

CHAPTER 5 RECYCLED WATER PROGRAM

5.1 OVERVIEW

IEUA began serving recycled water in 1972. Initially recycled water was delivered to a few large water users such as the Whispering Lakes Golf Course and Westwind Park in Ontario and Prado Park and Golf Course in Chino.

Beginning in the early 1990's IEUA began the construction of the first phase of the Carbon Canyon Recycled Water Project (CCRWP) which included treatment facilities and distribution pipelines to serve customers in Chino and Chino Hills. In conjunction with the construction of the first phase of the CCRWP, IEUA began planning for a regional recycled water delivery system to provide recycled water throughout its service area. This planning effort culminated with the completion of the IEUA Regional Recycled Water Program Feasibility Study in January 2002. The Feasibility Study identified facilities to deliver over 70,000 acre-feet of recycled water per year (AFY) to customers and recharge sites throughout the IEUA service area.

In 2004 IEUA developed a regional recycled water program implementation plan to prioritize the phased construction of the adopted 2002 Recycled Water Program Feasibility Study.

This major planning effort resulted in the completion of the 2005 Recycled Water Implementation Plan (RWIP). The RWIP identified projects to deliver recycled water of approximately 90,000 AFY utilizing an interconnected distribution pipeline system supplied from all four of IEUA's major recycled water plants.

The plan identified a phased implementation over the next ten years with provisions for additional expansion beyond the ten year planning horizon. The estimated cost of the facilities planned for the next ten years is approximately \$110 million (adopted IEUA Ten Year CIP, June 2005). The projects will be funded through a combination of state and federal grants, state low-interest loans, MWD LRP rebates and Regional Sewage Program funds. The actual schedule of implementation was identified in the adopted Fiscal Year 2005-2006 Ten Year CIP and will be updated each year based on the availability of grant funding and the coordination with the retail water agencies on customer demands.

5.2 REGIONAL RECYCLED WATER PROGRAM

The 2002 Feasibility Study and 2005 Implementation Plan included a market assessment of the potential recycled water customers within the IEUA service area. Working with the cities and retail water agencies over 2,300 potential customers were identified. This information was used to plan the regional and local recycled water distribution pipelines. Pipeline locations were selected to provide recycled water to the largest customers or groups of customers. Ultimately, the distribution system will serve over 1,900 of the largest customers and an overall supply of approximately 104,000 AFY, which includes about 35,000 AFY for Chino Basin groundwater recharge.

Regional Recycled Water Facilities

In September 2000 the IEUA Board and Regional Technical and Policy Committees adopted a recycled water policy document which defined the roles and responsibilities of IEUA and the Regional Contracting Agencies for the construction and ownership of the regional and local facilities. Regional facilities are defined as facilities, pipelines, and pump stations, and reservoirs which serve recycled water to a recharge site or to more than one contracting agency. Regional facilities will be constructed and owned by IEUA. Local facilities will deliver recycled water from the regional facilities to customers within a contracting agency's service area and will be their responsibility. Local facilities will primarily be pipelines (local laterals) but may also include local pump stations and reservoirs. The Recycled Water Implementation Plan (2005) will refine these policies regarding funding of local storage facilities that reduce regional storage needs, including provisions for joint regional/local facilities (local retail water agency or developer), and IEUA financing arrangements of local facilities and customer on-site retrofits to ensure the timely implementation of the recycled water program.

The Regional Recycled Water Facilities will consist of a looped pipeline system that connects all four Regional Water Recycling Plants as shown on Figure 5-1. Future satellite plants, generally identified in the Wastewater Master Plan adopted in 2002, will be evaluated in coordination with the retail water agencies and the Regional Technical Committee. The regional facilities include over 50 separate pipelines, pump station and reservoir projects (see Table 5). These projects have been grouped into eight implementation phases. The priority of each phase was determined based on the amount of recycled water each phase could serve and the proximity of each phase to one of the regional water recycling plants or existing recycled water transmission mains. Phase A and B of the program will deliver recycled water to most of the recharge sites since the recharge sites represent a significant recycled water use.

Local Recycled Water Facilities

As described above, local recycled water facilities are those which serve the customers of only one contracting agency. Each local agency is responsible for the planning, design, construction and operation of local laterals within their service area. IEUA staff is working closely with each agency to coordinate their recycled water planning efforts. In order to assist the local agencies with the implementation of their recycled water systems, IEUA is providing technical assistance and, if requested, financing of the local agency's facilities. Funds for this financing are in IEUA's budget and Ten Year Capital Improvement Plan (TYCIP), however, the amount of funding will depend on the agencies' needs. Similar financing was used for the construction of the CCRWP in the 1990's.

Regional Recycled Water Program Summary

Table 5-1 summarizes the phasing of construction costs, capital costs and the recycled water demands for Priority A through G projects:

Table 5-1
Capital Improvement Program for Recycled Water

Projects	Metric	Demand (acre-ft/yr)	Cumulative Demand (acre-ft/yr)	Construction Cost (\$ Million)	Capital Cost (\$ Million)	Priority
Existing Pipelines	Length (ft.)	31,885	31,885	\$29.6	\$44.8	A
Edison	34,100	2,358		\$10.4	\$15.7	A
1158 Reservoir	3,000	0		\$1.6	\$2.4	A
San Antonio Channel	29,200	5,513		\$8.4	\$12.7	A
Reservoir Projects	Size per Tank (MG)					
1158 and RP-4 Reservoir Retrofit 1	5.5			\$1.7	\$2.5	A
1158 and RP-4 Reservoir Retrofit 2	5.5			\$1.7	\$2.5	A
Booster Stations	Size (HP)					
1270 Zone East Booster Station Phase 1	650			\$1.1	\$1.7	A
RP-4 1158 Booster Station Phase 1	650			\$1.1	\$1.7	A
RP-1 930 Zone Booster Station Phase 1	930			\$3.0	\$4.5	A
PRV Station	Capacity (gpm)					
Station on RP-1 Outfall (2 16" valves)	8,000			\$0.4	\$0.6	A
Station from 1158 to 1050 (2 16" valves)	7,000			\$0.3	\$0.5	A
Total Priority A Projects		7,871	39,756	\$29.6	\$44.8	A
Pipeline Projects	Length (ft)					

Projects	Metric	Demand (acre-ft/yr)	Cumulative Demand (acre-ft/yr)	Construction Cost (\$ Million)	Capital Cost (\$ Million)	Priority
Bickmore	10,800	0		\$1.8	\$2.7	B
Etiwanda 1270 East	6,400	0		\$2.8	\$4.1	B
7 th /8th Street Basin	10,300	1,919		\$1.6	\$2.4	B
Etiwanda 1430 East	7,400	1,741		\$2.6	\$3.9	B
Victoria Basin	4,100	1,460		\$1.5	\$2.2	B
Reservoir Projects	Size per Tank (MG)					
1270 East Reservoir Phase 1	5.5			\$3.0	\$4.5	B
Booster Station Projects	Size (HP)					
1430 Zone East Booster Station Phase 1	1,000			\$1.3	\$2.0	B
Land Acquisition	Size (acres)					
1270 East Reservoir Phase 1 & 2	5.6			\$2.8	\$2.8	B
Total Priority B Project		5,120	44,876	\$17.4	\$24.6	B
Pipeline Projects	Length					
Bickmore West	16,100	248		\$4.5	\$6.8	C
800 West Reservoir	10,500	85		\$3.7	\$5.5	C
Wineville Extension	5,300	419		\$0.9	\$1.3	C
Reservoir Projects	Size per Tank (MG)					
800 West Reservoir	10.0			\$5.4	\$8.2	C
Booster Station Projects	Size (HP)					
RP-5 930 Zone Booster Station	1,700			\$2.2	\$3.4	C
Land Acquisition	Size (acres)					
800 West Reservoir	4.4			\$2.2	\$2.2	C
Total Priority C Projects		752	45,628	\$18.9	\$27.4	C
Pipeline Projects	Length (ft)					
RP-1 Outfall Parallel	27,700	8,548		\$13.1	\$19.7	D
Reservoir Projects	Size per Tank (MG)					
930 East Reservoir Phase 1	7.5			\$4.0	\$6.1	D
Land Acquisition	Size (acres)					
930 East Reservoir Phase 1 & 2	6.4			\$3.2	\$3.2	D
Total Priority D Projects		8,548	54,176	\$20.4	\$29.0	D

Projects	Metric	Demand (acre-ft/yr)	Cumulative Demand (acre-ft/yr)	Construction Cost (\$ Million)	Capital Cost (\$ Million)	Priority
Pipeline Projects	Length (ft)					
Etiwanda South	8,000	2,239		\$1.4	\$2.1	E
Arrow Phase 1	21,000	2,405		\$6.9	\$10.4	E
Etiwanda Spreading Basins	8,800	1,755		\$2.2	\$3.3	E
San Sevaine Spreading Basin	2,700	2,215		\$0.6	\$0.9	E
Reservoir Projects	Size per Tank (MG)					
1430 East Reservoir	5.0			\$2.7	\$4.1	E
Booster Station Projects	Size (HP)					
1630 Zone East Booster Station Phase 1	950			\$1.3	\$2.1	E
Land Acquisition						
1430 East Reservoir	2.7			\$0.4	\$0.4	E
Total Priority E Projects		8,614	62,790	\$15.6	\$23.3	E
Pipeline Projects	Length					
Sultana	30,300	5,272		\$8.3	\$12.5	F
Booster Station Projects	Size (HP)					
1270 Zone West Booster Station	3,000			\$3.9	\$5.9	F
Land Acquisition	Size (acres)					
1270 Zone West Booster Station	0.3			0.2	\$0.2	F
Total Priority F Projects		5,272	68,062	\$12.4	\$18.6	F
Pipeline Projects	Length (ft)					
930 West Reservoir	17,600	0		\$6.1	\$9.2	G
800 East Reservoir	800	4,948		\$0.4	\$0.5	G
Arrow Segment 2	16,400	1,693		\$3.2	\$4.9	G
Napa	2,800	5,700		\$0.6	\$0.9	G
Reservoir Projects	Size per Tank (MG)					
800 East and RP-1 Reservoir	7.5			\$4.1	\$6.2	G
930 West Reservoir	9.5			\$5.1	\$7.8	G
Land Acquisition	Size (acres)					
930 West Reservoir	4.3			\$2.1	\$2.1	G

Projects	Metric	Demand (acre-ft/yr)	Cumulative Demand (acre-ft/yr)	Construction Cost (\$ Million)	Capital Cost (\$ Million)	Priority
Total Priority G Projects		12,341	80,403	\$21.6	\$31.5	G
Pipeline Projects	Length (ft)					
JCSD	5,900	800		\$1.1	\$1.7	H
930 West El Prado	9,000	0		\$2.5	\$3.7	H
Francis Segment 1	10,600	606		\$1.7	\$2.5	H
Francis Segment 2	12,100	533		\$1.6	\$2.4	H
Etiwanda 1270 East Parallel	3,100	0		\$0.9	\$1.3	H
1270 West Reservoir	9,800	86		\$2.7	\$4.1	H
1430 West	45,200	918		\$8.3	\$12.6	H
1630 Day Creek	5,900	712		\$2.1	\$3.1	H
1630 East Reservoir	3,000	189		\$1.3	\$2.0	H
1630 Fontana	1,900	1,488		\$0.5	\$0.7	H
1630 Highland	5,600	134		\$1.6	\$2.5	H
1630 West	47,700	2,679		\$8.7	\$13.1	H
1830 East	12,800	3,765		\$2.4	\$3.6	H
1830 West	37,900	725		\$6.9	\$10.5	H
Reservoir Projects	Size per Tank (MG)					
930 East Reservoir Phase 2	7.0			\$3.8	\$5.7	H
1158 and RP-4 New Reservoir	6.0			\$3.2	\$4.9	H
1270 East Reservoir Phase 2	5.5			\$3.0	\$4.5	H
1270 West Reservoir	5.0			\$2.7	\$4.1	H
1430 West Reservoir	3.5			\$2.1	\$3.2	H
1630 East Reservoir Phase 1	7.0			\$3.8	\$5.7	H
1630 East Reservoir Phase 2	7.0			\$3.8	\$5.7	H
1630 West Reservoir	4.5			\$2.4	\$3.7	H
1830 Reservoir	5.0			\$2.7	\$4.1	H
RP-5 Reservoir	3.5			\$2.1	\$3.2	H
Booster Station Projects	Size (HP)					
1270 Zone East Booster Station Phase 2	450			\$0.9	\$1.4	H
1430 Zone East Booster Station Phase 2	650			\$1.1	\$1.7	H
1430 Zone West Booster Station	500			\$1.0	\$1.5	H

Projects	Metric	Demand (acre-ft/yr)	Cumulative Demand (acre-ft/yr)	Construction Cost (\$ Million)	Capital Cost (\$ Million)	Priority
1630 Zone East Booster Station Phase 2	650			\$1.1	\$1.7	H
1630 Zone West Booster Station	500			\$1.0	\$1.5	H
1830 Zone East Booster Station	450			\$0.9	\$1.4	H
1830 Zone West Booster Station	100			\$0.4	\$0.7	H
RP-1 930 Zone Booster Station Phase 2	500			\$1.0	\$1.5	H
RP-4 1158 Booster Station Phase 2	750			\$1.2	\$1.9	H
RP-5 800 Zone Booster Station	800			\$1.3	\$2.0	H
CCWRF 930 Zone Booster Station	750			\$1.2	\$1.9	H
Land Acquisition	Size (acres)					
1270 West Reservoir	3.0			\$1.5	\$1.5	H
1430 West Reservoir	2.6			\$1.8	\$1.8	H
1630 West Reservoir	3.0			\$2.0	\$2.0	H
1630 East Reservoir Phase 1 & 2	6.3			\$1.1	\$1.1	H
1830 Reservoir	3.1			\$0.5	\$0.5	H
1830 Zone East Booster Station	0.3			\$0.2	\$0.2	H
1830 Zone West Booster Station	0.3			\$0.2	\$0.2	H
Total Priority H Projects		12,635	93,038	\$90.0	\$133.1	H
All Projects – Priority A through G		80,403		\$135.8	\$199.3	
All Projects – Priority A through H		93,038		\$225.8	\$332.4	

5.3 WASTEWATER TREATMENT

IEUA manages the Regional Sewage Service System within its 242-square miles service area to collect, treat and dispose of wastewater delivered by contracting local agencies. IEUA's facilities serve seven contracting agencies: the cities of Chino, Chino Hills, Fontana, Montclair, Ontario, Cucamonga Valley Water District and Upland. A system of regional trunk and interceptor sewers convey sewage to regional wastewater treatment plants which are all owned and operated by IEUA. Local sewer systems are owned and operated by local agencies.

5.4 WASTEWATER TREATMENT PLANTS

IEUA operates four regional water recycling production plants: (Regional Plant No. 1 (RP-1), Regional Plant No. 4 (RP-4), Regional Plant No. 5 (RP-5), and the Carbon Canyon Water Reclamation Facility (CCWRF). A fifth treatment plant, RP-2, was decommissioned in 2004 because it was in a potential flood zone as a result of the Prado Dam project.

RP-1

Regional Treatment Plant No. 1 began operation in 1948 through a joint powers agreement between the cities of Ontario and Upland. IEUA, then known as Chino Basin Municipal Water District, purchased RP-1 in January 1973. It's the current capacity is 44 mgd and is projected to be expanded to an ultimate of 60 mgd after 2020 (IEUA Wastewater Facilities Master Plan, 2002). RP-1 serves all or part of the cities of Ontario, Rancho Cucamonga, Upland, Montclair, Fontana and unincorporated areas of San Bernardino County.

RP-2

Regional Treatment Plant No. 2 (RP-2) began operation in 1960 to serve the City of Chino and the Chino Hills area. It was expanded to 5 mgd to increase capacity and to meet stringent water quality requirements. Because RP-2 sits in a flood prone area, much of the facility has been shut down and all liquid wastes diverted to the new RP-5 facility. RP-2 continues to handle wastewater biosolids generated by RP-5 and CCWRF.

CCWRF

The Carbon Canyon Wastewater Reclamation Facility (CCWRF) has been in operation since 1992. The recycled water plant capacity is 11.4 mgd, while solids are treated at RP-2. CCWRF serves the cities of Chino, Chino Hills, Montclair and Upland.

RP-4

Regional Treatment Plant No. 4 was completed in 1997. This facility has a current capacity of 7 mgd and is being expanded to 14 mgd (scheduled for completion in mid 2007). RP-4 serves the Cucamonga Valley Water District, the City of Fontana and unincorporated areas of San Bernardino County in the northeast portion of the IEUA service area. An additional expansion to 21 mgd is projected to be completed by 2012.

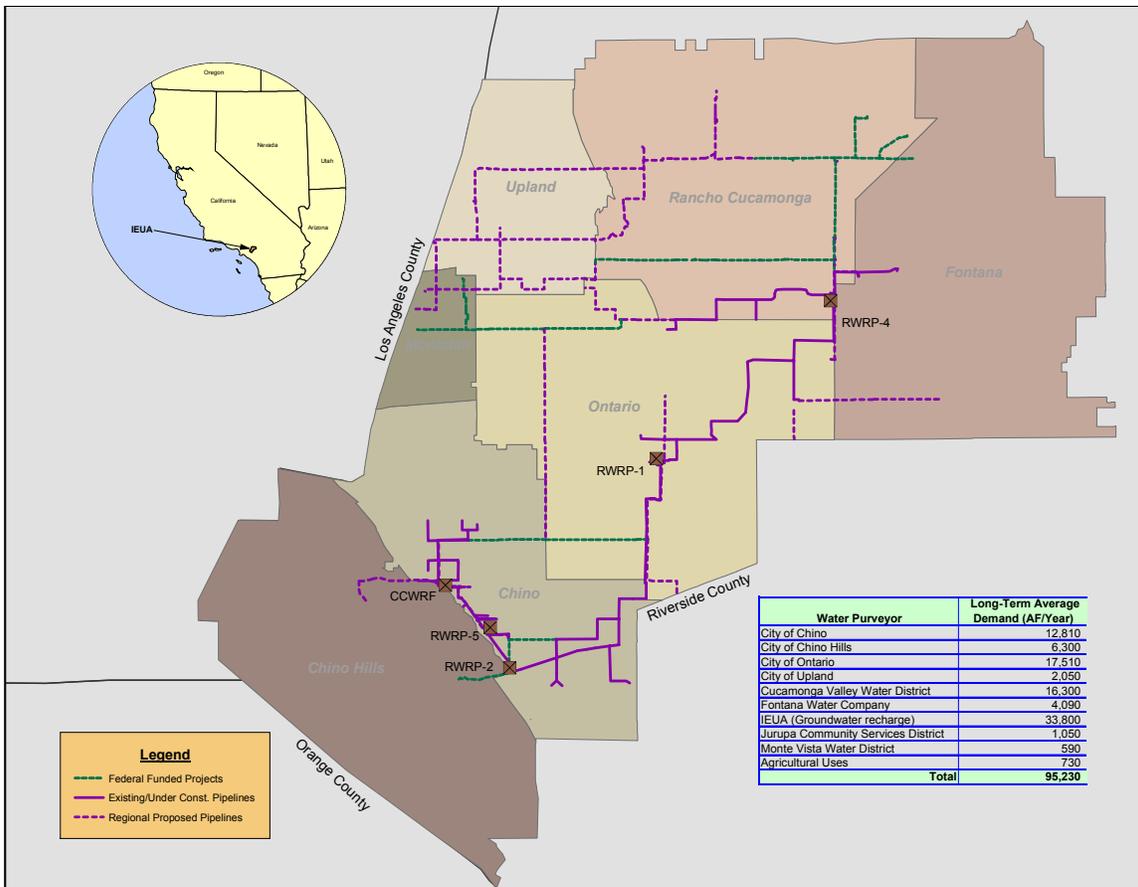
RP-5

Regional Treatment Plant No. 5 (RP-5) began operation in March 2004. The 15 mgd plant serves existing development and the planned development occurring in the cities of Chino, Chino Hills and Ontario. It is anticipated that RP-5 will be expanded to approximately 27 mgd in 6 to 8 years.

REGIONAL RECYCLED WATER DISTRIBUTION SYSTEM FLEXIBILITY AND RELIABILITY
The configuration for the Regional Recycled Water Distribution System is planned as a looped, interconnected system to ensure supply reliability to customers and to maximize the delivery flexibility to recharge facilities.

Figure 5-1 shows the location of regional wastewater treatment plants and the existing and potential recycled water distribution lines.

Figure 5-1
Recycled Water Distribution Lines and Regional Plants



As shown in Table 5-2, the combined production of the current wastewater treatment plants is 68,000 AFY (60.8 mgd). By 2020, the plants are expected to produce 107,400 AF of water (95.5 mgd).

**Table 5-2
Potential Recycled Water Supply**

Regional Plants	Year 2005		Year 2010		Year 2015		Year 2020	
	Plant Capacity (AFY)	Plant Flow (AFY)						
CCWRF	12,700	9,850	12,700	11,800	12,700	12,100	12,700	12,100
RP-1	49,300	43,900	49,300	43,500	49,300	47,400	67,200	50,200
RP-4	7,800	6,940	15,700	13,800	23,500	21,200	23,500	21,200
RP-5	16,800	7,390	16,800	14,800	30,240	23,900	30,240	23,900
Total	86,600	68,080	94,500	83,900	115,740	104,600	133,640	107,400

Source: 2005 Recycled Water Implementation Plan

All of IEUA's wastewater treatment plants produce recycled water that meets or exceeds the requirements of the State of California Department of Health Services (DHS) Title 22 for recycled water. All wastewater goes through a treatment process before being discharged or reused.

The treatment process begins with raw sewage that is collected from the local cities. The raw sewerage is passed through screening and grit removal units, primary clarifiers, aeration basins, secondary clarifiers, chemical addition, tertiary filters, chlorination, and finally dechlorination facilities prior to discharge. Most of the effluent flow is placed into the nearby creeks and allowed to flow ultimately into the Santa Ana River where it is recharged into Orange County's groundwater basin.

Solids removed from the liquid treatment processes are thickened and stabilized in anaerobic digesters before being dewatered and transported to the Agency's co-composting facility in Chino.

IEUA maintains an EPA/State of California approved industrial pre-treatment program for industrial discharges to the sewage system that requires dischargers to comply with water quality objectives and to submit periodic monitoring reports to the Agency. IEUA produces a supply of highly polished tertiary-treated water suitable for irrigation, industrial water supply, groundwater recharge, environmental enhancement and unrestricted recreation use such as boating and fishing.

California Water Recycling Policy

Commencing with Chapter 7, Article 1, (Subsection 13500 et seq.) of Porter-Cologne, is known as the "Water Recycling Law," and is stated, in part, as follows (Subsection 13511):

"The legislature finds and declares that a substantial portion of the future water requirements of this state may be economically met by beneficial use of recycled water.

The legislature further finds and declares that the utilization of recycling water by local communities for domestic, agricultural, industrial, recreational, and fish and wildlife purposes will contribute to the peace, health, safety, and welfare of the people of the state. Use of recycled water constitutes the development of "new basic water supplies".....

5.5 EXISTING RECYCLED WATER PROGRAM

Currently, IEUA produces about 68,000 AF (60.8 mgd) of recycled water annually. In 2005, recycled water use totaled about 8,000 acre-feet (AF) of which 7,000 AF was used for outdoor irrigation and industrial processes and 1000 AF for groundwater recharge (during the summer of 2005, began expanding recharge of recycled water under the Phase 1 permit with initial deliveries at Banana and Hickory recharge facilities). During the next few years, recharge will increase rapidly. The remaining supply of recycled water, about 60,000 AF, was discharged to the Santa Ana River for reuse in Orange County.

As shown in Table 5-3, the recycled water used in 2000 came from RP-1/RP-4 and the CCWRF. A transmission line connects RP-1 and RP-4 and serves as part of the backbone system for recycled water use in the northern portion of IEUA's service area. This system provides water for irrigating parks and golf courses. CCWRF's distribution system delivers water through 21,400 linear feet of pipe, to the cities of Chino and Chino Hills. Currently, there are 125 recycled water connections to the recycled water distribution system. Table 5-4 identifies the current users of recycled water.

In the 2000 UWMP, IEUA provided projections for recycled water use in future years. Table 5-5 shows the comparison between what was projected for 2005 and the actual amount of recycled water used.

STATEMENT OF REUSE

"Recycled water can be used for a number of applications including Irrigation, Industrial Processes, Groundwater Recharge, and Environmental Enhancement. The goal of the IEUA is to achieve maximum reuse of all available recycled water."

**Table 5-3
Plant Supply vs. Recycled Water Usage**

Year	RP-1/RP-4		RP-2/RP-5		CCWRF		Upland Hills	
	Plant Flow	Recycled Water Usage	Plant Flow	Recycled Water Usage	Plant Flow	Recycled Water Usage	Plant Flow	Recycled Water Usage
1982-1983	20,790	1,550	4,290					
1983-1984	20,950	1,080	3,950					
1984-1985	25,160	1,267	4,280					
1985-1986	28,240	1,222	2,660					
1986-1987	27,160	1,306	5,000					
1987-1988	31,290	2,110	5,500					
1988-1989	35,510	2,038	6,180					
1989-1990	34,760	1,961	5,730					
1990-1991	36,840	1,792	6,100					
1991-1992	40,360	1,909	5,780		1,550			
1992-1993	41,510	1,205	5,640		4,720			
1993-1994	37,310	1,978	5,430		7,010			
1994-1995	39,680	3,794	5,360		8,690			
1995-1996	39,590	2,292	4,810		9,060			
1996-1997	39,940	2,075	4,790		9,750			
1997-1998	44,940	1,260	4,969		9,264			
1998-1999	43,354	2,444	5,345		9,534	100		
1999-2000	42,967	2,314	4,378		9,954	776		
2000-2001	43,863	2,916	4,401		11,615	924		
2001-2002	43,344	3,155	4,056		10,677	1,215	0.1	0.1
2002-2003	45,838	3,350	4,343		10,837	1,217	0.2	0.2
2003-2004	39,734	4,003	2,307		9,113	1,499	0.1	0.1
ALL VALUES IN ACRE-FEET								

**Table 5-4
Current Recycled Water Users**

Name	Water Use	User Type	Water Purveyor	Existing Demand (acre-ft/yr)
Whispering Lakes Golf Course	Irrigation	Golf Course	Ontario	1,036
CW Farms (Arthur Farms)	Agricultural	Agricultural	Chino	1,000
Prado Regional Park	Irrigation	Park	IEUA	1,000
Reliant Energy Plant	Industrial	Power Plant	CVWD	990
Murai Farms	Agricultural	Agriculture	Chino	600
Los Serranos Golf Course	Irrigation	Golf Course	Chino Hills	525
Ely Basins	Recharge	Spreading Basin	IEUA	500
El Prado Golf Course	Irrigation	Golf Course	IEUA	500
Durington Farms / Lewis Homes	Agricultural	Agricultural	Chino	500
City of Chino Ayala Park	Irrigation	Park	Chino	101
Caltrans I-10 Archibald	Irrigation	Landscape	Ontario	100
Rancho Monte Vista M.H.P.	Irrigation	Landscape	Chino Hills	98

Name	Water Use	User Type	Water Purveyor	Existing Demand (acre-ft/yr)
Big League Dreams	Irrigation	Park	Chino Hills	80
Westwind Park	Irrigation	Park	Ontario	80
Caltrans - SR-71	Irrigation	Landscape	Chino Hills	60
City of Chino Hills	Irrigation	City	Chino Hills	43
Cottonwood Dairy	Agricultural	Agricultural	Chino	40
Orange County Produce	Agricultural	Agricultural	IEUA	40
Garcia Farms	Agricultural	Agricultural	Chino	39
Service Craft LLC	Irrigation	Landscape	Chino	32
City of Chino Hills	Irrigation	City	Chino Hills	30
Engelsma Dairy	Irrigation	Landscape	Chino	30
Fairfield Ranch Park	Irrigation	Landscape	Chino Hills	30
IEUA Headquarters Irrigation	Irrigation	Irrigation	IEUA	26
City of Chino	Irrigation	Landscape	Chino	25
City of Chino Hills	Irrigation	Landscape	Chino Hills	25
Sundance Spas	Irrigation	Landscape	Chino	20
Majestic Management	Irrigation	Landscape	Chino	17
Norco Injection Molding	Irrigation	Manufacturing	Chino	16
Central Park Industrial Partners	Irrigation	Landscape	Chino	15
City of Chino Hills	Irrigation	City	Chino Hills	14
SF Enterprises LLC	Irrigation	Landscape	Chino	13
Artisan	Irrigation	Landscape	Chino Hills	12
Caltrans I-10 Archibald N	Irrigation	Landscape	Ontario	12
City of Chino Hills Car Wash	Irrigation	Landscape	Chino Hills	12
Albertsons, Inc. #6592	Irrigation	Supermarket	Chino Hills	11
City of Chino Hills	Irrigation	City	Chino Hills	11
Lewis Homes	Irrigation	Landscape	Chino Hills	11
Yoshimura R&D	Irrigation	Landscape	Chino	11
All Coast Forest Products	Irrigation	Manufacturing	Chino	10
Artisan	Irrigation	Landscape	Chino Hills	9
Bevles Company	Irrigation	Landscape	Chino	9
City of Chino Hills	Irrigation	City	Chino Hills	9
Edison Avenue Partners	Irrigation	Landscape	Chino	9
Mattel Inc	Irrigation	Landscape	Chino	9
Sundance Spas	Irrigation	Landscape	Chino	9
Bandag Inc	Irrigation	Manufacturing	Chino	8
City of Chino Hills	Irrigation	City	Chino Hills	8
Crossflow Logistics	Irrigation	Landscape	Chino	8
San Bdn Co Jr Fair Assn	Irrigation	Landscape	Chino	8
Yorba Industrial Center	Irrigation	Landscape	Chino	8
City of Chino Hills	Irrigation	City	Chino Hills	7
City of Chino Hills	Irrigation	City	Chino Hills	7
Fairfield Ranch	Irrigation	Landscape	Chino Hills	7
Trammel Crow So Cal Inc	Irrigation	Landscape	Chino	7
Warehouse Technology	Irrigation	Landscape	Chino	7
Lewis Homes	Irrigation	Landscape	Chino Hills	6
City of Chino Hills	Irrigation	City	Chino Hills	5
City of Chino Hills	Irrigation	City	Chino Hills	5
National Confectionery Brands	Irrigation	Landscape	Chino	5

Name	Water Use	User Type	Water Purveyor	Existing Demand (acre-ft/yr)
Trammel Crow So Cal Inc	Irrigation	Landscape	Chino	5
Trammel Crow So Cal Inc	Irrigation	Landscape	Chino	5
Trus Joist	Irrigation	Landscape	Chino	5
City of Chino Hills	Irrigation	Landscape	Chino Hills	4
City of Chino Valley Fire Dist.	Irrigation	Landscape	Chino Hills	3
City of Chino Hills	Irrigation	City	Chino Hills	3
Commerce Construction	Industrial	Construction	Chino	3
Elkay Watertech Division	Irrigation	Landscape	Chino	3
Hayward Industries	Irrigation	Landscape	Chino	3
Jacuzzi Brands Inc	Irrigation	Landscape	Chino	3
Lewis Homes	Irrigation	Landscape	Chino Hills	3
unknown	Industrial	Construction	Chino	3
Arco	Irrigation	Landscape	Chino Hills	2
Fairfield Ranch Median	Irrigation	Landscape	Chino Hills	2
Fairfield Ranch Median	Irrigation	Landscape	Chino Hills	2
Farrand Enterprises	Irrigation	Landscape	Chino	2
Panattoni	Irrigation	Landscape	Chino	2
Quetico Schaefer Properties	Irrigation	Landscape	Chino	2
Rapid Industrial Plastics	Industrial	Manufacturing	Chino	2
STC Plastics	Irrigation	Landscape	Chino	2
BRR HOA	Irrigation	Landscape	Chino Hills	1
BRR HOA	Irrigation	Landscape	Chino Hills	1
BRR HOA	Irrigation	Landscape	Chino Hills	1
CalTrans	Irrigation	Landscape	Chino Hills	1
CalTrans	Irrigation	Landscape	Chino Hills	1
CalTrans	Irrigation	Landscape	Chino Hills	1
City of Chino Hills	Irrigation	City	Chino Hills	1
City of Chino Hills	Irrigation	City	Chino Hills	1
City of Chino Hills	Irrigation	City	Chino Hills	1
City of Ontario	Irrigation	Landscape	Ontario	1
Colonial Electric	Industrial	Manufacturing	Chino	1
DBRS Medical System	Irrigation	Landscape	Chino	1
Dennys	Irrigation	Landscape	Chino Hills	1
Garrett Concrete	Irrigation	Landscape	Chino	1
Gro-Power Inc	Irrigation	Landscape	Chino	1
K-Care	Irrigation	Landscape	Chino Hills	1
Mattel Inc	Irrigation	Landscape	Chino	1
Shamrock Marketing	Irrigation	Landscape	Chino	1
City of Chino Hills	Irrigation	Landscape	Chino Hills	<1
Commerce Construction	Industrial	Construction	Chino	<1
Construction	Industrial	Dust Control	Chino Hills	<1
EKO System	Industrial	Compost Site	IEUA	<1
Total				7,942

**Table 5-5
IEUA 2000 Recycled Water Use Projection for 2005 vs. Actual**

Use Type	2000 Projection for 2005	Actual for 2005 ¹
Recharge	10,000	500
Industrial	3,000	1,002
Municipal	9,500	4,221
Agriculture	<u>300</u>	<u>2,219</u>
Total	22,800	7,942

¹Data from IEUA's 2005 Recycled Water Implementation Plan

5.6 RECYCLED WATER PROGRAM IN DEVELOPMENT

Available recycled water supplies are projected to reach 107,400 AFY in 2020. In conformance with the 1969 Santa Ana River Judgment, a minimum of 17,000 AFY of water will be discharged to the Santa Ana River. This leaves more than 86,000 AFY of recycled water available for beneficial reuse within the IEUA service area by 2020.

IEUA's overall goal is to achieve maximum reuse of all available recycled water. In the short term, the primary focus of IEUA's recycled water program will be the connection of industrial and landscape customers and development of facilities to ensure cost-effective delivery of recycled water to groundwater recharge spreading sites. In the long term, IEUA seeks to construct a "looped" distribution system that will interconnect IEUA water reclamation plants, ensure direct supply reliability to customers and maximize the flexibility to recharge all surplus recycled water in flood control spreading grounds.

The current distribution system is comprised of two separate pipelines that have been constructed to serve IEUA's wastewater treatment plants. Recognizing that separate pumping stations, independent pressure zones, and multiple control interfaces will ultimately lead to overly complex and costly operations, the concept of a large, fully integrated (regional) distribution system was developed. As shown in Figure 5-1, the existing and proposed facilities will provide the ability to provide recycled water to major industrial and municipal users while delivering recycled water, storm water and imported water to groundwater recharge basins throughout IEUA's service area.

NEED FOR REGIONAL RECYCLED WATER DISTRIBUTION SYSTEM

- *More dependable local supplies*
- *Reduced imported water dependence*
- *Drought-proofing the Basin*
- *Reduce likelihood of water rationing*
- *Lower cost of water*
- *Lower sewer rates*
- *Provide economic incentives to attract new jobs and industry*

Recycled water used for groundwater recharge will be blended with MWD's imported SWP supplies and local storm water, consistent with the water quality requirements of the Chino Basin Watermaster's Optimum Basin Management Plan, Santa Ana Regional Water Quality Control Board's Basin Plan and the requirements of the State of California Department of Health Services (DHS) requirements.

Depending on modeling of aquifer retention time, the distance to the nearest well, and up-gradient groundwater migration data, the blending ratio will be calculated to achieve the 20% target set by DHS. Current estimates are that approximately 25,000 AFY of recycled water could be recharged at spreading grounds throughout the Chino Basin. Additional facilities, including the construction of new transmission lines for imported water from the MWD Rialto Pipeline, development of new groundwater recharge basins, and installation of additional pumping capacity, will be needed to achieve the long term water recycling goals for the region.

Development of local recycled water facilities will be the key to expanding the direct use of recycled water. Direct uses include irrigation for landscaping, industrial process and cooling, and recreational uses such as decorative fountains. As the recycled water facilities expand for the first time into cities such as Fontana, IEUA will be looking to the local water providers to construct sufficient recycled water facilities that will reduce their dependence on imported water from MWD's Rialto Feeder.

All future direct use (landscape and industrial customers) of recycled water will be given priority service over recharge deliveries. Recharge will be credited based upon the annual flow contributions for all contracting agencies on a pro-rata basis.

Table 5-6 and Table 5-7 provide projections for total regional recycled water usage between 2005 and 2025. Table 5-6 provides a projection for direct use of recycled water by sector of use. Table 3-13 provides a break down of projected supplies by retail agency.

**Table 5-6
Projected Recycled Water Usage
All Values in Acre Feet**

Category	2000	2005	2010	2015	2020	2025
Recharge	0	1000	22,000	25,000	28,000	35,000
Industrial	10	2,000	6,000	6,000	10,000	17,000
Municipal	3,440	4,400	31,000	40,000	45,000	49,000
Agricultural	150	1,000	2,000	3,000	3,000	3,000
Total	3,600	8,400	61,000	74,000	86,000	104,000

In order to deliver the ultimate demand for recycled water additional regional pipelines, reservoirs, booster stations, and land parcels will be required. As outlined in the 2005 Recycled Water Implementation Plan approximately \$332.4 million in capital improvements will be required. The full capital improvement program is shown in Table 5-1.

5.7 TECHNICAL AND ECONOMIC FEASIBILITY OF SERVING RECYCLED WATER

The technical and economic feasibility of serving recycled water depends upon the identification of end users in conjunction with the construction of additional distribution facilities, recharge basins, groundwater pump stations and desalters to provide water deliveries.

Capital funding needs for the Regional Recycled Water Distribution System are estimated at \$110 million over the next ten years. This includes grant funding from California’s Proposition 13--Santa Ana River Watershed Funds (\$19 million awarded in 2000 for Phase I, additional funds will be sought for Phase II), California’s Proposition 13—State Water Resources Control Board water recycling grant program (\$15-\$20 million, applications pending), and the U.S. Bureau of Reclamation Title XVI Grants (\$20 million for water recycling and \$50 million for construction of desalters, Congressional authorization pending).

As more supplemental funding becomes available, the recycled water infrastructure becomes more cost-effective to construct. IEUA staff evaluated the capital funding needs for the Recycled Water Distribution System and determined that it can be funded through the Regional Program without an additional increase in the Regional Capital Capacity Reimbursement Amount (connection fee). This provides a significant opportunity for local retail agencies to implement the OBMP (capital costs) without impacting IEUA’s water and sewer rates and charges.

In fact, recycled water sales could potentially lower water and sewer rates by 20% to 30% with full implementation of the Regional Recycled Water System. Recycled water sales revenue, combined with the MWD Local Projects Program (LPP/LRP)

rebate, could generate sufficient revenue to offset projected water and sewer rate increases for the regional program.

Key Recycled Water Studies and Reports

- 1981 – Metcalf & Eddie / L.D. King
- 1991 – J.M. Montgomery
- 1995 – Camp, Dresser, and McKee
- 1996 – Black & Veatch
- 2000 – Optimum Basin Management Plan
- 2000 – OBMP Program EIR
- 2000 – Peace Agreement
- 2002 – IEUA Wastewater Facilities Master Plan
- 2002 – IEUA Recycled Water Feasibility Study
- 2005 – IEUA Recycled Water Implementation Plan

5.8 ENCOURAGING RECYCLED WATER USE

IEUA is organizing a regional program to encourage water reuse within its service area. The establishment of new supplemental funding sources through federal, state and regional programs now provides significant financial incentives for local agencies to develop and make use of recycled water. This will remove a significant obstacle to the implementation of recycling water projects and programs.

IEUA Actions

IEUA is working closely with its local retail agencies to develop a regional recycled water distribution program that will maximize water reuse for the entire IEUA service area. Staff of all the agencies meets monthly to coordinate the master planning of the recycled water system to ensure that optimal capital investments are prioritized and that all potential customers are contacted regarding connection to the recycled water system. IEUA is also working with local retail agencies to ensure that all new residential, commercial and industrial developments have dual plumbing so that recycled water (when available) can be used for outdoor irrigation and other non-potable water uses.

IEUA has modified its wholesale rate for recycled water in order to provide a powerful financial incentive to potential users that convert their systems to recycled water. The previous recycled rate was set at 80% of the cost of imported water. The new rate is set at 20% of the cost of imported water, or \$60 per acre-foot. The new rate was unanimously supported by IEUA's local retail agencies and has generated significant interest by potential customers in using recycled water.

In addition, IEUA has proposed the following incentives to encourage the use of recycled water. These include the following:

- A discount for Non-Reclaimable Water service users (to promote removal of salts from the groundwater basin);
- Shared costs for service connections, water meters, and signage;
- Loans to help finance local (non-regional) infrastructure and retrofit projects that contribute to use of recycled water;
- Technical assistance with engineering, regulatory and institutional issues and with preparation of funding applications;
- Guarantee of recycled water supply reliability, especially during droughts.

IEUA is working with local retail agencies to develop a marketing program for recycled water. A customer database is being developed to identify current and prospective recycled water users. This database will also track monthly recycled water use as well as the construction, over time, of the component parts of the Regional Recycled Water System.

5.9 RECYCLED WATER PRICE INCENTIVES

IEUA is developing an extensive Regional Recycled Water Program consisting of advanced wastewater treatment and recycled water distribution system. This system is described in detail in Chapter 5 and in [Recycled Water Implementation Plan](#) (IEUA July 2005).

As the agency responsible for treating and disposing of wastewater throughout most of the Chino Basin, IEUA maintains a special pipeline for industries which produce wastewater that cannot be treated with conventional technologies before being placed ultimately in the Santa Ana River or being used in IEUA Recycled Water Program. This pipeline is referred to as the Non-reclaimable Waste (NRW) Line. The NRW Line carries non-reclaimable wastewater to the Los Angeles County Sanitation Districts facilities in Whittier for treatment and disposal. Since industrial water use represents a significant potential recycled water demand in the IEUA service area, the industries discharging to the NRW system represent the majority of industries in the service area which use significant amounts of water for non-potable purposes. This makes these industrial customers ideal candidates for recycled water use and expansion.

- Industrial use of recycled water is approved by the California Department of Health Services and mandated by the California Water Code 13550.

- In order to encourage recycled water use among NRW Line users, IEUA has established several incentives:

Recycled Water Rate – IEUA’s rate for recycled water delivered to a contracting agency is \$60 per acre foot. The retail water utilities which have established a recycled water rate are offering it at a 30 to 50% discount from their potable rate. The amount of discount depends on each agency’s existing potable rate, existing potable infrastructure revenue needs and capital improvements needed to convey recycled water from IEUA’s regional system to individual customers. In addition, IEUA currently offers a discount to NRW customers using recycled water of 25% of IEUA’s recycled water rate. (\$45 per acre foot)

Reliability – Recycled water is a reliable resource not subject to droughts or imported water availability. Existing potable service also remains available as a backup to recycled water, improving reliability.

Mandatory Use – In May 2002, the Board adopted Ordinance No. 75 establishing incentives and mandating the use of recycled water. Under the provisions of Ordinance No. 75, which is consistent with the California Water Code (Sec 13550) and the State Water Resources Control Board guidelines, potential recycled water customers who do not use recycled water when it is available are subject to a 50% surcharge on their potable water rate.

Technical Assistance – IEUA provides technical assistance to prepare necessary engineering reports and coordinate DHS approval of recycled water use at each customer’s site. IEUA has also retained experts in industrial water use and quality to assist customers in assessing operational needs associated with using recycled water.

Financial Assistance – Under the Regional Recycled Water policy adopted in September 2000, IEUA offers financing for capital improvements at customers facilities required to separate potable from non-potable water systems.

Increased NRW discount – NRW Line customers who use recycled water when available or agree to use when available will be eligible for the proposed NRW “pass through” rate. The NRW customer will otherwise pay the current NRW rates. Those NRW customers not using recycled water or not agreeing to use it will be retroactively credited the difference paid between the current rate and the “pass through” rate at the time they begin using recycled water, with the credit to first cover the cost of on-site retrofit and engineering report preparation.

5.10 FUNDING

Implementation of the Regional Recycled Water Program has been coordinated with the availability of state and federal funds to minimize use of regional capital funds. IEUA has adopted a Ten-Year Capital Improvement Plan (CIP) which has a budget that breaks out the federal, state and local funding for recycled water project over the next ten years. Local funding will be through the Regional Capital Fund, State grants and loans through DWR and the State Water Resources Control Board, and Federal grant funding through the US Bureau of Reclamation's Title XVI program.

Repayment of the various loans will occur through recycled water sales revenues.. These revenues consist of sales of recycled water (current IEUA wholesale rate of \$60 per AF). and through the MWD Local Resources Program (LRP). With certain contractual limitations, MWD provides a payment of \$154 for each acre foot of recycled water that is directly reused (not groundwater recharge) up to 13,500 AF cap.

RECYCLED WATER PROGRAM IS CONSISTENT WITH:

- *Chino Basin Watermaster OBMP/Peace Agreement*
- *Legislative Policy (Water Code Section 13550)*
- *State Water Plan (Bulletin 160-1998)*
- *California Water Resources Control Board*
- *CALFED Bay-Delta Program*
- *State of California Recycled Water Task Force Report*
- *Colorado River 4.4 Plan*
- *MWD's Integrated Water Resources Plan*
- *SAWPA's Integrated Watershed Plan*
- *Santa Ana Regional Water Quality Control Board Basin Plan*
- *United States Bureau Reclamation's Southern California Comprehensive Water Reclamation and Reuse Study*