Table 5 - 1: Updated Resource Targets (with Supply Buffer)

	1996 IRP 2020	2003 Update 2020	Change	2003 Update 2025
Conservation	882,000	1,027,600	+145,600	1,107,000
• Recycling • Groundwater Recovery • Desalination	500,000	750,000	+250,000 (buffer)	750,000
Colorado River Aqueduct*	1,200,000	1,250,000	+50,000	1,250,000
State Water Project	593,000	650,000	+25,000	650,000
Groundwater Conjunctive Use	300,000	300,000	0	300,000
CVP/SWP Storage and Transfer w/Buffer	300,000	550,000	+250,000 (buffer)	550,000
MWD Surface Storage **	620,000	620,000	0	620,000

* The 1,250,000 acre-feet supply from the Colorado River Aqueduct is a target for specific year types when needed. Metropolitan is not expecting a full aqueduct in every year.
** Target for Surface Storage is for total storage capacity, not dry year withdrawal yield.

Table 5 – 2: Summary of IRP Update Targets (Acre-feet)

	2010	2020	2025
Conservation	865,200	1,027,600	1,106,900
Local Production*	1,808,966	1,911,193	1,922,608
Total Local Projects**	410,000	750,000	750,000
Groundwater Conjunctive Use	275,000	300,000	300,000
State Water Project	463,000	650,000	650,000
Colorado River Aqueduct	1,001,000	985,000	1,005,000
CVP/SWP Storage and Transfers**	300,000	550,000	550,000
MWD Surface Storage***	620,000	620,000	620,000
Total Supplies with Planning Buffer	**5,743,166**	**6,793,793**	**6,904,508**

* Includes groundwater and surface production and imported supplies from the LA Aqueduct
** Target includes 250,000 acre-foot planning buffer in years 2020 through 2025
*** Represents annual production, not the total storage capacity

Reliability

The results of the IRP Update analysis show that the current resource targets, coupled with the changed conditions discussed in this report, are sufficient for Metropolitan to be 100 percent reliable in 2020. The reliability test also shows that the current resource targets are sufficient to attain supply reliability out to 2025. This is possible because of the changed targets and conditions, including lower Metropolitan demands. As a result, the current resource goals are sufficient to extend the IRP through 2025.

This finding is demonstrated by the additional years of reliability for projected levels of resource development, as shown in Table 5 - 3. For instance, if the region developed its planned resources out to 2010 and then held them fixed, the region would be reliable until 2018.

Table 5 - 3: Additional Years of Reliability with Current Targets and Changed Conditions

Projection Year	2000	2005	2010	2015	2020	2025
Years of Reliability	10	8	8	4	5	1

Planning Supply Buffer

Although the current targets do not require updating, the IRP Update did identify two new areas of concern: (1) increased water quality regulation, and (2) evolving resource implementation risk.

Water Quality Risk

The analysis of increased water quality regulation emphasizes the periodic need for Colorado River water or storage to offset the total organic carbon and bromide levels in State Water Project supplies through blending, until 2009 when all of Metropolitan's treatment plants will be retrofitted. This means that Southern California will be depending on varying amounts of these supplies to meet water quality goals as well as to meet demand depending on the water quality of the SWP. Beyond 2009 increasingly stringent water quality regulations also pose additional uncertainties.

Implementation Risk

Metropolitan and the member agencies have agreed in principle that a planning buffer supply is necessary to hedge against evolving resource implementation risks and demand uncertainty. The size of the buffer supply, 500,000 acre-feet, was derived using three independent methodologies. The 500,000 acre-feet buffer is equal to approximately 10 percent of projected retail water demand in 2025. Metropolitan recommends that the 500,000 acre-feet buffer be split between imported and local supplies.

On the local side, there is approximately 250,000 acre-feet of risk in local supply projections based on the cost of local supplies that would not be regionally funded under the original goals of the 1996 IRP. Therefore, Metropolitan recommends increasing the recycling, groundwater recovery, and seawater desalination target from 500,000 acre-feet to 750,000 acre-feet in 2025. Metropolitan also recommends increasing the 1996 IRP target for CVP/SWP storage and transfers from 300,000 acre-feet to 550,000 acre-feet to develop the imported portion of the buffer.

PLANNING AND REPORTING CYCLES

Metropolitan leads, participates in, and produces a number of planning studies and reporting functions on a regular basis. Table 5 - 4 shows the approximate timetables for the major processes and the requirement, legal or internal, which drive the process.

The 1996 IRP determined, through a comprehensive stakeholder process, the principles for building a long-term water resource plan, and the development targets under that plan. The 2003 IRP Update Report, not only contains refinements to the regional supply development targets, but also sets two schedules for regular reporting and updating the IRP in the future. The first is an annual IRP Implementation Report that will provide regular reporting to the Board on the status and progress of resource implementation. The second is a regular five-year schedule for future IRP Updates, coincident with Metropolitan's filing of the Regional Urban Water Management Plan, as prescribed by the California Water Code.

Other planning processes that are important but separate from the IRP process use the resource development targets identified by the IRP. For example, the *System Overview Study* determines the distribution system requirements needed to deliver water under the resource development targets from the IRP. Another example is the *Water Surplus and Drought Management Plan*. This plan, also known as the WSDM Plan, provides the framework for the shorter-term operations of Metropolitan's water resources. The WSDM Plan provides the planning that ensures that the long-term resources plan described by the IRP works under shorter-term conditions and operations.

Metropolitan also issues periodic reports that are generally reporting the resource development targets and the progress of implementation. For example, the *Report on Metropolitan's Water Supplies*, issued annually, shows the maximum supply capability of the resources implemented as a result of the IRP in a manner that can be used to assist agencies in complying with growth legislation. In the future, some of the planning processes and reporting functions should be consolidated for efficiency, but they will continue to be closely tied to the long-term resources plan.

Table 5 - 4: Metropolitan Planning and Reporting Cycles

Report	Requirement / Type	Year							
		1999	2000	2001	2002	2003	2004	2005	2006
Regional Urban Water Management Plan	State Law/Report		X					X	
Annual Report to the California State Legislature on Achievements in Conservation, Recycling, and Groundwater Recharge (SB 60 Report)	State Law/Report		X	X	X	X	X	X	X
Report on Metropolitan's Water Supplies	Internal Policy / Report				X	X	*As Needed to Reflect Changes*		
IRP Implementation Report	Internal Policy / Report			X	X		X	X	X
IRP Update	Internal Policy / Planning Process					X			X
System Overview Study	Internal Policy / Planning Process						X		
Water Surplus and Drought Management Plan	Internal Policy / Planning Process	X					X		
*Salinity Management Study**	Internal Policy / Planning Process	X							
Long-Range Financial Plan	Internal Policy / Planning Process	X					X		

* Future Study release will be contingent upon completion of: (a) USBR Salinity Study of Lower Colorado; (b) Inland Feeder; and (c) Delta Improvement Program

NEXT STEPS

The 2003 IRP Update process showed a need for additional study, as well as improvements in reporting and monitoring the implementation progress. The following is a list of areas that Metropolitan intends to improve on and implement over the coming years. Improvements in these areas will help to prepare Metropolitan and the region for the next look at updating the IRP.

- Growth projections and demand changes
- Local supply targets for groundwater, surface, and Los Angeles Aqueduct supplies
- Reporting process for IRP target implementation
- Coordination and verification of local supply production and plans
- Risk analysis technique for buffer supply assessment
- Extended hydrologic impacts

Metropolitan and its member agencies are set to collaborate on the process needed to comply with the *California Urban Water Management Planning Act.* The Act requires a report to be submitted to the State of California by December 2005. Although this process is not Metropolitan's guiding planning process, Metropolitan will take steps to assume effective data exchange and verification with its members and their retail agencies. At the same time, Metropolitan staff intends to research and improve modeling and assessment techniques in the areas of variability and risk to supply development.

An issue that also needs to be resolved in the next IRP Update concerns the estimates of retail water demand, local groundwater, local surface, and Los Angeles Aqueduct supplies. In both the 1996 and in the 2003 IRP Update, these estimates did not have associated targets. However, they did contribute to the changed conditions. Retail demand estimates have decreased since the 1996 IRP, largely due to changes in the region's official growth forecast. Local groundwater, surface water, and Los Angeles Aqueduct supplies have also changed since the 1996 IRP. Those changes were captured and accounted for in the reliability analysis performed in this process, but these supplies are not measured against a target. Future updates need to address this in order to maintain the validity of all of the resource development targets.

APPENDIX 1 - WATER DEMAND PROJECTIONS

Retail Water Demand

Water demand in the Metropolitan service area has experienced several discernable trends in the past ten years. Southern California emerged from a severe economic recession in the mid-1990s. Despite a sustained recovery that has led to a robust economy, the intense development of long-term conservation programs and increases in pricing have succeeded in suppressing growth in normal year per capita water demands. Metropolitan projects that aggregate water demand will continue along this trend; per capita water demand will not return to its pre-drought levels.

MWD-MAIN

To forecast urban retail water demands, Metropolitan uses the MWD-MAIN Water Use Forecasting System. MWD-MAIN is a model combining statistical and end-use methods that has been adapted to conditions in Southern California. The statistical portion of the model incorporates projections of demographic and economic variables from regional planning agencies (the Southern California Association of Governments, or SCAG, and the San Diego Association of Governments, or SANDAG) into statistically estimated water demand models to produce forecasts of water demand. The end-use component of the model derives estimates of conservation by adding additional information on how that water is used - the end uses.

MWD-MAIN features a separate unique model for each sector. In the residential sector, the forecasts of water demand per dwelling unit are ultimately combined with the forecasts of dwelling units from the regional planning agencies to yield an estimate of total sector water demand. Similarly, in the nonresidential sector, water use per employee is combined with forecasts of employment to yield an estimate of total non-residential water demand.

Regional Growth Projections

The SCAG and SANDAG demographic projections used in the retail demand forecast are developed primarily for transportation planning, air quality management, and other regional planning purposes. The SCAG and SANDAG forecasts provide a linkage to local development and land use plans through the inclusion of sub-regional general plans, and through extensive input and feedback from cities and counties. Final plans adopted by SCAG and SANDAG are supported by environmental documentation.

The SCAG and SANDAG projections currently used by Metropolitan extend to 2020. Metropolitan contracted with the Center for Continuing Study of the California Economy (CCSCE) and SCAG to extend these projections to 2050. CCSCE developed unofficial projections for the six counties served by Metropolitan from national projections produced by the US Census Bureau. Member agency demographics for 2050 were then derived using SCAG's Geographic Information System based allocation models.

Demographics for interim years such as 2025 were interpolated from the 2020 SCAG/SANDAG projections and the 2050 estimates developed by CCSCE.

Conservation

In addition to accounting for future demographic trends, Metropolitan's water demand forecasts incorporate current and future water demand management (conservation) efforts. In 1991, Metropolitan signed a Memorandum of Understanding Regarding Urban Water Conservation in California (MOU). The MOU commits Metropolitan to implement a number of long-term water conservation measures referred to as Best Management Practices (BMPs).

The MWD-MAIN model embeds a detailed accounting of water conservation, distinguishing between:

Passive Conservation - Water saved as a result of changes in water efficiency requirements for plumbing fixtures in plumbing codes. This form of conservation would occur without any water agency action.

Active Conservation - Water saved directly as a result of conservation programs by water agencies (including implementation of Best Management Practices). This form of conservation is unlikely to occur without agency action.

Price-effect Conservation - Water saved by retail customers attributable to the effect of changes in the real (inflation-adjusted) price of water. There may be some overlap between this form of conservation and the previous two. For example, increased water prices might induce a consumer to take part in one of the active conservation programs run by the providing agency.

Metropolitan's demand projections account for the effects of the conservation BMPs, including projected changes in the price of water. The forecast is based on expected BMP participation. Some of the region's retail agencies are not BMP signatories and some BMPs are not cost-effective in Metropolitan's service area.

Metropolitan Water Demands

Forecasting retail demand is the first step in projecting Metropolitan demands (the need for imported water). As a regional water wholesaler, Metropolitan must also consider the development of local supplies within the service area in order to forecast imported demands.

One of the major changed conditions identified in the IRP Update analysis is a lower projection of Metropolitan demands in 2020 compared to the 1996 IRP. The drop in demand is caused by updated projections of retail demands and local supplies. These changed projections include:

- Lower retail demands
- Higher conservation savings

- Higher direct use recycling, groundwater recovery and desalination production
- Higher groundwater production

Table A1-1 contains a summary of the changes to the retail demands and local supplies. The largest changes occurred in the projections of local supplies and conservation. Retail demands before conservation change as the result of lower growth projections from SCAG. Local supplies projections have increased due to a better accounting of local projects drawn from member agency 2000 UWMPs and close coordination with member agency staff. After accounting for these changes, direct use of Metropolitan demands drop by over 500,000 acre-feet compared to the 1996 IRP.

Table A1 - 1: Metropolitan Dry-Year Demand Changes - 1996 IRP vs. 2003 Update

Category	1996 IRP	2003 Update	Change
Retail Demand - Before Conservation	*6,083,978*	*6,046,510*	*-37,468*
Conservation	*882,000*	*1,027,600*	*145,600*
Total Retail Demands with Conservation	**5,201,978**	**5,018,910**	**-183,068**
Direct Use LRP and Desalination	*500,000*	*533,156*	*33,156*
Local Surface and Groundwater	*1,618,571*	*1,911,193*	*292,622*
Total Local Supply – Direct Use	**2,118,571**	**2,444,349**	**325,778**
Total MWD Direct Use Demand	**3,083,407**	**2,574,561**	***-508,846***

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APPENDIX 2 – LOCAL SUPPLY ASSUMPTION

Table A2 - 1: Total Local Supply for Consumptive Uses – Dry Year
(Excludes non-consumptive recycling; includes groundwater recovery)

Member Agency	2003**	2010	2020	2025	2003-2025
Anaheim	60,442	64,587	73,080	74,846	14,404
Beverly Hills	2,800	2,800	2,800	2,800	0
Burbank	20,536	20,536	20,536	20,536	0
Calleguas	28,973	45,148	46,680	46,680	17,707
Central Basin	179,387	184,225	187,000	187,000	7,613
Compton	6,100	6,100	6,100	6,100	0
Eastern	168,388	178,535	184,639	184,639	16,251
Foothill	8,140	8,140	8,140	8,140	0
Fullerton	24,602	25,028	25,955	26,698	2,096
Glendale	8,447	11,935	11,975	11,975	3,528
Inland Empire	172,492	197,843	237,970	237,970	65,478
Las Virgenes	5,740	8,000	9,600	9,600	3,860
Long Beach	29,875	32,819	37,025	37,025	7,150
Los Angeles	281,056	317,593	329,165	330,373	49,317
MWDOC	281,747	334,539	361,948	373,457	91,710
Pasadena	13,700	15,200	15,300	15,300	1,600
San Diego	95,370	112,553	183,255	183,255	87,885
San Fernando	3,600	3,600	3,600	3,600	0
San Marino	6,150	6,150	6,150	6,150	0
Santa Ana	39,564	41,178	45,196	46,385	6,821
Santa Monica	3,455	3,615	3,615	3,615	160
Three Valleys	68,990	71,300	74,600	74,600	5,610
Torrance	9,500	9,500	9,500	9,500	0
Upper San Gabriel	176,375	181,450	188,700	188,700	12,325
West Basin	73,750	86,000	92,500	92,500	18,750
Western	204,336	233,220	265,520	265,520	61,184
Total of All Agencies	1,973,514	2,201,594	2,430,549	2,446,964	473,450

** 2003 represents model estimate

Table A2 - 2: Total Groundwater Production (Consumptive) – Dry Year
(Includes groundwater recovery supplies)

Member Agency	2003*	2010	2020	2025	2003-2025
Anaheim	60,442	64,587	73,080	74,846	14,404
Beverly Hills	2,800	2,800	2,800	2,800	0
Burbank	13,836	13,836	13,836	13,836	0
Calleguas	20,165	23,088	22,120	22,120	1,955
Central Basin	174,000	174,000	174,000	174,000	0
Compton	6,100	6,100	6,100	6,100	0
Eastern	144,138	149,035	143,639	143,639	-499
Foothill	7,670	7,670	7,670	7,670	0
Fullerton	24,602	25,028	25,955	26,698	2,096
Glendale	6,657	9,925	9,925	9,925	3,268
Inland Empire	146,667	158,333	175,000	175,000	28,333
Las Virgenes	0	0	0	0	0
Long Beach	24,000	24,000	24,000	24,000	0
Los Angeles	131,250	138,250	138,250	138,250	7,000
MWDOC	243,746	271,539	293,948	299,457	55,711
Pasadena	13,700	15,200	15,300	15,300	1,600
San Diego	16,762	34,360	59,500	59,500	42,738
San Fernando	3,600	3,600	3,600	3,600	0
San Marino	6,150	6,150	6,150	6,150	0
Santa Ana	39,092	40,678	44,656	45,845	6,753
Santa Monica	3,175	3,335	3,335	3,335	160
Three Valleys	52,700	52,700	52,700	52,700	0
Torrance	2,000	2,000	2,000	2,000	0
Upper San Gabriel	152,630	154,100	156,200	156,200	3,570
West Basin	55,000	55,000	55,000	55,000	0
Western	199,660	227,800	260,100	260,100	60,440
Total of All Agencies	1,550,543	1,663,114	1,768,864	1,778,071	227,528

* 2003 represents model estimate

Table A2 - 3: Total Surface Water (Consumptive) – Dry Year

Member Agency	2003*	2010	2020	2025	2003-2025
Anaheim	0	0	0	0	0
Beverly Hills	0	0	0	0	0
Burbank	0	0	0	0	0
Calleguas	0	0	0	0	0
Central Basin	0	0	0	0	0
Compton	0	0	0	0	0
Eastern	2,000	2,000	2,000	2,000	0
Foothill	350	350	350	350	0
Fullerton	0	0	0	0	0
Glendale	0	0	0	0	0
Inland Empire	18,870	18,870	18,870	18,870	0
Las Virgenes	0	0	0	0	0
Long Beach	0	0	0	0	0
Los Angeles	0	0	0	0	0
MWDOC	7,000	9,000	7,000	8,000	1,000
Pasadena	0	0	0	0	0
San Diego*	60,832	46,025	46,025	46,025	-14,807
San Fernando	0	0	0	0	0
San Marino	0	0	0	0	0
Santa Ana	0	0	0	0	0
Santa Monica	0	0	0	0	0
Three Valleys	5,900	5,900	5,900	5,900	0
Torrance	0	0	0	0	0
Upper San Gabriel	15,000	15,000	15,000	15,000	0
West Basin	0	0	0	0	0
Western	0	0	0	0	0
Total of All Agencies	109,952	97,145	95,145	96,145	-13,807

* 2003 represents model estimate

Table A2 - 4: Los Angeles Aqueduct (Consumptive) – Dry Year

Member Agency	2003*	2010	2020	2025	2003-2025
Anaheim	0	0	0	0	0
Beverly Hills	0	0	0	0	0
Burbank	0	0	0	0	0
Calleguas	0	0	0	0	0
Central Basin	0	0	0	0	0
Compton	0	0	0	0	0
Eastern	0	0	0	0	0
Foothill	0	0	0	0	0
Fullerton	0	0	0	0	0
Glendale	0	0	0	0	0
Inland Empire	0	0	0	0	0
Las Virgenes	0	0	0	0	0
Long Beach	0	0	0	0	0
Los Angeles	144,912	143,088	142,265	143,473	-1,439
MWDOC	0	0	0	0	0
Pasadena	0	0	0	0	0
San Diego	0	0	0	0	0
San Fernando	0	0	0	0	0
San Marino	0	0	0	0	0
Santa Ana	0	0	0	0	0
Santa Monica	0	0	0	0	0
Three Valleys	0	0	0	0	0
Torrance	0	0	0	0	0
Upper San Gabriel	0	0	0	0	0
West Basin	0	0	0	0	0
Western	0	0	0	0	0
Total of All Agencies	**144,912**	**143,088**	**142,265**	**143,473**	**-1,439**

* 2003 represents model estimate

Table A2 - 5: Recycling M & I (Consumptive) – Dry Year

Member Agency	2003*	2010	2020	2025	2003-2025
Anaheim	0	0	0	0	0
Beverly Hills	0	0	0	0	0
Burbank	6,700	6,700	6,700	6,700	0
Calleguas	8,808	22,060	24,560	24,560	15,752
Central Basin	5,387	10,225	13,000	13,000	7,613
Compton	0	0	0	0	0
Eastern	22,250	27,500	39,000	39,000	16,750
Foothill	120	120	120	120	0
Fullerton	0	0	0	0	0
Glendale	1,790	2,010	2,050	2,050	260
Inland Empire	6,955	20,640	44,100	44,100	37,145
Las Virgenes	5,740	8,000	9,600	9,600	3,860
Long Beach	5,875	8,819	13,025	13,025	7,150
Los Angeles	4,894	25,055	37,450	37,450	32,556
MWDOC	31,000	54,000	61,000	66,000	35,000
Pasadena	0	0	0	0	0
San Diego	17,775	32,168	52,730	52,730	34,955
San Fernando	0	0	0	0	0
San Marino	0	0	0	0	0
Santa Ana	472	500	540	540	68
Santa Monica	280	280	280	280	0
Three Valleys	10,390	12,700	16,000	16,000	5,610
Torrance	7,500	7,500	7,500	7,500	0
Upper San Gabriel	8,745	12,350	17,500	17,500	8,755
West Basin	18,750	31,000	37,500	37,500	18,750
Western	4,676	5,420	5,420	5,420	744
Total of All Agencies	**168,107**	**287,047**	**388,075**	**393,075**	**224,968**

* 2003 represents model estimate

Table A2 - 6: Seawater Desalination (Consumptive) – Dry Year

Member Agency	2003*	2010	2020	2025	2003-2025
Anaheim	0	0	0	0	0
Beverly Hills	0	0	0	0	0
Burbank	0	0	0	0	0
Calleguas	0	0	0	0	0
Central Basin	0	0	0	0	0
Compton	0	0	0	0	0
Eastern	0	0	0	0	0
Foothill	0	0	0	0	0
Fullerton	0	0	0	0	0
Glendale	0	0	0	0	0
Inland Empire	0	0	0	0	0
Las Virgenes	0	0	0	0	0
Long Beach	0	0	1,000	1,000	1,000
Los Angeles	0	0	12,000	12,000	12,000
MWDOC	0	0	28,000	28,000	28,000
Pasadena	0	0	0	0	0
San Diego	0	28,000	56,000	56,000	56,000
San Fernando	0	0	0	0	0
San Marino	0	0	0	0	0
Santa Ana	0	0	0	0	0
Santa Monica	0	0	0	0	0
Three Valleys	0	0	0	0	0
Torrance	0	0	0	0	0
Upper San Gabriel	0	0	0	0	0
West Basin	0	5,000	20,000	20,000	20,000
Western	0	0	0	0	0
Total of All Agencies	**0**	**33,000**	**126,000**	**126,000**	**126,000**

* 2003 represents model estimate

Table A2 - 7: Groundwater Recovery – Dry Year
(Already incorporated into groundwater)

Member Agency	2003*	2010	2020	2025	2003-2025
Anaheim	0	0	0	0	0
Beverly Hills	2,600	2,600	2,600	2,600	0
Burbank	10,500	10,500	10,500	10,500	0
Calleguas	0	0	0	0	0
Central Basin	900	900	900	900	0
Compton	0	0	0	0	0
Eastern	3,360	3,360	3,360	3,360	0
Foothill	350	900	1,600	1,600	1,250
Fullerton	0	0	0	0	0
Glendale	0	0	0	0	0
Inland Empire	3,755	4,000	4,000	4,000	245
Las Virgenes	750	750	750	750	0
Long Beach	0	0	0	0	0
Los Angeles	0	0	0	0	0
MWDOC	12,221	29,971	29,971	29,971	17,750
Pasadena	0	0	0	0	0
San Diego	7,700	10,100	10,100	10,100	2,400
San Fernando	0	0	0	0	0
San Marino	0	0	0	0	0
Santa Ana	0	0	0	0	0
Santa Monica	1,800	1,800	1,800	1,800	0
Three Valleys	3,600	3,600	3,600	3,600	0
Torrance	2,000	2,400	2,400	2,400	400
Upper San Gabriel	0	0	0	0	0
West Basin	2,200	3,400	3,400	3,400	1,200
Western	16,755	20,100	20,100	20,100	3,345
Total of All Agencies	**68,492**	**94,381**	**95,081**	**95,081**	**26,589**

* 2003 represents model estimate

Table A2 - 8: Recycling for Groundwater Replenishment (Non-consumptive) – Dry Year

Member Agency	2003*	2010	2020	2025	2003-2025
Anaheim	0	0	0	0	0
Beverly Hills	0	0	0	0	0
Burbank	0	0	0	0	0
Calleguas	0	0	0	0	0
Central Basin	45,000	45,000	45,000	45,000	0
Compton	0	0	0	0	0
Eastern	0	0	0	0	0
Foothill	0	0	0	0	0
Fullerton	0	0	0	0	0
Glendale	0	0	0	0	0
Inland Empire	500	28,000	28,000	28,000	27,500
Las Virgenes	0	0	0	0	0
Long Beach	0	0	0	0	0
Los Angeles	2,500	10,000	10,000	10,000	7,500
MWDOC	5,000	45,000	37,000	37,000	32,000
Pasadena	0	0	0	0	0
San Diego	600	4,000	6,000	6,000	5,400
San Fernando	0	0	0	0	0
San Marino	0	0	0	0	0
Santa Ana	440	535	672	672	232
Santa Monica	0	0	0	0	0
Three Valleys	0	0	0	0	0
Torrance	0	0	0	0	0
Upper San Gabriel	2,500	10,000	10,000	10,000	7,500
West Basin	0	0	0	0	0
Western	0	0	0	0	0
Total of All Agencies	56,540	142,535	136,672	136,672	80,132

* 2003 represents model estimate

Table A2 - 9: Recycling for Seawater Barrier (Non-consumptive) – Dry Year

Member Agency	2003*	2010	2020	2025	2003-2025
Anaheim	0	0	0	0	0
Beverly Hills	0	0	0	0	0
Burbank	0	0	0	0	0
Calleguas	0	0	0	0	0
Central Basin	0	0	0	0	0
Compton	0	0	0	0	0
Eastern	0	0	0	0	0
Foothill	0	0	0	0	0
Fullerton	0	0	0	0	0
Glendale	0	0	0	0	0
Inland Empire	0	0	0	0	0
Las Virgenes	0	0	0	0	0
Long Beach	0	0	0	0	0
Los Angeles	0	0	0	0	0
MWDOC	5,000	28,000	36,000	36,000	31,000
Pasadena	0	0	0	0	0
San Diego	0	0	0	0	0
San Fernando	0	0	0	0	0
San Marino	0	0	0	0	0
Santa Ana	0	0	0	0	0
Santa Monica	0	0	0	0	0
Three Valleys	0	0	0	0	0
Torrance	0	0	0	0	0
Upper San Gabriel	0	0	0	0	0
West Basin	12,500	17,500	17,500	17,500	5,000
Western	0	0	0	0	0
Total of All Agencies	**17,500**	**45,500**	**53,500**	**53,500**	**36,000**

* 2003 represents model estimate

Table A2 - 10: Total Local Supply (Consumptive and Non-consumptive) – Dry Year

Member Agency	2003*	2010	2020	2025	2003-2025
Anaheim	60,442	64,587	73,080	74,846	14,404
Beverly Hills	2,800	2,800	2,800	2,800	0
Burbank	20,536	20,536	20,536	20,536	0
Calleguas	28,973	45,148	46,680	46,680	17,707
Central Basin	224,387	229,225	232,000	232,000	7,613
Compton	6,100	6,100	6,100	6,100	0
Eastern	168,388	178,535	184,639	184,639	16,251
Foothill	8,140	8,140	8,140	8,140	0
Fullerton	24,602	25,028	25,955	26,698	2,096
Glendale	8,447	11,935	11,975	11,975	3,528
Inland Empire	172,992	225,843	265,970	265,970	92,978
Las Virgenes	5,740	8,000	9,600	9,600	3,860
Long Beach	29,875	32,819	37,025	37,025	7,150
Los Angeles	283,556	327,593	339,165	340,373	56,817
MWDOC	291,747	407,539	434,948	446,457	154,710
Pasadena	13,700	15,200	15,300	15,300	1,600
San Diego	95,970	116,553	189,255	189,255	93,285
San Fernando	3,600	3,600	3,600	3,600	0
San Marino	6,150	6,150	6,150	6,150	0
Santa Ana	40,004	41,713	45,868	47,057	7,053
Santa Monica	3,455	3,615	3,615	3,615	160
Three Valleys	68,990	71,300	74,600	74,600	5,610
Torrance	9,500	9,500	9,500	9,500	0
Upper San Gabriel	178,875	191,450	198,700	198,700	19,825
West Basin	86,250	103,500	110,000	110,000	23,750
Western	204,336	233,220	265,520	265,520	61,184
Total of All Agencies	2,047,554	2,389,629	2,620,721	2,637,136	589,582

* 2003 represents model estimate

Table A2 - 11: Summary of MWD Funded Local Resource Programs

Member Agency	Number of Funded Projects	Total Contract Yield
Beverly Hills	1	2,600
Burbank	2	3,594
Calleguas MWD	2	15,300
Central Basin MWD	6	15,124
Eastern MWD	4	15,890
Foothill MWD	1	1,600
Glendale	3	2,825
Inland Empire	2	17,500
Las Virgenes MWD	3	3,550
Long Beach	2	4,450
Los Angeles	3	8,510
MWDOC	17	68,474
Santa Ana	1	800
Santa Monica	2	2,080
SDCWA	20	57,261
Three Valleys MWD	2	1,016
Torrance	1	2,400
West Basin MWD	3	73,924
Western MWD	3	20,100
Total of All Agencies	78	316,998

Table A2 - 12: Existing and Committed Local Resource Programs

Member Agency	Project Name	Project Type	Contract Yield	Funding
Beverly Hills	Beverly Hills Desalter	Groundwater Recovery	2,600	GRP
Burbank	Burbank Lake Street GAC Plant	Groundwater Recovery	2,744	GRP
Burbank	Burbank Reclaimed Water System Expansion Project	Recycled Water	850	LRP
Burbank	Burbank/Lockheed Valley Plant	Groundwater Recovery	0	Locally Funded
Burbank	Caltrans	Recycled Water	0	Locally Funded
Burbank	Media City Center	Recycled Water	0	Locally Funded
Burbank	PSD Power Plant	Recycled Water	0	Locally Funded
Calleguas MWD	Conejo Creek Diversion Project	Recycled Water	14,000	LPP
Calleguas MWD	Oak Park/North Ranch Water Reclamation Project	Recycled Water	1,300	LPP
Central Basin MWD	Alamitos Barrier Reclaimed Water Project	Recycled Water	3,024	LRP
Central Basin MWD	Bellflower Reclamation Project	Recycled Water	0	Locally Funded
Central Basin MWD	Century Reclamation Program [3]	Recycled Water	10,500	LRP
Central Basin MWD	Cerritos Reclaimed Water Expansion Project	Recycled Water	260	LPP
Central Basin MWD	Cerritos Reclamation Project	Recycled Water	0	Locally Funded
Central Basin MWD	Juan Well Filter Facility	Groundwater Recovery	900	LRP
Central Basin MWD	Lakewood Water Reclamation Project	Recycled Water	440	LPP
Central Basin MWD	Montebello Forebay	Recycled Water	0	Locally Funded
Central Basin MWD	Rio Hondo Water Reclamation Program [3]	Recycled Water	0	LRP
Eastern MWD	Eastern Regional Reclaimed Water System	Recycled Water	4,830	LPP Projects
Eastern MWD	EMWD Reach I Phase II	Recycled Water	1,700	LPP Projects
Eastern MWD	Hemet/SJ Regional Reclamation - Direct	Recycled Water	0	Locally Funded
Eastern MWD	Lake Elsinore Make Up Water	Recycled Water	0	Locally Funded
Eastern MWD	Menifee Basin Desalter	Groundwater Recovery	3,360	GRP
Eastern MWD	Moreno Valley Regional Reclamation	Recycled Water	0	Locally Funded
Eastern MWD	Perris Valley Regional Reclamation	Recycled Water	0	Locally Funded
Eastern MWD	Rancho California Reclamation (Existing non-LPP)	Recycled Water	0	Locally Funded
Eastern MWD	Rancho California Reclamation Expansion	Recycled Water	6,000	LPP Projects
Eastern MWD	Temecula Valley Regional Reclamation	Recycled Water	0	Locally Funded
Foothill MWD	Glenwood Nitrate	Groundwater Recovery	1,600	LPP

Member Agency	Project Name	Project Type	Contract Yield	Funding
Foothill MWD	La Canada-Flintridge Country Club	Recycled Water	0	Locally Funded
Glendale	Glendale Brand Park Reclaimed Water Project [4]	Recycled Water	0	LRP
Glendale	Glendale Verdugo-Scholl Canyon Reclaimed Water Project [4]	Recycled Water	2,225	LRP
Glendale	Glendale Water Reclamation Expansion Project	Recycled Water	600	LPP
Glendale	Power Plant Project	Recycled Water	0	Locally Funded
Inland Empire	California Institution for Men	Recycled Water	0	Locally Funded
Inland Empire	Carbon Canyon Reclamation Project	Recycled Water	13,500	LPP
Inland Empire	Chino Basin Desalter No. 1 - IEUA	Groundwater Recovery	4,000	GRP
Inland Empire	El Prado Park and Golf Course	Recycled Water	0	Locally Funded
Inland Empire	Ontario Golf Course and Westwind Park	Recycled Water	0	Locally Funded
Inland Empire	Upland Hills Country Club	Recycled Water	0	Locally Funded
Inland Empire	Western Hills Country Club	Recycled Water	0	Locally Funded
Las Virgenes MWD	Calabasas Reclaimed Water System Expansion	Recycled Water	700	LPP
Las Virgenes MWD	Calabasas System	Recycled Water	0	Locally Funded
Las Virgenes MWD	Las Virgenes Reclamation Project	Recycled Water	2,700	LPP
Las Virgenes MWD	Las Virgenes Valley System	Recycled Water	0	Locally Funded
Las Virgenes MWD	Two Wells in Westlake	Groundwater Recovery	0	Locally Funded
Las Virgenes MWD	Westlake Wells - Tapia WRF Intertie	Groundwater Recovery	150	LRP
Long Beach	Long Beach Reclamation Expansion Phase I	Recycled Water	2,750	LPP
Long Beach	Long Beach Reclamation Project	Recycled Water	1,700	LPP
Long Beach	Long Beach Reclamation Project	Recycled Water	0	Locally Funded
Long Beach	THUMS	Recycled Water	0	Locally Funded
Los Angeles	Cal Trans (5 & 134 Fwys)	Recycled Water	0	Locally Funded
Los Angeles	East Valley - Phase I	Recycled Water	0	Locally Funded
Los Angeles	Griffith Park	Recycled Water	0	Locally Funded
Los Angeles	Hansen Area Water Recycling Project	Recycled Water	0	Locally Funded
Los Angeles	Harbor Water Recycling Project	Recycled Water	5,000	LRP
Los Angeles	Los Angeles Greenbelt Project	Recycled Water	1,610	LPP
Los Angeles	Los Angeles Greenbelt Project - MCA	Recycled Water	0	Locally Funded
Los Angeles	MGM/SONY Building	Recycled Water	0	Locally Funded
Los Angeles	Sepulveda Basin Water Reclamation Project	Recycled Water	1,900	LPP

Member Agency	Project Name	Project Type	Contract Yield	Funding
MWDOC	Capistrano Beach Desalter	Groundwater Recovery	1,300	GRP
MWDOC	Capistrano Valley Non-Domestic Water System Expansion	Recycled Water	2,895	LRP
MWDOC	Development of Non-Domestic Water System Expansion Ladera	Recycled Water	2,772	LRP
MWDOC	El Toro Existing	Recycled Water	0	Locally Funded
MWDOC	Green Acres Reclamation Project - Coastal	Recycled Water	800	LRP
MWDOC	Green Acres Reclamation Project - MWDOC	Recycled Water	5,400	LRP
MWDOC	Irvine Desalter	Groundwater Recovery	6,700	GRP
MWDOC	Irvine Ranch Michelson Expansion	Recycled Water	0	Locally Funded
MWDOC	Irvine Ranch Part 1 Expansion	Recycled Water	0	Locally Funded
MWDOC	Irvine Ranch Reclamation Project	Recycled Water	10,000	LPP
MWDOC	IRWD Reclaimed Well 78	Groundwater Recovery	0	Locally Funded
MWDOC	Los Alisos WD	Recycled Water	0	Locally Funded
MWDOC	Mesa Consolidated Colored Water Treatment Facility	Groundwater Recovery	11,300	LRP
MWDOC	Moulton Niguel Phase 4 Reclamation System Expansion	Recycled Water	1,276	LRP
MWDOC	Moulton Niguel Reclamation Project	Recycled Water	8,000	LPP
MWDOC	Moulton Niguel WD Existing	Recycled Water	0	Locally Funded
MWDOC	OCWD Groundwater System - recharge	Recycled Water	0	Locally Funded
MWDOC	OCWD Groundwater System - seawater barrier	Recycled Water	0	Locally Funded
MWDOC	OCWD WF21 Above 12-yr. Average	Recycled Water	0	Locally Funded
MWDOC	San Clemente Water Reclamation Project	Recycled Water	4,000	LPP
MWDOC	San Juan Desalter	Groundwater Recovery	4,800	GRP
MWDOC	Santa Margarita Reclamation Expansion Project	Recycled Water	3,600	LPP
MWDOC	Santa Margarita WD - Oso	Recycled Water	0	Locally Funded
MWDOC	South Laguna Reclamation Expansion Project	Recycled Water	700	LPP
MWDOC	South Laguna Reclamation Project	Recycled Water	860	LPP
MWDOC	Trabuco Canyon Reclamation Expansion Project	Recycled Water	800	LPP
MWDOC	Trabuco Canyon Reclamation Project (Existing)	Recycled Water	0	Locally Funded
MWDOC	Tustin Desalter	Groundwater Recovery	3,271	GRP
MWDOC	Water Factory 21 Blend	Groundwater Recovery	0	Locally Funded
Santa Ana	Green Acres Reclamation Project - Santa Ana	Recycled Water	800	LRP
Santa Monica	Dry Weather Runoff Reclamation Facility	Recycled Water	280	LRP

Member Agency	Project Name	Project Type	Contract Yield	Funding
Santa Monica	Santa Monica GW Treatment Plant	Groundwater Recovery	1,800	GRP
Santa Monica	Santa Monica Water Gardens	Recycled Water	0	Locally Funded
SDCWA	Camp Pendleton	Recycled Water	0	Locally Funded
SDCWA	Encina Basin Water Reclamation. Project – Phases I and II [5]	Recycled Water	5,000	LRP
SDCWA	Encina Basin Water Reclamation Project Phase I [5]	Recycled Water	0	LRP
SDCWA	Encina Water Pollution Control Facility Reclamation Project [2]	Recycled Water	165	LPP
SDCWA	Escondido Regional Reclaimed Water Project	Recycled Water	2,800	LRP
SDCWA	Fairbanks Ranch	Recycled Water	0	Locally Funded
SDCWA	Fallbrook Reclamation Project	Recycled Water	1,200	LRP
SDCWA	Lower Sweetwater Desalter Phase I	Groundwater Recovery	3,600	GRP
SDCWA	North City Water Reclamation Project	Recycled Water	17,500	LRP
SDCWA	Oceanside Desalter Phase I [1]	Groundwater Recovery	2,000	GRP
SDCWA	Oceanside Desalter Phase I and II [1]	Groundwater Recovery	6,500	GRP
SDCWA	Oceanside Water Reclamation Project	Recycled Water	300	LPP
SDCWA	Olivenhain Recycled Project - SE Quadrant	Recycled Water	1,788	LRP
SDCWA	Otay Recycled Distribution Expansion Project	Recycled Water	8,515	LRP
SDCWA	Otay Water Reclamation Project	Recycled Water	1,500	LRP
SDCWA	Padre Dam Reclaimed Water System Phase I	Recycled Water	850	LRP
SDCWA	Ramona/Santa Maria Water Reclamation Project	Recycled Water	1,600	LPP
SDCWA	Rancho Santa Fe (Existing)	Recycled Water	0	Locally Funded
SDCWA	Rancho Santa Fe Reclaimed Water System	Recycled Water	220	LPP
SDCWA	RDDMWD Recycled Water Program	Recycled Water	648	LRP
SDCWA	San Elijo Water Reclamation System	Recycled Water	1,600	LRP
SDCWA	San Pasqual Reclamation Project	Recycled Water	1,100	LRP
SDCWA	San Vincente	Recycled Water	0	Locally Funded
SDCWA	Santa Maria - Phase A	Recycled Water	0	Locally Funded
SDCWA	Santee - Phase A	Recycled Water	0	Locally Funded
SDCWA	Shadowridge Reclaimed Water System	Recycled Water	375	LPP
SDCWA	South Bay Water Reclamation Project (excluding Otay)	Recycled Water	0	Locally Funded
SDCWA	Valley Center - Phase A	Recycled Water	0	Locally Funded
SDCWA	Whispering Palms	Recycled Water	0	Locally Funded

Member Agency	Project Name	Project Type	Contract Yield	Funding
Three Valleys MWD	City of Industry Reclaimed System - Phase A	Recycled Water	0	Locally Funded
Three Valleys MWD	Pomona Nitrate	Groundwater Recovery	0	Locally Funded
Three Valleys MWD	Pomona Reclamation Project	Recycled Water	0	Locally Funded
Three Valleys MWD	Rowland GW Treatment Project	Groundwater Recovery	516	GRP
Three Valleys MWD	Walnut Valley Reclamation Expansion Project [2]	Recycled Water	500	LPP
Three Valleys MWD	Walnut Valley Reclamation Project	Recycled Water	0	Locally Funded
Torrance	Madrona Desalter (Goldsworthy)	Groundwater Recovery	2,400	GRP
Upper SGVMWD	California Country Club	Recycled Water	0	Locally Funded
Upper SGVMWD	Puente Hills/Rose Hills	Recycled Water	0	Locally Funded
Upper SGVMWD	San Gabriel Valley Recycled Water Demonstration Project	Recycled Water	0	Locally Funded
West Basin MWD	Sepulveda Desalter	Groundwater Recovery	2,400	GRP
West Basin MWD	West Basin Desalter No. 1	Groundwater Recovery	1,524	GRP
West Basin MWD	West Basin Water Reclamation Program	Recycled Water	70,000	LPP
Western MWD	Arlington Desalter	Groundwater Recovery	6,100	LPP
Western MWD	Chino Basin Desalter No. 1 – Western	Groundwater Recovery	4,000	GRP
Western MWD	Ellsinore Valley/Horse Thief Reclamation	Recycled Water	0	Locally Funded
Western MWD	Ellsinore Valley/Railroad Canyon Reclamation	Recycled Water	0	Locally Funded
Western MWD	Indian Hills Reclamation Project	Recycled Water	0	Locally Funded
Western MWD	March AFB Reclamation Project	Recycled Water	0	Locally Funded
Western MWD	Santa Rosa Water Reclamation Facility	Recycled Water	0	Locally Funded
Western MWD	Temescal Basin Desalting Facility	Groundwater Recovery	10,000	LRP
Total of All Agencies			316,998	

(1) Oceanside Phase I agreement will be combined with Oceanside II agreement.
(2) The LPP agreement for these projects has terminated.
(3) On July 1, 1999, the Rio Hondo project was combined with Century Reclamation Program.
(4) On July 1, 1999, the Glendale Brand Park project was combined with Glendale Verdugo-Scholl project.
(5) On July 1, 2000, the LRP agreement for Encina Basin Phase I was combined with New LRP agreement for Encina Basin Phase 2.

APPENDIX 3 – IRPSIM OUTPUT

Table A3 - 1: IRPSIM Output - Drought Reliability Test
1924 – 1934

Forecast Year	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Hydrology Year	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934
Hydrologic Conditions											
Southern California Year Type	Dry	Dry	Wet	Wet	Dry	Dry	Normal	Wet	Normal	Wet	Normal
Sacramento River Index D1630 Year Type*	Dry	Dry	Dry	Wet	Normal	Dry	Dry	Dry	Dry	Dry	Dry
Demands											
Retail Demand	4,613,044	4,651,232	4,543,626	4,578,290	4,858,417	4,832,610	4,834,923	4,859,995	4,854,491	4,963,965	5,054,591
Long-term/Replenishment Demand	284,736	286,064	288,540	291,220	294,111	296,800	296,699	296,573	296,748	296,577	296,664
Total Demand	4,897,780	4,937,296	4,832,166	4,869,510	5,152,528	5,129,410	5,131,622	5,156,568	5,151,239	5,260,542	5,351,255
Local Supplies											
Goundwater Production	1,622,783	1,633,514	1,582,984	1,593,704	1,667,892	1,673,419	1,646,939	1,623,115	1,648,707	1,626,065	1,658,028
L. A. Aqueduct Production	115,808	214,542	237,809	394,445	195,964	155,548	151,882	118,202	360,049	172,752	136,610
Advanced Technology Production	632,551	642,364	651,178	660,992	670,804	709,528	710,528	711,528	712,528	713,528	714,528
Surface Production	90,729	78,574	112,723	148,872	143,803	107,785	97,408	129,701	138,697	145,921	143,718
Total Local Supply	2,461,871	2,568,994	2,584,694	2,798,013	2,678,463	2,646,280	2,606,757	2,582,546	2,859,981	2,658,266	2,652,884
Total MWD Demand	2,435,910	2,368,301	2,247,472	2,071,497	2,474,066	2,483,131	2,524,865	2,574,020	2,291,258	2,602,277	2,698,371
MWD Supply Sources											
Colorado River Supplies											
Base Supply Programs	1,094,348	1,094,561	636,074	694,292	732,050	782,009	1,152,504	831,634	820,997	827,546	825,812
Hayfield & DWCV Programs (Net Operations)	-124	58,439	-58,451	-3,201	-320	177,991	-177,991	173,366	175,258	172,454	174,188
PVID	97,000	97,000	97,000	25,000	25,000	111,300	25,000	111,300	25,000	111,300	111,300
Additional CRA Programs	0	0	0	0	0	0	0	0	0	0	0
Net Colorado River Supply	1,191,224	1,250,000	674,623	716,091	756,730	1,071,300	999,513	1,116,300	1,021,255	1,111,300	1,111,300
State Water Project Supplies											
Base Supply Programs	1,032,752	1,039,539	1,578,026	1,886,708	1,809,950	1,147,991	1,571,496	991,366	1,250,003	960,454	1,019,188
Carryover (Takes)	200,000	0	0	0	200,000	200,000	0	0	0	0	0
Carryover (Puts To Program)	0	0	0	-200,000	-200,000	0	0	0	0	0	0
Net State Water Project Supply	1,232,752	1,039,539	1,578,026	1,686,708	1,809,950	1,347,991	1,571,496	991,366	1,250,003	960,454	1,019,188
Additional Water Surplus And Drought Management Actions (Storage Programs Show Net Operations)											
SWP Transfer Programs	20,000	20,000	20,000	20,000	20,000	20,000	20,000	42,908	20,000	42,013	43,714
Diamond Valley Lake	-8,066	58,762	-25,176	-105,519	-20,000	43,840	-66,144	150,315	0	88,155	57,075
SWP Storage Programs	0	0	0	-507	-50	0	0	219,513	0	168,704	160,241
Long-term Demand Cuts	0	0	0	0	0	0	0	53,618	0	66,000	66,000
In-Region Contractual Groundwater	0	0	0	0	0	0	0	0	0	165,651	234,000
DWR Reservoirs	0	0	0	0	0	0	0	0	0	0	6,854
Agricultural Demand Cuts	0	0	0	0	0	0	0	0	0	0	0
Remaining Targeted Central Valley Transfer Produ	0	0	0	0	0	0	0	0	0	0	0
Remaining Spot Water Needed	0	0	0	0	0	0	0	0	0	0	0
Total Additional WSDM Actions	11,934	78,762	-5,176	-86,026	-50	63,840	-46,144	466,354	20,000	530,523	567,884
Remaining Shortage	0	0	0	0	0	0	0	0	0	0	0
Remaining Surplus	0	0	0	245,276	92,564	0	0	0	0	0	0

Figure A3 - 1: IRPSIM Output - Total Storage
2015 – 2025 Forecast: 1924 – 1934 Hydrologic Sequence

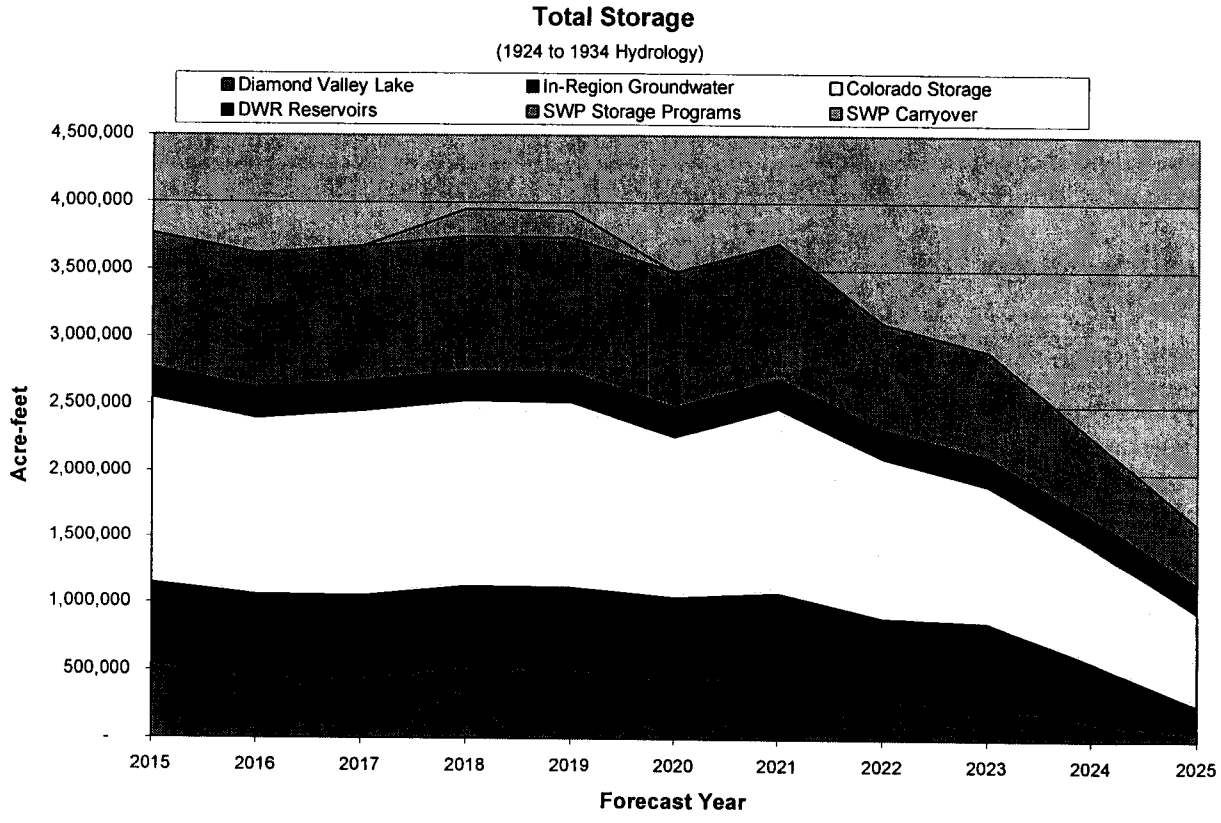
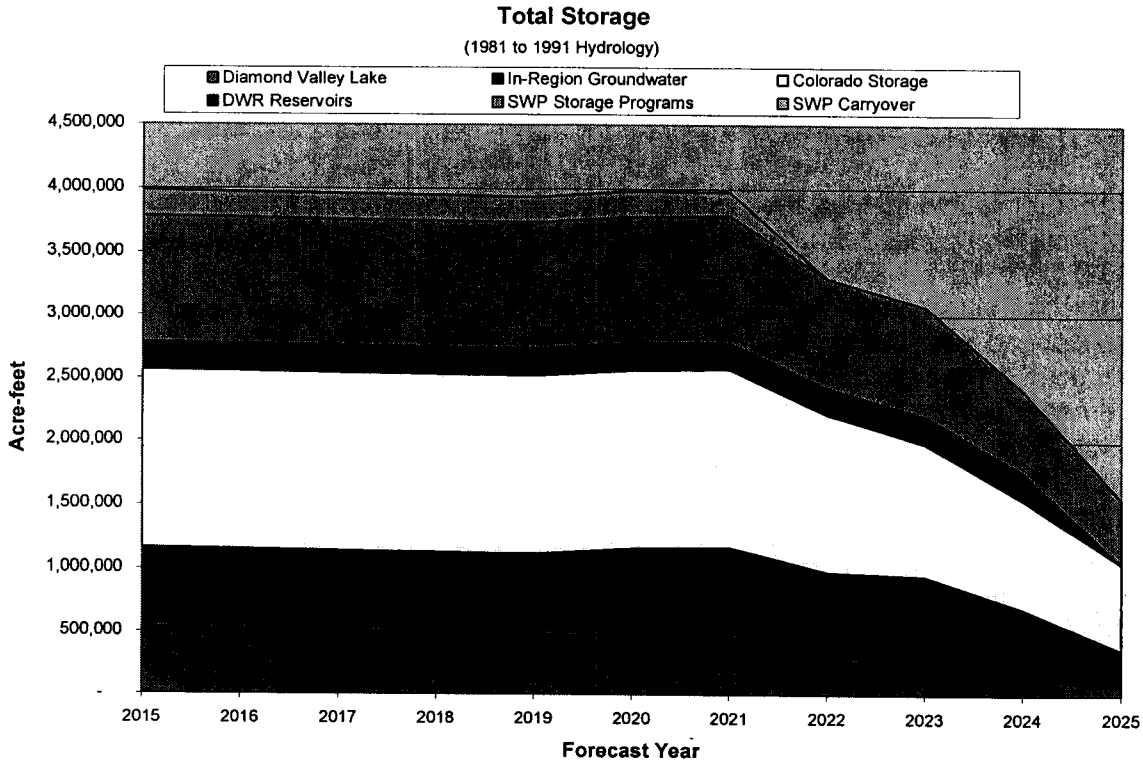


Table A3 - 2: IRPSIM Output - Drought Reliability Test
2015 – 2025 Forecast: 1981 – 1991 Hydrologic Sequence

Forecast Year	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Hydrology Year	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Hydrologic Conditions											
Southern California Year Type	Normal	Normal	Wet	Dry	Dry	Wet	Normal	Normal	Dry	Dry	Normal
Sacramento River Index D1630 Year Type*	Dry	Wet	Wet	Wet	Dry	Wet	Dry	Dry	Dry	Dry	Dry
Demands											
Retail Demand	4,661,720	4,437,698	4,219,166	4,909,935	4,850,993	4,768,078	4,890,914	4,983,574	5,147,630	5,237,478	5,068,636
Long-term/Replenishment Demand	284,676	285,948	288,208	291,427	294,106	296,593	296,783	296,729	296,880	296,839	296,645
Total Demand	4,946,396	4,723,646	4,507,374	5,201,362	5,145,099	5,064,671	5,187,697	5,280,303	5,444,510	5,534,317	5,365,281
Local Supplies											
Goundwater Production	1,600,991	1,601,597	1,567,064	1,666,752	1,665,839	1,617,869	1,651,420	1,653,447	1,687,600	1,693,077	1,657,732
L. A. Aqueduct Production	283,499	500,000	500,000	438,645	368,294	472,569	182,088	154,173	156,559	110,555	167,736
Advanced Technology Production	632,551	642,364	651,178	660,992	670,804	709,528	710,528	711,528	712,528	713,528	714,528
Surface Production	173,619	150,652	182,117	189,513	146,377	112,932	121,251	118,046	86,460	72,733	88,478
Total Local Supply	2,690,660	2,894,613	2,900,359	2,955,902	2,851,314	2,912,898	2,665,287	2,637,194	2,643,147	2,589,893	2,628,474
Total MWD Demand	2,255,735	1,829,033	1,607,014	2,245,461	2,293,786	2,151,775	2,522,409	2,643,111	2,801,363	2,944,425	2,736,807
MWD Supply Sources											
Colorado River Supplies											
Base Supply Programs	629,928	621,257	195,800	695,843	727,030	1,144,350	1,149,553	830,934	807,458	818,328	832,779
Hayfield & DWCV Programs (Net Operations)	-518	-52	-5	-1	0	0	0	174,066	194,542	181,672	167,221
PVID	97,000	97,000	97,000	25,000	25,000	25,000	25,000	111,300	70,821	111,300	111,300
Additional CRA Programs	0	0	0	0	0	0	0	0	0	0	0
Net Colorado River Supply	726,410	718,205	292,795	720,842	752,030	1,169,350	1,174,553	1,116,300	1,072,821	1,111,300	1,111,300
State Water Project Supplies											
Base Supply Programs	1,758,172	1,921,743	2,072,700	1,834,157	1,979,970	1,647,650	1,671,447	1,015,066	1,708,542	1,272,672	783,221
Carryover (Takes)	200,000	200,000	200,000	200,000	200,000	200,000	200,000	183,967	0	0	0
Carryover (Puts To Program)	-200,000	-200,000	-200,000	-200,000	-200,000	-200,000	-183,967	0	0	0	0
Net State Water Project Supply	1,758,172	1,921,743	2,072,700	1,834,157	1,979,970	1,647,650	1,687,480	1,199,033	1,708,542	1,272,672	783,221
Additional Water Surplus And Drought Management Actions (Storage Programs Show Net Operations)											
SWP Transfer Programs	20,000	20,000	20,000	20,000	20,000	20,000	20,000	43,594	20,000	51,051	36,883
Diamond Valley Lake	-20,000	-20,000	-20,000	-20,000	-20,000	-20,000	-20,000	156,213	0	94,053	62,973
SWP Storage Programs	-191	-20	-3	0	0	0	0	127,970	0	219,039	154,065
Long-term Demand Cuts	0	0	0	0	0	0	0	0	0	66,000	66,000
In-Region Contractual Groundwater	0	0	0	0	0	-56,000	-19,000	0	0	130,309	234,000
DWR Reservoirs	0	0	0	0	0	0	0	0	0	0	219,000
Agricultural Demand Cuts	0	0	0	0	0	0	0	0	0	0	24,135
Remaining Targeted Central Valley Transfer Produ	0	0	0	0	0	0	0	0	0	0	45,231
Remaining Spot Water Needed	0	0	0	0	0	0	0	0	0	0	0
Total Additional WSDM Actions	-191	-20	-3	0	0	-56,000	-19,000	327,777	20,000	560,452	842,287
Remaining Shortage	0	0	0	0	0	0	0	0	0	0	0
Remaining Surplus	228,656	810,895	758,478	309,538	438,214	609,225	320,624	0	0	0	0

Figure A3 - 2: IRPSIM Output - Drought Reliability Test
1981 – 1991



APPENDIX 4 – FUNDING THE INTEGRATED RESOURCES PLAN

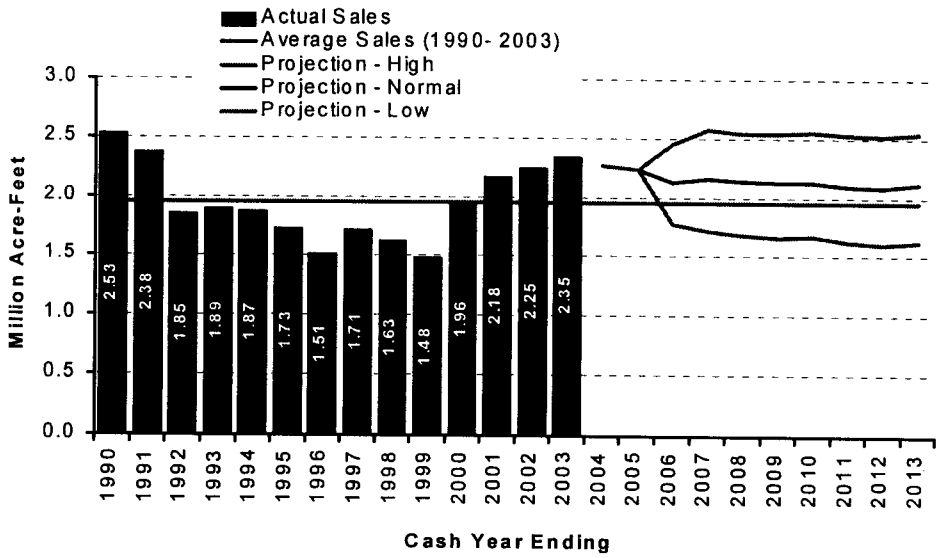
This appendix summarizes the funding requirements of the Integrated Resources Plan and the impacts on Metropolitan's water rates and charges. There are three broad elements of the IRP – (1) existing imported resources (the Colorado River and State Water Project), (2) Metropolitan's incentive payments for local projects and conservation, and (3) expenditures for water transfers and storage resources (including local groundwater projects). In addition to these expenditures, Metropolitan will continue to invest in water distribution and treatment infrastructure. This appendix describes the rate impacts associated with the water resource investments contemplated in the update, including changes in water rates associated with the additional local and imported supplies necessary identified as part of the buffer. The forecast period is consistent with that of Metropolitan's Long Range Finance Plan, and extends to fiscal year 2012/13.

WATER SALES FORECAST

For financial planning purposes, it is expected that demand for Metropolitan supplies will decline from about 2.3 million acre-feet in 2003/04 to about 2.1 million acre-feet in 2012/13. There are two primary reasons for this change. First, current water demands have been high due to dry weather in Southern California. Over the past five years, rainfall has been below average, leading to higher retail demands and reduced water levels in groundwater basins, surface reservoirs and other local supplies. As a result, demand for imported water from Metropolitan has been higher than average. The financial forecast is based on a return to average local weather conditions and retail demands, recovery in local supplies, and a reduced demand for imported water. Second, in addition to a reduction in overall demand due to a return to average weather conditions, the IRP contemplates continued investment in local resources, primarily water recycling and seawater desalination. By 2013, these investments will result in an additional 255,000 acre-feet of local supply. These local supplies reduce the need for imported water and expected water sales by Metropolitan.

Figure A4 - 1 shows historic and forecast water sales. Since 1989/90, Metropolitan sales have averaged 1.95 million acre-feet. Since 1999/00, sales have increased from 1.95 million acre-feet to just over 2.3 million acre-feet in 2002/03. As noted above, expected sales are forecast to drop from those levels to about 2.1 million acre-feet by 2012/13. Under dry conditions, sales in any of the next 10 years could be as high as 2.5 million acre-feet, and as low as 1.7 million acre-feet in a very wet year.

Figure A4 – 1: Water Sales (MAF)

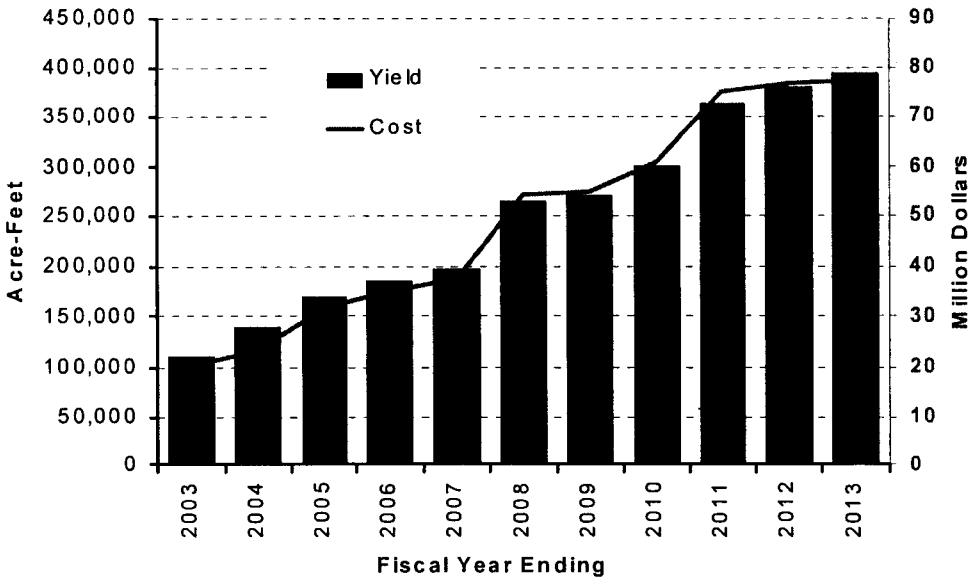


LOCAL RESOURCES

Local resources, including groundwater recovery, water recycling, seawater desalination, and conservation are fundamental parts of the IRP. Financial incentives by Metropolitan will support local projects that are expected to develop 255,000 acre-feet of new supplies by 2012/13. These investments result in additional water supply, but just as importantly, defer the need for Metropolitan to construct new treatment and distribution capacity.

Metropolitan's cost for funding local resources including conservation, recycling and groundwater recovery currently amounts to $46 million. These payments are funded through the Water Stewardship Rate, which is charged for every acre-foot of water delivered by Metropolitan. By 2012/13 Metropolitan's funding for conservation, recycling, and desalination is expected to increase by $45 million - almost 100 percent. The increase is attributable to the need to finance the additional yield from existing and committed projects under Metropolitan's Local Resources Program (LRP), as well as the yield from new projects anticipated as part of implementing the IRP. While there are a number of projects that could be funded, the IRP does not identify the specific projects required for development. The IRP provides a target for local resource development. As a result, the yield from the LRP is expected to increase from 138,000 acre-feet in 2003/04 to 394,000 acre-feet in 2012/13. The IRP and rate forecast include 156,000 acre-feet of supply from water recycling and seawater desalination by 2012/13. As part of the rate forecast and the ten-year financial forecast, 126,000 acre-feet of this new supply is assumed to come from proposed desalination projects. Figure A4 - 2 shows the expected supply from projects funded under the LRP and the associated cash flow to support that yield. As a result of these investments, Metropolitan's Water Stewardship Rate is expected to increase from $25/acre-foot in 2005 to $50/acre-foot in 2013.

Figure A4 – 2: Local Resource Programs

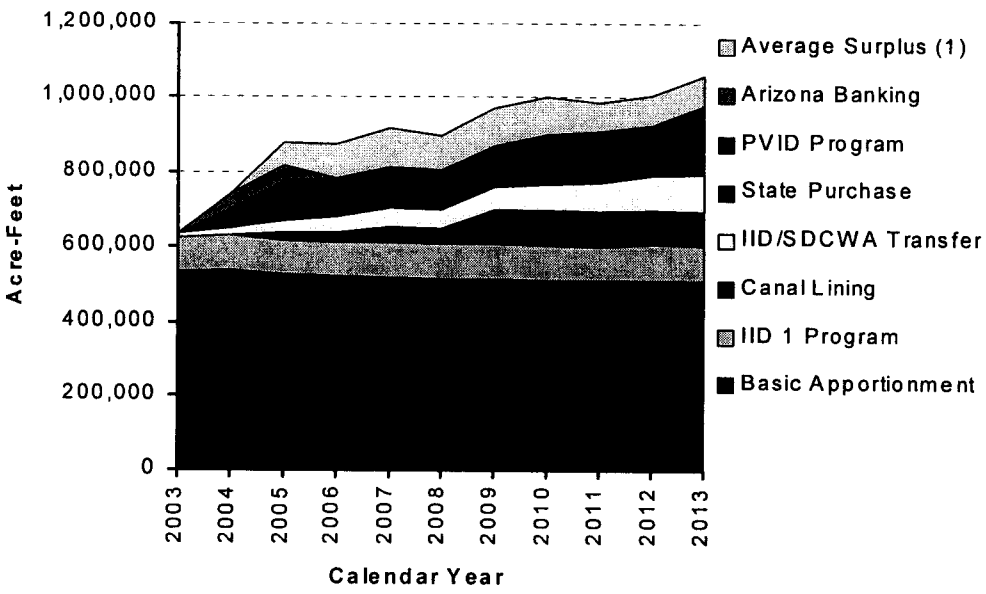


IMPORTED SUPPLIES

Colorado River

In October 2003, Metropolitan and the other California contractors (with the exception of the Palo Verde Irrigation District) executed the Quantification Settlement Agreement (QSA). The QSA lays out a framework for transferring water from agricultural uses to urban needs. The execution of the QSA provides for the opportunity for Metropolitan to access "special surplus" supplies under the Interim Surplus Guidelines, if hydrological conditions on the river improve. Figure A4 - 3 shows the different projects that will be delivered through the Colorado River Aqueduct. Of note is the fact that the transfer between the Imperial Irrigation District and the San Diego County Water Authority will move through the Colorado River Aqueduct and will be delivered through Metropolitan's system to San Diego. The San Diego County Water Authority will be responsible for all costs associated with the transfer and will pay Metropolitan's rates for transporting the water. In addition, San Diego will pay the established rates for moving those supplies developed from the lining of the All American Canal and Coachella Canal. While these supplies are not Metropolitan supplies, they are delivered by Metropolitan and will serve demands in Metropolitan's service area. Further, the water sales shown in Figure A4 - 1 include these deliveries of Colorado River supplies to San Diego, although Metropolitan's revenues from these deliveries will be for rates related to transportation and water stewardship (and will not include the supply cost.)

Figure A4 - 3: Colorado River Supplies



(1) Average surplus under Interim Surplus Guidelines, Metropolitan may or may not access this water depending on hydrology.

The cost of power associated with the delivery of Colorado River supplies is expected to average about $21 million dollars through 2012/13. Table A4 - 1 shows the cost of power and the anticipated expenditures by Metropolitan for additional Colorado River supplies over the next ten years. Metropolitan's average water rate will increase by $14 per acre-foot by 2013 as a result of the expenditures for Colorado River programs.

Table A4 - 1: Cost of Imported Supplies (Millions of Dollars)

Fiscal Year Ending	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Colorado River											
Power	47	25	18	20	20	21	21	24	21	21	24
Storage	0	0	3	2	2	2	2	2	2	2	2
IID Conservation	6	11	11	12	12	12	13	13	13	14	14
PVID (1)	-	0	11	13	9	6	6	6	6	5	5
State Purchase (2)	-	-	2	4	6	7	7	9	10	12	17
Total	**53**	**36**	**45**	**51**	**49**	**48**	**49**	**54**	**52**	**55**	**63**
$/AF	23	15	20	23	22	22	23	25	25	26	29
State Water Project											
SWP	343	406	430	417	429	438	445	449	460	473	475
Option Transfers	2	2	2	2	2	2	2	2	2	2	2
Central Valley Transfers/Storage	-	20	15	14	12	8	6	6	7	8	8
SBVMWD	8	(3)	4	4	4	4	4	4	4	4	4
Total	**353**	**425**	**450**	**437**	**447**	**451**	**457**	**461**	**473**	**487**	**489**
$/AF	155	183	202	203	206	211	215	216	225	232	230

(1) Upfront payments are not included since they are paid from Water Transfer Fund
(2) Purchase of IID water sold to state as part of QSA

State Water Project Supplies, Storage and Transfers

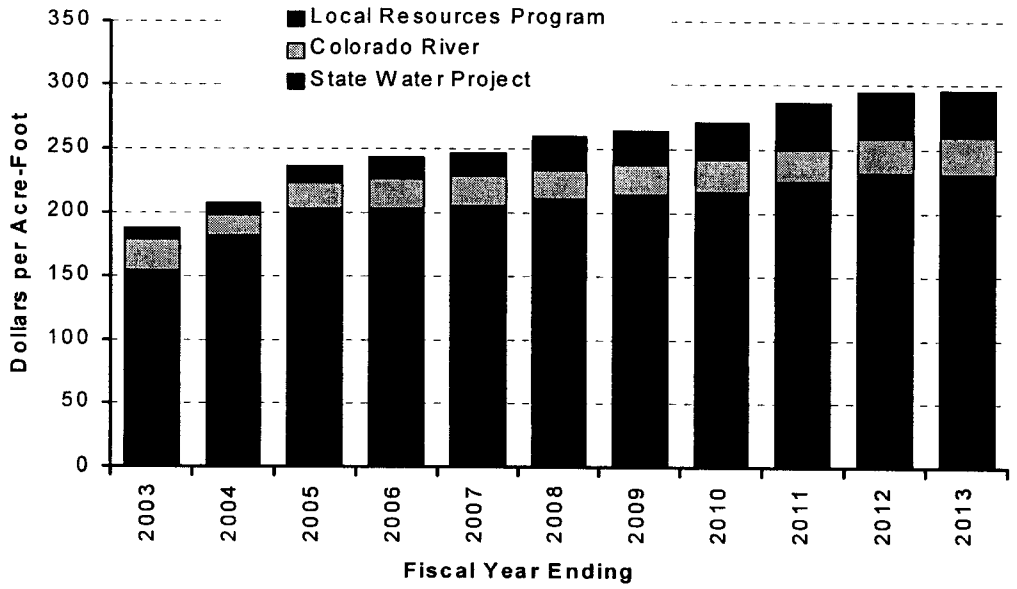
Delivery of water over the State Water Project (SWP) system to Metropolitan is expected to average around 1.5 million acre-feet through 2012/13. Water delivered via the SWP California Aqueduct includes deliveries of Metropolitan's Table A amounts, carryover supplies, water transfers, and exchanges. Metropolitan has executed a number of contracts with Central Valley and Sacramento Valley water districts for storage and transfers. These programs include option-based transfers, whereby Metropolitan pays an upfront payment for the right to exercise an option to take water later in the year, if conditions warrant. In addition, Metropolitan has executed long-term storage and transfer programs, where Metropolitan funds infrastructure improvements in exchange for the right to store water in groundwater basins for future use during dry years. Table A4 - 1 shows the forecast of expenditures for such SWP programs, as well as the forecast of SWP costs through 2012/13.

The rate impact of water transfers may be mitigated through options and wet year purchases when lower market prices are expected. As shown in Table A4 - 1, water transfers and storage programs are expected to average about $15 million over this period. SWP costs, including the cost of power to pump the water on the project, are expected to increase from $406 million to $475 million in 2012/13. As a result of changes in the cost of power and expenditures on additional water transfers and storage projects needed to meet the IRP targets, Metropolitan's average water rate will increase by $47 per acre-foot.

SUMMARY OF RATE IMPACTS

In order to fund the projects and programs envisioned in the IRP Metropolitan's average rate is expected to increase by $88 per acre-foot over the next ten years, as shown in Figure A4 - 4. These rate impacts are based on expected sales under "normal" or average hydrologic conditions. In addition, this forecast is consistent with the Capital Investment Plan developed as part of the last System Overview Study. The impacts of changes in local supply development, demand, and water quality regulations are not included in these estimates. For example, if demand for Metropolitan supplies were to be 100,000 acre-feet higher per year (a change of less than 5 percent), the impact of the IRP would be about $12 per acre-foot less. Conversely, a change in the opposite direction (100,000 acre-feet lower demands due to weather) would result in a similar $12 per acre-foot increase in these projections.

Figure A4 - 4: Estimated Rate Impact of IRP



As seen in Figure A4 - 4, each of the elements – Colorado River, State Water Project and Transfers, and Local Resources – contribute to the expected rate increases necessary to meet Metropolitan's and the member agencies' reliability objectives. Investments in local supplies help to ensure reliable deliveries by reducing stress on the import delivery system, while investments in additional water transfers (particularly option-based transfers) provide necessary redundancy at relatively low cost. The basic strategies of diversification and flexibility remain the foundation of the IRP, and are reflected in the reasonable costs and rates forecast for the next ten years. Metropolitan's rates are forecast to increase between three and five percent on an annualized basis from 2003 to 2013, while supporting the investments and operating and maintenance costs necessary to meet the region's needs for a reliable, high quality supply of water.

APPENDIX 5 – 2003 CHANGES TO MAJOR ASSUMPTIONS AND IMPACTS TO IRP UPDATE CONCLUSIONS

BACKGROUND

The IRP Update process was conducted over the course of two years. The process was initiated in December 2001 following the completion of the IRP Review. The reliability analysis that formed the basis for assessing the resource development targets for the IRP Update was performed during the calendar year 2002, using the major planning assumptions and changed conditions up to that time. However, as stated in the report, financial impacts and water rate analyses in this report were done using updated information. This appendix is intended to describe the major changes that have taken place and to show the impact of those changes on the reliability analyses presented in the report.

MAJOR CHANGES IN ASSUMPTIONS

Metropolitan conducts regular internal reviews of assumptions on retail demand and local supply conditions and projections based on annual surveys and exchanges of information with the member agencies. Metropolitan also regularly assesses the changes in assumptions for the major imported supplies from the State Water Project and the Colorado River Aqueduct. In total, these changes result in changes in both the need for supplemental water supplies, and the assumed mix of those supplemental water supplies. Table A5 - 1 below shows the near and long-term changes in assumptions that affect the demand for Metropolitan's water supplies by major resource category.

Table A5 - 1 Changes: Rate Impact Analysis versus 2003 IRP Update Resource Analysis (Acre-Feet)*

Local Supply Changes	2005	2010	2020	2025
Local Groundwater Production	(80,820)	(60,855)	(89,655)	(86,580)
Local Surface Production	(11,511)	86	2,086	1,086
Los Angeles Aqueduct	(24,654)	(24,496)	(24,972)	(24,971)
Recycling for M&I and AG	(24,321)	(56,955)	(74,542)	(78,166)
Recycling for GW Replenishment	(13,250)	(51,235)	(30,307)	(30,132)
Recycling for Seawater Barrier	10,192	15,524	7,524	7,524
Seawater Desalination	-	66,800	113,800	113,800
Total Local Supply Changes	**(144,364)**	**(111,132)**	**(96,067)**	**(97,440)**
Retail Demand w/o Conservation*	30,046	(10,219)	(9,394)	(9,032)
Total Conservation	0	0	0	0
Total Demand on Metropolitan**	**171,399**	**107,557**	**106,497**	**107,279**

* Parenthesis indicates a reduction

**Replenishment and Sea Water Barrier demands are not included in Retail Demand.

IMPACTS TO RELIABILITY ANALYSIS

The overall effect of the changes in assumptions that are detailed in Table A5 - 1 is to increase the need for additional imported water supplies in the short term, and to decrease the need in the long-term. Most of the short-term impact is due to significant changes in local supply production from surface and groundwater sources. For example, Table A5-1 shows groundwater production estimates have decreased between the time of the IRP Update analysis and today. Much of this decrease is associated with groundwater basin storage level recovery efforts that have decreased groundwater production yield for some member agencies, and with dry conditions affecting the surface production capability of some member agencies. Most of the long-term impact can be characterized as resulting from increased development of local supplies by member agencies and a clarification of the programs and water supply from the Quantification Settlement Agreement. When the analysis for the IRP Update was originally conducted, the final outlook of the QSA was speculative in nature. As a result of the final agreement on the QSA being signed by the major parties, a clearer picture of Colorado River Aqueduct supplies and programs has emerged. This clarification of supplies, in combination with higher local supply development from the buffer, reduces the need for additional supplemental water supplies through 2025. Figure A5– 2 shows a low probability of need for additional supplemental water supplies before 2010. This probability is reduced to zero beyond 2010 due to the development of supplies and benefit of water supply programs under the QSA. Figure A5 – 3 shows the hydrologic sequence for years 2005-2025 that result in the largest need for additional supplemental water supply. The maximum need is approximately 900,000 AF occurring during the two-year period of 2008-2009.

Figure A5–2: Probability of Additional Transfer Need

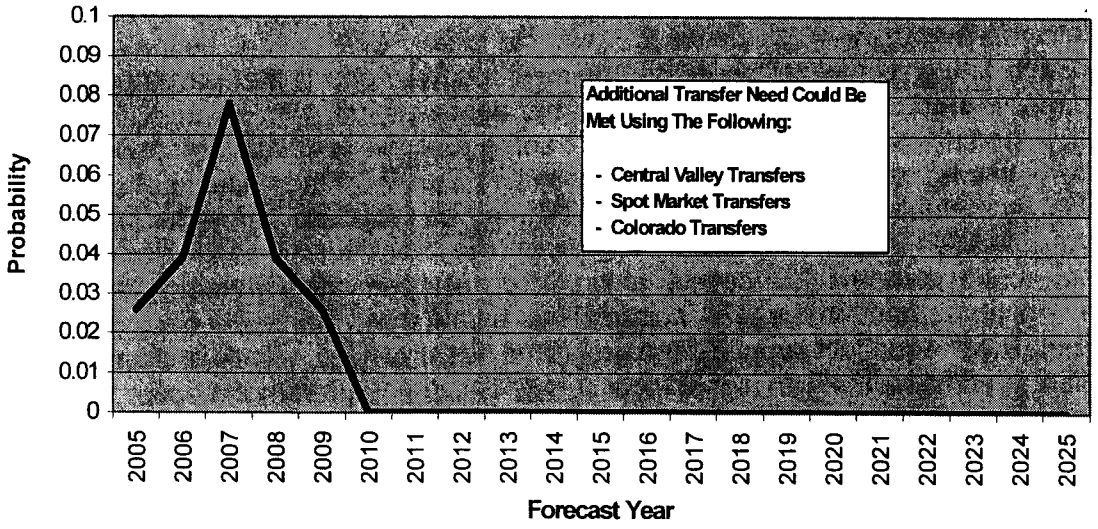
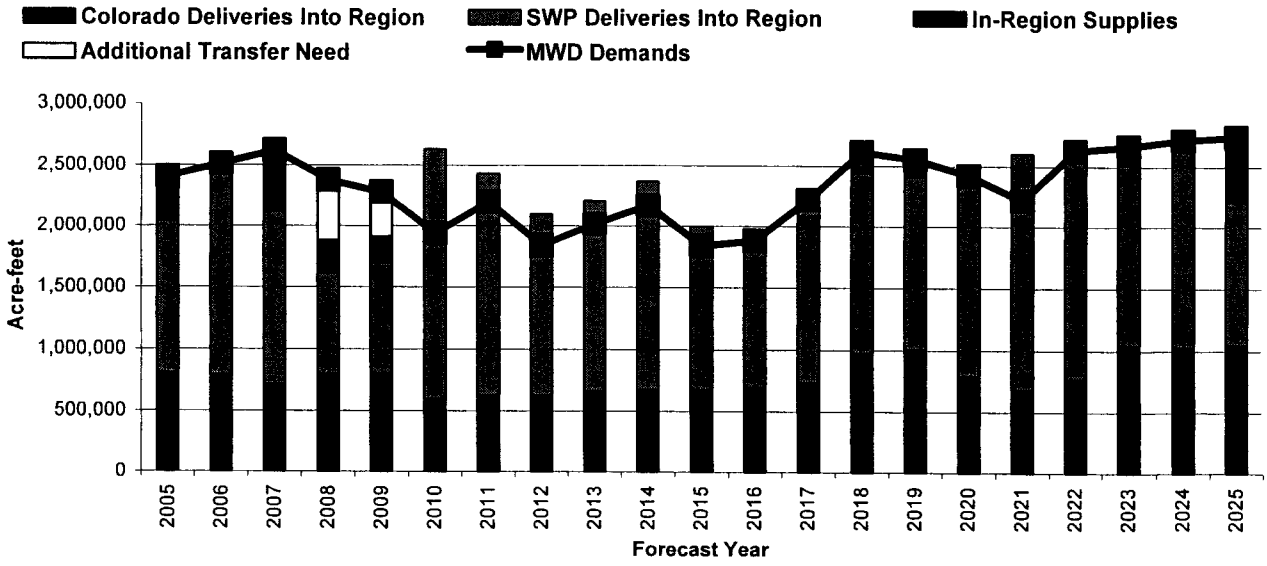
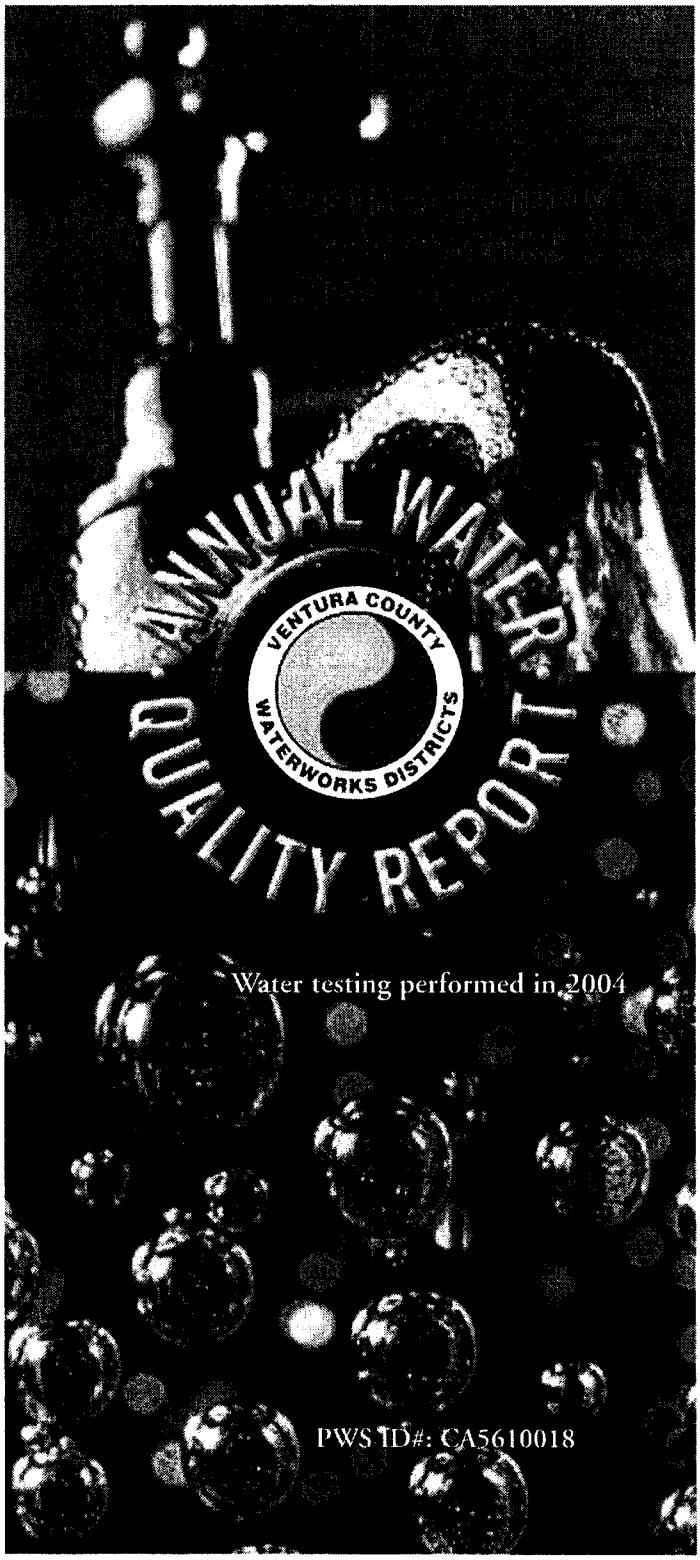


Figure A5 - 3: Sample Metropolitan Supply & Demand Scenario (Trace Begins With A 1988 Hydrology In 2005)



Appendix G

Consumer Confidence Report


ANNUAL WATER
QUALITY REPORT
VENTURA COUNTY
WATERWORKS DISTRICTS
Water testing performed in 2004
PWS ID#: CA5610018

Continuing Our Commitment

Ventura County Waterworks District No. 1 (District) was created in 1921. The Water and Sanitation Department of the County of Ventura, Public Works Agency is responsible for the administration, operation, and maintenance of the water system. The Ventura County Board of Supervisors is the governing body of the District, and a Citizens' Advisory Committee provides input on policy and rate adjustment matters.

Once again we proudly present our annual water quality report. This edition covers all testing completed from January through December 2004. We are pleased to tell you that our compliance with all state and federal drinking water laws remains exemplary. As in the past, we are committed to delivering the best quality drinking water. To that end, we remain vigilant in meeting the challenges of source water protection, water conservation, and community education while continuing to serve the needs of all of our water users.

For more information about this report, or for any questions relating to your drinking water, please call Al Sexton, Laboratory Manager, at (805) 378-1168.

Important Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The U.S. EPA/CDC (Centers for Disease Control) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791.

Water Conservation Tips

Water conservation measures are an important first step in protecting our water supply. Here are a few suggestions:

Conservation measures you can use inside your home include:

- Fix leaking faucets and toilets; replace old fixtures with water-saving devices.
- Do not use the toilet for trash disposal.
- Turn water off while shaving or brushing teeth.
- Soak dishes before washing; run dishwasher only when full.

You can conserve outdoors as well:

- Water lawn and garden early morning or evening.
- Use mulch around plants and shrubs.
- Use water from a bucket to wash your car, and save the hose for rinsing.

Source Water Assessment

In December 2002, Metropolitan Water District of Southern California (MWD) completed its source water assessment of its State Water Project supplies. State Water Project supplies are considered to be most vulnerable to urban/storm water runoff, wildlife, agriculture, recreation, and wastewater. A copy of the Assessment can be obtained by contacting MWD by phone at (213) 217-6850.

Radon

Radon is a radioactive gas that occurs naturally in some groundwater. It may pose a health risk when the gas is released from water into air, as occurs during showering, bathing, or washing dishes and clothes. Radon gas released from drinking water is a relatively small part of the total radon in air. Radon is released into homes and groundwater from soil. Samples taken from our water supply between 1999 and 2000 have shown an average radon concentration of 552 pCi/L with a range of 270 to 1,100 pCi/L. Inhalation of radon gas has been linked to lung cancer; however, the effects of radon ingested in drinking water are not yet clear. If you are concerned about radon in your home, tests are available to determine the total exposure level. For additional information, call the U.S. EPA Radon Hotline at (800) SOS-RADON.

Community Participation

You are invited to participate in our public forum and voice your concerns about your drinking water. The Citizens' Advisory Committee meets bimonthly at the District Office located at 7150 Walnut Canyon Road in Moorpark. If you wish to participate, please call (805) 584-4830 for the specific date and time.

Where does the District's Water come from?

The District's water supply comes from both imported and local sources. In 2004, virtually 100% of our total supply came from the State Water Project. This water originates in northern California, where it is captured in reservoirs north of Sacramento and released through natural rivers and streams into the delta of the Sacramento and San Joaquin Rivers. It is transported to the Southland in the 444-mile California Aqueduct to State Water Project contractors, such as Metropolitan Water District of Southern California (MWD). The water the District eventually receives is filtered and disinfected by MWD at its Jensen Filtration Facility in Granada Hills. The water is then delivered by MWD to its 26 member public agencies, including Calleguas Municipal Water District (CMWD), Ventura County's regional wholesale purveyor and the District's direct supplier.

Local water is pumped from the Las Posas Basin by five groundwater wells, owned and operated by the District. The District treats the water that is pumped from the wells, and then delivers it to our customers.

Local and imported water is delivered to our customers through our distribution system, which consists of 16 reservoirs, five booster pump stations, and approximately 127 miles of waterlines. Water service is provided through approximately 9,935 service connections.

In the year 2004, the District supplied approximately 13,200 acre-feet of water to over 35,500 people in the City of Moorpark and the contiguous unincorporated areas to the north and west. About 76% of the water supplied by the District was used for residential, industrial, commercial, and fire protection purposes. The remaining 24% was used for agriculture.

Substances that might be in Drinking Water

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

In order to ensure that tap water is safe to drink, U.S. EPA and the California Department of Health Services (CDHS) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. CDHS regulations also establish limits for contaminants in bottled water that must provide the same protection for public health. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk.

Contaminants that may be present in source water include:

Microbial Contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife;

Inorganic Contaminants, such as salts and metals, which can be naturally occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming;

Pesticides and Herbicides, which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses;

Organic Chemical Contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems;

Radioactive Contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities.

More information about contaminants and potential health effects can be obtained by calling the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.

Sampling Results

During the past year we have taken hundreds of water samples in order to determine the presence of any radioactive, biological, inorganic, volatile organic, or synthetic organic contaminants. The table below shows only those contaminants that were detected in the water. Although all of the substances listed here are under the Maximum Contaminant Level (MCL), we feel it is important that you know exactly what was detected and how much of the substance was present in the water. The state requires us to monitor for certain substances less than once per year because the concentrations of these substances do not change frequently. In these cases, the most recent sample data are included, along with the year in which the sample was taken.

PRIMARY DRINKING WATER STANDARD (Regulated in order to protect against possible adverse health effects)

				District		MWD (Jensen)		CMWD (LBWFP)			
SUBSTANCE (UNITS)	YEAR SAMPLED	MCL [MRDL]	PHG (MCLG) [MRDLG]	AMOUNT DETECTED	RANGE LOW HIGH	AMOUNT DETECTED	RANGE LOW HIGH	AMOUNT DETECTED	RANGE LOW HIGH	VIOLATION	TYPICAL SOURCE
Aluminum (ppm)	2004	1	0.6	NA	NA	ND	ND-0.055	ND	ND	No	Erosion of natural deposits; residue from some surface water treatment processes
Chloramines (ppm)	2004	[4.0 (as Cl_2)]	[4 (as Cl_2)]	NA	NA	2.4	1.7-3.0	2.0	1.9-2.1	No	Drinking water disinfectant added for treatment
Fluoride (ppm)	2004	2	1	0.20 [1]	0.20-0.30	0.11	0.10-0.12	0.2	n/a	No	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Gross Alpha Particle Activity (pCi/L)	2004	15	n/a	2.05	ND-6.40	ND [2]	ND	ND	ND	No	Erosion of natural deposits
Gross Beta Particle Activity (pCi/L)	2004	50	n/a	NA	NA	4.9 [2]	ND-6.2	ND	ND	No	Decay of natural and man-made deposits
Haloacetic Acids (ppb)	2004	60	n/a	14	ND-25	27	10-63	14	6-24	No	By-product of drinking water disinfection
Nitrate (as nitrate, NO_3) (ppm)	2004	45	45	ND	ND-2.35	2.70	2.30-3.19	ND	ND	No	Runoff and leaching from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
TTHMs [Total Trihalomethanes] (ppb)	2004	80	n/a	52.9	40.6-60.1	60	30-87	52	32-65	No	By-product of drinking water chlorination
Turbidity [3] (NTU)	2004	TT	n/a	NA	NA	0.07	n/a	0.03	n/a	No	Soil runoff
Uranium (pCi/L)	2004	20	0.5	2.69	ND-8.50	ND [2]	ND	ND	ND	No	Erosion of natural deposits

Tap water samples were collected for lead and copper analyses from 31 homes in the service area.

SUBSTANCE (UNITS)	YEAR SAMPLED	ACTION LEVEL	PHG (MCLG)	AMOUNT DETECTED (90TH %TILE)	HOMES ABOVE ACTION LEVEL [4]	VIOLATION	TYPICAL SOURCE
Copper (ppm)	2003	1.3	0.17	0.23	0	No	Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Lead (ppb)	2003	15	2	2.9	0	No	Internal corrosion of household water plumbing systems; discharges from industrial manufacturers; erosion of natural deposits

FOOTNOTES

[1] Sampled in 2002
[2] Sampled in 2002 & 2003
[3] Turbidity is a measure of the cloudiness of the water. MWD and CMWD monitor it because it is a good indicator of the effectiveness of their filtration systems. During the reporting year, 100% of all samples taken to measure turbidity met water quality standards.
[4] Sampled in 2001
[5] One grain per gallon is equal to 17.1 ppm.

SECONDARY DRINKING WATER STANDARD (Regulated in order to protect the odor, taste and appearance of drinking water)

				District		MWD Jensen		CMWD (LBWFP)			
SUBSTANCE (UNITS)	YEAR SAMPLED	SMCL	PHG (MCLG)	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Aluminum (ppb)	2004	200	600	NA	NA	ND	ND-55	ND	ND	No	Erosion of natural deposits; residual from some surface water treatment processes
Chloride (ppm)	2004	500	NS	12 [1]	10-16	71	65-77	96	n/a	No	Runoff/leaching from natural deposits; seawater influence
Corrosivity (Units)	2004	Non-corrosive	NS	NA	NA	0.1	n/a	0.2	n/a	No	Natural or industrially-corrosive influenced balance of hydrogen, carbon and oxygen in the water; affected by temperature and other factors
Iron (ppb)	2004	300	NS	199	ND-600	ND	ND	ND	ND	No	Leaching from natural deposits; industrial wastes
Manganese (ppb)	2004	50	NS	38	1.3-74	ND	ND	ND	ND	No	Leaching from natural deposits
Odor--Threshold (Units)	2004	3	NS	NA	NA	3	n/a	ND	ND	No	Naturally-occurring organic materials
Specific Conductance (µmhos/cm)	2004	1,600	NS	538 [1]	481-626	500	479-512	623	622-624	No	Substances that form ions when in water; seawater influence
Sulfate (ppm)	2004	500	NS	102 [1]	81-132	46	39-56	54	n/a	No	Runoff/leaching from natural deposits; industrial wastes
Total Dissolved Solids [TDS] (ppm)	2004	1,000	NS	378 [1]	330-440	275	266-286	365	350-380	No	Runoff/leaching from natural deposits
Turbidity (NTU)	2004	5	NS	0.37 [1]	0.23-0.51	0.05	0.05-0.06	0.02	n/a	No	Soil runoff

UNREGULATED SUBSTANCES

		District		MWD Jensen		CMWD (LBWFP)	
SUBSTANCE (UNITS)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH
Alkalinity (ppm)	2004	158 [1]	150-170	81	79-84	100	n/a
Boron (ppb)	2004	85 [1]	70-100	160	150-180	200	n/a
Calcium (ppm)	2004	60 [1]	54-73	23	22-24	29	n/a
Chromium VI (ppb)	2004	2.0 [4]	0.1-2.9	ND	ND	ND	ND
Hardness[3] (ppm)	2004	197 [1]	176-240	110	106-116	138	n/a
Magnesium (ppm)	2004	11 [1]	10-14	13	n/a	16	n/a
N-Nitrosodimethylamine (ppt)	2004	NA	NA	2.6	ND-5.9	NA	NA
pH (Units)	2004	7.7 [1]	7.6-7.8	8.3	8.3-8.4	8.2	n/a
Potassium (ppm)	2004	3 [1]	2-3	3	n/a	3	n/a
Sodium (ppm)	2004	34 [1]	31-37	54	52-56	71	n/a
Total Organic Carbon (ppm)	2004	NA	NA	2.2	2.0-2.6	2.5	2.3-2.7
Vanadium (ppb)	2004	1[1]	ND-3	ND	ND-3.4	NA	NA

Table Definitions

Action Level (Regulatory Action Level): The concentration of a contaminant, which, if exceeded, triggers treatment or other requirements which a water system must follow.

CMWD (LBWFP): Calleguas Municipal Water District (Lake Bard Water Filtration Plant)

MCL (Maximum Contaminant Level): The highest level of a contaminant that is allowed in drinking water. Primary MCLs are set as close to the PHGs (or MCLGs) as is economically and technologically feasible. Secondary MCLs (SMCL) are set to protect the odor, taste and appearance of drinking water.

MCLG (Maximum Contaminant Level Goal): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs are set by the U.S. EPA.

MRDL (Maximum Residual Disinfectant Level): The level of a disinfectant added for water treatment that may not be exceeded at the consumer's tap.

MRDLG (Maximum Residual Disinfectant Level Goal): The level of a disinfectant added for water treatment below which there is no known or expected risk to health. MRDLGs are set by the U.S. EPA.

MWD (Jensen): Metropolitan Water District of Southern California (Jensen Filtration Facility)

n/a: not applicable

NA: Not Analyzed

ND: Not Detected

NS: No Standard

NTU (Nephelometric Turbidity Units): Measurement of the clarity, or turbidity, of water.

pCi/L (picocuries per liter): A measure of radioactivity.

PDWS (Primary Drinking Water Standard): MCLs and MRDLs for contaminants that affect health along with their monitoring and reporting requirements, and water treatment requirements.

PHG (Public Health Goal): The level of a contaminant in drinking water below which there is no known or expected risk to health. PHGs are set by the California EPA.

ppb (parts per billion): One part substance per billion parts water (or micrograms per liter).

ppm (parts per million): One part substance per million parts water (or milligrams per liter).

ppt (parts per trillion): One part substance per trillion parts water (or nanograms per liter).

TT (Treatment Technique): A required process intended to reduce the level of a contaminant in drinking water.

µmhos/cm (micromhos per centimeter): A measure of electrical conductance.