Appendix B

City of Oxnard FCGMA Annual Groundwater Extraction Allocation

FOX CANYON GROUNDWATER MANAGEMENT AGENCY

Application for and Summary of
2001 Baseline Allocations and In-Lieu, Storage & Extraction (Conservation) Credits

Please provide the following information:

Owner/Operator's Name: CITY OF OXNARD * WATER PROGRAM
Address: 251 SOUTH HAYES AVENUE, OXNARD, CA 93030-6058
Phone #: (805) 385-8136 FAX: (805) 385-8137

☑ If you own/operate more than one well and want your well allocations combined, please check this box.

City No.	State Well No.	Historical Allocation	X	Reduction Factor		2001 Allocation		2001 Injections		2001 Extractions	
19	1N/22W-01D1	482.204	AF	x 0.85	=	409.873	AF	0.000	AF	0.000	AF
4	1N/22W-03F1	81.180	AF	x 0.85	=	69.003	AF	0.000	AF	0.000	AF
3	1N/22W-03F2	61.686	AF	x 0.85	=	52.433	AF	0.000	AF	0.000	AF
2	1N/22W-03F3	14.412	AF	x 0.85	=	12.250	AF	0.000	AF	0.000	AF
1	1N/22W-03F4	30.186	AF	x 0.85	=	25.658	AF	0.000	AF	0.000	AF
20	1N/22W-03F5	222.950	AF	x 0.85	=	189.508	AF	0.000	AF	827.321	AF
21	1N/22W-03F6	94.354	AF	x 0.85	=	80.201	AF	0.000	AF	3425.764	AF
22	1N/22W-03F7	0.000	AF	x 0.85	=	0.000	AF	0.000	AF	771.162	AF
23	1N/22W-03F8	0.000	AF	x 0.85	=	0.000	AF	0.000	AF	1996.631	AF
13	1N/22W-04F4	1.464	AF	x 0.85	=	1.244	AF	0.000	AF	0.000	AF
17	1N/22W-10B2	0.000	AF	x 0.85	=	0.000	AF	0.000	AF	0.000	AF
16	1N/22W-10B3	0.852	AF	x 0.85	=	0.724	AF	0.000	AF	0.000	AF
	1N/22W-11D1	56.974	AF	x 0.85	=	48.428	AF	0.000	AF	0.000	AF
ER	2N/22W-22Q2	11.868	AF	x 0.85	=	10.088	AF	0.000	AF	0.000	AF
ER	2N/22W-22Q3	28.638	AF	x 0.85	=	24.342	AF	0.000	AF	0.000	AF
	2N/22W-35C3	0.000	AF	x 0.85	=	0.000	AF	0.000	AF	0.000	AF
OHS	2N/22W-34A3	Incl in "Hist		Allocations		Transferred"	AF	0.000	AF	0.000	AF
	TOTALS	1,086.768	AF	x 0.85	=	923.752	AF	0.000	AF	7,020.878	AF

HISTORICAL ALLOCATIONS TRANSFERRED: 5,252.272 AF x 0.85 = **4,464.431 AF**

BASELINE ALLOCATIONS APPROVED: 586.650 AF **USED:** **586.650 AF**

STORAGE CREDITS = 0.000 AF (2001 Injections) - 0.000 AF (2001 Extractions) = **0.000 AF**

EXTRACTION CREDITS = 5,388.183 AF (2001 & Xfer'd Allocations) - 6,434.228 AF (Unacct'd Extractions - Baseline Used) = **-1,046.045 AF**

Applicant's Name: KEN ORTEGA (Please Print)
Title: WATER SUPERINTENDENT
Applicant's Signature:
Date: 4/24/2002

Effective beginning with the 1999 calendar year, credits will be calculated by GMA staff as provided for in Ordinance No. 5

DISPOSITION OF GMA APPLICATION
(For office use only)

☑ Approved
☐ Denied

Conditions of Approval/
Reason(s) for Denial: _____

By: _____ Date _____

This application for credits is valid when signed by the GMA Agency Coordinator.

Lowell Preston, Ph.D., GMA Agency Coordinator — Date 4/24/02

Appendix C

Report on Metropolitan's Water Supplies

Date: February 8, 2002 D R A F T

To: Member Agency Managers

From: Ronald R. Gastelum, Chief Executive Officer

Subject: Availability of Metropolitan's Water Supplies

Recent legislation authored by Senator Sheila Kuehl (SB 221) and Senator Jim Costa (SB 610) requires water retailers to demonstrate whether their water supplies are sufficient for certain proposed subdivisions and large development projects subject to the California Environmental Quality Act (CEQA). Although Metropolitan and other water wholesalers do not have verification responsibilities under this legislation, information provided by Metropolitan may be useful to retailers in complying with these responsibilities.

Metropolitan's current Regional Urban Water Management Plan (RUWMP)[1] may provide information to assist member agencies, retailers, cities and counties within Metropolitan's service area in their compliance. To further support this effort, Metropolitan has independently prepared the enclosed report on available water supply and projected demands. As described in these documents, Metropolitan has the capability to provide sufficient water supply, water delivery, and financing of planned facility and resources investments to meet the projected supplemental water demands of its member agencies. This finding is in accordance with Metropolitan's policy objective for water supply reliability. Metropolitan's policy objective for water supply reliability is:

> "*Through the implementation of the Integrated Resources Plan, Metropolitan and its member agencies will have the full capability to meet full-service demands at the retail level at all times.*"[2]

In order for Metropolitan to provide this level of reliability, coordinated and effective water supply development and demand management will be essential. Based on the urban water management plans submitted by the individual member agencies in December 2000,

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[1] The Metropolitan Board of Directors adopted the RUMWP on December 12, 2000 in accordance with its policy objective for water supply reliability for its service area.

[2] The RUWMP is based on the IRP. The contingency of a catastrophic event's impact on quality, quantity, and reliability temporarily interfering with this capability must of course be recognized.

Metropolitan's total regional water supply, as disclosed in its RUMWP, would be sufficient to allow each of the member agencies to meet their projected supplemental water demands for the foreseeable future. Consequently, Metropolitan is confident that the overall water supply reliability of the region can be maintained for the foreseeable future.

If you require additional information or assistance regarding availability of supplemental water supplies and assumptions as to regional demands and supplies, please write to Mr. Steve Arakawa, Group Manager of Water Resources Management, at the following address; and he will promptly respond in writing.

Metropolitan Water District of Southen California
P.O. Box 54153
Los Angeles, CA 90054-0153

Ronald R. Gastelum

s:\man\mam1.doc

Attachment: Report on Metropolitan's Water Supplies

Founder's Garden in Ontario, California – featured in Metropolitan's Liquid Art

Report on Metropolitan's Water Supplies

February 7, 2002

MWD
METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Report on Metropolitan's Water Supplies

Dated February 7, 2002

MWD
Metropolitan Water District of Southern California

Report on Metropolitan's Water Supplies

TABLE OF CONTENTS

INTRODUCTION

OBJECTIVE OF THE REPORT

The objective of this document, *Report on Metropolitan's Water Supplies,* is to provide the member agencies, retail water utilities, cities and counties within the service area of The Metropolitan Water District of Southern California (Metropolitan), with information that may assist in their compliance with SB 221 (Kuehl) and SB 610 (Costa). Both SB 221 and SB 610 are recently enacted legislation requiring that new development meeting certain criteria provide "substantial evidence" of available water supplies in the event of drought. The report identifies actual and projected demands for water from Metropolitan, as well as the water supplies available to Metropolitan to meet those demands. This report will be updated as new information and circumstances warrant. It should be noted that the information presented in this report is consistent with that utilized in Metropolitan's Regional Urban Water Management Plan dated December 2000.

This report serves two primary purposes. These purposes are to:

- Demonstrate Metropolitan's ability to meet projected demands over the next 20 years and to provide additional resource reserves as a "margin-of-safety" that mitigates against uncertainties in demand projections and risks in implementing supply programs.

- Demonstrate that Metropolitan is implementing a comprehensive plan to secure reliable water supplies in accordance with policy principles and objectives established by Metropolitan's Board of Directors.

REGIONAL APPROACH TO WATER IN SOUTHERN CALIFORNIA

Southern California's challenge in managing its water resources is driven by one of the most fundamental realities of the West – it is an arid region subject to drought. And yet, fulfilling this responsibility of providing a safe and reliable water supply for beneficial uses by a growing population and economy is no easy task, especially given the many diverse interests for the region's water resources. In recent years, it has become clear that a regional approach that integrates the development of local and imported water supplies is needed to solve the problems of supply shortages and water quality. In addition, coordination amongst water providers is key to making cost-effective investments in local and imported water supplies and in infrastructure improvements.

Interaction with Local Entities. Water in Southern California is provided through a complex system of infrastructure operated by many different institutional entities. More than 300 public agencies and private companies provide water on a retail basis to approximately 17 million people living in a 5,200 square-mile area. Metropolitan is the primary wholesale provider of imported water for the region. Metropolitan serves 26 member agencies, comprising 14 cities, 11 municipal water districts, and 1 county authority. Metropolitan's member agencies, in turn, serve customers in more than 145 cities and 94 unincorporated communities.

Metropolitan was formed in 1928 under the Metropolitan Water District Act "for the purpose of developing, storing, and distributing water" to the residents of Southern California. Metropolitan's initial function was the construction and operation of the Colorado River Aqueduct to supplement local supplies. By the early 1970s Metropolitan was receiving delivery of imported water from the California Department of Water Resources using the newly constructed State Water Project facilities. The 1987-92 drought, and other regulatory and institutional changes that occurred before it, resulted in greater uncertainties in the imported supplies available to the region. For the first time, widespread water rationing had to be imposed in 1991.

Lesson Learned: Plan Ahead. In response to these circumstances, Metropolitan and its member agencies redefined Metropolitan's role and responsibilities and took important steps to secure and maintain water supply reliability.

- Metropolitan's Board of Directors established the policy objective for water supply reliability as part of its Integrated Resources Plan (IRP). The IRP was approved by the Board in January 1996. This policy objective is:

  Through the implementation of the Integrated Resources Plan, Metropolitan and its member agencies will have the full capability to meet full-service demands at the retail level at all times.

- The IRP calls for a coordinated regional approach to secure reliable supplies for Southern California over the long-term future. Coordinated efforts among Metropolitan, the member agencies, retailers, and other water providers are essential to realizing the benefit of a diversified program combining conservation with the development of all potential sources of supply – local surface runoff and groundwater, recycled water, desalinated seawater, and the imported supplies provided by Metropolitan.

- In order to meet the policy objective for water supply reliability, the IRP and Metropolitan's Strategic Plan Policy Principles established Metropolitan as a regional provider of water and redefined Metropolitan's responsibilities in this role. Metropolitan's responsibilities include:
  - Supporting the implementation of long-term conservation measures and development of additional local resources, such as recycling and reuse, groundwater clean-up, and ocean desalination.
  - Securing additional imported supplies through programs that increase the availability of water delivered through the Colorado River Aqueduct and the California Aqueduct.
  - Improving the region's water infrastructure needed to distribute, treat and store imported water.
  - Developing a comprehensive management plan for dealing with periodic surplus and shortage conditions.

Financial Strength: Key to Adaptability. The hallmark of Metropolitan's success in securing water supplies in anticipation of future demand is its strong financial history – with one of the highest public bond ratings in California. Most recently, Metropolitan has approved a new rate structure that provides added flexibility and adaptability for meeting an expanding range of uncertainties. These uncertainties include: (1) the difficulty in predicting changes in growth over the next several years, (2) the risks in implementing new local and regional supplies, (3) future water quality and environmental restrictions, and (4) climate change currently being studied as another factor that may effect water availability. Experts have cited Metropolitan's ability to invest in necessary supply and infrastructure projects as key to the region's adaptability to these uncertainties. For example, the $1 billion Inland Feeder pipeline will allow Southern California to import and store greater volumes of water from Northern California in the wintertime when it's available, thus minimizing supply deliveries in the summer, the potential adverse impacts to the environment and other users competing for supplies. In addition, Metropolitan's new rate structure permits agencies the flexibility to secure their supplies from Metropolitan's imported sources and through expanded development of conservation water recycling, desalination or water transfers.

CONTENTS OF THE REPORT

The sections of the report are as follows:

- **Background**. This section discusses key issues affecting water supply certainty, Metropolitan's policy objectives for water supply reliability, its resource strategy and the demonstration of progress in meeting objectives and implementing strategy.

- **Approach**. This section describes the major steps in forecasting water demands, assessing supply capabilities, and evaluating the sufficiency of the supplies to meet demands.

- **Findings**. This section presents the evaluation of the availability of Metropolitan's water supplies to meet projected supplemental demands and reserve supplies that provide a "margin of safety" to mitigate against uncertainties in demand projections and risks in implementing supply programs.

- **Appendix A**. This appendix documents Metropolitan's demand forecasts.

- **Appendix B**. This appendix presents an inventory of the resource programs that can be reasonably relied upon to deliver supplies through the Colorado River Aqueduct and documents the source of supply, expected supply capability, and supporting information for each program.

- **Appendix C**. This appendix presents an inventory of the resource programs that can be reasonably relied upon to deliver supplies through the California Aqueduct and documents the source of supply, expected supply capability, and supporting information for each program.

- **Appendix D**. This appendix presents an inventory of the resource programs that can be reasonably relied upon to deliver supplies from in-basin storage and documents the source of supply, expected supply capability, and supporting information for each program.

- **Disclosure Statement**. Statement of disclosure covering this report is provided.

BACKGROUND

The last five years have been a time of enormous change in the way in which California water is viewed and managed well into the future. For example,

- The passage of SB 221 and SB 610 has placed on retail water providers the responsibility of demonstrating sufficient and reliable water supplies.
- There is increasing need for freshwater supplies among urban, agricultural and environmental interests.
- Water agencies are required to adapt to more water quality and environmental regulations in the production of drinking water, including protections for critical habitat and endangered species.
- Conservation, recycling and seawater desalination are playing an increasing role in meeting water supply needs.
- There is greater focus on local watershed management for supply and quality enhancements.
- There is greater recognition of the strategic value of underground and surface storage to meet water supply needs during shortages and emergencies.
- Recent water transfers, which move water from willing sellers to willing buyers, demonstrate the value of water transfers as dependable annual and dry-year supplies.

These changes present new risks and opportunities for securing sufficient and reliable water supplies. As a result, the emerging issue of concern is whether sufficient water supplies are available to meet existing and projected demands over the long-term.

METROPOLITAN'S POLICY OBJECTIVES FOR WATER SUPPLIES

In response to the question of sufficient water supplies, the Metropolitan Board of Directors established policy objectives regarding water supply reliability and Metropolitan's role and responsibilities in providing water service on a wholesale basis.

Water Supply Reliability. Metropolitan's Board of Directors established the policy objective for water supply reliability as part of its Integrated Resources Plan (IRP). The IRP was approved by the Board in January 1996. This policy objective is:

> *Through the implementation of the IRP, Metropolitan and its member agencies will have the full capability to meet full-service demands at the retail level at all times.*

This policy objective calls for close coordination between Metropolitan, the member agencies, and retail providers in integrating the development of imported and local resources to meet retail demands in an efficient and affordable way. Wholesale and retail water providers, including Metropolitan had been independently planning investments in projects and programs within the service area to address water reliability needs. Without a coordinated and balanced regional response by water providers to growing demands, the

region could run the risk of failing to demonstrate the availability of sufficient water supplies and risk of overspending on its water supply and infrastructure.

Metropolitan's Role and Responsibilities. Recognizing the need for coordination with member agencies and retail water providers, the IRP and the Strategic Plan Policy Principles (adopted in December 1999) established Metropolitan's role as a regional provider and redefined its responsibilities. The successful accomplishment of the policy objective on water supply reliability places significant responsibility on Metropolitan to provide leadership in several areas. These areas include: (1) implementing water management programs that support the development of cost-effective local resources, (2) securing additional imported supplies through programs that increase the availability of water delivered through the Colorado River Aqueduct and the California Aqueduct, (3) providing the infrastructure needed to integrate imported and local sources of supply, (4) establishing a comprehensive management plan for dealing with periodic surplus and shortage conditions, and (5) developing a rate structure that strengthens Metropolitan's financial capabilities to implement water supply programs and build infrastructure improvements.

METROPOLITAN'S WATER RESOURCE STRATEGY

The challenge for Metropolitan is to develop and implement a comprehensive water resource strategy that can adapt to continuous change, safeguard against uncertainties, and benefit from new opportunities. The key elements of Metropolitan's strategy are:

Portfolio of Diversified Supplies. Metropolitan continues to develop a portfolio of diversified supplies in accordance with the IRP and Metropolitan's Regional Urban Water Management Plan (RUWMP). The IRP established policy guidelines for investing in water conservation, water recycling, desalination, Colorado River deliveries, State Water Project deliveries, water transfers, and storage in groundwater basins and surface reservoirs. The RUWMP was adopted by Metropolitan's Board in December 2000 consistent with the California Urban Water Management Planning Act (Water Code Sections 10610 through 10656) and presents Metropolitan's plans for reasonable and practical efficient water uses, recycling and conservation activities, and drought contingencies.

The diverse water project investments in these plans reduce the risk of failure in any single part of the portfolio. Risks stem from cost, quality, or supply availability. It also reduces the potential impact of a severe drought or an emergency such as a major earthquake. The portfolio of diversified supplies avoids the pitfalls of "putting all your eggs in one basket."

Supply Reserves to Mitigate Uncertainties. Metropolitan plans to mitigate for supply uncertainties by continuing to secure supplies and build infrastructure improvements that are available in advance of the time of need and can provide back up capabilities. This adaptive management approach creates supply reserves that maintain Metropolitan's flexibility in responding to changes in demand and supply conditions.

New Rate Structure. Metropolitan's Board of Directors approved a new rate structure in October 2001. The rate structure provides the necessary financing capabilities to support the IRP and strategic planning vision that Metropolitan is a regional provider of services, maintains the reliable delivery of imported water supplies, encourages the development of additional local supplies like recycling and conservation, and accommodates a water transfer market. Through its regional services, Metropolitan ensures a baseline of reliability and quality for imported water deliveries in its service area. By unbundling its full-service water rate, Metropolitan provides greater opportunity for member agencies to competitively manage their supplies and demand to meet future needs in a responsible, least-cost manner.

DEMONSTRATING THE AVAILABILITY OF SUFFICIENT SUPPLIES

In order to demonstrate the availability of sufficient water supplies for the region, Metropolitan must continue to fulfill its responsibilities as the regional provider under the IRP and Strategic Plan. Metropolitan's progress in these areas of responsibility is as follows:

Implementing water management programs that support the development of cost-effective local resources. Metropolitan has established and implemented programs to provide financial incentives to member agencies in the development of local resources. These programs include the Local Projects Program (water recycling and groundwater recovery), Conservation Program, and Request-for-Proposal process for ocean desalination projects. These programs are meeting the resource objectives in the IRP.

The status and progress of Metropolitan's efforts in implementing programs to support the development of conservation and local resources management programs are documented in Metropolitan's RUWMP and Metropolitan's Annual Progress Report to the California State Legislature on Achievements in Conservation, Recycling and Groundwater Recharge, dated February 1, 2002.

Securing additional imported supplies through programs that increase the availability of water delivered through the Colorado River Aqueduct and the California Aqueduct. Metropolitan has implemented several programs to continue the reliable deliveries of water supplies through the Colorado River Aqueduct, the California Aqueduct and the development of in-basin groundwater storage. These efforts include participating in federal and state initiatives such as the California Water Use Plan for the Colorado River, CALFED for the Bay-Delta, and the Sacramento Valley Water Management Agreement. Beyond these initiatives, Metropolitan has acquired additional supplies through cooperative agreements and business partnerships with entities in the Central Valley and within the Colorado River system to implement water transfers, storage, conservation and land management programs. Finally, in accordance with Metropolitan's IRP and Strategic Plans, Metropolitan and the member agencies have moved ahead in maximizing the use of available water supplies through in-basin groundwater conjunctive use programs.

The status and progress of Metropolitan's efforts in implementing programs to secure additional supplemental imported water supplies are documented in the Metropolitan's RUWMP and this document, *Report on Metropolitan's Water Supplies*.

Providing the infrastructure needed to integrate imported and local sources of supply. Metropolitan's Capital Investment Plan (CIP) includes projects that have been identified from its studies of projected water needs that are embodied in Board-approved documents such as the IRP, Distribution System Overview Study, and the Chief Executive Officer's Business Plan. The identification, assessment and prioritization of 155 reliability and rehabilitation projects have been completed in the CIP.

The status and progress of Metropolitan's infrastructure improvements are documented in Metropolitan's Capital Investment Plan. This plan is presented to Metropolitan's Board of Directors as part of the annual budget review.

Establishing a comprehensive management plan for dealing with periodic surplus and shortage conditions. In April 1999, Metropolitan's Board of Directors adopted the Water Surplus and Drought Management Plan (WSDM Plan). This plan will guide the management of Metropolitan's water supplies during surplus and shortage conditions to achieve the reliability goals of the IRP.

The establishment of a comprehensive management plan for dealing with periodic surplus and shortage conditions is documented in the RUWMP and Metropolitan Report No. 1150, *Water Surplus and Drought Management Plan*.

The new rate structure strengthens Metropolitan's financial capabilities to implement water supply programs and build infrastructure improvements.

The approval of the new rate structure is documented in the October 2001 Board Letter.

APPROACH

The approach to evaluating the availability of Metropolitan's supplies involves three basic steps: (1) forecast supplemental water demands, (2) assess Metropolitan's supply capabilities, and (3) compare the supplemental demand forecasts and supply capabilities.

DEMAND FORECASTS

Water demands on Metropolitan are projected according to four key parameters: retail demands, local replenishment demands, local supplies, and Metropolitan system storage requirements. The methodology and estimates of water demand projections are documented in Appendix A.

- **Retail Demands**. To forecast retail water demands, Metropolitan utilizes an econometric model, the MWD-MAIN Water Use Forecasting System that relates water use to independent variables such as population, housing, employment, income, price, weather, and conservation. This model has demonstrated performance as many water resource agencies across the country use similar versions of this model including the U.S. Army Corps of Engineers, the U.S. Geological Survey, the state of New York, the cities of Phoenix, Las Vegas, and Portland and some of Metropolitan's member agencies.

  The demographic and economic variables in the forecast are based on the Southern California Association of Governments (SCAG) Regional Transportation Plan (98RTP) and the San Diego Association of Government (SANDAG) 2020 Forecast. SCAG and SANDAG demographic projections are supported by environmental impact reports and based on city, county and regional general plans. If a development within Metropolitan's service area is included in the local general plans utilized in the SCAG and SANDAG projections then there should be a linkage between the water demands for that development and the supplies made available by Metropolitan and the member agencies.

- **Local Replenishment Demands**. Local replenishment demands refer to the member agencies' annual need for water to recharge groundwater basins and surface reservoirs. Some of this need is met by the member agencies' purchases of deliveries under Metropolitan's Long-Term Seasonal Storage Program. These demands include the water delivered by Metropolitan to member agencies and stored by member agencies for use in future years and not the current year.

- **Local Supplies**. Local supplies include local groundwater and surface water production, Los Angeles Aqueduct deliveries, water recycling, groundwater recovery, and ocean desalination. Member agencies and retail water providers produce these local supplies. Over the next 20 years, Metropolitan's member agencies have projected the production from local resources development will increase by 17% and meet up to 55% of the total retail demands in 2020. Changes in the timing and supply

yield of local resources projects would result in a corresponding change in supplemental water demands on Metropolitan.

- **Metropolitan System Replenishment Requirements**. As part of its resource strategy, imported water deliveries that are available during average and wet years would be stored in Metropolitan's surface reservoirs and groundwater storage accounts located within its service area and within the California Aqueduct and Colorado River Aqueduct systems. In addition to meeting consumptive and replenishment demands, Metropolitan would also require supplies in average and wet years to refill its surface reservoirs and groundwater conjunctive use accounts.

Water demands on Metropolitan are calculated as the retail demands plus local replenishment demands less local supplies. In average and wet years, Metropolitan's system replenishment requirements would be included. The Regional Urban Water Management Plan (RUWMP) prepared in December 2000 includes forecasts of demands on Metropolitan calculated in this manner. These demand projections are shown in the following table. A comparison of the supplemental demands projected according to Metropolitan's RUWMP and according to the member agencies' urban water management plans is also shown. The RUWMP projections are 7 to 11 percent higher than the projections of the member agencies. This difference indicates that Metropolitan's supplies developed in accordance with the RUWMP would provide a measure of "margin of safety" or flexibility to accommodate some delays in local resources development or adjustments in development plans.

Demands on Metropolitan
(in million acre-feet)

Demands on Metropolitan (Average Year)	2005	2010	2015	2020
MWD RUWMP[1]	1.90	1.95	2.08	2.30
Member Agencies Plans[2]	1.68	1.82	1.94	2.09
Difference	0.22 11%	0.13 7%	0.14 7%	0.21 9%

1 Based on Metropolitan's Regional Urban Water Management Plan adopted in December 2000.
2 Based on Metropolitan review of urban water management plans submitted by member agencies in December 2000.

SUPPLY CAPABILITIES

Metropolitan's supply capabilities are the expected quantities of water that can be provided by specific supply programs included in Metropolitan's resource plan. Supply capabilities presented in this report vary according to year types (wet, average, and dry hydrologic conditions). In order to determine Metropolitan's supply capabilities, available sources of

supply have been inventoried and the associated supply yields have been estimated. The supply inventory and yields are documented in Appendices A, B, and C.

- **Supply Inventory**. Metropolitan's available supplies have been inventoried in three basic categories: (1) Colorado River Aqueduct Deliveries, (2) California Aqueduct Deliveries, and (3) In-Basin Storage Deliveries.

  In addition, the supplies are further categorized according to their implementation status. Supplies that are currently available are considered to have a high degree of certainty and reliability as they have successfully completed the critical implementation requirements. The currently available supplies refer to those resource programs that have completed environmental review, have funds appropriated or budgeted for implementation or construction, have requested or received permits and regulatory approvals and are operationally on-line by a date certain. Supplies that are under development are well defined in terms of specific projects, but are subject to some uncertainties in timing and supply yield, as they have not yet completed the critical implementation requirements. The supplies under development refer to those resource programs that are undergoing technical feasibility studies, environmental review, and negotiations for final agreements to implement and operate. The inventory of Metropolitan's supplemental supplies is shown in the following table.

- **Supply Capabilities**. The maximum supply capability of each of the resource programs has been estimated for various hydrologic events that occur in years 2005, 2010, 2015, and 2020. The hydrologic events include a multiple year dry period (repeat of 1990-92 drought), a single dry year (repeat of 1977 below-normal conditions), average year (statistical average), and wet year (repeat of 1985 above-normal condition). The expected supply capability has been estimated according to two key considerations.

  (1) Simulations of deliveries from the Colorado River Aqueduct, California Aqueduct and in-basin storage. The historical sequence of 77 hydrologic years from 1922 to 1998 are repeated into the future in order to determine the Metropolitan's water delivery capabilities under the weather and system operating conditions for the year types.
  (2) Deliveries based on historical record, written contracts or other proof, financing, and federal, state, and local permits/approvals to the extent each is applicable.

- **Supply Sufficiency**. The demand forecasts and supply capabilities have been compared over the next 20 years and under varying hydrologic conditions. These comparisons determine the supplies that can be reasonably relied upon to meet projected supplemental demands and to provide resources reserves that can provide a "margin of safety" to mitigate against uncertainties in demand projections and risks in implementing supply programs.

Metropolitan's Water Supplies

Colorado River Aqueduct Deliveries

Currently Available:
- Base Apportionment (Priority 4)
- IID/MWD Conservation Program
- Interim Surplus Guidelines/Priority 5 Apportionment
- Off Aqueduct Storage
  - Hayfield Storage Program
  - Central Arizona Banking Demonstration

Under Development:
- Coachella & All-American Canal Lining Projects
- SDCWA/IID Transfer
- PVID Land Management Program
- Off-Aqueduct Storage/Transfer Programs
  - Cadiz Groundwater Storage and Dry-Year Supply Program
  - Lower Coachella Valley Groundwater Storage Program
  - Upper Chuckwalla Storage Program
  - Central Arizona Banking Program

California Aqueduct Deliveries

Currently Available:
- SWP Entitlement Deliveries
- San Luis Reservoir Carryover
- Advance Delivery with Coachella Valley WD and Desert WA
- Semitropic Water Banking and Exchange Program
- Arvin-Edison Program Water Management Program
- San Bernardino Valley MWD Program
- Spot Market Transfers

Under Development:
- Delta Improvements
- Kern Delta WD Program
- Additional Transfers/Storage (San Bernardino Conjunctive Use Program, Westside Valley transfers, and Eastside Valley Transfers)

In-Basin Storage Deliveries

Currently Available:
- Diamond Valley Lake
- Flexible Storage in Castaic Lake and Lake Perris
- Groundwater Conjunctive Use Programs
  - Long-Term Seasonal Storage Program
  - North Las Posas Storage Program

Under Development:
- Groundwater Conjunctive Use Programs
  - Raymond Basin Storage Program
  - Proposition 13 Storage Programs
  - Additional Programs

FINDINGS

In summary, this analysis finds that current practices allow Metropolitan to bring water supplies on-line at least ten years in anticipation of demand with a very high degree of reliability. If all imported water supply programs and local projects proceed as planned, with no change in demand projections, reliability could be assured beyond 20 years.

The availability of Metropolitan's water supplies is determined by comparing total projected water demand and the expected water supply over the next 20 years. These comparisons are shown in the following graphs and tables. They demonstrate that there are sufficient supplies that can be reasonably relied upon to meet projected supplemental demands and that there are additional reserve supplies that could provide a "margin of safety" to mitigate against uncertainties in demand projections and risks in fully implementing all supply programs under development.

In more detail, the findings of the *Report on Metropolitan's Water Supplies* are:

Metropolitan's current practice of implementing supply programs in advance of need has assured reliable supplemental water deliveries:

- **Measure of Certainty**. Consistent with current practice, Metropolitan has and will continue to develop supplies that are available at least 10 years in advance of need in order to ensure water supply reliability. This advance implementation recognizes that several years may be required for a program to become fully operational and reach ultimate production capability. In addition, the advance supply provides a reserve capability that safeguards against potential demand and supply uncertainties during the interim years, while being an investment that is fully utilized at the time of need. This practice provides reliability without wasted cost.

Metropolitan has a comprehensive plan to secure reliable water supplies:

- **Implementing a Comprehensive Supply Plan**. Metropolitan is implementing a comprehensive plan to secure water supplies without disrupting the current practice of bringing supply programs on-line in advance of need. As a result, there are supplies that are currently available at least 10 years in advance of need and those that are planned and under development.
- **Securing Reliability beyond 20 Years**. If all of Metropolitan's supply programs were implemented under this comprehensive resource plan and if current trends for retail demands and local supplies continue, Metropolitan would have the capability to reliably meet projected water demands through 2030.
- **Providing Flexibility in Demand Projections**. Based on a conservative approach, the supplemental demand projections presented in Metropolitan's RUWMP and this report are 7 to 11 percent higher than the projections presented in the member agencies' urban water management plans. This difference indicates that Metropolitan's water supplies developed in accordance with the RUWMP would provide a "margin of safety" or

measure of flexibility to accommodate some delays in local resources development or adjustment in development plans.

Metropolitan's existing supply capabilities provide long-term reliability:

Based on water supplies that are currently available, Metropolitan already has in place the existing capability to:

- Meet 100 percent of its member agencies' projected supplemental demands (consumptive and replenishment needs) over the next 20 years in average and wet years.
- Meet 100 percent of its member agencies' projected supplemental demands (consumptive and replenishment needs) over the next 15 years in multiple dry years. This existing capability also provides a 7 to 12 percent reserve supply. This reserve capacity and the purchase of spot market transfers would mitigate unexpected changes in demand or supply conditions over the next 15 years.
- Meet 100 percent of its member agencies' projected supplemental demands over the next 10 years in single dry years. This existing capability also provides a 7 24 percent reserve supply during the next 10 years. This reserve capacity and the purchase of spot market transfers would mitigate unexpected changes in demand or supply conditions over the next 10 years.

With the supplies under development, Metropolitan can reliably meet projected supplemental demands beyond the next 20 years:

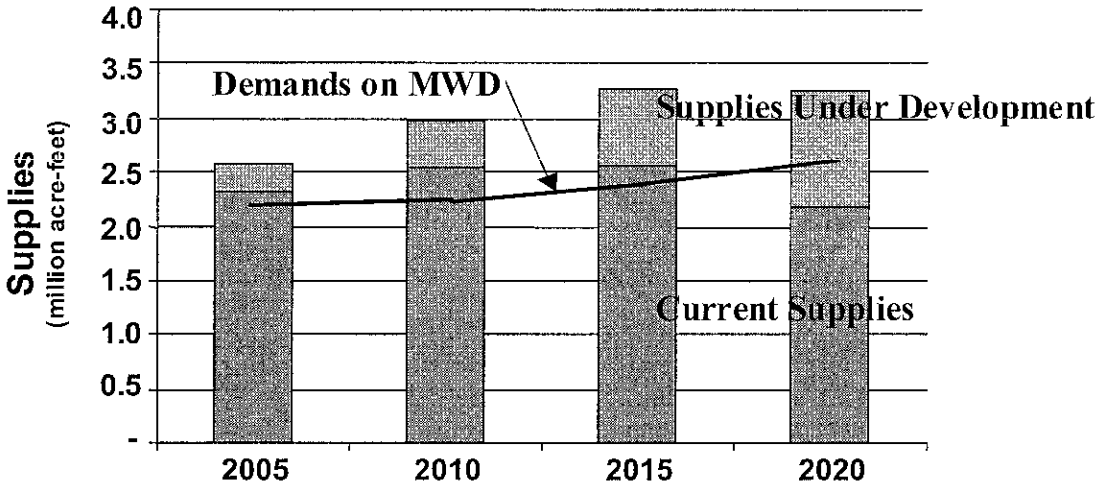
With the addition of all water supplies that are under development, Metropolitan will have the capability to:

- Meet 100 percent of its member agencies' projected supplemental demands over the next 20 years even under a repeat of the worst drought.
- Provide a 15 to 20 percent reserve supply (depending on hydrologic conditions) that could mitigate the risk of local or imported resource projects not performing up to expectations and provide greater assurances in meeting demands during dry hydrology.
- Make available sufficient deliveries for the replenishment of local and regional storage.

To further assure reliability, Metropolitan has established a comprehensive management plan for dealing with periodic surplus and shortage conditions:

- Metropolitan's Board of Director's adopted the Water Surplus and Drought Management Plan (WSDM Plan) to manage regional water supplies to minimize adverse impacts of water shortages to retail customers.

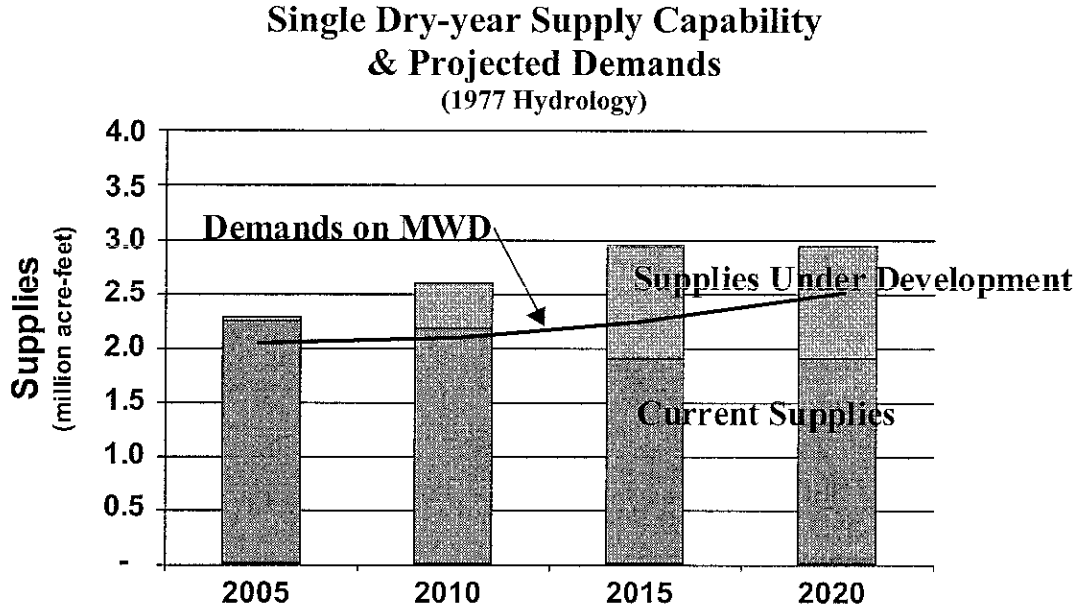
Multiple Dry-year Supply Capability & Projected Demands
(1990-92 Hydrology)



Supply Capability[1] & Potential Reserve or Replenishment

	2005	2010	2015	2020
		(acre-feet per year)		
Current Supplies				
Colorado River[2]	992,800	1,131,800	1,183,000	820,000
California Aqueduct	960,300	1,016,100	986,100	960,300
In-Basin Storage	336,700	390,000	390,000	390,000
Supplies Under Development				
Colorado River[2]	217,500	118,200	67,000	430,000
California Aqueduct	50,000	245,000	440,000	440,000
In-Basin Storage	-	99,100	200,000	200,000
Maximum Supply Capability[1]	**2,557,300**	**3,000,200**	**3,266,100**	**3,240,300**
Total Demands on Metropolitan[3] (Firm & Replenishment)	**2,199,300**	**2,251,700**	**2,360,700**	**2,572,500**
Potential Reserve & System Replenishment Supply	**358,000**	**748,500**	**905,400**	**667,800**

1 -- Represents expected supply capability for resource programs.
2 -- Total Colorado River Aqueduct Deliveries limited to CRA capacity (1,250,000 acre-feet per year).
3 -- Based on SCAG 98 RTP, SANDAG 1998 forecasts and member agency projections of local supplies.

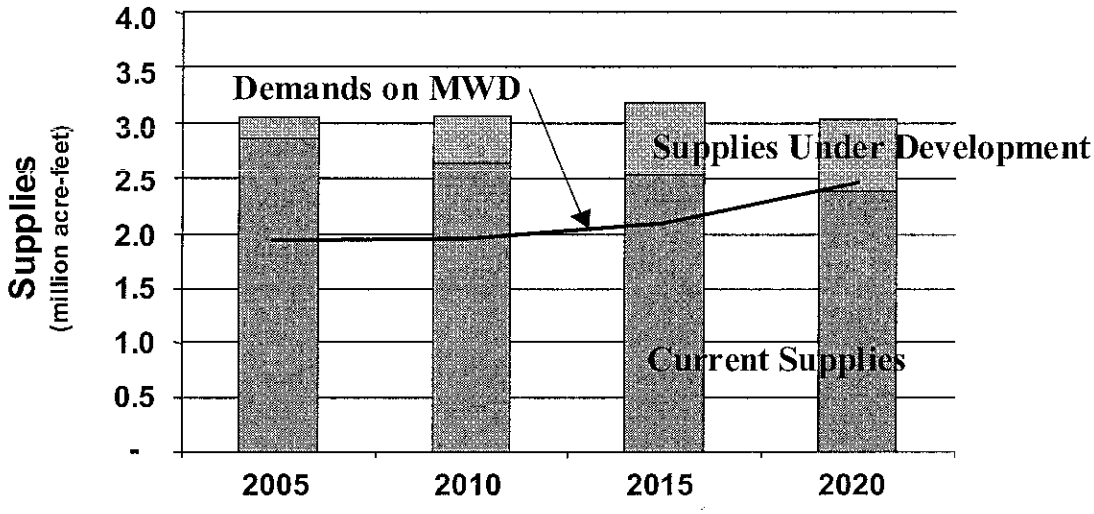


Supply Capability[1] & Potential Reserve or Replenishment

	2005	2010	2015	2020
		(acre-feet per year)		
Current Supplies				
Colorado River[2]	1,250,000	1,181,800	870,000	870,000
California Aqueduct	625,300	625,300	650,300	650,300
In-Basin Storage	370,000	390,000	390,000	390,000
Supplies Under Development				
Colorado River[2]	-	68,200	380,000	380,000
California Aqueduct	50,000	245,000	440,000	440,000
In-Basin Storage	-	99,100	200,000	200,000
Maximum Supply Capability[1]	**2,295,300**	**2,609,400**	**2,930,300**	**2,930,300**
Total Demands on Metropolitan[3] (Firm & Replenishment)	**2,093,100**	**2,145,000**	**2,270,900**	**2,494,900**
Potential Reserve & System Replenishment Supply	**202,200**	**464,400**	**659,400**	**435,400**

1 -- Represents expected supply capability for resource programs.
2 -- Total Colorado River Aqueduct Deliveries limited to CRA capacity (1,250,000 acre-feet per year).
3 -- Based on SCAG 98 RTP, SANDAG 1998 forecasts and member agency projections of local supplies.

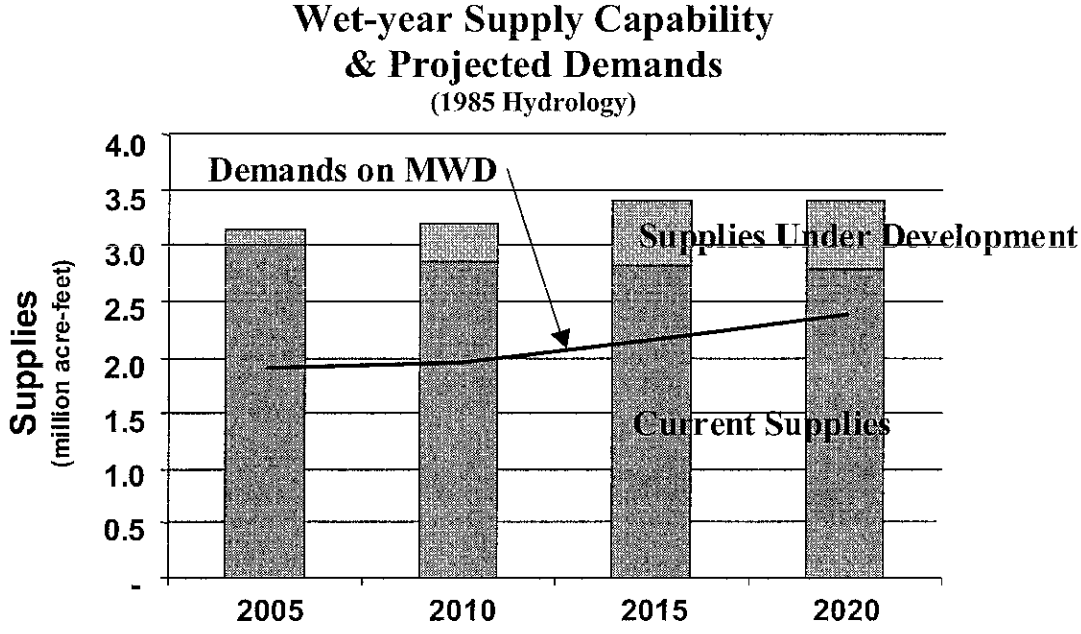
Average-year Supply Capability & Projected Demands



Supply Capability[1] & Potential Reserve or Replenishment

	2005	2010	2015	2020
		(in acre-feet per year)		
Current Supplies				
Colorado River[2]	1,089,300	850,900	819,500	673,000
California Aqueduct	1,780,800	1,783,200	1,723,900	1,714,900
In-Basin Storage	-	-	-	-
Supplies Under Development				
Colorado River[2]	160,700	368,700	388,700	388,700
California Aqueduct	20,000	65,000	220,000	220,000
In-Basin Storage	-	-	-	-
Maximum Supply Capability[1]	**3,050,800**	**3,067,800**	**3,152,100**	**2,996,600**
Total Demands on Metropolitan[3] (Firm & Replenishment)	**1,901,400**	**1,953,800**	**2,076,500**	**2,390,000**
Potential Reserve & System Replenishment Supply	**1,149,400**	**1,114,000**	**1,075,600**	**606,600**

1 -- Represents expected supply capability for resource programs.
2 -- Total Colorado River Aqueduct Deliveries limited to CRA capacity (1,250,000 acre-feet per year).
3 -- Based on SCAG 98 RTP, SANDAG 1998 forecasts and member agency projections of local supplies.



Supply Capability[1] & Potential Reserve or Replenishment

	2005	2010	2015	2020
		(acre-feet per year)		
Current Supplies				
Colorado River[2]	1,126,500	975,300	955,300	908,800
California Aqueduct	1,882,200	1,882,200	1,882,200	1,882,200
In-Basin Storage	-	-	-	-
Supplies Under Development				
Colorado River[2]	123,500	274,700	294,700	341,200
California Aqueduct	20,000	65,000	220,000	220,000
In-Basin Storage	-	-	-	-
Maximum Supply Capability[1]	**3,152,200**	**3,197,200**	**3,352,200**	**3,352,200**
Total Demands on Metropolitan[3] (Firm & Replenishment)	**1,917,700**	**1,973,300**	**2,102,600**	**2,329,600**
Potential Reserve & System Replenishment Supply	**1,234,500**	**1,223,900**	**1,249,600**	**1,022,600**

1 -- Represents expected supply capability for resource programs.
2 -- Total Colorado River Aqueduct Deliveries limited to CRA capacity (1,250,000 acre-feet per year).
3 -- Based on SCAG 98 RTP, SANDAG 1998 forecasts and member agency projections of local supplies.