- **Board of Directors**
  Engineering and Operations Committee

August 16, 2005 Board Meeting

7-8

Subject

Appropriate $647,000; and authorize (1) three pipeline repair projects, (2) an agreement with Parsons Water & Infrastructure for project management support, and (3) agreements with Lee & Ro, MWH Americas, and Richard Brady & Associates for design of conveyance and distribution projects

Description

Metropolitan's distribution system consists of approximately 780 miles of pipelines and related structures that deliver potable water from Metropolitan's five water treatment plants to member agencies' service connections. Major portions of Metropolitan's distribution system were initially constructed in the 1940s and have been in continuous service ever since. Metropolitan staff conducts regular maintenance of the system's pipelines as well as its structures, mechanical components, and electrical equipment. Although the distribution system continues to perform reliably today, portions of the system are exhibiting signs of normal wear and tear, as may be expected over 60 years of operation.

In October 2001, Metropolitan's Board authorized the Conveyance and Distribution System Rehabilitation Program (Approp. 15377) to evaluate risks and vulnerabilities of Metropolitan's distribution system, and to identify cost-effective options to address those risks through rehabilitation, repair or replacement. Under Metropolitan's Prestressed Concrete Cylinder Pipe (PCCP) assessment program, 157 miles of a total of 163 miles of PCCP in Metropolitan's distribution system have been inspected using electromagnetic technology to assess the pipes' structural integrity. The remaining six miles of PCCP will be inspected during a planned shutdown of the West Valley Feeder No.1 in November 2005. PCCP is fabricated with tightly wound reinforcing wire that is prestressed to approximately 200,000 psi and covered by a cement mortar coating. Pipe segments with significant wire breaks are at risk and require replacement or repair as soon as practical.

Three pipeline rehabilitation projects are recommended to proceed at this time. These three projects will protect Metropolitan's invested assets, increase service reliability to customers, and reduce the risk of costly emergency repairs. Each of the projects has been evaluated and recommended by Metropolitan's Capital Investment Plan (CIP) Evaluation Team. In addition, four professional services agreements are recommended to be authorized. Three agreements will provide design services for conveyance and distribution projects, and one agreement will provide project management support.

Pipeline Repair Projects

San Diego Pipeline No. 5/Lake Skinner Outlet Conduit Repairs – Final Design ($156,000) – The San Diego Pipeline No. 5 and the Lake Skinner Outlet Conduit are PCCP lines, built in 1981 and 1971, respectively. Electromagnetic inspections performed in February 2002 revealed one distressed pipe section on the 96-inch-diameter San Diego Pipeline No. 5 and three distressed pipe sections on the 162-inch-diameter Lake Skinner Outlet Conduit that warrant repair. Initial results indicated that the repairs were not required immediately but should be coordinated with other planned work within the distribution system. Staff recommends that these pipe segments be repaired during the 2005/06 shutdown season to take advantage of planned shutdowns of the pipelines. Based on the locations of the damaged segments and their condition, three different repair methods will be used. For the first repair, carbon fiber lining will be used to internally reinforce two distressed pipe segments. For the second repair, one "broken back" pipe segment will be removed and replaced with a 20-foot section of steel pipe. For the third repair, a 20-foot-long steel liner will be placed within one "broken back" pipe segment.

A "broken back" occurs where differential settlement between the pipe and an adjacent structure causes the pipe to crack. Carbon fiber lining is not an effective repair method to correct a "broken back" segment.

This action authorizes final design for repair of one distressed pipe section on the San Diego Pipeline No. 5 and three pipe sections on the Lake Skinner Outlet Conduit. Final design of the carbon fiber lining repair will be performed by Metropolitan staff and final design of the steel pipe replacement will be performed by consultants under an existing professional services agreement. Staff will return to the Board in October 2005 to award a construction contract. Funds for the San Diego Pipeline No. 5/Lake Skinner Outlet Conduit Repairs have been included in the fiscal year 2005/06 capital budget.

Sepulveda Feeder Repairs – Final Design ($192,000) – The Sepulveda Feeder is a 96-inch-diameter PCCP line that was constructed in 1970. Electromagnetic inspections performed in March 2005 revealed three distressed pipe sections that warrant prompt repair. These pipe segments will be internally reinforced with carbon fiber lining during a February 2006 shutdown.

This action authorizes Metropolitan staff to perform final design for repair of the three distressed pipe sections. Staff will return to the Board in October 2005 to award a construction contract. Funds for this work were not included in the fiscal year 2005/06 capital budget because the damaged pipe segments were discovered subsequent to preparation of the budget. Upon approval of this action, the fiscal year 2005/06 capital expenditure plan will be adjusted to reflect this new work.

Foothill Feeder Repairs – Preliminary Design and Environmental Documentation ($299,000) – The Foothill Feeder is a 201-inch-diameter PCCP line that was constructed in 1968. Electromagnetic inspections performed in March 2005 revealed three distressed pipe sections that warrant prompt repair. Based on the locations of the damaged segments and their condition, two different repair methods will be used. For the first repair, carbon fiber lining will be used to internally reinforce two distressed pipe segments. For the second repair, one "broken back" pipe segment will be removed and replaced with a 20-foot section of steel pipe.

In order to perform the repairs, the water within the Foothill Feeder must be drained into the Santa Clara River. The Santa Clara River basin is a known habitat for two protected species: the California-fully-protected and federally-endangered unarmored threespine stickleback, and the federally-endangered arroyo toad. An environmental impact report will be prepared to enable the feeder shutdown and repairs to proceed.

This action authorizes preparation of environmental documentation and preliminary design for the Foothill Feeder repairs. Preliminary design of the repairs will be performed by Metropolitan staff. Staff will return to the Board in October 2005 to authorize final design. Funds for this work were not included in the fiscal year 2005/06 capital budget because the damaged pipe segments were discovered subsequent to preparation of the budget. Upon approval of this action, the fiscal year 2005/06 capital expenditure plan will be adjusted to reflect this new work.

This action appropriates $647,000 and authorizes final design for the San Diego Pipeline No. 5/Lake Skinner Outlet Conduit repairs, final design for the Sepulveda Feeder repairs, and preliminary design for the Foothill Feeder Repairs. For the pipeline repair projects, the cost of final design as a percentage of the estimated construction cost is approximately 10 percent. The Engineering Services goal for final design as a percentage of construction is 9 to 15 percent for contracts under $3 million.

Professional Services Agreements

Project Management Support – Parsons Water & Infrastructure

Project management support of capital projects includes tasks such as developing and maintaining project schedules, monitoring cost expenditures, developing status reports, developing presentations and graphics, performing document control, and project administration. Collectively, these functions are referred to as project controls. For efficiency, programs with similar and specialized scopes have been grouped together for the purpose of providing project controls support. This approach means that a single agreement will be utilized to provide project controls support to a number of capital programs, allowing Metropolitan to take advantage of efficiencies gained from fully dedicated consulting resources.

Selection of consultants to provide project management support followed a competitive process. RFQ 661 was issued in September 2004 to obtain support in project scheduling, budgeting, reporting, presentation development, and document control. These services to provide project support for Metropolitan's conveyance and distribution system program are estimated to range between $2 million to $3 million over the next five years. In response to RFQ 661, statements of qualifications (SOQs) were submitted by 17 firms, of which six were deemed to be qualified to provide the types of services planned.

This action authorizes the CEO to enter into a professional services agreement for project management support with Parsons Water & Infrastructure in an amount not to exceed $600,000 per year, for five years. No additional funding or project authorizations are required at this time, and no work is guaranteed to Parsons under the agreement. Initial phases of the work to be performed by Parsons Water & Infrastructure have previously been authorized and funded by the Board. Future phases of work will be recommended to the Board under individual capital programs for authorization and funding. No work will be performed pursuant to this agreement unless this work has been previously authorized and funded by the Board. For this agreement, Metropolitan has established a Small Business Enterprises participation goal of 25 percent. Parsons Water & Infrastructure has committed to meet this requirement.

Conveyance and Distribution Design Services – Lee & Ro, MWH Americas, and Richard Brady & Associates

Metropolitan has undertaken a major assessment of the repair and rehabilitation needs of the distribution system, resulting in the identification of numerous individual capital projects. Staff recommends that a portion of the design work for these projects be performed by consultants. Scopes of work will include conducting studies and investigations; producing final plans and specifications; and providing specialized technical assistance in areas such as computational fluid dynamics modeling, control system engineering, value engineering, environmental site assessments, industrial hygiene and safety, and construction logistics planning.

Based on current projections for Metropolitan's CIP, expenditures for design consultants for conveyance and distribution rehabilitation projects are estimated to be approximately $7 million per year over the next five years. Specific examples of projects recommended for fiscal year 2005/06 which are planned to be assigned to consultants include: Chemical Containment Projects at Metropolitan's treatment plants, Colorado River Aqueduct Discharge Containment Projects, Box Springs Feeder Broken Back Repairs, Rialto Pipeline Improvements, and planning-phase projects identified in Metropolitan's Distribution System Overview Study.

Selection of consultants to provide design services followed a competitive process. RFQ 719 was issued in January 2005 to obtain conceptual, preliminary and final design services for new facilities and for rehabilitation projects within Metropolitan's conveyance and distribution system. In response to RFQ 719, SOQs were submitted by ten firms, of which nine firms were deemed to be qualified to provide the types of services planned.

Staff recommends entering into professional services agreements with Lee & Ro, MWH Americas, and Richard Brady & Associates for design support on conveyance and distribution projects. This approach of contracting with multiple firms will enable Metropolitan to tailor work packages based on each firm's unique expertise.

This action authorizes the CEO to enter into professional service agreements with Lee & Ro, MWH Americas, and Richard Brady & Associates for design services, in amounts not to exceed $2 million per year each, for five years. No additional funding or project authorizations are required at this time, and no work is guaranteed to the consultants under these agreements. Initial phases of the work to be performed by these consultants have previously been authorized and funded by the Board. Future phases of work will be recommended to the Board under individual capital programs for authorization and funding. No work will be performed pursuant to these agreements unless this work has been previously authorized and funded by the Board. For each agreement, Metropolitan has established an SBE participation goal of 20 percent. Each firm has committed to meet this requirement.

See **Attachment 1** for the Financial Statement, and **Attachment 2** for the Location Map.

Policy

Metropolitan Water District Administrative Code Section 5108: Capital Project Appropriation

California Environmental Quality Act (CEQA)

San Diego Pipeline No. 5/Lake Skinner Outlet Conduit Repairs

CEQA determination for Option #1:

The proposed action is categorically exempt under the provisions of CEQA and the State CEQA Guidelines. The pipeline repairs involve the funding, design, minor alterations and replacement of existing public facilities with negligible or no expansion of use along with minor modifications in the condition of land, water, and/or vegetation which do not involve removal of healthy, mature, scenic trees. These activities would result in no possibility of significantly impacting the physical environment. Accordingly, the proposed action qualifies under Class 1, Class 2, and Class 4 Categorical Exemptions (Sections 15301, 15302, and 15304 of the State CEQA Guidelines).

The CEQA determination is: Determine that pursuant to CEQA, the proposed action qualifies under three Categorical Exemptions (Class 1, Section 15301; Class 2, Section 15302; and Class 4, Section 15304 of the State CEQA Guidelines).

CEQA determination for Option #2:

None required

Sepulveda Feeder Carbon Fiber Lining Repairs – Final Design

CEQA determination for Option #1:

The proposed action is categorically exempt under the provisions of CEQA and the State CEQA Guidelines. The proposed action involves the funding for design of existing public facilities involving negligible or no expansion of use and no possibility of significantly impacting the physical environment. Accordingly, the proposed action qualifies under a Class 1 Categorical Exemption (Section 15301 of the State CEQA Guidelines).

The CEQA determination is: Determine that pursuant to CEQA, the proposed action qualifies under a Categorical Exemption (Class 1, Section 15301 of the State CEQA Guidelines).

CEQA determination for Option #2:

None required

Foothill Feeder Repairs – Preliminary Design and Environmental Documentation

CEQA determination for Option #1:

The proposed action is categorically exempt under the provisions of CEQA and the State CEQA Guidelines. The overall activities involve the funding, studying, carrying out preliminary design, and preparing and processing environmental documentation for the proposed action. These activities consist of basic data collection and resource evaluation activities that do not result in a serious or major disturbance to an environmental resource. This may be strictly for information gathering purposes, or as part of a study leading to an action, which a public agency has not yet approved, adopted, or funded. Accordingly, the proposed action qualifies as a Class 6 Categorical Exemption (Sections 15306 of the State CEQA Guidelines).

The CEQA determination is: Determine that pursuant to CEQA, the proposed action qualifies under a Categorical Exemption (Class 6, Section 15306 of the State CEQA Guidelines).

CEQA determination for Option #2:

None required

Project Management Support-Parsons Water & Infrastructure

CEQA determination for Option #1:

The proposed action is not defined as a project under CEQA because it involves continuing administrative activities (Section 15378(b)(2) of the State CEQA Guidelines). In addition, the proposed action is not subject to CEQA because it involves other government fiscal activities, which do not involve any commitment to any specific project which may result in a potentially significant physical impact on the environment (Section 15378(b)(4) of the State CEQA Guidelines).

The CEQA determination is: Determine that the proposed action is not subject to the provisions of CEQA pursuant to Sections 15378(b)(2) and 15378(b)(4) of the State CEQA Guidelines.

CEQA determination for Option #2:

None required

Conveyance and Distribution Design Services-Lee & Ro, MWH Americas. and Richard Brady & Associates

CEQA determination for Option #1:

The proposed action is not defined as a project under CEQA because it involves continuing administrative activities (Section 15378(b)(2) of the State CEQA Guidelines). In addition, the proposed action is not subject to CEQA because it involves other government fiscal activities, which do not involve any commitment to any specific project which may result in a potentially significant physical impact on the environment (Section 15378(b)(4) of the State CEQA Guidelines).

The CEQA determination is: Determine that the proposed action is not subject to the provisions of CEQA pursuant to Sections 15378(b)(2) and 15378(b)(4) of the State CEQA Guidelines.

CEQA determination for Option #2:

None required

Board Options/Fiscal Impacts

Option #1

Adopt the CEQA determination and

a. Appropriate $647,000;
b. Authorize preliminary and final design for three pipeline repair projects;
c. Authorize an agreement with Parsons Water & Infrastructure for project management support in an amount not to exceed $600,000/year for five years;
d. Authorize agreements with Lee & Ro, MWH Americas, and Richard Brady & Associates for design services in an amount not to exceed $2 million/year, each for five years.

Fiscal Impact: $156,000 of budgeted funds and $491,000 of unbudgeted funds under Approp. 15377

Option #2

Do not authorize the repair projects. The pipelines will continue to be monitored, and repairs will be made if problems occur. Do not authorize the professional services agreements and instead use Metropolitan staff to perform all work. This option would result in delays to board-authorized programs.

Fiscal Impact: Unknown

Staff Recommendation

Option #1

7/26/2005
Gordon L. Johnson *Date*
for *Roy L. Wolfe*
Manager, Corporate Resources

7/27/2005
Dennis B. Underwood *Date*
CEO/General Manager

Attachment 1 – Financial Statement

Attachment 2 – Location Map

BLA #3695

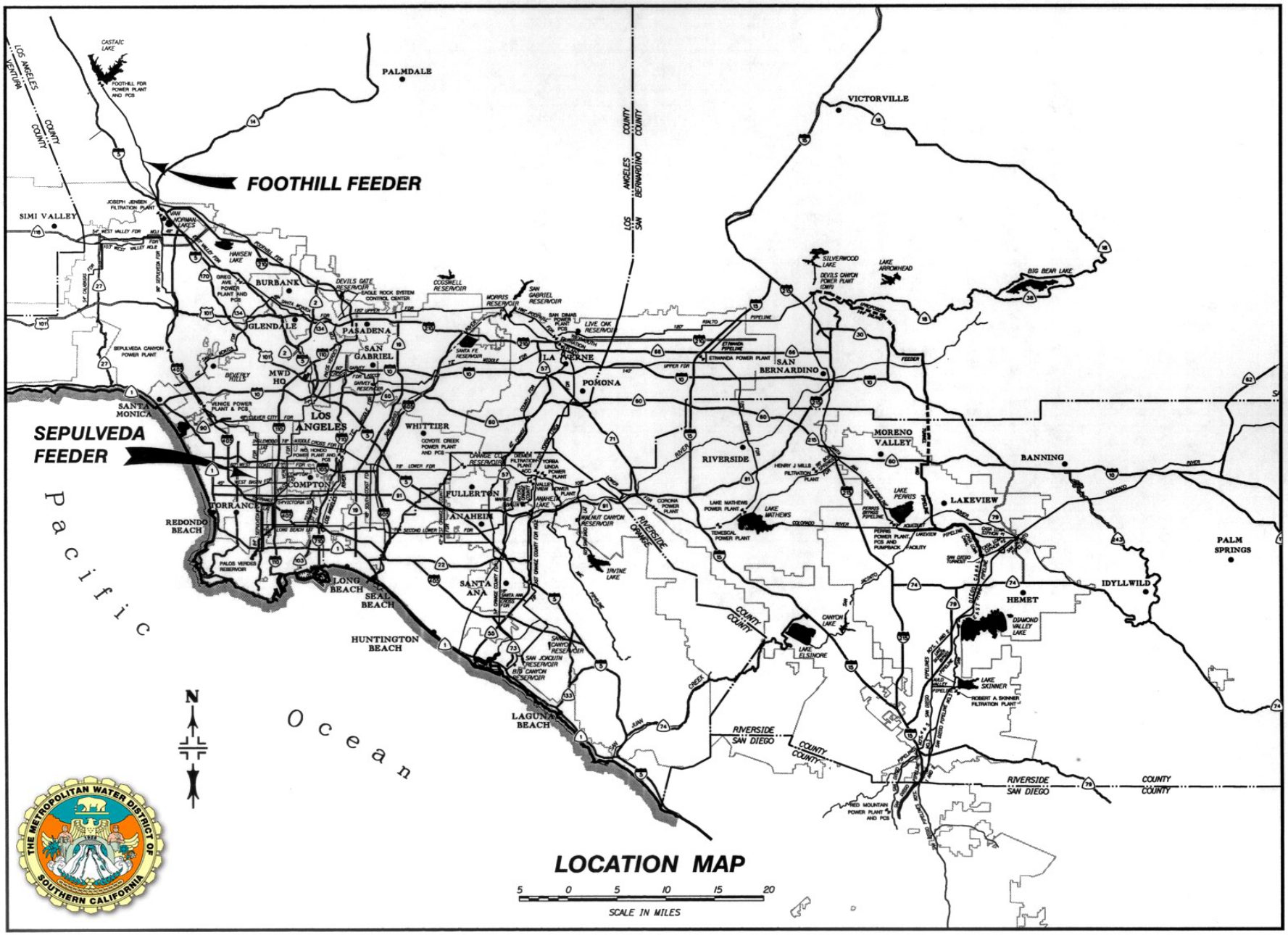
Financial Statement for Conveyance and Distribution System Rehabilitation Program

A breakdown of Board Action No. 12 for Appropriation No. 15377 for three projects within the Conveyance and Distribution System Rehabilitation Program is as follows:

	Previous Total Appropriated Amount (Jul 2005)	Current Board Action No. 12 (Aug 2005)	New Total Appropriated Amount
Labor			
Studies & Investigations	$ 2,429,200	$ 117,000	$ 2,546,200
Final Design	1,979,920	160,000	2,139,920
Owners Cost (Program management, permitting, bid process, environmental documentation)	2,227,400	190,000	2,417,400
Construction Inspection & Support	754,300		754,300
Metropolitan Force Construction	7,729,830	80,000	7,809,830
Materials and Supplies	3,605,075		3,605,075
Incidental Expenses	875,620	10,000	885,620
Professional/Technical Services	576,500	90,000	666,500
Equipment Use	700,350		700,350
Contracts	6,461,800		6,461,800
Remaining Budget	3,007,705		3,007,705
Total	**$ 30,347,700**	**$ 647,000**	**$ 30,994,700**

Funding Request

Program Name:	Conveyance and Distribution System Rehabilitation Program		
Source of Funds:	Revenue Bonds, Replacement and Refurbishment or General Funds		
Appropriation No.:	15377	**Board Action No.:**	12
Requested Amount:	**$** 647,000	**Capital Program No.:**	15377-I
Total Appropriated Amount:	**$** 30,994,700	**Capital Program Page No.:**	E-35
Total Program Estimate:	**$** 43,540,000	**Program Goal:**	R-Reliability


FOOTHILL FEEDER
SEPULVEDA FEEDER
LOCATION MAP
SCALE IN MILES
5 0 5 10 15 20
Pacific Ocean
N
PALMDALE
VICTORVILLE
SIMI VALLEY
BURBANK
GLENDALE
PASADENA
SAN GABRIEL
LA VERNE
POMONA
SAN BERNARDINO
SANTA MONICA
LOS ANGELES
WHITTIER
COMPTON
TORRANCE
REDONDO BEACH
FULLERTON
ANAHEIM
SANTA ANA
LONG BEACH
SEAL BEACH
HUNTINGTON BEACH
LAGUNA BEACH
RIVERSIDE
MORENO VALLEY
BANNING
LAKEVIEW
HEMET
IDYLLWILD
PALM SPRINGS
LAKE ELSINORE
LAKE MATHEWS
LAKE PERRIS
LAKE SKINNER
DIAMOND VALLEY LAKE
BIG BEAR LAKE
LAKE ARROWHEAD
SILVERWOOD LAKE
CASTAIC LAKE
HANSEN LAKE
IRVINE LAKE
LOS ANGELES COUNTY
VENTURA COUNTY
SAN BERNARDINO COUNTY
RIVERSIDE COUNTY
ORANGE COUNTY
SAN DIEGO COUNTY
THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA