MWD
METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

August 25, 1998

To: Board of Directors (Water Planning and Resources Committee--Information)

From: for General Manager Edward G. Means III

Submitted by: Debra Man, Chief of Planning and Resources Debra C. Man

Subject: Update on Residential Ultra-Low-Flush (ULF) Toilet Program

RECOMMENDATION

For information only.

EXECUTIVE SUMMARY

As a result of a recent review by Metropolitan's Audit Department of the Ultra-Low-Flush (ULF) Toilet Rebate Program and related agreements, the Special Audit Committee requested additional information be provided to the Water Planning and Resources Committee regarding Metropolitan's residential ULF toilet programs: specifically, the saturation of ULF toilets in the region, the water saved as a result of those toilet retrofits, and the reasonableness of Metropolitan's flat-rate contribution under the program of $60 per retrofit. Currently, total residential ULF toilet saturation within the Metropolitan service area is approximately 24 percent. Metropolitan and the member agencies have contributed funding to approximately 1.32 million ULF toilets; these toilets have cumulatively saved 163,000 acre-feet of water since their installation. An analysis of the $60 contribution rate, based upon current criteria and the cost of installation, indicates that no change to the $60 funding level is required at this time.

DETAILED REPORT

At the July 21, 1998, Special Audit Committee meeting, the Auditor provided the committee with an overview of the results of the review conducted by his office pertaining to the Ultra-Low-Flush (ULF) Toilet Rebate Program and related agreements. He also summarized the findings and recommendations resulting from this assignment as outlined in the Auditor's July 13, 1998, summary report (see Attachment A). The review indicated that, with some minor exceptions, the overall program was well managed. During the discussion of this matter, Special Audit Committee members had questions concerning, among other things, the saturation of ULF toilets in the region, water saved in the region as a consequence of toilet replacement, and the reasonableness of Metropolitan's $60 contribution rate per retrofitted toilet under the program. Accordingly, the committee passed a motion referring the Auditor's report to the Water Planning and Resources Committee for information and requesting that staff provide that committee with further information on the questions raised by the Special Audit Committee members.

Toilet Saturation and Water Savings Data

In 1990, Metropolitan began a program of co-funding rebates for the replacement of water-wasting toilets with ULF toilets. In 1992, Metropolitan added a ULF toilet distribution program. These two programs (the Rebate Program and the Distribution Program) exist today in various forms. Both are managed directly by member agencies, with Metropolitan contributing a flat $60 for each residential toilet replaced, subject to verification. Based on data maintained by the Conservation Branch and member agencies, an estimated 2.49 million toilets have been replaced with ULF toilets in Metropolitan's service area. This represents an estimated toilet saturation rate of approximately 24 percent for the entire region.

Of the 2.49 million ULF toilets, Metropolitan and member agency programs have funded approximately 1.32 million through active water conservation projects. (The balance of 1.17 million toilets were installed as a result of new construction, remodeling, and natural replacement by homeowners and landlords.) These 1.32 million ULF toilets have saved approximately 163,000 acre-feet of water since their installation and are continuing to save at a rate of 43,000 acre-feet per year.

Individual member agency toilet saturation rates for ULF toilets range from 9 percent-83 percent, with the median saturation rate being 15 percent. See Attachment B for further detail on ULF toilet installation activity.

Since the inception of its two ULF toilet programs, Metropolitan's funding has amounted to approximately $72 million, with substantial additional funds contributed by the participating member agencies to carry out their various projects. In fiscal year 1998-99, Metropolitan has budgeted $7.1 million for co-funding ULF toilet replacements with the member agencies (118,000 toilets).

Metropolitan Contribution Rate

In March 1993, the Board modified the policy for funding the ULF toilet programs to a flat-rate method at $60 per toilet retrofit. Prior to this date, individual projects were funded on the basis of one-half of the total cost, or at a rate of $154 per acre-foot of water saved, whichever was less. Because toilet projects were generally costing about $120 to $130 per retrofit, this formula usually resulted in a Metropolitan funding level of around $60 to $65. The adoption of the $60 flat-rate policy simplified the funding calculations for Metropolitan and the participating member agencies. Since this rate has been applied to ULF toilet projects since 1993, the Auditor's office recently recommended that the rate be re-evaluated to ensure that it was still valid.

Water efficiency retrofit programs are currently evaluated by the Conservation Branch on the basis of $154 per acre-foot of water saved over the estimated useful life of the device. Appropriate discount rates are applied to determine the present value of those savings. Staff recently re-evaluated the residential ULF toilet water savings as determined through independent studies and found the following:

Residential ULF toilets	Estimated average water savings per ULFT (gal/day)	Present value to MWD of lifetime water savings ($ 1997):
Single family dwelling	23.9	$58.63
Multi-family dwelling	44.4	$108.91
Composite	**32.1**	**$78.74**

Notes and Assumptions:

(1) Useful life of residential ULF toilet: 20 years
(2) Conservation Credits Program value of water (per acre-foot): $154
(3) Water savings estimates per ULFT determined from studies performed for Metropolitan by A&N Technical Services
(4) Present value computed at net 4% rate
(5) Single family installations - 60%; multi-family installations - 40%

Staff determined that the current flat-rate funding level of $60 per ULF toilet is consistent with the above analysis. Staff will, however, repeat the analysis periodically as warranted by new data or evaluation criteria. Any proposed changes in the current contribution rate as a result of such evaluations will be brought to the Board for consideration and approval.

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Attachment

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Attachment A
Board Letter 9-9
Planning and Resources Division
August 25, 1998

MWD
METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

July 13, 1998

To: Special Audit Committee

From: Auditor Michael W. Hendrys

Subject: Review of the Rebate ULFT Program and Agreements

RECOMMENDATION

For information only.

DETAILED REPORT

The Audit Department has completed a review of the rebate Ultra Low-Flush Toilet Program (ULFTP) and agreements with participating member agencies currently being administered and implemented by the Water Conservation Branch of the Planning and Resources Division, and issued a detailed report thereon, dated May 20, 1998, to various management and staff. This review is part of a continuing assessment of various Metropolitan Water Conservation programs, including ULFTP (rebate and non-rebate), since 1990. Reviews of the non-rebate ULFTP, both for Phases I & II and Phase III, were completed by the Audit Department, and reports thereon were issued on October 5, 1994 and January 19, 1996, respectively. A review of non-rebate ULFTP Phases IIIA and IV is scheduled to be performed during fiscal year 1998-99.

By way of background, Metropolitan had initially implemented the Water Conservation Credits Program in 1988 to provide financial incentives for water conservation projects, in partnership with its member agencies. As part of its program development efforts, Metropolitan developed two types of programs for the distribution of Ultra Low-Flush (ULF) toilets: the rebate ULFTP and the non-rebate ULFTP. Under the rebate ULFTP, Metropolitan provided financial contributions in terms of rebates to participating member agencies who managed the purchase and distribution of ULF toilets or who made rebate payments to their customers. Metropolitan's financial contribution under the rebate ULFTP was originally based on one-half of a project's cost, which was subsequently increased to a two-thirds contribution of a project's cost. This was, however, again modified in February 1993 to provide financial contributions to participating member agencies based on a flat rate of $60 per ULF toilet distributed. Since 1993, this rebate flat rate has not been modified. Under the non-rebate ULFTP, Metropolitan assumed the responsibility for the purchase and distribution of ULF toilets. To assist staff in this endeavor, Metropolitan entered into consulting agreements with CTSI Corporation from 1992 through 1995 and subsequently with Honeywell DMC Services, Inc., until 1996 to provide retrofitting services to customers in service areas covered by Metropolitan. These consultants billed Metropolitan for their services. Metropolitan billed the participating member agencies for their share of project costs based on agreed-upon rates for toilets retrofitted. The non-rebate ULFTP was discontinued in later part of 1996.

In current and recent years, the Water Conservation Branch has made some significant changes and improvements in the administration and implementation of the rebate ULFTP. Some of these changes were in response to audit findings and recommendations contained in our earlier reports on reviews of ULFT programs and agreements. Among the most significant changes or improvements were the following:

- The Water Conservation Branch has implemented a verification procedure where the toilets installed under the rebate agreements are randomly selected and statistically verified by an independent consultant.

- Conservation credits are no longer provided in advance. Rather, Metropolitan contributions are paid based on a "pay for performance" policy. That is, Metropolitan only pay for toilets distributed and/or installed as reported by participating member agencies. Metropolitan pays at the current flat rate of $60 per ULF toilet.

- The concept of the agency representative was abolished. The participating member agencies were previously group into regions and each region was assigned a Metropolitan agency representative who was involved in each agreement from proposal stage through the close-out of the agreement. There were five agency representatives at the time. Currently, all such functions of agency representatives are being handled by only one staff member from the Water Conservation Branch. Due to workloads, it is the intention of Water Conservation Branch to recruit additional staff in the near future.

Metropolitan also adopted a policy change which permits advances to participating member agencies for up to 25% of the proposed total value of Metropolitan funding (maximum of $250,000 for a period of one year), upon execution of a ULFTP agreement. These advances are recovered through the term of the agreement and earn interest at a rate equal to Metropolitan's yield on O&M funds.

This assignment was originally started in February 1995; however, its completion was ultimately delayed due to certain factors such as staffing shortages, and job priorities and assignments. In addition, Water Conservation Branch staff requested that the Audit Department defer this assignment until after October 1996 due to the pending organizational and program management changes in the Water Conservation Branch. The original scope of this assignment was mainly focused on testing agreement compliance and close-out procedures for rebate ULFTP projects undertaken in fiscal year 1991-92 through fiscal year 1994-95. However, the Audit Department decided to expand the audit scope of this assignment because of significant changes that took place within the Water Conservation Branch during the three-year period since 1995. The expanded audit scope covered the rebate ULFTP projects undertaken from fiscal year 1995-96 through 1997-98. To date, 96 rebate ULFTP agreements have been entered into with member agencies. The Board has authorized funding in excess of $70 million over the past six years pertaining to ULFTP. (See Attachments I and II)

The primary purpose of the review of rebate ULFTP was to audit the conservation credits provided to participating member agencies, as well as to review compliance with various contractual provisions and evaluate Metropolitan's administrative procedures and controls pertaining to the various rebate ULFTP agreements.

The scope of this assignment focused primarily on reviewing and testing conservation credits provided to participating member agencies for reasonableness and compliance with the provisions of the ULFTP agreements. The detailed testing covered the agreements for rebate ULFTP projects undertaken from fiscal year 1991-92 through fiscal year 1997-98. Twelve agreements with actual Metropolitan funding totaling about $20 million were tested, which covered approximately 30% of the total payments to various participating member agencies from fiscal year 1991-92 through current fiscal year.

The review resulted in several findings and recommendations. The details of those findings were communicated to appropriate staff during the course of the review through the use of Audit Observations Sheets (AOS). The AOS contained a summary of the observations, details of the findings, effect and business risks, and specific recommendations. A total of five AOS containing six recommendations were prepared. The most significant of our recommendations are summarized as follows:

- Consider evaluating whether the $60 contribution rate is still appropriate and reasonable.

- Review agreement files on a regular basis to monitor the status of ULFTP projects.

- Prepare monthly or quarterly summary status reports on all rebate ULFTP agreements.

Overall, the internal accounting and administrative controls pertaining to the agreements appeared adequate, costs appeared reasonable and proper, and that both the participating member agencies and Metropolitan appeared to be in compliance with significant terms of the agreements.

The Audit Department recently received a letter from Chief of Planning and Resources Debra C. Man which responded in detail to the findings and recommendations contained in our audit report to management on the review of the rebate ULFTP and agreements. The response expressed concurrence with the review recommendations, indicated actions taken or to be taken, and was satisfactory, in our opinion, in addressing the issues and concerns identified during the review.

Attachment A
Board Letter 9-9
Planning and Resources Division
August 25, 1998

Report of Auditor, dated July 13, 1998, re
Review of the Rebate Ultra Low-Flush Toilet Program and Agreements

ATTACHMENT I
Summary of Rebate ULF Toilet Program Agreements *

Agency	No. of Agreements	Net Metropolitan Financial Commitment **	Projected Rebate Toilets	Installed Toilets To Date
Anaheim	3	$ 494,541	8,104	4,023
Burbank	6	662,323	11,250	9,430
Calleguas MWD	5	965,824	15,600	8,688
Central/West Basin MWD	6	4,704,049	72,902	34,241
Chino Basin MWD	5	793,655	13,404	6,118
City of Long Beach	4	804,000	13,400	7,876
City of Los Angeles	6	22,034,085	398,447	217,693
Coastal MWD	1	60,000	1,000	588
Eastern MWD	2	180,000	3,000	2,222
Foothill MWD	1	21,985	437	367
Glendale	2	361,681	6,005	4,000
Las Virgenes MWD	6	469,862	7,565	5,301
MWD of Orange County	11	6,336,704	106,404	69,041
Pasadena	5	835,672	14,123	9,113
San Diego CWA	12	18,827,970	308,590	201,762
San Marino	4	31,028	534	382
Santa Monica	2	1,651,518	27,288	24,275
Three Valleys MWD	11	583,797	9,683	7,762
Upper SGV MWD	3	331,268	5,625	2,993
Western MWD	1	468,000	7,800	1,450
Total	**96**	**$ 60,617,962**	**1,031,161**	**617,325**

* As of May 31, 1998.

* * Net Metropolitan financial commitment represents amounts paid or to be paid to participating member agencies for program costs less participating member agencies' share of program costs based on ULF toilets distributed / installed. Initially (1992 through 1996), these costs were advanced by Metropolitan and recovered through charges included in the monthly water billings to respective participating member agencies. Currently (since later part of 1996), Metropolitan financial contributions ($60 per toilet) were credited on the monthly water billings of participating member agencies based on a "Pay for Performance" policy for installed ULF toilets, subject to verification.

Attachment A
Board Letter 9-9
Planning and Resources Division
August 25, 1998

Report of Auditor, dated July 13, 1998, re
Review of the Rebate Ultra Low-Flush Toilet Program and Agreements

ATTACHMENT II
Summary of Board Approved Funding Allocation for ULF Toilet Programs *
(Both Rebate and Non-Rebate Programs)

Fiscal Year	Amount	
1992-93	$11,600,000	
1993-94	12,000,000	
1994-95	17,500,000	
1995-96	13,645,000	
1996-97	8,338,200	
1997-98	7,186,000	
Total	**$ 70,269,200**	**

* Source: Water Conservation Branch

** Distributed / installed toilets to date under the rebate and non-rebate ULFT programs totaled approximately 1,038,000.

Attachment B

Residential Ultra Low Flush (ULF) Toilet Saturation

(Estimates of installations and water savings through June 1997)

MEMBER AGENCY	Estimated Total Residential Toilet Fixtures in Service Area	Currently Installed Residential ULF Toilet Fixtures: Installed Through Agency-Funded ULFT Programs (note 1)	Water Savings to Date From Agency-Funded ULF Toilets (note 2)	Installed Through All Means: Agency Programs and Natural Replacement (note 3)	Saturation of Installed ULF Toilet Fixtures in Service Area	Lifetime Water Savings of Installed ULF Toilets (note 4)
	(Toilets)	*(Toilets)*	*(Acre-Feet)*	*(Toilets)*	*(Percent)*	*(Acre-Feet)*
Anaheim	173,400	13,351	2,002	35,315	**20%**	**22,620**
Beverly Hills	32,000	0	0	2,900	**9%**	**2,196**
Burbank	76,000	10,768	1,347	18,307	**24%**	**11,884**
Calleguas	329,800	16,425	1,472	55,900	**17%**	**32,836**
Central Basin	847,500	31,422	3,681	108,665	**13%**	**71,275**
Chino	497,300	8,727	713	69,120	**14%**	**41,139**
Compton	45,500	2,624	210	6,824	**15%**	**3,873**
Coastal	185,900	1,000	91	24,976	**13%**	**16,085**
Eastern	299,000	7,809	658	67,300	**23%**	**39,933**
Foothill	76,200	581	76	7,566	**10%**	**4,506**
Fullerton	81,300	2,082	147	10,507	**13%**	**6,671**
Glendale	113,200	4,000	1,050	14,700	**13%**	**10,726**
Las Virgenes	47,500	9,476	900	14,277	**30%**	**10,601**
Long Beach	290,600	14,218	741	39,758	**14%**	**25,802**
Los Angeles	2,248,300	781,782	106,425	999,188	**44%**	**760,421**
MWDOC	1,226,300	59,691	3,926	211,478	**17%**	**135,016**
Pasadena	97,500	14,222	1,248	23,200	**24%**	**15,090**
San Diego	1,781,100	231,981	25,598	446,004	**25%**	**279,876**
San Fernando	12,500	1,392	47	2,697	**22%**	**1,800**
San Marino	10,926	353	29	1,343	**12%**	**772**
Santa Ana	138,100	226	19	14,091	**10%**	**9,651**
Santa Monica	79,100	58,267	6,828	65,592	**83%**	**45,840**
Three Valleys	322,600	8,821	648	39,605	**12%**	**24,840**
Torrance	98,700	2,836	385	11,600	**12%**	**7,539**
Upper San Gab	512,200	8,540	657	54,900	**11%**	**33,328**
West Basin	554,400	28,575	4,289	81,507	**15%**	**57,418**
Western	383,700	5,815	277	60,800	**16%**	**36,563**
MWD	**10,560,626**	**1,324,984**	**163,462**	**2,488,119**	**23.6%**	**1,708,298**

1-Estimate includes MWD-funded ULF toilets as well as those funded by Member Agencies without MWD financial participation.

2-Cumulative water savings to date of all agency-funded ULF toilets (1990 to 1997)

3-Includes ULF toilets installed as a result of code provisions (new construction, residential remodeling, natural replacement) and water agency programs.

4-Total water savings (in acre-feet) from installed ULF toilets over their 20-year useful life.

Planning and Resources/Conservation Branch: August 20, 1998

s:\newdir\a-team\saturatn\satura~3.xls-Total Residential