all water possible through its pipeline to point of delivery. This request was carried out at flows of about 96 and 104 c.f.s., respectively, in the two pipelines throughout the entire year. Without difficulty, the Authority system received and delivered the water to its member agencies. Flows, however, were reduced for a short period in April of 1957, when the District shut down its Colorado River Aqueduct for a few days to unwater and enter Freda Siphon east of Indio for inspection and cleaning. During the shutdown diversion from the aqueduct to San Jacinto Reservoir ceased, but a continuous delivery of water to the Authority was maintained, though somewhat reduced in volume, from water stored in San Jacinto Reservoir.

The total quantity of Colorado River water received from the

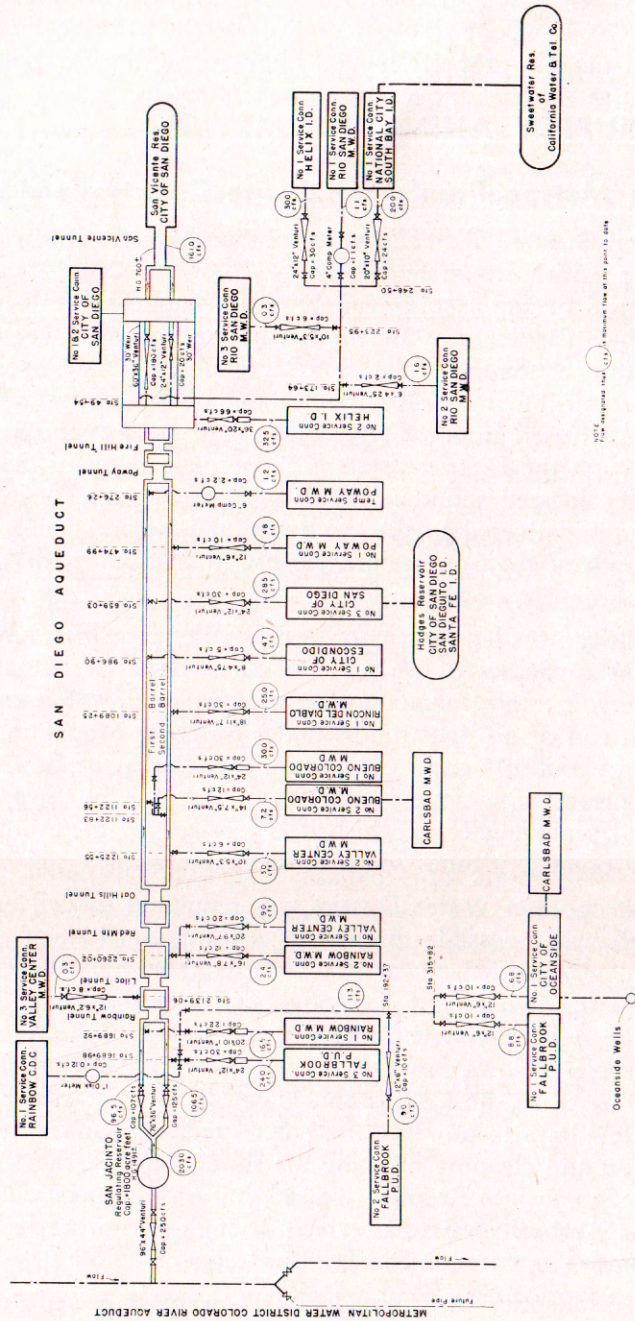


Figure B. Diagrammatic Layout of Authority System showing Values and Meters

Metropolitan Water District in the 1956-57 fiscal year was 144,469 acre feet, an average delivery of 199.6 c.f.s., or 129 m.g.d.

Included in the above quantity of Colorado River water received from Metropolitan Water District for Authority use, was 70 acre feet transported through the Authority's system for the District and delivered under contract with the State, for use at the Rainbow State Forestry Camp; and to the Convair Division of General Dynamics Corporation, for use in testing governmental facilities in Sycamore Canyon. The areas served lie outside Authority boundary; therefore these areas are not eligible to receive Colorado River water except by contract with the District and the Authority.

Water Deliveries

Requirements of member agencies for water to supplement local supplies, that they might meet the needs of their consumers, were practically all met by the Authority either by direct deliveries from the current flow of the aqueduct or from water stored in San Vicente Reservoir by the Authority to member agencies' accounts. However, several agencies required supplemental water above that available to them from the Authority. A total of 12,950 acre feet of City water, stored in San Vicente Reservoir, was made available by the City of San Diego to these agencies, provided the Authority agreed to deliver the water. The Authority transported this water by means of an exchange of water at no expense to the City or the agencies.

A total of 145,430 acre feet of Colorado River water was sold by the Authority during the fiscal year. This quantity represented an increase of 12,453 acre feet, or 9.4 per cent over the 132,977 acre feet sold during the previous year. Water sales were made to all member agencies except Otay Municipal Water District, where no system for receiving Authority water had yet been installed.

The maximum sale of water during the year occurred in July of 1956, when 13,782 acre feet (equal to a continuous flow of 224 c.f.s., or 144.8 m.g.d.) was delivered by the Authority to its member agencies. This 25 c.f.s. flow above the capacity of the aqueduct was made possible by the transfer of Authority stored water in San Vicente Reservoir to the City of San Diego.

Total water sales by months and a breakdown for each member agency are shown on Table 5, together with total monthly quantities received from the current flow of the aqueduct. The annual quantity

actually served, and unit consumer use per capita residing within the agency and served thereby are shown on Table 9. Average use throughout the Authority area is 0.85 acre feet per gross acre served per year, with a maximum of 1.23 acre feet per acre in the South Bay Irrigation District and a minimum of 0.08 acre feet per acre in the Valley Center Municipal Water District. On a per capita basis, an average use of 0.20 acre feet per year was recorded, equal to 179 g.p.d. per capita.

The Authority continues to store water in the City's San Vicente Reservoir, where it has a right to a capacity of 20,000 acre feet under its 5-year agreement with the City of San Diego, negotiated in 1955. Under this agreement, the Authority stores water whenever an agency has water available to it above its current need and requests that such water be stored to its account. It is not physically possible to deliver such stored water to any agency other than the City of San Diego and the Helix Irrigation District. Delivery of stored water to other member agencies has been accomplished by substituting water from the current flow of the aqueduct, enroute for delivery to the City of San Diego, in lieu of requested delivery of stored water and delivering such stored water to the City as current demands of that agency.

Under the storage agreement, the City receives from the Authority, as rental for space used by Authority stored water in the reservoir, an annual payment of \$2.20 per acre foot for the maximum quantity of water in storage during the storage year (November 1 to October 31), plus an additional amount equal to cost for pumping whenever pumping is required to deliver stored water to the City distribution system.

Water is delivered to the City at the terminus of the aqueduct, and the current needs of the City as far as practicable are supplied from this higher elevation through a by-pass line around the reservoir, with any surplus spilling over a control weir and flowing to the lower reservoir level. In the summertime, when the demand for water is greater than deliveries from the aqueduct, the City is required to pump the additional water required from the reservoir because of the low-water surface elevation in the reservoir. Since this is the time when most Authority stored water is delivered, a pumping charge results on most of the stored water. The actual cost of pumping and the quantity pumped are practically indeterminate; therefore it was agreed to and adopted by all concerned that a charge of \$1.00 per acre foot on one-half of the amount of stored water transferred to the City of San Diego would be equitable.

The Authority's charge to a member agency for water stored in San

Vicente Reservoir is \$2.90 per acre foot per storage year or fraction thereof. The surcharge of \$0.70 above the \$2.20 paid the City is used to pay Authority expenses incurred through storage of water. The primary expense is the cost of water required to replace evaporation losses in the reservoir, which the Authority must assume proportionately with all users of storage in San Vicente Reservoir. By this means, evaporation from water placed in storage to an agency's account is replaced monthly at Authority expense and later repaid by the agency through the surcharge made for storage. Except for such small quantity as is needed by the Authority for replacement of evaporation losses and for operational purposes, no water is placed in storage other than ordered by member agencies. The agencies assume full responsibility for stored water, irrespective of flood losses over the spillway, and agree to ultimately take delivery of stored water on terms fixed by Authority ordinance.

The Authority pays the Metropolitan Water District monthly for all water delivered into the Authority system, as measured at meters at San Jacinto Reservoir, whether such water is delivered by the Authority directly to its member agencies or placed in Authority storage. Member agencies are billed monthly for actual deliveries. Water placed in Authority storage to the agencies' accounts is not billed until it is delivered to the agency from storage, the Authority financing such storage until delivery.

On June 30, 1957 there was a total of 9,869 acre feet of Authority stored water in San Vicente Reservoir, a decrease of 1,785 acre feet compared to the amount in storage a year ago. The changes in storage during the year for each agency are shown on Table 10.

As of June 30, 1957 the total quantity of water in storage by all member agencies, including Authority storage, decreased from 91,200 acre feet to 88,400 acre feet, a loss of 2,800 acre feet. This was an exceptionally small decrease in view of the drought conditions. Practically no runoff was impounded in reservoirs during the year. As of June 30, 1957, the quantity of stored water within the area equaled only 13 per cent of available reservoir capacity.

Water Quality

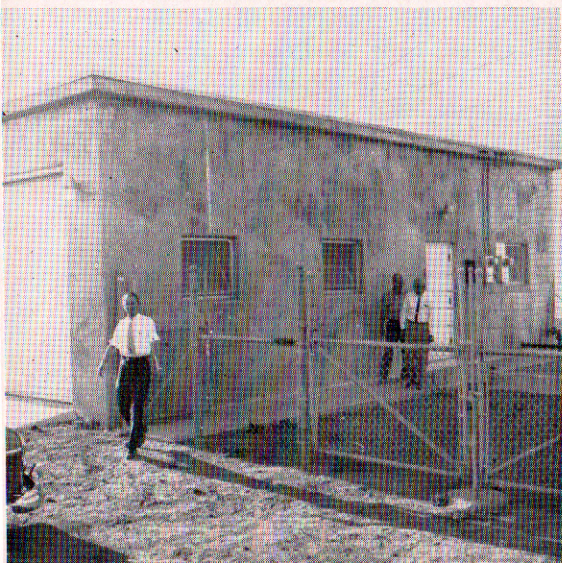
The Metropolitan Water District continues to take monthly samples of Colorado River water at San Jacinto, where water is diverted into the San Diego Aqueduct. The samples are analyzed for mineral content at the District's testing laboratory, located at La



Chlorination Equipment

All requests from member agencies for delivery of Authority water are filled without question of water rights, provided the combined total does not exceed capacity of the Authority's system. If the combined flow of water requested by all of the agencies or any group thereof exceeds capacity of the pipelines, through which such agencies or group of agencies are supplied, the total of requested flows must be reduced to the capacity of the pipelines. This reduction is accomplished by those agencies having other available supplies voluntarily agreeing to reduce the amounts requested until the total of such revised amounts equal available capacity. If the necessary reduction in the amount of water requested cannot be obtained by voluntary means, the available flow is divided among the agencies requesting water in accordance with their preferential rights, as set forth in the Authority Act.

At present, the water is being divided in accordance with an agreed procedure. Summarized briefly, the allocation of aqueduct flow to each member agency is made in the same proportion as the percentage of accumulated taxes and related sums paid and contracted for under terms of annexation by the agency (excluding payments for water) bear to the total of similar amounts paid and contracted for by all member agencies. Any water which may become available for redistribution,



Chlorination Structure

Verne, California, and copies of the results are furnished to the Authority. In recent years there has been a gradual increase in mineral content of the samples taken, due to low-water conditions on the Colorado River.

Mineral content of the analyses of the samples, by months during the fiscal year, is shown on Table 11.

Allocation of Water Among Member Agencies

22

WATER SUPPLY AND CONSUMPTION

because an agency does not take its full allocation of water, is also divided proportionately among the agencies desiring additional water.

The allocation percentage of each agency to purchase aqueduct flow, as of June 30, 1957, and the equivalent delivery on the basis of the safe maximum flow of 196 c.f.s., which Metropolitan can at present deliver to the Authority, are shown on Table 12. Whenever the aqueduct flow available to the Authority is reduced or increased by the Metropolitan Water District from the assumed maximum flow of 196 c.f.s., the flow allocated to each agency is also reduced or increased proportionately.

OPERATION AND MAINTENANCE

Operation and maintenance of the aqueduct system continue to be carried on by personnel stationed at Escondido headquarters. At the end of the fiscal year 26 service outlets were in operation, ranging in sizes from 2 c.f.s. to 66 c.f.s. capacity. A diagrammatic layout of existing service connections on the Authority system is shown on Figure C.

The meters at these permanent service connections are venturi type, and about once a month they were checked for operation and general accuracy. The meter charts, on which a continuous record of water deliveries to member agencies is recorded, were removed and replaced weekly. These charts, on which the totalizer readings are also recorded, are used to determine the amount of water delivered to the agency during the weekly period and to determine the amount of water put into storage if the amount taken is less than allocation of the agency, and the amount taken from storage if the amount is more than the allocation. The totalizers of all meters are read at the end of each month as a basis for computing the amount of water delivered to each agency during the prior month.

General operating procedures are outlined in Ordinance No. 33 as amended and except under unusual circumstances, require that member agencies take delivery at a fairly uniform rate of flow and that an 18-hour notice must be given to the Authority of any change in rate of delivery to the agency. In general, the agencies have complied with these requirements, except in times of emergency when more frequent changes have been permitted.

Patrolling of the aqueduct continued throughout the year, particularly to observe water levels in open structures, so that safe operating levels might be maintained at all times.



OPERATION AND MAINTENANCE

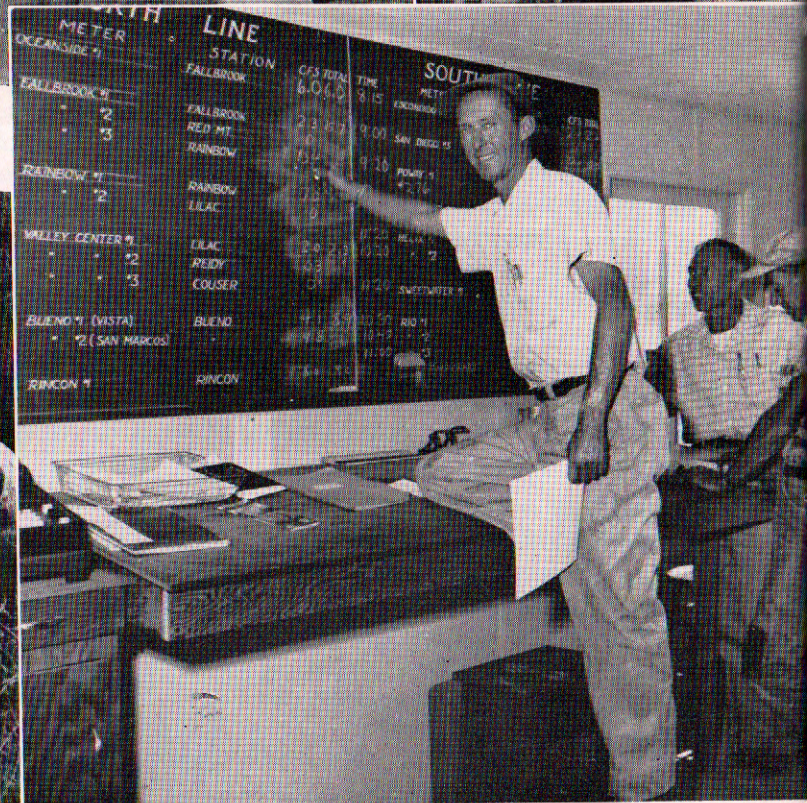
Maintenance

At Escondido headquarters the maintenance crew continued to keep the Authority system in first-class condition. Blowoff and air valves were periodically checked and cleaned; meters and operating valves were inspected and serviced regularly to insure proper operation; and the piping and metal work in most of the structures were cleaned and painted during the year to prevent rust and corrosion. Access roads were graded before and after winter rains, so that patrolling of the aqueduct system could be maintained at all times.

The chronoflo meter instrument at Slaughterhouse Canyon Station, installed during construction of the Second Barrel of the San Diego Aqueduct for measuring deliveries to San Vicente Reservoir, was found to be extremely difficult to keep in good operating condition; therefore it was removed and replaced with a Builders Pacific Type MDUAX meter.

Water level readings were taken in all open structures, and close attention was given to these levels during the winter months, in view of the large quantity of water flowing in the aqueduct, most of which was being carried through the full length of the aqueduct and discharged as storage in San Vicente Reservoir.

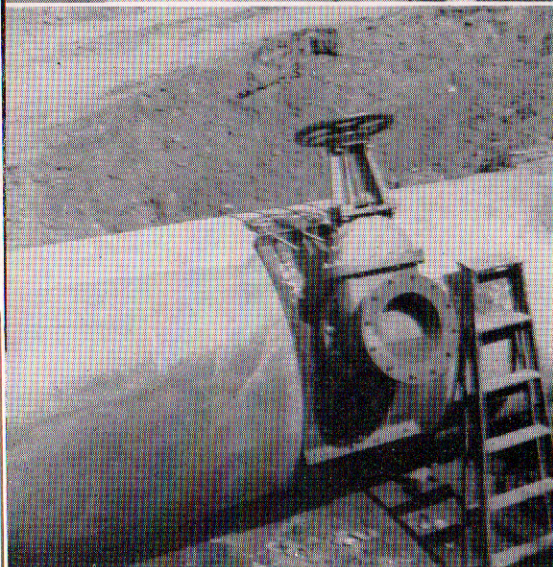
To provide additional space for Second Aqueduct design and engineering offices, alterations were made to the Authority's buildings at Escondido, which included the transfer of the U. S. Geological Survey office to the quonset huts, releasing additional space for use of the Second San Diego Project. In addition to these alterations, the maintenance crew constructed new permanent service outlets during the year, as described in this report under "Construction."



Operation and Maintenance Activities

Chlorination

The aqueduct is chlorinated by the Metropolitan Water District at San Jacinto and by the Authority at the Lilac Chlorination Station, located at the north portal of Lilac Tunnel. The aqueduct is chlorinated during summer months only, generally when the temperature of the water rises above 70° F. The primary purpose of chlorination is to maintain the carrying capacity of the aqueduct by preventing bacterial growth on the interior of the pipe. The method of chlorination adopted by the District and the Authority is designated "superchlorination," consisting of a heavy dose or slug of chlorine injected twice a week for 6-hour periods into the water flowing in the pipeline.



Valley Center No. 3 Service Connection

PUBLIC RELATIONS

The Authority cooperated with the Don't Waste Water Committee in a campaign to prevent waste of water throughout the Country. In view of the present scarcity of water, which condition will probably continue until relieved by the construction of the Second San Diego Aqueduct, the Don't Waste Water Committee, with Mayor Charles C. Dail as Chairman, contacted the people of the County by press, radio and television, and by the establishment of a speaker's bureau, available to interested clubs and organizations.

Considerable assistance was rendered to the Citizens Aqueduct Water Committee by the Authority staff and Directors; such as speaking before groups and service organizations, and compiling basic data for use of the Committee in its effort to educate the public for the need and construction of and financing therefor the Second San Diego Aqueduct.

CONSTRUCTION PROGRAM

Because of recent annexation of new member agencies and continued growth of existing agencies, construction of new service connections to supply the areas continued during the year. All construction drawings for

CONSTRUCTION PROGRAM

these projects were prepared by the Authority's regular engineering staff, and the work outlined below was executed entirely by the maintenance crew, under the direction of the maintenance superintendent.

Valley Center No. 2 Service Connection

Work on this 6 c.f.s. service connection was authorized in November of 1955, and details of the installation were reported in the Tenth Annual Report. The work was completed and delivery of water to the District began in September of 1956.

Bueno No. 2 Service Connection

When the Bueno No. 1 Service Connection was constructed in October of 1954, provisions were made in the piping and in the building to permit an additional service connection to be easily installed at the location with a minimum of cost. In March of 1956 the Bueno Colorado Municipal Water District requested that a second service connection of 12 c.f.s. be installed to serve the newly formed San Marcos Water Company. The service connection, in addition to the 14-inch connecting piping, consists of a 14" x 7½" B.I.F. Venturi Tube and a Type MDUAX Meter Instrument, with a capacity of 12 c.f.s., all housed in the same structure as the No. 1 Service Connection. This connection was completed and placed in operation in December of 1956 at a cost of \$9,075, paid for entirely by the District.

Enlargement of Meter for Rincon No. 1 Service Connection

This service connection was placed in operation in January of 1955, with a maximum capacity of 21 c.f.s. In May of 1956, after a study of possibilities for enlargement, the District requested that the Authority increase the capacity of this meter to 30 c.f.s. The increase was accomplished by inserting an 11.7-inch throat section in place of the 10-inch throat section in the existing 18-inch venturi tube. The cam gear and linkage in the Type MDUAX Meter Instrument was also replaced to provide for greater range. The cost of

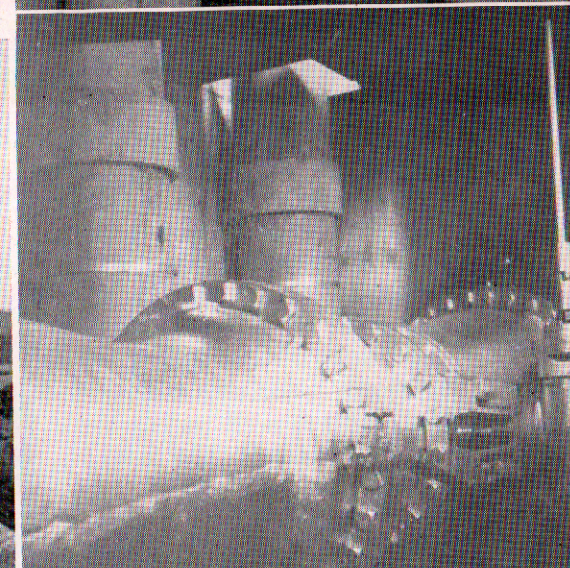
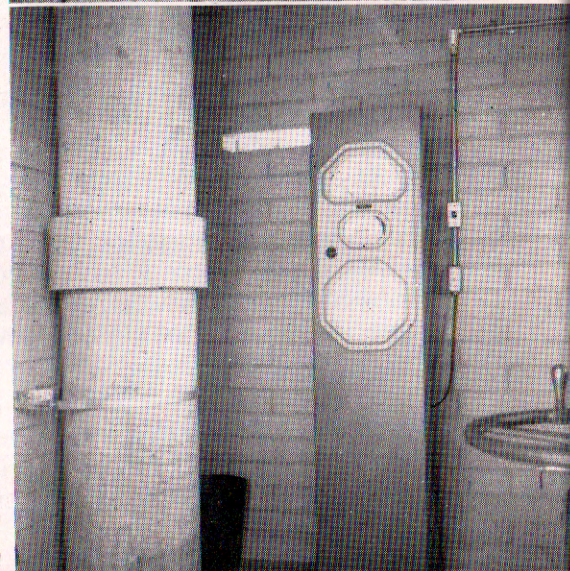
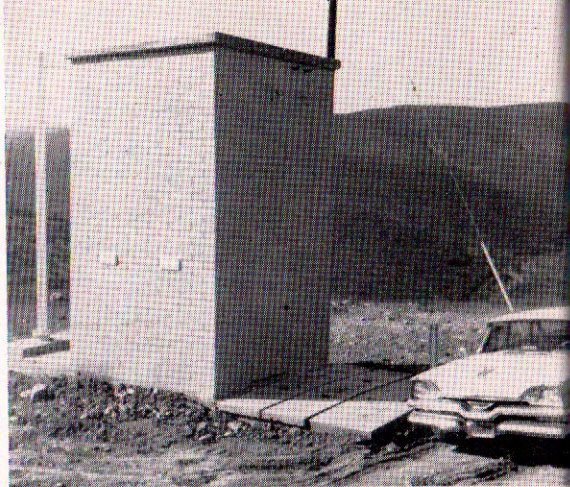
Rincon Station



the enlargement was \$2,505, paid for entirely by the District. The work was completed and the connection was placed in operation in January of 1957.

Helix (formerly La Mesa) No. 2 Service Connection

The Helix Irrigation District, through the annexation of the El Cajon Irrigation District and the so-called El Cajon Valley Dry Islands in 1954, practically doubled its service area. It became apparent that the No. 1 Service Connection, with a capacity of 30 c.f.s., located at the Lakeside Station, was insufficient to meet the District's increased demand for water. Therefore, at the request of the District the Authority installed a second service connection in Slaughterhouse Canyon to deliver water into the pipeline which the District constructed from its system to the station at



Helix No. 2 Service Connection

CONSTRUCTION PROGRAM

Slaughterhouse Canyon.

The connection was made to the aqueduct at the diversion structure, where provision for an additional connection had been installed during construction of the Second Barrel. The No. 2 Service Connection, with a capacity of 66 c.f.s., consists of 36-inch I.D. connecting steel pipe, a B.I.F. 36" x 20" VTS4 Venturi Tube with a 24-inch Butterfly Valve inserted in the downstream cone section of the tube, and a B.I.F. Type MDUAX Instrument, actuated by floats in two 16-inch diameter float wells.

The project was completed and placed in operation in May of 1957 at a total cost of \$27,469, paid for entirely by the District.

Rio No. 3 Service Connection

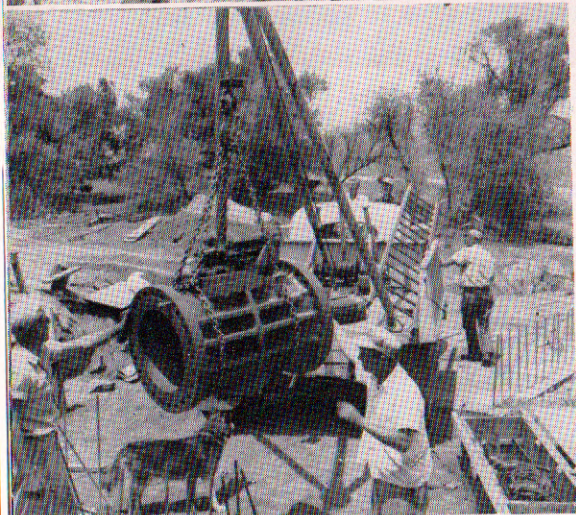
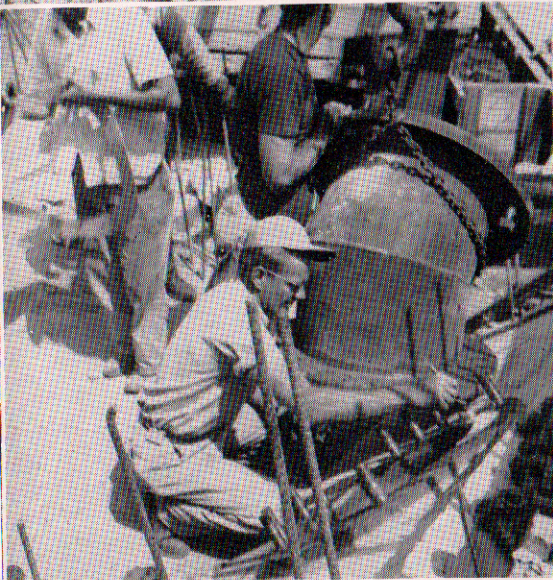
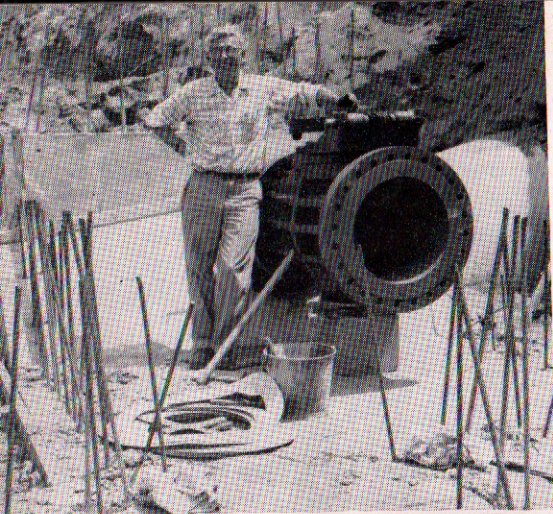
This service connection with a capacity of 6 c.f.s., was authorized by the Board of Directors June 14, 1956, to be installed on the La Mesa-Sweetwater Branch Line at a point directly north of the San Diego River crossing. Since a nozzle had not been provided on the pipeline at this location, the American Pipe and Construction Company was engaged to insert a nozzle and tapping valve under pressure.

This service connection consists of 10-inch I.D. steel pipe, a 10" x 5 1/4" B.I.F. Venturi Meter, a 10-inch Nordstrom Plug Valve to control the rate of flow, and a Type MDUAX Meter Instrument, all housed in a reinforced concrete substructure and concrete block superstructure with a concrete roof slab. A temporary 3-inch by-pass line and meter was provided to permit deliveries of low flows during winter months, until such time as reservoir capacity is provided to permit constant flows.

All work at this location was completed and the connection was placed in operation in May of 1957. The total cost of the project was \$11,312, and since this was the first service connection for the Rio District, the entire cost was paid by the Authority.

Valley Center No. 3 Service Connection

In order to serve that portion of Valley Center Municipal Water District lying north of Lilac Mountain, a third service connection was requested by the District, and authorized by the Authority's Board of Directors in July of 1956. Since a nozzle had not been provided at this location when the First and Second Barrels of the aqueduct



Rainbow No. 2 Service Connection

were constructed, the American Pipe and Construction Company was engaged to install a 12-inch nozzle with valve under pressure.

This service connection, with a capacity of 8 c.f.s., consists of connecting 12-inch I.D. steel piping, a B.I.F. 12" x 6.2" B.I.F. Venturi Meter, a 12-inch Nordstrom Plug Valve to regulate the discharge flow, and a Type MDUAX Meter Instrument, all housed in a reinforced concrete substructure and concrete block superstructure with a concrete roof slab. A temporary 3-inch by-pass meter was installed to meter low flows during the winter months, until such time as reservoir capacity is provided to permit constant flows. The connection was completed and placed in operation in May of 1957. The total cost of the project was \$12,843, paid for entirely by the District.

SECOND SAN DIEGO AQUEDUCT

In June of 1955 the Authority and its consulting engineers published a report, entitled "THE PROBABLE EXTENT OF AUTHORITY AREA, THE AMOUNT AND SOURCE OF ADDITIONAL WATER SUPPLY REQUIRED, AND THE SYSTEM REQUIRED TO EFFICIENTLY DELIVER AUTHORITY WATER TO THE AGENCIES COMPRISING THAT

SECOND SAN DIEGO AQUEDUCT

AREA." The contents of this report were fully discussed at subsequent board and committee meetings. On February 9, 1956 the board directed the General Manager and Chief Engineer to prepare preliminary plans and estimates of cost for the construction of a Second San Diego Aqueduct, to be located as indicated in the report.

The 1956 State Legislature appropriated \$200,000.00, and instructed the Department of Water Resources to make a more detailed study to determine the most economical and feasible route by which Feather River water could be brought into San Diego County and delivered to the Authority for distribution. On March 1, 1957 the Department of Water Resources, Division of Resources Planning, transmitted to the State Legislature Bulletin No. 61 containing its study of the Feather River Project, entitled "INVESTIGATION OF ALTERNATIVE AQUEDUCT ROUTES TO SAN DIEGO COUNTY." A careful study had been made of the probable future demands for imported water, future population growth, agricultural expansion, water needs and storage requirements. Four possible routes in San Diego County were considered in the State's study, and the conclusion was reached that the Westerly or "W" route, though somewhat higher in initial cost, was superior from the standpoint of ease and rapidity of construction and reduction in cost of the necessary pipeline facilities required to serve that area with the greatest potential future water needs.

The study also recommended that a canal section, about 30 miles long, with a capacity of 1,000 c.f.s., be constructed as the northerly portion of the aqueduct, beginning at the west portal of the San Jacinto Tunnel of Metropolitan's Colorado River Aqueduct and extending to the vicinity of Auld Valley in Riverside County. The remainder of the proposed aqueduct, totaling about 75 miles, beginning at the end of the canal, was recommended to have a capacity ranging from 432 c.f.s. at the upper end to 98 c.f.s. at the terminus at or near Otay Reservoir.

After considerable study of the State's report, on January 15, 1957 the Board of Directors adopted a route to follow in general the proposed route of the Second San Diego Aqueduct as recommended by the State, instructing the General Manager and Chief Engineer to proceed with construction plans and specifications and acquisition of rights of way for construction of the aqueduct.

On September 18, 1956 the Board of Directors of the Metropolitan Water District instructed the General Manager and Chief Engineer to



*Field
Activities
San Diego Aqueduct Project*

SECOND SAN DIEGO AQUEDUCT

prepare plans and specifications for construction of a Second San Diego County Feeder line, which is the northerly portion of the proposed aqueduct, from the west portal of San Jacinto Tunnel to a delivery point and connection to the Authority system, located 5.9 miles south of the Riverside-San Diego County boundary line. However, the District adopted a canal capacity of 500 c.f.s. instead of the 1,000 recommended by the State and a pipeline capacity of 250 c.f.s. instead of the 432 c.f.s. recommended by the State.

The tentative capacities set up for the Authority's section of the Second San Diego Aqueduct are 250 c.f.s. at Metropolitan's point of delivery, gradually diminishing to 144 c.f.s. at the terminus in Otay Reservoir, with the section from Murray to Otay Reservoirs being the ultimate capacity as recommended in Bulletin 61.

In January of 1957 Mr. John D. McCoy, formerly employed with the Bureau of Reclamation as Assistant Project Engineer for construction of the First San Diego Aqueduct, was engaged as Project Construction Engineer, in charge of all field surveys and construction of the Authority's portion of the Second San Diego Aqueduct, with an office located in Escondido at the Authority's maintenance headquarters. Mr. Lee D. Purdin, also employed on the First San Diego Aqueduct, was employed to assist Mr. McCoy as Division Engineer.

Mr. James P. Larney, formerly employed by Bechtol Corporation as Senior Civil Engineer, was engaged as Design Engineer, in charge of Second Aqueduct design and construction drawings, with an office also located at the Escondido headquarters.

To speed up construction of the aqueduct, the line has been divided into four sections. The first 10.6-mile section, consisting of the most northerly portion, extending from the Metropolitan delivery point (5.9 miles south of Riverside-San Diego County line) to the open Twin Oaks Vent (about 2.6 miles north of Pechstein Reservoir) is now being actively worked by survey and design groups. By the end of 1957 the first section of the aqueduct will be well under way.

It is hoped that plans and specifications for the first 10.6-mile section of the aqueduct can be advertised in October of 1957, and that construction can be started before the end of the year.

On May 9, 1957 the Board of Directors adopted Ordinance No. 63, calling for a special election to be held in Authority area on July 9, 1957, for the purpose of submitting to the voters a proposition to incur bonded indebtedness of \$35,000,000 to provide funds for the construc-

tion of the Second San Diego Aqueduct. This amount is the largest bond issue ever voted upon in the County of San Diego. However, the election carried with a total of 91,465 votes for the project and 6,647 against it, for a majority of almost 14 to 1.

AUTHORITY BUILDING

On July 6, 1956 the Authority moved into its new headquarters building. Members of the staff and board have enjoyed working in the new building with its modern facilities and equipment. The arrangement of the building and its architectural features have been greatly admired by visitors and organizations interested in construction of office buildings.

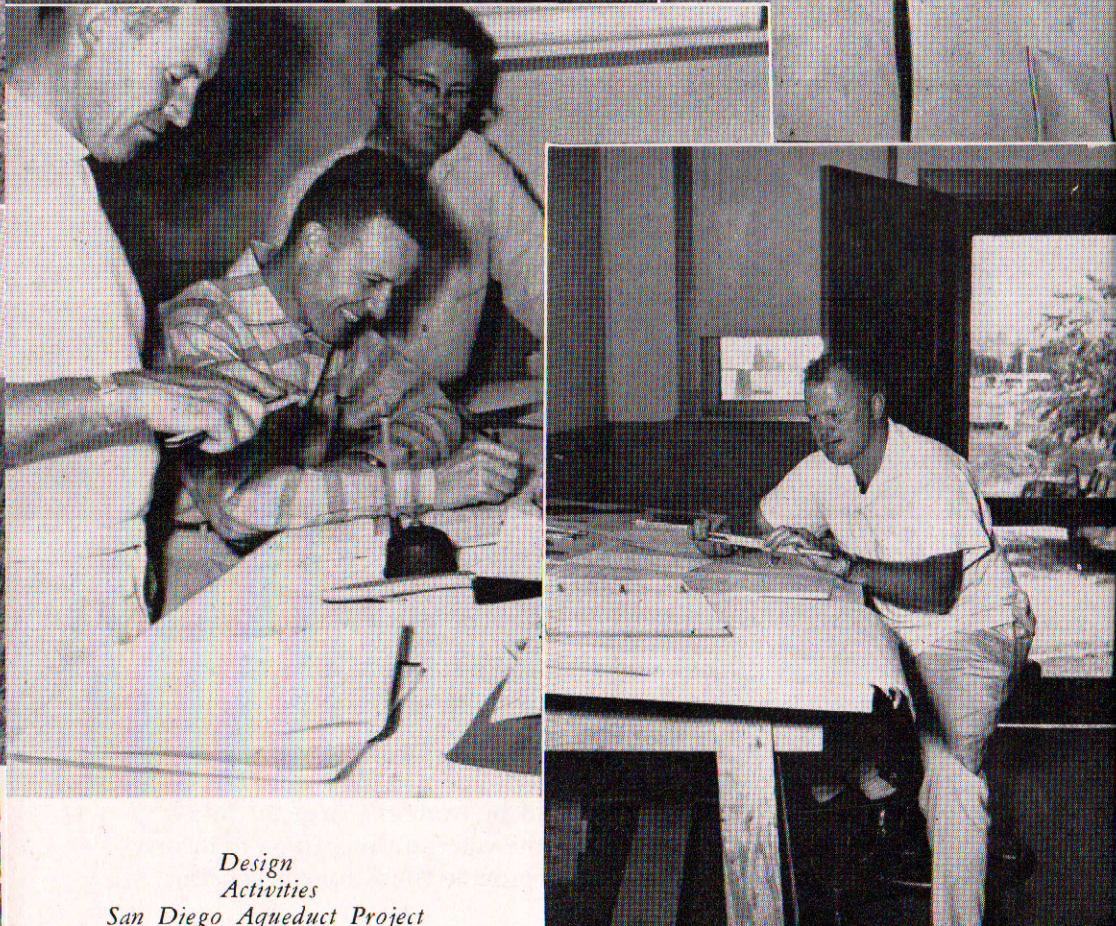
LEGAL AND LEGISLATIVE

Annexations

Only two proceedings for the annexation of substantial areas to the Authority required the attention of the General Counsel during the year. That of the Otay Municipal Water District was completed without incident on October 26, 1956. In the early months of 1957 the people of the Santa Maria Valley attempted again to form the Ramona Municipal Water District with the object of annexing to the Authority. As a previous attempt had failed because of lack of strict compliance with the law, the Authority's Counsel took particular pains to see that the failure would not be repeated. A successful election took place July 17, 1957, and it was expected that annexation proceedings would immediately follow.

Legislation

With the regular biennial session of the California Legislature convening in January, 1957, it appeared wise to consider possible amendments to the County Water Authority Act. A number of changes were considered and discussed in detail with the directors and legal advisers for the member agencies. Changes approved provided (1) mechanics by which area within one member agency of the Authority might be annexed to another and concurrently withdrawn from the first, provided the Board of Directors of the Authority and each member agency consented; (2) authority for the prepayment of annexation fees as an alternate to their collection by special taxes; and (3) the increase of the amount of assessed valuation entitling a member agency



*Design
Activities
San Diego Aqueduct Project*

to an additional director on the Authority Board from \$50,000,000 to \$70,000,000. The bill providing the changes, duly passed the Legislature, was signed by the Governor and became effective September 13, 1957. They are set forth respectively in Section 11, a new Section 10.1 and Section 6 of the County Water Authority Act.

Considerable thought and study was given to the revision of the provisions of Section 5, subsection (11) of the Act which contains the regulations establishing the preferential right of Authority members to purchase water from the Authority when total demands exceed the water available for distribution. In view of the far-reaching importance of this section in times of shortage and the lack of agreement between the members as to any suggested revision, it was decided to postpone any attempt at an amendment at the 1957 session to permit a thorough study to be made prior to the 1959 session.

State Water Development

Those interested in the development of the presently wasting water surpluses of the State were extremely disappointed in the failure of the Legislature to accomplish a solution of the problems at its 1957 session. The Authority's General Counsel worked on committees of the State Chamber of Commerce and the Attorney General's Office, attempting to develop a legislative program, including a Constitutional amendment that would settle the conflict between the areas of water surplus and water deficiency so that a State project could be proceeded with. When it appeared in the opening days of the session that none of the suggested solutions would be acceptable, Governor Goodwin J. Knight appointed a statewide committee of 14 water lawyers and legislators to attempt a solution. This committee, of which the Authority's General Counsel was a member, met first on February 22, 1957 and continued to meet every weekend thereafter until May 1st. In spite of the best efforts of this group, their recommendations did not receive general legislative approval, and the session adjourned on June 13, 1957 with no material accomplishment. Interim legislative committees were immediately appointed, however, to continue statewide studies during the interval between sessions, and it was hoped that, with a more thorough understanding on the part of the people and legislative representatives of the several sections of the State, general agreement might be reached which would permit an early start on the construction of the Feather River Project as the first unit of the State Water Plan.

Because of its vital interest in the ultimate importation of Northern California water to supplement local supplies and those from the Colorado River, the Authority and its General Counsel plan to continue their efforts to unify local and Southern California opinion and to coordinate with and adjust to the problems of the people and areas of Northern California, with the ultimate object of accomplishing a fair, equitable and feasible solution.

MEMBERSHIP IN THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

The Authority has been a constituent member agency of the Metropolitan Water District since December 17, 1946, receiving its entire water supply from that District. At present the Authority has approximately 9 per cent interest in the District. Because of the inter-relationship of the Authority and the District, a brief resume of the important facts concerning that organization should be included in this report.

As a constituent member agency, the Authority is represented on the District's Board of Directors by Fred A. Heilbron, Chairman of the Authority's Board of Directors, appointed to the District board in 1947, currently serving as Secretary, and by Richard S. Holmgren, General Manager and Chief Engineer of the Authority, appointed to the District board in 1955. As of June 30, 1957, the District's Board of Directors consisted of 36 directors, with a total of 967 votes, the Authority having a total of 89 votes. Prior to publication of this report the assessed valuation of District member agencies as of August 20, 1957 was available, showing a total of 1124 votes, of which the Authority has 100 votes.

A schematic diagram showing the composition of the Metropolitan Water District is presented on Figure D.

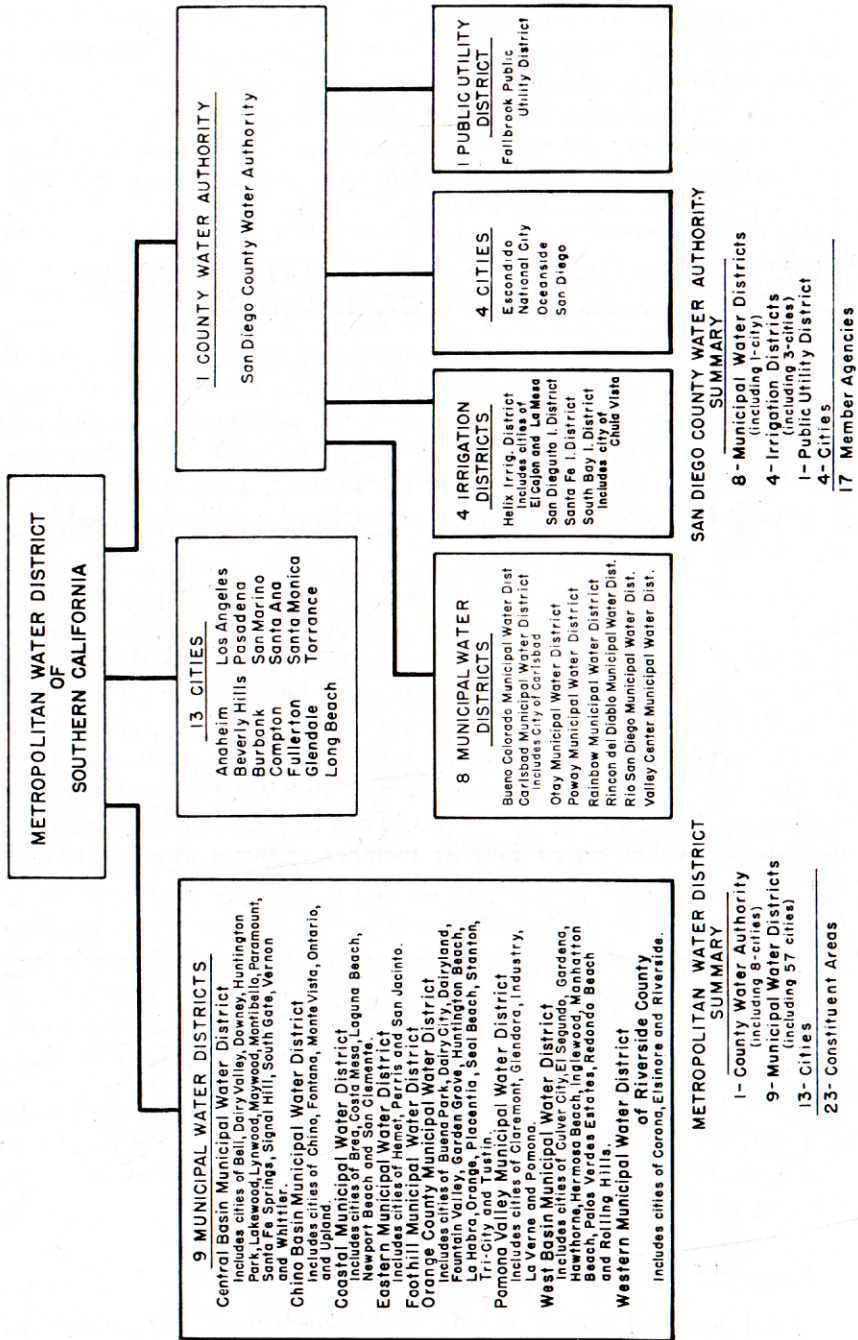
Area

As of June 30, 1957, the area of the District is 3019.1 square miles, or 1,932,205 acres, an increase of 55,949 acres during the fiscal year. The Authority, with a total area of 434,534 acres, comprises about 22.5 per cent of the total area of the entire District.

Assessed Valuation

Total assessed valuation of taxable property lying within the

COMPOSITION OF THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA
JUNE 30, 1957



MEMBERSHIP IN THE METROPOLITAN WATER DISTRICT

boundaries of the District for the fiscal year 1956-57 is \$9,674,000,560, an increase of \$1,159,132,225, or about 13.6 per cent over the previous year.

Assessed valuation of the Authority for the fiscal year is about 9.2 per cent of the District's total assessed valuation. The average assessed valuation within the entire District equals \$5,007 per acre, compared to \$2,045 per acre for the Authority. The assessed valuation of all taxable property within the District, by years since the District's first tax levy in 1929, is presented on Table 26.

Water Supply and Sales

The entire water supply of the District is derived from the waters of the Colorado River. The original filing on the Colorado River amounted to 1,100,000 acre feet annually. When the Authority annexed to the District in 1946, the City of San Diego and/or San Diego County transferred its right of 112,000 acre feet of Colorado River water per year to the Metropolitan District, making the District total 1,212,000 acre feet per year, the District's present right to Colorado River water.

Colorado River water for ultimate delivery to Metropolitan and other users is stored in Lake Mead behind Hoover Dam, and as required it is released through the Hoover Power Plant, at which time power is generated. The water for Metropolitan then flows downstream to Lake Havasu, behind Parker Dam, where temporary storage is provided. At Lake Havasu the District diverts water to the Colorado River Aqueduct through the first of five pumping plants, which lift the water a total of 1,617 feet. Through a series of regulating reservoirs, open canals, tunnels and pipelines the water is then delivered into Lake Mathews in Riverside County, the terminal reservoir for the Colorado River Aqueduct, a distance of 242 miles from point of diversion. This reservoir, with a storage capacity of about 100,000 acre feet, stores and regulates the water that flows into the District's distribution system, supplying District areas in Los Angeles and Orange Counties.

At the west portal of San Jacinto Tunnel raw water is diverted into the District's San Diego County Feeder, and then delivered to the Authority at a point just north of the San Luis Rey River.

The Colorado River Aqueduct was designed for about 1605 c.f.s., but at the time of original construction only three pumps, with a total

Figure D. Composition of the Metropolitan Water District of Southern California

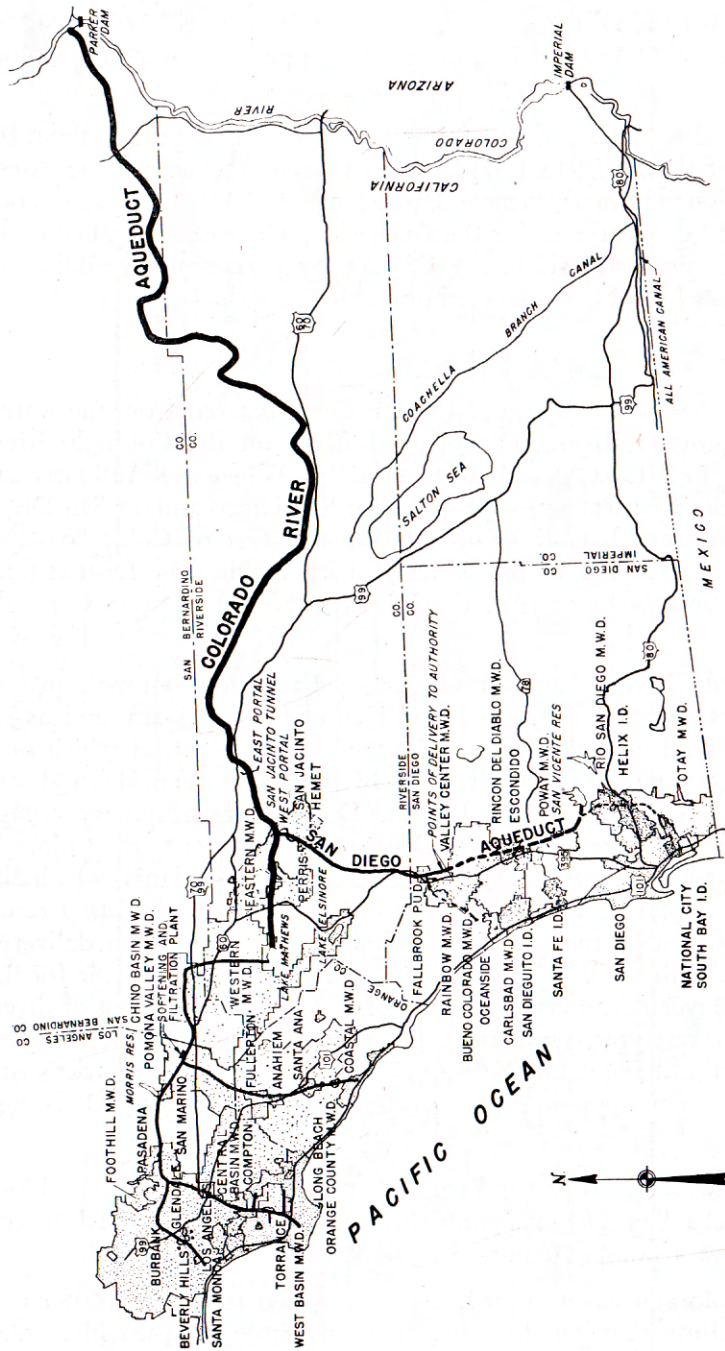


Figure E. Water Systems of Metropolitan Water District and San Diego County Water Authority

capacity of 600 c.f.s. of the ultimate nine pumps, were installed at each of the five pumping stations.

During the last two years two additional pumps, with a total capacity of 400 c.f.s., have been installed at each of the five stations, increasing the pump capacity of the aqueduct to 1,000 c.f.s. An additional pumping unit is being installed in each of the stations. However, the single barrel pipeline siphons limit the capacity of the aqueduct to 1,000 c.f.s., until such time as the second barrel pipeline is constructed.

The present expanded program of the District provides for the installation of additional pumping units and pipelines, necessary to bring the aqueduct up to its ultimate capacity. As part of the expansion program, the District has also approved construction of a second feeder line to San Diego County, making possible an overall delivery of about 450 c.f.s. to the Authority.

A total of 477,170 acre feet of water was delivered to member agencies of the District in the fiscal year 1956-57, of which the Authority received 144,400 acre feet, or about 30 per cent.

District Tax

Despite the increase in area and assessed valuation, the District tax rate continues its downward trend. The rate of 19¢ per \$100 of assessed valuation, adopted for 1956-57, marks the eleventh consecutive year of reduced tax rate, from the maximum of 50¢ per \$100 in 1945-46. For the fiscal year 1956-57, the District tax levy on the Authority for regular taxes was \$1,814,710.

In addition to the regular tax levied on all land and improvements within the boundaries of the Metropolitan District, there is also a special tax levied by the District on those agencies which annexed to the District after its formation in 1929 and those which have not completed the payment of annexation charges. A new agency annexing to the District is required to pay the District an amount equal to taxes which would have been paid on taxable property within its boundary had the agency been a member from the date of the District's formation in 1929. The annexation fee is computed by applying the annual tax rate to the assessed valuation of the area, determined for each year from 1929 to the date of annexation, plus delinquent interest at 4 per cent from each due date of such tax levies to annexation date. In general, the agencies have elected to pay annexation charges over a

period of 30 years in 30 equal installments, in which case 4 per cent interest on the deferred payments is added to the amount of back taxes due.

The total of all annexation charges levied on Authority member agencies to June 30, 1957 is \$18,157,619. Of this amount, a total of \$4,902,445 has been collected by the District, leaving a balance of \$13,255,174 remaining to be paid by future levies.

A tabulation showing the original annexation charge levied on each area within the Authority at the time of annexation to the District, assessments to June 30, 1957, tax rate and assessments for the fiscal year 1956-57, and remaining balances is shown on Table 23.

Water Rates

The base rate for untreated water delivered by the District to its member agencies during the fiscal year was \$10.00 per acre foot. This was the rate paid by the Authority for all its water, since only untreated Colorado River water is available to the Authority. For District member agencies receiving treated water, an additional amount of \$10.00 per acre foot is added to the base rate, making a total of \$20.00 per acre foot for treated water.

All member agencies of the District were notified of an increase of \$2.00 per acre foot in the base rate, resulting in a charge of \$12.00 per acre foot for raw water and \$22.00 per acre foot for treated water, beginning July 1, 1957. This increase will be passed on by the Authority to its member agencies, since an Authority ordinance fixes the charge for water as an amount equal to \$2.00 per acre foot above the rate charged by the Metropolitan Water District.

FINANCIAL

The Authority's fiscal operations continue to reflect the long-range policy of the Board of Directors to provide operating costs primarily from revenues from the sale of water, with requirements for contractual payments to the Federal Government and for a sinking fund for the retirement of bonded debt provided by tax levies. Requirements for construction and for preliminary studies and engineering in connection with the proposed Second Aqueduct, however, again necessitated additional funds, and 1956-57 operating revenues were therefore supplemented by proceeds from a tax levy of 2¢ per \$100 assessed valuation.

During the fiscal year 1956-57, water sales amounted to \$1,759,056.90, which was approximately \$228,800 over the preceding year. Non-operating income amounted to \$588,559.14, or approximately \$67,600 more than in 1955-56, principally on account of additional tax revenues from the 2¢ supplemental tax levy referred to above. Operating costs totalled \$1,600,765.55, or \$224,300 over those for the previous year, while depreciation and debt service expense, totalling \$597,493.19, represented a decrease of \$10,100 from the 1955-56 amount. The net result of operations for 1956-57 was net income of \$149,357.30, or approximately \$82,300 over the same item for the previous year.

Cash and marketable securities at June 30, 1957 amounted to \$1,661,437.40, as compared with \$1,378,299.74 at June 30, 1956. The total included \$1,497,919.94 in securities of the United States Government, earning an average interest rate of 2.91%. During the year current assets increased \$98,046.04, while current liabilities decreased \$8,546.14. Fixed assets were increased \$2,047,112.70, while long-term obligations were decreased \$1,306,127.76, resulting in a net increase in the Authority's investment in fixed assets of \$3,353,240.46. Reserves for debt redemption were decreased \$541,854.60, principally due to reduction of the amount due from the Metropolitan Water District by its payments to the Authority on the San Diego Aqueduct. Appropriated surplus increased \$29,675.87, and unappropriated surplus increased \$115,783.84. The overall result was an increase of \$2,956,845.57 in the Authority's net equities.

The Authority's accounting system, established in 1947, conforms to the basic principles of fund and budgetary accounting normally employed in municipalities, modified to the extent necessary to reflect conditions peculiar to the Authority. The accounts are maintained on the accrual basis, and have been adapted to machine accounting. All accounts have been regularly audited by the firm of Everts and Esenoff, Certified Public Accountants, and a report thereon has been submitted to the Authority.

INDEX OF TABLES

	<i>Page</i>
1. Area—Authority Member Agencies as of June 30	46
2. Population Growth—County and Authority Area—1910 to 1957	47
3. Population—Authority Member Agencies and County	48
4. Assessed Valuations—Authority Member Agencies and County	49
5. Sales of Colorado River Water—Fiscal Year 1956-57	50
6. Sales of Colorado River Water—1947 to 1957	52
7. Water Production of Authority Agencies—Fiscal Years 1944-45 to 1956-57	53
8. Water Production of Authority Agencies—Fiscal Year 1956-57	54
9. Unit Water Production—Per Acre and Per Capita 1956-57	55
10. Authority Storage in San Vicente Reservoir—Fiscal Year 1956-57	56
11. Chemical Character of Natural Colorado River Water at West Portal of San Jacinto Tunnel	57
12. Allocation of Right to Purchase Authority Water	58
13. Statement of Assessed Valuations and Tax Rates to June 30, 1957	59
14. Statement of Financial Position June 30, 1957	60
15. Statement of Income and Surplus July 1, 1956 to June 30, 1957	62
16. Statement of Revenues—Estimated and Actual	64
17. Statement of Appropriations and Expenditures	65
18. Summary Statement of Cash Receipts and Disbursements	66
19. Statement of Bonds Payable	67
20. Statement of Tax Assessments and Collections	68
21. Tax Levies and Tax Collections—Fiscal Years 1945-46 to 1956-57	69
22. San Diego County Water Authority Annexation Charges, Assessments and Balances	70
23. Metropolitan Water District Annexation Charges, Assessments and Balances on Authority Areas	71
24. Water Sales by Metropolitan Water District—Fiscal Year 1941-42 to 1956-57	72
25. Water Production—Metropolitan Water District Constituent Areas	73
26. Assessed Valuations and Tax Rates of the Metropolitan Water District	74

SAN DIEGO COUNTY WATER AUTHORITY

TABLE 1
AREA — AUTHORITY MEMBER AGENCIES
As of June 30

Member Agencies	Area Within Authority			Percent of total Authority area 6/30/57
	As of 6/30/56	Changes during year	As of 6/30/57	
	Acres	Acres	Acres	
Bueno Colorado M.W.D.	51,900	(1) - 300	(2) 51,600	11.88
Carlsbad M.W.D.(6)	20,883	- 49	(3) 20,834	4.79
In City of Carlsbad	(5,000)	(0)	(5,000)	(1.15)
Escondido, City of	1,980	+ 34	2,014	0.46
Fallbrook Public Utility Dist.	8,192	0	8,192	1.89
Helix Irrigation District(7)	30,539	(1) - 29	(8) 30,510	7.02
In City of El Cajon	(5,200)	+ (220)	(5,420)	(1.25)
In City of La Mesa	(3,926)	+ (84)	(4,010)	(0.92)
National City, City of(11)	4,664	0	4,664	1.07
Oceanside, City of	8,230	+ 393	8,623	1.98
Otay M.W.D.	0	+ 55,500	55,500	12.77
Poway M.W.D.	10,800	0	10,800	2.49
Rainbow M.W.D.	33,900	0	33,900	7.80
Rincon del Diablo M.W.D. ..(4)	22,352	(1) - 34	(5) 22,318	5.14
Rio San Diego M.W.D.	18,700	0	18,700	4.30
San Diego, City of	83,890	+ 280	84,170	19.37
San Dieguito Irrigation Dist.	3,999	- 3	3,996	0.92
Santa Fe Irrigation District	10,106	0	10,106	2.33
South Bay Irrigation District (9)	15,343	+ 104	15,447	3.56
In City of Chula Vista	(3,948)	+ (239)	(4,187)	(0.97)
Valley Center M.W.D.	53,160	0	53,160	12.23
Total Authority Area (10)	378,638	+ 55,896	434,534	100.00
San Diego County			2,725,100	

- (1) 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.
- (2) Not including 300 acres overlapping in City of Oceanside.
- (3) Not including 4 acres overlapping in City of Oceanside.
- (4) Not including 48 acres overlapping in City of Escondido.
- (5) Not including 82 acres overlapping in City of Escondido.
- (6) Includes 45 acres overlapping in City of Oceanside.
- (7) Does not include 139 acres overlapping in City of San Diego.
- (8) Does not include 168 acres overlapping in City of San Diego.
- (9) Does not include 135 acres overlapping in City of San Diego.
- (10) Includes 45 acres overlapping between Agencies.
- (11) Revised to conform with data received from Agency.

TABLES

TABLE 2
POPULATION GROWTH—COUNTY AND AUTHORITY AREA
1910 to 1957
(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		46,000		74
		5,058		4,100	
1920	112,248		87,000		78
		9,741		8,600	
1930	209,659		173,000		82
		7,969		7,600	
1940	289,348		248,274		86
		26,746		20,361	
1946 (3)	502,804		(3) 440,659		88
		42,478		50,083	
1950	556,808		451,886		81
		50,100		49,200	
1955	769,200		702,300		91
		92,700		32,050	
1956	819,300		751,500		92
		92,700		32,050	
1957	900,000		783,550		86

- (1) County population from U.S. Census Bureau Reports.
- (2) Authority population based on U.S. Census Bureau Reports. Population in years prior to Authority organization in 1944 is for Authority area as of 1944. Population in later years is for Authority as then constituted.
- (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 1950-1957 Percent	Density of Population 1957 Per Sq. Mile
	Area 6/30/57	1940	1950	1957 Estimate		
	Acres	(1)	(2)	(4)		
Bueno Colorado M.W.D.	51,600	—	—	25,400	—	0.49
Carlsbad M.W.D.	20,834	—	—	10,500	—	0.50
In City of Carlsbad	(5,000)	—	—	(8,000)	—	1.60
Escondido, City of	2,014	4,560	6,608	10,050	7	4.99
Fallbrook Public Utility District	8,192	2,300	5,500	9,000	9	1.10
Helix Irrigation District	30,510	17,100	44,162	84,740	13	2.78
In City of El Cajon	(5,420)	(1,471)	(5,600)	(21,500)	41	3.97
In City of La Mesa	(4,010)	(3,925)	(10,946)	(23,520)	16	5.87
National City, City of	4,664	10,344	21,199	27,600	4	5.92
Oceanside, City of	8,623	4,651	12,880	21,000	9	2.44
Otay M.W.D.	55,500	—	—	1,150	—	0.02
Poway M.W.D.	10,800	—	—	1,560	—	0.14
Rainbow M.W.D.	33,900	—	—	2,480	—	0.07
Rincon del Diablo M.W.D.	22,318	—	—	12,275	—	0.55
Rio San Diego M.W.D.	18,700	—	—	10,750	—	0.57
San Diego, City of	84,170	203,341	334,387	494,200	7	5.87
San Dieguito Irrigation District	3,996	(3) 2,400	6,223	11,820	13	2.96
Santa Fe Irrigation District	10,106	(3) 2,000	3,000	5,575	12	0.55
South Bay Irrigation District	15,447	10,938	28,927	53,700	12	3.48
In City of Chula Vista	(4,187)	(5,138)	(15,927)	(35,000)	17	8.36
Valley Center M.W.D.	53,160	—	—	1,750	—	0.03
Total Authority Area	434,534	258,634	464,886	783,550	10	1.80
San Diego County	2,725,100	289,348	556,808	900,000	9	0.33

(1) Population in agencies other than cities was estimated from population of judicial townships.

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

(3) Estimated.

(4) Estimated by Agencies.

TABLES

TABLE 4
ASSESSED VALUATIONS—AUTHORITY MEMBER AGENCIES AND COUNTY

Member Agencies	Assessed Valuation—Secured and Unsecured				Annual Increase Percent	Assessed Valuation 1957-58 Total
	Area 6/30/57	1955-56	1956-57	1956-57		
	Acres	Total	Total	Per Acre		
Bueno Colorado M.W.D.	51,600	\$ 18,483,200	\$ 20,337,060	\$ 394	10.0	\$ 24,241,330
Carlsbad M.W.D.	20,834	16,106,960	19,316,400	927	19.9	22,995,130
Escondido, City of	2,014	10,904,780	12,118,300	6,017	11.1	14,711,500
Fallbrook Public Utility District	8,192	6,777,260	7,063,420	862	4.2	7,762,150
Helix Irrigation District	30,510	85,837,120	95,720,610	3,137	11.5	110,951,560
National City, City of	4,664	21,936,560	26,505,140	5,683	20.8	27,063,240
Oceanside, City of	8,623	20,778,890	22,051,940	2,557	6.1	23,234,310
Otay M.W.D.	55,500	* 2,669,820	* 2,947,250	53	14.0	3,507,590
Poway M.W.D.	10,800	1,700,710	2,050,580	190	20.6	2,295,230
Rainbow M.W.D.	33,900	2,866,640	3,567,590	105	24.5	4,049,060
Rincon del Diablo M.W.D.	22,318	10,680,280	11,854,670	531	11.0	16,580,520
Rio San Diego M.W.D.	18,700	* 6,969,670	* 7,791,580	417	11.8	10,397,300
San Diego, City of	84,170	555,879,880	588,687,250	6,994	9.9	648,427,780
San Dieguito Irrigation Dist. (2)	3,996	8,907,810	9,587,860	2,399	7.6	10,724,020
Santa Fe Irrigation District	10,106	7,656,400	8,135,540	805	6.3	9,374,930
South Bay Irrigation District	15,447	44,316,650	48,065,420	3,112	8.5	60,988,380
Valley Center M.W.D.	53,160	* 2,689,740	3,027,970	57	12.6	3,702,640
Total Authority	434,534	\$ 805,162,370	\$ 888,828,580	\$ 2,045	10.4	\$ 1,001,006,270
San Diego County	(1) 2,725,100	\$ 893,257,210	\$ 978,087,650	\$ 359	9.5	\$ 1,096,640,460

(1) Excluding 1,475,052 acres of tax-exempt lands in San Diego County as of October 30, 1949.

(2) Includes area excluded from Agency but not from Authority.

*Estimated, not on tax roll.

SAN DIEGO COUNTY WATER AUTHORITY

TABLE 5
SALES OF COLORADO RIVER WATER—FISCAL YEAR 1956-57
(All Figures in Acre Feet)

Member Agencies	July	August	Sept.	Oct.	Nov.	Dec.	Total 6 Months
Bueno Colorado M.W.D.	1,000.7	1,034.3	1,216.3	1,157.2	803.8	821.7	6,034.0
Carlsbad M.W.D.	32.8	9.8	14.0	27.5	73.4	90.4	247.9
Escondido, City of	184.0	179.1	158.4	150.3	159.4	136.8	968.0
Fallbrook P.U.D.	1,031.5	1,112.5	1,169.0	821.7	703.0	497.0	5,334.7
Helix I.D.	1,564.8	1,478.0	1,444.8	1,394.2	1,228.0	1,402.5	8,512.3
National City & South Bay I.D.	1,025.7	998.9	956.5	958.4	863.4	890.0	5,692.9
Oceanside, City of	339.2	359.9	345.5	344.2	284.9	278.8	1,952.5
Otay M.W.D.	0	0	0	0	0	0	0
Poway M.W.D.	156.2	151.2	138.4	88.8	77.8	61.1	673.5
Rainbow M.W.D.	537.7	587.9	589.4	420.0	379.4	287.2	2,801.6
Rincon del Diablo M.W.D.	950.3	1,097.8	1,008.8	984.5	48.1	730.3	4,819.8
Rio San Diego M.W.D.	108.4	114.6	135.6	101.5	64.1	62.3	586.5
San Diego, City of	6,626.6	5,347.3	4,889.2	5,529.8	6,750.0	6,917.7	36,060.6
San Dieguito I.D.	97.2	612.3	601.2	0	0	0	1,310.7
Santa Fe I.D.	123.0	123.0	119.0	117.7	75.9	0	558.6
Valley Center M.W.D.	0.8	33.3	128.1	105.9	100.2	75.1	443.4
Total Sales to Agencies	13,778.9	13,239.9	12,914.2	12,201.7	11,611.4	12,250.9	75,997.0
Total Sales to Others	2.7	5.4	5.2	4.2	3.8	5.3	26.6
Total Sales to Agencies and Others	13,781.6	13,245.3	12,919.4	12,205.9	11,615.2	12,256.2	76,023.6
Total to Authority Storage ..	+ 299.9	+ 390.9	+ 344.3	+ 289.5	+ 493.4	+ 379.7	+ 2,197.7
Total from Authority Storage ..	-1,815.4	-1,412.8	-1,237.5	-220.4	-262.9	-534.1	-5,483.1
Total from Aqueduct	12,266.1	12,223.4	12,026.2	12,275.0	11,845.7	12,101.8	72,738.2
Rate of Flow: c.f.s. to Agencies and Others	224.1	215.4	217.1	198.5	195.2	199.3	208.3
c.f.s. to Authority Storage ..	+ 4.9	+ 6.4	+ 5.8	+ 4.7	+ 8.3	+ 6.2	+ 6.0
c.f.s. from Authority Storage	-29.5	-23.0	-20.8	-3.6	-4.4	-8.7	-15.0
Total from Aqueduct	199.5	198.8	202.1	199.6	199.1	196.8	199.3

144,503.6 acre feet delivered into San Diego Aqueduct by Metropolitan Water District at San Jacinto Reservoir.
There was an estimated total unaccounted for loss of 128.4 acre feet from Authority system during the year.

TABLES

TABLE 5 (CONTINUED)....

Jan.	Feb.	March	April	May	June	Total 6 Months	Yearly Total	Yearly Average c.f.s.
93.9	219.3	220.3	253.9	185.4	308.6	1,281.4	7,315.4	10.08
173.6	128.9	116.4	93.6	117.6	97.5	727.6	975.5	1.34
105.6	97.1	116.9	127.4	116.9	311.9	875.8	1,843.8	2.54
262.1	86.4	90.4	369.1	150.0	935.8	1,893.8	7,228.5	9.96
1,063.2	986.6	446.9	1,107.1	940.6	1,911.2	6,455.6	14,967.9	20.62
868.3	766.4	865.4	853.8	885.9	890.3	5,130.1	10,823.0	14.91
201.5	171.0	209.1	256.7	238.3	278.9	1,355.5	3,308.0	4.56
0	0	0	0	0	0	0	0	0
15.9	7.6	17.8	48.1	38.9	113.2	241.5	915.0	1.26
199.4	55.9	103.2	197.6	161.5	465.7	1,183.3	3,984.9	5.49
140.6	0	10.1	364.8	66.1	199.4	781.0	5,600.8	7.71
29.8	21.8	34.0	65.8	59.2	96.9	307.5	894.0	1.23
8,043.0	7,572.0	8,288.5	8,048.1	8,357.7	7,180.7	47,490.0	83,550.6	115.09
69.5	117.2	128.4	125.2	130.2	131.3	701.8	2,012.5	2.77
58.5	98.9	108.2	105.4	109.7	110.6	591.3	1,149.9	1.58
12.1	15.1	10.8	96.5	44.1	169.2	347.8	791.2	1.09
11,337.0	10,344.2	10,766.4	12,113.1	11,602.1	13,201.2	69,364.0	145,361.0	200.23
2.1	4.7	10.1	8.8	6.0	11.2	42.9	69.5	0.10
11,339.1	10,348.9	10,776.5	12,121.9	11,608.1	13,212.4	69,406.9	145,430.5	200.33
+833.5	+686.5	+1,419.2	+420.8	+888.4	+ 208.9	+4,457.3	+6,655.0	+ 9.17
- 44.6	- 2.3	- 37.2	-800.4	-183.7	-1,159.0	-2,227.2	-7,710.3	-10.62
12,128.0	11,033.1	12,158.5	11,742.3	12,312.8	12,262.3	71,637.0	144,375.2	198.88
184.4	186.3	176.5	202.3	188.8	214.9	192.3	200.33	
+13.5	+12.4	+23.2	+ 7.0	+14.4	+ 3.4	+12.3	+ 9.17	
- 0.7	- 0.0	- 0.6	-13.3	- 3.0	-18.9	- 6.2	-10.62	
197.2	198.7	199.1	196.0	200.2	199.4	198.4	198.88	

TABLE 6
SALES OF COLORADO RIVER WATER—1947 to 1957
(All figures in acre-feet)

Member Agencies	(1) 1947-48	1948-49	1949-50	1950-51	1951-52	1952-53	1953-54	1954-55	1955-56	1956-57
Buena Colorado M.W.D.	—	—	—	—	—	—	0	3,627.3	5,433.5	7,315.4
Carlsbad M.W.D.	—	—	—	—	—	—	54.0	1,599.7	1,416.8	975.5
Escondido, City of	—	—	—	117.1	540.0	382.8	758.9	928.9	1,381.4	1,843.8
Fallbrook Public Utility District	690.6	2,125.4	3,004.0	3,979.2	2,209.7	3,566.1	5,720.4	7,030.7	6,566.5	7,228.5
Helix Irrigation District	4,256.3	8,080.1	4,792.6	8,282.5	5,514.8	5,100.5	3,311.4	11,609.5	13,552.8	14,967.9
National City and South Bay I.D.	3,636.6	10,510.7	10,973.2	12,904.7	6,649.0	0	4,895.5	5,706.2	12,273.9	10,823.0
Oceanside, City of	0	1.5	127.8	558.5	513.4	604.1	1,469.5	2,064.0	2,864.2	3,308.0
Otay M.W.D.	—	—	—	—	—	—	—	—	—	0
Poway M.W.D.	—	—	—	—	—	—	—	—	1,108.6	915.0
Rainbow M.W.D.	—	—	—	—	—	—	137.1	1,416.2	2,061.2	3,984.9
Rincon del Diablo M.W.D.	—	—	—	—	—	—	0	2,905.3	4,682.8	5,600.8
Rio San Diego M.W.D. (2)	0	3.5	30.4	27.2	20.8	80.2	99.2	226.5	512.3	894.0
San Diego, City of	32,461.0	50,126.8	35,371.2	51,453.9	43,745.3	20,684.9	51,176.3	60,059.1	80,088.2	83,550.6
San Dieguito Irrigation District	—	—	451.3	1,043.8	691.0	0	32.8	913.3	598.0	2,012.5
Santa Fe Irrigation District	—	—	270.8	832.1	146.8	0	0	358.4	416.4	1,149.9
Valley Center M.W.D.	—	—	—	—	—	—	—	0	1.2	791.2
Total Sales to Agencies	41,044.5	71,570.1	58,612.1	79,259.0	60,030.8	30,418.6	69,635.1	98,968.8	132,957.8	145,361.0
Total Sales to Others	0	0	0	0	0	49.4	13.7	3.4	19.7	69.5
Total to Authority Storage	0	0	+10,652.0	+8,211.4	+5,763.2	+1,612.8	+1,722.2	+6,217.3	+10,608.6	+6,655.0
Total from Authority Storage	0	0	0	-6,265.5	-3,176.0	-3,514.5	-4,113.6	-2,975.7	-5,601.2	-7,710.3
Total from Aqueduct	41,044.5	71,570.1	69,264.1	73,814.9	62,618.0	28,566.3	67,257.4	102,213.8	137,984.9	144,375.2
Rate of Flow:										
c.f.s. to Agencies and Others	98.3	98.9	81.0	109.5	82.7	42.1	96.2	136.7	183.2	200.3
c.f.s. to Authority Storage	0	0	+14.7	+1.1	+7.9	+2.2	+2.4	+8.6	+14.6	+9.2
c.f.s. from Authority Storage	0	0	0	-8.6	-4.4	-4.8	-5.7	-4.1	-7.7	-10.6
c.f.s. total from Aqueduct	98.3	98.9	95.7	102.0	86.2	39.5	92.9	141.2	190.1	198.9

(1) The operation of the Aqueduct was formally initiated on November 27, 1947.

(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 OF AUTHORITY AGENCIES—FISCAL YEARS 1944-45 to 1956-57
(All Figures in Acre-Feet)

Member Agencies	From Local Sources					From Local and Authority Supplies									
	1944-45	1945-46	1946-47	1947-48	1948-49	1949-50	1950-51	1951-52	1952-53	1953-54	1954-55	1955-56	1956-57		
Buena Colorado M.W.D.	10,590	13,200	12,335	13,407	11,344	11,977	13,484	7,572	11,171	11,671	*12,707	13,043	13,058		
Carlsbad M.W.D.	2,274	2,444	2,582	2,856	2,613	2,499	2,033	2,074	2,365	*2,961	2,445	2,972	2,891		
Escondido, City of	711	707	855	954	801	858	*1,034	1,033	1,238	1,398	1,712	1,741	1,816		
Fallbrook Public Utility District	1,439	2,120	2,596	*3,470	3,613	5,379	5,777	5,803	6,635	7,606	8,001	8,594	8,095		
Helix Irrigation District	7,423	8,920	9,790	*10,290	9,325	10,204	11,412	9,858	13,524	15,519	15,557	15,998	16,541		
National City and South Bay I.D.	9,288	10,799	10,519	*10,265	+11,293	+12,709	11,750	10,491	11,308	12,076	12,840	13,795	12,878		
Oceanside, City of	1,881	2,304	2,519	*2,787	2,641	2,977	3,035	2,955	3,533	3,954	4,099	4,653	4,369		
Otay M.W.D.	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)		
Poway M.W.D.	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	*554	1,120	917		
Rainbow M.W.D.	(a)	107	179	385	699	892	1,336	1,120	1,657	*1,697	2,830	3,535	4,834		
Rincon del Diablo M.W.D.	7,852	8,710	8,799	9,259	7,372	7,668	6,905	5,577	7,710	8,401	*10,023	9,804	9,451		
Rio San Diego M.W.D. (b)	65	69	90	*103	110	161	183	197	292	292	355	1,501	1,457		
San Diego, City of:															
Inside City	53,473	56,266	49,431	*51,078	49,693	51,410	54,935	53,784	60,552	63,258	66,000	68,715	71,250		
Outside City (not in Authority)	1,223	1,147	1,038	1,329	1,946	1,049	2,051	1,406	2,396	2,373	2,610	3,001	2,856		
San Dieguito Irrigation District	2,611	2,966	3,369	3,034	*2,303	2,899	3,039	2,326	3,139	3,440	3,329	3,378	3,607		
Santa Fe Irrigation District	2,760	3,539	3,512	3,491	*2,878	3,372	3,515	2,539	3,558	3,255	3,361	3,663	3,509		
Valley Center M.W.D.	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	791		
Total	105,590	113,298	105,594	112,708	106,631	114,054	120,489	106,735	129,078	137,901	146,423	153,313	158,320		

*Delivery of Colorado River Water began in this year.

+Includes evaporation losses of Colorado River Water in Sweetwater Reservoir.

(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 1956-57

Member Agencies	TOTAL WATER PRODUCTION				LOCAL SUPPLY		AUTHORITY SUPPLY	
	as m.g.d.	as c.f.s.	as ac. ft./yr.	Amount ac. ft.	Per- cent	Amount ac. ft.	Per- cent	
Bueno Colorado M.W.D.	11.66	18.04	13,058.2	5,742.8	44.0	7,315.4	56.0	
Carlsbad M.W.D.	2.58	3.99	2,891.3	2,006.6	69.4	884.7	30.6	
Escondido, City of	1.62	2.51	1,815.6	1,09.0	6.0	1,706.6	94.0	
Fallbrook Public Utility District	7.22	11.18	8,095.0	1,102.0	13.6	6,993.0	86.4	
Helix Irrigation District	14.77	22.85	16,541.3	468.5	2.8	16,072.8	97.2	
National City and South Bay I.D.	11.50	17.79	12,878.0	2,056.0	16.0	10,822.0	84.0	
Oceanside, City of	3.90	6.03	4,368.6	1,060.6	24.3	3,308.0	75.7	
Otay M.W.D.	0	0	0	0	—	0	—	
Poway M.W.D.	0.82	1.27	917.2	2.2	0.2	915.0	99.8	
Rainbow M.W.D.	4.31	6.68	4,833.6	802.3	16.6	4,031.3	83.4	
Rincon M.W.D.	8.44	13.05	9,451.0	3,721.0	39.4	5,730.0	60.6	
Rio San Diego M.W.D.	1.30	2.01	1,456.5	562.5	38.6	894.0	61.4	
San Diego, City of:								
Inside City	63.61	98.42	71,249.9	7,083.6	9.9	64,166.3	90.1	
Outside City (Not in Authority) ..	2.55	3.95	2,856.0	2,856.0	100.0	0	0	
San Dieguito Irrigation District	3.22	4.98	3,606.8	1,594.3	44.2	2,012.5	55.8	
Santa Fe Irrigation District	3.13	4.85	3,509.3	2,359.4	67.2	1,149.9	32.8	
Valley Center M.W.D.	0.71	1.09	791.2	0	0	791.2	100.0	
Total	141.34	218.69	158,319.5	31,526.8	19.9	126,792.7	80.1	

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.

TABLE 9
UNIT WATER PRODUCTION—PER ACRE AND PER CAPITA 1956-57

Member Agencies	Gross Area (2) acres	Total Production of Water ac. ft.	Estimated Area Served by Water System acres	Water Production per acre ac. ft./acre/yr.	Estimated Population	Water Production per Capita ac. ft./cap./yr.
Bueno Colorado M.W.D.	51,600	13,058.2	18,951	0.69	25,400	0.51
Carlsbad M.W.D.	20,834	2,891.3	4,167	0.69	10,500	0.28
Escondido, City of	2,014	1,815.6	2,014	0.90	10,050	0.18
Fallbrook Public Utility District	8,192	8,095.0	8,192	0.99	9,000	0.90
Helix Irrigation District	30,510	16,541.3	15,879	1.04	84,740	0.20
National City, City of	4,664	3,102.0	3,280	0.95	27,600	0.11
Oceanside, City of	8,623	4,368.6	7,866	0.56	21,000	0.21
Otay M.W.D.	55,500	0	0	0	1,150	0
Poway M.W.D.	10,800	917.2	5,120	0.18	1,560	0.59
Rainbow M.W.D.	33,900	4,833.6	9,000	0.54	2,480	1.95
Rincon del Diablo M.W.D.	22,318	9,451.0	9,215	1.03	12,275	0.77
Rio San Diego M.W.D.	18,700	1,456.5	5,161	0.28	10,750	0.14
San Diego, City of:						
(1) 71,249.9	84,170	(1) 71,249.9	62,850	1.13	494,200	0.14
San Dieguito Irrigation District ..	3,996	3,606.8	3,996	0.90	11,820	0.31
Santa Fe Irrigation District	10,106	3,509.3	10,106	0.35	5,575	0.63
South Bay Irrigation District	15,447	9,776.0	7,945	1.23	53,700	0.18
Valley Center M.W.D.	53,160	791.2	10,000	0.08	1,750	0.45
Total and Average	434,534	155,463.5	183,742	0.85	783,550	0.20

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

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

SAN DIEGO COUNTY WATER AUTHORITY

TABLE 10
 AUTHORITY STORAGE IN SAN VICENTE RESERVOIR
 (Fiscal Year 1956-57)

Member Agencies	Total Quantity in Storage (7/1/56) (acre feet)	Placed into Storage during Fiscal year (acre feet)	Withdrawn during Fiscal year (acre feet)	Total Quantity in Storage 6/30/57 (acre feet)
Bueno Colorado M.W.D.	1,857.8	457.1	1,874.6	440.3
Carlsbad M.W.D.	526.9	1,086.9	50.8	1,563.0
Escondido, City of	161.9	187.3	177.5	171.7
Fallbrook Public Utility District	0	354.1	354.1	0
Helix Irrigation District	4,996.9	915.2	1,559.8	4,352.3
National City & South Bay I.D. ...	0	0	0	0
Oceanside, City of	443.9	272.7	69.5	647.1
Otay M.W.D.*	0	366.6	0	366.6
Poway M.W.D.	426.5	46.9	473.4	0
Rainbow M.W.D.	485.7	154.1	639.8	0
Rincon del Diablo M.W.D.	511.8	881.8	929.5	464.1
Rio San Diego M.W.D.	61.0	514.0	3.9	571.1
San Diego, City of	0	0	0	0
San Dieguito Irrigation District	1,200.0	365.5	1,200.0	365.5
Santa Fe Irrigation District	0	0	0	0
Valley Center M.W.D.	752.4	237.7	377.4	612.7
Authority (for evaporation)	228.6	815.1	729.6	314.1
Total	11,653.4	6,655.0	8,439.9	9,868.5

*Otay Municipal Water District was annexed to the Authority on October 26, 1956.

TABLES

TABLE 11
 CHEMICAL CHARACTER OF NATURAL COLORADO RIVER
 WATER AT WEST PORTAL OF SAN JACINTO TUNNEL
 Year Ending June 30, 1957

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°
			Total	Phenolphthalein			
July	377	255	122	1	33.5	8.3	77
August	372	253	119	0	33.5	8.3	82
September	380	250	127	0	34.0	8.3	76
October	385	257	128	0	34.0	8.2	63
November	378	256	122	1	34.0	8.3	—
December	375	260	115	2	33.5	8.3	53
January	402	267	135	0	34.0	8.2	50
February	402	268	134	2	34.0	8.2	49
March	397	265	132	3	33.5	8.3	57
April	381	252	129	3	32.5	8.4	61
May	381	252	129	2	32.5	8.3	62
June	383	246	125	3	32.0	8.5	69
Average	383	257	126	1	33.5	8.3	63
Maximum	402	268	135	3	34.5	8.5	77
Minimum	371	250	115	0	32.0	8.2	49

TABLE 12
ALLOCATION OF RIGHT TO PURCHASE AUTHORITY WATER
As of June 30, 1957

Member Agencies	Total Amount Paid by Each Member Agency to 6/30/57	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.	\$ 85,524.50	\$ 71,990.09	\$ 157,514.59	2.45	4.80
Carlsbad M.W.D.	89,169.47	0	89,169.47	1.39	2.72
Escondido, City of	71,800.55	10,260.46	82,061.01	1.28	2.51
Fallbrook P.U.D.	48,017.95	0	48,017.95	0.75	1.47
Helix Irrigation District	573,813.82	23,405.08	597,218.90	9.28	18.19
National City, City of	165,898.03	0	165,898.03	2.58	5.06
Oceanside, City of	148,145.47	0	148,145.47	2.30	4.51
Otay M.W.D.	0	24,900.00	24,900.00		
Poway M.W.D.	7,540.74	6,129.92	(24,788.58)*	0.39	0.76
Rainbow M.W.D.	23,661.09	0	13,670.66	0.21	0.41
Rincon del Diablo M.W.D.	103,242.91	0	23,661.09	0.37	0.73
Rio San Diego M.W.D.	11,127.77	46,100.00	103,242.91	1.60	3.14
San Diego, City of	4,453,830.36	0	57,227.77	0.89	1.74
San Diego I.D.	67,874.65	1,745.49	4,453,830.36	69.24	135.71
Santa Fe I.D.	57,878.45	1,173.71	69,620.14	1.08	2.12
South Bay I.D.	306,172.55	7,084.78	59,052.16	0.92	1.80
Valley Center M.W.D.	7,308.40	18,755.25	313,257.33	4.87	9.55
Total Authority	\$6,221,006.71	\$211,544.78	\$6,432,551.49	100.00	196.00
			(\$6,432,146.65)*		

*Back taxes for period to June, 1957

TABLE 13
STATEMENT OF ASSESSED VALUATIONS AND TAX RATES TO JUNE 30, 1957

Fiscal Year	Secured		Public Utilities	Unsecured Personal		Total	Tax Rate per \$100	
	Real	Personal		Unsecured Personal	Secured		Unsecured	
1945-1946	\$212,082,975		\$ 28,253,700	\$ 29,960,130	\$ 270,296,805	\$0.04	\$	
1946-1947	208,715,150 (1)		29,433,450	30,665,910	268,814,510	0.04	0.04	
1947-1948	233,579,990		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		53,208,220	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		101,224,260	97,950,800	879,999,460	0.09	0.09	
1957-1958*	761,071,140		111,149,690	128,785,440	1,001,006,270	0.09	0.09	

Debt limit 15 percent of last equalized assessed valuation of property.

Basis of assessment approximately 50 per cent.

(1) City of Coronado and Ramona Irrigation District secured assessed valuation not included in this or subsequent levies by the Authority, they having withdrawn from the Authority prior to 1946-47.

(2) City of Coronado and Ramona Irrigation District not included in this or subsequent total valuation.

*Data for 1957-58 were available before completion of report and are included for convenience of reader.

SAN DIEGO COUNTY WATER AUTHORITY

TABLE 14
STATEMENT OF FINANCIAL POSITION
June 30, 1957

ASSETS			
CURRENT ASSETS—GENERAL FUND:			
Cash with treasurer		\$ 23,681.34	
Petty cash		100.00	
Accounts receivable		173,031.15	
Inventory of water in storage		90,777.40	
Investments		324,400.81	
Delinquent taxes receivable	\$ 3,252.90		
Less allowance for estimated losses	3,252.90		—
Total current assets			611,990.70
SPECIAL FUND ASSETS:			
General Reserve Fund:			
Cash with treasurer		105,167.34	
Investments		270,045.64	375,212.98
Bond Interest and Sinking Fund:			
Cash with treasurer		2,216.53	
Cash with fiscal agent for payment of bond interest		17,510.00	
Investments		574,723.09	
Delinquent taxes receivable	\$ 2,909.87		
Less allowance for estimated losses	2,909.87		594,449.62
U. S. Government Contract Fund:			
Cash with treasurer		28,421.40	
Due from Metropolitan Water District:			
On 1st Barrel, S.D. Aqueduct ..	5,187,500.00		
On 2nd Barrel, S.D. Aqueduct ..	7,810,262.75	12,997,762.75	
Investments		24,798.25	
Delinquent taxes receivable	13,405.65		
Less allowance for estimated losses	13,405.65		13,050,982.40
Special Tax Fund:			
Cash with treasurer		4,030.85	
Investments		303,952.15	
Annexation charges receivable— not due		211,544.78	
Delinquent taxes receivable	1,992.23		
Less allowance for estimated losses	1,992.23		519,527.78
Total special fund assets			14,540,172.78
FIXED ASSETS:			
Cost of participation rights in Metropolitan Water District to 6/30/57			32,108,833.48
Plant	17,811,403.54		
Less allowance for depreciation	1,079,575.13		
Work in progress	16,731,828.41		
	390,759.53	17,122,587.94	
Total fixed assets			49,231,421.42
			<u>\$64,383,584.90</u>

TABLES

TABLE 14 (Continued)
STATEMENT OF FINANCIAL POSITION
June 30, 1957

LIABILITIES	
CURRENT LIABILITIES—GENERAL FUND:	
Accounts payable	\$ 44,734.79
LONG-TERM OBLIGATIONS:	
General obligation bonds payable—not due	1,700,000.00
Estimated balance due on U.S. Government contract:	
For cost of 1st Barrel, S.D. Aqueduct	\$10,375,000.00
For cost of 2nd Barrel, S.D. Aqueduct	14,315,134.22
Balance due Metropolitan Water District on annexation charges	13,255,174.39
Total long-term obligations	39,645,308.61
SURPLUS:	
Invested in fixed assets	9,586,112.81
Reserves for debt redemption:	
For retirement of general obligation bonds	594,449.62
For retirement of U.S. Government contract	13,050,982.40
Total reserves for debt redemption	13,645,432.02
Appropriated:	
For petty cash fund balance	100.00
For general reserve fund balance	375,212.98
For special tax fund balance	519,527.78
For incomplete projects (Continuing appns.)	57,970.05
Total appropriated	952,810.81
Unappropriated surplus	509,185.86
Total surplus	24,693,541.50

SAN DIEGO COUNTY WATER AUTHORITY

TABLE 15

STATEMENT OF INCOME AND SURPLUS
July 1, 1956 to June 30, 1957

INCOME DIVISION

OPERATING INCOME:			
Water sales			\$1,759,056.90
DEDUCT OPERATING COSTS:			
Cost of water sold:			
Inventory of water in storage			
July 1, 1956	\$ 91,078.00		
Water purchased	1,443,998.00		
Storage charges	30,523.69		
		1,565,599.69	
Less inventory of water in storage			
June 30, 1957	90,777.40	\$1,474,822.29	
Direct operating expense		33,108.94	
General and administrative expense		92,834.32	
Total operating costs			1,600,765.55
Net operating income before depreciation and debt service expense			158,291.35
DEDUCT DEPRECIATION AND DEBT SERVICE EXPENSE:			
Depreciation	183,977.17		
Debt service expense	413,516.02	597,493.19	
Net operating income (deficit)			(439,201.84)
ADD NON-OPERATING INCOME:			
Revenue from taxes	165,896.92		
Less collection expense	433.38	165,463.54	
Miscellaneous revenues		9,769.88	
Net gain on exchange of capital assets		114.00	
Debt service expense provided by:			
Bonds Interest and Sinking Fund	35,000.00		
U.S. Government Contract Fund	171,858.60		
Receipts from Metropolitan Water District	206,353.12	413,211.72	588,559.14
Net income for the year to surplus division			\$ 149,357.30

TABLES

TABLE 15 (Continued)

STATEMENT OF INCOME AND SURPLUS
July 1, 1956 to June 30, 1957

SURPLUS DIVISION

SURPLUS, JULY 1, 1956:			
Appropriated surplus:			
For incomplete projects	\$ 67,161.71		
For petty cash fund	100.00	\$ 67,261.71	
Unappropriated surplus:			
Water in storage	91,078.00		
Available for appropriation	302,324.02	393,402.02	\$460,663.73
ADDITIONS TO SURPLUS:			
Depreciation charged to surplus entailing no expenditure of current funds		183,977.17	
Refunds of prior year's expenditures		630.04	
Net income for the year from income division		149,357.30	
Construction funds provided from agencies' advances for construction		101,883.33	
Net recovery of book value on disposal of fixed assets		1,386.00	437,233.84
			897,897.57
DEDUCTIONS FROM SURPLUS:			
Expenditures for construction work:			
From General Fund	216,227.19		
From agencies advances for construction	101,883.33	318,110.52	
Expenditures for furniture, fixtures and equipment		12,372.14	
Prior year's revenues remitted		159.00	330,641.66
Surplus, June 30, 1957			\$567,255.91
Consisting of:			
Appropriated surplus:			
For incomplete projects	\$ 57,970.05		
For petty cash fund	100.00	\$ 58,070.05	
Unappropriated surplus:			
Water in storage	90,777.40		
Available for appropriation	418,408.46	509,185.86	
			\$567,255.91

SAN DIEGO COUNTY WATER AUTHORITY

TABLE 16

STATEMENT OF REVENUES—ESTIMATED AND ACTUAL
Fiscal Year Ended June 30, 1957

Source	Estimated Revenues	Actual Revenue	Actual Over or (Under) Estimate
Taxes, secured, current levy	\$ 749,450.00	\$ 767,793.05	\$ 18,343.05
Taxes, unsecured, current levy ..	90,850.00	93,590.28	2,740.28
Taxes, secured, prior years' levies	9,000.00	12,794.44	3,794.44
Taxes, unsecured, prior years' levies	1,000.00	187.22	(812.78)
Penalties and interest on delinquent taxes	1,000.00	1,520.24	520.24
Miscellaneous tax on options		8.69	8.69
Receipts in lieu of taxes		86,145.76	86,145.76
Miscellaneous tax sales		520.36	520.36
Sale of water	1,756,000.00	1,759,056.90	3,056.90
Earnings on investments	24,000.00	34,508.16	10,508.16
Rentals	1,800.00	1,884.00	84.00
Use of Authority facilities	200.00	1,117.50	917.50
Miscellaneous revenues	665,000.00	663,247.48	(1,752.52)
Total	\$3,298,300.00	\$3,422,374.08	\$124,074.08
DISTRIBUTION BY FUNDS:			
General Fund	\$1,923,900.00	\$1,934,723.70	\$ 10,823.70
Bonds Interest and Sinking Fund	95,750.00	103,305.04	7,555.04
U. S. Government Contract Fund	1,193,700.00	1,206,901.77	13,201.77
General Reserve Fund	6,000.00	7,582.66	1,582.66
Special Tax Fund	78,950.00	169,860.91	90,910.91
Total	\$3,298,300.00	\$3,422,374.08	\$124,074.08

TABLES

TABLE 17
STATEMENT OF APPROPRIATIONS AND EXPENDITURES
July 1, 1956 to June 30, 1957

E & A No.	Purpose	Prior Years' Appropriation Carried Over	Appropriations 1956-57	Expenditures 1956-57	Cancelled Appropriations	Unexpended Appropriations June 30, 1957
136	Co-operative construction of Second Barrel ..	\$ 8,270.74	\$	\$ 3,344.70	\$ 4,926.04	
161	Special engineering studies—Second Aqueduct	33,600.62	91,000.00	119,776.61	4,824.01	
165	Construction of Headquarters Building	6,335.66		6,188.48	147.18	
172	No. 1 Service connection—Valley Center Municipal Water District	4,495.16		915.19	3,579.97	
177	Purchase of water for resale		1,474,700.00	1,474,521.69	178.31	
178	Operation and maintenance		157,200.00	132,820.47	24,379.53	
179	Payment of bonds and interest coupons		135,000.00	135,000.00		
180	Payments on lease-purchase—San Diego Aqueduct		1,260,000.00	1,257,420.56	2,579.44	
181	No. 1 Service connection—Rio San Diego Municipal Water District	14,459.53		11,271.49	3,188.04	\$ 2,700.77
183	Water Conservation Program		8,500.00	5,799.23		
184	No. 1 Service connection—Carlsbad Municipal Water District		18,300.00	74,730.72	18,300.00	50,269.28
185	Bond issue—Second Aqueduct		125,000.00			5,000.00
186	Water Re-apportionment Committee		5,000.00			
		\$67,161.71	\$3,274,700.00	\$3,221,789.14	\$62,102.52	\$57,970.05
DISTRIBUTION BY FUNDS						
	General Fund	\$67,161.71	\$1,879,700.00	\$1,829,368.58	\$59,523.08	\$57,970.05
	Bonds Interest and Sinking Fund		135,000.00	135,000.00		
	U. S. Contract Fund		1,260,000.00	1,257,420.56	2,579.44	
		\$67,161.71	\$3,274,700.00	\$3,221,789.14	\$62,102.52	\$57,970.05

TABLE 18

SUMMARY STATEMENT OF CASH RECEIPTS AND DISBURSEMENTS
July 1, 1956 to June 30, 1957

	Cash Balance July 1, 1956		Cash Receipts		Cash Disbursements		Inter-Fund Transfers		Cash Balance June 30, 1957
							In	Out	
General Fund	\$ 57,417.44	\$ 2,373,580.67	\$ 2,466,514.32	\$ 114,221.50	\$ 55,023.95	\$ 23,681.34			
Bonds Interest and Sinking Fund	18,821.56	670,968.77	697,597.75	25,023.95	15,000.00	2,216.53			
U.S. Contract Fund	73,233.70	1,205,406.51	1,257,420.56	90,000.00	84,798.25	28,421.40			
General Reserve Fund	109,630.32	15,582.66	20,045.64	60,000.00	60,000.00	105,167.34			
Special Tax Fund	32,423.73	523,973.81	477,943.44		74,423.25	4,030.85			
Total all funds	\$293,526.75	\$4,789,512.42	\$4,919,521.71	\$289,245.45	\$289,245.45	\$163,517.46			

TREASURY CASH ON DEPOSIT—June 30, 1957

First National Trust and Savings Bank	\$233,018.84
Bank of America National Trust and Savings Association	42,510.00
San Diego Trust and Savings Bank	50,000.00
Total bank balances	\$325,528.84
Deduct:	
Outstanding warrants	\$144,501.38
Special deposit for payment of Bond Interest coupons	17,510.00
Treasury cash, June 30, 1957	\$163,517.46

TABLE 19
STATEMENT OF BONDS PAYABLE
June 30, 1957

Description	Rate of Interest	Date of			BONDS			SINKING FUND		
		Issue	Maturity	Authorized	Issued	Outstanding	Required	Actual	Excess	
Waterworks Bonds	2%-2½%	1947	1971	\$2,000,000.00	\$2,000,000.00	\$1,700,000.00	\$568,358.68	\$576,939.62	\$8,580.94	

STATEMENT OF BONDED DEBT MATURITIES

Fiscal Year	Bond No.	Interest Payable (1)		Bond Principal Payable (2)	Total Cash Required
		Rate	Amount		
1957-58	301-400	2%	\$ 33,000.00	\$ 100,000.00	\$ 133,000.00
1958-59	401-500	2	31,000.00	100,000.00	131,000.00
1959-60	501-600	2	29,000.00	100,000.00	129,000.00
1960-61	601-700	2	27,000.00	100,000.00	127,000.00
1961-62	701-850	2	24,500.00	150,000.00	174,500.00
1962-63	851-1000	2	21,500.00	150,000.00	171,500.00
1963-64	1001-1150	2	18,500.00	150,000.00	168,500.00
1964-65	1151-1300	2	15,500.00	150,000.00	165,500.00
1965-66	1301-1450	2	12,500.00	150,000.00	162,500.00
1966-67	1451-1600	2	9,500.00	150,000.00	159,500.00
1967-68	1601-1700	2	7,000.00	100,000.00	107,000.00
1968-69	1701-1800	2	5,000.00	100,000.00	105,000.00
1969-70	1801-1900	2	3,000.00	100,000.00	103,000.00
1970-71	1901-2000	2	1,000.00	100,000.00	101,000.00
			\$238,000.00	\$1,700,000.00	\$1,938,000.00

(1) Interest payable January 1 and July 1.
(2) Maturity day January 1.

TABLE 20
STATEMENT OF TAX ASSESSMENTS AND COLLECTIONS
July 1, 1956 to June 30, 1957

Member Agency	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, 1957
Fallbrook P.U.D.	\$ 44,678.77	\$ 82.71	\$ 44,413.02	\$ 192.41	\$.41	\$ 3,415.36	\$ 4.30	\$ 7.55	\$ 48,017.95	\$ 348.46
Helix Irrigation District	574,552.43	(80.81)	570,964.44	1,480.88	89.08	1,060.00	421.00	201.58	573,813.82	3,307.18
City of National City	160,733.68	(195.83)	159,537.09	489.17	5.58	6,239.59	36.92	470.32	165,898.03	940.76
City of Oceanside	145,635.65	344.29	145,301.69	331.62	5.11	2,560.68	42.70	96.33	148,145.47	678.25
City of San Diego	4,297,927.59	13,399.22	4,299,355.17	7,685.33	36.90	149,431.26	1,725.31	4,403.61	4,453,830.36	11,971.64
Santa Fe I.D.	56,664.38	148.99	56,672.08	176.25	17.93		1,023.78	11.59	57,878.45	141.29
San Diego I.D.	67,995.34	98.02	67,730.14	237.03	3.88		97.93	194.33	67,874.65	363.22
City of Escondido	71,452.44	405.39	71,696.82	84.08			28.84	9.19	71,800.55	161.01
South Bay I.D.	293,202.38	385.44	292,680.44	542.55	.39	13,267.52	57.13	375.48	306,172.55	907.38
Rainbow M.W.D.	3,210.83		3,081.12			20,579.97			23,661.09	129.71
Poway M.W.D.	7,646.24	13.35	7,531.60	9.51					7,540.74	127.99
Bueno Colorado M.W.D.	85,348.13	388.67	84,651.99	109.27	1.73	750.00	45.44	33.93	85,524.50	1,084.81
Rincon del Diablo M.W.D.	52,863.09	672.19	53,051.34	73.60		50,118.37		.40	103,242.91	483.94
Carlsbad M.W.D.	56,407.19	74.49	55,954.95	42.71		33,173.85		2.04	89,169.47	526.73
Valley Center M.W.D.	7,569.92		7,308.40						7,308.40	261.52
Rio San Diego M.W.D.	11,062.57	36.14	11,005.43	65.91	.05	45.00	19.38	8.00	11,127.77	93.28
Total member agencies	5,936,750.63	15,772.26	5,930,995.72	11,520.32	161.06	280,641.60	3,502.73	5,814.72	6,221,006.71	21,527.17
Withdrawn agencies	4,270.21	41.91	4,278.64	9.27	.15	186.64	2.49		4,477.19	33.48
Total	\$5,941,020.84	\$15,814.17	\$5,935,274.36	\$11,529.59	\$161.21	\$280,828.24	\$3,505.22	\$5,814.72	\$6,225,483.90	\$21,560.65

ANALYSIS OF UNCOLLECTED TAXES BY FUNDS

General Fund	\$ 3,252.90
Bonds Interest and Sinking Fund	2,909.87
U.S. Contract Fund	13,405.65
Special Tax Fund	1,992.23
Total as above	\$21,560.65

TABLE 21
TAX LEVIES AND TAX COLLECTIONS
Fiscal Years 1945-46 to 1956-57

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 to Adjusted Delinquent Taxes	Ratio of Accumulated Delinquent Taxes to Adjusted Tax Levy (2)
1945-46	\$ 96,131.33	\$ 94,656.51	98.47		\$ 1,090.25	\$ 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	381,563.14	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		13,342.55	465,420.80	98.08	17,685.37	3.73
1949-50	401,112.07	392,732.15	97.91	\$ 329.58	8,217.82	406,074.70	101.15	13,052.32	3.25
1950-51	397,970.61	390,274.43	98.07	373.44	7,699.55	398,492.25	100.03	12,904.12	3.24
1951-52	450,405.19	441,242.12	97.97	978.87	12,567.93	448,941.67	99.46	15,346.51	3.40
1952-53	594,603.48	585,417.35	98.46	(1,140.34)	9,942.33	597,985.28	100.76	10,824.37	1.82
1953-54	652,335.08	640,239.42	98.15	4,213.42	12,638.30	650,181.75	99.03	17,191.12	2.62
1954-55	709,678.89	695,200.64	97.96	1,295.13	12,140.64	707,838.94	99.56	20,326.20	2.86
1955-56	803,375.25	788,734.26	97.41	(2,099.58)	13,056.01	800,874.90	99.95	20,726.97	2.59
1956-57	874,774.45	861,461.66	98.48	576.90	13,056.01	874,517.67	99.90	21,560.65	2.46

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

TABLES

TABLE 22
SAN DIEGO COUNTY WATER AUTHORITY
ANNEXATION CHARGES, ASSESSMENTS AND BALANCES

Area	Date of Annexation	Amount of Annexation Charge	Period of Special Assessments		Special Assessments 6/30/56	Special Assessments	Fiscal Year 1956-57		Remaining Balance of Annexation Charges 6/30/57
			First Year	Last Year			Special Assessments	Tax Rate \$/100	
Bueno Colorado M.W.D. Annexation of 1956	6-11-54 6-11-56	\$122,400.00 750.00	1955-56 1955-56	1959-60 1955-56	\$ 25,876.48 750.00	\$ 24,533.43 0	12 0	\$ 71,990.09 0	
Carlsbad M.W.D.	6-16-54	57,700.00	1955-56	1956-57	12,885.57	{ 11,640.58 33,173.85	6 Cash	0	
Escondido, City of	10-9-50	27,500.00	1951-52	1960-61	14,815.88	2,423.66	2	10,260.46	
Fallbrook P.U.D. Annexation of 1950	8-1-50	2,700.00	1950-51	1950-51	2,700.00	0	0	0	
Helix I.D.	12-13-48	861.00	1949-50	1949-50	861.00	0	0	0	
Crest P.U.D.	5-14-52	1,060.00	1951-52	1951-52	1,060.00	0	0	0	
San Diego Gas & Electric Co. Lands	12-20-54	40,800.00	1955-56	1959-60	8,726.59	8,668.33	7	23,405.08	
El Cajon Dry Island Annexation	10-26-56	24,900.00	1957-58	1961-62	0	0	0	24,900.00	
Otay M.W.D.	4-21-54	10,400.00	1955-56	1959-60	2,210.92	2,059.16	10	6,129.92	
Poway M.W.D.	4-10-54	18,000.00	1955-56	1955-56	18,000.00	0	0	0	
Rainbow M.W.D.	6-14-54	82,700.00	1955-56	1956-57	17,088.45	{ 15,493.18 50,118.37	13 Cash	0	
Rincon del Diablo M.W.D.	6-7-56	46,100.00	1957-58	1961-62	0	0	0	46,100.00	
Rio San Diego M.W.D.:	7-18-52	45.00	1951-52	1951-52	45.00	0	0	0	
(not including Lakeside I.D.)	12-13-48	13,733.00	1949-50	1958-59	10,991.16	996.35	1	1,745.49	
Lakeside I.D., S.D. Eucalyptus Co. Lands	12-13-48	11,541.00	1949-50	1958-59	9,327.22	840.07	1	1,173.71	
San Dieguito I.D.	11-3-52	39,900.00	1953-54	1957-58	24,339.55	8,475.67	5	7,084.78	
South Bay I.D.:	7-13-55	5,405.00	1955-56	1955-56	5,405.00	0	0	0	
(not including City of Chula Vista)	11-7-56	5.00	1956-57	1956-57	0	5.00	0	0	
Sweetwater Reservoir Area	5-9-55	23,600.00	1956-57	1960-61	0	4,844.75	16	18,755.25	
Sweetwater Delta Area									
Valley Center M.W.D.									
Total		\$530,100.00			\$153,282.82	\$163,272.40		\$211,544.78	

TABLE 23
METROPOLITAN WATER DISTRICT ANNEXATION CHARGES,
ASSESSMENTS AND BALANCES ON AUTHORITY AREAS

Member Agencies	Dates of Annexation	Amount of Annexation Charge	Period of Special Assessments		Special Assessments 6/30/56	Special Assessments	Fiscal Year 1956-57		Remaining Balance of Annexation Fee 6/30/57
			First Year	Last Year			Special Assessments	Tax Rate \$/100	
Chula Vista	12-17-46	\$13,045,000	1947-48	1976-77	\$3,931,799.88	\$455,176.03	6¢	\$ 8,658,024.09	
Fallbrook Public Utility District (area as of 12-17-1946)	6-11-54	1,072,230	1955-56	1984-85	36,966.40	34,766.42	17¢	1,000,497.18	
Lakeside Irrigation District	6-11-56	5,100	1955-56	1955-56	5,100.00	0	0	0	
Carlsbad M.W.D.	6-16-54	548,100	1955-56	1984-85	19,328.35	17,484.86	9¢	511,286.79	
Escondido	10-9-50	386,000	1951-52	1980-81	64,452.75	13,330.13	11¢	308,217.12	
National City									
Oceanside									
San Diego	8-1-50	34,600	1951-52	1980-81	11,711.03	994.53	8¢	21,894.44	
Bueno Colorado M.W.D.— Original Area	7-18-52	352	1951-52	1951-52	352.00	0	0	0	
Annexation No. 1	12-13-48	10,500	1949-50	1978-79	2,492.18	334.20	6¢	7,673.62	
Carlsbad M.W.D.	5-14-52	9,875	1951-52	1951-52	9,875.00	0	0	0	
Escondido	12-20-54	327,450	1955-56	1984-85	11,562.99	11,151.84	9¢	304,935.17	
Concurrent Islands	3-16-55	15	1954-55	1954-55	15.00	0	0	0	
Otay M.W.D.	10-26-56	273,000	1957-58	1986-87	0	0	0	273,000.00	
Poway M.W.D.	4-21-54	91,800	1955-56	1984-85	3,061.28	3,084.44	15¢	85,654.28	
Rainbow M.W.D.	4-10-54	167,700	1955-56	1984-85	5,733.28	5,708.14	16¢	156,258.58	
Rincon del Diablo M.W.D.	6-14-54	757,200	1955-56	1984-85	25,632.67	24,976.92	21¢	706,590.41	
Rio San Diego M.W.D.	6-7-56	373,980	1957-58	1986-87	0	0	0	373,980.00	
(not including Lakeside I.D.)	12-13-48	187,100	1949-50	1978-79	44,404.12	5,790.63	6¢	136,905.25	
San Diego Irrigation District	12-13-48	167,000	1949-50	1978-79	39,168.13	5,694.87	7¢	122,137.00	
Sana Fe Irrigation District									
South Bay Irrigation District (not including City of Chula Vista)	11-3-52	449,370	1953-54	1982-83	45,503.63	14,461.58	9¢	389,404.79	
Sweetwater Reservoir Annexation	7-13-55	45,525	1955-56	1955-56	45,525.00	0	0	0	
Sweetwater Delta Area	11-7-56	42	1956-57	1956-57	0	42.00	Cash	0	
Valley Center M.W.D.	5-9-55	205,680	1956-57	1985-86	0	6,964.33	23¢	198,715.67	
Total		\$18,157,619			\$4,302,483.69	\$599,960.92		\$13,255,174.39	

TABLE 24
WATER SALES BY METROPOLITAN WATER DISTRICT
Fiscal Years 1941-42 to 1956-57

Year	To Member Municipalities				Total to Agencies Acre feet	To Others Acre feet	Total Acre feet
	Natural Water		Softened Water				
	Acre feet	Per cent	Acre feet	Per cent			
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

TABLE 25
WATER PRODUCTION—METROPOLITAN WATER DISTRICT CONSTITUENT AREAS
Figures Furnished by Metropolitan Water District

Constituent Areas	Total Water Production			Source of Water Produced—1957		
	1955-56	1956-57	Per cent Increase or Decrease	M.W.D.		Other
	Amount ac. ft.	Amount ac. ft.		Amount ac. ft.	Per cent of Total	Amount ac. ft.
Anaheim	8,840	11,168	26.3	4,370	39.1	6,798
Beverly Hills	9,835	11,183	13.7	3,600	32.2	7,583
Burbank	22,501	23,065	2.5	1,793	7.8	21,272
Central Basin M.W.D.	165,167	181,327	9.8	2,707	1.5	178,620
Chino Basin M.W.D.	100,923	156,506	55.1	5,984	3.8	150,522
Coastal M.W.D.	10,424	12,164	16.7	8,085	66.5	4,079
Compton	6,315	6,471	2.5	256	4.0	6,215
Eastern M.W.D.	164,900	148,741	-9.8	29,941	20.1	(f) 118,800
Foothill M.W.D.	12,922	13,471	4.2	6,086	45.2	7,385
Fullerton	9,435	11,781	24.9	5,644	47.9	6,137
Glendale	23,855	25,668	7.6	2,299	9.0	23,369
Long Beach	41,137	43,222	5.1	17,768	41.1	25,454
Los Angeles	473,939	467,127	-1.4	33,379	7.1	433,748
Orange County M.W.D.	167,846	179,980	7.2	21,980	12.2	158,000
Pasadena	28,769	29,826	3.7	15,692	52.6	14,134
Pomona Valley M.W.D.	44,924	45,436	1.1	6,172	13.6	39,264
San Diego C.W.A.	155,313	175,927	13.3	(d) 144,400	82.1	31,527
San Marino	4,364	4,740	8.6	—	0	4,740
Santa Ana	10,746	11,891	10.7	5,752	48.4	6,139
Santa Monica	12,074	13,350	10.6	12,362	92.6	988
Torrance	12,021	13,968	16.2	11,570	82.8	2,398
West Basin M.W.D.	92,360	100,010	8.3	(e) 51,526	51.5	48,484
Western M.W.D.	135,028	147,851	9.5	2,851	1.9	145,000
Totals	1,713,638	1,834,873	7.1	394,217	21.5	1,440,656
Totals						78.5

(a) Exclusive of 63,244.0 A.F. delivered to Los Angeles Co. Flood Control District for recharging underground basins.
 (b) Exclusive of 82,954.8 A.F. delivered to Orange Co., for recharging underground basins but including 15,163.8 A.F. delivered for irrigation and domestic use.
 (c) Including 4,765.0 A.F. of unsoftened water.
 (d) Including 17,607.1 A.F. held in storage.
 (e) Including 3,344.5 A.F. of softened water placed in underground basins.
 (f) Including 5,850 A.F. of seepage into San Jacinto Tunnel.

SAN DIEGO COUNTY WATER AUTHORITY

TABLE 26
**ASSESSED VALUATIONS AND TAX RATES OF THE
 METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA**

Fiscal Year	Area (acres)	Assessed Valuations 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	4,281,519,725	.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 (3)		11,235,906,510	.18	.19

(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 1957-58 were available before completion of report and are included for convenience of reader.

PRINTED IN SAN DIEGO, CALIFORNIA



NEYENESCH PRINTERS, INC.