**MWD**

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

February 7, 1992

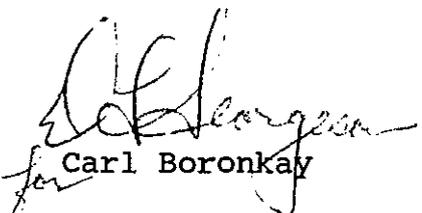
To: Board of Directors

From: General Manager

Subject: Transmittal of Drought Contingency Plan Pursuant to
Assembly Bill 11X

In a letter dated January 28, 1992, staff requested that your Board adopt Metropolitan's Drought Contingency Plan (Plan) that was prepared pursuant to Assembly Bill 11X. Staff delayed transmitting the Plan at that time as revisions were still being made to the Plan and staff was responding to comments received on the Plan at the January 13, 1992 public hearing.

Attached with this transmittal is the staff's final draft of Metropolitan's Drought Contingency Plan which includes those comments and other minor revisions to the initial draft. A recommendation for the formal adoption of the Drought Contingency Plan was made in the January 28, 1992 Board letter.


for Carl Boronkay

Attachment

MD:dlc:MDBILL11X

The Metropolitan Water District of Southern California

**Drought Contingency Plan
to Amend the Regional Urban
Water Management Plan for
The Metropolitan Water District
of Southern California**

FINAL DRAFT

February 7, 1992

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I. INTRODUCTION

PURPOSE

The effective management of water supply deficiencies is one of the most important responsibilities of The Metropolitan Water District of Southern California (Metropolitan). Deficiencies in Metropolitan's supplies may be caused by droughts, failures of major water transmission facilities during earthquakes, acute contamination of supplies due to chemical spills, or other adverse conditions. The need for continuing effective management programs to mitigate water supply shortages arises from Metropolitan's experiences during the drought of 1976-77 and the ongoing five-year drought which began in 1987.

This document has been prepared in response to Assembly Bill 11X (AB 11X) relating to drought contingency planning in California, which was introduced by Assembly Member William Filante, and was chaptered on October 14, 1991. This Statute amends Sections 10620, 10621, 10631, and 10652 of the Water Code, and adds Section 10656. California Water Code Sections 10610 through 10656 (known as the Urban Water Management Planning Act (Act)) were added by Statute 1983, Chapter 1009 to the Water Code, and became effective on January 1, 1984. The Act was known as Assembly Bill 797 while pending before the Legislature. According to Section 10631 of the California Water Code, Metropolitan is now required to submit a detailed drought contingency plan to the State Department of Water Resources (DWR). The legislation calls for nine specific elements that must be met to be in compliance with the drought contingency components of AB 11X. These include:

- (1) Past, current, and projected water use, and to the extent possible, a breakdown of water use (residential, commercial, single-family, multifamily, etc.);
- (2) An estimate of minimum supplies available at the end of 12, 24, and 36 months, assuming a worst case scenario (assumed to be the years 1992, 1993, and 1994);
- (3) Stages of action that a supplier would undertake to deal with up to a 50 percent shortage;
- (4) Mandatory provisions to reduce water use;
- (5) Consumption limits in the most restrictive stages;
- (6) Penalties for excessive use;
- (7) An analysis of the effects that these measures would have on revenues and the measures that an agency would take to overcome revenue shortages;
- (8) A draft ordinance or resolution to carry out the drought plan; and

- (9) A mechanism for determining actual reductions in water use.

The original Act did not specifically require Metropolitan, a water wholesaler, to prepare an urban water management plan. However, Metropolitan did prepare regional urban water management plans in 1985 and 1990. AB 11X now mandates that Metropolitan must submit an urban water management plan to DWR.

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

The Metropolitan Water District of Southern California is a public agency and quasi-municipal corporation created in 1928 by an act of the State Legislature and a vote of the electorates of 13 Southern California cities. Metropolitan's primary purpose is to provide supplemental water for domestic and municipal uses to its member agencies in its service area, which covers 5,143 square miles and includes portions of the six counties of Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Ventura. Metropolitan now has 27 member agencies, including 14 cities, 12 municipal water districts, and one county water authority. Metropolitan is governed by a 51-member Board of Directors. Each member agency has at least one representative on the Board of Directors. Representation and voting rights are based upon each agency's assessed real property valuation. Metropolitan receives imported water from two sources: the Colorado River via the Colorado River Aqueduct (CRA), and the State Water Project (SWP) via the Governor Edmund G. Brown California Aqueduct (California Aqueduct).

In 1990, the service area population for Metropolitan was just under 15 million. Metropolitan's 27 member agencies deliver to their customers a combination of groundwater, surface water, reclaimed water, and water obtained through Metropolitan, though not all agencies utilize all categories. For some member agencies, Metropolitan provides all the water used by that agency, while others obtain varying amounts of water from Metropolitan to supplement local supplies. On average, Metropolitan provides about 55 percent of the water supply needs of its service area.

Metropolitan's Board of Directors, at its November 1991 meeting, adopted the following mission statement: "The mission of The Metropolitan Water District of Southern California is to provide its service area with adequate supplies of high quality water to meet present and future needs in an environmentally and economically responsible way." In carrying out this mission statement, Metropolitan's goal is to maximize efficient use of existing supplies and to assure adequate supplies to meet future needs. As a wholesaler of water, Metropolitan does not have direct contact with retail customers and coordinates its efforts with those of its member agencies. During normal periods as well as during drought conditions, efficient use of existing supplies by its member agencies is encouraged through pricing incentives (or disincentives), such as an Incremental Interruption and Conservation Plan (IICP) to mitigate the effects of five years of drought in its service area (Chapter IV), and through the development and implementation of innovative water supply and demand management programs. These programs include the Local Projects Program, the Interruptible Water Service Program, the Seasonal Storage Program, the Groundwater Recovery Program, and the Conservation Credits Program.

FORMAT OF THIS REPORT

The first two chapters following the introduction describe water use in Metropolitan's service area and identify the water supplies available. Chapter II describes past, current, and projected water use and provides, to the extent possible, a breakdown of water use by residential, commercial, single-family, multifamily, etc. Chapter III describes Metropolitan's water supplies and provides an estimate of minimum supplies available at the end of 12, 24, and 36 months, from 1992 through 1994, assuming a worst-case drought scenario.

Metropolitan's management of water shortages is discussed in Chapter IV. This discussion includes the stages of action necessary for Metropolitan to undertake when there is up to a 50 percent shortage, mandatory provisions to reduce water use, consumption limits in the most restrictive stages, penalties for excessive use, and a draft resolution to carry out the drought plan. Finally, Chapter V describes the effects that drought contingency measures have had and will have on Metropolitan's revenues and the measures recommended to overcome revenue shortages.

This report is intended to be an amendment to Metropolitan's Regional Urban Water Management Plan (as prepared in November 1990 in response to the Urban Water Management Planning Act, Water Code Sections 10610 through 10616 which were added by Statute 1983, Chapter 1009). Additional information regarding long-term water demands can be found in Municipal and Industrial Water Use in the Metropolitan Water District Service Area--Interim Report No. 4 (June 1991).

II. PAST, CURRENT, AND PROJECTED WATER USE

PAST AND CURRENT WATER USE

As shown in Table II-1, total water demands within Metropolitan's service area are estimated to have been 4.0 million acre-feet (MAF) during fiscal year (FY) 1989-90. Of this total, 3.60 MAF was used for municipal and industrial purposes (M & I) and 0.4 MAF was used for agricultural purposes. Over the past 20 years, total water demands in Metropolitan's service area have increased more than 40 percent. This increase is attributed to the increase in urban water demand. In 1970, agricultural deliveries accounted for 19 percent of total water deliveries compared to 11 percent in 1990.

Total water use in Metropolitan's service area has increased rapidly in recent years. During the 1970s, the average rate of water use increase was about 0.8 percent per year (from 2.79 MAF in 1970 to 3.03 MAF in 1980). From 1980 to 1990 the increase averaged more than 2.8 percent per year. Increases in population averaged 1.6 percent per year between 1970 and 1980 and 2.2 percent per year between 1980 and 1990.

Table II-1 also shows that Metropolitan's share of water supplies to meet growing demands has increased substantially over the past 10 years. In 1980, Metropolitan contributed 42.3 percent of the supply to meet regional water needs. By 1989, the share of Metropolitan supplies required to meet total demands increased to 55.5 percent. As a result of the drought and the loss of a portion of the City of Los Angeles Aqueduct supplies during 1990, 62.5 percent of the total water use in the service area was supplied from Metropolitan deliveries.

Typically, urban water use consists of residential, commercial, industrial, public, and other purposes which include fire fighting, line cleaning, and system losses. Since Metropolitan is a wholesale water agency, it does not have the ability to maintain an accounting of water use by purpose within its service area. However, water use in the Metropolitan service area has been assessed based on sectoral water use and production records obtained from surveys of retail water agencies as well as from other demand studies. Figure II-1 shows the likely breakdown of urban water use by sector and Table II-2 shows the breakdown of per capita water use by sector (see Interim Report IV).

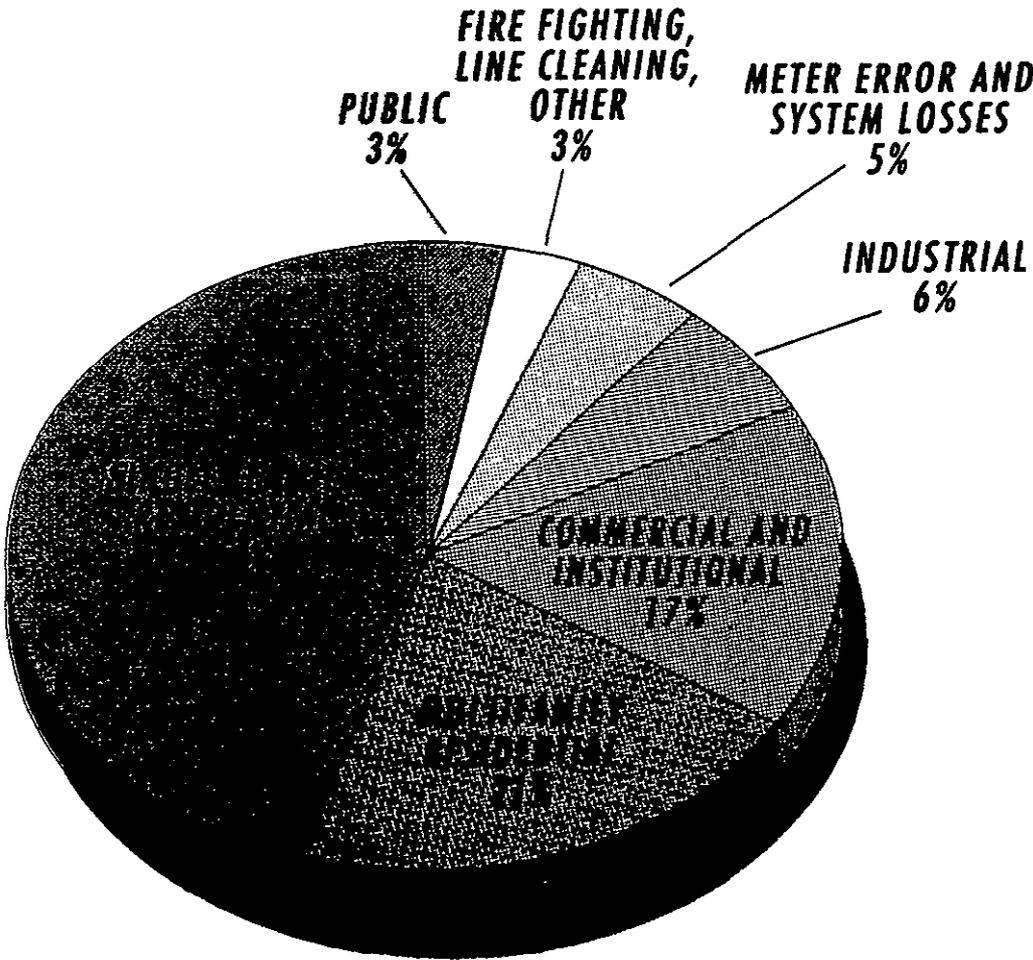
As shown in Figure II-1, the largest sector of urban water use in Metropolitan's service area is residential, accounting for more than 65 percent of total M & I use. Commercial, industrial, public irrigation, and other uses (including system losses) follow in that order.

TABLE II-1
HISTORICAL WATER USE IN METROPOLITAN'S SERVICE AREA

Fiscal Year Ending (July 1 to June 30)	Total Population Served (1,000s)	MWD Water Sales* (Acre-feet)	Total Regional Water Demands* (Acre-feet)	Percent of MWD Sales to Total Demand
1950	4,900	154,111	758,648	20.3
1951	5,109	169,118	829,123	20.4
1952	5,312	187,636	866,435	21.7
1953	5,590	156,859	945,118	16.6
1954	5,905	242,620	1,346,999	18.0
1955	6,192	380,171	1,682,904	22.6
1956	6,581	394,328	1,746,141	22.6
1957	6,873	541,891	1,850,848	29.3
1958	7,204	534,707	1,832,328	29.2
1959	7,539	590,655	1,959,440	30.1
1960	7,947	753,849	2,041,445	36.9
1961	8,239	921,402	2,172,558	42.4
1962	8,535	919,855	2,093,410	43.9
1963	8,802	1,014,804	2,258,843	44.9
1964	9,105	1,029,638	2,386,514	43.1
1965	9,365	1,103,799	2,459,191	44.9
1966	9,580	1,046,846	2,489,001	42.1
1967	9,744	1,055,533	2,457,027	43.0
1968	9,920	1,078,514	2,651,248	40.7
1969	10,104	1,045,034	2,537,549	41.2
1970	10,227	1,164,907	2,789,061	41.8
1971	10,386	1,126,278	2,816,393	40.0
1972	10,562	1,248,409	2,989,988	41.8
1973	10,734	1,175,000	2,839,457	41.4
1974	10,903	1,248,710	2,850,095	43.8
1975	11,077	1,333,768	2,853,025	46.7
1976	11,255	1,391,158	3,082,756	45.1
1977	11,432	1,390,134	2,959,477	47.0
1978	11,639	1,196,635	2,662,039	45.0
1979	11,824	1,235,508	2,848,941	43.4
1980	11,953	1,282,091	3,028,325	42.3
1981	12,198	1,462,831	3,313,765	44.1
1982	12,428	1,503,119	3,230,857	46.5
1983	12,681	1,226,361	3,015,796	40.7
1984	12,940	1,426,819	3,373,850	42.3
1985	13,216	1,575,367	3,525,827	44.7
1986	13,569	1,648,161	3,559,340	46.3
1987	13,882	1,825,921	3,674,141	49.7
1988	14,206	1,921,763	3,616,744	53.1
1989	14,502	2,108,890	3,797,812	55.5
1990	14,863	2,500,552	3,999,539	62.5

* Includes agricultural water use.

Figure II-1
MUNICIPAL AND INDUSTRIAL WATER USE



Water demand studies conducted in Metropolitan's service area indicate that a major portion of total annual M & I use is nonseasonal (or base use) which remains constant throughout the year. However, about one-fourth (26 percent) is seasonal, and varies from month to month and from year to year depending on weather conditions. Less than one-third (28 percent) of M & I water is used for outdoor purposes, including the irrigation of urban landscapes (24 percent) and cooling towers in commercial and industrial buildings (2 percent). Other minor outdoor uses include maintenance of swimming pools, dust control, and car washing (2 percent).

Commonly, urban water use is expressed in units of gallons per capita per day (GPCD) so that comparisons can be made over time and from one area to the next. In general, GPCD does not express the amount of water used by an individual, because it includes all sectors of urban water use. For example, an agency serving primarily residential customers will typically have a lower per capita water use than an agency serving residential and commercial/industrial users. Therefore, per capita water use in Table II-2 is expressed by sectors of water use. With normal weather conditions, total urban per capita demand in Metropolitan's service area is estimated to be about 204 GPCD. About 13 GPCD of this is reclaimed wastewater, which is used for groundwater recharge, irrigation of large public areas and golf courses, and some direct use for commercial and industrial activities.

**TABLE II-2
PER CAPITA URBAN WATER USE
(With Normal Weather)***

Sector	GPCD
Residential	135
Commercial	35
Industrial	12
Public Uses	7
Other (including system losses)	<u>15</u>
Total Urban Per Capita**	204

* Annual rainfall of 15 inches and mean annual temperature of 65 degrees F.

** Includes 13 GPCD of wastewater reclamation and reuse for groundwater recharge, irrigation and commercial/industrial applications.

PROJECTED WATER USE

For its planning purposes, Metropolitan has developed methods for preparing projections of both long-term and short-term water demands. Both projection methods prepare forecasts of water use for Metropolitan's entire service area. These projections are presented in the Regional Urban Water Management Plan. The demands shown on Table II-3 summarize these projections.

TABLE II-3
PROJECTION OF WATER DEMANDS ON METROPOLITAN

	1992	1993	1994
Demands on Metropolitan (1,000 AF)*	2,472	2,518	2,564

* Demands are based on below-normal rainfall and above-normal temperatures, and include ongoing long-term water conservation.

III. PAST, CURRENT, AND PROJECTED WATER SUPPLIES

PAST AND CURRENT WATER SUPPLIES

Water supplies available to Metropolitan's service area are obtained from local and imported sources. Local groundwater, surface water, and reclaimed wastewater supply about 35 percent of the area's current water needs. Imported supplies from the Los Angeles Aqueduct, the CRA, and Metropolitan's entitlement to SWP water have historically averaged 65 percent of the regional needs.

Regional demand has increased dramatically over the last 12 years. Between FY 1979-80 and FY 1989-90, Metropolitan's contribution to regional water supplies increased from 44.1 percent to 62.5 percent (see Table II-1). During FY 1988-89, Metropolitan provided supplemental water supplies that met about 55 percent of the regional water needs. With the continuing drought, Metropolitan provided 62.5 percent of the regional water needs during FY 1989-90. In the future, as demands for water increase with population growth and the availability of local sources remains relatively constant, it is expected that an increasing portion of the regional water demand will have to be supplied by Metropolitan.

The historic use of local and imported supplies is shown in Figure III-1. Table III-1 shows the quantities of water obtained by member agencies from local and imported supplies during FY 1989-90. Metropolitan supplies varying amounts of imported water to supplement local supplies to member agencies and retail suppliers. Some agencies, such as City of Beverly Hills and West Basin Municipal Water District, rely almost entirely upon Metropolitan deliveries, where others, such as City of San Marino and Chino Basin Municipal Water District, rely fully on their own water supplies.

Colorado River Supply

Metropolitan has water delivery contracts for Colorado River water with the U.S. Department of the Interior for 1.212 million acre-feet per year (MAFY) and an additional 180,000 acre-feet per year (AFY) of surplus water. However, as a result of the 1964 U.S. Supreme Court decree in Arizona v. California, Metropolitan's dependable supply of Colorado River water was reduced to less than 550,000 AFY. This reduction in dependable supply occurred in 1985 with the commencement of Colorado River water deliveries by the Central Arizona Project. Since then, Metropolitan has been able to receive up to 1.2 MAFY by diverting surplus and unused supplies.

SOURCES OF WATER SUPPLY IN THE METROPOLITAN SERVICE AREA

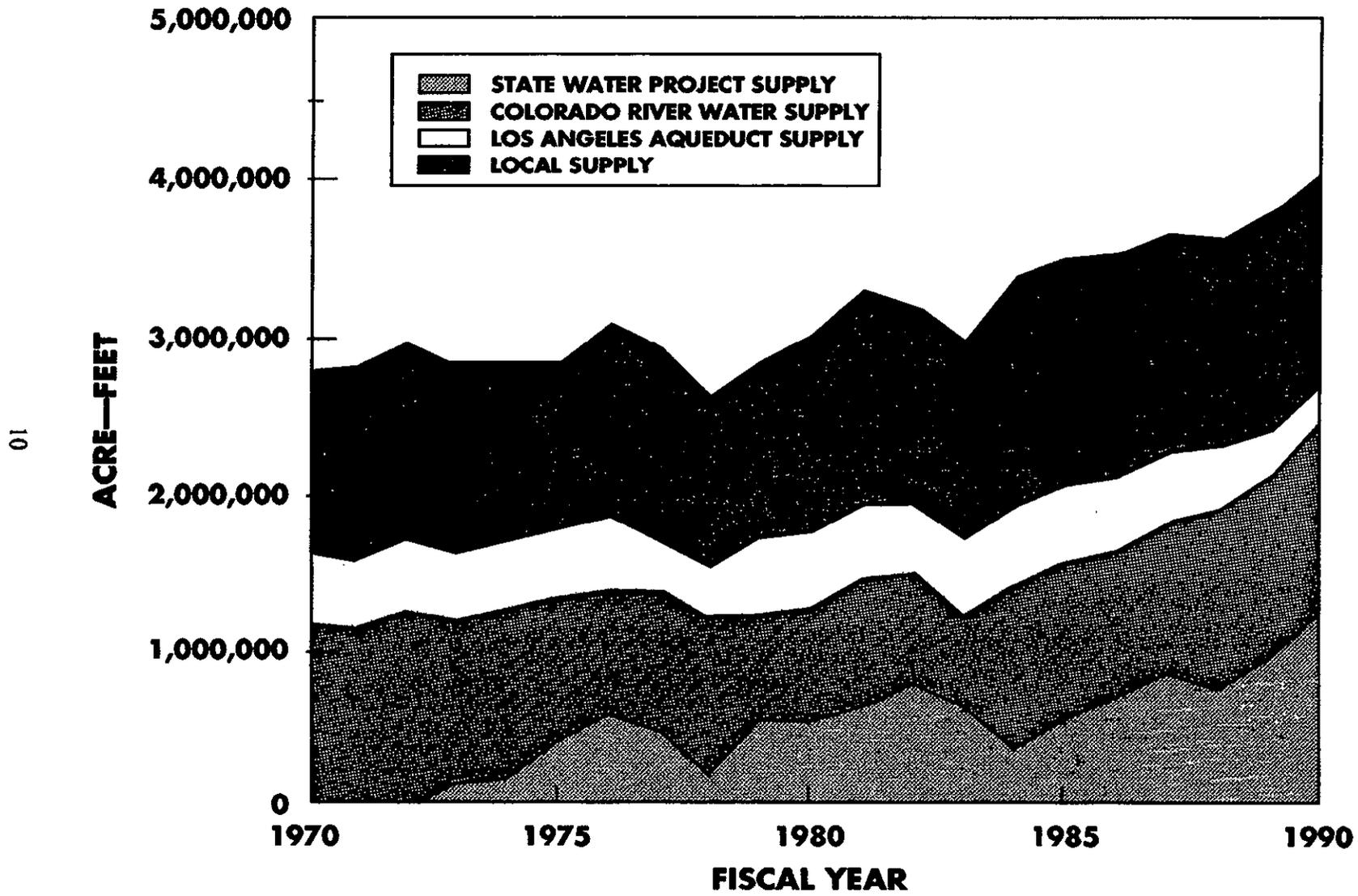


FIGURE III—1

TABLE III-1

LOCAL AND METROPOLITAN DELIVERIES IN FISCAL YEAR 1989-90

Member Agency	Local Supplies*	Metropolitan Total Deliveries**	Total Water Use
Anaheim	43,689	29,475	73,164
Beverly Hills	0	14,867	14,867
Burbank	371	23,217	23,588
Calleguas MWD	29,637	111,086	140,723
Central Basin MWD	125,350	149,735	275,085
Chino Basin MWD	149,099	68,664	217,763
Coastal MWD	12,635	48,318	60,953
Compton	6,123	5,536	11,659
Eastern MWD	101,285	55,449	156,734
Foothill MWD	6,229	10,886	17,115
Fullerton	19,422	14,511	33,933
Glendale	3,305	28,848	32,153
Las Virgenes MWD	1,414	24,671	26,085
Long Beach	29,336	51,030	80,366
Los Angeles***	300,810	385,065	685,875
MWD of Orange County	163,946	299,409	463,355
Pasadena	12,066	25,339	37,405
San Diego CWA	44,173	672,844	717,017
San Fernando	2,780	1,007	3,787
San Marino	5,397	1,427	6,824
Santa Ana	31,419	20,228	51,647
Santa Monica	5,371	11,690	17,061
Three Valleys MWD	62,358	75,877	138,235
Torrance	7,482	23,804	31,286
Upper San Gabriel Valley MWD	120,691	70,397	191,088
West Basin MWD	17,182	186,023	203,205
Western MWD of Riverside Co.	198,742	89,828	288,570
TOTALS	1,500,312	2,499,231	3,999,543

* Includes groundwater, surface water, and reclaimed wastewater.

** Includes replenishment deliveries which are used by member agencies for local production.

*** Includes imported water from the Los Angeles Aqueduct of about 206,000 AF.

Although Metropolitan has a priority to divert 550,000 AFY of California's 4.4 MAFY basic apportionment under its water delivery contracts with the Secretary of the Interior, current water use by holders of present perfected rights (such as Indian reservations, towns, and other individuals along the Colorado River that predate Metropolitan's rights) reduces the dependable diversions by about 30,000 AFY. Conveyance losses along the CRA of 10,000 AFY further reduce the amount of Colorado River water received. Considering these reductions, and prior to the implementation of the water conservation program with Imperial Irrigation District (IID), Metropolitan had a supply of 510,000 AFY on a dependable basis.

Implementation of the water conservation program with IID, the largest agricultural user of Colorado River water, began in January 1990. In brief, under the IID/Metropolitan agreement, Metropolitan is funding specific conservation projects in IID, both structural and nonstructural, including lining existing canals, constructing local reservoirs and spill-interceptor canals, installing non-leak gates and automation equipment, and instituting distribution system and on-farm management activities. In return, Metropolitan will be entitled to divert from the Colorado River, or store in a reservoir, a quantity of water equal to the amount of conserved water resulting from these projects, which is estimated to total 106,110 AFY upon full project implementation by 1995.

Metropolitan's ability to divert additional Colorado River water in the short term will be dependent upon hydrologic conditions in the Colorado River Basin and the demand for water by other users that also hold rights to use Colorado River water in the Lower Basin, such as the California agricultural agencies and the states of Arizona and Nevada. Additional cooperative programs to conserve water now diverted by California districts for agricultural purposes are under negotiation.

State Water Project Supplies

Metropolitan receives SWP supplies via the California Aqueduct at Castaic Lake in Los Angeles County, Devil Canyon Afterbay in San Bernardino County, Box Springs Turnout, and Lake Perris in Riverside County. Metropolitan has contracted with the State for the delivery of 2.01 MAFY, which is about 48 percent of the planned project yield. Currently, the SWP provides a dependable supply of about one-half of the amount that the State is contracted to deliver. The SWP was planned so that additional facilities to increase the yield would be constructed over time as contractor demands increased. DWR's current planned facility improvements, including additional storage south of the Sacramento-San Joaquin Delta (Delta) and Delta facilities, would increase dependable supplies by approximately 400,000 AFY when completed.

DWR determines SWP supplies, which can vary greatly during a drought. The firm yield (dependable supply) of the SWP is defined to be the average annual supply available during a repeat of the hydrology of the seven-year critical dry period which occurred from 1928 to 1934. This supply is estimated to total 1.17 MAFY to Metropolitan. However, water supplies

may be significantly lower, as illustrated in 1991, when DWR approved delivery of only 30 percent of Metropolitan's request.

Metropolitan's supplies are also augmented under agreements with Coachella Valley Water District (CVWD) and Desert Water Agency (DWA), by which Metropolitan exchanges Colorado River water for CVWD's and DWA's SWP entitlements. Through another agreement, Metropolitan delivers Colorado River water, in advance of and in exchange for CVWD's and DWA's future SWP entitlement water, for their groundwater storage. As needed, Metropolitan is able to use up to 61,200 AFY of CVWD's and DWA's SWP entitlements, while CVWD and DWA use previously stored Colorado River water.

PROJECTED NEAR-TERM MINIMUM SUPPLIES

One of the components of AB 11X requires "an estimate of the minimum water supply available at the end of 12, 24, and 36 months, assuming the worst case water supply shortages."

Metropolitan estimates a firm availability of slightly over 600,000 acre-feet (AF) of water from the Colorado River in 1993 and 1994. In 1992, Metropolitan anticipates that it will be able to divert 1.25 MAF of Colorado River water. This includes the basic entitlement, water made available by the IID/Metropolitan water conservation program, and water unused in Arizona and Nevada. However, if in 1992, more than 7.5 MAF of Colorado River water is used in Arizona, California, and Nevada, Metropolitan and other California water contractors exceeding their entitlements will be required to compensate for their overuse by the end of 1995. Compensation for overuse will be in the form of adjustments to apportionments unless other forms of compensation or other timeframes are agreed to by the Governors' representatives of the seven Colorado River Basin states and the Secretary of the Interior. The need for compensation will be eliminated in the event that system releases in excess of United States beneficial consumptive uses occur.

In December 1991, DWR approved 1992 SWP deliveries at 20 percent of Metropolitan's SWP estimated entitlement request. This delivery, combined with CVWD's and DWA's approved requests, as well as the carry-over of 116,000 AF of Metropolitan's 1991 entitlement water, will provide Metropolitan a SWP supply of approximately 491,000 AF. This approval was developed from a scenario based on current reservoir storage and a repeat of the 1977 drought year.

DWR has not provided Metropolitan with a worst-case scenario for 1993 and 1994. In these years, as in all others, SWP deliveries are subject to a number of variables, including: availability of water in Oroville and San Luis reservoirs carried over from previous years, availability of runoff captured and regulated by these reservoirs, and the availability for export of excess unregulated runoff from the Delta. Based on information from DWR staff, Metropolitan assumed that a worst-case supply scenario for either 1993 or 1994 would occur if no water from carry-over storage is available and a repeat of the worst hydrologic year of record (1977) occurs. In such a case, the SWP supplies would come from excess unregulated flows

from the Delta and any reservoir regulation which occurs that year. In conversations, DWR staff indicated that these sources would supply approximately 300,000 AF if the 1977 hydrologic year were repeated. As Metropolitan is entitled to approximately half of this supply, 150,000 AF would probably be available to Metropolitan. It should be noted that it is extremely unlikely that this worst-case supply scenario would occur in two consecutive years. Thus the 150,000 AF supply is the absolute worst-case which could occur in either 1993 or 1994.

The resulting water demands and supplies for Metropolitan at the end of 12, 24, and 36 months are presented in Table III-2. With the water supply scenario in Table III-2, a 31 percent shortfall in supply is projected for 1992, and a 50 percent shortfall is projected for both 1993 and 1994, which assumes a worst-case scenario. (Note: the expected demands are reduced by 50 percent as the result of implementation of Metropolitan's IICP, which is described in detail in the following chapter.)

TABLE III-2**COMPARISON OF WATER DEMANDS & SUPPLIES
FOR METROPOLITAN WATER DISTRICT****(1000 AF)**

Supplies	1992	1993	1994
Colorado River Aqueduct	1,250	608	626
State Water Project	491	150	150
System Losses	< 30 >	< 30 >	< 30 >
Supplemental Supplies*	0	531	536
TOTAL MINIMUM SUPPLIES	1,711	1,259	1,282
Expected Demand	2,472	2,518	2,564
Estimated Demand with IICP	1,711	1,259	1,282
Stage in IICP	V	VI	VI

* Supplemental Supplies consist of:

- possible authorization by the Secretary of the Interior to utilize Colorado River water apportioned to but unused by Arizona and Nevada, and/or the declaration of a surplus condition by the Secretary of the Interior;
- agreements with other California users of Colorado River water to fallow land and institute conservation programs; and
- the continuation of a California Drought Emergency Water Bank and implementation of other water transfer agreements.

IV. MANAGEMENT OF WATER SHORTAGES

WATER SUPPLY MANAGEMENT PROGRAMS

The goal of Metropolitan's water management programs is to maximize efficient use of existing supplies and to assure adequate supplies to meet short-term and long-term water demands. Metropolitan has a number of water supply management programs that are geared to achieve long-term water management objectives. However, these programs also help alleviate short-term supply constraints. The following sections describe the various water management programs conducted by Metropolitan, and how Metropolitan meets the following requirements of AB 11X:

- Stages of action that a supplier would undertake up to a 50 percent shortage
- Consumption limits in the most restrictive stages
- Mandatory provisions to reduce water use
- An ordinance or resolution to carry out the drought plan
- Penalties for excessive use
- A mechanism for determining actual reductions in water use

Local Projects Program

Currently, Southern California reclaims approximately 248,000 AF of wastewater annually. The Local Projects Program provides financial support to agencies which develop local water supply projects (primarily water reclamation projects) that correspondingly reduce their demands for Metropolitan's imported supplies. To date, Metropolitan has participated in 26 local projects, with an ultimate yield of approximately 138,000 AFY. Currently, six additional projects, with an estimated yield of about 56,000 AFY, are in various stages of review.

Interruptible Water Service Program

Under the Interruptible Water Service Program (IWSP), Metropolitan enters into standard agreements with its member agencies to provide imported water at discounted rates for local storage. The stored water is to be used during a temporary deficiency in imported supplies.

A participating agency is required to: (1) submit a statement that it will be able to sustain the reduction or interruption without adversely affecting service to the public, and that it has or will have water in storage and distribution facilities to do so; and (2) if the agency's statement shows reliance on water stored in an adjudicated groundwater basin, the agency must be able to increase groundwater withdrawal to sustain the interruption.

The IWSP was originally conceived to deal with a temporary shortage of otherwise reliable water supplies. However, the present situation is different than was contemplated at the time the IWSP was created. The four years of drought from 1987 to 1990 had already caused a substantial overdraft of groundwater and surface storage reserves in Metropolitan's service area. These circumstances were extraordinary, requiring that service interruptions be shared equally among all interruptible water users and that retail consumers must sustain service interruptions to preserve interruptible reserves for possible use in the continuing drought. Due to the reduction in Metropolitan's water supply caused by the ongoing drought and the financial impact of reduced sales, Metropolitan's Board of Directors suspended the price differential between noninterruptible and interruptible service indefinitely, effective April 1, 1991. Since that time, all noninterruptible and interruptible sales have been at the noninterruptible rate.

Seasonal Storage Program

The Seasonal Storage Program (Seasonal) provides an incentive for member agencies to purchase water from Metropolitan during winter months for local storage. It is aimed at achieving greater conjunctive use of imported and local supplies, encouraging construction of additional local production facilities, and reducing member agencies' dependence on Metropolitan's deliveries during the peak summer months.

Groundwater Recovery Program

Under its Groundwater Recovery Program adopted in 1991, Metropolitan will improve regional water supply reliability by providing financial assistance to its member and local agencies to develop projects which can potentially ultimately recover up to 200,000 AFY of contaminated groundwater. As of December 1991, three projects with a collective capacity of 11,900 AFY were approved for participation and three projects with a combined capacity of 6,000 AFY were under review.

Conservation Credits

In 1988, Metropolitan initiated the Conservation Credits Program (CCP), which is still the centerpiece of the organization's conservation efforts. Under the CCP, Metropolitan shares the costs of the conservation programs with local agencies. For qualified projects, Metropolitan

pays the lesser of one-half of the project cost or \$154 per AF saved. For many approved projects, Metropolitan also funds an extensive evaluation component. CCP projects approved through December 1991 are projected to achieve 96,550 AF of savings over a 10-year period.

Best Management Practices

The Best Management Practices (BMPs) are 16 conservation measures that are expected to achieve an additional 300,000 AFY of water savings for Metropolitan by 2010. The BMPs were supported by many water suppliers, environmental/public interest groups, and other interested parties by the signing of a memorandum of understanding (MOU). Metropolitan executed the MOU in December 1991. This MOU states a commitment by water agencies to implement these measures over the next 10 years. Metropolitan has been developing a five-year plan to speed up the implementation process and support its member agencies in their efforts.

These programs are described in greater detail in The Regional Urban Water Management Plan, and in Metropolitan's demand forecasting report, Interim Report No. 4.

DROUGHT RESPONSE PROGRAMS

In late 1990, as California entered into a fifth consecutive drought year and water supply shortfalls appeared imminent in 1991, Metropolitan developed and/or participated in a number of programs to significantly reduce water demands and to procure additional water supplies. Metropolitan's 1991 drought response included the implementation of the Incremental Interruption and Conservation Plan, additional water conservation programs, and the procurement of emergency water supplies.

Incremental Interruption and Conservation Plan

In November 1990, Metropolitan adopted the Incremental Interruption and Conservation Plan (IICP) to meld provisions of the Interruptible Water Service Program with the Seasonal Program to encourage member agencies to utilize water held in local groundwater and surface storage reservoirs and promote additional consumer water use reduction to lower demands on Metropolitan during droughts. The program is implemented in stages, with each stage progressively reducing the water use objectives for each member agency. Metropolitan's Board of Directors determines the appropriate stage of implementation based on projections of supply. Stage I is a voluntary program. Later stages are mandatory with specified disincentive charges applicable when member agencies' use of Metropolitan-supplied water exceeds limits established by the IICP. These stages are described in Table IV-1.

Stage I of the IICP, calling for voluntary conservation measures, was instituted when the program was adopted in November 1990. In December 1990, DWR imposed a 65 percent deficiency in SWP deliveries to agricultural users and a 15 percent deficiency to M & I users. There was a 25 percent chance that State runoff would be so low as to require additional reductions in SWP deliveries beyond those initially imposed. Consequently, Metropolitan's Board of Directors authorized implementation of Stage II, effective February 1, 1991. However, the updated forecasts in January 1991 suggested that there was a 50 percent chance that greater reductions would be imposed, assuming that the SWP was able to effectively capture all of the available runoff for use in the current year. Given the declining water supplies, Stage III was implemented by the Board of Directors on February 1, 1991.

On February 4, 1991, DWR discontinued service of entitlement water to agricultural contractors and informed Metropolitan that the water supply would be sufficient to meet only 50 percent of municipal and industrial contractors' requirements even with normal rainfall for the remainder of the year. With this outlook, the Board of Directors adopted a resolution which instituted Stage V on March 1, 1991. On February 23, 1991, DWR informed the SWP contractors that the month was concluding without significant runoff from Northern California watersheds. This meant that DWR could only approve 10 percent of the requested water for M & I users. As a result, Stage VI was scheduled for implementation beginning April 1, 1991. Improvements in California's water supply outlook, as a result of a series of storms in March, allowed Metropolitan to maintain its requested mandatory water conservation target at Stage V throughout calendar year 1991.

Under the IICP, Metropolitan establishes annual water use objectives for the amount of water to be supplied to each member agency based upon the amount of water purchased from Metropolitan in the base year of FY 1989-90 and the class of service (Noninterruptible, Interruptible, and Seasonal) of the water that was purchased. In order to establish this annual target objective, water delivered in the base year is classified as either firm service or nonfirm service. Firm service includes all Noninterruptible and Seasonal Service which was purchased from Metropolitan in the winter of FY 1989-90 and withdrawn from storage during the summer of 1990. Nonfirm service includes the remaining amounts of Seasonal Service and all Interruptible Service.

Once deliveries in the base year are categorized as firm service and nonfirm service, annual water use objectives are established by reducing deliveries in the base year as shown in Table IV-1.

TABLE IV-1

THE INCREMENTAL INTERRUPTION AND CONSERVATION PLAN

Stage	Reduction Target in Nonfirm Deliveries (Percent)	Reductions from Base Year		Expected Savings (AFY)	Overall Reduction
		Conservation Target of Firm Deliveries (Percent)			
I	Voluntary	Goal 10		100,000	--
II	20	5		260,000	10%
III	30	10		430,000	17%
IV	40	15		600,000	24%
V	50	20		770,000	31%
VI	90	30		1,230,000	50%

The annual water use objectives are further broken into monthly target quantities based upon the member agency's usage in the corresponding month of the base year. However, not all of the water from the annual objective is scheduled into monthly targets. A portion of the water is held in what is termed a discretionary pool, which Metropolitan endeavors to deliver to agencies annually, but is available to agencies on the terms and at the water rate applicable to Seasonal Service. Specifically, discretionary pool water is available at the discretion of Metropolitan's General Manager and can only be used for storage by a member agency. It is available intermittently during droughts and to help regulate overall demands.

Water which was delivered in the base year and not included in monthly targets for member agencies, but instead made available from the discretionary pool, includes: nonfirm service delivered in the base year for groundwater basin replenishment by direct spreading or injecting; water delivered for replenishment of groundwater basins by making deliveries of imported water in-lieu of the pumping of groundwater; and water delivered in the base year on a nonfirm basis either for storage in a local reservoir or to maintain local water in storage in a reservoir.

After the creation of the discretionary pool is completed, the remainder of the agency's annual water use objective is broken into monthly target quantities based upon use in the corresponding month of the base year. The monthly target quantities effectively serve as water allocations to agencies. If, in any month, an agency's use of Metropolitan-supplied water exceeds its target quantity (after deducting any deliveries from the discretionary pool), the agency pays a disincentive charge for each AF taken in excess of its monthly target quantity. Disincentive charges are twice the Noninterruptible rate and are in addition to the applicable water rate for the purchase.

The distinction between deliveries made as part of the discretionary pool and the deliveries chargeable against an agency's monthly allocation is that water from the discretionary

pool must be stored for later use. Agencies are required to certify that the quantities of water received are stored for later use during periods when discretionary pool water is available in order to process monthly accounting and potential disincentive charges.

Adjustments

Adjustments are made to the scheduled target quantities and the discretionary pool to reflect population growth, changes in local water supplies, conservation, and reclamation. A rescheduling of base-year deliveries of Metropolitan water is acceptable to meet the agency's operational needs. If rescheduling does not meet the needs of the agency, it may request a transfer of in-lieu base year deliveries from the discretionary pool to the nonfirm scheduled target quantities.

Incentives

The IICP originally included an incentive program. Stage I of the IICP was voluntary, and member agencies which reduced their use of water below 95 percent of the base year deliveries and certified that they did not increase the use of local water to do so were eligible to receive an incentive payment of \$99 (established at one-half the 1989-90 untreated Noninterruptible rate) for each AF conserved. In Stages II through VI, agencies using less than their target quantity received the \$99/AF conservation incentive payment. In all cases, the conservation incentive payment only applied to deliveries from Metropolitan and not to total water usage. The conservation incentive payment was discontinued on September 30, 1991.

Penalties

No disincentive charges (or penalties) are used in Stage I of the IICP. Immediately upon the implementation of Stage II, a penalty rate may be imposed on any agency that surpasses its target allocation.

For Stages II through VI, a penalty charge of twice the Noninterruptible rate (\$394/AF in FY 1990-91) is applied to any member agency that does not meet its scheduled target quantity. The penalty charges are imposed in addition to the applicable rate for water purchased. The under-delivery of discretionary pool water is not allowed to be used to offset an overuse of scheduled targets. The penalty charge applies only to deliveries from Metropolitan, not total water usage. The overuse penalties do not apply to the discretionary pool.

Accounting and Reconciliation

Although disincentive charges are levied against an agency in any month that its water usage exceeds its IICP target, agencies are allowed to offset overuse by extra conservation in other months through an annual reconciliation process. The reconciliation process occurs at the end of the water year (October 1 through September 30) or immediately following the Board of Directors' determination that Stage II through Stage VI are no longer in effect, whichever is earlier.

In the reconciliation process, under-usage in one month is allowed to offset over-usage in another. An agency which utilizes more than its target in one month and has paid a disincentive charge is eligible for a refund of the disincentive charge to the extent that water usage in other months is less than its target allocation. Through the annual reconciliations, disincentive charges remain applicable only to the extent that an agency's usage during the year exceeds the sum of the agency's monthly targets for that year. Water used from the discretionary pool is excluded from the reconciliation.

In 1991, the accounting and certification processes took place after deliveries had been made. The lag time between deliveries and certifications typically was several weeks. Because of this lag, it was not possible to immediately determine each agency's performance under the IICP. Thus, a delay in disincentive charges was possible for all agencies. The annual reconciliation accounted for any irregularities.

Determination of Actual Reductions in Water Demands on Metropolitan

The determination of actual reductions in use are based upon the metering of monthly water sales to Metropolitan's member agencies. Water sales to member agencies in FY 1990-91 were compared to sales during the FY 1989-90 base year. Table IV-2 shows the effectiveness of provisions to reduce water use in Metropolitan's service area from January to July 1991. During this six-month period, Metropolitan water sales decreased by more than 475,000 AF. The summer of 1991 was unusually cool and accounted for a portion of the reduced demand. Stage V called for total water savings of 31 percent, but by July, the actual reduction in Metropolitan sales achieved due to mandatory rationing was 40 percent. Between February and June 1991, actual reductions in Metropolitan sales averaged 39 percent. During that period, Metropolitan paid out approximately \$18 million in incentive payments.

TABLE IV-2

METROPOLITAN FY 1989-90 VS. FY 1990-91 WATER SALES (JAN - JULY 1991)

	IICP Stage	% Reduction Goal	FY 1989-90 Sales (Acre-feet)	FY 1990-91 Sales (Acre-feet)	Percent Change
JAN	I	10	166,878.6	182,488.8	+9
FEB	III	17	159,724.1	126,788.7	-21
MAR	V	31	216,196.7	101,347.5	-53
APR	V	31	228,721.4	117,878.7	-48
MAY	V	31	200,003.4	138,201.6	-31
JUN	V	31	213,174.1	143,224.4	-33
JUL	V	31	<u>253,129.4</u>	<u>151,222.5</u>	-40
TOTAL			1,437,827.7	961,152.2	-33

Appendix 1 contains Metropolitan Board of Directors' resolutions which instituted stages of the IICP and shows how the various stages of the IICP are implemented by Metropolitan.

Model Emergency Water Conservation Ordinance

In order to respond to potential supply shortfalls during the summer of 1990, Metropolitan adopted the "Drought Action Plan '90" in April 1990. This plan included setting water use reduction goals, distributing about one million water conservation kits to its member agencies, and promoting water conservation through various media. Furthermore, a Metropolitan staff task force was created to assist local water purveyors in developing and adopting water conservation ordinances. Metropolitan's "Task Force on Implementation" prepared the model Emergency Water Conservation Ordinance as presented in Appendix 2.

The ordinance was designed to provide a permanent mechanism that would allow local entities to deal with water shortage emergencies. It sets forth three basic implementation phases keyed to the severity of the water shortage. The implementation phases of the model ordinance prohibit certain types of water use, require percentage reductions in other water uses, and impose surcharges on excess water use. In addition to the surcharges, the ordinance provides increasingly severe sanctions for repeated violations. The penalties include a warning citation, additional surcharges, and installation of flow restrictors.

The ordinance was drafted so that it could be used or adapted by a wide range of water supply agencies and does not exhaust all possible measures that could be included in a water use

reduction plan. Member agencies were encouraged to closely review the ordinance for its applicability to their agency's needs before it was adopted. As a result, most of Metropolitan's approximately 300 member and subagencies adopted the Emergency Water Conservation Ordinance prior to 1991.

1991 Water Conservation Drought Response

Conservation Credits Program

Since 1988, Metropolitan has been implementing ongoing conservation projects through the Conservation Credits Program (CCP). This program provides incentives to member agencies to implement conservation projects that result in quantifiable water savings. Through 1991, the CCP became a vehicle for agencies to continue implementation of ultra-low-flush toilet projects, low-flow showerhead distribution projects, and to take advantage of the large-turf audit programs offered by Metropolitan. Metropolitan participated with its member agencies in the retrofit of more than 200,000 ultra-low-flush toilets in 1991, at a cost to Metropolitan of approximately \$13 million.

Water-Wise '91

In response to the drought, Metropolitan implemented a residential plumbing retrofit program. The goal of the Water-Wise '91 program was to launch an aggressive campaign to distribute plumbing retrofit kits throughout its service area with Metropolitan's member agencies and subagencies, with the cooperation of private sector co-sponsors. These kits included low-flow showerheads, toilet tank water displacement bags, leak-detection tablets and literature to reinforce the urgent need to conserve water. It is estimated that about one million households were reached through the Water-Wise '91 program.

Industrial and Commercial Program

In May 1991, Metropolitan established an Industrial and Commercial Water Conservation Program with technical capacity to increase water-use efficiency in the business sector. The program offers information, water audits, training seminars and technical assistance to member agencies and business customers within Metropolitan's service area. This program helps develop short-term awareness and reaction in the business community and long-term water reduction in the region.

Public Outreach

Metropolitan continues its multimillion dollar commitment to help inform and educate the general public about the water situation and conservation. This commitment is implemented with in-school education programs, advertising with multimedia sources, public information sources, and speakers throughout the community.

1991 Emergency Water Supplies

Additional Colorado River Water

In March 1991, to help alleviate the effects of the continuing drought, the Commissioner of the United States Bureau of Reclamation informed the Governor of California that Metropolitan would be allowed to divert water from the Colorado River at the full capacity of its aqueduct for the remainder of 1991. The Commissioner's action was based on his finding that, in all probability, net diversions in Arizona, California, and Nevada would be such that Metropolitan could divert additional water without causing the three states to exceed 7.5 MAF of net diversions. If the final accounting data indicated that net diversions exceeded 7.5 MAF, Metropolitan and any other California contractors exceeding their contractual entitlements would be required to compensate for such overuse. Based on actual net diversions through November 1991 and projected net diversions in December 1991, the three states will utilize less than 7.5 MAF.

1991 California Drought Emergency Water Bank

On April 1, 1991, negotiations were completed among interested California water agencies and DWR to establish the 1991 California Drought Emergency Water Bank (Bank). The primary objective of the Bank was to provide water to meet critical needs consistent with criteria developed by the Governor of California. At its April 9, 1991 meeting, Metropolitan's Board of Directors established the CNWB, which is similar to the Bank. The purpose of the CNWB is to provide water to meet the critical water needs within Metropolitan's service area. The minimum requirements for a member agency to receive allocations from the CNWB are that the member agency be fully utilizing its local water supplies; that the member agency has implemented a stringent water conservation program; that the member agency's or subagency's total water supplies are less than 75 percent of normal water demand; and that the water is to be delivered to meet critical urban needs, or is needed to sustain trees, vines and other high value crops.

As of November 1991, DWR had purchased about 830,000 AF of water for the Bank, with 655,000 AF available for delivery (after accounting for carriage water and other losses).

Metropolitan purchased 215,000 AF of Bank water. Member agencies contracted for 27,000 AF of this water under Metropolitan's Critical Needs Water Bank (CNWB). The remaining 188,000 AF of water became part of Metropolitan's overall water supply. All of this water was delivered to Metropolitan by DWR during the five-month period from May through September 1991.

1991 Summary

The IICP, combined with an aggressive conservation program, a responsive public, the March precipitation, cooler-than-normal weather, and supplemental supplies of water from the Bank and the Colorado River, allowed Metropolitan to meet its reduced water demand. A supportive feature was that most of Metropolitan's approximately 300 member and subagencies had passed water conservation ordinances resembling the Model Conservation Ordinance (Appendix A).

1992 DROUGHT RESPONSE PROGRAMS

If the drought continues into 1992, as reflected in Table III-2, Metropolitan will maintain the IICP. With few exceptions, the IICP will be implemented using the same procedures as 1991. FY 1989-90 will remain the base year for determining target quantities of water. However, the conservation incentive payment for the amount of water not used within the target quantity has been discontinued. In addition to the applicable water rate, the penalty rate will be \$444/AF for the amount of water used over the target quantity through June 30, 1992.

Metropolitan will continue to actively pursue the implementation of conservation programs. As a signatory of the MOU regarding BMP implementation, Metropolitan will assist member agencies in meeting their obligations under the MOU. Metropolitan's CCP, which provides strong financial incentives to implement effective conservation programs, is expected to be the primary vehicle for the implementation of urban BMPs in Metropolitan's service area. Although the BMPs are designed as a long-term conservation effort, their immediate implementation will provide water savings in the short-term and increase consumer awareness.

It is anticipated at this time that 1.25 MAF of Colorado River water will be diverted. Metropolitan will continue to explore all possible opportunities for additional water supplies to meet the needs of its member agencies, such as the development of a water bank similar to the 1991 California Drought Emergency Water Bank and aggressively pursuing water exchanges and transfers.

If 1993 and/or 1994 turn out to be worst-case scenario years, it appears at this time that it would be necessary for Metropolitan's General Manager to recommend that the IICP be implemented at Stage VI, responding to a 50 percent shortage in water supplies.

V. REVENUE IMPACTS AND MEASURES TO OVERCOME REVENUE SHORTFALLS

SOURCES OF REVENUE AND REVENUE REQUIREMENTS

Metropolitan receives revenue from a variety of sources. For example, during FY 1989-90, 73 percent of total revenue was derived from water sales, 12 percent from property taxes, and 15 percent from other sources including interest income, annexation charges, electric power sales, and miscellaneous sources, such as rent for Metropolitan-owned land.

Since the delivery of water began in 1941, the revenue base has changed substantially (see Figure V-1). Before 1941, taxes were virtually the only source of revenues available to repay the construction costs of the CRA. However, as originally intended, the share of property taxes in total revenue has declined steadily.

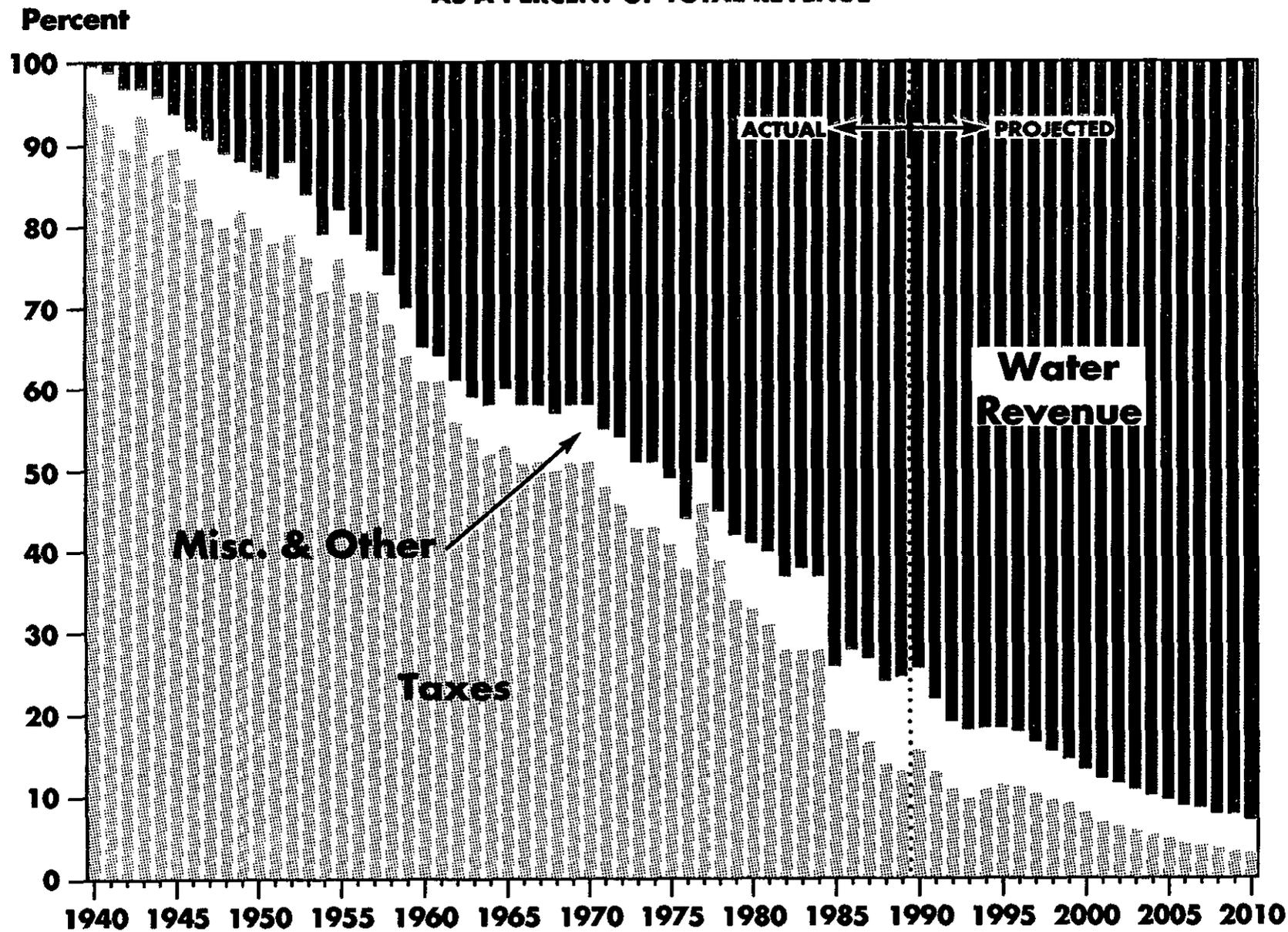
Since 1979, the relationship between the water rates and tax levies has been governed by a proportionate-use formula. The purpose of this formula is to create an equitable allocation of capital costs between water users and property taxpayers. The basic concept of the proportionate-use formula is that funds collected through water rates cover all delivery costs, operations and maintenance, and a portion of capital costs representing the "used" capacity of Metropolitan's delivery system. Funds collected through tax levies cover the remaining capital costs which represent the "unused" capacity of the delivery system.

During the 1980s, a series of actions by the Board of Directors and the California Legislature resulted in changes in the tax levies assessed by Metropolitan. Beginning July 1, 1990, Metropolitan's tax revenues were capped, such that total tax revenues, other than from special annexation taxes, cannot exceed the amount needed to pay:

- (1) the general obligation bond debt service of Metropolitan; and
- (2) that portion of Metropolitan's payment obligation allocable to debt service on the State's general obligation bonds (the Burns-Porter Act Bonds) which were outstanding in 1984 and which had been used to finance SWP facilities of benefit to Metropolitan.

Under existing legislation, taxes will cease to be levied when the general obligation bonds of Metropolitan and the SWP are fully paid. Chapter 271 of the California Statute 1984 provides that, in times of financial necessity, taxes may be increased beyond this limit. In 1991, the Board of Directors established a lower limit on the annual tax levy. The lower limit was set at the amount of taxes levied during FY 1990-91, which was approximately \$77 million. The lower limit is subject to the provisions of Chapter 271.

REVENUES BY SOURCE AS A PERCENT OF TOTAL REVENUE



Implementation of the Chapter 271 provisions eventually will lead to further reductions in tax revenue and a gradual increase in water rates. Revenues from water sales have increased over time and they currently represent about 70 percent of Metropolitan's total revenues (Figure V-1). The basic rate for untreated water for domestic and municipal uses increased from \$8 per AF in FY 1941-42 to \$222 per AF for FY 1991-92, while the general tax rate for Metropolitan's purposes has been gradually reduced from a peak equivalent rate of 0.1250 percent of full assessed valuation in FY 1945-46 to 0.0089 percent of full assessed valuation in FY 1991-92.

REVENUE IMPACTS OF DROUGHT MANAGEMENT

Because of continuing drought conditions, Metropolitan initiated a series of aggressive measures to reduce water demands through the IICP and other water management and conservation programs. As expected, the success of these programs has reduced water sales. Because water sales make up a substantial portion of total Metropolitan operating revenues, the result of these programs has been a decline in revenues, with the possibility that future revenues may fall short of requirements. For example, through the IICP, rationing imposed by the Board of Directors, on member agencies, resulted in revenue losses of about \$164 million in FY 1991-92. Of that amount, lost revenue from the nonsale of water was approximately \$125 million. The remainder of the revenue impact resulted from incentive payments to member agencies that bought less water than target allocations when the IICP was first implemented.

Metropolitan will also be providing substantial funds to support additional member agency conservation projects during FY 1992-93. The support of member agencies through the CCP, conservation advertising, and an irrigation management information system will have a direct impact on Metropolitan costs.

Water Rate Stabilization Fund

During the period of increasing water sales in the late 1980s, Metropolitan established a Water Rate Stabilization Fund and a Water Treatment Surcharge Stabilization Fund as a portion of the water revenues collected. The stabilization funds accumulated \$400 million by 1990 (including stabilization funds held in the Revolving Construction Fund (RCF)) without any increase in Metropolitan's water rates. The Board of Directors' stated policy is to use monies in these funds to mitigate the need to increase water rates. Reduced water supplies available to Metropolitan from the SWP and the resulting reduction in sales due to the drought, necessitated use of stabilization funds and an increase in water rates. By authorizing the use of rate stabilization funds, the Board of Directors was able to hold the July 1991 Noninterruptible untreated rate increase to \$25 per AF. Had the stabilization funds not been available, a significantly greater rate increase would have been needed.

POTENTIAL MEASURES TO OVERCOME REVENUE IMPACTS

Metropolitan's Administrative Code Section 4304 required that the General Manager present to the Board of Directors' Finance and Insurance Committee determinations of the total revenues and the revenues from water sales required during FY 1992-93 no later than December 1991. A five-point program has been developed to meet the current fiscal challenge of reduced water revenues:

- (1) reduce FY 1991-92 operation and maintenance (O & M) expenses;
- (2) reduce FY 1992-93 projected O & M expenses;
- (3) prioritize and defer selected capital construction projects until the revenue outlook improves;
- (4) approve a firm revenue charge to generate approximately \$50 million per year; and
- (5) approve a rate increase to cover remaining revenue requirements.

To implement points 1 and 2, an extensive review of variable O & M costs has been conducted. It was determined that approximately 77 percent of projected costs are fixed obligations, leaving 23 percent that could be reviewed for reduction or deferral. A plan has been developed that involves freezing approximately 79 vacant positions, reducing purchases of operating equipment, limiting use of consultants, and reducing travel expenses. Cost reductions of about \$70 million are expected in FY 1992-93.

Regarding the deferment of capital construction projects, it is important to note that downsizing or deferring elements of the capital program has only a minimal short-term effect on Metropolitan's cash flow and revenue requirements. This is because most capital expenditures are made from construction funds already on hand. The debt service on existing bonds must be paid from current revenues. Deferral of pay-as-you-go construction, however, does have a direct effect on the need to raise additional revenues. It is estimated that pay-as-you-go capital funding will be reduced by \$48.4 million (from \$54 million to \$5.6 million) in FY 1992-93.

The proposed program includes a water standby or availability of service charge to generate \$50 million in firm revenue. The charge could be on all parcels within the service area or it could be imposed selectively on parcels falling within certain criteria. Several alternative methods of structuring such a charge are currently being studied. Committees of the Board of Directors have indicated an interest in utilizing connection fees or capacity charges. Metropolitan does not currently have the authority to impose such charges; however, Assembly Bill 1875, if adopted by the California Legislature, would appear to grant such authority to Metropolitan. Metropolitan staff will continue to monitor this legislation with the objective of including connection fees or capacity charges in future revenue analyses, when appropriate.

Based on current cost projections, total revenues required for FY 1992-93 are \$828.7 million. With the tax rate for FY 1992-93 set at the same rate as FY 1991-92, tax collections during FY 1992-93 are estimated to be \$85 million. Interest income, power revenues, and miscellaneous revenues are projected to be \$73.8 million. Together with the \$50 million that will be raised from a new firm revenue source during the year, this results in a gross water revenue requirement for FY 1992-93 of \$619.9 million. After adjusting for the use of the projected balance of \$70 million remaining in the Water Rate Stabilization Fund to pay a portion of the FY 1992-93 costs, the net water revenue requirement is estimated to be \$549.9 million.

Given this estimate of required water revenue, the required water rate increase for Noninterruptible untreated service could be on the order of \$50 per AF, effective July 1, 1992, depending on changes in water supply availability and projected costs, and on information received at public hearings. The projected increase in the surcharge for water treatment is \$14 per AF. The cost estimates used in these projections include \$4 million for programs to augment Colorado River supplies, but do not include specific amounts to cover potential payments for a farmland-fallowing program proposed with Palo Verde Irrigation District farmers (estimated to be an additional \$14 million) to be expended during FY 1992-93.

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APPENDIX 1

**RESOLUTIONS OF THE BOARD OF DIRECTORS
FOR IMPLEMENTATION OF
THE INCREMENTAL INTERRUPTION AND CONSERVATION PLAN (IICP)**

RESOLUTION 8291

RESOLUTION OF THE BOARD OF DIRECTORS OF THE
METROPOLITAN WATER DISTRICT OF SOUTHERN
CALIFORNIA PROVIDING FOR THE IMPLEMENTATION
OF THE INCREMENTAL INTERRUPTION AND CONSERVATION PLAN

WHEREAS, four consecutive years of drought conditions throughout the State of California and the Colorado River Basin have created an unprecedented threat to the sufficiency of the imported water supply of the District; and

WHEREAS, the carryover storage in Lake Oroville and San Luis Reservoir is only 50 percent of that of the previous year and only 200,000 acre-feet greater than minimum operating storage of these reservoirs; and

WHEREAS, shortage provisions in the State water contracts call for agricultural uses to absorb deficiencies of up to 100 percent of annual entitlement over a seven-year period prior to the Department of Water Resources imposing deficiencies upon other uses; and

WHEREAS, a 50 percent deficiency was assigned to agricultural uses in 1990, and there is a strong probability that at least another 50 percent agricultural use deficiency will be assigned in 1991, thus placing all State project entitlement uses at the same level for the remaining portion of the seven-year period and thereby raising the probability that if the drought conditions continue through 1991 and beyond the District will be faced with even more severe reductions in 1992 and thereafter in supply from the State Water Project; and

WHEREAS, the Bureau of Reclamation's current annual operating plan projects the availability of only 940,000 acre-feet of Colorado River water for Metropolitan in 1991, a reduction of approximately 25 percent from supplies available in recent years; and

WHEREAS, the groundwater and surface storage reserves of Metropolitan's member agencies have been substantially depleted by the drought; and

WHEREAS, these unusual circumstances make it imperative that the District implement a plan of interruption and conservation of its limited water supply in a manner that will protect to the extent possible an adequate supply not only for 1991 but also for 1992 and thereafter if the drought conditions should continue.

NOW, THEREFORE, the Board of Directors of The Metropolitan Water District of Southern California finds and determines that, due to the exceptional circumstances identified herein, reductions in deliveries of water in interruptible service as described in Section 4603(a) of the Administrative Code if implemented would not provide appropriate protection for an adequate water supply in 1992 and it will be necessary to implement the provisions of the Incremental Interruption and Conservation Plan as defined in the General Manager's letter dated November 6, 1990, in order to effectively provide assurance of an adequate water supply for 1991, 1992 and subsequent years.

I HEREBY CERTIFY that the foregoing is a full, true, and correct copy of a resolution adopted by the Board of Directors of The Metropolitan Water District of Southern California at its meeting held on November 20, 1990.

Executive Secretary
The Metropolitan Water District
of Southern California

RESOLUTION 8292

RESOLUTION OF THE BOARD OF DIRECTORS OF
THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA
PROVIDING FOR THE IMPLEMENTATION OF PHASE II
OF THE INCREMENTAL INTERRUPTION AND CONSERVATION PLAN

WHEREAS, there have now been four consecutive years of drought conditions in the State of California; and

WHEREAS, the Department of Water Resources has informed Metropolitan that it will be necessary in 1991 to reduce deliveries to municipal and industrial contractors by 15 percent and to agricultural contractors by 65 percent; and

WHEREAS, the Department of Water Resources has indicated that additional reductions in scheduled deliveries may be necessary as early as March 1, 1991; and

WHEREAS, the Bureau of Reclamation's current annual operating plan projects the availability of less than 940,000 acre-feet of Colorado River water for Metropolitan in 1991, a reduction of approximately 25 percent from supplies available in recent years; and

WHEREAS, water demands on the Metropolitan system in the most recent twelve-month period exceeded 2.55 million acre-feet and the projected demand in 1991 exceeds 2.6 million acre-feet which exceeds the supplies presently available to Metropolitan; and

WHEREAS, by Resolution 8291 Metropolitan created the Incremental Interruption and Conservation Plan to address potential shortages of imported water in a continuing drought; and

WHEREAS, the Incremental Interruption and Conservation Plan is defined in the General Manager's letter dated November 20, 1990; and

WHEREAS, the Incremental Interruption and Conservation Plan provides for staged response to continuing drought conditions and Stage I is currently in effect; and

WHEREAS, the present Stage I is inadequate to address the potential shortages now facing Metropolitan.

NOW THEREFORE, be it resolved by the Board of Directors of The Metropolitan Water District of Southern California as follows:

1. The severity of the current drought conditions requires conservation of water supplies in accordance with Stage II of the Incremental Interruption and Conservation Plan as defined in the General Manager's letter dated November 20, 1990; and

2. Stage II of the Incremental Interruption Conservation Plan shall be effective on February 1, 1991; and

3. The Executive Secretary is instructed to transmit a copy of this resolution to all member agencies.

I HEREBY CERTIFY that the foregoing is a full, true, and correct copy of a resolution adopted by the Board of Directors of The Metropolitan Water District of Southern California at its meeting held on December 11, 1990.

Executive Secretary
The Metropolitan Water District
of Southern California

RESOLUTION 8298

RESOLUTION OF THE BOARD OF DIRECTORS OF
THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA
PROVIDING FOR THE IMPLEMENTATION OF STAGE III
OF THE INCREMENTAL INTERRUPTION AND CONSERVATION PLAN

WHEREAS, there have now been four consecutive years of drought conditions in the State of California; and

WHEREAS, the Department of Water Resources has informed Metropolitan that it will be necessary in 1991 to reduce deliveries to municipal and industrial contractors by 15 percent and to agricultural contractors by 65 percent; and

WHEREAS, the Department of Water Resources has indicated that additional reductions in scheduled deliveries may be necessary as early as March 1, 1991; and

WHEREAS, the Bureau of Reclamation's current annual operating plan projects an approximate 25 percent reduction of Colorado River water supply for Metropolitan in 1991; and

WHEREAS, water demands on the Metropolitan system in the most recent twelve-month period exceeded 2.55 million acre-feet and the projected demand in 1991 exceeds 2.6 million acre-feet which exceeds the supplies presently available to Metropolitan; and

WHEREAS, by Resolution 8291 Metropolitan created the Incremental Interruption and Conservation Plan to address potential shortages of imported water in a continuing drought; and

WHEREAS, the Incremental Interruption and Conservation Plan provides for staged response to continuing drought conditions; and

WHEREAS, by Resolution 8292 Metropolitan implemented Stage II of the Incremental Interruption and Conservation Plan effective February 1, 1991; and

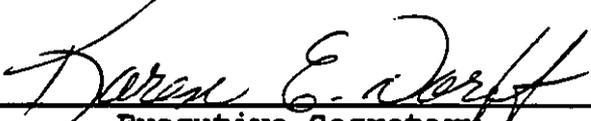
WHEREAS, exceptional dryness in the normally wet month of December has substantially worsened the water supply outlook.

WHEREAS, the present Stage II will be inadequate to address the potential shortages now facing Metropolitan.

NOW THEREFORE, be it resolved by the Board of Directors of The Metropolitan Water District of Southern California as follows:

1. The severity of the current drought conditions requires conservation of water supplies in accordance with Stage III of the Incremental Interruption and Conservation Plan as defined in the General Manager's letter dated November 20, 1990; and
2. Stage III of the Incremental Interruption Conservation Plan shall be effective on February 1, 1991; and
3. The Executive Secretary is instructed to transmit a copy of this resolution to all member agencies.

I HEREBY CERTIFY that the foregoing is a full, true, and correct copy of a resolution adopted by the Board of Directors of The Metropolitan Water District of Southern California at its meeting held on January 8, 1991.


Executive Secretary
The Metropolitan Water District
of Southern California

RESOLUTION 8303

RESOLUTION OF THE BOARD OF DIRECTORS OF
THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA
PROVIDING FOR THE IMPLEMENTATION OF STAGE V
OF THE INCREMENTAL INTERRUPTION AND CONSERVATION PLAN

WHEREAS, there have now been four consecutive years of drought conditions in the State of California; and

WHEREAS, the Department of Water Resources has informed Metropolitan that it will be necessary in 1991 to reduce deliveries to municipal and industrial contractors by 50 percent and to agricultural contractors by 100 percent; and

WHEREAS, the Department of Water Resources has indicated that additional reductions in scheduled deliveries may be necessary; and

WHEREAS, the Bureau of Reclamation's current annual operating plan projects an approximate 100,000 acre-foot increase in supplies over January projections, Colorado River water supply for Metropolitan in 1991 may still be reduced by approximately 20 percent; and

WHEREAS, water demands on the Metropolitan system in the most recent twelve-month period exceeded 2.60 million acre-feet which exceeds the supplies presently available to Metropolitan by approximately 1.0 million acre-feet; and

WHEREAS, by Resolution 8291 Metropolitan created the Incremental Interruption and Conservation Plan to address potential shortages of imported water in a continuing drought; and

WHEREAS, the Incremental Interruption and Conservation Plan provides for staged response to continuing drought conditions; and

WHEREAS, by Resolution 8298 Metropolitan implemented Stage III of the Incremental Interruption and Conservation Plan effective February 1, 1991; and

WHEREAS, exceptional dryness in the normally wet season continues to substantially worsen the water supply outlook; and

WHEREAS, the present Stage III will be inadequate to address the potential shortages now facing Metropolitan.

NOW THEREFORE, be it resolved by the Board of Directors of The Metropolitan Water District of Southern California as follows:

1. The current drought conditions have created an emergency situation throughout Metropolitan's service area by reason of current and foreseeable shortfalls in local as well as imported supplies.

2. The severity of the current drought conditions requires conservation of water supplies in accordance with Stage V of the Incremental Interruption and Conservation Plan as defined in the General Manager's letter dated November 20, 1990; and

3. Stage V of the Incremental Interruption Conservation Plan shall be effective on March 1, 1991, providing, however, that disincentive payments for deliveries to any member public agency prior to April 1, 1991 shall be determined based on the target quantity established for Stage III for that member agency.

4. The Executive Secretary is instructed to transmit a copy of this resolution to all member agencies.

I HEREBY CERTIFY that the foregoing is a full, true, and correct copy of a resolution adopted by the Board of Directors of The Metropolitan Water District of Southern California at its meeting held on February 12, 1991.

Executive Secretary
The Metropolitan Water District
of Southern California

RESOLUTION 8305

RESOLUTION OF THE BOARD OF DIRECTORS OF
THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA
PROVIDING FOR THE CREATION AND IMPLEMENTATION OF STAGE VI
OF THE INCREMENTAL INTERRUPTION AND CONSERVATION PLAN

WHEREAS, there have now been four consecutive years of drought conditions in the State of California; and

WHEREAS, the Board, on February 12, 1991, by Resolution 8303, found that the current drought conditions have created an emergency situation throughout Metropolitan's service area by reason of current and foreseeable shortfalls in local as well as imported supplies; and

WHEREAS, the Department of Water Resources has informed Metropolitan that it will be necessary in 1991 to reduce deliveries of State project water to municipal and industrial contractors by 90 percent and to agricultural contractors by 100 percent; and

WHEREAS, Such an allocation of State project water would amount to essentially a termination of State project water deliveries for the remainder of 1991; and

WHEREAS, the Bureau of Reclamation's current annual operating plan projects the availability of approximately 1,000,000 acre-feet of Colorado River water for Metropolitan in 1991, a reduction of approximately 20 percent from supplies available in recent years; and

WHEREAS, water demands on the Metropolitan system in the most recent twelve-month period exceeded 2.6 million acre-feet which exceeds the supplies presently available to Metropolitan by approximately 100 percent; and

WHEREAS, by Resolution 8291 Metropolitan created the Incremental Interruption and Conservation Plan to address potential shortages of imported water in a continuing drought; and

WHEREAS, the Incremental Interruption and Conservation Plan is defined in the General Manager's letter dated November 20, 1990; and

WHEREAS, the Incremental Interruption and Conservation Plan provides for staged response to continuing drought conditions and Stage V is currently in effect; and

WHEREAS, the present Stage V is inadequate to address the potential shortages now facing Metropolitan; and

WHEREAS, the General Manager's letter dated February 26, 1991 defines Stage VI of the Incremental Interruption Conservation Plan to address shortages of the magnitude now facing Metropolitan.

NOW THEREFORE, be it resolved by the Board of Directors of The Metropolitan Water District of Southern California as follows:

1. The severity of the current drought conditions requires conservation of water supplies in accordance with Stage VI of the Incremental Interruption and Conservation Plan as defined in the General Manager's letter dated February 26, 1991, described therein as Method 2; and
2. Stage VI of the Incremental Interruption and Conservation Plan shall be effective on April 1, 1991, and
3. The Executive Secretary is instructed to transmit a copy of this resolution to all member agencies.

I HEREBY CERTIFY that the foregoing is a full, true, and correct copy of a resolution adopted by the Board of Directors of The Metropolitan Water District of Southern California at its meeting held on March 4, 1991.

Executive Secretary
The Metropolitan Water District
of Southern California

RESOLUTION 8312

RESOLUTION OF THE BOARD OF DIRECTORS OF THE
METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA
URGING IMMEDIATE ADOPTION OF STATE AND LOCAL REGULATIONS
TO REDUCE WATER USE

WHEREAS, current drought conditions throughout the State have created an unprecedented shortage in the water supplies available to The Metropolitan Water District of Southern California hereafter "Metropolitan";

WHEREAS, the Department of Water Resources has informed Metropolitan that it will suspend all State Water Project deliveries to Metropolitan except for minimum quantities necessary to meet critical needs;

WHEREAS, a continuing drought into 1992 and beyond could lead to even more severe regional water shortages;

WHEREAS, local water storage reserves within Metropolitan have been seriously depleted by the last four years of drought;

WHEREAS, failure by local communities to implement effective use reductions may cause a depletion of local storage reserves threatening the viability of water service in a continuing drought;

WHEREAS, immediate forceful and compelling action is required by all levels of government to conserve available water supplies within Metropolitan's service area;

WHEREAS, the Governor has directed all communities within the State to adopt rationing plans and has directed the Department of Water Resources to monitor water use; and

WHEREAS, reductions in water use by all areas within Metropolitan's service area may facilitate sharing of water, on a temporary basis, between agencies.

NOW, THEREFORE, BE IT RESOLVED THAT:

1. Metropolitan urges all public agencies and all water supply retailers within Metropolitan's service area to adopt and enforce as rapidly as possible, a mandatory water conservation plan, including ordinances, regulations and orders, limiting their own water use and that of their customers to no more than 80 percent of normal usage.
2. Each public agency and each water supplier within Metropolitan's service area should immediately undertake an aggressive public information program to inform their constituents and consumers of the paramount need to conserve water and to eliminate unnecessary water uses.
3. All public agencies and all water supply retailers within Metropolitan's water service area that have the ability to use or supply reclaimed water should aggressively seek to use or supply such water whenever feasible.
4. Metropolitan urges its member agencies, and groundwater basin managers within its service area, to aggressively seek means to maximize opportunities for increased use of groundwater storage and transfer of imported water to partially mitigate the impact of water shortages for non-groundwater basin areas.
5. No public agency or water supply retailer shall be eligible to apply for participation in Metropolitan's Local Projects Program or Conservation Credit Program, and no entity that currently participates in those programs shall benefit from any increased Metropolitan contributions unless it adopts a mandatory water conservation program and otherwise makes a good faith effort to comply with the provisions of this resolution as determined by Metropolitan.
6. The Executive Secretary shall promptly disseminate a copy of this resolution to the governing body of each local agency and each water supply retailer within Metropolitan's service area; the responsible officer of each state or federal agency within Metropolitan's service area; the Public Utilities Commission; and the Corporations Commissioner.

I HEREBY CERTIFY that the foregoing is a full, true, and correct copy of a resolution adopted by the Board of Directors of The Metropolitan Water District of Southern California, at its meeting held March 12, 1991.


Executive Secretary
The Metropolitan Water District
of Southern California

TABLE A-1

MODEL EMERGENCY WATER CONSERVATION ORDINANCE

Section 1. Statement of Policy and Declaration of Purpose

- (a) Because of the water supply conditions prevailing in the [entity] and/or in the area from which the [entity] obtains a portion of its supply, the general welfare requires that the water resources available to the [entity] be put to the maximum beneficial use to the extent to which they are capable, and that the waste or unreasonable use, or unreasonable method of use of water be prevented and that the conservation of such water be practiced with a view to the reasonable and beneficial use thereof in the interest of the people of [entity] and for the public welfare.
- (b) The purpose of this ordinance is to provide a mandatory water conservation plan to minimize the effect of a shortage of water supplies on the customers of the [entity] during a water shortage emergency.

Section 2. Authorization to Implement Water Conservation Ordinance

- (a) The [governing body of the entity] is authorized to implement the provisions of this ordinance, following the public hearing required by sub-section (b), upon its determination that such implementation is necessary to protect the public welfare and safety.
- (b) Prior to implementation of this ordinance, the [governing body of the entity] shall hold a public hearing for the purpose of determining whether a shortage exists and which measures provided by this ordinance should be implemented. Notice of the time and place of the public hearing shall be published not less than ten (10) days before the hearing in a newspaper of general circulation within the [entity].
- (c) The [governing body of the entity] shall issue its determination of shortage and corrective measures by public proclamation published in a daily newspaper of general circulation within the [entity]. Any prohibitions on the use of water shall become effective immediately upon such publication. Any provisions requiring curtailment in the use of water shall become effective with the first full billing period commencing on or after the date of such publication.

Section 3. General Prohibition

No customer of the [entity] shall make, cause, use, or permit the use of water from the [entity] in a manner contrary to any provision of this ordinance or in an amount in excess of that use permitted by any curtailment provisions then in effect pursuant to action taken by the governing board in accordance with the provisions of this ordinance.

Section 4. Phase I Shortage

- (a) A Phase I Shortage shall be declared when the [governing body] determines that it is likely that it will suffer a ten percent (10%) shortage in its water supplies.
- (b) The following restrictions on the use of water shall be in effect during a Phase I Shortage:
 - (1) There shall be no hose washing of sidewalks, walkways, driveways, parking areas or other paved surfaces, except as is required for sanitary purposes;
 - (2) Washing of motor vehicles, trailers, boats and other types of mobile equipment shall be done only with a hand-held bucket or a hose equipped with a positive shutoff nozzle for quick rinses, except that washing may be done at the immediate premises of a commercial car wash or with reclaimed wastewater.
 - (3) No water shall be used to clean, fill or maintain levels in decorative fountains, ponds, lakes or other similar aesthetic structures unless such water is part of a recycling system.
 - (4) No restaurant, hotel, cafe, cafeteria or other public place where food is sold, served or offered for sale, shall serve drinking water to any customer unless expressly requested.
 - (5) All customers of the [agency] shall promptly repair all leaks from indoor and outdoor plumbing fixtures.

TABLE A-1 (Continued)

MODEL EMERGENCY WATER CONSERVATION ORDINANCE

- (6) No lawn, landscape or other turf area shall be watered more often than every other day and during the hours between 10:00 a.m. and 4:00 p.m.; except that this provision shall not apply to commercial nurseries, golf courses and other water-dependent industries.
- (7) No customer of the [agency] shall cause or allow the water to run off landscape areas into adjoining streets, sidewalks or other paved areas due to incorrectly directed or maintained sprinklers or excessive watering.

Section 5. Phase II Shortage

- (a) A Phase II Shortage shall be declared when the [governing body] determines that it is likely that it will suffer a shortage of more than 10 percent (10%) but less than twenty percent (20%) in water supplies.
- (b) The following restrictions on the use of water shall be in effect during a Phase II Shortage:
 - (1) The restrictions listed in Section 4, subsection (b) shall be in effect, except that the restrictions on watering lawn, landscape or other turf area shall be modified to prohibit watering more often than every third day between the hours of 6:00 a.m. and 6:00 p.m.
 - (2) Commercial nurseries, golf courses and other water-dependent industries shall be prohibited from watering lawn, landscape or other turf areas more often than every other day and between the hours of 10:00 a.m. and 4:00 p.m.; except that there shall be no restriction on water utilizing reclaimed wastewater.
- (c) No customer shall make, cause, use or permit the use of water from the [agency] for any purpose in an amount in excess of ___ percent (%) of the amount used on the customer's premises during the corresponding billing period during the prior calendar year.

Section 6. Phase III Shortage

- (a) A Phase III Shortage shall be declared whenever the governing body determines that it is likely that it will suffer a shortage of more than twenty percent (20%) in water supplies.
- (b) The following restrictions on the use of water shall be in effect during a Phase III Shortage:
 - (1) The restrictions listed in Section 4, subsection (b) shall be in effect, except that there shall be no residential outside watering of lawn, landscaping and other turf areas at any time except by bucket.
 - (2) Commercial nurseries, golf courses and other water-dependent industries shall be prohibited from watering lawn, landscaping and other turf areas more often than every third day and between the hours of 6:00 a.m. and 6:00 p.m.; except that there shall be no restriction on watering utilizing reclaimed water.
 - (3) The use of water from fire hydrants shall be limited to fire fighting and related activities and other uses of water for municipal purposes shall be limited to activities necessary to maintain the public health, safety and welfare.
- (c) No customer shall make, cause, use or permit the use of water from the [agency] for any purpose in an amount in excess of ___ percent (%) of the amount used on the customer's premises during the corresponding billing period of the prior calendar year.

Section 7. Relief from Compliance

- (a) A customer may file an application for relief from any provisions of this ordinance. The [chief executive officer of the governing body] shall develop such procedures as he considers necessary to resolve such applications and shall, upon the filing by a customer of an application for relief, take such steps as he or she deems reasonable to resolve the application for relief. The decision of the [chief executive officer] shall be final. The [chief executive officer] may delegate his or her duties and responsibilities under this section as appropriate.

TABLE A-1 (Continued)

MODEL EMERGENCY WATER CONSERVATION ORDINANCE

- (b) The application for relief may include a request that the customer be relieved, in whole or in part, from the water use curtailment provisions of Sections 5(c) and 6(c).
- (c) In determining whether to grant relief, and the nature of any relief, the [chief executive officer] shall take into consideration all relevant factors including, but not limited to:
 - (1) Whether any additional reduction in water consumption will result in unemployment;
 - (2) Whether additional members have been added to the household;
 - (3) Whether any additional landscaped property has been added to the property since the corresponding billing period of the prior calendar year;
 - (4) Changes in vacancy factors in multifamily housing;
 - (5) Increased number of employees in commercial, industrial, and governmental offices;
 - (6) Increased production requiring increased process water;
 - (7) Water uses during new construction;
 - (8) Adjustments to water use caused by emergency health or safety hazards;
 - (9) First filling of a permit-constructed swimming pool; and
 - (10) Water use necessary for reasons related to family illness or health.
- (d) In order to be considered, an application for relief must be filed with [the agency] within fifteen (15) days from the date the provision from which relief is sought becomes applicable to the applicant. No relief shall be granted unless the customer shows that he or she has achieved the maximum practical reduction in water consumption other than in the specific areas in which relief is being sought. No relief shall be granted to any customer who, when requested by the [chief executive officer], fails to provide any information necessary for resolution of the customer's application for relief.

Section 8. Failure to Comply

- (a) For each violation by any customer of the water use curtailment provisions of Section 5(c) and 6(c), a surcharge shall be imposed in an amount equal to ___ percent (%) of the portions of the water bill that exceed the respective percentages set in those two subsections.
- (b) Violation by any customer of the water use prohibitions of Section 3, or subsection (b) of Sections 4, 5 and 6, shall be penalized as follows:
 - (1) First violation. The [governing body] shall issue a written notice of the fact of a first violation to the customer.
 - (2) Second violation. For a second violation during any one water shortage emergency, the [governing body] shall impose a surcharge in an amount equal to ___ percent (%) of the customer's water bill.
 - (3) Third and Subsequent Violations. For a third and each subsequent violation during any one water shortage emergency, the [governing body] shall install a flow restricting device of one (1) gallon per minute capacity for services up to one and one-half (1 1/2) inch size, and comparatively sized restrictors for larger services, on the service of the customer at the premises at which the violation occurred for a period of not less than forty-eight (48) hours. The [governing body] shall charge the customer the reasonable costs incurred for installing and for removing the flow-restricting devices and for restoration of normal service. The charge shall be paid before normal service can be restored. In addition, the surcharge provided in subsection (b) (2) shall be imposed.
- (c) The [agency] shall give notice of violation to the customer committing the violation as follows:
 - (1) Notice of violation of the water use curtailment provisions of Sections 5(c) and 6(c) or of first violations of the water use prohibitions of Section 3 or of subsection (b) of Sections 4, 5 and shall be given in writing by regular mail.

TABLE A-1 (Continued)

MODEL EMERGENCY WATER CONSERVATION ORDINANCE

- (2) Notice of second or subsequent violations of the water use prohibitions of Section 3 or of subsection (b) of Sections 4, 5 and 6 shall be given in writing in the following manner:
- (i) by giving the notice to the customer personally;
 - (ii) if the customer is absent from or unavailable at the premises at which the violation occurred, by leaving a copy with some person of suitable age and discretion at the premises and sending a copy through the regular mail to the address at which the customer is normally billed; or
 - (iii) if a person of suitable age or discretion cannot be found, then by affixing a copy in a conspicuous place at the premises at which the violation occurred and also sending a copy through the regular mail to the address at which the customer is normally billed.

- (d) The notice shall contain a description of the facts of the violation, a statement of the possible penalties for each violation and a statement informing the customer of his right to a hearing on the merits of the violation pursuant to Section 9.

Section 9. Hearing Regarding Violations

- (a) Any customer receiving notice of a second or subsequent violation of sections 4(b), 5(b), or 6(b) shall have a right to a hearing by the [chief executive officer] of the [agency] within fifteen (15) days of mailing or other delivery of the notice of violation.
- (b) The customer's timely written request for a hearing shall automatically stay installation of a flow-restricting device on the customer's premises until the [chief executive officer] renders his or her decision.
- (c) The customer's timely written request for a hearing shall not stay the imposition of a surcharge unless within the time period to request a hearing, the customer deposits with the [agency] money in the amount of any unpaid surcharge due. If it is determined that the surcharge was wrongly assessed, the [agency] will refund any money deposited to the customer.

- (d) The decision of the [chief executive officer] shall be final except for judicial review.
- (e) The [chief executive officer] may delegate his duties and responsibilities under this section as appropriate.

Section 10. Additional Water Shortage Measures

The [governing body] may order implementation of water conservation measures in addition to those set forth in Sections 4, 5 and 6. Such additional water conservation measures shall be implemented in the manner provided in Section 2(b).

Section 11. Public Health and Safety Not to be Affected

Nothing in this ordinance shall be construed to require the [agency] to curtail the supply of water to any customer when such water is required by that customer to maintain an adequate level of public health and safety.

Section 12. Severability

If any part of this ordinance or the application thereof to any person or circumstances is for any reason held invalid by a court of competent jurisdiction, the validity of the remainder of the ordinance or the application of such provision to other persons or circumstances shall not be affected.

HATCH AND PARENT

TELEPHONE

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January 9, 1992

Mrs. Lois B. Krieger
 Board Chairman
 Metropolitan Water District
 1111 Sunset Boulevard
 Los Angeles, CA 90012

Re: Drought Emergency
 Subject: Allocation of MWD Water

Dear Chairman Krieger:

A. INTRODUCTION

Our firm represents the City of Oxnard in the capacity of special water counsel. On April 3, 1991, we wrote to the Calleguas Municipal Water District (Calleguas) expressing the City's disappointment with the Calleguas water allocation program. (Copy enclosed) Calleguas had previously made the decision to follow the directives of the Metropolitan Water District (Metropolitan) and allocate water solely on the basis of its customer's historical use.

As adopted by Metropolitan and implemented by its regional wholesaler, Calleguas, the existing allocation plan has resulted in dramatically disproportionate impacts on residents in eastern Ventura County. At the same time that

residents within some cities have been minorly inconvenienced, Oxnard residents have endured more stringent allocations which have placed their per capita water use at a level of use just above the nationwide recognized minimum for essential domestic uses.

The direct result of the Metropolitan/Calleguas historical use allocation program has been that residents within some cities within Metropolitan and Calleguas were allocated as much as three times the amount of water provided to Oxnard residents, irrespective of how efficiently these other cities and their residents have used water in the past. Simply stated, the City of Oxnard believes this policy to be unwise and unfair.

On April 21, 1991, Calleguas held a public hearing to consider these and other objections to its proposed allocation plan which were raised in Oxnard's April 3, 1991 letter. The City again voiced its strenuous objection to the proposed allocation program. Although Calleguas failed to take immediate action on the City's request, we are informed that it subsequently met with representatives from Metropolitan for the purpose of discussing the propriety of the plan.

Calleguas has yet to provide a written response to the City and has merely indicated orally that it is only doing what other Metropolitan customers are doing under directives from Metropolitan and that any changes in the allocation proposal must emanate from Metropolitan. While the City found little comfort in the notion that an allocation plan could be any more fair simply because it is similar to what "everyone else is doing," the March rains and the existence of some supplemental supplies¹ reduced the need for urgent action by postponing potentially draconian rationing for City residents.

¹The full impact of the Calleguas/Metropolitan allocation plan was not felt by City residents until utilization of two of its existing supplemental sources were severely constrained. The City has historically relied on a seasonal storage program which is dependent upon the existence of surplus supplemental water.

For those reasons set forth in the April 3, 1991 letter and as set forth below, the City continues to believe the present allocation plan adopted by Metropolitan and Calleguas is legally flawed. More importantly, the plan purports to allocate water with utter disregard for the essential water requirements of all Metropolitan and Calleguas residents. Accordingly, the City must now renew its request for more equitable treatment under the Metropolitan/Calleguas water allocation plan.

B. AN ALLOCATION PLAN BASED SOLEY UPON HISTORIC USE IS UNFAIR AND INEQUITABLE.

The April 3rd letter set forth a number of objections to Calleguas' historic use allocation plan. These same objections are equally pertinent to Metropolitan's present allocation plan.

First, Water Code section 106 specifically provides that domestic use is the highest use of water. This priority is binding on every municipal supplier of water within the state. (City of Beaumont v. Beaumont Irrigation District (1965) 63 Cal.2d 291 [46 Cal.Rptr.465, 469].) Consequently, the City questions an allocation formula that would ignore whether adequate supplies have been allocated for essential domestic uses within the Metropolitan service area.

Second, if Metropolitan intends to avail itself of its special powers upon the finding of a water shortage emergency, a water purveyor is generally required to set aside sufficient water for fire, sanitation and domestic use before allocating water to other nonessential uses. (See Water Code section 354; See generally Water Code section 71640.) In this instance, we are unclear whether Metropolitan is acting pursuant to Water Code section 350, et seq. or some other provision of the Water Code.

In any event, Metropolitan's primary obligation in the event of drought is to protect essential domestic household uses. We are aware of no exemption from those provisions or Water Code section 106 where the agency is wholesaling as opposed to retailing water. ^{2/}

^{2/} Compare Metropolitan Water District v. Marquardt (1963) 59 Cal.2d 159 [28 Cal.Rptr. 738] where the California Supreme Court determined that the State Department of Water Resources might legitimately determine that as a matter of contract the preference for industrial uses over agricultural uses was supportable under the State Water Contract.

We do not believe that Metropolitan has determined how its water is being used by each of its retailers or how much water is required to satisfy the basic essential uses within the service areas of each retailer. The American Water Works Association (AWWA) estimates that approximately 80 gallons per person per day is necessary to sustain essential domestic uses within the household. (AWWA Manual M-24 (1983).) Current estimates of water use within other cities in the Metropolitan service area suggest that most residential users are using as much as two times this amount and substantially more water than residential users in the City of Oxnard. (See Exhibits A-D.)

Conversely, Oxnard residents were low water users before the drought. As a result, further reductions in water delivered to Oxnard by Metropolitan will compel the City to adopt a rationing scheme which reduces the amount of water used for household purposes below the 80 gallons per person per day necessary to sustain essential domestic water requirements.

Third, if Metropolitan has recognized that there is a shortage of water for essential municipal and domestic uses within its boundaries, it is obligated under its authorizing act to suspend the delivery of surplus water for the benefit of domestic and municipal uses inside the District. Water Code Appendix section 109-132 provides as follows:

A district may provide, sell and deliver surplus water not needed or required for domestic or municipal uses within the district for beneficial purposes, but shall give preference to uses within the district... The supplying of surplus water shall in every case be subject to the paramount right of the district to discontinue such supply... to provide, sell or deliver, such water from domestic or municipal use within the district...." (Water Code Appendix section 109-132.)

It is beyond question that there is a shortage of water within Metropolitan and if it is presently providing surplus water to nonpreferred uses, the City requests Metropolitan to adopt the required resolution authorizing the termination of the deliveries of surplus water.

Fourth, the allocation plan also denies Oxnard residents equal protection of the laws. Metropolitan's decision to conclude, without analysis, that the amount of water required to serve essential domestic uses in some areas is twice as much as required in Oxnard is simply arbitrary.

While administrative convenience may be a factor in adopting a valid legislative regulation, it does not justify the Metropolitan's arbitrary discrimination between similarly situated users. The rights of existing Metropolitan customers are far more important than those of mere potential users because the customers have come to rely on the supply. Yet, the historical use allocation plan now in place serves to provide Oxnard residents less than 80 gallons per person per day in advanced stages for essential household uses while other residential customers within the Metropolitan service area are provided as much as 195 gallons per day. (Exhibits A, B and C). We think this is indefensible.

Nor can this discrimination be explained by the number of people living within each household. For example, statistics for the number of persons per household (p/h) for eastern Ventura County indicate that Oxnard, with 3.2 p/h, is comparable to other cities within the Metropolitan service area, which range from approximately 2.7 to 3.4 p/h. (Exhibit F) Surely, Metropolitan does not intend that Oxnard residents be the only domestic customers to be without water for essential interior uses.

In fact, this arbitrary discrimination is true for Metropolitan's allocation of water for additional growth within the boundaries of existing customers as well as in the initial allocation. It has recently come to the City's attention that allocations provided for new connections are also arbitrarily based on historical use, which means that some communities are receiving as much as two times the amount of water Oxnard residents receive for new connections without regard to need.

Fifth, the historical use approach rewards those who have wasted water in the past. In apportioning water in the time of shortage, past use is the least important factor. (See Prather v. Hoberg (1944) 24 Cal.3d 549, 561 [150 P.2d 405].) The basic tenet of California water law is that water must be used reasonably and efficiently, especially in times of drought or shortage. (Forni v. SWRCB (1976) 54 Cal.App.3d 743, 750 [126 Cal.Rptr. 851, 856]; Imperial Irrigation District v. SWRCB (1990) 225 Cal.App.3d 548 [275 Cal.Rptr. 250, 265].) However, if Metropolitan continues the present historical use approach, those municipalities and their residents who have wasted water in the past will be protected irrespective of how inefficient their past water use practices may have been.

By rewarding those who are wasting water, the historical use approach raises serious questions under Article X, section 2 of the California Constitution. All uses of water must conform to the standard of reasonable use. (National Audubon Society v. Superior Court (1983) 33 Cal.3d 419, 433 [189 Cal.Rptr. 346].) If residential users in one service area require more than two times the amount of water to meet their essential water use requirements than do Oxnard residents, the City doubts that the reasonable use standard has been satisfied.

On October 14, 1991, the Governor signed AB 11 which amended several provisions of the Water Code and added section 10656. This legislation expressly requires every urban water supplier, retailer or otherwise, to prepare a water shortage contingency plan. By law, this plan must contain "consumption limits." (Water Code section 10631(e)(5).) Guidelines for preparation and implementation of appropriate plans including the "consumption limits" have been adopted by the California Department of Water Resources.

Although state law does provide that percentage reductions may be appropriate, the adopted Guidelines provide that the "consumption limits" under a drought contingency plan should

"distribute water equitably within each customer class and should not penalize those who have previously conserved."

As noted above, the City believes that the present allocation program adopted by Metropolitan and Calleguas fails this basic test.

As an alternative to Metropolitan's current historical use proposal, the City suggests that the District follow the directives of Water Code section 354 and sections 109-132, its own authorizing act, by ensuring that preferred domestic and municipal uses are satisfied first by creating a per capita allocation. Consistent with Governor Wilson's plan announced early in 1991, the City urges the District to adopt a baseline allocation figure of approximately 80 gallons per day, per person within each retail service area. (AWWA Manual M-24 (1983).)

After setting aside sufficient water for essential domestic uses, Metropolitan might then adopt an allocation

Metropolitan Water District
January 9, 1992
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formula for other nonpreferred uses consistent with equal protection of the laws. Only then, should Metropolitan allocate water to nonessential uses.

Because of the impending and relatively disproportionate hardship which will be experienced by Oxnard residents, the City requests Metropolitan to give serious consideration to reevaluating its allocation plan. In the alternative, the City requests recognition of its special circumstances and an allocation of water in addition to an allocation based solely upon its historical average water use which will provide a lifeline to its residents and ensure that the City's residents alone do not suffer disproportionate impacts from the drought.

The City is eager to meet with Metropolitan representatives to discuss the details of its proposed lifeline approach. The City's own drought planning necessitates your prompt consideration. Failing a response by March 15, 1992, the City will consider its remedies for redress of its grievances.

Sincerely yours,



SCOTT S. SLATER
For HATCH AND PARENT

SSS:bjb
2444S



MWD

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Office of Board of Directors

January 30, 1992

Lois B. Krieger, Chairman
Mariyn L. Garcia, Vice Chairman
Harry Griffen, Vice Chairman
Kenneth H. Witt, Vice Chairman
John Killafer, Secretary

Scott S. Slater, Esq.
Hatch and Parent
P.O. Drawer 720
Santa Barbara, CA 93102-0720

Dear Mr. Slater:

Water Allocations Under the Incremental
Interruptible and Conservation Program

Thank you for your letter of January 9, 1992, detailing the City of Oxnard's concerns with the way water has been allocated under Metropolitan's Incremental Interruptible and Conservation Program (IICP).

As you know, when the allocation program was established, Metropolitan's service area was faced with unprecedented water shortages. Tailoring a water allocation program to the disparate needs of Metropolitan's member agencies was a daunting challenge. Nearly every member agency is unique in its water supply and water demand characteristics. Many have alternative water sources with Metropolitan acting as a supplemental supplier, while others are entirely dependent on Metropolitan. Likewise, demands vary greatly, even within a member agency, depending upon climate and the purpose of the use.

The goal was to devise a water allocation system that was equitable to all member agencies, readily understandable and capable of efficient administration. We believe the IICP has accomplished those ends. It was recognized that allocations based upon historic use might impact some users differently than other users. However, it was felt that the member agencies were best suited to make adjustments to suit the particular circumstances of their service areas.

A cornerstone of the IICP, therefore, was that while Metropolitan would allocate water based on historic use, its member agencies were and are free to allocate water within their service area in a different manner if they so choose. Metropolitan's IICP does not require its member agencies to

Scott S. Slater, Esq.

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January 30, 1992

allocate water to their subagencies or customers on the same basis that Metropolitan allocates water to its member agencies.

The water supply picture for 1992, of course, is not yet clear. While rainfall in Southern California is around normal for this time of year, precipitation in the State Water Project watershed is well below normal. We must continue, therefore, to allocate in accordance with the IICP until it is certain that there will be adequate supplies to meet all demands.

This does not mean, however, that changes in the IICP may not be appropriate. A year's experience with the program has demonstrated both strengths and weaknesses. The General Manager's staff is currently reviewing the program to determine if any changes should be made. I have sent your letter to the General Manager and requested that his staff contact you should there be any questions about the suggestions contained in your letter or how they might be implemented.

Thank you for bringing your concerns to my attention.

Very truly yours,



Lois B. Krieger, Chairman
of the Board

LRB:jh
lslater

cc: Director P. H. Miller
Director C. E. Ward
C. Boronkay (w/attms.)
Calleguas Municipal Water District

APPENDIX 5

**TRANSCRIPT OF THE SIERRA CLUB TESTIMONY
PRESENTED AT PUBLIC HEARING**

Public Hearing

My name is David Czamanska. I'm chair of the water committee for the Angeles chapter of the Sierra Club here in Los Angeles. Just a couple of brief comments on the plan.

Regarding the demand figures that we find, I believe on page 9, and also repeated on page 16: it's a basic principle of economics that the demand is a function of price, and yet I don't see any reflection in the document discussing how price might affect the demand for water in the next three years, the next five years, the next ten years.

Also, I don't find any discussion in the document about how the change in consumer's consumption patterns may affect future demand for water. The document seems to assume that the consumer demand for water would revert to what it has been prior to the drought, once the drought has ended. I would suggest that the cumulative effect of citizen conservation efforts over the last several years are likely, and hopefully should result in a reduction of demand over the long term.

So, I would urge that the effect of these two factors on demand be discussed in the document.

And, finally, I don't see any discussion of how the, detailed discussion of how The Metropolitan Water District might more productively reduce demand if, for example, as a 50 percent reduction in water supply over the next 1993, 1994, by what techniques Metropolitan Water District might escalate prices to deal with that situation. Thank you very much.



MWD

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Office of the General Manager

Mr. David Czamanska, Chairman
Water Committee, Sierra Club
Los Angeles Chapter
715 Park Avenue
South Pasadena, California 91030

Dear Mr. Czamanska:

Response to Comments provided at Metropolitan's
Water Problems Committee Public Hearing of
January 13, 1992

This letter is to acknowledge your comments that were made on January 13, 1992, at Metropolitan's Water Problems Committee's public hearing relating to the adoption of a Drought Contingency Plan that was mandated through Assembly Bill 11X (AB 11X).

Our review of your comments indicates that you had two basic concerns: (1) the pricing of Metropolitan's water and the affect that pricing has on demand; and (2) what the affects of reduced demand during this drought will have on future long-range demand patterns. Accordingly, we are providing you with the following responses to your inquiries.

Pricing

In your comments to the Water Problems Committee you stated that "...I don't see any reflection in the document discussing how price might affect demand for water in the next three years, the next five years, the next ten years." The Drought Contingency Plan was produced in response to the provisions of AB 11X. The provisions of AB 11X directed water agencies to develop Drought Contingency Plans through the year 1994. The legislation was not designed to incorporate long-range water management planning. Consequently, our plan does not address the affects of pricing on long-term demands. However, Metropolitan's Plan does meet all of the criteria called for in AB 11X.

You also requested a "...detailed discussion of how the Metropolitan Water District might more productively reduce demand if, for example, (a) 50 percent reduction in water supply

(occurred in) 1993, 1994, (and) by what techniques Metropolitan might escalate prices to deal with the situation." Metropolitan has developed and implemented the Incremental Interruption and Conservation Plan (IICP) as its primary vehicle to reduce demands during the drought. Within the IICP is a provision for a penalty charge of \$394 per acre-foot of water that a member agency uses in excess of its targeted allotment from Metropolitan. Because of its unique position as a water wholesaler, Metropolitan believes that this penalty charge is the most appropriate way to use pricing to reduce demand during this drought.

For more than a decade, Metropolitan has utilized pricing strategies and specific programs that encompass pricing to encourage conservation and the efficient use of water resources in the Metropolitan service area. Metropolitan's Seasonal Service Storage Program, Local Projects Program and Conservation Credits Program are examples of specific programs at Metropolitan that include pricing strategies that are intended to promote conservation and effective water management. Metropolitan presented water pricing strategies in the report Water Conservation Pricing Approaches Of The Metropolitan Water District prepared in response to U.S. Public Law 100-675, Section 207.

Demands

Reduction in water demands as a result of aggressive long-term water conservation are also included in Metropolitan's forecasting methodology. Specifically, Metropolitan's MWD-MAIN water demand forecasting methodology takes into account the affect that consumers' consumption patterns may have on future demand. AB 11X did not require that Metropolitan analyze or discuss long-term demand or consumption patterns. Consequently, that is why these issues were not addressed in the Drought Contingency Plan.

Based on Metropolitan's latest projections of demographics, it is estimated that per-capita water use will decrease by 5 gallons per-capita, per day between 1992 and the year 2010. We also estimate that long-term water conservation will save about 720,000 acre-feet AF per year by the year 2010. Beneficial uses of reclaimed water will increase from 269,000 AF in 1992 to approximately 640,000 AF in the year 2010. For your reference, we have enclosed a graph which illustrates projected per-capita water use trends through the year 2010. This graph shows projected per-capita water use with and without planned aggressive implementation of conservation measures in Metropolitan's service area.

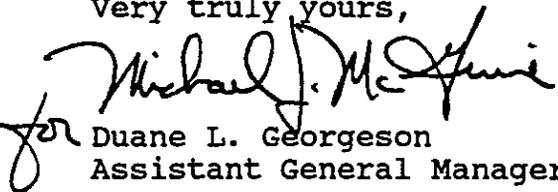
Mr. David Czamanska

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Metropolitan appreciates the time and effort that the Sierra Club has taken in offering comments on its Drought Contingency Plan. Enclosed for your reference is a copy of Metropolitan's Urban Water Management Plan prepared in 1990, and a copy of Water Conservation Pricing Approaches Of The Metropolitan Water District.

If you have any questions regarding this issue, please contact Mr. Michael D. Moynahan of my staff at (213) 250-6097.

Very truly yours,


for Duane L. Georgeson
Assistant General Manager

MSD/mb:LCZAMANSKA

Enclosure