DATE ISSUED: October 10, 2003 REPORT NO. 03-203

ATTENTION: Natural Resources and Culture Committee
Agenda of October 15, 2003

SUBJECT: Status Report on City of San Diego Long-Range Water Resources Plan (2002-2030)

REFERENCES: City of San Diego Long-Range Water Resources Plan (2002-2030), approved December 9, 2002
City Manager's Report No. 02-240, dated October 18, 2003

SUMMARY

THIS IS AN INFORMATION ITEM ONLY. NO ACTION IS REQUIRED ON THE PART OF THE COMMITTEE OR THE CITY COUNCIL.

BACKGROUND

The City of San Diego (City) is considered to be one of the country's most desirable places to live and conduct business because of the climate, economy, and quality of life. It is the seventh largest city in the United States and the second largest in California. Although the City is located in a semi-arid coastal climate, it has successfully provided a reliable water supply.

By the year 2030, the City's population and economic growth is projected to increase water demands by about 55 million gallons a day (MGD) or 25 percent over 2002 levels. To accommodate such growth the challenge is to continue to provide existing and new customers with a reliable and safe drinking water supply in a cost-effective and environmentally sound manner. The City presently imports the majority of its water to satisfy existing demands. This imported water comes from northern California and the Colorado River. The City has no direct control over the imported water supply. Local reservoirs owned and operated by the City supply about 10 to 15 percent of total supply. During wet periods, rainfall and runoff lead to greater local water supply. During dry periods, when rainfall and runoff are minimal, local water supply is severely reduced.

In response to future projected water demands and water supply uncertainties, a water strategic planning process was undertaken in order for the City to be more engaged in the planning and development of its own water supply and less reliant on imported water. As a result of a two-year effort the Water Department and its consultant, Camp Dresser McKee (CDM), together with members of its Citizen Advisory Board, created the Long-Range Water Resources Plan (Water Resources Plan). The Water Resources Plan defined a flexible strategy for the next 30 years and developed evaluation tools for continued water resources planning. The Water Resources Plan was approved by the City Council on December 9, 2002.

The recommended approach for the Water Resources Plan was to implement it in three phases. The initial phase consisted of developing and implementing, by 2010, a water resources strategy that included water conservation, reclamation, groundwater storage and treatment, and water transfers as seen below.

Water Resources Plan – 2010 Strategy

	Actual Use		**Projected Use**	
Priority Elements	**FY 2002 TAF * / MGD**	**% of Supply**	**2010 Goals TAF * / MGD**	**% of Supply**
Existing Supply	232 / 207	98	205 / 183	80
Conservation **	19 / 17	(8)	32 / 29	(12)
Reclamation	4 / 3	2	15 / 13	6
GW Storage	0	-	20 / 18	8
GW Desalination	0	-	10 / 9	4
Water Transfers	0	-	5 / 4	2
Total **	236 / 210	100	255 / 227	100

* TAF – Thousand Acre-Feet, one acre foot of water equals 325,851 gallons, or enough water to cover an area of land about the size of a football field, one foot deep.

** Conservation is a savings and is not included in the total supply.

In order to accomplish this effort, in February 2003 the City Council approved an amendment to CDM's contract to develop a Water Resources implementation plan designed to achieve the 2010 goals. Work on the implementation plan has been underway for six months. This report provides an update of progress thus far.

DISCUSSION

Effort is continuing by the Water Department on water conservation and reclaimed water programs. The majority of the current Water Resources Plan efforts are associated with identifying projects that will accomplish the groundwater storage, treatment and desalination, and water transfer objectives of the Water Resources Plan by 2010. Staff continually works to identify new and innovative opportunities.

Conservation

The City's Water Conservation Program has been, and continues to be, effective in promoting permanent water savings. Established by the City Council in 1985, the Water Conservation Program now accounts for almost 21,000 acre-feet per year (AFY)/19 million gallons per day (MGD) of potable water savings.

Depending on water use, one acre-foot can supply two average California homes with water for all indoor and outdoor needs for a year. The commitment by the City to continually improve its water conservation efforts means that in FY 2003, the City conserved enough water to fill Lake Murray 4.3 times.

The City offers a broad range of conservation methods to help meet the needs of our residential and commercial water customers. Conservation programs include:

- Voucher programs
- Survey programs
- Regulations
- Landscape and irrigation efficiency
- Park & Recreation partnerships
- Public Education and Outreach

Research conducted by the City, San Diego County Water Authority (CWA) and the American Water Works Association Research Foundation has shown that more than half of residential water use is outdoors. Therefore the City has added outdoor conservation programs to focus on water efficient landscaping and irrigation management which provide the best opportunity to achieve significant water savings.

Tools and services available and being developed for customers include:

- Commercial and Residential Water Use Survey Programs – account for all water use, determine leaks, and check irrigation systems for proper function and uniform coverage. Residential surveys average 15% water savings, while commercial surveys, depending on type of facility, can achieve 15% to 25% water savings.

- Nationally recognized Landscape Watering Calculator – an on-line tool that creates watering schedules based on landscaping features soil type and weather data. The Calculator is very popular and those who have used it are impressed with its ease of use. MWD has adapted this tool and made it available throughout Southern California. We estimate the Calculator to currently generate 281,000 gallons per day in water savings.

- Water Resources Landscape Database – another tool used to create water budgets and manage irrigation using aerial photographs, GIS maps, weather data, etc. This service has generated significant water savings in City parks, freeway landscapes, schools and homeowner associations.

- New programs being developed include incentives to install water efficient irrigation equipment and Eto controllers (smart irrigation clocks that use weather data to set watering schedules.)

In addition to offering landscape water conservation programs to existing customers, the Water Department is also working closely with the City's Planning and Development Services Departments to incorporate water conservation requirements in the City's General Plan and permitting process. This ensures that new communities and properties will also have water efficient landscapes.

Planning to increase water conservation efforts to 32,000 AFY/29 MGD by the year 2010 is an ongoing process. The aforementioned water conservation programs undergo periodic reevaluation to ensure the realization of forecasted savings. Additionally, changes in water conservation technologies may require reassessment of long-range plans. Nevertheless, the Water Conservation Section continues to work with proven programs, is shifting its focus to irrigation management to maximize water savings, regularly examines new technologies and annually checks progress towards goals. The City continues to work collaboratively with the Metropolitan Water District (MWD) and CWA to formulate new initiatives.

Reclaimed Water

Another source of locally produced water supply is reclaimed water generated at the City's two water reclamation plants: North City Water Reclamation Plant (NCWRP) and the South Bay Water Reclamation Plant (SBWRP). The Water Resources Plan 2010 goal is to have reclaimed water projects to reduce City and regional potable demand by 15,000 AFY/13 MGD.

The Water Department is in the process of completing a 2003 Customer Development Plan designed to increase the beneficial use of recycled water. Although the plan recommends new strategies, marketing efforts are already under way to target potential recycled water customers. As a result, new customers continue to come online. An ongoing marketing endeavor is the mailing of letters to potential customers adjacent to existing recycled water mains. The letter explains the benefits of using recycled water, the new lower rate, approximate costs, and procedures for retrofitting properties to use recycled water.

Reclaimed water use from the NCWRP reached 4,455 AFY/4 MGD in calendar 2002. The majority of this water is used for irrigation. The largest customers include: UCSD, General Atomics, Metro Biosolids Center (MBC), Torrey Pines Golf Course, City of Poway and Caltrans. In May 2003, the City completed the Science Center Drive pipeline extending service to this biotechnical industry area. The Water Department was the recent recipient of the Outstanding Planned Project for Colony Barcelona, and the WateReuse National Award for Outstanding Service.

As outlined in the 2000 Updated Water Reclamation Master Plan, capital improvement projects for the recycled water system are being planned, designed and constructed in three phases.

- Phase I Facilities – primarily serve new developments in the Black Mountain Ranch area and the Olivenhain Municipal Water District. Construction started in 2002. Partial operation of these facilities is expected to commence in 2004, with an annual customer delivery capacity of 3,400 AFY/3 MGD in 2006. Total project cost is approximately $27 million. Length of the 8" to 36" pipelines is approximately 14 miles.

- Phase II Facilities – serve the Carmel Valley Area; construction 2002 through 2009. Total cost is approximately $16 million. Total length of 8" to 24" pipelines is approximately 16 miles with an expected annual customer delivery capacity of 1,100 AFY/1 MGD.

- Phase III Facilities - planning the distribution system and storage for service to south Rancho Bernardo and the City of Poway with annual customer delivery capacity of approximately 2,200 AFY/2 MGD.

- Preparation of 2005 Reclaimed Water Master Plan was initiated in 2003. As directed by the Council, this is the next update of the reclaimed water master plan to define, encourage, and develop the maximum use of reclaimed water in the most efficient manner in the service areas of NCWRP and the SBWRP.

New industrial users of reclaimed water are being found. Toppan Electronics, a microcomputer processing company, used reclaimed water for manufacturing. The reclaimed water used by Toppan was treated again at their facility using equipment funded by a State grant obtained by the City. Toppan recently closed their facility and City staff had the equipment relocated to UCSD for microfiltration of reclaimed water prior to its use in a cooling tower. This will allow UCSD and the City to test and document the cost effectiveness of microfiltration of reclaimed water for cooling tower use. In addition, BIOCOM, an organization that represents San Diego's biotechnical industry, is participating with the City in a grant funded study evaluating the use of reclaimed water in cooling towers. Information from these studies will be available to assist companies converting cooling towers to reclaimed water use.

On December 9, 2002, City Council adopted Resolution R-297487 authorizing City staff, in conjunction with the Public Utilities Advisory Committee (PUAC), to develop specific criteria and procedures to enforce the Reclaimed Water Mandatory Reuse Ordinance. This Ordinance set a policy that recycled water shall be used within the City where feasible and consistent with the legal requirements, preservation of public health, safety and welfare, and the environment.

To enforce the Mandatory Reuse Ordinance, all new projects within planned or existing reclaimed water service zones are being conditioned for reclaimed water infrastructure. Currently there are 65 new development project sites using recycled water. Water Department staff is reviewing all developer reclaimed facility plans, plan checking individual facility improvement drawings, and reviewing and commenting on all subdivision reclaimed water studies. In addition procedures and criteria are being developed to identify customers that would be required to use reclaimed water based upon their proximity to reclaimed pipelines.

An agreement has been negotiated with Otay Water District (Otay) for their purchase of reclaimed water from the City. The agreement reserves 6.0 MGD of SBWRP capacity for 20 years beginning in 2007 or earlier pending the completion of improvements by Otay. The agreement has been executed by Otay and will be on an upcoming City Council docket. In addition to Otay, the City will be selling reclaimed water to the International Boundary and Water Commission's wastewater treatment plant. Staff is pursuing other potential customers including Cal Trans, and the County of San Diego.

Groundwater

Eight groundwater basins lie within the jurisdictional boundaries of the City. There are two types of supply that these groundwater basins could provide: (1) safe yield production, providing a yearly supply; and (2) storage of imported water providing a dry year supply.

Due to the complexity of effectively developing groundwater resources, initial efforts have focused on analyzing existing reports and documentation. AB303 grant funding was approved by the State Department of Water Resources (DWR) for the San Diego River System. This groundwater grant funded the preparation and submittal to DWR of the San Diego River System Conceptual Groundwater Management Plan. In June 2003, the City received the $250,000 grant from DWR.

The next steps will require new data collection, test wells, and possibly pilot programs to allow the formulation and evaluation of projects. As conceptual projects are identified, staff will be researching their applicability to available grants.

There are two areas presently being evaluated for possible inclusion in the implementation plan.

- The San Pasqual Basin has potential for groundwater development, both storage and extraction. There are few stakeholders in the Basin, and the City is the predominant landowner. There is water quality, physical, and technical information available in past studies on this Basin. The upper portion of the Basin has potential for storage and recovery of raw water from the San Diego Aqueduct. The lower portion, upstream from Lake Hodges, has potential for brackish desalination. In 2002 the City successfully installed a replacement well for Orfila Vineyards and Winery which is capable of yielding approximately 500 gallons per minute.

- The Mission Valley Basin has potential for development and firm yield for the City. A collaborative cost sharing agreement between the City (82%) and the United States Geological Survey (18%) has been executed. The work consists of a well inventory and selection of wells for sampling and analysis. These data will be used to site a test well by the United State Geological Survey in the second quarter of 2004. Water levels and tests will be conducted at 4-6 selected depths for a full range of constituents. This scientific and technical information will assist in analysis of potential opportunities in this basin.

Evaluation and development of groundwater resources within the City are significant tasks and the Water Department is in the early stages of the process. Efforts to date have been conceptual and preliminary and will require additional resources and time to complete.

Water Transfers

Water transfers are agreements in which water supplies are transferred from the original point of origin or control, to a new place of use. Transfers can offer flexibility and help ensure that the State's water resources are used effectively. However, a myriad of rules surround transfers in California, and it has become apparent that the City needs to determine the feasibility of transfers by consulting with regulatory agencies, affected parties, environmental interests and the public.

The three primary sources of possible water transfers are: (1) north of the Sacramento Bay-Delta, (2) California's Central Valley; and, (3) the Colorado River.

Previous experience has resulted in the conclusion that water resource specialists and outside legal counsel may be necessary to accomplish a water transfer. Progress is being made to identify existing water transfer opportunities from the Central Valley and northern California and to determine the feasibility of a one-time and a long-term water transfer of approximately 5,000 AFY/4 MGD. Criteria are being developed to assist in evaluating water resource alternatives including the analysis of a proposed transfer. Information is being obtained on the process of using Requests for Proposals as a means to solicit interest in providing transfer water.

Conclusion

- An implementation plan is being prepared to identify potential projects, grant funding opportunities, timelines, and City funding requirements.
- An aggressive and successful water conservation program is continuing.
- The 2003 Customer Development Plan and the 2005 Reclaimed Water Master Plan will emphasize efforts to increase reclaimed use.
- Field data needs and potential projects are being identified for the groundwater program.
- The opportunities for a one-time and a long-term water transfer of approximately 5,000 acre-feet are being explored along with the need for special outside resource and legal expertise.
- Staff continually works to identify new and innovative opportunities.

The table below summarizes the 2010 priority elements and the status:

Water Resources Plan - Status

Priority Elements	FY 2002 TAF / MGD	2010 Goals TAF / MGD	Status
Conservation	19 / 17	32 / 29	On target
Reclamation	4 / 3	15 / 13	Construction and planning ongoing
GW Storage	0	20 / 18	Need field data, assessing opportunities
GW Desalination	0	10 / 9	Need field data, assessing opportunities
Water Transfers	0	5 / 4	Assessing opportunities and potential resource and legal specialists

Respectfully submitted,

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GARDNER/MAS/RM