

- **Water Surplus and Drought Management Plan on water supply and demand as of August 23, 2007**

Summary

Currently, the approved CRA and SWP base supplies total approximately 2.17 MAF. When combined with the approximately 724 TAF of WSDM supplies and additional WSDM management actions available through the rest of the year, Metropolitan expects to be able to meet the range of estimated demands in CY 2007. Trends in supply and demand conditions for the year have led staff to initiate WSDM actions to mitigate potential deficits in supplies for the year. These actions are detailed in this report as well as a discussion of potential impacts to operations due to delta smelt and preparation for 2008.

Attachments

[Attachment 1: Colorado River and State Water Project Supplies](#)

[Attachment 2: WSDM Supplies for CY 2007](#)

[Attachment 3: WSDM Supplies for CY 2008](#)

[Attachment 4: Programs Under Development and Emergency Storage](#)

[Attachment 5: Surface Storage](#)

Detailed Report

Each month the Board is apprised of developing water supply and demand conditions for the calendar year. This report covers conditions through August 23, 2007.

Delta Smelt Actions Affecting State Water Project Supplies

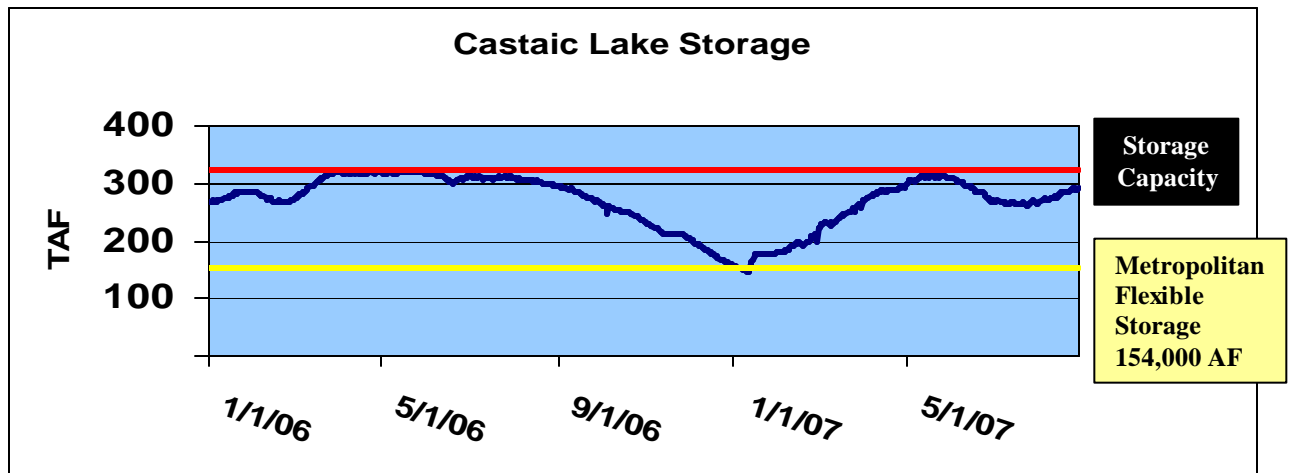
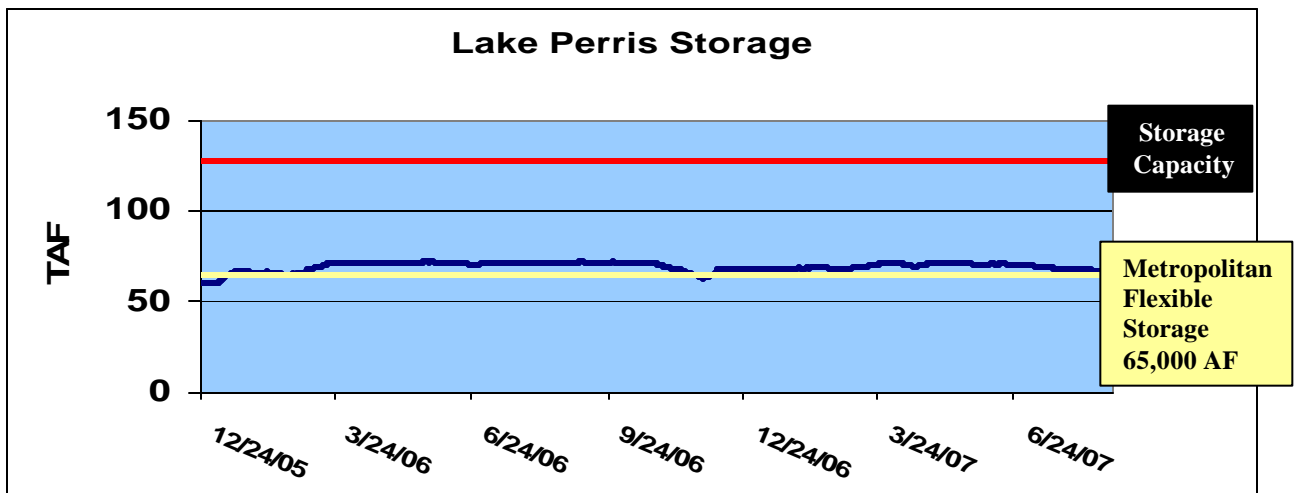
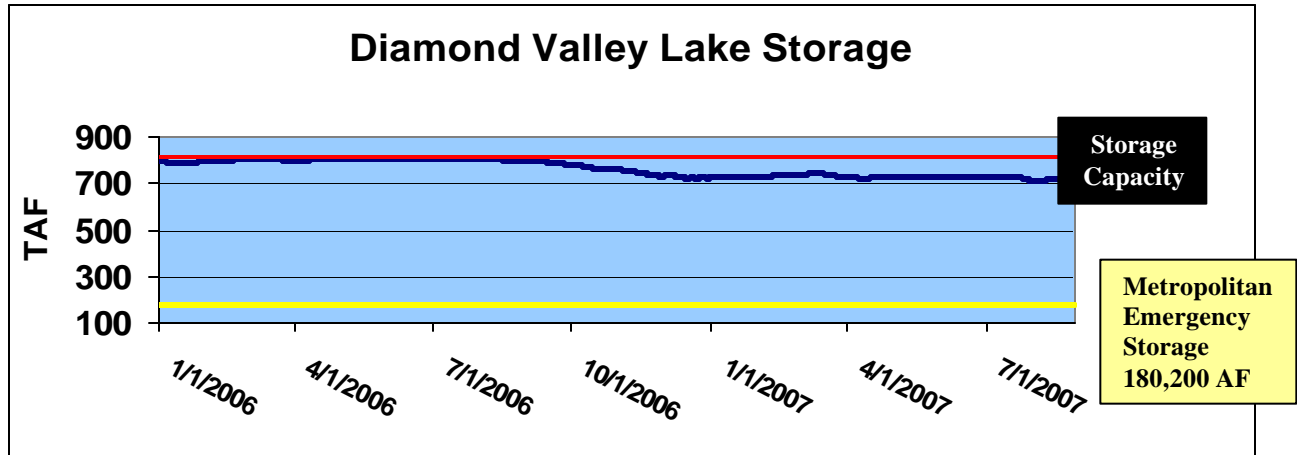
On August 31, 2007, federal judge Oliver Wanger ordered interim protective measures for the endangered delta smelt. Under the remedy ruling, operational limits on delta pumping would be put in place from the end of December, when fish are about to spawn, until June, when the delta smelt migrate westward to Suisun Bay. Judge Wanger's decision was formulated from multiple remedy proposals submitted by the plaintiff environmental groups as well as state and federal resource agencies. Because Wanger's decision does not call for fishery protection actions in the fall months, it will not impact Metropolitan's allocated State Water project supplies of 60 percent this calendar year.

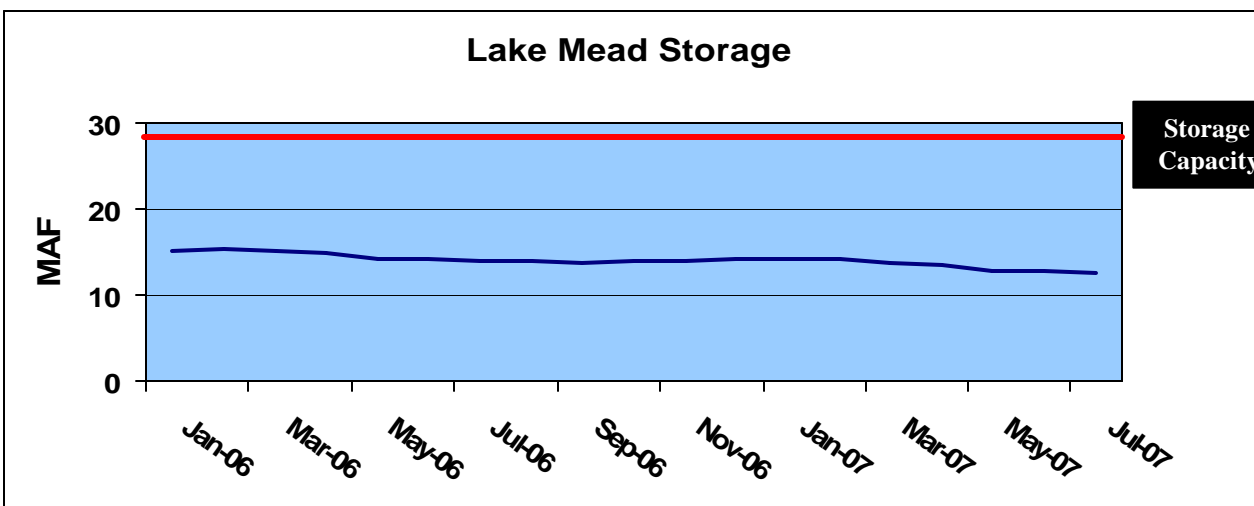
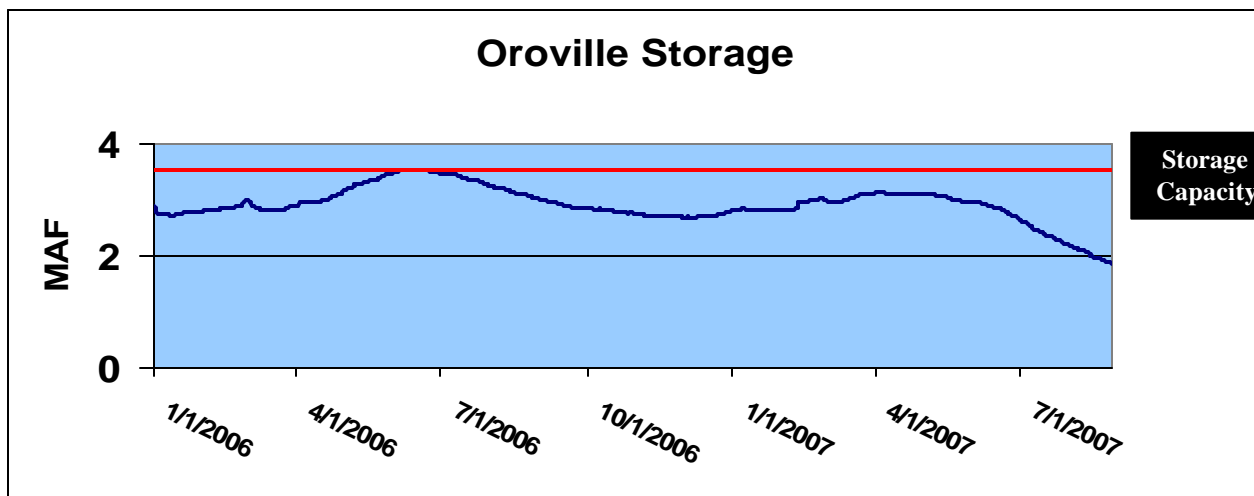
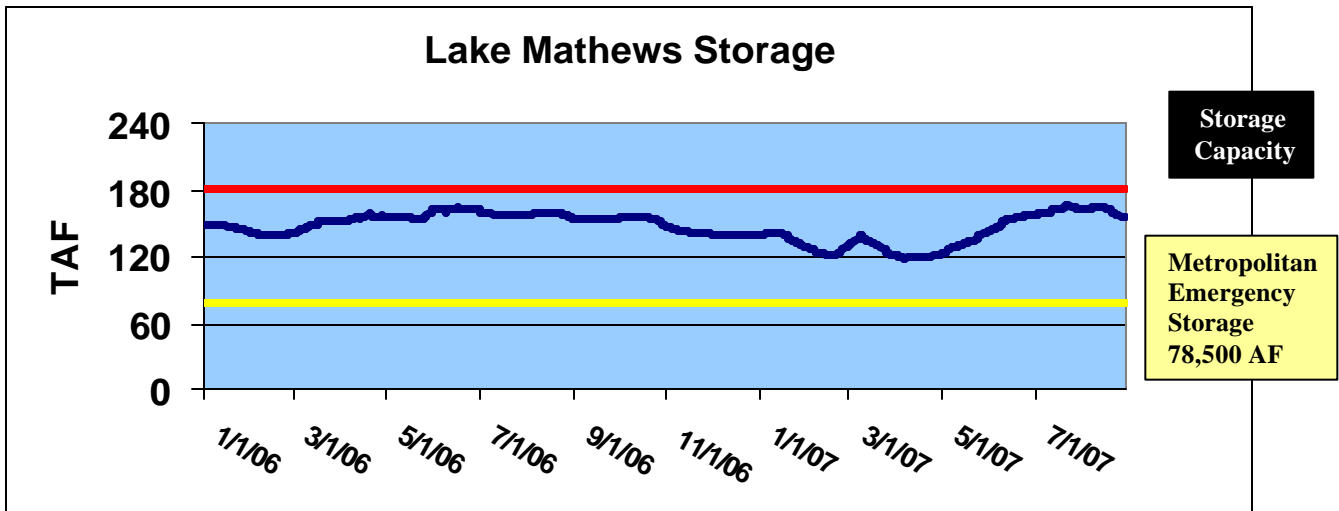
Impacts from the federal ruling will have an effect on 2008 State Water Project supplies. Based on initial estimates, Metropolitan could see as much as a 30 percent reduction on average of its SWP supplies in 2008 and beyond. Actual water supply curtailments for Metropolitan are contingent upon fish distribution and behavioral patterns, weather, and flow conditions in the Delta and how water supply reductions are divided between the state and federal projects. This remedy ruling will be in effect until the biological opinion, which he invalidated on May 23, 2007, is rewritten. This process is expected to take between 12 and 18 months. It is also very possible that similar types of actions could be incorporated into the new biological opinion by the resource agencies.

Water Supply and Demand Balance

Colorado River Aqueduct

Staff's estimate of Colorado River supplies for CY 2007 is approximately 687 thousand acre-feet (TAF) based on Metropolitan's approved water order from the Federal Bureau of Reclamation (Reclamation). This figure includes 550 TAF of basic total apportionment supplies, approximately 72 TAF from the Imperial Irrigation District Program and IID/San Diego County Water Authority Transfer & Exchange Agreement in CY 2007, and





Programs Under Development			
Program	8/1/07 Storage Levels	Amount Available at 30% SWP Allocation	Amount Available at 60% SWP Allocation
<i>CRA Storage</i>			
Hayfield Storage Program	73,000	0	0
<i>SUBTOTAL</i>	<i>73,000</i>	<i>0</i>	<i>0</i>
<i>SWP Storage</i>			
Sac. Valley Transfers Stored in Shasta	47,000	0	0
EWA Wet/Dry Exchange	50,000	50,000	50,000
<i>SUBTOTAL</i>	<i>97,000</i>	<i>50,000</i>	<i>50,000</i>
TOTAL	170,000	50,000	50,000

Emergency Storage Reserves			
Metropolitan Emergency Storage			
Diamond Valley Lake	184,600	184,600	184,600
Lake Mathews	78,500	78,500	78,500
Lake Skinner	33,800	33,800	33,800
<i>SUBTOTAL</i>	<i>296,900</i>	<i>296,900</i>	<i>296,900</i>
DWR Emergency Storage			
Castaic Lake	139,500	139,500	139,500
Pyramid Lake	158,300	158,300	158,300
Elderberry	31,100	31,100	31,100
Lake Perris	1,000	1,000	1,000
<i>SUBTOTAL</i>	<i>329,900</i>	<i>329,900</i>	<i>329,900</i>
TOTAL	626,800	626,800	626,800

WSDM Supplies for CY 2008

Programs Operational in 2008			
Program	8/1/07 Storage Levels	Amount Available at 30% SWP Allocation	Amount Available at 60% SWP Allocation
<i>CRA Storage</i>			
Advance Delivery Account (DWCV)	222,000	51,330	102,660
Lake Mead Storage Demonstration Program	47,500	47,500	47,500
Central Arizona Underground Storage Demonstration Project	89,000	25,000	25,000
Subtotal	358,500	123,830	175,160
<i>SWP Storage</i>			
EWA Wet/Dry Exchange	50,000	50,000	50,000
Arvin Edison Storage Program	209,000	40,000	40,000
Semitropic Storage Program	343,000	45,465	59,430
Kern Delta Storage Program	36,300	5,000	5,000
SBVMWD Coord. Operating Agmt.	50,000	19,400	19,400
Mojave Storage Program	45,000	2,940	19,000
Castaic Lake (Flex Storage)	154,000	154,000	154,000
Lake Perris (Flex Storage)	59,600	59,600	59,600
Subtotal	946,900	376,405	406,430
<i>In-Region Storage</i>			
Diamond Valley Lake	531,800	200,000	200,000
Lake Mathews & Lake Skinner	87,700	60,000	60,000
Cyclic - USG	48,300	Up to stored volume	Up to stored volume
Cyclic - PM (Three Valleys)	15,300	Up to stored volume	Up to stored volume
Cyclic - IEUA (Chino Basin)	0		0
Conj. Use - IEUA/TVMWD (Chino Basin)	88,000	24,750	24,750
Conj. Use - Long Beach (Cent. Basin)	13,000	4,300	4,300
Conj. Use - Long Beach (Lakewood)	1,800	900	900
Conj. Use - Foothill (Raymond and Monks Hill)	3,400	2,250	2,250
Conj. Use - Calleguas (N. Las Posas)	60,300	7,000	7,000
Conj. Use - MWDOC (Orange County Basin)	50,000	15,000	15,000
Conj. Use - Three Valleys (Live Oak)	700	750	750
Conj. Use - Three Valleys (upper Claremont)	0	750	750
Conj. Use - Compton	1,100	191	191
Conj. Use - Pasadena	22,000	0	0
Supplemental Storage Program (Los Angeles)	20,000	10,000	10,000
Supplemental Storage Program (MWDOC)	16,000	8,000	8,000
Subtotal	959,400	333,891	333,891
Total	2,264,800	834,126	915,481

WSDM Supplies for CY 2007				
Program	1/1/07 Storage Levels	Capacity Available for Storage	CY 2007 Take Capacity	CY 2007 Put Capacity
<i>CRA Storage</i>				
Advance Delivery Account (DWCV)**	224,000	376,000	0	150,000
Lake Mead Storage Demonstration Program	47,500	199,000	0	50,000
Central Arizona Underground Storage Demonstration Project*	89,000	0	0	0
<i>Subtotal</i>	<i>360,500</i>	<i>575,000</i>	<i>0</i>	<i>200,000</i>
<i>SWP Storage</i>				
Sac. Valley Transfers Stored in Shasta	47,000	0	0	0
EWA Wet/Dry Exchange	50,000	100,000	50,000	100,000
Arvin Edison Storage Program	212,500	37,500	20,500	37,500
Semitropic Storage Program	346,000	4,000	118,000	4,000
Kern Delta Storage Program	38,800	211,200	5,000	50,000
SBVMWD Coord. Operating Agmt.	50,000	0	19,400	0
Mojave Storage Program	45,000	0	14,000	0
Castaic Lake (Flex Storage)	154,000	0	154,000	0
Lake Perris (Flex Storage)	65,000	0	65,000	0
MWD Carryover 07/08**	0	0	0	200,000
DWCV Carryover 07/08**	0	0	0	85,000
<i>Subtotal</i>	<i>1,008,300</i>	<i>352,700</i>	<i>445,900</i>	<i>476,500</i>
<i>In-Region Storage</i>				
Diamond Valley Lake	740,000	80,000	200,000	70,000
Lake Mathews & Lake Skinner	173,000	53,000	60,000	44,000
Cyclic - USG	48,300	51,700	Up to stored volume	Varies
Cyclic - PM (Three Valleys)	12,800	27,200	Up to stored volume	Varies
Cyclic - IEUA (Chino Basin)	1,700	98,300	Up to stored volume	0
Conj. Use - IEUA (Chino Basin)	48,000	52,000	0	25,000
Conj. Use - Long Beach (Cent. Basin)	13,000	0	2,000	0
Conj. Use - FM (Live Oak Basin)	500	2,500	0	750
Conj. Use - Calleguas (N. Las Posas)	51,000	159,000	3,500	33,000
Conj. Use - MWDOC	28,000	32,000	0	15,000
Conj. Use - Three Valleys	3,400	0	0	0
Conj. Use - Foothill	2,400	6,600	0	2,500
Conj. Use - Compton	600	1,700	0	500
Conj. Use - Long Beach (Lakewood)	0	3,600	0	900
Conj. Use - Pasadena	22,000	0	0	0
Supplemental Storage Program (Los Angeles)	20,000	0	5,000	0
Supplemental Storage Program (MWDOC)	16,000	0	8,000	0
<i>Subtotal</i>	<i>1,180,700</i>	<i>567,600</i>	<i>278,500</i>	<i>191,650</i>
Total	2,549,500	1,495,300	724,400	868,150

* Central Arizona storage included in CRA base supplies

** DWCV Advance Delivery Account and CY'06 Carryover amounts are included in SWP base supplies

CRA and SWP Supplies Allocated as of August 23, 2007	
Colorado River Supplies	
Basic Total Apportionment	550,000
IID-MWD Conservation	85,000
SDCWA-IID & canal lining	71,500
San Luis Rey Supplemental Water	4,500
Central Arizona storage recovery	16,804
Lower Colorado Water Supply Project	4,946
Restore Reregulated water	-21,649
Adjustments for USBR System Conservation in PVID	-7,000
PVID Land Following	62,550
MWD Water Budget Adjustment	-79,678
<i>Priority 1, 2, and 3b</i>	<i>-75,515</i>
<i>Imperial ID</i>	<i>0</i>
<i>Coachella Valley WD</i>	<i>551</i>
<i>Misc and Indian PPR's</i>	<i>-4,714</i>
<i>Colorado River Supplies Total</i>	<i>686,973</i>
State Water Project Supplies	
Table A (60 percent allocation)	1,146,900
MWD DWCV turnback pool and Article 21	176,281
Carryover and 14b	28,098
Desert Water/Coachella Valley exchange	102,660
San Bernardino Valley MWD Coordinated Operation Agreement (Minimum + Optional Purchases)	30,000
Port Hueneme Agreement	1,110
<i>State Water Project Supplies Total</i>	<i>1,485,049</i>
Total	2,172,022

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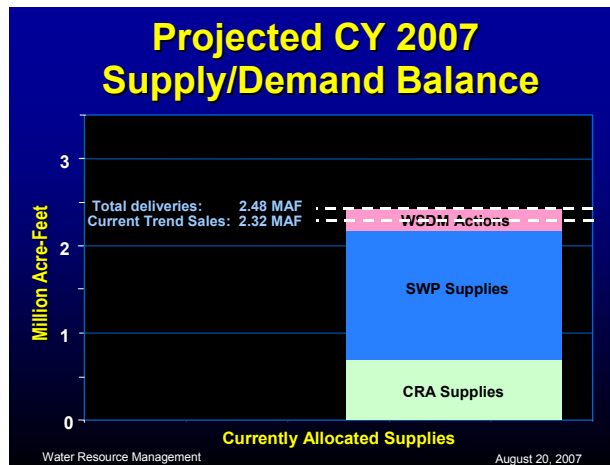
63 TAF under the PVID Land Following Program. A detailed listing of the Colorado supplies is included as [Attachment 1](#). The estimate of Colorado River supplies is relatively firm.

State Water Project

Staff's estimate of total SWP supplies for CY 2007 is 1.48 million acre-feet (MAF). This figure includes a SWP Table A allocation of 1.15 MAF based on DWR's latest SWP allocation of 60 percent of Table A amounts. In addition to the Table A supplies, Metropolitan has delivered 28 TAF of SWP supplies from extended carryover supplies stored in CY 2006, and 176 TAF of Article 21 and Turnback Pool A supplies through the period covered under this update. Metropolitan's exchange agreement with the Desert Water Agency and Coachella Valley Water District, transfer agreement with the San Bernardino Valley Municipal Water District, agreement with the city of Port Hueneme are scheduled to provide an additional 134 TAF. A detailed listing of the SWP supplies is included as [Attachment 1](#).

Sales and Demand for Water Deliveries

Water sales for calendar year 2007 are projected to be 2.32 MAF at the current trend. This number represents the amount of water deliveries associated with Metropolitan's rates and revenues. It also reflects that replenishment deliveries for the remainder of the year have been discontinued, and thus will not be sold or delivered. In addition to the 2.32 MAF of estimated sales, Metropolitan is also responsible for delivering water or meeting other delivery obligations. These delivery obligations include the Imperial Irrigation District/San Diego County Water Authority Transfer and the supplies from their canal lining projects, and adjustments for Metropolitan system losses. The total of the additional delivery obligations are approximately 157 TAF. Including these additional delivery obligations, current total demands on Metropolitan for CY 2007 are projected to be 2.48 MAF (2.32 MAF + .157 MAF) under the current trend. As previously reported, the demands do not include the obligation to deliver water as part of the exchange with Desert Water Agency and Coachella Valley Water District (DWCV). Metropolitan intends to meet the obligation through water stored in the Advance Delivery Account agreement with those two agencies.



WSDM Supplies and Management Actions

In addition to the base CRA and SWP supplies, Metropolitan entered CY 2007 with approximately 2.5 MAF of supplies in its WSDM resource portfolio. This figure does not include surface storage set aside for emergency purposes. These supplies, which include surface storage and groundwater storage, will be utilized to meet deficits between supply and demand under an extremely dry scenario. A detailed listing of the WSDM supplies is included as [Attachment 2](#).

Calendar Year Actions

Based on current trend demands, staff has estimated an expected deficit between supply and demand of approximately 305 TAF for 2007. As previously reported, Metropolitan has initiated calls on its Central Valley

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storage programs and noticed participating agencies with in-basin groundwater programs for calendar year withdrawals. June also marked the release of a region-wide coordinated conservation public outreach effort and media campaign. Net withdrawals from surface storage for the year are available and will be taken based on demands. The total of these WSDM supplies and management actions are listed in the table below. Estimated replenishment interruptions are no longer included in this table as the impacts of the reductions initiated May 1, 2007 are now included in the current trend projections of sales and demand.

Table of Identified WSDM Actions	Action Under Current Trend Demand	Amount Taken to Date
Central Valley	176 TAF	17,874 AF
In-Basin Groundwater	19 TAF	0
Surface Water	110 TAF	0
TOTAL	305 TAF	17,874 AF

The WSDM actions described above show the current estimate of the actions that will be taken to address the hydrologic and weather conditions that Metropolitan faces this year. If calendar year demands exceed identified WSDM actions, the additional supply needs will be managed through the increased use of surface storage reserves. Conversely, if the demands turn out to be lower than anticipated, the excess supply will be stored in surface water enhancing the flexibility for calendar year 2008.

WSDM Supplies for 2008

The anticipated WSDM supplies for calendar year 2008 under both a 30 percent and 60 percent SWP allocation, along with current storage levels, is shown in [Attachment 3](#). Staff’s estimate of operational WSDM supplies for 2008 range from 830-915 TAF under those SWP allocations. [Attachment 4](#) shows the programs under development and also separates out emergency storage reserves in Metropolitan’s reservoirs and shows the additional emergency storage available through DWR’s storage. This more clearly differentiates dry-year storage availability for 2008. At this time, Metropolitan has access to approximately 627 TAF in emergency storage.

Surface Storage Levels

At the August 2007 Board Meeting, the Water Planning and Stewardship Committee requested updates on surface storage as an indicator of preparedness for 2008. Attachment 5 shows total capacities and amounts in storage for the major surface storage facilities that contribute to Metropolitan’s water supplies.

Diamond Valley Lake – The capacity of this reservoir is 810,000 acre-feet. There is approximately 717,000 acre-feet of water stored. Of this amount, approximately 211,400 is reserved for emergency purposes for 2007. For 2008, the emergency storage requirement is decreases to 184,600 acre-feet due to increases in locally supplied water. The remainder of the stored water is available for dry-year storage use.

Castaic Lake – The capacity of this reservoir is 324,000 acre-feet. There is approximately 290,000 acre-feet of water stored. Of this amount, approximately 139,500 is reserved for the Department of Water Resources operations of the State Water Project and for southern California emergency storage. The remainder of the stored water, 154,000 acre-feet, is reserved for Metropolitan’s use as part of the Flexible Storage provisions in the State water contract, and is available for use for 2008.

Lake Perris – The capacity of this reservoir is 131,000 acre-feet. Because of seismic concerns, the water level has been drawn down. There is approximately 66,000 acre-feet of water stored. Of this amount, approximately 1,000 acre-feet is reserved for the Department of Water Resources operations of the State

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Water Project. The remainder of the stored water, 65,000 acre-feet, is reserved for Metropolitan's use as part of the Flexible Storage provisions in the State water contract, and is available for use for 2008.

Lake Mathews – The capacity of this reservoir is 182,000 acre-feet. There is approximately 155,000 acre-feet of water stored. Of this amount, approximately 78,500 is reserved for emergency purposes. The remainder of the stored water is available for both regulatory and dry-year storage use, with an assumption of 48,000 acre-feet available for use in 2008.

Lake Oroville – The capacity of this reservoir is 3,500,000 acre-feet. There is approximately 1,870,000 acre feet of water stored. This reservoir is operated by the Department of Water Resources for multiple purposes in addition to water supply, including environmental management, power generation, flood control, and for meeting Bay-Delta water quality standards. A portion of the storage remaining at the end of the year will be used to support State Water Project allocations in 2008.

Lake Mead – The capacity of this reservoir is 28,500,000 acre-feet. There is approximately 12,550,000 acre-feet of water stored. This reservoir is operated by the United States Bureau of Reclamation for water supply to California, Nevada, and Arizona. A portion of the storage remaining at the end of the year will be used to support water supply allocations in 2008.

San Luis Reservoir – This reservoir serves a regulatory storage role for meeting current year allocations of State Water Project supply. As such, current storage levels are not as relevant from a water supply perspective for 2008. However, in previous years, Metropolitan has stored unused State Water Project allocations in San Luis Reservoir through the Article 56 carryover provision of the State Water Project. Because of current year supply conditions, it is not expected that Metropolitan will utilize carryover storage from 2007 to 2008.

Strategic Approach for 2008

The water supply impacts from Judge Wanger's ruling affecting SWP and Delta operations will affect 2008 and could continue over the next several years. Over the past few months, staff has reported on the actions that are being taken in anticipation of water supply reductions. The major strategies are:

- Implement extraordinary conservation messaging and program implementation to reduce demands
- Exercise interruptions to the Replenishment Program and Interim Agricultural Water Program
- Maximize recovery of water from Central Valley storage and banking programs
- Develop water purchase and exchange programs to augment available water supplies
- Develop a shortage allocation plan

Staff is currently developing a refined action plan for 2008 for review by the Board and member agencies.

Implementation

Conservation

In July, the board authorized several enhancements and upgrades to Metropolitan's current water conservation program. New rebates were approved and a new regional vendor approach was authorized for the installation of residential water conserving devices. These actions in conjunction with the implementation of the conservation campaign that was approved in June, is targeting reduced demand in Metropolitan's service area and the maintenance of storage reserves for the future.

In August, the board authorized \$15 million Public Sector Water Efficiency Partnership Demonstration Program. Metropolitan would work with the member agencies to identify public agencies within its service area that have high potential to achieve accelerated conservation or water recycling use. Staff estimates that the cost of saved potable water in the Program will range from \$195 to \$500 per acre-foot, and that the total water savings of the program would be about 40,000 acre-feet of water. More importantly, the program is expected to help establish a

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strong water conservation ethic by public agencies to set a good example for water consumers in our region to follow, which in turn would result in more significant savings.

Shortage Allocation Plan

Metropolitan staff has initiated the development of a shortage allocation plan as a preparatory measure to ensure against any future supply constraints. The initial meeting was held on July 13, 2007 and a subsequent meeting on August 17, 2007, and data exchanges with member agency managers and staff are currently ongoing. Metropolitan staff will be meeting with member agency managers again in early September. The status and policy issues will be reviewed with the board in September and a proposed approach is targeted for board consideration at the November meeting.