

- **Board of Directors**
 - Engineering and Operations Committee**
 - Water Planning, Quality and Resources Committee**

July 9, 2002 Board Meeting

10-2

Subject

Status report on the preliminary design, right-of-way acquisition, and member agency coordination for the San Diego Pipeline 6 project [**Any discussion regarding real property negotiations may be required to be heard in closed session pursuant to Government Code Section 54956.8**]

Description

Project Description/History

In March 2001, the Board re-authorized staff to proceed with preliminary design and right-of-way acquisition for the San Diego Pipeline 6 (Pipeline 6) project with the objective of meeting an on-line date of 2008. As proposed, the Pipeline 6 project is comprised of approximately 24 miles of 9-to-10-foot diameter pipeline and 6.5 miles of 9-foot diameter tunnel, with a capacity of 600 cubic feet per second (cfs). Approximately 12.5 miles of the pipeline and one-half mile of the tunnel would be located in Riverside County, with the remainder in San Diego County. According to current projections, the Pipeline 6 project would enable Metropolitan to meet total water conveyance needs to customers in the Skinner service area well beyond the year 2025.

When the Board certified the Environmental Impact Report (EIR) in 1993, it was determined that the Pipeline 6 project was necessary to meet supply demand, system reliability, and system flexibility objectives within the San Diego County Water Authority (SDCWA), Eastern Municipal Water District (EMWD), and Western Municipal Water District (WMWD) service areas. The March 2001 Board action was based on the results of the Skinner Filtration Plant Study, which evaluated projected demands and existing treatment and conveyance facility capacities in the Skinner service area, that support an on-line date of 2008 for Pipeline 6. In conjunction with that study, Metropolitan proposed to work with the Skinner area agencies to determine operational options to meet existing demands as well as identify long term options for meeting future water supply needs based on updated demand projections and identification of alternative facility construction and operation schedules.

Current Skinner Area Status

The Skinner Filtration Plant Study was updated in June 2002 and renamed the Skinner Service Area Study (Study) (Attachment 1). The updated Study identified a range of potential on-line dates for Pipeline 6, beginning with the current year (2002) through 2012. This Study was based on Metropolitan's 20-year Skinner area demand projections and current raw and treated water conveyance capacity. The early (2002) date is based on worst-case hydrology, i.e. driest year on record, combined with simultaneous maximum day demand on both raw and treated water. The 2012 on-line date is based on a 95th percentile demand projection. There is also an assumption that all of Metropolitan's facilities will operate no higher than their design capacity.

This year Southern California is projected to have the lowest rainfall on record since the 1850's. As identified in the attached Study, Metropolitan is currently experiencing unanticipated high demands on its treatment and conveyance system in the Skinner area. Service demands are being met only by operating both the Skinner plant and the conveyance system at or above their design capacities. In order to clarify the technical issues associated with the timing of construction of Pipeline 6, Metropolitan staff worked with staff from the SDCWA, EMWD, WMWD, and Rancho California Water District (RCWD) a member agency of both EMWD and WMWD, to prepare a technical memorandum. Based on that effort, all four agencies submitted support/comment letters

(Attachment 3). Per the attached letters, WMWD, EMWD, and RCWD are requesting that the Pipeline 6 project proceed on the current schedule (2008). While the SDCWA staff agrees with the need to proceed incrementally with Pipeline 6 by performing preliminary design and right-of-way acquisition for the pipeline portion, they do not concur with the Board's previously adopted completion schedule.

SDCWA Master Plan

Since 1997, the SDCWA has been developing a Regional Water Facilities Master Plan (Master Plan) to consider water supply and conveyance facility alternatives for meeting projected demands through the year 2035. The SDCWA's analysis confirms the need for additional water conveyance and treatment facilities to meet increasing demands in its service area. Although not yet completed, the draft Master Plan includes numerous local treatment plant, pump station, storage, and pipeline projects, a number of which are currently underway, along with operating scenarios, that the SDCWA believes could defer the need for any additional treated or raw water conveyance capacity from Metropolitan to 2015 or beyond. This 2015 on-line date is based on the timely completion of the SDCWA's Emergency Storage Project; the practice of taking more deliveries from Metropolitan during low demand periods to fill SDCWA's and its member agencies reservoirs; and the completion on schedule of several treatment plant expansions by its member agencies.

The draft Master Plan also considers other future supply and facility options, such as a regional desalination plant and/or a new aqueduct from the Colorado River, that the SDCWA believes could reduce the required capacity and/or defer the need for Pipeline 6 to beyond the year 2030. However, the SDCWA's long-term imported water supply plan is not yet firm and may not be fully developed, pending completion of a Program EIR, for approximately two years.

In July 2002 the SDCWA will present the results of the master plan analysis to its Board. At that time, the SDCWA Board may provide direction to proceed with one or more of the future supply options, including Pipeline 6. The final draft of the master plan is scheduled for SDCWA board review and approval in October 2002. Long-term supply project implementation will begin upon certification of the Program EIR.

Board Policy Decisions

As a regional provider, it has been previous Board policy for Metropolitan to provide the facilities to deliver water to the boundaries of the member agencies within its service area based on long-term demand analyses. Certain policy issues need to be addressed by the Board regarding the Pipeline 6 project to meet the increasing demands in the Skinner service area, consistent with District policies.

1. Should Metropolitan proceed with the current on-line date for Pipeline 6 of 2008 if the SDCWA states it does not need Pipeline 6 until at least 2015 due to implementation of local projects in San Diego County?

Metropolitan staff analysis has concluded that additional raw and treated conveyance capacity to the Skinner service area will be needed between 2002 and 2012. The Pipeline 6 project can provide that capacity by 2008. The SDCWA analysis has also concluded that additional raw and treated water supply is needed to meet increasing demands. However, the SDCWA plans to meet the increase in both raw and treated water requirements in its service area through 2015 with local storage, treatment, and pipeline projects.

2. How should Metropolitan proceed if the SDCWA states it does not need Pipeline 6 within its planning horizon of 2030?

The Pipeline 6 project would enable Metropolitan to meet demands in the Skinner service area well beyond 2025. The SDCWA has indicated that its alternative long-term options, i.e., constructing one or more regional desalination plants and/or a new regional Colorado River Conveyance facility, would meet its long-term demands at least through 2030. If the SDCWA decides that it does not need Pipeline 6, then EMWD/WMWD/RCWD would be required to build their own pipelines for the needed conveyance capacity since, according to current Metropolitan Board policy, the delivery point for these agencies is the Skinner plant.

3. How should Metropolitan proceed over the next 2 years until the SDCWA makes a decision which may provide a firm on-line date for Pipeline 6, or push it beyond the 2030 planning horizon?

If Metropolitan’s Board decides to halt implementation of the Pipeline 6 project for up to 2 years or more pending completion of the SDCWA’s Program EIR, the project could not be completed under the current schedule. Additionally, ongoing development along the alignment will result in increased construction costs, and may require consideration of a new alignment. If Metropolitan proceeds with construction of Pipeline 6 within Riverside County only, it may not be able to secure the right of way for those portions of Pipeline 6 that exclusively serve the SDCWA without a firm on-line date. Also, if the SDCWA ultimately decides it does not need this facility, Metropolitan could be at financial risk by constructing all or portions of Pipeline 6.

See Attachment 2 for a location map.

Policy

Statement of Policy adopted January 9, 1931: Delivery of water to a point at or near the boundary of a member agency, and to such other points as the Directors may determine.

Section 4202 of the Administrative Code (Laguna Declaration) (a): Provision of water to meet expanding and increasing demands with present and projected distribution facilities.

Section 4202 of the Administrative Code (Laguna Declaration) (b): Overlapping and paralleling governmental authorities and water distribution facilities.

Metropolitan Report 1107, “Southern California’s Integrated Water Resources Plan Volume 2: Metropolitan’s System Overview.” Objectives for facility improvements.

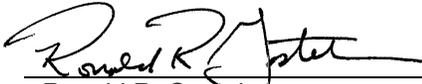
Metropolitan Report 1107, “Southern California’s Integrated Water Resources Plan Volume 2: Metropolitan’s System Overview.” Transverse capacity.

March 2001 Board Item 9-2: Review and update of construction schedules for Pipeline 6.

Fiscal Impact

The current budget for the San Diego Pipeline No. 6 project is \$426.1 million. Upcoming decisions pertaining to the ultimate schedule, phasing, and alignment of Pipeline 6 may impact this budget.

	7/2/2002
Roy L. Wolfe Manager, Corporate Resources	Date

	7/2/2002
Ronald R. Gastelum Chief Executive Officer	Date

Attachment 1 – Skinner Area Study

Attachment 2 – Map of San Diego Pipeline 6

Attachment 3 – Member Agency letters



MWD

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Skinner Service Area Study
Update to the Skinner Filtration Plant Study

June 2002

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA
SKINNER SERVICE AREA STUDY
UPDATE TO THE SKINNER FILTRATION PLANT STUDY

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Summary

This report is an update to the January 2001 Skinner Filtration Plant Study. Unlike the initial Skinner Filtration Plant Study, this update provides information regarding raw as well as treated water demands and facilities. As a result of the recommendations provided in the 2001 study, member agency and Metropolitan staff initiated a joint operations strategy effort aimed at meeting peak treated water demands at the Robert A. Skinner Filtration Plant (Skinner FP). Monthly operations meetings between Metropolitan Water District and the affected member agencies were held throughout most of 2001 and are continuing in 2002. The coordinated efforts by Metropolitan and member agency staff have increased communications and have put mutual assistance plans in place. Additionally, beginning in October 2001, Metropolitan staff produces a bi-monthly Skinner Area Update to apprise Metropolitan and member agency management of pertinent operational, planning, and capital investment project issues.

Average summer temperatures in the Skinner service area were milder in the summer of 2001 compared to the temperatures of summer 2000. Additionally, the Skinner service area hydrology was close to normal. As a result of near normal hydrology and cooler temperatures in the summer of 2001, peak flows at the Skinner FP remained under the design capacity and were considerably less than the peak flows of summer 2000. The CY 2001 member agency demands remained at lower levels than the preceding year. However, due to the continued growth and development in the Skinner service area, maximum-day demand records occurred at certain service connections. Because of the available operational flexibility at the member agency facilities, these demands were met.

The member agencies have continued to provide updated five-year demand estimates to assist Metropolitan staff in the planning efforts of Skinner Module 7. As recommended by the January 2001 report, Module 7 is scheduled to come on-line in 2007; however, Metropolitan staff has indicated that Module 7 can come on-line as early as December 2006. Metropolitan staff has continued to analyze the schedule for

San Diego Pipeline 6 (SD Pipeline 6) as well as for the conversion of SD Pipeline 3 to treated water service.

Background

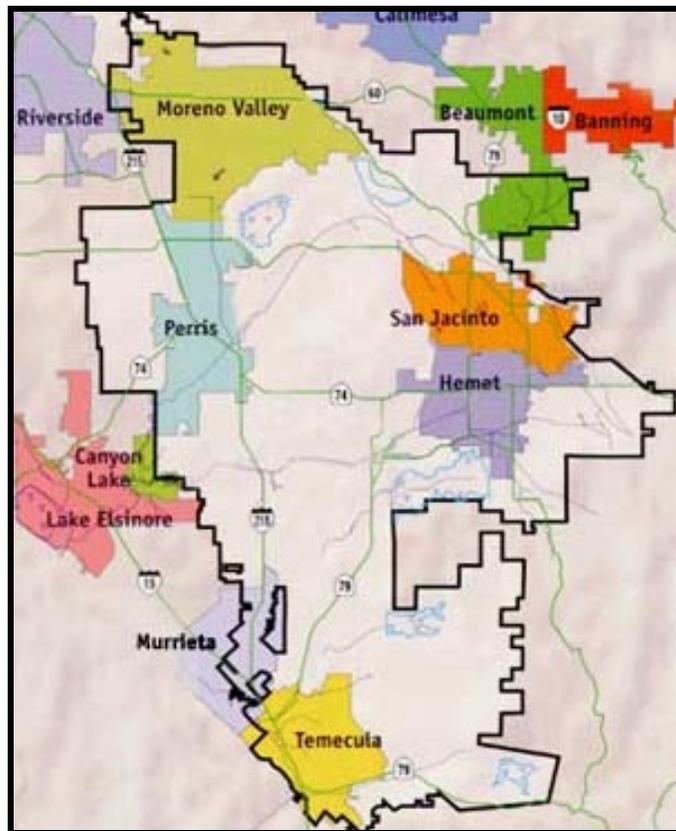
The Skinner FP began operation in 1976 to supply treated water to Riverside and San Diego Counties. Metropolitan's member agencies that receive water from the Skinner FP include Eastern Municipal Water District (EMWD), Western Municipal Water District of Riverside County (WMWD) and San Diego County Water Authority (SDCWA). The Skinner FP is supplied with raw water from Lake Skinner and the San Diego Canal. The plant filters water through three conventional and three direct filtration modules. The California Department of Health Services (CDHS) has permitted operation of the Skinner FP at a capacity of 520 million gallons per day (mgd), or 804 cubic feet per second (cfs) under normal operating conditions. Metropolitan may request that the Skinner FP be allowed to operate above its rated capacity, based on a number of factors including influent water quality, effluent water quality and filter loading rates. The absolute maximum flow rate CDHS will allow through the Skinner FP is 1,000 cfs; however, this flow rate has never been achieved under field operating conditions. The usable capacity of the Skinner FP is limited to 765 cfs because approximately 40 cfs of backwash water must be returned to the head of the plant for treatment.

Eastern Municipal Water District Service Area

EMWD provides water to the cities of Hemet, San Jacinto, Moreno Valley, Perris, and portions of Murrieta, Temecula, Riverside, and unincorporated areas of Riverside County. Metropolitan delivers both treated and untreated water to EMWD, with treated water delivered from both the Henry J. Mills Filtration Plant (Mills FP) and from Skinner FP. EMWD provides water to Rancho California Water District (RCWD) in the Temecula area. The EMWD service area is divided by EMWD into four sub-areas covering the western region of Riverside County. Division of the four sub-areas is based on location, water resources, water demands, and other factors. Interconnected

transmission pipelines allow for limited operational flexibility to move water between sub-areas. EMWD is one of five member agencies that comprise the Santa Ana Watershed Project Authority (SAWPA). Figure 1 illustrates the service area boundary of EMWD.

Figure 1
EMWD's Service Area

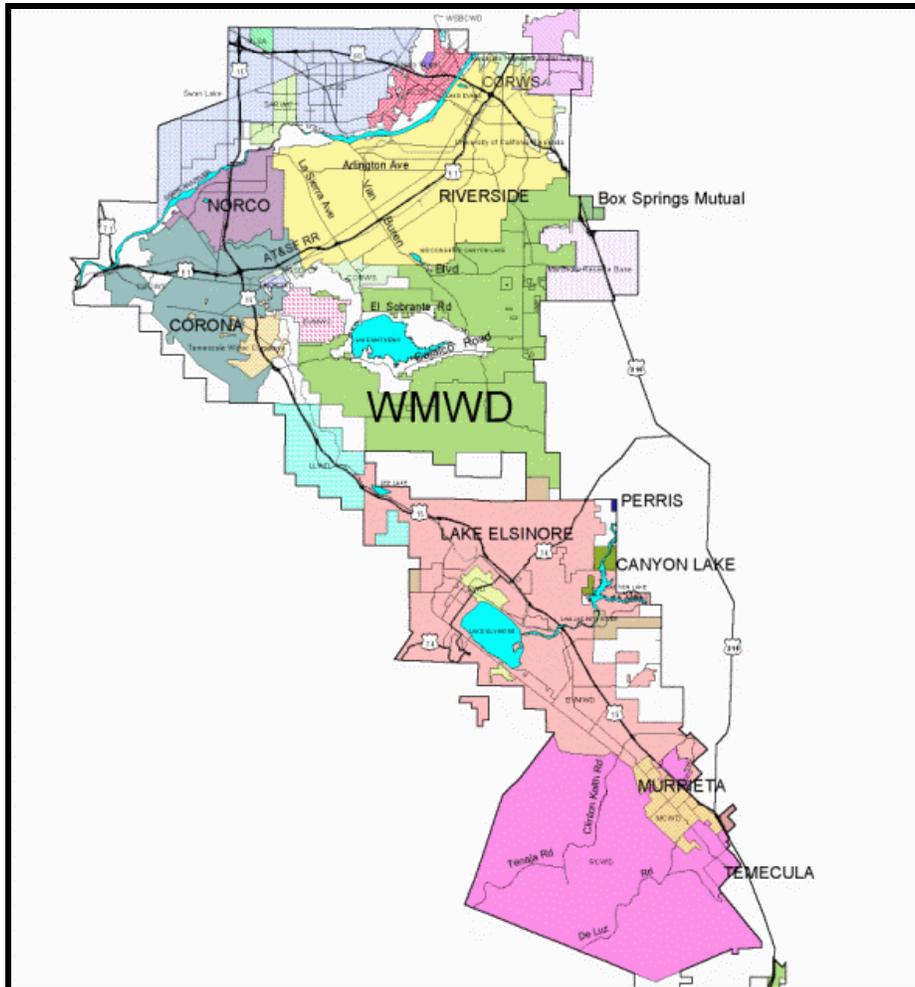


Western Municipal Water District of Riverside County Service Area

WMWD provides water to the cities of Corona, Norco, and Riverside, and the unincorporated areas of El Sobrante, Eagle Valley, Temescal Creek, Woodcrest, Lake Mathews, and March Air Force Base. WMWD also provides water to Elsinore Valley Municipal Water District (EVMWD) and RCWD. Metropolitan delivers both treated and untreated water, with treated water delivered from both Mills FP and Skinner FP.

WMWD is also a member of SAWPA. Figure 2 illustrates the service area boundary of WMWD.

Figure 2
Western MWD's Service Area



San Diego County Water Authority Service Area

SDCWA provides service to 23 member agencies. Metropolitan delivers both treated and untreated water to SDCWA via five pipelines utilizing nine service connections. Figure 3 illustrates SDCWA's service area and member agencies.

Figure 3
SDCWA's Service Area



Skinner Filtration Plant Operations

The Skinner service area, in the southern end of Metropolitan's distribution system, is defined as that area which receives treated water service almost entirely from the Skinner FP. The only exception is a small portion of EMWD's service area that receives

water from the Mills FP during times of non-peak flows. Consequently, peak demands in the Skinner service area must be met by the Skinner FP and cannot be shared as in the Central Pool area.

Between 1991 and 2001, the maximum-day demand at the Skinner FP ranged from a low of 590 cfs in 1993 to a high of 765 cfs in 2000. During the summer of 2000, operations at the Skinner FP required flow rates above the plant design capacity of 765 cfs to meet intra-day peak demands. On six occasions, Metropolitan requested permission from CDHS to operate above permitted design capacity. Because the Skinner FP operated above permitted capacity levels during that summer, MWD initiated an effort to investigate more efficient operations of Skinner FP and available facilities. The maximum instantaneous plant flow was 821 cfs on July 20, 2000, of which 5 percent was used for washwater. The recycled washwater reduces the available treated flows to the agencies to about 765 cfs. On the same day, the outlet conduit flow from Lake Skinner peaked at 1,322 cfs. The results of the study were published in the January 2001 Skinner Filtration Plant Study.

Recently, on May 29, 2002, the outlet conduit flow from Lake Skinner peaked at 1,463.5 cfs, a new all-time high flow. Plant effluent flow from the Skinner FP reached 820 cfs on June 18, 2002, as shown in the Skinner FP Operation Status report in Appendix A.

These record-high water deliveries in the Skinner Service Area, in 2000 and 2002, highlight the need for Module 7 at the Skinner FP to meet future demands and to increase treatment plant reliability.

Skinner Service Area Treatment and Conveyance Capacities

Tables 1 and 2 present treated and raw pipeline design capacities, respectively, in the Skinner service area conveyance system. The Skinner FP CDHS permitted design capacity is 520 mgd (804 cfs). This capacity includes 5 percent of recycle washwater; therefore, the net design capacity is 495 mgd (765 cfs).

Table 1

Treated Water Pipeline Design Capacities	
Pipeline	Capacity (cfs)
Pipeline 1	85
Pipeline 2	95
Pipeline 3 (treated design)	250
Pipeline 3 Bypass	100
Pipeline 4 (at the plant)	430
Pipeline 4 at SD-07 (at County Line)	380
EM-17 Auld Valley Pipeline	100

Table 2

Raw Water Pipeline Design Capacities		
Pipeline	Capacity (cfs)	Comment
Pipeline 3	262	
Pipeline 5	290	Through Red Mtn HEP
Pipeline 5	474	Bypass Red Mtn HEP

Operations in 2001

Skinner Operations Meetings

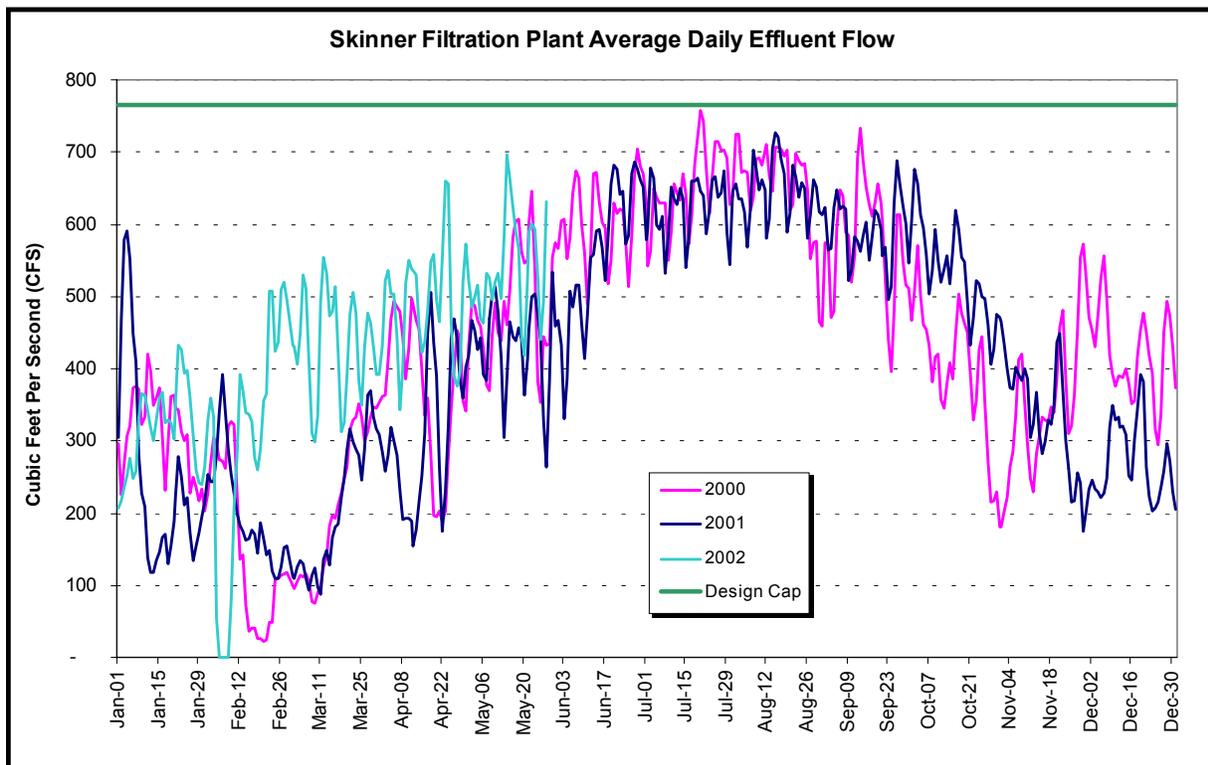
As recommended in the January 2001 Skinner FP Study, monthly operations meetings were held throughout CY 2001 and continue to be held in 2002. Beginning in February 2001, Metropolitan staff has met with representatives from the three affected member agencies, including representatives from RCWD, to discuss Skinner service area

operational issues and provide real-time updates on flow conditions and system operations.

Metropolitan staff from the Skinner FP produce a Skinner FP Operation Status daily report (Appendix A) identifying Skinner FP’s utilized treatment capacity and available plant capacity. The report is distributed to member agency and Metropolitan staff on an ongoing basis, and is used as an indicator for initiating operational actions, including the use of the member agencies’ operational flexibility.

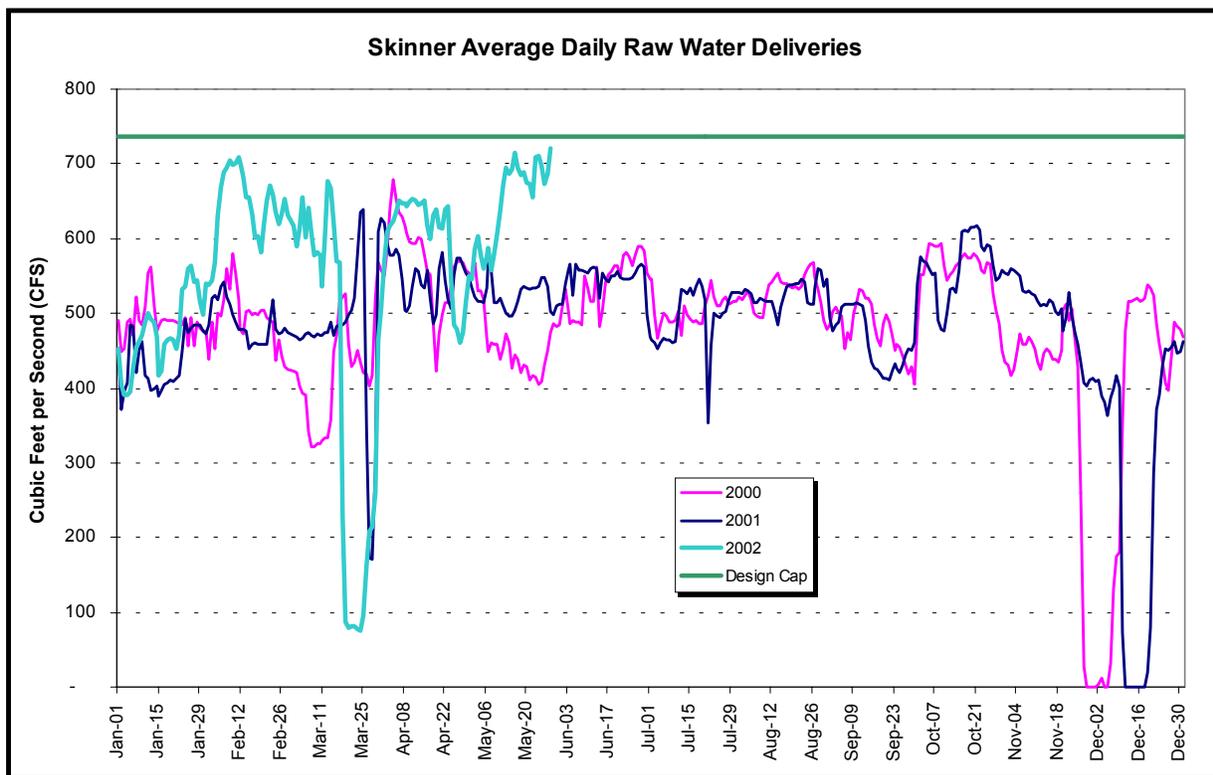
Figure 4 depicts daily average effluent flow from the Skinner FP for the past three calendar years. The intra-day high flows at the Skinner FP have exceeded the plant’s design capacity. These intra-day flows are not shown on Figure 4. The maximum available design capacity is also plotted on the chart to help identify the periods that deliveries exceeded design capacity. Calendar year 2002 actual data to date has been included to show the current delivery trend.

Figure 4



The Skinner FP Operation Status report also includes real-time raw water flows. Figure 5 depicts raw water flows delivered from the Skinner service area for the past three years as well as the design capacity. The conveyance design capacity totals 736 cfs, the sum of the design capacity of SD Pipelines 3 and 5. With the current record dry hydrology and lower local supplies, it is expected that raw water flows will reach higher levels this year than in past years. In Figure 5, raw water deliveries for May 2002 are higher than summer deliveries in 2000 and 2001.

Figure 5



Eastern Municipal Water District

EMWD treated connections supplied by the Skinner FP include EM-13, located on SD Pipeline 4, and EM-17, located on the Auld Valley Pipeline. Service connection EM-13 provides water to RCWD for domestic and agricultural use. Appendix B is a schematic

of the Skinner service area showing member agency service connections. Tables 3 and 4 represent calendar year historic deliveries, in acre-feet, for service connections EM-13 and EM-17, respectively. The previous Skinner FP Study presented the table summaries in a fiscal year format. The table summaries provided in this update report are presented in a calendar year format to clearly identify summer periods for a given year.

Table 3

EM-13					
Calendar Year	Agricultural (IAWP) (af)	Full Service (af)	Total (af)	Peak-Day Average (cfs)	Peak Date
1998	1,037	3,195	4,232	30	8/21/98
1999	2,234	7,137	9,371	39	8/19/99
2000	2,341	7,554	9,895	40	8/18/00
2001	1,514	5,975	7,488	35	8/7/01

Table 4

EM-17						
Calendar Year	Agricultural (IAWP) (af)	Full Service (af)	Seasonal Storage Service (af)	Total (af)	Peak-Day Average (cfs)	Peak Date
1998	80	9,526	471	10,078	62	7/7/98
1999	127	15,395	1,160	16,683	56	2/25/99
2000	177	18,612	622	19,410	59	8/18/00
2001	227	18,222	1,748	20,196	60	8/7/01

Treated Connections:

At EM-13, a decrease in peak-day flow of nearly 5 cfs occurred from CY 2000 to CY 2001. The decrease can be attributed to the cooler 2001 summer.

Service connection EM-17 provides water to both EMWD as well as WMWD. EMWD will be delivering water to the Murrieta County Water District (MCWD) beginning summer 2002. It is anticipated that MCWD's annual demand will not exceed 1,500 acre-feet (af) annually. For simplification purposes, we have included the total deliveries to both agencies in Table 4. For service connection EM-17, peak day deliveries in the summer of 2001 occurred on August 7, 2001, at 60 cfs. This peak was slightly higher than the previous summer. The full service demand (water used for municipal and industrial use) did not change much from the previous year.

The majority of EMWD's service area is supplied by the Mills FP through service connection EM-12, while the Skinner FP serves the southern portions of EMWD. The flow rate at EM-12, however, is limited by the conveyance capacity in EMWD's pipeline. Thus, increasing demands on EM-12 in the Perris Valley, in excess of this conveyance capacity, are supplied through deliveries from the Skinner FP. The Mills FP offers additional flow availability but this is constrained by EMWD's maximum conveyance capacity leaving the plant.

Local area reservoir storage includes Lake Hemet and Vail Lake. Lake Hemet has a capacity of 14,000 af and is owned and operated by Lake Hemet MWD. The only source of water to Lake Hemet is natural runoff. The lake is utilized to meet agricultural demands during seasons of normal and above-normal precipitation. Vail Lake has a capacity of 49,370 af and is operated by RCWD. Vail Lake relies on natural runoff as its source water. RCWD utilizes the lake for groundwater replenishment and currently has no plans for treatment facilities.

Raw Water Connections:

RCWD operates a groundwater recharge program consisting of spreading basins located in the Pauba Valley adjacent to Temecula Creek downstream of Vail Lake. RCWD uses two sources of water for recharge: local run-off captured in Vail Lake when available; and purchased Metropolitan raw water in lieu of, or as a supplement to local

runoff. Purchased Metropolitan raw water is taken through the EM-19 turnout off of SD Pipeline 5 at Santiago and Vallejo Avenue, just east of I-15 in the City of Temecula, and conveyed approximately 8 miles in 48-inch diameter pipeline to the Pauba Valley spreading basins.

In general, the recharge program supplements natural recharge for the benefit of the entire groundwater basin. However, there are four recovery wells located directly within the limits of the spreading basins that are considered by DHS to be under the direct influence of the raw surface water recharge, and thus fall under the requirements of the Surface Water Treatment Rule. EM-19 has a rated capacity of 40 cfs. RCWD takes water at a relatively consistent, uninterrupted rate of 20 to 30 cfs to meet minimum depth-to-groundwater requirements, to match recovery well withdrawal rates, as well as to provide recharge benefits to the groundwater basin downstream of the spreading basins. Table 5 summarizes the deliveries to EM-19 as well as the peak-day demands during the summer period.

Table 5

EM-19						
Calendar Year	Agricultural (IAWP) (af)	Full Service (af)	Seasonal Storage Service (af)	Total (af)	Peak-Day Average (cfs)	Peak Date
1998	0	0	4,629	4,629	16	9/9/98
1999	0	0	11,049	11,049	40	8/21/99
2000	0	0	21,206	21,206	30	7/1/00
2001	2,614	6,735	7,176	16,525	20	8/12/01

EMWD Operational Flexibility

- EMWD could potentially provide up to 8 cfs of raw Metropolitan water to Lake Hemet MWD via EM-14, making groundwater available to meet domestic needs currently met by EM-17. However, because of institutional constraints related to use of the basin, the ability to use this groundwater is uncertain in the short-term.

- WMWD currently has a 30-inch diameter pipeline located in Alessandro Boulevard that could potentially be interconnected to EMWD's 54-inch diameter pipeline that conveys water from the Mills FP to the Moreno Valley and Perris areas. The interconnection of these pipelines could provide for greater use of Mills FP water in EMWD's service area and reduce loading on the Skinner FP. The feasibility of this interconnection has not yet been studied, and construction of this facility would not occur in the short-term.

Western Municipal Water District of Riverside County

Tables 6 and 7 summarize deliveries to the WMWD service area for WR-26 and WR-28, respectively. Although the total demand for each service connection was less in 2001 than in 2000, the WR-28 peak-day demands that occurred in the summer of 2001 were greater than the peaks of 2000.

Table 6

WR-26					
Calendar Year	Agricultural	Full Service	Total	Peak-Day Average	Peak
	(af)	(af)	(af)	(cfs)	Date
1998	4,640	2,726	7,366		
1999	10,514	1,524	12,038		
2000	8,537	2,230	10,767	35.6	9/16/00
2001	6,541	2,520	9,061	35.6	8/1/01

Table 7

WR-28					
Calendar Year	Agricultural	Full Service	Total	Peak-Day Average	Peak
	(af)	(af)	(af)	(cfs)	Date
1998	3,530	1,981	5,511	N/A	N/A
1999	5,415	4,624	10,039	N/A	N/A
2000	5,951	2,869	8,820	35.1	9/16/00
2001	5,174	2,783	7,957	41.8	8/1/01

Treated Connections:

Peak data for WR-26 and WR-28 was not available for 1998 and 1999. In the past, peak deliveries to SDCWA and WMWD have created hydraulic constraints on WR-26 and WR-28, limiting deliveries to about 60 cfs for the two connections (80 cfs total connected capacity).

Raw Water Connections:

The raw water deliveries to WMWD's area are met directly from the Colorado River Aqueduct, as well as the Lower Feeder supplied by Lake Mathews and not by the Skinner service area facilities. However, WR-25 is an existing raw water service connection located on SD Pipeline 3 with a capacity of 25 cfs. The connection is currently inactive, but RCWD will consider activating WR-25 once SD Pipeline 3 is converted to treated water.

WMWD Operational Flexibility

- EVMWD operations of Canyon Lake Filtration Plant may allow 8 cfs of operational flexibility. However, limitations may exist on the amount that can be drafted from the lake. Further evaluation is required for such operations.
- WMWD indicates some potential for future use of the Mills Gravity Line, pending board approval.

San Diego County Water Authority

SDCWA is dependent on the Skinner FP as a supplemental source of treated water. Approximately 90 percent of the agricultural demands in SDCWA are served with treated water. Approximately 45 percent of SDCWA's annual demand on Metropolitan is for treated water. The service connections, pipelines, and capacities of facilities that deliver water to the SDCWA are summarized in Appendix C.

Treated Connections:

Tables 8 through 14 summarize recent calendar year deliveries as well as average peak-day flows for the treated service connections to SDCWA.

Table 8

SD-01A			
Calendar Year	Full Service (af)	Peak-Day Average (cfs)	Peak Date
1998	23,028	75	9/1/98
1999	34,028	85	10/22/99
2000	34,814	88	9/13/00
2001	30,618	81	10/3/01

Table 9

SD-01B			
Calendar Year	Full Service (af)	Peak-Day Average (cfs)	Peak Date
1998	21,541	75	9/1/98
1999	33,675	86	10/26/99
2000	34,085	88	9/13/00
2001	29,591	82	10/3/01

Table 10

SD-02			
Calendar Year	Full Service (af)	Peak-Day Average (cfs)	Peak Date
1998	2,494	10	8/12/98
1999	3,498	10	11/2/99
2000	3,534	11	8/1/00
2001	3,244	11	9/26/01

Table 11

SD-05			
Calendar Year	Full Service (af)	Peak-Day Average (cfs)	Peak Date
1998	0	0	N/A
1999	0	0	N/A
2000	0	0	N/A
2001	724	9	10/31/01

Table 12

SD-07						
Calendar Year	Agricultural (IAWP) (af)	Full Service (af)	Seasonal Storage Service (af)	Total (af)	Peak-Day Average (cfs)	Peak Date
1998	51,830	77,241	7,648	136,720	376	8/13/98
1999	75,537	78,084	7,550	161,171	372	8/24/99
2000	81,339	101,820	3,192	186,351	411	8/1/00
2001	70,940	110,374	1,894	183,208	408	7/22/01

Table 13

SD-08					
Calendar Year	Full Service (af)	Seasonal Storage Service (af)	Total (af)	Peak-Day Average (cfs)	Peak Date
1998	4,682	0	4,682	9	10/2/98
1999	4,693	317	5,010	15	10/1/99
2000	4,707	0	4,707	8	9/13/00
2001	4,592	0	4,592	8	8/15/01

Table 14

SD-09			
Calendar Year	Full Service (af)	Peak-Day Average (cfs)	Peak Date
1998	307	5	12/5/98
1999	199	4	1/9/99
2000	88	8	5/29/00
2001	795	8	11/1/01

Raw Water Connections:

Approximately 55 percent of SDCWA’s yearly demand on Metropolitan is raw water. Tables 15 and 16 summarize the raw water deliveries and the average peak days for SD-03 and SD-11, respectively.

Table 15

SD-03						
Calendar Year	Agricultural (IAWP) (af)	Full Service (af)	Seasonal Storage Service (af)	Total (af)	Peak-Day Average (cfs)	Peak Date
1998	430	24,480	11,982	36,891	156	6/1/98
1999	11	96,432	2,285	98,727	284	10/13/99
2000	0	120,784	1,279	122,062	285	4/4/00
2001	0	137,752	0	137,752	282	10/18/01

Table 16

SD-11							
Calendar Year	Agricultural (IAWP) (af)	Full Service (af)	Seasonal Storage Service (af)	Pre-delivery (af)	Total (af)	Peak- Day Average (cfs)	Peak Date
1998	3,018	150,725	27,162	0	180,904	273	9/2/98
1999	8,470	141,841	39,936	9,179	199,425	277	9/21/99
2000	9,651	149,457	43,727	3,450	206,285	296	6/28/00
2001	10,016	123,361	42,434	21,392	197,202	280	6/4/01

During most of the winter, up until March, SDCWA’s member agencies rely on rainfall to fill their reservoirs, minimizing imported replenishment. Table 17 presents the San Diego Airport average monthly precipitation, with the highest precipitation occurring in the months of January through March. Thus, reservoir managers delay taking delivery of imported water until the middle to end of March before purchasing Seasonal Storage Service water for reservoir replenishment, in anticipation of filling their reservoirs from the season’s precipitation. During dry hydrology, the current mode of reservoir operations leaves little time for complete reservoir replenishment, resulting in low storage supplies for the immediate summer.

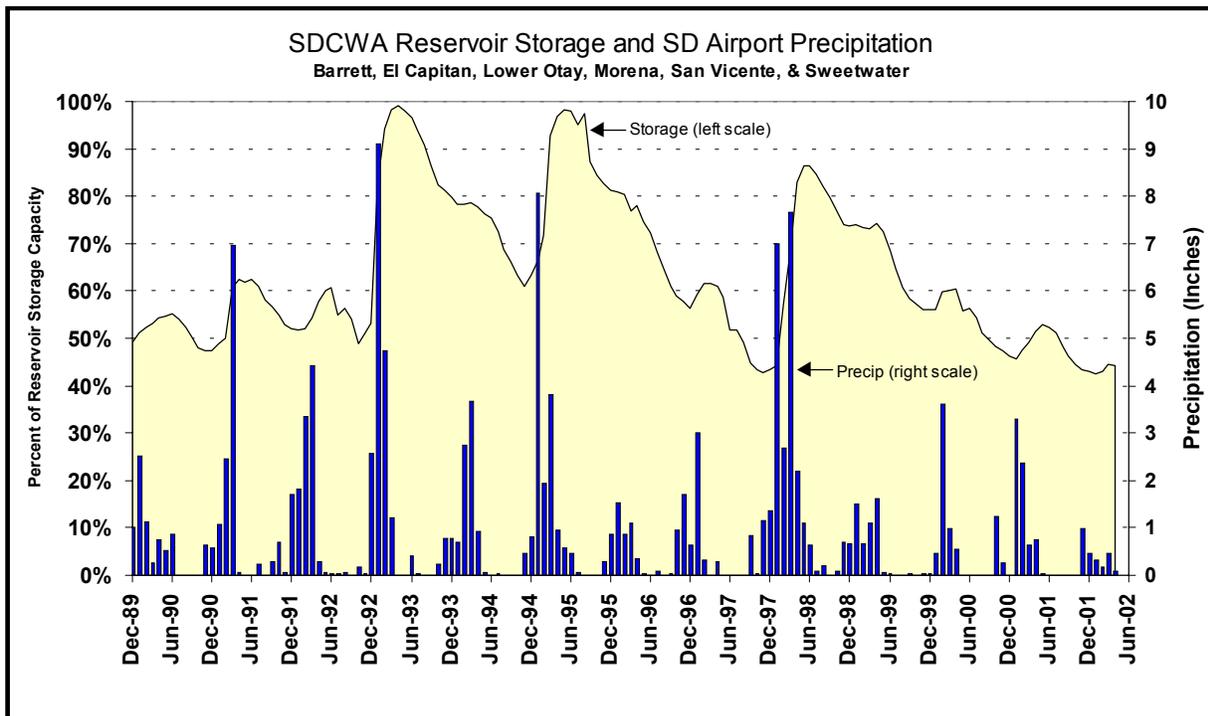
Table 17

SD Airport Normal Precipitation (1961-1990) ¹			
Jan	1.80 in.	Jul	0.02 in.
Feb	1.53 in.	Aug	0.10 in.
Mar	1.77 in.	Sep	0.24 in.
Apr	0.79 in.	Oct	0.37 in.
May	0.19 in.	Nov	1.45 in.
Jun	0.07 in.	Dec	1.57 in.

¹ Data taken from National Weather Service website: www.wrh.noaa.gov

This season's precipitation in the San Diego region ranks as the lowest rainfall total on record. Figure 6 illustrates the percent capacity of six of San Diego's major reservoirs and local precipitation. The current cumulative storage has dropped to levels lower than the levels experienced during the 1986-1992 drought, which is a major concern due to the peaking demands anticipated at the Skinner FP this coming summer.

Figure 6



SDCWA Operational Flexibility

Since the January 2001 report, SDCWA has initiated meetings with its member agencies in an effort to optimize operations during summer peak demands. From these meetings, SDCWA concluded that additional operational flexibility in the range of 30 to 50 cfs was available during times of peak demands in the summer of 2000. During future periods of peak demands, this available capacity may be used to directly decrease peak flows at the Skinner FP.

On May 29, 2002 Metropolitan and SDCWA had an opportunity to exercise the communication and operational flexibility developed in the monthly Skinner Agencies Operations meetings. Due to the 743-cfs record treated water demands that day, SDCWA voluntarily reduced treated water demand by utilizing excess local treatment plant capacity. A 77-cfs reduction in treated water demand was seen at the Skinner FP, with only a 5-cfs increase in raw water demand.

Additionally, at the May 2002 Skinner Agencies Operations meeting, it was determined that one area in which SDCWA might be able to get some peak reduction this coming summer is with the large agricultural customers that take delivery of treated water. If these larger agricultural customers could evenly distribute their deliveries over the course of the week, rather than concentrate deliveries only Monday through Friday, demand on Skinner FP would be reduced slightly overall.

Demand Update

Short-Term Member Agency Demand Estimates and Peak Factors

The demands utilized in this study were compiled jointly by Metropolitan and member agency staff. Member agencies submitted their five-year estimates consisting of treated and raw water demands on Metropolitan. Metropolitan provided a 20-year demand projection based on population growth rates developed by the Southern California Association of Governments and San Diego Association of Governments.

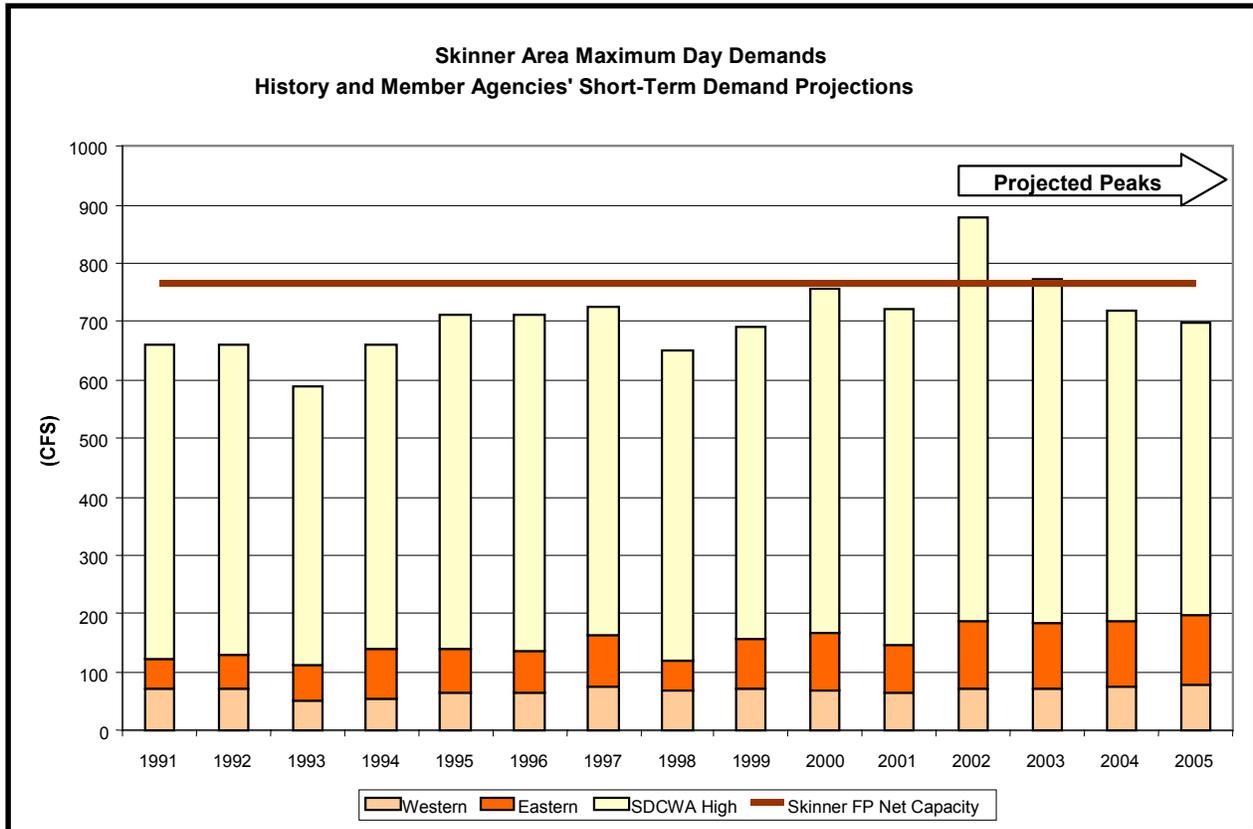
For long-term planning, extending beyond the period of the short-term estimates, Metropolitan uses its 20-year forecast. The treated volumes of Metropolitan's demand forecast for all agencies were aggregated at the plant, and then the plant dry-year peak factor was applied to the total demand to produce a projected maximum-day treated water demand. Peak factors are developed by dividing the historic daily peak demand of a service connection (or group of service connections representing an agency, or a facility such as a treatment plant) by the historic annual demand converted to an average daily flow. For example, in 1999, an amount of 287,520 af of water was

delivered at the service connections serviced by the Skinner FP. This amount equates to an annual average flow rate of approximately 400 cfs. The daily peak (24-hour average) delivery was nearly 700 cfs. This results in a peak factor of 1.75 for the Skinner FP.

Peak factors are often higher in wet years because average annual demand is reduced more than summer peak-day demands. Conversely, dry years tend to have the lowest peak factors. The peak factor of 1.75 calculated above for the Skinner service area, best represents the most likely dry period.

For the purposes of the short-term estimates, individual peak factors were calculated per individual member agency's use of treated water in the Skinner service area. The resulting treated water peak factors for the member agencies, calculated using the same process for calculating the Skinner FP peak factor, were 1.6 for SDCWA, 2.5 for EMWD, and 2.5 for WMWD. By using individual peak factors, the maximum-day demand for each individual member agency was determined. The Skinner FP capacity, historical maximum-day demand and the individual five-year projected maximum-day demands are shown in Figure 7.

Figure 7



In Figure 7, the estimated 2002 combined peak-day treated demand for all three member agencies is expected to exceed the Skinner FP design capacity by nearly 100 cfs. However, aside from the Skinner FP capacity constraint, an additional limitation exists with the conveyance of the projected maximum treated demand. Based on the available facilities identified in Table 1 of this report, the combined treated conveyance design capacity in the Skinner service area is 810 cfs. Furthermore, the total design capacity of treated water conveyance at the San Diego County line is 598 cfs. The design capacity of SD Pipeline 4 at the San Diego County line is 380 cfs; however, based on engineering analysis, done in 1997, it was determined that this design capacity could be exceeded by 10 percent, bringing the total capacity to 418 cfs. This amount, together with the 85 cfs and 95 cfs capacities of SD Pipeline 1 and SD Pipeline 2, respectively, could potentially total 598 cfs treated water capacity. The 598 cfs may only be achieved when take-outs upstream of the San Diego County line are below

maximum flows. Thus, the actual treated water design capacity at the San Diego County line is approximately the 598 cfs.

For calendar year 2002, SDCWA's conservative short-term estimates indicate absolute maximum projected peak-day demand at the San Diego County line is expected to be 692 cfs. The conveyance limitation will require additional local production of approximately 100 cfs from San Diego's treatment plants to meet the maximum-day demand. It is possible that this treated demand in excess of the treated conveyance capacity may result in an increase in raw water demand on Metropolitan for short durations. However, local storage in San Diego may dampen the effect on the raw water requirements during peak-day demands.

Impact of Metropolitan's New Rate Structure and Surface Storage Operating Agreement on Skinner Service Area Demands

Rate Structure

Metropolitan will implement a new rate structure effective January 1, 2003. The existing Seasonal Storage Service Shift program will remain in effect through April 30, 2003. Demand management will be encouraged through a rate structure that includes a Capacity Reservation Charge (CRC) and a Peaking Surcharge. The CRC will be levied annually on that amount of capacity, in cubic feet per second, that the member agency has reserved in advance. The CRC will be \$6,100 per cfs of reserved capacity. The Peaking Surcharge of \$18,300 per cfs will be applied to the peak day delivery in excess of the reserved capacity.

The actual impact of these new charges on demands in the Skinner service area is uncertain. However, Metropolitan expects that the member agencies will set their capacity reservation high enough to avoid being assessed the Peaking Surcharge, but not so high as to incur unnecessary costs through the CRC.

Surface Storage Operating Agreement

In response to the Seasonal Storage Service Shift program being eliminated and the issues outlined in this report, Metropolitan, Metropolitan's member agencies including the SDCWA, and SDCWA member agencies have developed, in principle, a Surface Storage Operating Agreement (Agreement) for a five-year term, effective November 1, 2003. The Agreement principles were approved by Metropolitan's Board in June 2002.

Under the Agreement principles, Metropolitan will store between 50,000 and 70,000af annually in SDCWA agency reservoirs. This water will be delivered between November 1 and May 31 for use between June 1 and October 31. As part of the development of its annual operating plan, Metropolitan, SDCWA and its member agencies will develop a coordinated schedule of withdrawals to occur between June 1 and October 31. In addition to this "schedule water", SDCWA and its member agencies will also make available to Metropolitan, on 24-hour notice, a pre-determined amount of "call water" for the purpose of alleviating peaks at the Skinner Filtration Plant. SDCWA will coordinate reservoir operations with their participating agencies, providing Metropolitan with a single point-of-contact.

Also under these principles, SDCWA has agreed to request 100 percent of its system design capacity, or 1,296 cfs; thus, SDCWA should not be subject to the Peaking Surcharge. Metropolitan has agreed to provide a credit of \$70/AF for "schedule water" withdrawn, and a credit of \$105/AF for "call water" withdrawn. These credits will be applied to the applicable Tier 1 or Tier 2 rates.

The principles of this Agreement will be available for surface storage by other member agencies in the Skinner service area as well.

Planned Facilities Status

Eastern Municipal Water District

Metropolitan completed Pipeline 3 Bypass in February 2002. The tie-in to the Skinner FP effluent conduit was completed in mid-February 2002. RCWD has constructed a pipeline that will connect to the Pipeline 3 Bypass at the new service connection, EM-20, and anticipates the service connection will be active by August 2002. Although the design capacity of EM-20 is 100 cfs, its requested connected capacity is 50 cfs and initial demands are expected to be approximately 20 cfs. Also, EMWD expects to complete a new 10-mgd membrane filtration plant to treat Colorado River water by November 2002. The new membrane filtration plant will be fed from service connection EM-04 directly off the Colorado River Aqueduct. The plant would be used to meet demands in the Moreno Valley and Perris areas. Table 18 updates EMWD's planned facilities schedule.

Table 18

Improvement	Design Capacity (cfs)	Previous On-line Date	Revised On-line Date
10 MGD Membrane FP	15	May 2002	November 2002
EM-20 on Pipeline 3 Bypass	100	Late 2001	Summer 2002

Western Municipal Water District of Riverside County

WMWD's sub-agency, Elsinore Valley MWD, may increase the use of the Mills Gravity Line. Additionally, there is a new RCWD raw water turnout, WR-34, on SD Pipeline 5 that will be on-line by fall 2002. Its requested connected capacity of 15 cfs is not expected to be exceeded.

San Diego County Water Authority

The following is an update on SDCWA's local treatment plant expansions. Helix Water District's Levy treatment plant expansion from 67 mgd to 106 mgd is complete. Delivery capacity from the plant has been increased by 13 mgd in 2002 to 80 mgd, and will run at 80 mgd until additional delivery facilities are completed in 2005. When additional facilities are completed in 2005, the plant will then operate at approximately 91 mgd until 2008 when demands will warrant about 100 mgd. The Olivenhain Water Treatment Plant construction is complete. The plant has a capacity of 25 mgd and initially will only be able to deliver 11 mgd due to existing conveyance facility constraints. The SDCWA is negotiating with Olivenhain Water District to expand the capacity of the plant to 40 mgd by 2005. Additional conveyance facilities will allow delivery of the full 40 mgd in 2005. The City of San Diego has completed the initial expansion of 30 mgd of the Alvarado WTP. The City of San Diego does not have the delivery capacity available for the additional 30 mgd. These facilities will not be completed until 2005. An additional 50 mgd expansion of the Alvarado WTP is scheduled for completion in 2006. The City of San Diego Miramar WTP is scheduled for a 40 mgd expansion in 2008. Some of the expansions described above are presented in Table 19.

Table 19

SDCWA's Local Treatment Plant Projected Expansions (mgd)					
Treatment Plant	Current Capacity	Usable Expanded Capacity			
		2002	2005	2006	2008
Helix WD - Levy	106	80	91	91	100
City of SD - Alvarado	150	120	150	200	200
City of SD - Miramar	140	140	140	140	180
Olivenhain MWD	25	11	40	40	40

SDCWA is in the process of developing a Regional Water Facilities Master Plan that will provide water supply and conveyance facility alternatives to meet projected demands through the year 2035. Three alternatives for future imported water supply are included in the draft plan. They are 1) "West" – a large regional desalination plant; 2) "East" – a new pipeline connecting directly to the Colorado River; and 3) "North" – continued and increased reliance on Metropolitan via the Skinner FP and SD Pipeline 6. SDCWA's currently identified on-line date for SD Pipeline 6 in the draft master plan is 2015. However, depending on which alternative, or combination of alternatives, is selected, SDCWA could request that SD Pipeline 6 be further deferred, reduced in size, or even eliminated. If the SDCWA determines it has no need for SD Pipeline 6, the proposed SD Pipeline 6 and the conversion of SD Pipeline 3 to treated water service would need to be reevaluated. EMWD and WMWD would also have to reevaluate their conveyance capacity access to the Mill FP and the Skinner FP.

Metropolitan Water District

Skinner Filtration Plant Module 7

The current on-line date for Module 7 is 2007. Metropolitan has issued a Request for Proposals for EIR preparation services and is preparing the potential project descriptions for the EIR. Metropolitan staff intends that the EIR be certified by the Board in April 2003. Metropolitan has initiated biological surveys for potentially impacted areas, and has updated topographical maps of the Skinner FP process area. The Site Engineering Study, with Key Findings Technical Memorandum and alternative site layouts, will be final in June 2002. Metropolitan is considering the installation of a new treatment technology, ultrafiltration or microfiltration, for turbidity and particle removal. This treatment technology will be evaluated and compared to the Skinner FP's existing treatment processes. Metropolitan has completed a draft Process Design Alternatives Report for Module 7 that will be final in July 2002. Staff will request authorization of Module 7 preliminary design activities at the July Board meeting.

San Diego Pipeline 6

Project Background

Metropolitan's Board approved the Final Environmental Impact Report (FEIR) for SD Pipeline 6 in May 1993. At that time, it was determined that without additional conveyance capacity, there would be significant deficits in seasonal and short-term supply delivery by SDCWA beginning in 1998. Since that time, additional analyses were conducted, including the Integrated Resources Plan and the Rate Refinement Process, that resulted in a series of revised completion dates for SD Pipeline 6, first from 1998 to 2000, then to 2002, and finally to 2005. In 1995, all design work was deferred.

Subsequently, the SDCWA, in conjunction with its member agencies, began to implement various storage, conveyance and treatment projects and, at SDCWA's request, the on-line date for SD Pipeline 6 was deferred to 2008. In December 1997, the SDCWA recommended that Metropolitan proceed only with ongoing coordination with developers and local agencies to ensure necessary rights of way could be secured. In 1998, both Metropolitan's and the SDCWA's Capital Improvement Programs were adjusted to reflect an on-line date of 2008.

Infrastructure planning and construction in the Temecula area by RCWD has been based on the completion of SD Pipeline 6 along the alignment described in the FEIR. RCWD has determined that the 80-cfs groundwater replenishment connection to be located on SD Pipeline 6 (relocated EM-19 turnout) in Temecula is needed no later than the summer of 2008. However, based on recent analysis on the schedule for SD Pipeline 6, detailed below, RCWD's need for SD Pipeline 6 may be sooner.

Accomplishments and Ongoing Activities

When Metropolitan's Board approved the SD Pipeline 6 project in 1993, the capital appropriation was increased to a total of \$47.75 million. In March 2001, Metropolitan's Board reauthorized staff to proceed with all right of way acquisition and preliminary

design to meet an on-line date of 2008. The estimated budget for this effort is \$28.2 million. Metropolitan staff completed the initial planning and alternative alignment analysis in March 2002. Pipeline design and geotechnical investigations are scheduled to begin in mid-2002. The tunnel geotechnical investigation and preliminary design is also scheduled to begin in mid-2002. Also, it should be noted that based on the outcome of the SDCWA's Regional Water Facilities Master Plan, all project work is currently moving forward incrementally.

Metropolitan Staff Analysis on Schedule for SD Pipeline 6

The following is an updated analysis on the on-line date for SD Pipeline 6 to meet the water demands of the Skinner service area, in particular, the demands of SDCWA. A summary of the steps of this analysis is presented below:

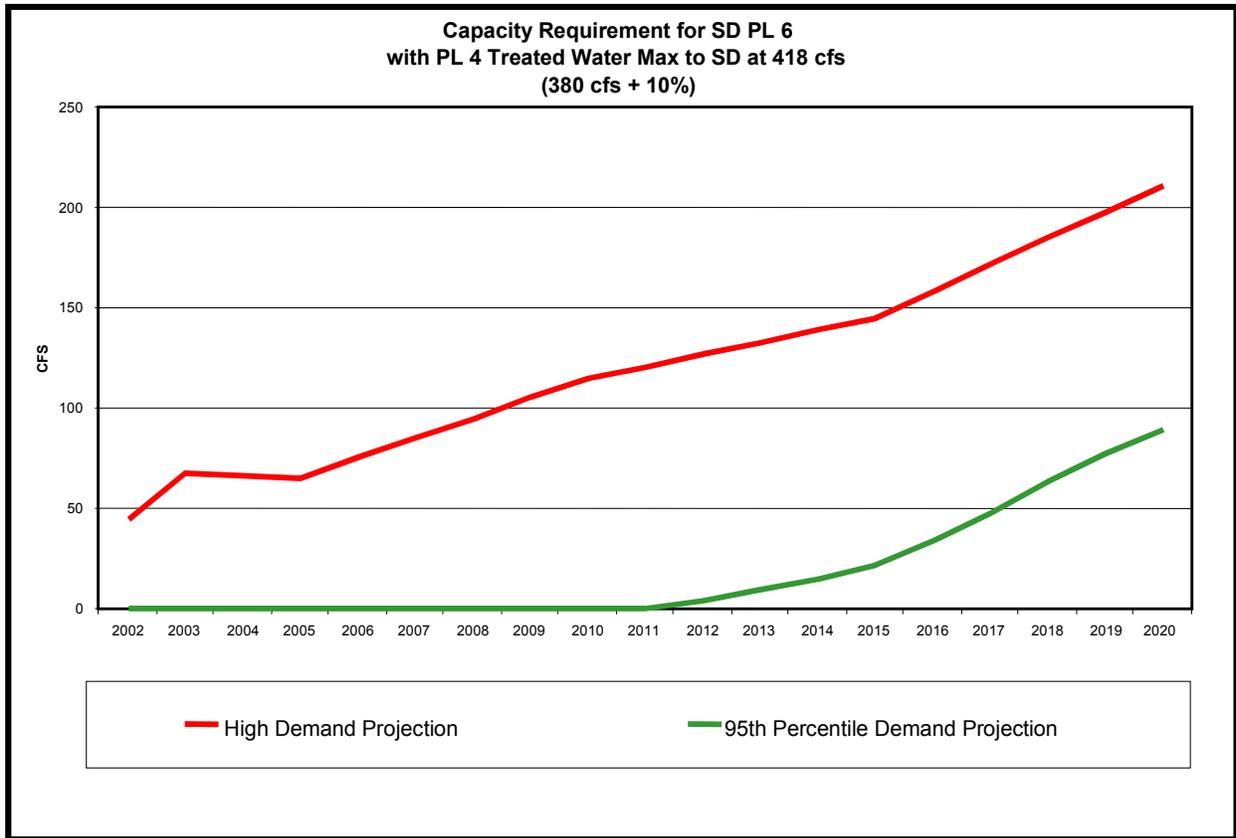
- This analysis assumes that SDCWA will request construction of SD Pipeline 6 to serve its service area at some future date.
- This analysis assumes the use of the design capacities for the pipelines, with an increase of the SD Pipeline 4 design capacity of 380 cfs by 10 percent to 418 cfs, per a memorandum dated February 3, 1998, from Metropolitan's then Assistant Chief of Planning and Resources, Paul Teigen, to SDCWA's Director of Engineering, John Economides.
- Metropolitan used its September 2001 Annual Sales Forecast (95th percentile projection and high demand projection) for SDCWA through 2020.
- Metropolitan determined a historic SDCWA total peaking factor of 1.5 for treated and untreated water (as compared to the peaking factor of 1.6 for treated water only), and this was applied to the September 2001 Annual Sales Forecast for SDCWA to develop a total peak water demand (treated and untreated) for the 95th percentile and the high demand projection.
- Available treated water capacity (design capacity) for SDCWA (SD Pipelines 1, 2, and 4) was subtracted from the total peak water demand yielding a remaining total raw peak water demand.

- Current available raw water capacity (design capacity) for SDCWA (SD Pipelines 3 and 5) was subtracted from this remaining total raw peak water demand. If the balance were greater than zero, current raw water facilities would not be sufficient to deliver the remaining total peak water demand. This remaining total peak water demand would need to be met by the construction of SD Pipeline 6 combined with the conversion of SD Pipeline 3 to treated water.

The results of this analysis are presented in Figure 8 for the 95th percentile and high demand projections. It should be noted that the demand curve is relatively flat and thus sensitive to changes in assumptions. At the 95th percentile demand projection, SD Pipeline 6 may not be needed until about 2012, but at the high demand projection (effectively the 100th percentile level), SD Pipeline 6 (along with conversion of SD Pipeline 3 to treated water) is needed now, since the additional peak water demands are projected at roughly 40 cfs to 70 cfs through 2005, and rising at a steady rate thereafter. Already this year Metropolitan has seen peak demands from SDCWA that are close to the high demand projection, requiring Metropolitan to operate its pipelines temporarily above the design capacity. Again, it is important to note that this analysis assumes that Metropolitan operates the SD Pipelines within the range of designed capacities. Prudent operating policies dictate that Metropolitan operates its pipelines above design capacity on a very limited and infrequent basis. This will ensure that Metropolitan can meet all simultaneous upstream peak demands, as well as maintain the structural integrity of the delivery system.

As was noted, the demand curve is relatively flat, leading to large fluctuations in on-line dates for facilities based on small changes in demands, peak factors, permissible flow rates and schedules for development of local facilities. Because there is no corresponding flexibility in the engineering and construction of critical facilities, a delay in construction of these facilities would compound the difficulty in managing the Skinner service area system year-to-year with a "zero margin for error."

Figure 8



If it is determined that the ultimate completion of SD Pipeline 6 should be delayed for several more years, completion of the northern reach of SD Pipeline 6 to RCWD’s planned groundwater replenishment connection, near De Portola Road, would be required by 2008 for RCWD to reliably meet demands in its service area. However, an on-line date of 2006 would provide the following operational flexibility. Construction of this portion of SD Pipeline 6, along with increased use of the Pipeline 3 Bypass and construction of Module 7, should enable RCWD to meet demands without the conversion of Pipeline 3 to treated water service, although this would require that SD Pipeline 4 be operated above design capacity to meet long-term peak demands.

Difference in Analysis Assumptions Between Metropolitan and SDCWA

Metropolitan and SDCWA use different assumptions regarding estimated water demands, planned facilities, shift operations, and available conveyance capacity from Metropolitan to SDCWA. These different assumptions are discussed below.

Assumptions on Demands

Both Metropolitan and SDCWA calculate demands on Metropolitan from SDCWA by starting with forecasted SDCWA retail demands and subtracting local supply production. Metropolitan's forecast of local supplies is based on SDCWA 2000 Urban Water Management Plan and is therefore very close to SDCWA's estimate of local supplies. Retail demand forecasts made by SDCWA and Metropolitan both rely on demographic data from San Diego Association of Governments' regional growth analysis. In the years up to 2015, both forecasts yield similar results; however, in the later years SDCWA's forecast is higher due to different modeling assumptions. Metropolitan's model uses a forecast of retail demands under variable weather conditions and expected socioeconomic trends, such as changes in population, housing, employment, and income. SDCWA's model also uses a forecast of retail demands with variable weather conditions and variable socioeconomic trends. The variance in socioeconomic factors cause SDCWA's forecast to be higher in the later years. Because of the difference in methodologies, subtracting local supplies from retail demands yields different forecasts of demands on Metropolitan that, like the retail demand forecast, are relatively close in the years up to 2015. SDCWA's forecast then grows higher than Metropolitan's does in the years beyond 2015.

Assumptions on SDCWA Emergency Storage Project

SDCWA is planning the construction of the Emergency Storage Project (ESP). The ESP is comprised of reservoir expansions, pipelines, and other facilities that will connect existing sources of water to ensure water reliability in the event that a natural disaster disrupts the imported water supply to the SDCWA service area. The ESP is projected to supply 90,100 af of additional stored water. This will include approximately 18,000 af of storage at Olivenhain Reservoir as well as additional storage at

San Vicente reservoir to reduce peak demands. SDCWA's analysis on meeting its peak water demands includes the ESP. Because the ESP is not yet complete, it is unclear how its operation will impact demands on Skinner FP or Metropolitan's conveyance system and thus Metropolitan has not included the ESP in its current analysis. Additional information will be requested from SDCWA to develop appropriate assumptions on the effect of construction and operation of the ESP on Skinner FP and the timing of completion of SD Pipeline 6.

Assumptions on the SDCWA Surface Storage Operating Agreement

Metropolitan and SDCWA are in the process of completing a five-year Surface Storage Operating Agreement, consistent with the new rate structure, to more effectively utilize surface storage capacity to help meet summer demands in the Skinner service area. SDCWA has historically participated in Metropolitan's Seasonal Storage Service Shift program to take delivery of water into storage during winter months for withdrawal from storage during summer months. Typically SDCWA agencies have shifted about 50,000 af each year or about 10 percent of SDCWA's total imported water demand. Metropolitan believes that this Agreement will provide improved operations for shifting of demands. However, since the program is untested, this Agreement has not been considered at this time in Metropolitan's analysis as an additional option (beyond existing shift operations) to meet SDCWA's peak water demands. The program may provide increased operational flexibility until additional facilities are put on-line and will be evaluated as more experience is gained from actual operations.

Assumptions on Available Metropolitan Pipeline Capacity

There are five pipelines that provide water to SDCWA -- treated water SD Pipelines 1, 2 and 4, and raw water SD Pipelines 3 and 5. Each pipeline has a rated design capacity and a field-determined maximum flow capacity. The pipeline design capacity is the engineering-designed high flow rate for the pipeline that ensures the continued long-term structural integrity of the pipeline. The maximum flow capacity is a field-determined absolute maximum flow rate. Operation at these rates could be allowed for a limited period of time under emergency or shutdown situations without causing

immediate damage to the pipeline structural integrity. Operations at these capacities will also occur during demand years that exceed the 95th percentile. The design capacities and the maximum flow capacities for treated and raw water pipelines, respectively, are presented in Table 20 and Table 21.

Table 20

Treated Water Pipeline Capacities			
Pipeline	Design Capacity (cfs)	Max Flow Capacity (cfs)	Notes
Pipeline 1	85	93	Max flow obtained 8/6/92.
Pipeline 2	95	93	Max flow obtained 8/6/92.
Pipeline 4 at SD-07 (at County Line)	380	468	Flow test 10/2/97.

Table 21

Raw Water Pipeline Capacities			
Pipeline	Design Capacity (cfs)	Max Flow Capacity (cfs)	Notes
Pipeline 3	262	295	Max flow obtained 7/8/89
Pipeline 5	474	509	Flow test 4/4/02.

As mentioned above, prudent operating policies dictate that Metropolitan operate its pipelines within the range of the design capacities, with occasional limited higher flows to meet peak demand conditions under emergency or special shutdown conditions. Additionally, these operations will occur during demand years that exceed the projected 95th percentile. To ensure the long-term viability of its delivery system, Metropolitan does not, as a rule, develop policies to operate its system above design capacity. Thus, for Metropolitan's analysis of the available capacity in the Skinner service area, Metropolitan has assumed the pipeline design capacity. In its analysis, SDCWA assumes the maximum flow capacity for SD Pipelines 3, 4, and 5 in its determination of available pipeline capacity in the Skinner service area. A summary of these differing assumptions is presented in Table 22.

Table 22

Facility Planning Capacity Assumptions (cfs)				
Pipeline	MWD	SDCWA	SDCWA Difference	Reason for Difference
Pipeline 1	85	90	5	N/A - Combination of PL 1&2=180 cfs for both
Pipeline 2	95	90	-5	N/A - Combination of PL 1&2=180 cfs for both
Pipeline 3	262	280	18	MWD uses Design Flow Capacity/SDCWA uses Max Flow Capacity
Pipeline 4 at SD-07 (at County Line)	*418	470	52	MWD uses Design Flow Capacity/SDCWA uses Max Flow Capacity
Pipeline 5	474	500	26	MWD uses Design Flow Capacity/SDCWA uses Max Flow Capacity
Total	1,334	1,430	96	SDCWA uses a total of 96 cfs more than MWD.

* According to Metropolitan February 3, 1998, memorandum allowing the use of 10% above design capacity at SD Pipeline 4.

As a result of SDCWA's assumptions, its analysis shows an increase of 96 cfs of available pipeline capacity for SDCWA in the Skinner service area. Metropolitan uses design capacity in its determination of available pipeline capacity for the following reasons:

- At the higher maximum flow capacities, Metropolitan may not be able to meet simultaneous upstream peak demands for other member agencies and subagencies. As an example, if SD Pipeline 4 is operated at the higher maximum flow capacity of 470 cfs while the Skinner FP is meeting other upstream peak treated water demands, the Skinner FP finished water reservoir operating level drops, along with the upstream hydraulic grade line, reducing the flow capacities available at the upstream service connections on SD Pipeline 4 to EMWD, WMWD, and RCWD. This situation may be alleviated when Skinner FP Module 7 comes on line to supply additional treated water to the finished water reservoir to raise the finished water reservoir level and the hydraulic grade line during such peak demand periods. However, it is uncertain at what elevation the finished water reservoir could be maintained to meet downstream demands.

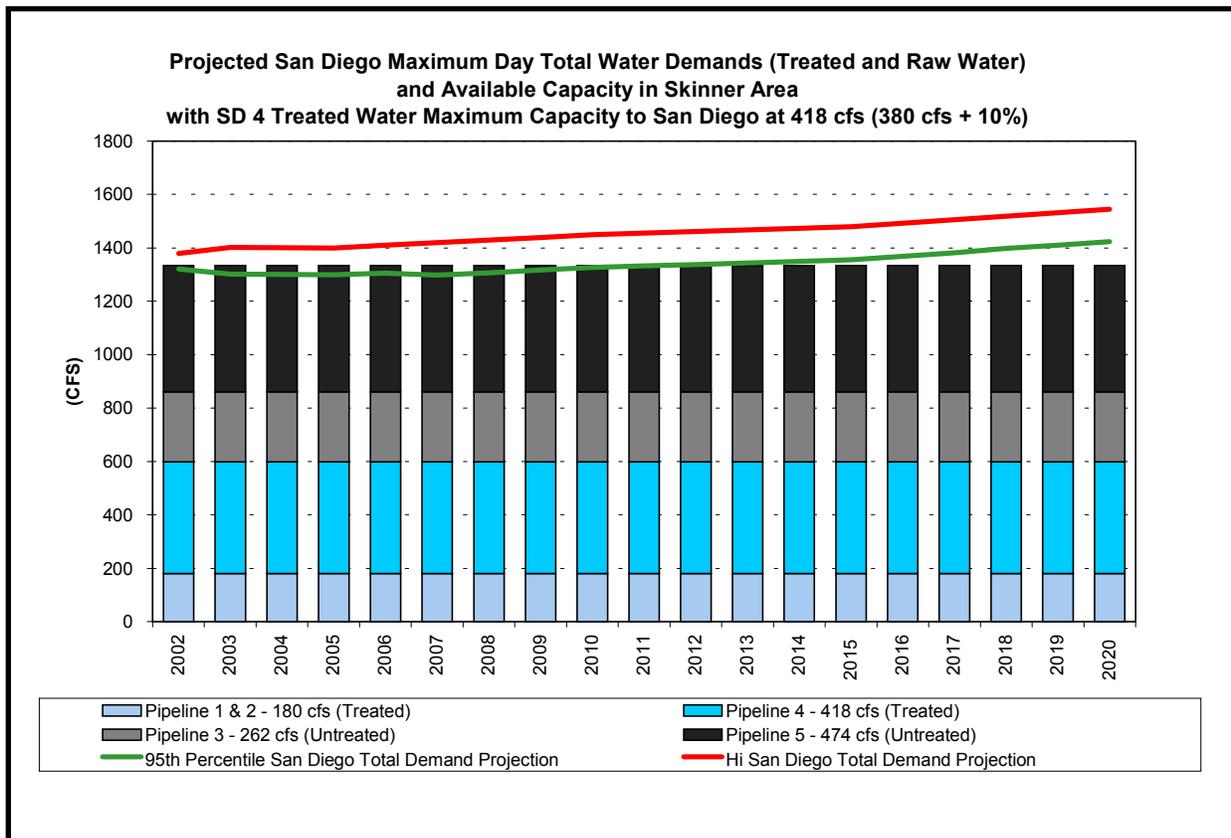
Metropolitan should not operate its pipelines to SDCWA above the maximum design capacities for the reasons stated above, and should only do so during emergencies, shutdowns, or short periods of high demand in coordination with upstream member agencies and subagencies.

It is important to reemphasize that the demand curve for SDCWA is relatively flat, leading to large fluctuations in on-line dates for facilities based on small changes in demands, peak factors, permissible flow rates and schedules for development of local facilities. Because there is no corresponding flexibility in the engineering and construction of critical facilities, a delay would compound the difficulty in managing the Skinner service area system year-to-year with a "zero margin for error."

Recent analysis reveals that the relatively flat demand curve for SDCWA, results in large fluctuations in potential on-line dates for SD Pipeline 6 based on small changes in demands, peak factors, permissible flow rates and schedules for development of local facilities. As can be seen from Figure 8, a change in demands from the 95th percentile to high demands (100th percentile) can result in a shift of the on-line date by almost 10 years -- from 2012 to now. There is no corresponding flexibility in the engineering and construction of critical facilities. Metropolitan's ability to deliver water to SDCWA is operating with virtual zero margin for error. This is further shown in Figure 9, which presents the SDCWA high demand and 95th percentile demand projections along with current available design conveyance capacity to SDCWA.

Any change in the assumptions can dramatically change the date when SD Pipeline 6 is needed. For example, if the peaking factor is slightly increased or decreased, the on-line date for additional raw water delivery capacity would change by several years. If Metropolitan used a peaking factor of 1.6, the analysis would show a need for SD Pipeline 6 in this year at both the high and 95th percentile demand projections.

Figure 9

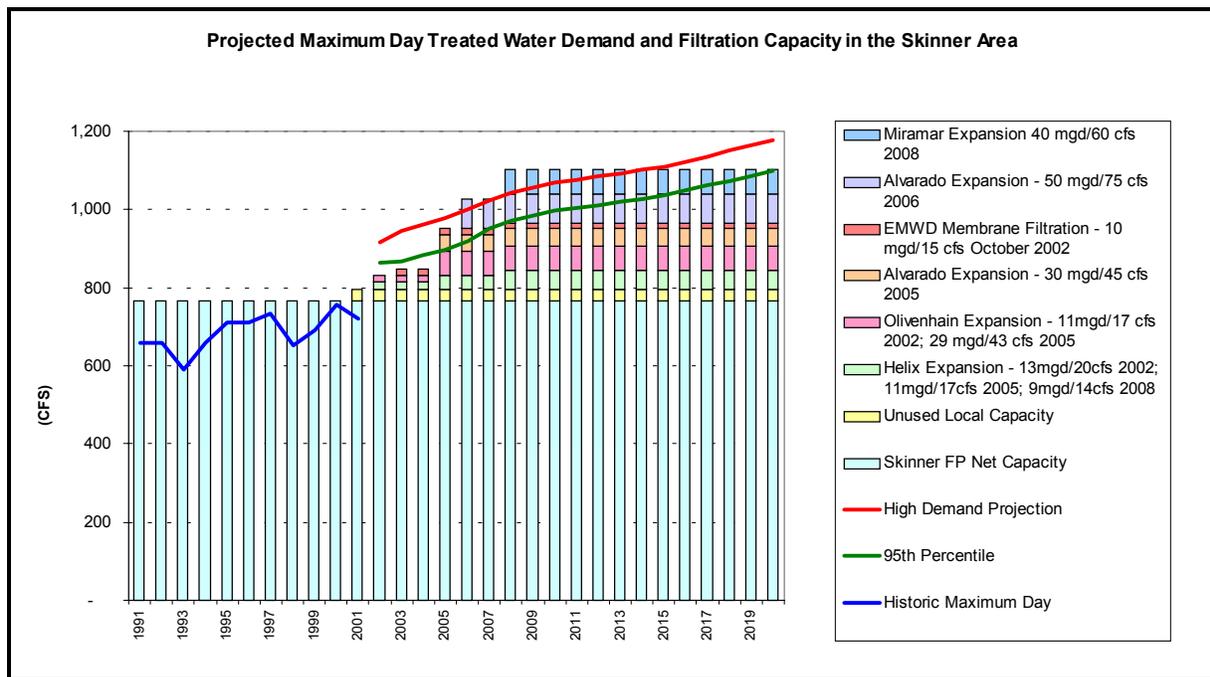


Until the time when additional delivery and treatment capacity are in place and when high demand peak periods occur Metropolitan, SDCWA, EMWD and WMWD will need to continue to work together to develop delivery schedules that will meet the demands of the member agencies without operating the existing delivery system above design capacity. Additionally, Metropolitan will continue to monitor the potential for SDCWA's ESP and the Surface Storage Operating Agreement to reduce peak water demands during this interim period.

Projected Maximum Day Demand vs. Projected Filtration Capacity

Figure 10 illustrates how projected treated water demands would be met using local facility expansions as well as the 20-year demand projection for the Skinner service

Figure 10



area. Also, included are the planned treatment plant expansions in the SDCWA service area. The green line represents Metropolitan’s 95th percentile dry-year demand projection. In other words, this demand should be exceeded only 5 percent of the time. The red line represents the highest likely demand (100th percentile). This analysis assumes 100 percent utilization of the new facility expansions during peak periods. As can be seen in Figure 10, there is a potential shortfall in meeting Skinner service area peak treated water demands in the next three to four years. After 2004, treatment plant capacity is projected to be adequate to meet 95th percentile peak demands through 2020. Under the peak high demand projections, treatment plant capacity is projected to be adequate through about 2015.

Sensitivity Analysis

It is important to note that the SDCWA area treatment plant expansions and on-line dates have changed from what was reported in the Skinner Filtration Plant Study of January 2001. Table 23 presents the treated water facility expansions as reported in

the 2001 study compared with current schedules. A comparison of the initial schedule of expansions to the current schedule of expansions, which in some cases are now staged over several years, indicates that the on-line dates have changed. The on-line dates for the three earliest expansions have been delayed, while the on-line dates for the two later expansions have been moved forward. Further delays in these treatment plant expansion on-line dates will seriously impact the ability to meet future SDCWA peak treated water demands.

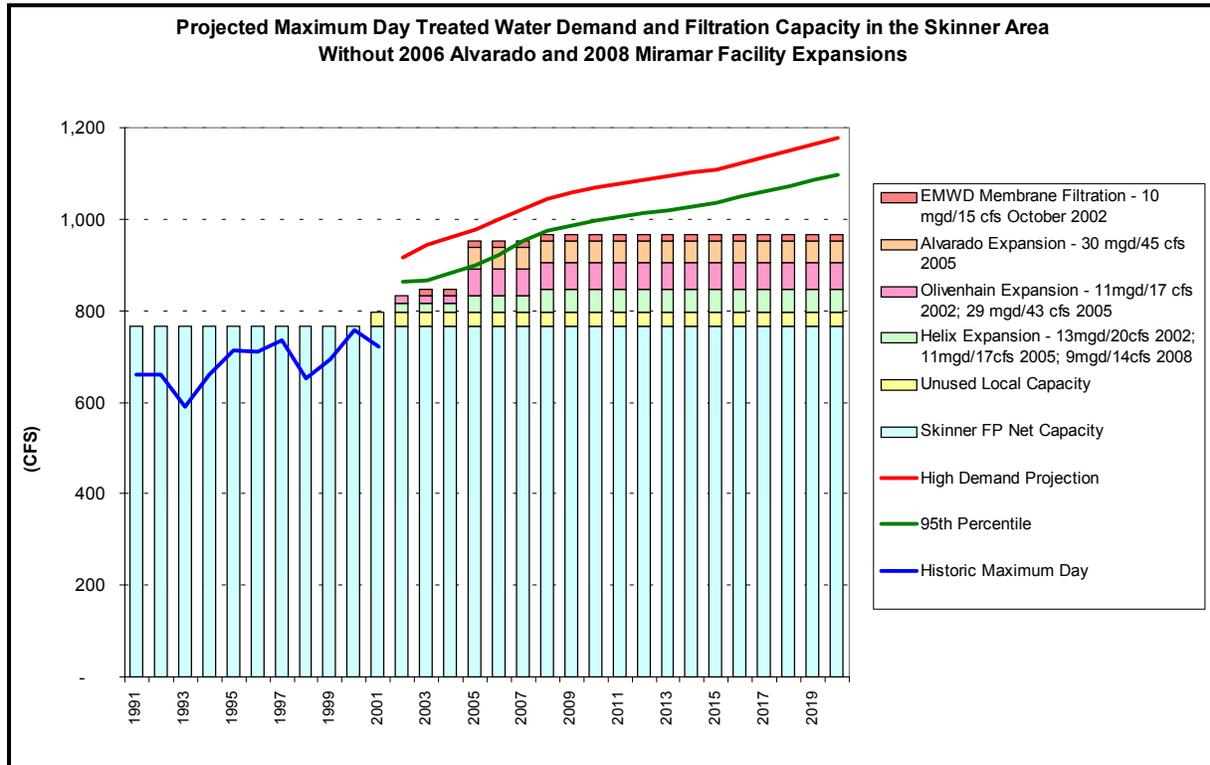
Table 23

Treated Water Facility Scheduled Expansions in the SDCWA Service Area Reported in January 2001 <u>Skinner Filtration Plant Study</u> as Compared to Current				
Plant	2001 Study		Current	
	Projected Incremental Capacity (mgd)	On-line Date	Cumulative Usable Incremental Capacity (mgd)	On-line Date
Helix WD - Levy	26	April 2001	13	2002
			24	2005
			33	2008
City of SD - Alvarado	30	Spring 2002	30	2005
			80	2006
City of SD - Miramar	25	2007	40	2008
Olivenhain MWD	25	Spring 2002	11	2002
			40	2005

Case 1 – Without Expected Treatment Plant Expansions

The following is an update to the sensitivity analysis presented in the 2001 report. To test the sensitivity of the projected need for additional treatment plant capacity, the expected second expansion of the City of San Diego's Alvarado TP and the expected expansion at the City of San Diego's Miramar TP are removed from the build-up in Figure 11.

Figure 11



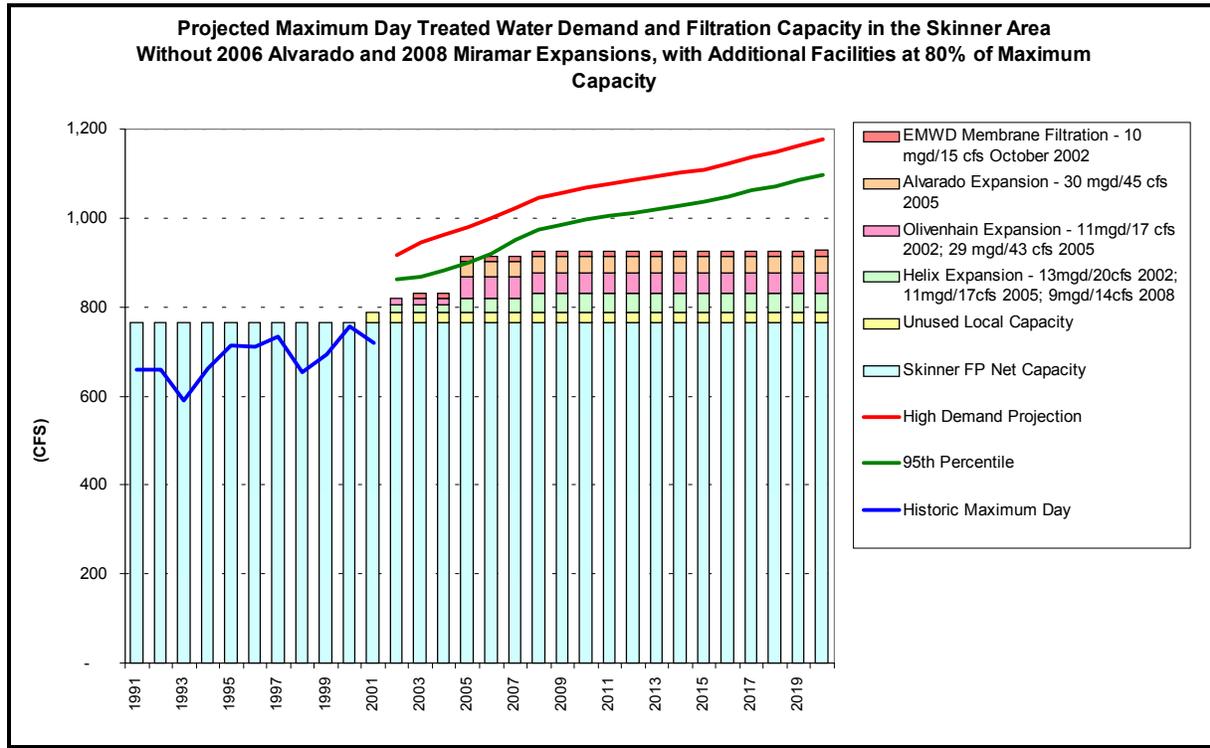
As can be seen from the figure, the result is that the need for additional treatment capacity at Skinner FP is evident for the next three to four years at the 95th percentile, with peak demands being met for 2005 to 2007, and then a shortfall through 2020. Thus, Skinner FP Module 7 would need to be on-line in 2007.

At the high demand projection, projected treatment plant capacity is insufficient to meet the peak treated water demands and Module 7 would be needed immediately.

Case 2 – With Expected Treatment Plant Expansions at 80 Percent of Capacity

An additional sensitivity test involves the reliability of the estimate of increased treatment capacity provided by the unused local capacity, Helix expansion, Olivenhain expansion, Alvarado expansion and EMWD Membrane Filtration plant. If usable capacity is only 80 percent of the maximum expected capacity, the effect on Skinner FP is shown in Figure 12.

Figure 12



As can be seen from the figure, at the 95th percentile demand there is an immediate need for Module 7 over the next few years, with demands temporarily met in 2005 and thereafter exceeding the available treatment plant capacity. At the high demand projection, Module 7 is needed immediately as the projected treated water demands consistently exceed projected treatment plant capacity. This case represents the most conservative of the cases due to the sensitivity involved.

Water Quality

Water Quality Regulations

The Safe Drinking Water Act requires the U.S. Environmental Protection Agency to set regulations that protect consumers from microbial pathogens and disinfection by-products (DBPs). As part of this legislation, two new regulations were implemented on

January 1, 2002. These regulations include the Interim Enhanced Surface Water Treatment Rule and Stage 1 of the Disinfectants/ Disinfection By-Product Rule.

Interim Enhanced Surface Water Treatment Rule (IESWTR)

The primary purpose of the IESWTR is to improve the physical removal of *Cryptosporidium*, a disinfection-resistant pathogen. This objective is attained by decreasing existing plant effluent turbidity standards and implementing new reporting requirements for individual filter effluent turbidity. The Skinner FP meets this rule by optimizing the coagulation and filtration processes.

Stage 1 Disinfectants/Disinfection By-Products (D/DBP) Rule

Stage 1 of the D/DBP Rule contains two main provisions relevant to Metropolitan: (1) maximum contaminant levels (MCLs) for DBPs; and (2) a treatment technique to control DBP precursors.

The D/DBP rule lowered the existing MCL for trihalomethanes from 100 micrograms per liter ($\mu\text{g/L}$) to 80 $\mu\text{g/L}$. New MCLs were established for haloacetic acids (60 $\mu\text{g/L}$ as the sum of five haloacetic acids), bromate (10 $\mu\text{g/L}$), and chlorite [1.0 milligrams per liter (mg/L)]. Compliance with the new trihalomethane and haloacetic acid MCLs are based on a running annual average of samples collected throughout the distribution system. Compliance with the chlorite and bromate MCLs will be based on samples collected at the plant effluent.

In addition to the new MCLs, Stage 1 of the D/DBP rule requires that conventional filtration plants use enhanced coagulation to remove DBP precursors (i.e., total organic carbon or TOC). Conventional filtration plants can either remove TOC or meet a range of alternative criteria. For Metropolitan's source waters, these criteria include either controlling THMs to <40 $\mu\text{g/L}$ and HAA5 to <30 $\mu\text{g/L}$, maintaining low specific ultraviolet absorbance (SUVA) in coagulated/settled water, or demonstrating that source waters are non-amenable to enhanced coagulation. Note that the direct Skinner FP (without

sedimentation basins) must comply with the new DBP MCLs, but does not need to comply with the treatment technique component.

The Skinner FP (conventional treatment plant only) is currently being operated in a manner that eliminates the need to implement enhanced coagulation. The Skinner FP maintains a source of treated water SUVA less than 2.0 L/mg-m. The SUVA of State Project water (SPW) is always above 2.0 L/mg-m, whereas the SUVA of Colorado River water (CRW) is always below this value. This operation mode requires weekly adjustments to the blend of SPW and CRW entering Lake Skinner.

Future Regulations

Proposed future regulations include the Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR) and Stage 2 of the D/DBP Rule. These regulations are not expected to be enforced until 2010. The LT2ESWTR increases control of disinfectant resistant pathogens. The Stage 2 D/DBP Rule further limits DBP exposure by phasing out the geographical averaging of DBP levels to comply with the MCLs. This regulation will eventually require utilities to meet MCLs at each distribution sample location on a running annual average. It is expected that the precursor removal requirements from the Stage 1 D/DBP Rule would be maintained.

Perchlorate

The main source of perchlorate entering the Colorado River originates from manufacturing facilities near the city of Las Vegas, Nevada. Ammonium perchlorate, a principal component of solid rocket fuel, has permeated into groundwater aquifers from manufacturing sites in the Las Vegas Basin and flows into Lake Mead due to the hydraulic gradient of this region. Perchlorate detected in Colorado River supplies has been traced to these sources. A groundwater remediation effort is ongoing to substantially reduce perchlorate loading to the Las Vegas Basin.

Perchlorate is a health concern because it interferes with thyroid uptake of iodide. Impaired thyroid function may affect metabolism in adults and impair neuropsychological development in the fetus and newborns. There is currently no

enforceable drinking water standard for perchlorate. The California Department of Health Services established a non-enforceable, advisory Action Level of 4 µg/L in January 2002. California's Office of Environmental Health Hazard Assessment released a draft Public Health Goal of 6 µg/L in March 2002.

Historical data show that perchlorate levels in Metropolitan's treated waters are subject to wide changes, primarily associated with the percent blending of SPW. Blending CRW with SPW reduces the level of perchlorate; however, the amount of permissible blending is dictated by competing criteria such as the need to (1) comply with the Stage 1 D/DBP Rule; (2) meet the Board's salinity objective of 500 mg/L annual average; and (3) optimize resource management issues such as water demand and the availability of SWP supplies.

Blending

The blending of source waters entering Lake Skinner achieves multiple water quality and water resource objectives. In general, the benefits of increasing the SPW percentage include decreased salinity, decreased perchlorate concentrations, and greater flexibility to manage both State Water Project and Colorado River supplies. Drawbacks to increasing the SPW percentage include additional DBP formation and additional treatment costs to minimize DBP formation.

New treatment technologies (ozone and chlorine dioxide) are being studied in order to reduce the trade-offs described above. Once a new technology is implemented, DBP formation from increased SPW supplies can be minimized. Until the technology is implemented, however, a careful balance between competing water quality goals must be attained. This balance is achieved by weekly monitoring and adjusting SPW blends.

Conclusions

Short-Term

The Skinner Agencies Operations meetings should continue to be held on a regular basis to ensure that affected member agencies are aware of the daily system demands and the operational strategies available in times of peak demand. The efforts of this group this spring, while experiencing record-breaking demands on the Skinner FP, have proved to be successful in coordinating operations to meet member agency demands. The group should work even more closely with the member agencies, even at the sub-agency level, to coordinate the optimization of local treatment plant facilities along with the Skinner FP.

Metropolitan and its member agencies should coordinate a consistent public information message for all of Metropolitan's service area to raise the public's awareness that conservation is needed. As of June 2002, the Skinner FP has been operating above design capacity for multiple days. Only because the Skinner FP is operating under optimal conditions has it been able to sustain these demands. Due to the record dry hydrology this year, the low reservoir levels in the San Diego area, and the likelihood of less than optimal conditions at the Skinner FP, the potential exists for all available resources to be exhausted. This would leave the Skinner Agencies Operations group with limited options and flexibility this summer. A successful conservation campaign would restore some of the flexibility.

Long-Term

The January 2001 Skinner Filtration Plant Study recommended that the schedule for Skinner FP Module 7 be revised for an on-line date of 2007. In the last eighteen months, Metropolitan staff has kept to this schedule, as described in this report.

This area study should be updated annually to reflect the ongoing planning of proposed Metropolitan and local capital facilities.

Also, the Skinner Filtration Plant Study recommended, and the Board subsequently approved, that the schedule for SD Pipeline 6, with an on-line date of 2008, be maintained. Given the analysis provided in this updated report, critical decisions need to be made regarding the schedule for SD Pipeline 6. Unless SDCWA advises that it will not need SD Pipeline 6, the Board's previous decision to go forward with the design and acquisition of land and right of way for the project shall be expanded to include construction. If it is determined by SDCWA that SD Pipeline 6 will not be needed to serve SDCWA until past 2008, then a decision could be made on staging in order to meet the earlier expectations of EMWD and WMWD, which have assumed construction of SD Pipeline 6 by 2006 in their facility master plans.

Lastly, the sensitivity analysis included in this report emphasizes the criticality of maintaining Metropolitan's and the affected member agencies' capital improvement project schedules. As the sufficiency of treatment plant capacity to meet demands is extremely sensitive to the on-line dates of Metropolitan and local treatment plant expansions, it is ever more important for Metropolitan and the affected member agencies to meet their respective responsibilities of maintaining these schedules.

Appendix A

**The Metropolitan Water District of Southern California
R. A. Skinner Filtration Plant
Operation Status**

June 18, 2002

10:39 AM

Member Agency Flows - cfs
[Flow Capacities]

Treated Water

SDCWA		
SD-01A	85	[85]
SD-01B	85	[95]
SD-2	9	[20]
SD-9	5	[20]
SD-8	7	[30]
SD-5	0	[25]
SD-7	455	[450]
Total	646	

EMWD		
EM-17	55	[100]

Rancho Water		
WR-26	30	[40]
WR-28	40	[40]
EM-13	35	[40]
Total	105	

FWR Demand	
	14
<small>Positive value = FWR filling</small>	

Raw Water

SDCWA		
SD-3	280	[280]
SD-11	300	[500]

Rancho Water		
EM-19	25	[40]

Treated Water Total 820 cfs

Raw Water Total 605 cfs

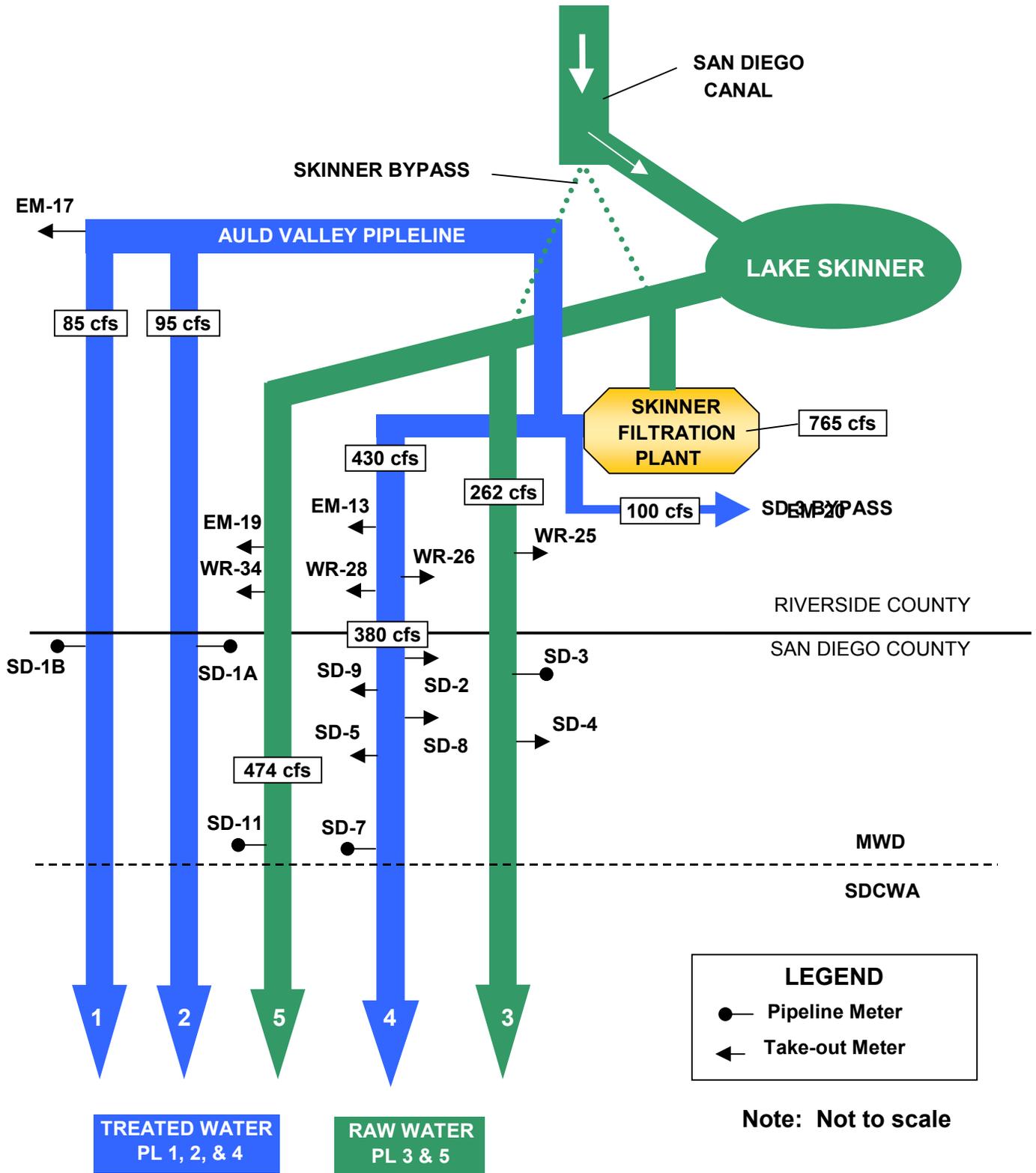
Total Outlet Conduit Flow	1425.5 cfs
----------------------------------	-------------------

Plant Status
Design Capacity - 520 mgd

Influent Design Capacity	Current Return Water	Unavailable Filters	Current Net Plant Production	Current % of Capacity
520 mgd 804 cfs	25 mgd 39 cfs	0 0 cfs	555 mgd 859 cfs	107%

Available Plant Production
-34 mgd
-52 cfs

Appendix B SKINNER AREA SCHEMATIC



Appendix C**Table C-1**

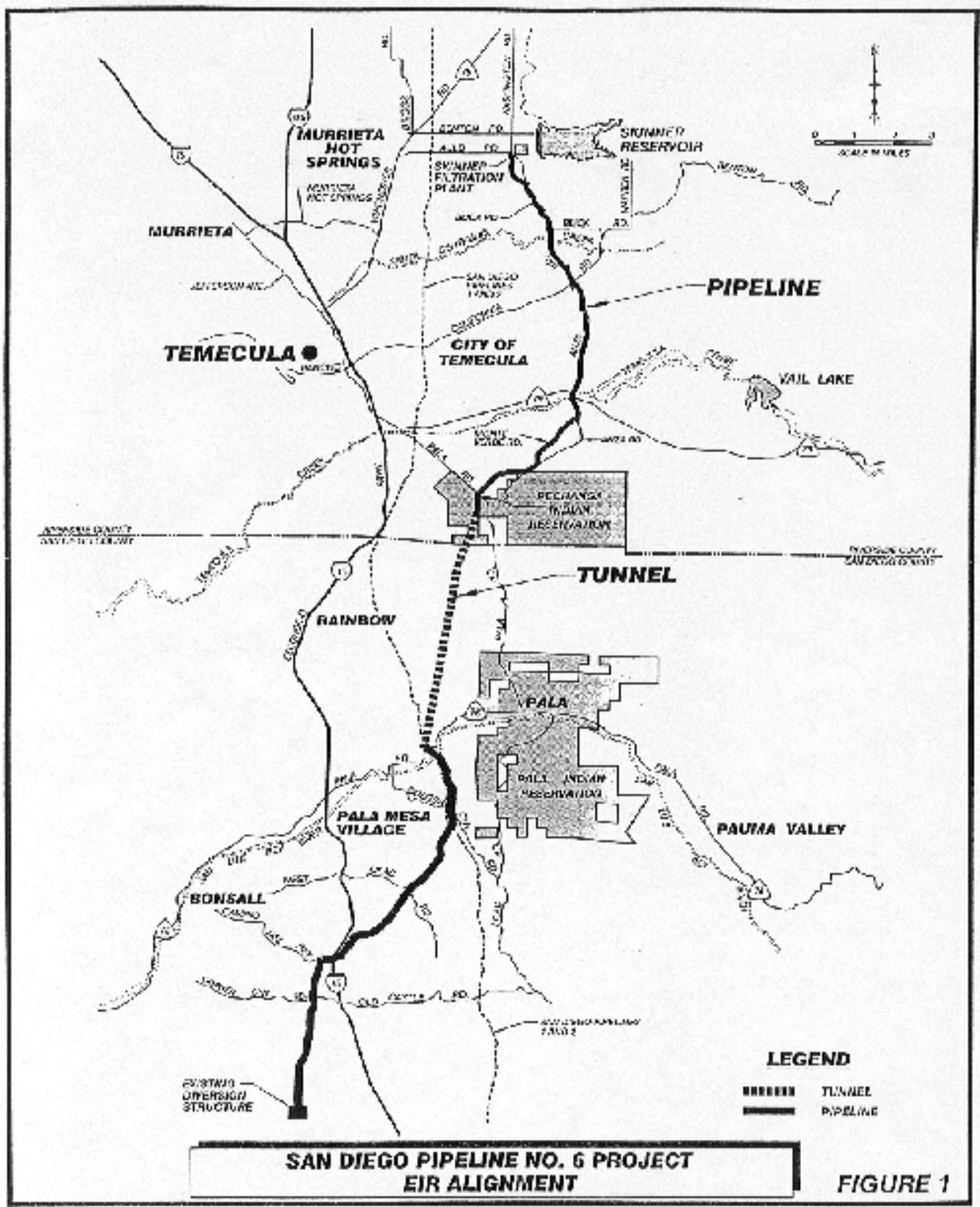
Delivery Facilities to San Diego County Water Authority			
Connection	Capacity (cfs)	Pipeline Number	Water Type
SD-01A	125	1 & 2	Treated
SD-01B	125	1 & 2	Treated
SD-02	20	4	Treated
SD-03	300	3	Untreated
SD-05	25	4	Treated
SD-07	450	4	Treated
SD-08	30	4	Treated
SD-09	20	4	Treated
SD-11	700	5	Untreated

Table C-2

Treated Water Pipeline Design Capacities	
Pipeline	Capacity (cfs)
Pipeline 1	85
Pipeline 2	95
Pipeline 3 (treated design)	250
Pipeline 3 Bypass	100
Pipeline 4 (at the plant)	430
Pipeline 4 at SD-07 (at County Line)	380
EM-17 Auld Valley Pipeline	100

Table C-3

Raw Water Pipeline Design Capacities		
Pipeline	Capacity (cfs)	Comment
Pipeline 3	262	
Pipeline 5	290	Through Red Mtn HEP
Pipeline 5	474	Bypass Red Mtn HEP





Donald L. Harriger
General Manager

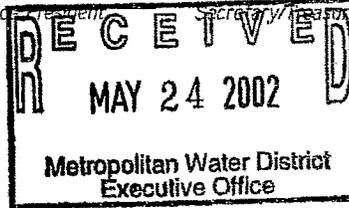
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Kevin D. Jeffries
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S.R. Al Lopez
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Elizabeth L. Cunnison
Director

Wayne H. Holcomb
Director



May 22, 2002

Ronald R. Gastelum, General Manager
Metropolitan Water District of Southern California
P.O. Box 54153
Los Angeles, CA 90054-0153

COMPLETION OF SAN DIEGO PIPELINE NO. 6 BY 2006

We appreciate the opportunity Western's staff was given to participate with representatives from Eastern Municipal Water District, Rancho California Water District, San Diego County Water Authority and MWD in preparing a technical memorandum describing the need for P6 project phasing.

As described in the technical memorandum, the completion date for P6 has been changed from 1998 to 2000, then to 2002 and finally to 2005. As indicated in the letter from Rancho California Water District, their expectation is currently a completion date of 2006. The technical memorandum suggests a completion date of 2008, even though the San Diego County Water Authority Draft Master Plan indicates facilities may be constructed in the San Diego area that would defer their need for P6 until the year 2015.

The technical memorandum references both raw water demands and potable water demands in the Skinner service area, and suggests that a strategy needs to be formulated utilizing the Skinner Filtration Plant expansion and P6 to satisfy all demands. As reported in the technical memorandum, critical to the strategy is the completion of the Skinner study update and the San Diego County Water Authority's Master Plan.

At the most recent meeting of the Skinner study group, it was learned that data in the revised San Diego County Water Authority's Master Plan Draft Report may suggest deferment of P6 beyond 2015. Compounding the problem for Western, Eastern and Rancho California are Skinner area demand projections indicating that the Skinner filtration plant may be unable to meet the summer 2002 peak demands.

Ronald R. Gastelum

May 22, 2002

Page 2

An early construction schedule for P6 is essential to satisfy increasing raw water requirements at San Diego area filtration plants and increasing Skinner area potable demands. The first segment of construction for P6 serving the Rancho California Water District area will allow the Rancho California Water District to fully utilize its existing production and distribution facilities. Rancho California Water District would be able to shift its load from San Diego Pipeline No. 3 which, in turn, would provide additional raw water to San Diego area filtration facilities and could help alleviate the potable water demand at the Skinner Filtration Plant.

We strongly urge MWD staff and Board members to support a first phase P6 construction schedule from Skinner to De Portola Road with completion no later than 2006.



Norman L. Thomas
District Operations Manager

NLT/sw

cc: Anthony Pack, General Manager, Eastern Municipal Water District
John Hennigar, General Manager, Rancho California Water District
Don Harriger, General Manager, Western Municipal Water District



**Rancho
Water**

April 25, 2002

Mr. Ronald R. Gastelum, General Manager
METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA
Post Office Box 54153
Los Angeles, CA 90054-0153

SUBJECT: San Diego Pipeline No. 6

Dear Ron:

Rancho California Water District (RCWD) hereby offers this letter of support for Metropolitan Water District of Southern California (Metropolitan) to proceed with the project implementation of the San Diego Pipeline No. 6 Project as defined within the April, 2002 Technical Memorandum on the Project.

The San Diego Pipeline No. 6 Project not only provides a benefit to other member agencies within Metropolitan, but is also required for RCWD to fully implement its ground water recharge program. As previously noted in RCWD's Water Facilities Master Plan, RCWD proposes to relocate the existing EM-19 turnout facility (design capacity 40 cfs) from San Diego Pipeline No. 3 to San Diego Pipeline No. 6 and to increase the capacity of the EM-19 turnout to 80 cfs. The timely construction of San Diego Pipeline No. 6 and the subsequent relocation of the EM-19 turnout facility is also required for RCWD to fully utilize it's existing water distribution facilities due to the temporary use of the existing EM-19 turnout facility. RCWD's water distribution system was constructed on the basis of the San Diego Pipeline No. 6 being completed by 1998. RCWD is pleased that Metropolitan has continued to pursue the completion of the San Diego Pipeline No. 6 project, as our need for it has become more critical over time.

Therefore, RCWD strongly supports Metropolitan's proposed construction completion of the San Diego Pipeline No. 6 Project – Lake Skinner to De Portola Road segment by July 28, 2006.

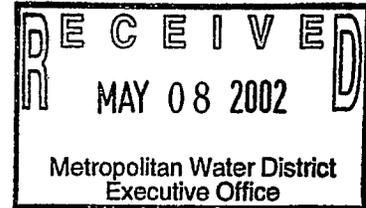
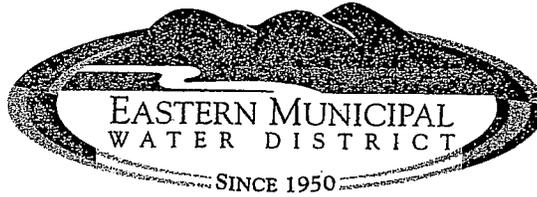
Sincerely,

RANCHO CALIFORNIA WATER DISTRICT

John Hennigar
General Manager

cc: Maureen Stapleton, San Diego County Water Authority
Don Harriger, Western Municipal Water District
Tony Pack, Eastern Municipal Water District
Andrew Webster, Acting Director of Engineering RCWD

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*Director of the
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Marion V. Ashley

Treasurer
Joseph J. Kuebler, CPA

Legal Counsel
Redwine and Sherrill

May 6, 2002

Mr. Ronald R. Gastelum, President and CEO
Metropolitan Water District of So. Calif.
P. O. Box 54153
Los Angeles, CA 90054-0153

Dear Mr. Gastelum:

Subject: San Diego Pipeline No. 6

The purpose of this letter is to communicate Eastern Municipal Water District's (EMWD) support of the phased implementation plan proposed for the subject project. This phased approach is outlined in the April 2002 "Technical Memorandum on the Strategic Implementation of the San Diego Pipeline No. 6 Project."

While there is still some uncertainty associated with the project timing and capacity, it is critical that preliminary design, right-of-way negotiations, and system planning efforts continue. This would minimize potential future risks to project implementation and also minimize overall project costs.

If you have any questions, please feel free to call me.

Sincerely,

Anthony J. Pack
General Manager

AJP/CJB:cdd

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San Diego County Water Authority

4677 Overland Avenue • San Diego, California 92123-1233
(858) 522-6600 FAX (858) 522-6568
www.sdcwa.org

June 27, 2002

Mr. Ronald R. Gastelum
Chief Executive Officer
Metropolitan Water District of Southern California
PO Box 54153
Los Angeles, CA 90054-0153

RE: Technical Memorandum on the Strategic Implementation of the San Diego Pipeline No. 6 Project - Revised

Dear Ron:

This letter responds to the information presented in "Technical Memorandum on the Strategic Implementation of the San Diego Pipeline No. 6 Project" (T.M.), dated April 2002. The Authority understands you will be presenting this information to your Board of Directors in July 2002. We request to participate in the presentation with Metropolitan Water District of Southern California (Metropolitan) staff at the committee meeting. As discussed in the T.M., the Authority is analyzing options to meet its future treated water needs. Since the Authority is continuing analyses of future facilities and supply options, we agree with the approach discussed in the T.M. The Authority supports the immediate actions listed in the T.M. which include continuation of:

- Preliminary design for Metropolitan's pipeline portion of Pipeline No. 6 including the north portal of the Mount Olympus Tunnel;
- Negotiations with the Pechanga Indian Reservation in order to finalize the portal location;
- Selection of the Mount Olympus Tunnel design consultant;
- Pipeline geotechnical investigation;
- The Request For Proposal process for selection of the tunnel geotechnical and groundwater consultants; and
- Acquisition of all permanent and temporary rights-of-way for Metropolitan's pipeline portion of Pipeline 6, as well as the two portal sites.

The San Diego County Water Authority (Authority) agrees with Metropolitan that a decision on the final schedule for the completion of Pipeline No. 6 should be delayed until the Skinner Filtration Plant Update report is complete and Authority staff have presented the timing and need for Pipeline No. 6 to our Board of Directors.

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File No. F0101.102.4-1

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IRRIGATION DISTRICTS
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• Redwood • Yuma

COUNTY
• San Diego
(in affiliation)

PUBLIC UTILITY DISTRICT
• Fallbrook

FEDERAL AGENCY
• Panhandle Military Reservation

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Mr. Ronald R. Gustelum

June 27, 2002

Page 2

As discussed in the T.M., the Authority has been progressing with completion of its Regional Water Facilities Master Plan (Master Plan). The Authority has appreciated Metropolitan's staff participation in this effort. The Master Plan is analyzing different alternatives for future conveyance of supplies and future local facilities to meet demands in the Authority service area. The Master Plan is scheduled to present to our Board of Directors a comparison of alternatives in July 2002 and a draft report in October 2002. The results of the Master Plan analysis will show the earliest the Authority would require Pipeline No. 6 to meet the Authority's demand will be 2015. Some of the Master Plan analyses show that Pipeline No. 6 may not be required to meet the Authority's demands until a time beyond the Master Plan planning horizon of year 2030.

The Authority also believes that Metropolitan should consider in its alternatives to Pipeline No. 6 the potential for deferring the project to beyond year 2030. Alternatives to be considered might include Metropolitan participation in member agency projects that relieve treated demands in the Skinner service area.

The Authority appreciates the opportunity to comment on the T.M. and look forward to continuing to work with Metropolitan on this important project.

Sincerely,



Maureen A. Stapleton
General Manager

MAS/JAE/RCP:rl



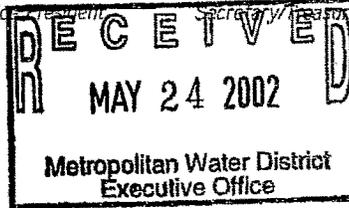
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May 22, 2002

Ronald R. Gastelum, General Manager
Metropolitan Water District of Southern California
P.O. Box 54153
Los Angeles, CA 90054-0153

COMPLETION OF SAN DIEGO PIPELINE NO. 6 BY 2006

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May 22, 2002

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Norman L. Thomas
District Operations Manager

NLT/sw

cc: Anthony Pack, General Manager, Eastern Municipal Water District
John Hennigar, General Manager, Rancho California Water District
Don Harriger, General Manager, Western Municipal Water District



**Rancho
Water**

April 25, 2002

Mr. Ronald R. Gastelum, General Manager
METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA
Post Office Box 54153
Los Angeles, CA 90054-0153

SUBJECT: San Diego Pipeline No. 6

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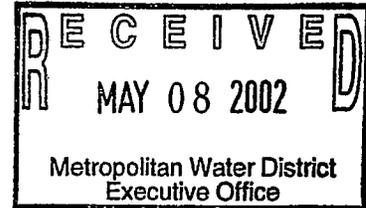
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May 6, 2002

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Los Angeles, CA 90054-0153

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If you have any questions, please feel free to call me.

Sincerely,

Anthony J. Pack
General Manager

AJP/CJB:cdd

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San Diego County Water Authority

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June 27, 2002

Mr. Ronald R. Gastelum
Chief Executive Officer
Metropolitan Water District of Southern California
PO Box 54153
Los Angeles, CA 90054-0153

RE: Technical Memorandum on the Strategic Implementation of the San Diego Pipeline No. 6 Project - Revised

Dear Ron:

This letter responds to the information presented in "Technical Memorandum on the Strategic Implementation of the San Diego Pipeline No. 6 Project" (T.M.), dated April 2002. The Authority understands you will be presenting this information to your Board of Directors in July 2002. We request to participate in the presentation with Metropolitan Water District of Southern California (Metropolitan) staff at the committee meeting. As discussed in the T.M., the Authority is analyzing options to meet its future treated water needs. Since the Authority is continuing analyses of future facilities and supply options, we agree with the approach discussed in the T.M. The Authority supports the immediate actions listed in the T.M. which include continuation of:

- Preliminary design for Metropolitan's pipeline portion of Pipeline No. 6 including the north portal of the Mount Olympus Tunnel;
- Negotiations with the Pechanga Indian Reservation in order to finalize the portal location;
- Selection of the Mount Olympus Tunnel design consultant;
- Pipeline geotechnical investigation;
- The Request For Proposal process for selection of the tunnel geotechnical and groundwater consultants; and
- Acquisition of all permanent and temporary rights-of-way for Metropolitan's pipeline portion of Pipeline 6, as well as the two portal sites.

The San Diego County Water Authority (Authority) agrees with Metropolitan that a decision on the final schedule for the completion of Pipeline No. 6 should be delayed until the Skinner Filtration Plant Update report is complete and Authority staff have presented the timing and need for Pipeline No. 6 to our Board of Directors.

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File No. F0101.102.4-1

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As discussed in the T.M., the Authority has been progressing with completion of its Regional Water Facilities Master Plan (Master Plan). The Authority has appreciated Metropolitan's staff participation in this effort. The Master Plan is analyzing different alternatives for future conveyance of supplies and future local facilities to meet demands in the Authority service area. The Master Plan is scheduled to present to our Board of Directors a comparison of alternatives in July 2002 and a draft report in October 2002. The results of the Master Plan analysis will show the earliest the Authority would require Pipeline No. 6 to meet the Authority's demand will be 2015. Some of the Master Plan analyses show that Pipeline No. 6 may not be required to meet the Authority's demands until a time beyond the Master Plan planning horizon of year 2030.

The Authority also believes that Metropolitan should consider in its alternatives to Pipeline No. 6 the potential for deferring the project to beyond year 2030. Alternatives to be considered might include Metropolitan participation in member agency projects that relieve treated demands in the Skinner service area.

The Authority appreciates the opportunity to comment on the T.M. and look forward to continuing to work with Metropolitan on this important project.

Sincerely,



Maureen A. Stapleton
General Manager

MAS/JAE/RCP:rl