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**MWD**

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

*Loren E. Duff*  
EXECUTIVE SECRETARY

March 23, 1994

*To:* Board of Directors (Water Problems Committee--Information)  
(Finance & Insurance Committee--Information)

*From:* General Manager

*Subject:* Funding Proposal to the United States Bureau of Reclamation  
Supporting Best Management Practices

Report

Recently, the United States Bureau of Reclamation (Reclamation) became a signatory to the Memorandum of Understanding (MOU) Regarding Urban Water Conservation in California. Reclamation intends to play a major role promoting Best Management Practices (BMP) by financially supporting local urban water conservation projects in California. Metropolitan staff has negotiated a commitment from Reclamation to support BMP implementation in Southern California with \$1 million for the remainder of the federal fiscal year (FY) (October to September) 1993-94 (proposal attached), and \$2.5 million for FY 1994-95.

Since the approval by your Board of the Conservation Credits Program (CCP) in 1989, Metropolitan has been able to support many projects implemented by member and subagencies, as well as develop innovative turn-key programs that have accelerated the implementation of BMPs. However, several member agencies have been unable to initiate projects even with participation in CCP in which they are required to fund at least half of the cost of a project. Financial constraints, reductions in or lack of staffing, and emphasis on other management options have inhibited many agencies from implementing BMPs. Reclamation's funding supplements member and subagency share of Metropolitan's CCP. In most cases, the member and/or subagency provides 10 percent of a program's cost, Reclamation forty percent, and Metropolitan fifty percent. In the case of ultra-low-flush (ULF) toilet programs where participation by Metropolitan is \$60 per ULF toilet, the participating agencies provide 10 percent of the total program cost, and Reclamation pays the balance.

Project proposals were solicited for both FYs 1993-94 and 1994-95. Due to the limited amount of funding and the short time frame for application for the funds, a criteria for project selection was agreed to by Metropolitan and Reclamation staff.

The criteria for FY 1993-94 was: (1) applicability to BMPs, (2) anticipated effectiveness of the project for water savings, (3) lack of previous participation in CCP, (4) constraints on an agency to fund and manage projects, (5) innovation of concept, (6) commitment to fund at least 10 percent of the project, and (7) feasibility of implementing the project in the current federal fiscal year.

Twenty projects were selected with 12 member agencies and nine subagencies, most of which have not participated previously in Metropolitan's CCP. Many of the proposals are to implement turn-key programs such as the Water Hunt Program and community-based organization ULF toilet replacement projects. Other, more innovative projects, will explore conservation opportunities in landscaping, distribution-system leak detection and repair, and the commercial and industrial sector. Your Board has previously authorized the development and implementation of broad landscape and commercial, industrial, and institutional (CII) programs. Now local agencies will be able to implement several landscape pilot projects, and the intern and water management study portion of the CII Program.

This funding from Reclamation does not reduce Metropolitan's financial participation in member and subagency projects, but it has resulted in many agencies being able to implement or enhance their commitments to water conservation and BMPs. Candidate projects for the \$2.5 million federal FY 1994-95 proposal, which is due by the end of May 1994, will be selected with the same criteria by a panel made up of Metropolitan and Reclamation staff, and member-agency representatives.

You will be updated on the progress of the federal FY 1993-94 projects in September 1994, as well as the status of the FY 1994-95 proposal.

These projects are exempt from provisions of the California Environmental Quality Act in that there is no possibility that they may have a significant adverse effect on the environment.

#### Board Committee Assignments

This letter is referred for information to:

The Water Problems Committee because of its authority to make recommendations regarding policies on water conservation, pursuant to Administrative Code Section 2481(a); and

The Finance and Insurance Committee because of its authority to study, advise, and make recommendations in matters concerning the disposition of funds, pursuant to Administrative Code Section 2441(c).

Recommendation

For information only.

  
John R. Wodraska

MDP:cl

Attachment

## **ATTACHMENT 1 STATEMENT OF WORK**

### **The Metropolitan Water District of Southern California Supporting Implementation of Urban Water Conservation Best Management Practices**

#### **Fiscal Year 1993-1994**

The Metropolitan Water District of Southern California (Metropolitan) and its member agencies and subagencies have demonstrated leadership in implementing urban water conservation programs and Best Management Practices (BMP) in California and the nation. This year (FY 1993-94), Metropolitan has budgeted \$19.4 million for conservation projects, and staff anticipates that an equal or greater amount will be budgeted for FY 1994-95. Metropolitan is requesting \$1 million from the United States Bureau of Reclamation (Bureau) in fiscal year 1993-94 to implement local conservation projects that support BMP implementation (TABLE 1). Pursuant to Metropolitan's understanding, program costs will be divided as follows: Metropolitan (50%), Bureau (40%), and local water agencies (10%).

Through the Conservation Credits Program (CCP), Metropolitan supports local conservation programs by providing technical and staffing support, as well as financial assistance. Since 1988, Metropolitan has expended more than \$39 million on conservation initiatives qualifying for the CCP program and more than a total of \$70 million regionally. Participating agencies receive the equivalent of 50 percent of total program costs or \$154 per acre-foot saved over the life of the measure, whichever is less (except in the case of ULF Toilet Programs, where participation by Metropolitan is \$60 per ULF toilet with the balance proportionately shared by Reclamation and the participating agencies).

Unfortunately, many water agencies have been unable to participate in conservation programs even with the CCP, as Metropolitan requires that the local agency provide the balance of funding. Financial constraints resulting from sustained impacts of drought and rationing on revenues, and reductions in professional staffing have inhibited the efforts of many water agencies to effectively implement conservation programs and meet obligations under the Memorandum of Understanding regarding Urban Water Conservation in California (MOU). With Bureau funding, a variety of traditional

conservation projects and programs can be initiated by member agencies and subagencies that formerly have not participated, as well as a number of innovative programs previously not cost-effective for the agencies.

Traditionally, Metropolitan provides incentives to its member agencies, which can in turn be passed on to subagencies, by means of a credit on the agencies' water bills.

Metropolitan proposes to continue in this role by receiving the funds in total from the Bureau, and distributing them and managing the projects through the CCP to the participating agencies.

After soliciting proposals, Metropolitan used the following criteria to select participants and prioritize projects: 1) applicability to the BMP, 2) anticipated effectiveness of projects for water savings, 3) constraints on agency to fund and manage projects and prior participation in CCP, 4) innovation of concept, 5) commitment to fund at least 10% of the project, and 6) feasibility of implementing the project in the current fiscal year.

In regards to project selection, the ability to effectively analyze and assess water savings and implementation was a primary criteria. Although, not all projects will be analyzed in-depth where there is confidence that the water savings and implementation is anticipated (i.e., ultra-low-flush toilet replacements and low-flow showerhead installations). Where feasible, and where projects are innovative and data available enough to be able to provide effective water and implementation analyses information, that analyses will be performed and reports provided to the Bureau.

If, by the time final approval of these funds occurs, an agency or agencies are unable to participate as proposed, Metropolitan requests the latitude to redirect funds to similar projects provided they meet the Bureau's criteria. Any such decisions would be subject to the Bureau's review and approval.

## RESIDENTIAL PROGRAMS

- BMP 1 - Interior and exterior water audits and incentive programs for single-family residential, multi-family residential, and Governmental/institutional customers.
- BMP 2c - Plumbing Retrofit
- BMP 8 - School Education
- BMP 12 - Landscape water conservation for new and existing single-family homes
- BMP 15 - Financial Incentives
- BMP 16 - Ultra-Low-Flush (ULF) Toilet Replacement

### ABSTRACT:

Metropolitan has designed several residential programs which combine BMP implementations to yield more efficient and cost-effective programs. Participating agencies receive the added benefit of achieving economies-of-scale without the responsibility of managing a contractor. Metropolitan's **Water Hunt Program** offers grade school students the opportunity to participate in classroom education exercises as well as perform simple surveys of their home water usage through a treasure-hunt type of activity. Upon completion of the Water Hunt Program, students are provided with low-flow showerheads and other conservation devices to install in their homes. The goal of the program is to increase the market saturation of low-flow showerheads in selected communities. Agencies participate at 50 percent of the cost of the program.

Agency **Ultra-low-flush toilet rebate programs** traditionally provide \$75- \$100 rebates to residential customers who replace their existing toilets with ULF toilets.

Today, Metropolitan reimburses the local water agency at a rate of \$60 per toilet installed. Program costs now average \$120 per toilet to make Metropolitan's reimbursement roughly equivalent to the 50% financial share Metropolitan assumes for other CCP programs.

**The Community Based Organization Ultra-Low-Flush Toilet Program** utilizes local community based organizations (CBOs) as resources to distribute ULF toilets more cost-effectively and responsively than traditional rebate programs. Essentially, Metropolitan purchases the toilets in bulk and contracts with a consultant to assist the participating agency with the mobilization of a CBO to distribute ULF toilets and recycle the replaced toilets. The CBO receives a payment for every ULF toilet distributed after the replaced

toilet has been recovered. CBOs use these funds to start up new enterprises and to support local programs such as job training, daycare, and school events.

Many of the proposals outlined below include participation in Metropolitan designed and managed residential retrofit programs; however, several represent innovative variations. Traditional programs have rarely included a landscaping component in residential surveys; yet, Metropolitan, as well as other signatories, are now focusing on supplementing traditional programs with new elements. Several of the projects below create dynamic opportunities to implement numerous BMPs in a single program.

**RESIDENTIAL PROGRAM DESCRIPTIONS**  
**Funding Request = \$576,600**

**MEMBER:** Western MWD  
**AGENCY:** City of Riverside  
**PROJECT:** ULF Toilet Program - 2,400 Installations  
**PROJECT COST:** \$ 240,000  
**BUREAU COST:** \$ 72,000

The City of Riverside proposes to retrofit 7,200 ULF toilets, 10% of the city's residential dwellings, over a three-year period. This proposal is for the first year. The program will utilize CBOs to target sections of the city characterized by older housing stock. This will be the first ULF toilet program in the City of Riverside.

**MEMBER:** Upper San Gabriel Valley MWD  
**AGENCY:** Upper San Gabriel Valley MWD  
**PROJECT:** Residential Landscape Water Audits  
**PROJECT COST:** \$ 70,000  
**BUREAU COST:** \$ 28,000

The Upper San Gabriel Valley MWD (Upper District), comprised of thirty-seven subagencies, services a large territory crossing a variety of municipal lines. Using historical water usage data, Upper District proposes to identify the ten percent of residential customers throughout its service area with the highest water consumption and provide extensive landscape surveys. Upper District estimates that approximately 350 audits will be performed, at an average cost of \$200 per residence. Follow up will be conducted at these sites to determine if the recommendations were implemented, and if,

over time, there were any discernible lasting effects. This will be determined by random surveys and analyses of water records, taking into account adjustments for weather.

**MEMBER:** Three Valleys MWD  
**AGENCY:** City of Covina  
**PROJECT:** Water Hunt Program with ULF Toilet Installation  
**PROJECT COST:** \$ 50,000  
**BUREAU COST:** \$ 20,000

The City of Covina proposes to conduct an in-school ULF toilet distribution project in conjunction with the implementation of the Water Hunt Program in several local grade schools. ULF toilet distribution projects in schools organize an event at the school for parents and other area residents to pick up ULF toilets and return the replaced ones for recycling. The school or an organization within the school then receives a payment for each toilet recycled and use the money as it needs.

**MEMBER:** City of San Fernando  
**AGENCY:** City of San Fernando  
**PROJECT:** Low-Income Water Audit/Retrofit Program  
**PROJECT COST:** \$ 103,250  
**BUREAU COST:** \$ 41,300

San Fernando will provide indoor water surveys to low-income households throughout the city. Subsequently, low-volume water using fixtures, including ULF toilets, showerheads, and faucets, will be installed as needed.

**MEMBER:** Compton  
**AGENCY:** Compton  
**PROJECT:** Residential Water Audits  
**PROJECT COST:** \$ 50,000  
**BUREAU COST:** \$ 20,000

Compton proposes to perform 1,000 indoor/outdoor water surveys in identified residential areas that have significant low-income populations. The low-income criteria, with assistance from Southern California Edison's low-income energy audit programs, will use allowed standards of the federal government and the California Public Utilities Commission. The audit entails a detailed analysis of household water use and leak detection, as well as the distribution of low-flow showerheads, toilet water displacement devices, faucet aerators, and informational packets to residents.

**MEMBER:** Eastern MWD  
**AGENCY:** Eastern MWD  
**PROJECT:** Water Hunt Program  
**PROJECT COST:** \$ 60,000  
**BUREAU COST:** \$ 24,000

Eastern MWD will implement the Water Hunt Program in several local grade schools to distribute 5,000 retrofit kits. School ULF toilet distribution programs will be conducted in conjunction with this project.

**MEMBER:** Three Valleys MWD  
**AGENCY:** City of La Verne  
**PROJECT:** ULF Toilet Rebate Program - 667 units  
**PROJECT COST:** \$ 80,000  
**BUREAU COST:** \$ 32,000

City of La Verne proposes the distribution of 667 ULF toilets through a traditional rebate program.

**MEMBER:** Chino Basin MWD/Three Valleys MWD  
**AGENCY:** Chino Basin MWD/Three Valleys MWD  
**PROJECT:** Pilot Residential Indoor/Outdoor Water Audits  
**PROJECT COST:** \$ 500,000  
**BUREAU COST:** \$ 200,000

Chino Basin Municipal Water District and Three Valleys Municipal Water District propose to perform indoor/outdoor audits on 10,000 residences within their contiguous service areas. The program will experiment with a variety of marketing strategies and project designs to evaluate the water savings potential and market penetration achievable in a residential water audit program. To date, very few cooperative inter-agency programs have been conducted. In this model, a single consulting implementation company will provide services to both agencies. This project is designed to generate reliable data on the per-audit cost which can be achieved by economies-of-scale, as well as the effects of a number of variables on the effectiveness of a cooperative audit program. Given the large sample size proposed for this project and the cross-section of the population targeted, the resulting analysis may provide reliable cost estimates, water savings, and recommendations that can be used by signatories to design and implement joint residential indoor/outdoor audit programs in their own service areas.

**MEMBER:** City of Burbank  
**AGENCY:** City of Burbank  
**PROJECT:** Ultra-Low Flush Toilet Rebate Program - 1,500 units  
**PROJECT COST:** \$ 150,000  
**BUREAU COST:** \$ 45,000

The City of Burbank proposes to distribute 1,500 ULF toilets by providing a \$100 rebate to all participating customers.

**MEMBER:** Three Valleys MWD  
**AGENCY:** City of West Covina  
**PROJECT:** Residential Indoor/Outdoor Water Audit  
**PROJECT COST:** \$ 21,000  
**BUREAU COST:** \$ 8,400

The City of West Covina proposes to conduct joint indoor/outdoor water surveys for 208 identified high water use single and multi-family customers.

**MEMBER:** City of San Marino  
**AGENCY:** City of San Marino  
**PROJECT:** ULF Toilet Rebate Program - 157 units  
**PROJECT COST:** \$ 14,240  
**BUREAU COST:** \$ 3,400

The City of San Marino will distribute 157 ULF toilets through a traditional rebate program.

**AGENCY:** Eastern Municipal Water District  
**PROJECT:** ULF Toilet Replacement Program - 2,000 units  
**PROJECT COST:** \$ 225,000  
**BUREAU COST:** \$ 82,500

The Eastern Municipal Water District project will utilize CBO and depot style distribution methods for ULF toilet distribution and recycling in single family and multi-family housing.

## LARGE LANDSCAPE PROGRAMS

- BMP 1 - Interior and exterior water audits and incentive programs for single-family residential, multifamily residential, and **governmental/institutional customers.**
- BMP 5 - Large Landscape Water Audits and Incentives.
- BMP 15 - Financial Incentives

### ABSTRACT:

Over the past year, Metropolitan has accelerated implementation of the outdoor water conservation BMPs by providing financial incentives, innovative technology, and staff support to member agencies and subagencies. Approximately 30% of the water supplied by Metropolitan is used for landscaping, making outdoor water conservation projects that target the behavior of the green industry and homeowners, as well as technological changes, important components of Metropolitan's comprehensive plan for water use reduction.

Metropolitan's outdoor water conservation programs are founded on several premises: 1) education and training programs that expose landscape professionals and the green industry to the latest advances in water conserving technology and methodology encourage a higher level of conscientiousness of water usage in landscape design and maintenance; 2) successful long-term results rely more on technological advances than consumer behavior changes; and 3) reliable quantification of landscape projects is critical to advance the design of future programs.

As approved by its Board, Metropolitan's landscape program includes: 1) residential water audits of high water users; 2) training and instructional programs designed to educate targeted audiences about dry-climate landscaping (i.e., landscape architects, designers, planners, nursery people, landscape contractors, and municipal/governmental personnel); 3) efficiency surveys of large irrigators in the commercial /industrial/ institutional sector; 4) software development to assist in implementation of AB 325, the Model Water Efficient Landscape Ordinance; 5) research projects that: a) determine water use requirements of different trees, shrubs, and ground covers, b) identify effective moisture sensors for turf irrigation control, and c) test centralized, computer-controlled irrigation systems and maintenance services; and 6) development and transfer of technology.

Historically, very few large-scale outdoor water conservation programs have been conducted. Several of the proposed projects target large-landscape areas such as public parks, school grounds, and median areas, to provide opportunities to evaluate the effectiveness of large-landscape programs for governmental/institutional customers. Other projects propose retrofitting existing landscapes with a variety of available technologies to provide quantifiable water savings and valuable benefit-cost analysis.

In fiscal year 1993-94, Metropolitan has committed \$2.06 million dollars to the aggressive implementation of a multi-faceted landscape conservation program. By supporting pilot programs, providing training and educational programs to member agencies, and investing in new technology, Metropolitan can more effectively determine the most successful design for BMP implementation.

**LARGE LANDSCAPE PROJECT DESCRIPTIONS**  
**Funding Request = \$90,800**

**MEMBER:** Santa Monica  
**AGENCY:** Santa Monica  
**PROJECT:** School Landscape Audit, Retrofit, & Central Controller  
Project  
**TOTAL COST:** \$ 100,000  
**BUREAU COST:** \$ 40,000

The City of Santa Monica, the Santa Monica/Malibu Unified School District, and Santa Monica College are proposing a unique exterior water management partnership. All three agencies' irrigation systems are old and inefficient, and none of the agencies individually can afford a centralized control system. Phase 1 of this project entails an audit of the landscape sites followed by a determination of cost-effective improvements which would bring the systems to a higher uniformity. In Phase 2 of the project, the systems are upgraded to a centralized computer-based scheduling system, and personnel are trained in its proper operation. In Phase 3, benefit-cost analysis, calculated usage and savings, and assessments of project design and implementation are incorporated in a comprehensive program evaluation. Santa Monica proposes to complete Phases 1 and 2 in fiscal year 1993-94 at an estimated combined cost of \$100,000.

**MEMBER:** Municipal Water District of Orange County  
**AGENCY:** Capistrano Valley MWD  
**PROJECT:** Residential Audit and Large Landscape Retrofit  
**PROJECT COST:** \$ 57,000  
**BUREAU COST:** \$ 22,800

Capistrano Valley Municipal Water District proposes to expand its existing landscape water audit program to target the top 100 residential landscape accounts and provide simple hardware upgrades, and bring seven large-landscaped areas on-line with the City's existing radio-controlled irrigation system.

**MEMBER:** Three Valleys MWD  
**AGENCY:** City of San Dimas/Southern California Water Company  
**PROJECT:** Moisture Sensor Installation  
**PROJECT COST:** \$ 25,000  
**BUREAU COST:** \$ 10,000

The City of San Dimas proposes to minimize excessive irrigation occurring in local parks by adding 64 moisture sensor systems to the parks' irrigation control systems. Given limited human resources, the city cannot reset all park controllers as frequently as would be required to maximize water efficiency. The added sensors will provide the controllers with more accurate data on turf watering needs and prevent over-watering. Follow-up analyses will include water use data comparisons with climatic adjustments and physical site audits to determine plant health and proper distribution.

**MEMBER:** Three Valleys MWD  
**AGENCY:** City of La Verne  
**PROJECT:** Large Irrigators Controller and Moisture Sensor Program  
**PROJECT COST:** \$ 45,000  
**BUREAU COST:** \$ 18,000

A major problem faced by many cities is the difficulty of resetting irrigation controllers as often as would be required to maximize water efficiency in their systems. The use of moisture sensors can significantly increase controller efficiency. The City of La Verne is requesting financial assistance to replace irrigation controllers with state-of-the-art controllers to improve distribution efficiency and install moisture sensors at city facilities, such as parks.

## COMMERCIAL, INDUSTRIAL, INSTITUTIONAL (CII) PROGRAMS

- BMP 1 - Interior and exterior water audits and incentive programs for single-family residential, multifamily residential, and **governmental/institutional customers.**
- BMP 9 - Commercial and Industrial Water Conservation.

### ABSTRACT:

CII water use accounts for approximately 25% of water demand in Metropolitan's service. This diverse, multi-faceted consumer base represents a distinct marketing challenge for conservation because, for most businesses, water represents only a small fraction of total operating expenses. Consequently, technical device retrofit and system upgrade will only occur when the cost to the customer meets a certain industry pay-back criteria. Metropolitan has responded to the many challenges of water conservation for the CII sector with a multi-dimensional program offering technical, programmatic, and financial support to member and subagencies.

Metropolitan's CII programs provide the technical resources required to evaluate the water use efficiency of high water using sites, as well as a variety of CII educational and training programs for agency staff and plant managers. Many businesses and institutions can potentially save substantial amounts of water cost-effectively, but lack the information necessary to quantify these savings; thus, Metropolitan's program incorporates an extensive survey component. The **CII Intern Survey Program** provides agencies with a corp of trained interns, backed up by two premier process engineering firms, Pequod and Associates and Black and Veatch. The interns conduct water use surveys for small, water intensive commercial businesses in an agency's service area, evaluating water use and recommending modifications. Metropolitan also participates in larger scale CII water studies conducted by agency staff or engineering firms. All survey services are offered to agencies through CCP, with Metropolitan participating at 50% of cost.

Pilot projects are a critical component of Metropolitan's CII Program, often determining the direction of future conservation efforts. These projects yield data on the water savings potential of new technologies, as well as testing the feasibility of broad-based implementation. More importantly, these projects reinforce the dynamic nature of the CII customers and provide opportunities to further the evolution of new water conservation technologies.

**CII PROGRAM DESCRIPTIONS**  
**Funding Request = \$302,300**

**MEMBER:** Anaheim  
**AGENCY:** Anaheim  
**PROJECT:** School Audit and Retrofit Program  
**PROJECT COST:** \$ 252,500  
**BUREAU COST:** \$ 101,000

Anaheim proposes to conduct a comprehensive indoor/outdoor water audit of all 60 elementary, middle, and high schools in the service area. At the completion of the indoor audit, approximately 20 ULF toilets and water conserving urinals will be provided to each school, as well as other water efficient fixtures, including low-flow showerheads. The outdoor component of the program, a landscape-efficiency survey, will examine distribution uniformity, scheduling, and water applications, yielding estimates of water savings and water efficient maintenance recommendations.

**MEMBER:** Municipal Water District of Orange County  
**AGENCY:** Irvine Ranch  
**PROJECT:** Carpet Dyeing Company Technology Incentive Program  
**PROJECT COST:** \$ 300,000  
**BUREAU COST:** \$ 120,000

Textile dyeing is a significant industry in Southern California that contributes not only to high water use but also to pollution and waste-stream problems. Metropolitan has observed in water management studies of carpet dye companies, that a large fraction of effluent could be recovered from dye tanks to improve water efficiency. Technologies suggested for the recovery of the effluent include: dissolved air flotation for removing most of the suspended solids, centrifugal separation for removing heavy particulates and grit, and ozone for oxidation of residual color and organics.

The verification of the impacts of the proposed technology and engineering design could have broad impacts on industry standards, water conservation, and pollution prevention. In a pilot project to be conducted in Irvine Ranch Water District's service area, a small-scale recovery system will be designed and set up at a facility, equipment operators will be trained, and data will be collected.

Due to the relatively low water and sewer rates in Irvine, the retrofit proposal originally was not cost-effective relative to water and sewer costs alone. With the addition of Bureau funding, a pilot project becomes more feasible that can also develop cost analyses of ancillary impacts, such as pollution prevention/reduction.

**MEMBER:** All Member Agencies  
**AGENCY:** All applying subagencies (Rowland, etc.)  
**PROJECT:** CII Intern and Water Management Survey Program  
**PROJECT COST:** \$ 203,250  
**BUREAU COST:** \$ 81,300

Rowland Water District proposes to participate in Metropolitan's CII Intern Survey Program and plans to conduct three Water Management Surveys, three Consultant Surveys, and twenty Intern or Staff Surveys.

This program was established because of constrained budgets and staffing issues consistent with many water agencies. To facilitate agency participation, Metropolitan proposes that the Bureau provide funding for water agencies to participate in the intern and water management survey program this fiscal year. Follow up data and reports will be provided to assess the effectiveness of the program and the implementation of the recommendations at the sites surveyed. Local agencies would be expected to provide at least ten percent of the program costs.

### **DISTRIBUTION SYSTEM LEAK DETECTION AND REPAIR**

- BMP 3 - Distribution System Water Audits, Leak Detection, and Repair.

#### **ABSTRACT:**

The Southern California Water Company (SCWC) completed a two-year Water Loss Reduction Pilot Program in April 1993. This program was funded with assistance from Metropolitan, Central Basin Municipal Water District and West Basin Municipal Water District. Nine water systems were included in the pilot with approximately 800 miles of main surveyed. Each district received a system water audit and leak-detection survey and all detected leaks were repaired. In total, an estimated 4,703 acre-feet per year of unaccounted for water was identified, much of which was attributable to inaccurate meters. Leak detection and repair accounted for 496 acre-feet per year of the water savings.

The Water Loss Reduction Pilot Program was the first of its type in Metropolitan's service area. Many lessons were learned in this pilot and the final evaluation is currently being conducted to determine how to implement the recommendations; however, additional data is essential. Pilot projects experimenting with a variety of program designs and leak-detection methods can provide the additional data needed to assess the

effectiveness and future implementation of leak-detection programs for the Southern California region.

**SYSTEM LEAK-DETECTION PROGRAM DESCRIPTION**  
**FUNDING Request = \$30,300**

**MEMBER:** Compton  
**AGENCY:** Compton  
**PROJECT:** Leak-Detection Program  
**PROJECT COST:** \$ 75,750  
**BUREAU COST:** \$ 30,300

The City of Compton proposes to perform a water audit of their distribution system and a leak-detection survey of approximately 164 miles of water main.

**TABLE 1 U.S. BUREAU OF RECLAMATION PROPOSALS 1993-1994**

**RESIDENTIAL PROGRAMS**

MEMBER	AGENCY	PROJECT DESCRIPTION	TOTAL COST	MWD	BUREAU	AGENCY
Western MWD	City of Riverside	ULFT Program 2400	\$240,000	\$144,000	\$72,000	\$24,000
USGV MWD	USGV MWD	Landscape Water Audits	\$70,000	\$35,000	\$28,000	\$7,000
Three Valleys	City of Covina	Water Hunt/School ULFT	\$50,000	\$25,000	\$20,000	\$5,000
City of San Fernando	City of San Fernando	Low income Water Audits and Retrofit	\$103,250	\$51,625	\$41,300	\$10,325
Compton	Compton	Residential Water Audits	\$50,000	\$25,000	\$20,000	\$5,000
Eastern MWD	Eastern MWD	Water Hunt	\$60,000	\$30,000	\$24,000	\$6,000
Three Valleys	City of LaVerne	ULFT Program 667	\$80,000	\$40,000	\$32,000	\$8,000
Chino Bsn/Three V's	Chino Basin/Three V	Residential Indoor/Outdoor Audits	\$500,000	\$250,000	\$200,000	\$50,000
Burbank	Burbank	ULFT Program 1,500	\$150,000	\$90,000	\$45,000	\$15,000
Three Valleys MWD	City of West Covina	Residential Water Audits 208	\$21,000	\$10,500	\$8,400	\$2,100
San Marino	San Marino	ULFT Program 157	\$14,240	\$9,420	\$3,400	\$1,424
Eastern MWD	Eastern MWD	ULFT Program 2,000	\$225,000	\$120,000	\$82,500	\$22,500
<b>TOTAL</b>			<b>\$1,563,490</b>	<b>\$830,545</b>	<b>\$576,600</b>	<b>\$156,349</b>

**LARGE LANDSCAPE PROGRAMS**

MEMBER	AGENCY	PROJECT DESCRIPTION	TOTAL COST	MWD	BUREAU	AGENCY
Santa Monica	Santa Monica	School Landscape Project	\$100,000	\$50,000	\$40,000	\$10,000
MWDOC	Capistrano Valley MWD	Large Landscape Audit/ Retrofit	\$57,000	\$28,500	\$22,800	\$5,700
Three Valleys	City of San Dimas	Moisture Sensor Installation	\$25,000	\$12,500	\$10,000	\$2,500
Three Valleys	City of La Verne	Large Irrigators Controller/Sensors	\$45,000	\$22,500	\$18,000	\$4,500
<b>TOTAL</b>			<b>\$227,000</b>	<b>\$113,500</b>	<b>\$90,800</b>	<b>\$22,700</b>

**COMMERCIAL/ INDUSTRIAL/ INSTITUTIONAL PROGRAMS**

MEMBER	AGENCY	PROJECT DESCRIPTION	TOTAL COST	MWD	BUREAU	AGENCY
Anaheim	Anaheim	School Audit and Retrofit Program	\$252,500	\$126,250	\$101,000	\$25,250
MWDOC	Irvine Ranch	Carpet Dyeing Incentive	\$300,000	\$150,000	\$120,000	\$30,000
Various	(Rowland, etc.)	CII Intern Survey Program	\$203,250	\$101,625	\$81,300	\$20,325
<b>TOTAL</b>			<b>\$755,750</b>	<b>\$377,875</b>	<b>\$302,300</b>	<b>\$75,575</b>

**LEAK DETECTION PROGRAMS**

MEMBER	AGENCY	PROJECT DESCRIPTION	TOTAL COST	MWD	BUREAU	AGENCY
Compton	Compton	Leak Detection/Repair	\$75,750	\$37,875	\$30,300	\$7,575
<b>TOTAL</b>			<b>\$75,750</b>	<b>\$37,875</b>	<b>\$30,300</b>	<b>\$7,575</b>

<b>TOTAL ALLOCATIONS</b>	<b>\$2,621,990</b>	<b>\$1,359,795</b>	<b>\$1,000,000</b>	<b>\$262,199</b>
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10703