The City of Imperial

2005 Urban Water Management Plan

Prepared by

Integrated Resource Management, LLC

Adopted

December 21, 2006

Introduction

The City of Imperial is pleased to present to the general public its 2005 Urban Water Management Plan. This is the first year that the city has completed the process of developing such a plan, and we are excited to initiate this new phase of participation in local and regional urban water planning in the Imperial Valley region.

The City of Imperial Water Department runs the city's water system, while the Imperial Community Development Department helps plan for the city's future water resource development. This Urban Water Management Plan is part of that overall planning initiative.

An Urban Water Management Plan, as defined by the California Legislature in the California Urban Water Management Planning Act, informs residents, neighboring agencies and local community groups on how an urban water agency will provide a safe, secure water supply in the short and long term. The following plan attempts to look 25 years into the future to project what the City of Imperial's water supply will look like in 2030. Included in that long-term projection are predictions concerning future water demand, contingency planning in case of short- or long-term droughts and other catastrophes, and potential strategies to enhance and diversify the City of Imperial's water portfolio with recycled water, desalination and water marketing options.

Overall, this plan was developed to be used as a tool to recognize, protect and enhance the value of the City of Imperial's water resources. It should not be viewed as simply another government-mandated report that sits on a shelf collecting dust.

The City of Imperial is fortunate to receive all of its water supply from the Imperial Irrigation District. The Imperial Irrigation District has rights to millions of acre-feet of Colorado River water and is able to assure the city a steady and reliable supply until 2030. In addition, the City of Imperial is in the process of creating new storage capacity by constructing a new two-million-gallon storage reservoir, and is looking into the feasibility of installing two emergency interconnections with the neighboring City of El Centro. In the unlikely occurrence of a critical shortage due to drought, the City of Imperial will implement various water conservation measures such as temporary reductions in commercial and residential use and/or rate increases.

The City of Imperial 2005 Urban Water Management Plan is a living document and will be regularly and routinely updated to reflect the city's current water situation.

Should anyone have any questions or want further information about any of the topics covered in this report, please contact one of the persons preparing the plan listed on the Contact Sheet on page x below.

We thank you for this opportunity to present this plan, and look forward to its reception and your feedback.

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List of Abbreviations

AAC	All-American Canal
AC	Asbestos Cement
Accs.	Accounts
AF	Acre-Foot or -Feet (i.e., 1 acre x 1 foot deep)
AFY	Acre-Feet per Year
BMP	Best Management Practice
CARA	California Rivers Assessment
CEQA	California Environmental Quality Act
cfs	Cubic Feet per Second
CWA	Clean Water Act
CUWCC	California Urban Water Conservation Council
DMM	Demand Management Measure (used by CUWCC)
DWR	California Department of Water Resources
EPA	United States Environmental Protection Agency
ET	Evapotranspiration
°F	Degrees Fahrenheit
FY	Fiscal Year
IID	Imperial Irrigation District
MAF	Million Acre-Feet
MBR	Membrane Biological Reactors
mg/L	Milligrams Per Liter
mgd	Million Gallons Per Day
MLSS	Mixed Liquor Suspended Solids
MOU	Memorandum of Understanding Regarding Urban Water Conservation in California
MSCP	Lower Colorado River Multi-Species Conservation Program

NAFTA	North American Free Trade Agreement
No.	Number
NPDES	National Pollution Discharge Elimination System
ppb	Parts Per Billion
PPR	Present Perfected Right
ppt	Parts Per Thousand
psi	Pounds Per Square Inch
PVC	Polyvinyl Chloride
PWS	Public Water System
QSA	Quantification Settlement Agreement
RO	Reverse Osmosis
SB	Senate Bill
SDCWA	San Diego County Water Authority
SCAG	Southern California Association of Governments
TDS	Total dissolved solids
TMDL	Total Maximum Daily Load
USBR	United States Bureau of Reclamation
UV	Ultra Violet
UWMP	Urban Water Management Plan
WCFSP	Bureau of Reclamation Water Conservation Field Services Program
WPCA	City of Imperial Water Pollution Control Plant

Standardized Contact Sheet

Date plan submitted to the Department of Water Resources: **January 6, 2005**

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The water supplier is a: **Municipality**

The water supplier is a: **Retailer**

Utility services provided by the water supplier include: **Water, Wastewater**

Is this agency a Bureau of Reclamation Contractor? **No**

Is this agency a State Water Project Contractor? **No**

1.0 Executive Summary

The City of Imperial 2005 Urban Water Management Plan has been prepared under contract by Integrated Resource Management, LLC in response to the California Urban Water Management Planning Act. The Act requires all publicly and privately owned urban water suppliers that either have 3,000 or more customers or provide over 3,000 acre-feet of water annually to prepare an updated Urban Water Management Plan (UWMP) by the end of the calendar years that end in five or zero. The Act requires that UWMPs describe the suppliers' service area, water use by customer class, water supply and demand, water service reliability and shortage response options, water transfer and exchange opportunities, water recycling efforts and conservation measures. A municipal urban water supplier's UWMP is to be enacted by City Council resolution and submitted to the California Department of Water Resources (DWR) within thirty (30) days of adoption. A UWMP can be a condition of eligibility for state grant funds and other drought assistance allocations. This is the first UWMP that the City of Imperial has been required to prepare. In 2002, the Imperial Irrigation District supplied to the City of Imperial 3,173 acre-feet of water. The city invited the involvement of local agencies, community organizations and the general public in the development of this plan through mailed notifications, newspaper advertisements, draft availability and a public hearing on December 21, 2005.

The City of Imperial is located in the Imperial Valley in south-central Imperial County, and within the Salton Sea Watershed and the Lower Colorado River Basin. The service area of the City of Imperial Water Department covers roughly 3.9 square miles, incorporating the City of Imperial and certain areas located outside the city limits. The City of Imperial Water Department currently delivers, on average, 2.5 million gallons per day (mgd) to a population of 10,289 through 2,949 domestic, commercial and industrial accounts. The city has sufficient excess water capacity to support the accelerated rate of growth expected in the next 25 years.

The City of Imperial receives all of its water from the Imperial Irrigation District. The Imperial Irrigation District diverts surface water from the Colorado River and delivers it to the city via the All-American Canal and the Central Main Canal. The Imperial Irrigation District's rights to appropriate Colorado River water are long-standing. It has 2.6 million acre-feet of present perfected water rights to Colorado River water, as well as potential access to an additional 0.8 million acre-feet. In 2003, the Imperial Irrigation District signed the Quantification Settlement Agreement which provided for the transfer of up to 200,000 acre-feet for a period of 75 years. The City of Imperial currently does not use local groundwater or surface water sources for drinking water purposes and has no plans to do so in the future. There are very few potential threats to the city's water supply, and those that exist are in no way expected to result in inconsistency of the city's water supply. The city currently has no projects or programs in place to increase its potential water supply.

The City of Imperial delivered 1,674 acre-feet of water to 2,311 customers in 2000 and 1,992 acre-feet of water to 2,949 customers in 2005. This represents an 84 percent increase in water deliveries in the past five years. Water deliveries are projected to continue increasing in the next 25 years. The combined current and projected water usage, including system losses, for the City of Imperial is given in the table below:

	2000	2005	2010	2015	2020	2025	2030
Total Water Use (AFY*)	1,959	2,331	2,983	4,340	5,681	6,966	8,200

*AFY = Acre-Feet per Year
Acre-Foot = amount of water required to cover one acre one foot deep

Even though the city does not require new water supply sources, the City of Imperial is committed to implementing water conservation programs at the local and regional levels through legislative and local policy implementation. The city actively participates in regional water conservation public awareness campaigns and is in the process of implementing general water conservation measures which will soon be adopted into its Municipal Code. Beyond elimination of water waste, the City of Imperial has found that it is neither necessary nor economically feasible to implement further water conservation measures.

Water supply reliability is a measure of the City of Imperial's ability to provide an adequate water supply during times of shortage. Reliability focuses mostly on drought, though it must take into consideration the other potential threats to the water supply. Thanks to Imperial Irrigation District, the city has a remarkably reliable water supply for the next 25 years regardless of climatic conditions.

The city has not felt it necessary to write and enact by ordinance a Water Shortage Contingency Plan until required to do so under the Urban Water Management Planning Act. The city has now prepared a draft Water Shortage Contingency Plan which will soon be contained in its revised Municipal Code. The plan outlines three phases of action triggered by shortages of 15, 25 and 50 percent of the city's water supply.

The City of Imperial does not recycle its wastewater, and currently there are no plans for the city to do so in the future.

2.0 General Information

2.1 Urban Water Management Act

Law

10617. "Urban water supplier" means a supplier, either publicly or privately owned, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually. An urban water supplier includes a supplier or contractor for water, regardless of the basis of right, which distributes or sells for ultimate resale to customers…

10620. (e) The urban water supplier may prepare the plan with its own staff, by contract, or in cooperation with other governmental agencies.

(f) An urban water supplier shall describe in the plan water management tools and options used by that entity that will maximize resources and minimize the need to import water from other regions.

10621. (a) Each urban water supplier shall update its plan at least once every five years on or before December 31, in years ending in five and zero.

10630. It is the intention of the Legislature, in enacting this part, to permit levels of water management planning commensurate with the numbers of customers served and the volume of water supplied.

The City of Imperial 2005 Urban Water Management Plan (UWMP) has been prepared under contract by Integrated Resource Management, LLC in response to the California Urban Water Management Planning Act of (Water Code Division 6, Part 2.6, Sections 10610-10657—included as Appendix A). The Act requires all publicly and privately owned urban water suppliers that either have 3,000 or more customers or provide over 3,000 acre-feet of water annually to prepare an updated UWMP by the end of the calendar years that end in five (5) or zero (0). A water supplier can also periodically review and adopt changes or amendments to its UWMP in intervening years.

The Act requires that UWMPs describe the suppliers' service area, water use by customer class, water supply and demand, water service reliability and shortage response options, water transfer and exchange opportunities, water recycling efforts and conservation measures. The state also expects the 2005 plans to reflect changes to the UWMP Act since the last round of UWMP updates in 2000 (see below).

Overall, the UWMP requirements for 2005 reflect a heightened interest in security of infrastructure and water sources through the development of new transfer and exchange opportunities, new water supply sources (recycled water, desalination) and new water treatment technologies. Additionally, recent litigation has added significant weight to documents like UWMPs which provide legal and authoritative assessments of water supply and environmental impacts. Urban planning managers are expected to use UWMPs to determine future development goals as well as vulnerabilities in security infrastructure.

A municipal urban water supplier's UWMP is to be enacted by City Council resolution and submitted to the California Department of Water Resources (DWR) within thirty (30) days of adoption. The DWR reviews the UWMP for completion.

A UWMP can be instrumental in developing a wider-scope Integrated Regional Water Management (IRWM) Plan, and can be a condition of eligibility for state grant funds and other drought assistance allocations.

This is the first UWMP that the City of Imperial has been required to prepare. In 2002, the Imperial Irrigation District (IID) supplied to the City of Imperial 3,173 acre-feet of water.

Due to the fact that IID supplies wholesale untreated water to certain municipalities, including the City of Imperial, as well as to a limited number of individual industrial and residential customers, there has been significant confusion in the past concerning whether IID should be required to develop a UWMP. IID prepared a plan in 2001 for itself and the Cities of Brawley, Calexico and El Centro, and had started to draft its 2005 UWMP Update while continuing to correspond with DWR concerning the issue. Finally, on September 1, 2005, IID received official confirmation from DWR that, since IID does not distribute treated water to the cities it serves, it will no longer be required to develop a UWMP. Portions of the drafted IID 2005 plan are incorporated into this UWMP.

2.1.1 Senate Bill 610 and Senate Bill 221

Since 2000, eight amendments, including two notable bills, Senate Bills (SB) 610 and 221, have been added to the Urban Water Management Planning Act:

- Additional details in the required analysis (SB 610, Costa);
- Verification, in writing, of sufficient water supply for large projects (SB 221, Keuhl);
- Additional discussion of particular water quality issues (AB 901, Daucher);
- Reduction in imported water usage (SB 672, Machado);
- Consideration of UWMP for state grant eligibility (SB 1348, Brulte);
- Allowed usage of data from wholesale water suppliers (SB 1384, Costa);
- Discussion of recycled water (SB 1518, Torlakson); and
- Discussion of desalination (SB 318, Alpert).

SB 610 and 221 require procedures to advance water supply planning efforts in the State of California. They focus on comprehensive water policies and the coordination of local water supply and land use decisions to help provide California's cities, farms and rural communities with adequate water supplies. On October 9, 2001 Governor Davis signed these two bills into law, linking land use development to water supply. These two laws took effect on January 1, 2002.

SB 610's requirement cites that preparation of any water supply assessment starts when a lead agency determines that a project must comply with the California Environmental Quality Act (CEQA). If CEQA is required as part of the Subdivision Map Act approval, then SB 610 relates to that project's water supply. SB 610 requires that a water supply assessment be prepared to assess the reliability and the sustained quantity of water supply for the proposed new land use developments.

When CEQA applies to development of land uses such as residential, commercial, office, hotel/motel, industrial/manufacturing and mixed-use projects, there are certain conditions, parameters or thresholds to be met. The State Water Code (WC§10912) defines SB 610 compliance parameters such as the number of units, floor space, occupants/tenants, acres, increased number or percent of water service connections, and/or whether or not the service is from a public water system. Most of all, SB 610 requirements depend upon the proposed project as being subject to CEQA requirements and the parameters as defined in State Water Code 10912.

Comparatively, SB 221 relates to land use and applies when new development includes a residential subdivision invoking the need of a Subdivision Map Act approval and requires that sufficient water supply for a project be available as a condition of approval for any tentative map, parcel map or development agreement. The finding that sufficient water supply exists must be based on written verification (Government Code §66473) prepared by the local water supplier that will serve the development. Verification concludes whether or not the water supplier can provide sufficient water during normal, single-day and multiple-dry years within a 20-year projection, based on substantial evidence that water could be conveyed to the subdivision when necessary. SB 221 calls for the identification of terms and conditions relating to when new water is being sought, and calls for the timeliness to provide projected water service to the proposed subdivision.

It is the responsibility of the major water retailers and land use agencies to ensure compliance with SB 610 and 221. The City of Imperial is currently working with retailers and land use agencies by providing information and conducting analyses to understand long-term implication of new development.

2.2 Regional Coordination

Law

10620. (d) (2) Each urban water supplier shall coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.

10621. (b) Every urban water supplier required to prepare a plan pursuant to this part shall notify any city or county within which the supplier provides water supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan…

The City of Imperial welcomed local and regional involvement in the development of this plan. The city, through its contracting consultant, sent out individually addressed notifications of UWMP preparation and draft availability to ten local cities, counties, water and planning agencies and community organizations.

Table 1 lists those agencies and organizations that were in any way involved in the development of this plan:

Table 1: Coordination with Appropriate Agencies and Organizations

Agency	Was Sent Notice	Contacted for Assistance	Helped Develop Plan	Attended Public Meetings	Requested & Received Draft	Gave Comments on Draft
Imperial Irrigation District	√	√	√		√	√
County of Imperial	√					
City of El Centro	√					
City of Westmoreland	√					
City of Brawley	√					
City of Holtville	√					

City of Calexico	√					
Imperial Chamber of Commerce	√					
Salton Sea Authority	√					
Salton Sea National Wildlife Refuge	√					

2.3 Public Participation and Plan Adoption

Law *10642. Each urban water supplier shall encourage the active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan. Prior to adopting a plan, the urban water supplier shall make the plan available for public inspection and shall hold a public hearing thereon. Prior to the hearing, notice of the time and place of hearing shall be published… After the hearing, the plan shall be adopted as prepared or as modified after the hearing.*

As said above, the City of Imperial sought a wide range of involvement in the development of this plan, including direct public involvement. The city, through its contracted consultant, ran a 3"x5" advertisement in the November 9th and 16th editions of the *Imperial Valley Press*—the most popular area paper—announcing the initiation of plan preparation (see Appendix F for proof of publication). The community organizations directly contacted by mail reflect the social, cultural and economic diversity of the City of Imperial (see Section 3.1.5 below).

The initial draft of the plan was made available for public inspection in the City of Imperial's City Hall and Central Public Library and on the city's website two weeks before the public hearing scheduled during the City Council Meeting on December 21, 2005. All local cities, counties, water and planning agencies and community organizations listed in Table 1 were notified by mail of the availability of the plan for public inspection and the time and location of the public hearing (see Appendix F).

2.4 Plan Implementation, Submission and Review

Law *10643. An urban water supplier shall implement its plan adopted pursuant to this chapter in accordance with the schedule set forth in its plan.*

10644. (a) An urban water supplier shall submit to the department, the California State Library, and any city or county within which the supplier provides water supplies a copy of its plan no later than 30 days after adoption. Copies of amendments or changes to the plans shall be submitted to the department, the California State Library, and any city or county within which the supplier provides water supplies within 30 days after adoption.

10645. Not later than 30 days after filing a copy of its plan with the department, the urban water supplier and the department shall make the plan available for public review during normal business hours.

10635. (b) The urban water supplier shall provide that portion of its urban water management plan prepared pursuant to [Article 2.5, Water Service Reliability] to any city or county within which it provides water supplies no later than 60 days after the submission of its urban water management plan.

The City of Imperial 2005 Urban Water Management Plan was officially adopted by resolution of the City of Imperial City Council during the City Council Meeting held on December 21, 2005 (see Appendix B for copy of signed adoption resolution). A copy of the adopted plan will be available in the City of Imperial Public Services and Community Development office and will be distributed to the California Department of Water Resources, the California State Library, the County of Imperial and other interested parties no later than January 21, 2006.

3.0 Service Area

Law *10631. (a) Describe the service area of the supplier, including current and projected population, climate, and other demographic factors affecting the supplier's water management planning. The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier and shall be in five-year increments to 20 years or as far as data is available.*

The service area of the City of Imperial Water Department covers roughly 3.9 square miles, incorporating the City of Imperial and certain areas located outside the city limits (see Figure 2).

Many factors influence the amount of water used by residents of an urban society. This chapter provides an overview for important characteristics of the City of Imperial's service area, including the city's location and water utility, as well as its history, population, socioeconomic conditions, land use, climate and watershed features at both the local and regional levels.

3.1 City of Imperial

3.1.1 Location

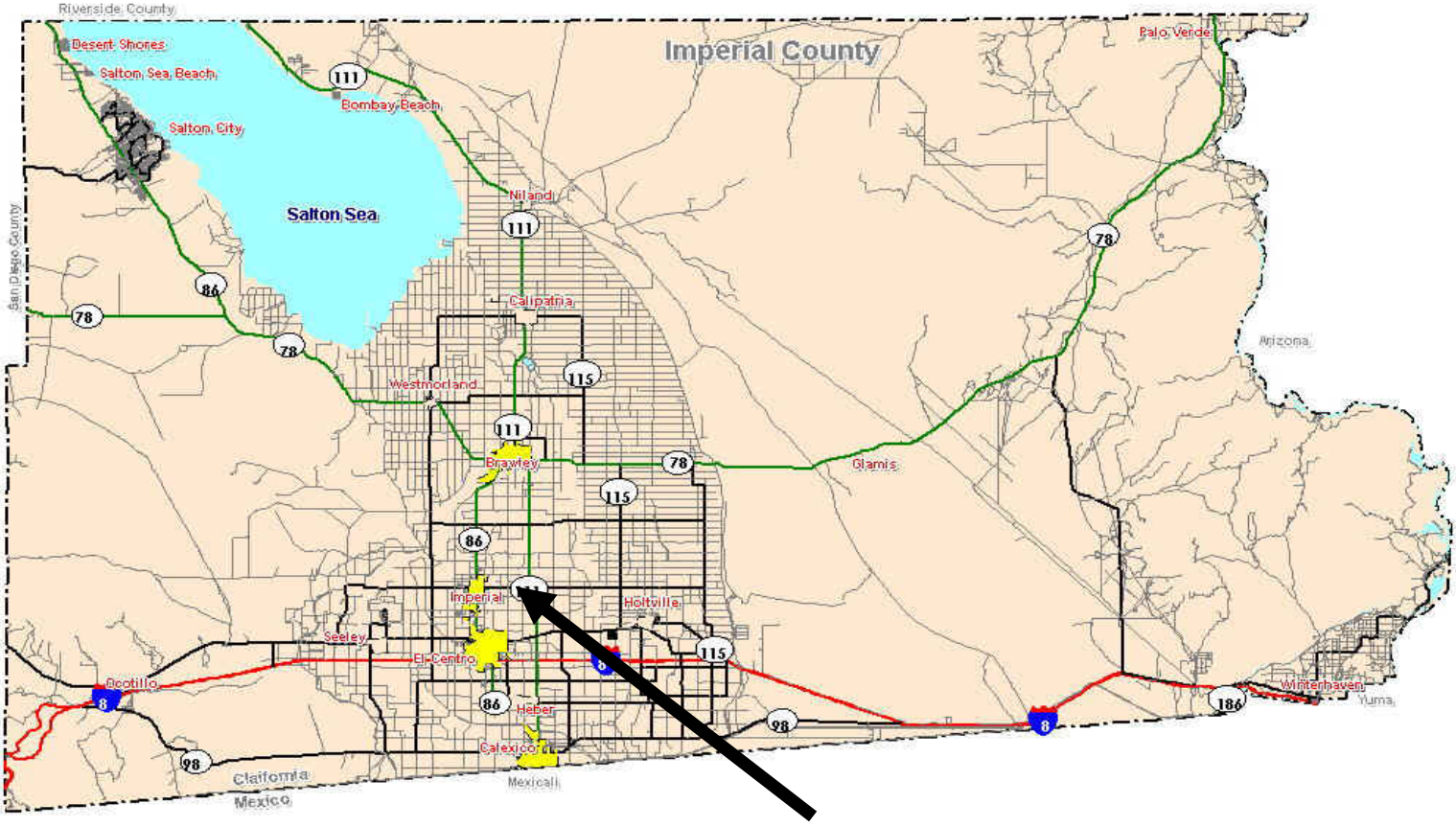
The City of Imperial is located in south-central Imperial County just thirteen miles north of the Mexican border and sandwiched between the more extensive and populous Cities of Brawley and El Centro (see Figure 1).

3.1.2 City of Imperial Water Department

The City of Imperial's public water system (PWS ID No. 1310006) is run through the city's Water Department. The water system covers the entire city (see Figure 2) as well as some areas directly outside its incorporated boundaries, and currently serves a population of 10,289. Average daily demand for the entire water system is 2.5 million gallons per day (mgd). The city provides water to domestic, commercial and industrial customers through 2,949 individual accounts, as well as to the city's fire protection system through hydrants located in public rights-of-way.

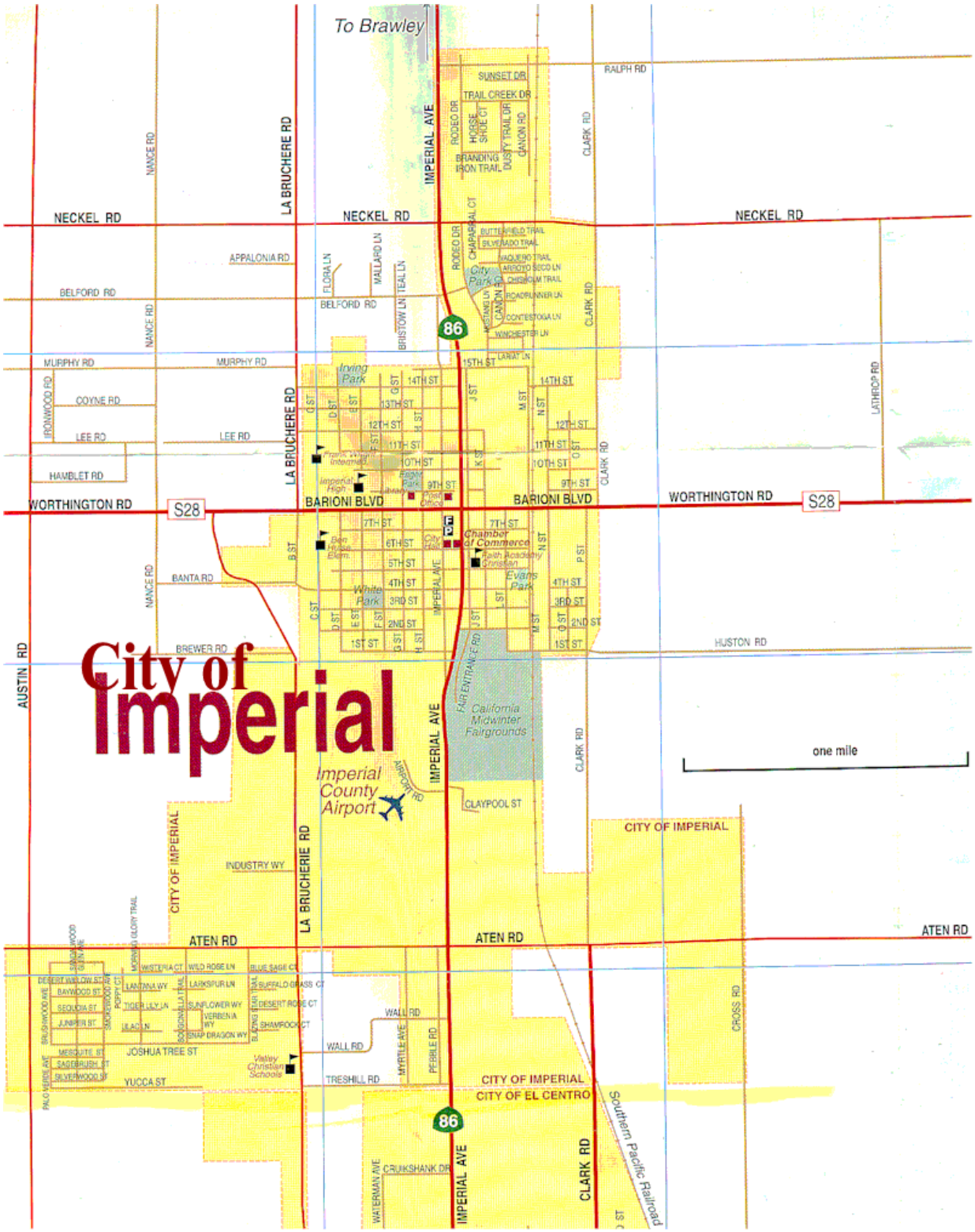
The water system draws all of its current water supply off the Central Main Canal, part of the extensive Imperial Irrigation District (IID) surface water distribution network that transports massive quantities of Colorado River water through the All-American Canal to the Imperial Valley (see Section 4.1.1). The raw canal water is piped to the city's conventional water treatment plant, where it is treated by sedimentation, coagulation, flocculation, filtration and disinfection. The water is stored in a 750,000-gallon water storage tank, from which it is distributed via a series of booster pumps through the city's distribution network of 16-inch or smaller asbestos cement (AC) and polyvinyl chloride (PVC) pipes.

The City of Imperial currently has sufficient excess water capacity in most areas of the city to support its expected accelerated rate of growth. The 7-mgd water treatment plant has excess treatment capacity of 4.5 mgd, and the city plans to replace the current water storage tank with one over three times its size (2.5 million gallons). The city has prepared a Service Plan to identify areas of the city which have inadequate water lines and/or water pressure.



Sources: United States Geological Survey, 2005. WebPages: http://ca.water.usgs.gov. http://www.imperialvalley.net.

Figure 1: Imperial County and City Location



Source: City of Imperial, 2005. WebPages: http://www.imperial.ca.gov.

Figure 2: City of Imperial Boundaries

3.1.3 History

The City of Imperial was founded in the late 1800s by Imperial Land Company prospectors. It was the first town site plotted and staked for the expected settlement boom following the initiation of mass-scale irrigation with Colorado River water in the area. The town offered lots for sale in 1901, and reached a population of 700 by 1904, the year residents voted to incorporate as a city.

Since that time the city has grown slowly, though its central location made it the ideal site for locating county institutions, including the Imperial Valley's first church, school and brickyard, and more recently the Imperial County Airport, the California Mid-Winter fairgrounds, Imperial Valley College, and the Operational Headquarters for the Imperial Irrigation District.

3.1.4 Population

The population of Imperial has remained fairly constant over the years until quite recently. From the 700 residents in 1904, the city had only grown to 3,451 by the 1980 United States Census, adding an average of 360 to its population each decade. However, the 1990 Census showed an increase of 662 to 4,113, nearly doubling the city's normal rate of growth, and the 2000 Census found the population had grown to 7,560, nearly doubling *itself*! The city's rate of growth is projected to average 10 to 15 percent annually over the next 25 years.

The Population Research Unit of the California Department of Finance (DOF), which approximates annual changes in population, estimates that, overall, Imperial County's population increased by about 10 percent between 2000 and 2004, and placed the City of Imperial's 2004 population at 9,425. Joining data from the Southern California Association of Governments (SCAG) with recent annexations, the 2005 City of Imperial Service Area Plan estimates that the City of Imperial's population will increase to 13,260 by 2010 and is expected to grow to 30,970 by 2025 and 36,448 by 2030.

The City of Imperial Water Department currently provides water to 2,949 individual accounts.

Table 2 gives the current and projected population for the City of Imperial:

Table 2: Population – Current and Projected

	2005	2010	2015	2020	2025	2030
Service Area Population	10,289	13,260	19,299	25,259	30,970	36,448

The population of the city is projected to increase at a significantly faster rate in the future. This is due to several factors, including the diversification of the local economy and increased employment in the public sector. The State Department of Corrections is building a new prison approximately 11 miles west of the city which will employ several hundred people. Many of these people will choose to live in the City of Imperial.

The city has a substantial Hispanic population, with Hispanics comprising 4,619 persons or approximately 61 percent of the population in 2000. Also, the population of Imperial is relatively young, with a median age of 29.9 years (state median age is 35.3). The average number of persons per household is 3.26 and per family 3.6, both higher than state averages (2.87 and 3.14, respectively).

3.1.5 Socioeconomic Conditions

The economic base of the City of Imperial and Imperial County is primarily agriculture and agriculture-related industry. Over one in every three workers is directly employed by an agricultural firm, and even more employees are engaged in agricultural-related activities. Production, packaging and distribution of crops such as lettuce, cotton, alfalfa, wheat and melons occur throughout the year. Sugar beets are also an important Imperial Valley crop, and the Holly Sugar Company, located five miles north of the City of Imperial, processes most of the locally grown sugar beet harvest. The Holly Sugar Company employs 350 people, and thus is a major employer in the Imperial Valley and city area.

In addition to agriculture, the city's economy is also impacted positively by the recent location of a General Dynamics Convair facility on county-owned property adjacent to the Imperial County Airport. This manufacturing facility employs approximately 200 persons. The location of the Imperial Irrigation District Headquarters in the city provides jobs for several hundred additional people.

The unemployment rate for Imperial County is quite high: 19 percent. However, it is believed that this figure is skewed due to a large number of residents from Mexicali, Mexico who commute to work in Imperial County and/or file unemployment claims. Imperial County has one of the lowest median family income levels in the state, but poverty data indicates that the residents of the City of Imperial are relatively well off compared to residents of other Imperial County cities.

Employment in the government sector will become much more of a factor in the future due to the construction and operation of two new state prisons in the Imperial Valley. New industrial development within the city is expected to reduce unemployment and provide new job opportunities for city residents.

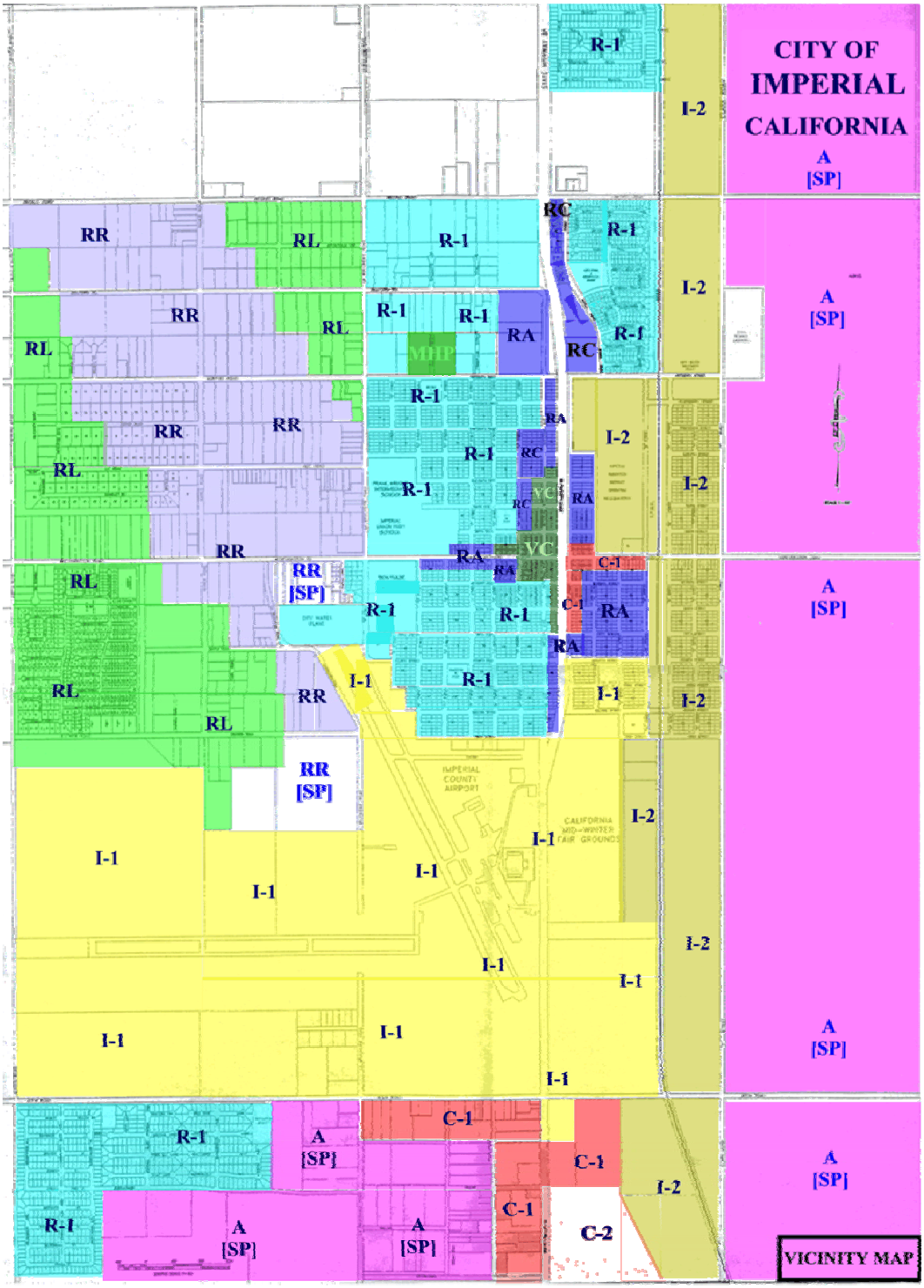
3.1.6 Land Use

A mild climate, year-round growing season, good soils, and a gently sloped topography combined with the strong historical Colorado River water rights make Imperial Valley one of the most productive agricultural regions in the world. Agricultural development in the Imperial Valley began at the turn of the twentieth century and now includes approximately 500,000 acres of irrigated land that support a $1 billion annual local agricultural economy. Roughly 70 percent of Imperial Valley land is utilized for agricultural purposes.

While the agriculture-based economy is expected to continue, land use will vary somewhat over the years as urbanization and growth occurs in the rural areas adjacent to existing urban areas. The Imperial County General Plan, updated September 2004, identifies an 8,480-acre urban area surrounding the City of Imperial (see Figure 3).

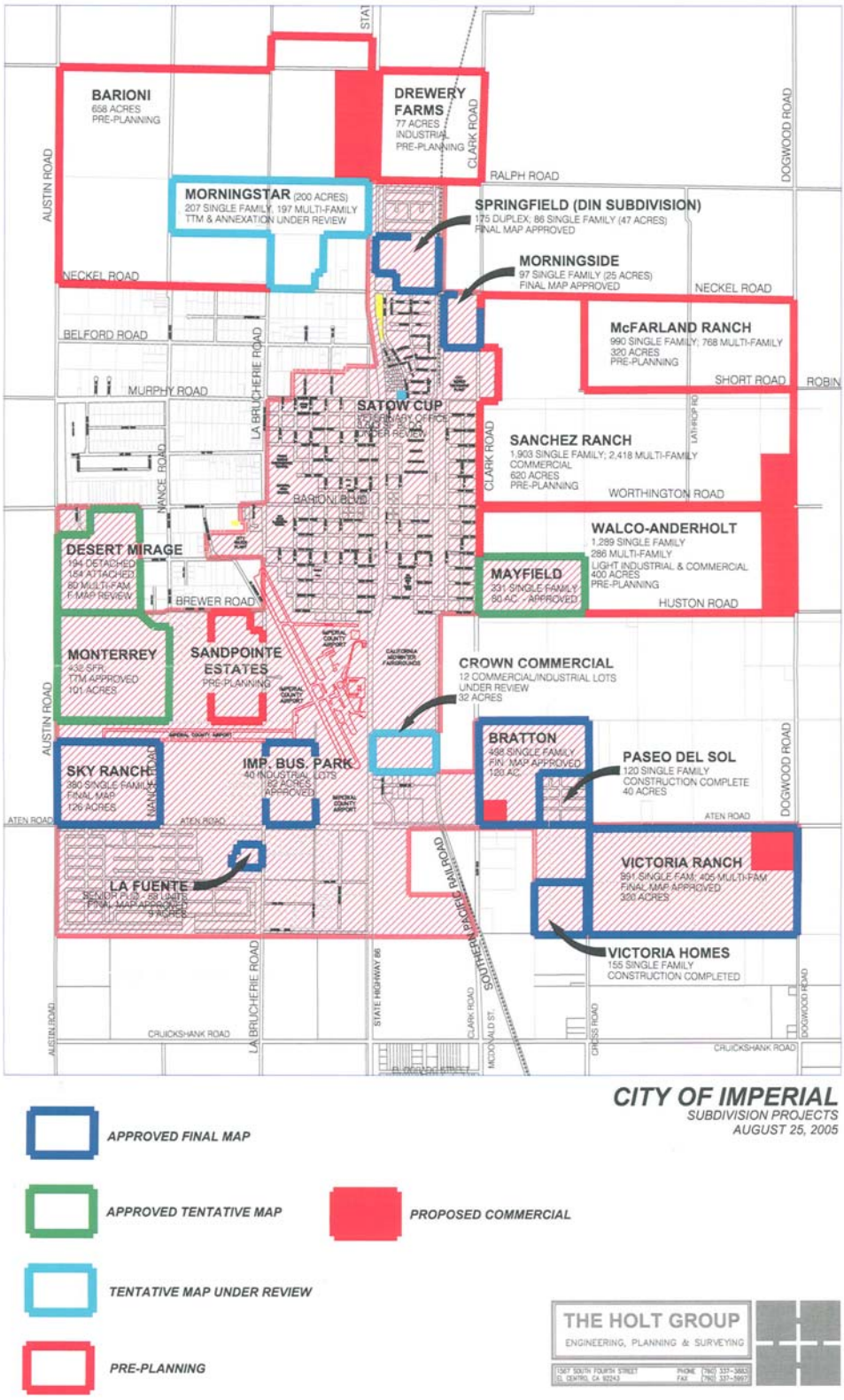
Residential and industrial/commercial development is expected to increase substantially in the City of Imperial in the next 25 years. At present, approximately 50 percent of the city is developed in residential units, with a large percentage of the remaining land within the corporate limits being owned by public entities. Much of the industrial land is presently undeveloped and currently in agricultural production. New residential developments are and will continue to be important in the future, when existing agricultural land is converted to urban uses. One particular pressure for new local developments will be to serve a growing number of San Diegans who are taking advantage of inexpensive home prices and a manageable commute by moving into the area.

Table 3 lists the acreage, units and population figures for projected residential build-out areas in the City of Imperial:



Source: City of Imperial, 2005. WebPages: http://www.imperial.ca.gov.

Figure 3: City of Imperial Planning Map



Source: City of Imperial, 2005.

Figure 4: City Of Imperial Planned Subdivision Projects

Table 3: Residential Build-Out Projections Area within Imperial City Limits

Land Use Designation	Under-Utilized Acres	Vacant Acres	Existing Dwelling Units	Future Dwelling Units	Build-Out Dwelling Units	Build-Out Population
Rural Residential	21.3	94.4	220	116	336	1,094
Low Density Residential	37.3	97.4	13	269	282	921
Low-Medium Density Residential	39.0	206.6	1,874	1,228	3,102	10,111
Residential Condominium	0.8	0.6	210	28	238	777
Multiple Family Residential	32.8	12.3	404	902	1,306	4,257
Mobile Home Park	8.4	0.0	8	67	75	245
Agriculture	0.0	0.0	0	0	0	0
Nonresidential	N/A	N/A	50	(50)	0	0
Totals:	**139.6**	**411.3**	**2,779**	**2,560**	**5,339**	**17,406**

Source: City of Imperial Service Area Plan, 2003.

Additionally, the City of Imperial has identified the subdivision projects listed in Table 4 which are currently at various planning stages for development within the next 25 years (see Figure 4 above for a map of project locations):

Table 4: City of Imperial Subdivision Projects

Stage of Planning / Completion Date	Development Name	Location (see Figure 4)	Number, Type Units	Acres
Approved Final Map **Projected Completion by 2010**	Springfield (Din Subdivision)	Neckel Road & Highway 186	175 Duplex 86 Single Family	47
	Morningside	Neckel & Clark Roads	97 Single Family	25
	Sky Ranch	Aten & Austin Roads	380 Single Family	126
	Imperial Business Park	Aten & La Brucherie Roads	40 Industrial Lots	62
	La Fuente	La Brucherie Road (near Aten Road)	58 Senior PUD	9
	Bratton	Aten & Clark Roads	498 Single Family	120
	Paseo Del Sol	Aten & Cross Roads	120 Single Family	40
	Victoria Ranch	Aten & Cross Roads	891 Single Family 405 Multi-Family	320
	Victoria Homes	Cross Road (opposite Victoria Ranch)	155 Single Family	40

Approved Tentative Map **Projected Completion by 2015**	Desert Mirage	Austin Road & Barioni Boulevard	194 Detached 184 Attached 80 Multi-Family	80
	Monterrey	Austin & Brewer Roads	432 Single Family	101
	Mayfield	Clark & Huston Roads	331 Single Family	80
Tentative Map Under Review **Projected Completion by 2020**	Morningstar	La Brucherie & Ralph Roads	207 Single Family 197 Multi-Family	200
	Crown Commercial	Highway 86 (opposite airport)	12 Commercial/ Industrial Lots	32
Pre-Planning **Projected Completion by 2030**	Barioni	Austin & Neckel Roads	Not Known	658
	Drewery Farms	Clark & Ralph Roads	Industrial	77
	McFarland Ranch	Short & Lathrop Roads	990 Single Family 768 Multi-Family	320
	Sanchez Ranch	Clark & Worthington Roads	1,903 Single Family 2,418 Multi-Family Commercial	620
	Walco-Anderholt	Huston & Dogwood Roads	1,289 Single Family 286 Multi-Family Light Industrial & Commercial	400
	Sandpointe Estates	Brewer and La Brucherie Roads	Not Known	70

Finally, the City of Imperial is in the process of preparing a Specific Plan for a 1,100-acre area to be known as "Rancho Imperial." Specific Plans are used to implement the Imperial County General Plan for large development projects such as a planned community, or to designate an area of Imperial County where further studies are needed before development. When adopted, a Specific Plan serves as an amendment to the Imperial County General Plan for a very defined and detailed area.

The Rancho Imperial Project site is located in the southeast section of Imperial, north of Aten Road and east of Clark Road ("P" Street). The plan calls for the development of approximately 3,300 new housing units over the next ten years, and includes four new schools and nine new neighborhood parks. When fully developed, over 10,000 people will reside in the Specific Plan area, effectively doubling the 2003 population of Imperial.

3.2 Region

3.2.1 Imperial County and Valley

Imperial County is located in the southeast corner of California (see Figure 1). It is bordered on the west by San Diego County, on the north by Riverside County, on the east by the Colorado River which forms the Arizona boundary, and on the south by 84 miles of the International Boundary with the Republic of Mexico. Imperial County is the ninth largest county in California, encompassing an area of 4,597 square miles, or 2,942,080 acres.

Approximately fifty percent of Imperial County's land area is undeveloped and under federal ownership and jurisdiction, and about seven percent of Imperial County is within the boundaries of the Salton Sea. One-fifth of the nearly 3 million acres in Imperial County are irrigated for agricultural purposes, most notably in the Imperial Valley, making Imperial County among the top ten agricultural counties in the nation.

The Imperial Valley is in the south-central part of Imperial County, and is bounded by Mexico on the south, the Algodones Sand Hills on the east, the Salton Sea on the north, San Diego County on the northwest, and the alluvial fans bordering the Coyote Mountains and the Yuha Desert on the Southwest. The Imperial Valley encompasses roughly 989,450 acres, 512,163 of which are irrigated. The developed area, where Imperial County's seven incorporated cities—Brawley, Calexico, Calipatria, El Centro, Holtville, Imperial and Westmorland—as well as unincorporated communities and supporting facilities are situated, comprises less than one percent of the land but contains approximately 71 percent of the total county population.

3.2.2 Climate

The Imperial Valley region is considered an arid desert, characterized by hot, dry summers and mild winters. Summer temperatures typically exceed 100°F and the winter low temperatures rarely drop below 32°F. The remainder of the year has a relatively mild climate with temperatures averaging in the mid-70s. The average annual air temperature is 72°F and the average frost-free season is about 300 days per year.

Annual rainfall in the Imperial Valley averages less than three inches, with most rainfall associated with brief but intense storms. The majority of the rainfall occurs from November through March. Periodic summer thunderstorms are common in the region.

Imperial Valley elevations range from sea level to 273 feet below sea level. The Mexican Border is located at the southern end of Imperial Valley and its elevation is at sea level. The elevation of the Salton Sea at the northern end of the valley is 273 feet below sea level. The relatively flat topography of the Imperial Valley and surrounding areas in conjunction with strong night and day temperature differentials, particularly in the summer months, produce moderate winds and deep thermal circulation systems, facilitating general dispersion of the air.

Table 5 gives data on the climate of the region as it impinges on its water supplies, including average rainfall, average temperature, and average rate of evapotranspiration (ET—i.e., the rate that water either evaporates or is expired by vegetation into the atmosphere).

Table 5: Climate

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Rainfall (inches)	0.44	0.35	0.28	0.08	0.02	0	0.11	0.26	0.27	0.24	0.21	0.35	**2.61**
Average Temperature (°F)	55.9	59.9	64.6	70.7	77.8	86	91.7	91.4	86.4	75.8	63.6	55.9	**73.31**
Average ET (inches)	2.47	3.24	5.5	7.46	8.92	9.17	9.02	8.46	6.77	5.3	3.09	2.22	**71.62**

Sources: Monthly Average ETo Report (No. No. 87, Meloland Station), California Irrigation Management Information System, Department of Water Resources, Office of Water Use Efficiency, Accessed October 31 2005; Western Regional Climate Center, 2005. Period of Record: 9/1/1953 to 12/31/2004. WebPages: http://www.wrcc.dri.edu.

3.2.3 Watershed/Basin

The terms “watershed” and “basin” are often used interchangeably, but in general they mean a region whose borders are defined by surface water drainage. The term “basin” often refers to a larger area incorporating many watersheds, and is used as well to indicate a region defined by a common groundwater resource (see, for instance, Section 4.1.2 below). Different designations are often given to the same drainage area by various planning or regulatory agencies.

The City of Imperial is located within the Salton Sea Watershed, which can be considered a part of (or at least dependant upon) the Lower Colorado River Basin.

Salton Sea Watershed

The 8,360-square-mile Salton Sea Watershed contains the Coachella and Imperial Valleys in the United States and a portion of the Mexicali Valley in Mexico, all of which drain into the Salton Sea. It includes a small corner of San Bernardino County that drains to the Whitewater River, some of Riverside County, most of Imperial County, the eastern portion of San Diego County, and part of the state of Baja California in the Republic of Mexico. The principal tributaries to the Salton Sea are the Whitewater River, which flows into the north end of the sea, and the Alamo and New Rivers, which flow into the sea from the south. The watershed is shown in Figure 5.

The Salton Sea is a terminal lake with no outlet to the ocean. The bulk of its inflow is from agricultural and municipal drainage, and the ultimate source of most of this inflow is water imported to the region from the Colorado River. Only about three percent of the water that flows into the Salton Sea comes from rainfall within the watershed. Most runoff occurs from November through April and from August through September. During the summer, most of the rainfall is from short, intense thunderstorms.

The total amount of water lost to evaporation from the sea is currently estimated at about 1.36 million acre-feet per year. Since the elevation is approximately steady, the outflow (evaporation) is roughly equivalent to the sum of the inflows.

Lower Colorado River Basin

The Colorado River rises in the mountains of north-central Colorado and zigzags southwest for more than 1,400 miles before reaching the Gulf of California. The river and its tributaries—the Green, the Gunnison, the San Juan, the Virgin, the Little Colorado, and the Gila rivers—are collectively called the "Colorado River Basin." These rivers drain 242,000 square miles in the United States, or one-twelfth of the country's continental land area, and 2,000 square miles in Mexico. The Colorado River Basin states are Arizona, California, Colorado, Nevada, New Mexico, Utah and Wyoming (see Figure 6).

Each state is party to the Colorado River Compact entered into in Santa Fe, New Mexico, on November 24, 1922. The Colorado River Compact divided the Colorado River Basin into the Upper Basin and the Lower Basin. The division point is Lees Ferry, a point in the main stem of the Colorado River about 30 river miles south of the Utah-Arizona boundary. The "Lower Basin" includes those parts of the States of Arizona, California, Nevada, New Mexico and Utah within and from which waters naturally drain into the Colorado River system below Lees Ferry, and all parts of these states that are not part of the river's drainage system but may benefit from water diverted from the system below Lees Ferry (including the Imperial Valley).

For more on the Colorado River Compact, see Section 4.1.1 below.

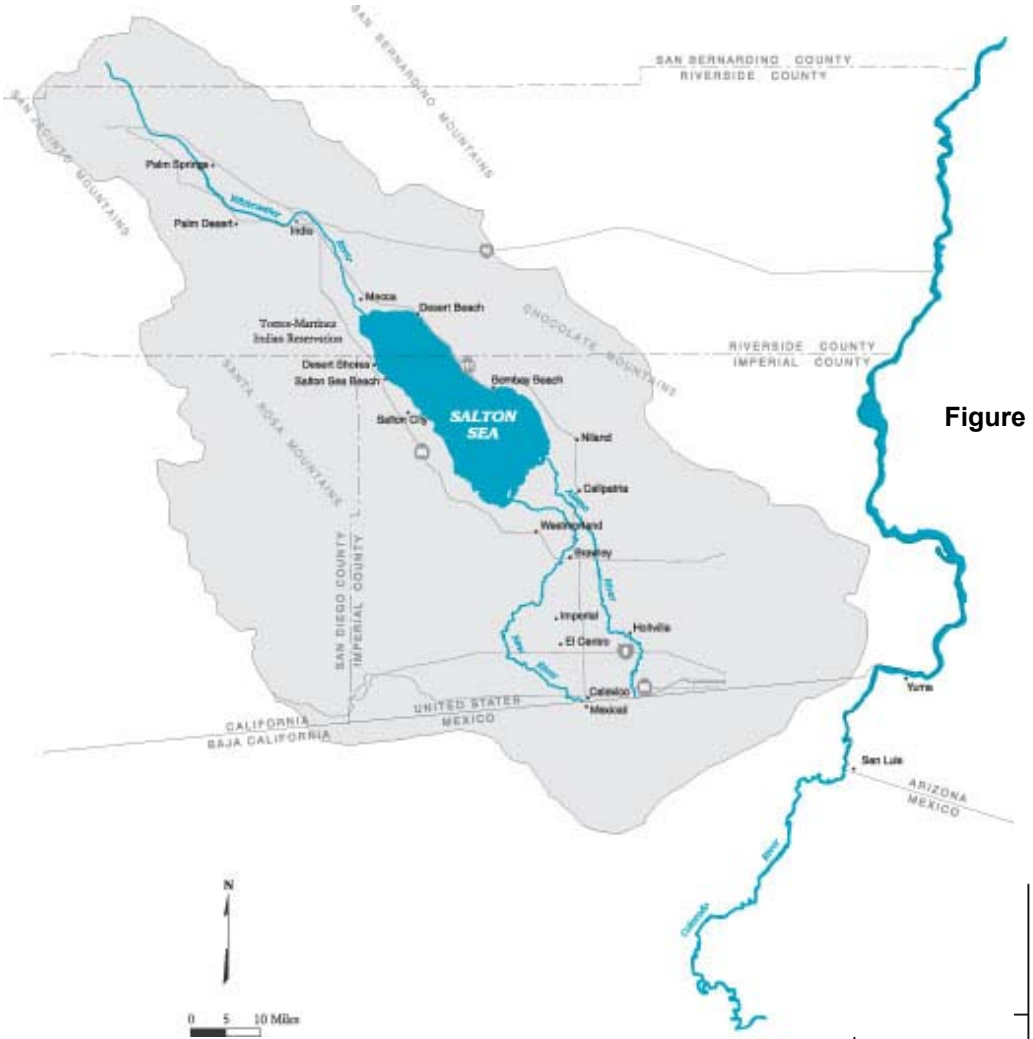


Figure 5: Salton Sea Watershed

Source: California Department of Water Resources, 2005. WebPages: http://www.saltonsea.water.ca.gov

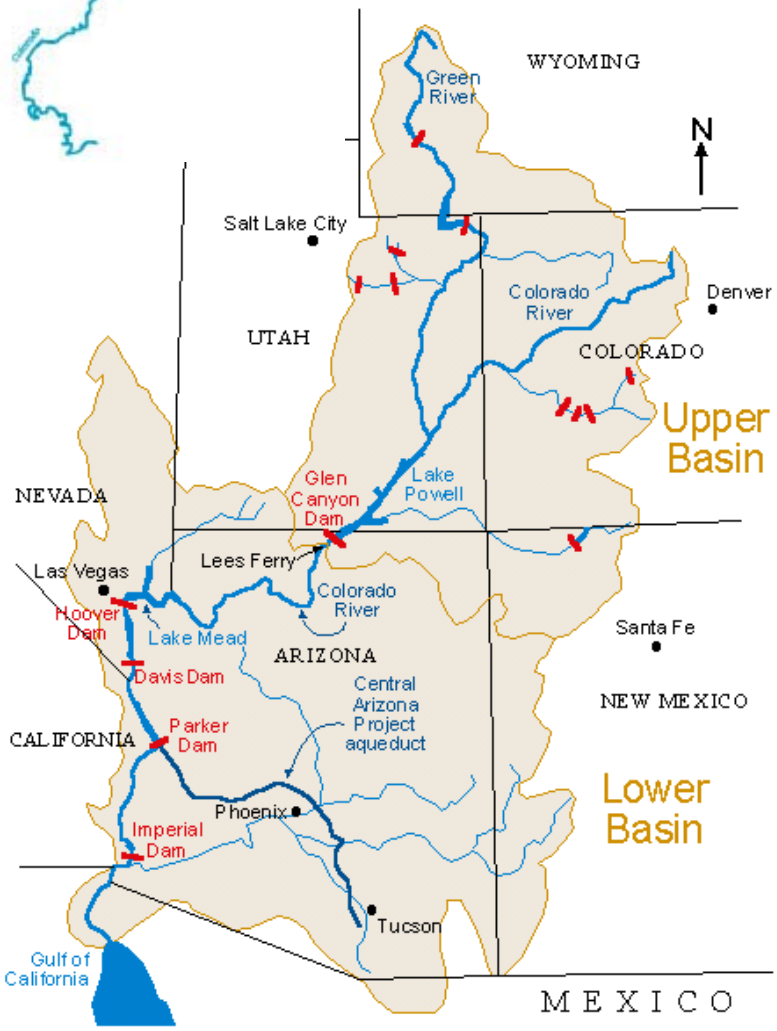


Figure 6: Lower Colorado River Basin

Source: The Good Earth, 2000.

4.0 Water Supply

Law *10631. (b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments [to 20 years or as far as data area available]…*

The City of Imperial receives all of its water from the Imperial Irrigation District. The Imperial Irrigation District water supply to the city is assured for the next 25 years. Other possible local water supply sources, particularly local groundwater, recycled domestic and agricultural wastewater, and transfers from local municipalities, have also been considered.

This chapter provides an overview of the city's current and future water supply picture, including analyses of real and potential sources of supply, threats to the city's current and future water supply portfolio, and planned water supply projects and programs to maintain and, if necessary, increase the availability of potable water supplies in the future.

4.1 Sources of Water Supply

Water supply for the City of Imperial comes from surface water inflows from the Colorado River. The Imperial Irrigation District serves as the regional water supplier, importing raw Colorado River water and delivering it, untreated, to agricultural, municipal and industrial water users within its service area. Municipal and/or industrial users treat the raw water to meet state and federal drinking water standards and then distribute the treated water to urban users.

Rainfall is less than three inches per year and does not contribute significantly to the City of Imperial or the Imperial Irrigation District's water supply. Local groundwater and surface water is of poor quality and would require extensive treatment to make it suitable for domestic use.

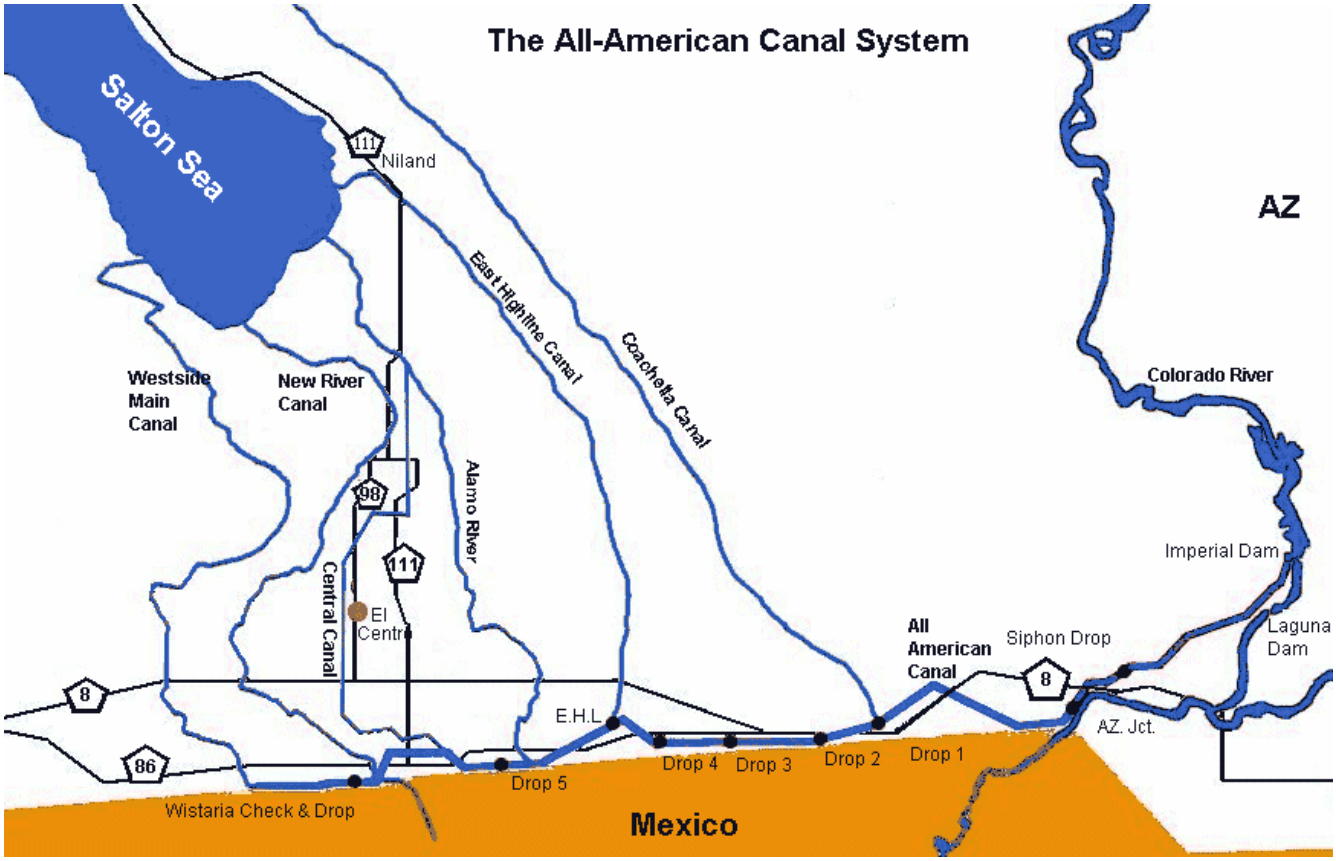
Table 6 lists the current and planned firm water supplies for the City of Imperial through 2030:

Table 6: Current and Planned Water Supplies

Water Supply Sources (AFY)	**2005**	**2010**	**2015**	**2020**	**2025**	**2030**
Imperial Irrigation District	2,331	2,983	4,340	5,681	6,966	8,200
Total	**2,331**	**2,983**	**4,340**	**5,681**	**6,966**	**8,200**

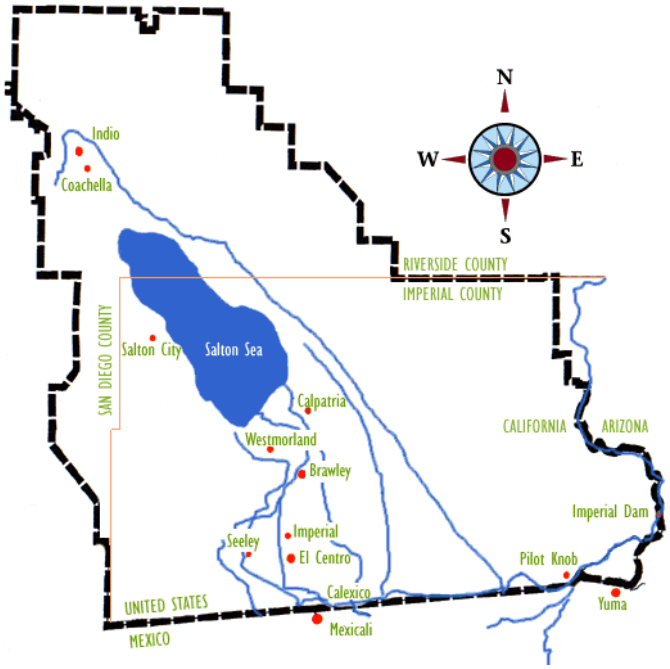
4.1.1 Imperial Irrigation District

The City of Imperial receives all of its water supply from Imperial Irrigation District (IID). IID diverts surface water from the Colorado River at Imperial Dam and delivers it to the city via the 82-mile-long All-American Canal and the Central Main Canal (see Figure 7).



Source: FishingNetwork.net, 2005.

Figure 7: All-American Canal System



Source: Imperial Irrigation District, 2005. WebPages: http://www.iid.com

Figure 8: Imperial Irrigation District Service Area

Established in 1911 under the California Irrigation District Act to acquire properties of the bankrupt California Development Company and its Mexican subsidiary, IID is now the largest water district in the Western Hemisphere, a community-owned utility which provides electrical power and wholesale water service for most of Imperial County (see Figure 8). IID is governed by a five-member board of directors elected by the public.

IID's water is used primarily for agricultural crop irrigation; less than two percent of the district's untreated water is ultimately used for urban or industrial purposes. The City of Imperial is one of seven incorporated cities and three unincorporated cities which divert water from IID's canal system to their treatment facilities. IID also provides raw untreated canal water to industrial water users including geothermal plants, the Holly Sugar Corporation, chemical and fertilizer producers, a state prison and the United States Naval Air Facility, as well as to small acreage and service pipe connections, some of which are rural homes without any alternative water source. IID is not a public water system and does not supply potable drinking water.

Water diverted at Imperial Dam for use in the Imperial Valley first passes through one of three desilting basins used to remove silt and clarify the water. Each desilting basin is designed to remove 70,000 tons of silt per day. From the desilting basins, water is then delivered to the Imperial Valley through the All-American Canal (AAC—see Figure 7). Three main canals—East Highline, Central Main and Westside Main—receive water from the AAC and are used to deliver water to many canals that exist throughout Imperial Valley. Water users—primarily farmers—then divert water directly from these canals. The City of Imperial draws its water supply from canals that siphon water directly off of the Central Main Canal, which flows near the western border of the city.

As part of its operating system, the district maintains an extensive open channel gravity flow irrigation distribution and drainage system. IID serves water through approximately 5,600 delivery gates for irrigation purposes. It operates and maintains more than 1,438 miles of lateral canals and 312 miles of main canals (including the AAC). IID also maintains approximately 1,406 miles of drainage ditches used to collect surface runoff and subsurface drainage from 32,227 miles of tile drains underlying 462,202 acres of farmland within IID's boundaries. Most of these drainage ditches ultimately discharge water into either the Alamo River or New River. Another important component of IID's distribution system are the seven regulating reservoirs and three interceptor reservoirs that have a total storage capacity of more than 3,300 acre-feet of water. IID operations are divided into four units—Imperial, West Mesa, East Mesa and Pilot Knob—and fall under the direction of the United States Bureau of Reclamation (USBR).

IID has a "present perfected" right to 2.6 million acre-feet (MAF) of water annually from the Lower Colorado River (see Section 3.2.3 above) which it uses under a prioritized consumptive right regime under the Seven-Party Agreement as a portion of the 3.85 MAF entitlement shared with Palo Verde Irrigation District, Yuma Project Reservation Division, Metropolitan Water District of Southern California and Coachella Valley Water District (see below). IID holds legal titles to all its water and water rights in trust for landowners within its service area (California Water Code §§20529 and 22437; *Bryant v. Yellen*, 447 U.S. 352, 371 [1980], fn.23.).

IID Colorado River Water Rights and Water Delivery Contract

IID's rights to appropriate Colorado River water are long-standing. Beginning in 1885, a number of individuals, as well as the California Development Company, made a series of appropriations of Colorado River water under California law for use in the Imperial Valley. Pursuant to then-existing California laws, these appropriations were initiated by the posting of public notices for approximately 7 million acre-feet per year (AFY) at the point of diversion and recording such notices in the office of the county recorder. The individual appropriations were subsequently assigned to the California Development Company, whose entire assets, including its water rights, were later bought by the Southern Pacific Company. The IID was formed in 1911. On June 22, 1916, the Southern Pacific Company conveyed all of its water rights to the IID.

The IID's predecessor right holders made reasonable progress in putting their pre-1914 appropriative water rights to beneficial use. By 1929, 424,145 acres of the Imperial Valley's approximately one million irrigable acres was under irrigation, establishing a "present perfected" water right to 2.6 million acre-feet (MAF) of water annually. A 1964 Supreme Court decree in *California v. Arizona* defined these vested district water rights, which preempt the 1902 Reclamation Law and are not subject to reclamation law limitations. Had the IID not subsequently modified its pre-1914 appropriative rights, the IID would have perfected its pre-1914 appropriative water right at over 7 million AFY.

On November 5, 1930, the Secretary of the Interior requested the California Division (now Department) of Water Resources to recommend a proper method of apportioning the water which California was entitled to receive under the 1922 Colorado River Compact and the Boulder Canyon Project Act. A number of users and prospective users of Colorado River water, including the IID and the Metropolitan Water District of Southern California, entered into the Seven-Party Agreement on August 18, 1931.

As a result of the Seven-Party Agreement, with respect to the signatory parties, the IID agreed to limit its California pre-1914 appropriative water rights in quantity and priority to the apportionments and priorities contained in the Seven-Party Agreement. Following execution of the Seven-Party Agreement, the IID filed eight California applications between 1933 and 1936 to appropriate water pursuant to the California Water Commission Act. The IID filed such applications without waiving its rights as a pre-1914 appropriator, and the applications sought rights to the same quantity of Colorado water as had been originally appropriated—over 7 million AFY. However, the applications also incorporated the terms of the Seven-Party Agreement, thus incorporating the apportionment and priority parameters of the Seven-Party Agreement into IID's appropriative applications. Permits were granted on the applications in 1950.

Pursuant to the provisions of the Boulder Canyon Project Act adopted in 1929, the California Limitation Act and the Secretary of the Interior's contracts, California was apportioned 4.4 million AFY out of the lower basin allocation of 7.5 million AFY, plus 50 percent of any available surplus water. The further apportionment of California's share of Colorado River water was made by the Secretary of the Interior by entering into contracts with California right holders. The Secretary entered into a permanent service water delivery contract with the IID on December 1, 1932. The IID's contract with the Secretary incorporated the provisions of the Seven-Party Agreement.

Under the Seven-Party Agreement, the IID does not have a quantified water right but instead is allotted the right to use flows within the 3.85 MAF entitlement. Four agencies share this entitlement, and the right to use these flows is prioritized with the highest priority water user diverting flows first, followed in order of priority by the other three agricultural entities. Thus, IID's third priority water right gives it the right to use whatever flows it can put to reasonable and beneficial use after diversion by the Palo Verde Irrigation District (Priority 1) and Yuma Project Reservation Division (Priority 2). Coachella Valley Water District holds the last priority to this agricultural entitlement, and is legally entitled to use whatever flows remain from the 3.85 million acre-feet allotment that have not already been diverted by the first three priority holders.

In any year, each of the agricultural water users' available water supplies can be determined by subtracting the annual diversions of the higher priority water users from the 3.85 million acre-feet agricultural entitlement. The average annual use for Priorities 1 and 2 (minus return flows) is around 420,000 AFY, leaving approximately 3.4 million AFY for use by the IID.

Table 7 lays out the terms of the Seven-Party Agreement:

Table 7: Seven-Party Agreement for California Apportionment of Colorado River Water Rights

Contractor or Decree Name	Contract No. or Decree No.	Contract or Entitlement Date	Diversion (AF)
1) Palo Verde Irrigation District – Gross area of 104,500 acres	Present Perfected Right (PPR) No. 26 for 219,780AF	1877	3,850,000
2) Yuma Project (Reservation Division) – not exceeding a gross area of 25,000 acres	PPR No. 28 Water Rights Certificates	1905	
3(a) Imperial Irrigation District and lands in Imperial and Coachella Valleys to be served by AAC – Coachella Valley Water District	PPR No. 27 for 2,600,000AF Contract Ilr-747 Contract Ilr-781	1901 12-1-1932 10-15-1934	
3(b) PVID – 16,000 acres of mesa lands	N/A	2-7-1933	
4) Metropolitan Water District and/or City of Los Angeles and/or others on coastal plain	Ilr-645 dated 4-24-1930, supplemented 9-28-1931	9-28-1931	550,000
5(a) The Metropolitan Water District and/or City of Los Angeles and/or others on coastal plain	Ilr-645 dated 4-24-1930, supplemented 9-28-1931	9-28-1931	550,000
5(b) City and/or County of San Diego	Ilr-1151	10-2-1934	112,000
6(a) Imperial Irrigation District and lands in Imperial and Coachella Valleys to be served by the AAC	Ilr-747	12-1-1932	300,000
6(b) Palo Verde Irrigation District – 16,000 acres of mesa lands	N/A	2-7-1933	
7 All remaining water available for use in California for agricultural use	N/A	N/A	N/A
Total Acre-Feet of Seven Party Agreement (Consumptive Use): **5,362,000***			

**During the term that the Colorado River Water Delivery Agreement (Federal Quantification Settlement Agreement [see below]) dated October 10, 2003, remains in effect, the delivery of Colorado River water will be in accordance with the terms as set forth in that agreement (see Appendix D, particularly Exhibit B, for specific entitlements during the time the agreement is in effect).*

Quantification Settlement Agreement (IID-San Diego Transfer Agreement)

On October 10, 2003, IID, the San Diego County Water Authority (SDCWA), Coachella Valley Water District, Metropolitan Water District of Southern California and the State of California finalized the historic Quantification Settlement Agreement (QSA) for the transfer of huge amounts of Colorado River water within California. The agreement, some 15 years in the making, finalizes California's push to stay within its 4.4 million acre-foot (MAF) federal entitlement of Colorado River water. The QSA also commits the state to restore the environmentally sensitive Salton Sea.

The QSA consists of the contractual arrangements negotiated between the major California diverters under the oversight of the United States Secretary of the Interior. The primary goal of the QSA is to provide additional water to the municipal and industrial sector through transfers of higher priority agricultural water. The QSA involves the agreement to transfer water from the major agricultural diverters—and in particular IID—to municipal and industrial uses—in particular SDCWA—for a period of 75 years (45 years through 2047, with a possible 30-year extension to 2077). These transfers are intended to maximize the collective value of the normal allotment of California water by allowing the water reductions to occur in the agricultural sectors where the unit value of water is significantly lower.

Under the QSA, IID will conserve water through on-farm or system projects and then transfer that conserved water to SDCWA. Under California State law, IID may conserve and transfer water without the losing their present perfected water rights. The transfer is in its third year of implementation with 30,000 acre-feet (AF) of water scheduled to be transferred to San Diego in 2005. Deliveries are to increase in 20,000-AF increments until a maximum of 200,000 AF is reached in the nineteenth year (2021) of the contract. The minimum amount that can be transferred is 130,000 AF as set forth in the agreement. For a full list of projected transfers see Exhibit B within the QSA, attached to this report as Appendix D.

Included in the QSA is a project to conserve water by lining portions of the All-American Canal. As part of the QSA, SDCWA obtained the rights to the water produced by the projects for 110 years. The All-American Canal project will be constructed in three phases and is projected to save 67,700 AF of water annually upon its completion, scheduled for late 2008.

Additionally, to mitigate impacts to the Salton Sea, IID is required to implement a fallowing program for the QSA's first fifteen years. By the fifteenth year and through the duration of the transfer, system improvements such as canal interceptors, mid-lateral reservoirs and automation along with on-farm improvements such as tailwater recovery systems and micro-irrigation are expected to provide the water needed for the transfer. The fallowing program continues to be one of the most controversial provisions in the QSA.

4.1.2 Local Groundwater

10631. (b) …If groundwater is identified as an existing or planned source of water available to the supplier, all of the following information shall be included in the plan:

(1) A copy of any groundwater management plan adopted by the urban water supplier, including plans adopted pursuant to Part 2.75 (commencing with Section 10750), or any other specific authorization for groundwater management.

(2) A description of any groundwater basin or basins from which the urban water supplier pumps groundwater… For basins that have not been adjudicated, information…in the most current official departmental bulletin that characterizes the condition of the groundwater basin.

(3) A detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years…

(4) A detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the urban water supplier…

The City of Imperial is located over the Imperial Valley Groundwater Basin. This groundwater basin is not adjudicated or otherwise regulated, and has not been identified or projected to be in overdraft by the California Department of Water Resources.

The City of Imperial currently does not use local groundwater for drinking water purposes and has no plans to do so in the future. Groundwater in the Imperial Valley Groundwater Basin has high salt content and is thus of poor quality and unsuitable for domestic or irrigation use.

However, the city's General Plan does cite long-term water storage as one of the potential benefits of local groundwater. One of its objectives (#8 in the Conservation Element) states as the reason for preventing groundwater contamination "to ensure future viable uses of existing ground water [*sic*] resources" (page 210).

Imperial Valley Groundwater Basin

The 1,200,000-acre (1,870-square-mile) Imperial Valley Groundwater Basin is located south of the Salton Sea in the southeastern part of California at the international border with Mexico. The basin is bounded on the east by the Sand Hills and on the west by the impermeable rocks of the Fish Creek and Coyote Mountains. To the north the basin is bounded by the Salton Sea which is the discharge point for groundwater in the basin, and to the south the basin extends across the international border into Baja California where it underlies a contiguous part of the Mexicali Valley.

The basin has two major aquifers (underground areas of saturated soil), separated at depth by an aquitard (semi-permeable bed of rock or soil). Recharge is primarily from irrigation return, as well as from deep percolation of rainfall and surface runoff, underflow into the basin and seepage from unlined canals which crisscross the valley. Total seepage from the All American Canal from 1942 to 1982 is estimated at 2.2 million acre-feet (MAF), and seepage from the Coachella Canal between the same years is estimated at 1.2 MAF. Another source of groundwater recharge occurs along the lower reaches of the New River, near Calexico. Annual recharge from all sources is estimated to be about 400,000 acre-feet, and total storage capacity for the basin is estimated to be 14 MAF.

Water quality varies extensively throughout the basin but, in general, is unusable for domestic and irrigation purposes without treatment. Concentrations of total dissolved solids (TDS) range from a few hundred to more than 10,000 milligrams per liter (mg/L); water with TDS above 1,000 mg/L is considered to be of poor quality. Additionally, the groundwater's fluoride concentration is higher than that recommended for drinking water, and its boron concentration exceeds that recommended for certain agricultural crops. Finally, recharge from the highly polluted New River (see Section 4.1.3) which drains the Mexicali Valley negatively affects groundwater quality in the basin.

4.1.3 Local Surface Water

The City of Imperial does not draw on any local surface water sources for drinking water purposes, and has no plans to do so in the future. However, the Imperial Irrigation District (IID) water system is primarily a surface water system; for more information, see Section 4.1.1 above.

Local surface water sources include the myriad of agricultural canals, laterals and drains forming IID irrigation canal network; the Central Main Canal, a major artery of the IID network; and the New River. All of these potential surface water sources eventually drain into the Salton Sea 20 miles to the north of the city.

IID Canal Network

IID supplies water to approximately 470,000 acres of irrigated farmland in the Imperial Valley. Water is delivered to farmers through an extensive 1,667-mile network of canals and laterals. The city already receives all of its water supply from the Central Main Canal, a major artery in this network (see below).

Irrigation drainwater or tailwater—irrigation water in excess of crop requirements—is collected by approximately 550 sumps and 10,000 gravity tile outlets located at the tail end of fields into the roughly 1,470 miles of surface drains that discharge to the New or Alamo Rivers or directly into the southern end of the Salton Sea (see Figure 9). Irrigation drainwater contains elevated levels of dissolved salts and high concentrations of selenium, sulfate, boron, molybdenum, lithium, chloride and sodium, and therefore is not suitable for drinking water purposes.

Central Main Canal

The Central Main Canal delivers approximately one-third of the water IID receives from the Colorado River to water users in the central section of the Imperial Valley, including most cities. The canal is one of IID's three primary main canals coming off the All-American Canal—the others are the East Highline and Westside Main (see Figure 7). The Central Main Canal connects to the All-American Canal just north of Calexico, is about 27 miles long and is unlined.

New River

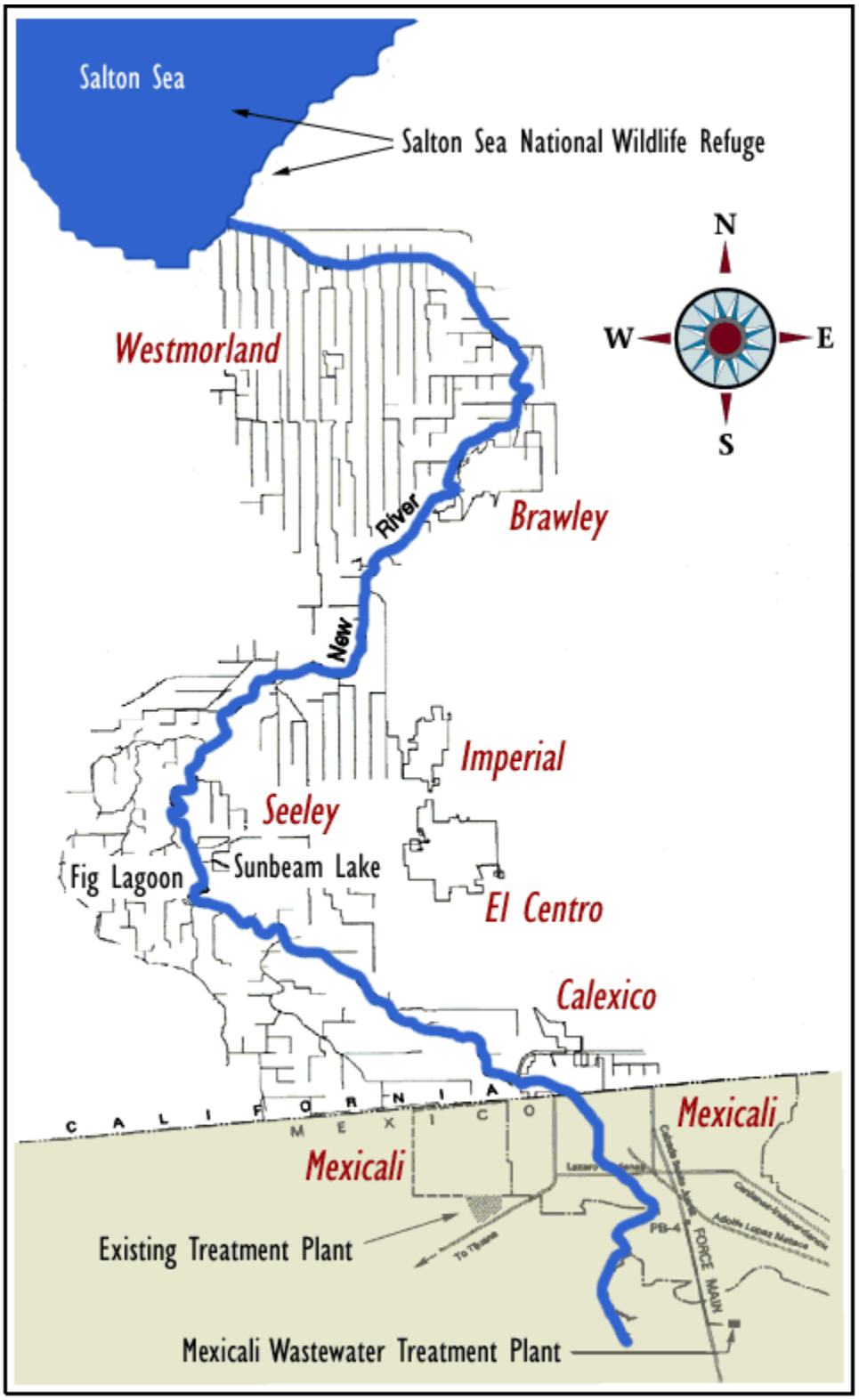
The New River, an international river which flows north from the Mexicali Valley in Mexico to the Salton Sea, is considered to be the most polluted waterway in North America. The present-day channel of the New River was created in 1905-07 when the Colorado River washed out diversionary works, and the entire Colorado River flow coursed into the Salton Basin creating the New and Alamo River channels and the present Salton Sea (thus the name "New" River). Currently, the New River's headwaters originate about 15 miles south of the City of Mexicali, in the Mexicali Valley, Mexico (see Figure 9).

The New River carries urban runoff, untreated and partially treated municipal wastes, untreated and partially treated industrial wastes, and agricultural runoff from the Mexicali Valley into the United States. After it crosses the International Boundary at Calexico, California, the New River travels about 60 miles through Imperial County before it discharges its entire flow into the Salton Sea. The New River collects agricultural drainage water from 56 main and lateral drains belonging to IID. By the time the New River reaches the Salton Sea, about two-thirds of its flow consists of wastewater from 280,000 acres of irrigated agricultural land in Imperial County. The New River flow is approximately 200 cubic feet per second (cfs), or 144,800 acre-feet per year (AFY) at the International Boundary. At its delta with the Salton Sea, its flow is approximately 600 cfs, or 434,400 AFY, which makes it one of the two main tributaries to the Salton Sea (the other being the Alamo River).

Historically, the New River has been recognized as a significant pollution problem since at least the late 1940s, primarily because of its extremely high concentrations of fecal coliform bacteria and offensive odor at the International Boundary. The early history of New River pollution is vague, but it is believed to be closely aligned with population growth. In 1920, the total population of Mexicali was only 6,200 people. In 1955, it was estimated that raw sewage from approximately 25,000 people was being discharged into the New River from Mexicali. In 1975, the population jumped to over 100,000 people and at the turn of the century some estimated it at close to a million.

A focal point of early complaints regarding New River pollution was odor. In the early fifties, the odor of the river near the boundary, particularly at night, was oftentimes overpowering. Beginning around 1956, the flows of the New River at the boundary increased considerably due to development of agricultural drainage return flows from Mexicali Valley. This dilution water temporarily alleviated the odor problem, but in the 1960s the problem became increasingly noticeable as sewage loading increased with the population. In the mid-1980s the extent of the problem was finally recognized, and since then Mexico and the United States began to work cooperatively through the International Boundary and Water Commission and the Border Environment Cooperation Commission to address New River pollution from Mexico.

Since the passing of the North American Free Trade Agreement (NAFTA) in the 1990s, industrial manufacturing has also been an increasingly significant contributor to pollution. Mexico provides more lax environmental regulations on manufacturing plants, or *maquiladoras*, and over the years the New River has been used as a waste drainage system by these plants. Today Mexicali is an industrial border city with over one hundred *maquiladoras*. The problem is expected to worsen, as Mexicali's current population of about 1.3 million continues to expand.



Source: Imperial Irrigation District, 2005. WebPages: http://www.iid.com

Figure 9: New River and IDD Drains

Salton Sea

The Salton Sea, located in the southeastern corner of California, is actually a periodic lake which occupies a desert basin known as the Salton Sink, formed over the millennia by temporary shifts in the Colorado River channel. The current body of water covers a surface area of 376 square miles, making it the largest lake in California. Its location is 227 feet below sea level, its maximum depth reaches 51 feet, and its total volume is about 7.5 million acre-feet. The sea has no outlet, and its water level is maintained by agricultural drainage inflows from the Imperial and Coachella Valleys and evaporation.

The present Salton Sea was formed when flood flows from the Colorado River broke through a temporary diversion that had been designed to bypass the Imperial Canal. The Imperial Canal, which was routed from the Colorado River to the Imperial Valley through Mexico, was completed in 1901, but by 1904 it had become blocked by sediment. On October 11, 1905, a dike failed and nearly the entire flow of the Colorado River flowed uncontrolled into the Salton Basin for the next 18 months. It flooded the railroad line, railroad stations and the salt works on the basin floor. When the breach was finally repaired in 1907, the surface elevation of the Salton Sea had reached 195 feet and it had a surface area of 520 square miles.

The rate of evaporation from the Salton Sea has been variously estimated at between 5.5 to 6.5 feet per year. At this high rate of evaporation, the Salton Sea would have dried up ten years after being filled had it not been for importation of water from outside the basin. The elevation has been fairly constant during the past ten years or so, indicating that the rate of inflow is now approximately equal to the rate of evaporation.

As an agricultural drainage reservoir, the Salton Sea serves an important purpose for the productive agricultural valleys that adjoin it. Ninety percent of the entire inflow to the sea is agricultural runoff from the Imperial, Coachella and Mexicali Valleys. This inflow carries nutrients, such as phosphates and nitrates, and an abundance of salt. Currently, the salinity level of the Salton Sea is 44 parts per thousand (ppt), slightly higher than the 35 ppt of the Pacific Ocean. There is no question that the salinity of the Salton Sea will continue to increase as dissolved salts are carried into the sea and are concentrated by evaporation, therefore making it an unlikely local water supply source any time in the future.

4.2 Threats to Water Supply

Law

10631. (c) Describe the vulnerability [of the water supply] to seasonal or climatic shortage, to the extent practicable… For any water source that may not be available at a consistent level of use, given specific legal, environmental, water quality, or climatic factors, describe plans to supplement or replace that source with alternative sources…to the extent practicable.

10634. The plan shall include information, to the extent practicable, relating to the quality of existing sources of water available to the supplier … and the manner in which water quality affects water management strategies and supply reliability.

There are very few potential threats to the City of Imperial's water supply, but those that exist must be monitored closely in order to detect and ameliorate future impacts to the availability and sufficiency of the city's water supply. These threats, which are in no way expected to result in inconsistency of the city's water supply, include future extended droughts, legal issues, water quality and environmental concerns. A matrix of these potential threats to the city's current and future water sources are listed in Table 8:

Table 8: Potential Threats to City's Water Supply

Name of supply	Legal	Environ-mental	Water Quality	Climatic
Imperial Irrigation District	Law of River	Recent Leg.	TDS, Nitrate	Drought

4.2.1 Drought

Research into the deep historical record of ancient tree rings suggests that up to 500-year droughts have occurred on the Colorado River Basin, creating the potential for a drastic reduction to water availability from the Colorado River (USGS 2004). Nevertheless, the Imperial Irrigation District (IID) has a solid legal entitlement based on priority to a significant amount of the river's flow, regardless of climatic conditions. IID has made it clear to its urban customers that there is little to no potential for reduced deliveries due to drought (see Section 7.1 below).

4.2.2 Legal

The Colorado River is managed and operated under numerous compacts, federal laws, court decisions and decrees, contracts and regulatory guidelines, collectively known as the "Law of the River" (see synopsis in Appendix C). This collection of documents apportions the water and regulates the use and management of the Colorado River among the seven Colorado River Basin states and Mexico. Additionally, the city's water supplier, IID, is a signatory to many agreements and a party to multiple lawsuits which have had and continue to have significant influence on its water supply. IID's present perfected rights to Colorado River water can only be changed by future legislative action.

4.2.3 Water Quality

In 2005, as in years past, the City of Imperial's tap water met all United States Environmental Protection Agency (EPA) and state drinking water health standards. The city uses conventional treatment, including sedimentation, coagulation, flocculation, filtration and disinfection, to treat the raw water received from IID before distribution to city customers, and monitors for and reports annual nitrate and bacteria levels officially in its Annual Report to the California Department of Health Services Drinking Water Program as well as publicly in its annual Consumer Confidence Report. The city has consistently served quality drinking water to its customers, and will continue to do so.

Lower Colorado River Water Quality

The environmental group American Rivers named the Colorado River America's Most Endangered River of 2004 due to what were perceived to be looming water quality issues concerning perchlorate, nitrates and a uranium mine tailings pile near Moab, Utah. Also, management of salinity in the river is an ongoing program. However, all of these issues are well known and are being addressed, and none are considered a significant danger to the City of Imperial's water supply.

- **Perchlorate** enters the Colorado River from only one source: an old industrial development sites along the Las Vegas Wash that flows into Lake Mead near Henderson, Nevada. Site cleanup is well underway and is steadily reducing the perchlorate levels in the Colorado River. Current levels are less than 4 parts per billion (ppb) below Hoover Dam. The National Academy of Sciences recently recommended that the EPA consider setting its federal water quality standard for perchlorate at 20 ppb.

- **Nitrates** exist at certain locations in the Lower Colorado River from agricultural return flows and from localized concentrations of septic tank/leach field infiltration into the river. There are no significant agricultural return flows upstream of the IID diversion (Imperial Dam). There are no general area problems from leach fields. Local problems are being addressed by installing sewer systems and other official programs arising from local health concerns.

- The **Moab tailings pile** has been addressed and federal officials are determining the best fix. In the interim, it is located outside the normal flood plain and is not contributing to any water quality problems in the Lower Colorado River.

- The **salinity** level, measured as total dissolved solids (TDS), of the Lower Colorado River averages around 700 milligrams per liter (mg/L) at Imperial Dam. Overall, the salinity levels are lower today than 30 years ago, though drought and lower reservoir levels have caused a recent rise in current levels. The Colorado River Basin states and the federal government have an ongoing Salinity Control Program, which has set a TDS numeric salinity limit at Imperial Dam of 879 mg/L.

4.2.4 Environmental

Environmental issues on the Colorado River are not expected to influence IID's ability to deliver water to the City of Imperial in the future.

Lower Colorado River Multi-Species Conservation Program

The Multi-Species Conservation Program is a major environmental effort underway in the Lower Colorado River Basin. The cooperative effort involves federal agencies, the three Lower Basin States, Lower Basin Tribes and environmental organizations, all working together toward the recovery of more than 100 federal- or state-listed sensitive, threatened and endangered fish and wildlife species, and their habitats, along the lower Colorado River corridor.

Developed between 1996 and early 2005 and planned for implementation over a 50-year period, the program's goals are: 1) recover listed species through habitat and species conservation and attempt to reduce the likelihood of additional species listings under the Endangered Species Act; 2) accommodate current water diversion and power production operations; and 3) optimize opportunities for future water and power development.

Implementation of the program began in April 2005 with the signing of a Record of Decision by the Secretary of the Department of the Interior. The Bureau of Reclamation, in consultation and partnership with a Steering Committee made up of representatives from the 56 participating entities (including IID), is the primary implementing agency for this activity.

4.3 Planned Water Supply Projects and Programs

Law *10631. (d) Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.*

(h) …The urban water supplier shall include a detailed description of expected future projects and programs, other than the demand management programs…that the urban water supplier may implement to increase the amount of the water supply available to the urban water supplier in average, single-dry, and multiple-dry water years. The description shall identify specific projects and include a description of the increase in water supply that is expected to be available from each project. The description shall include an estimate with regard to the implementation timeline for each project or program.

(k) Urban water suppliers that rely upon a wholesale agency for a source of water, shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water … available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water -year types…

(i) Describe the opportunities for development of desalinated water, including, but not limited to, ocean water, brackish water, and groundwater, as a long-term supply.

The City of Imperial currently has no projects or programs in place to increase its potential water supply. The city is in the process of replacing its current supply tank with a two-million-gallon water reservoir at the water treatment plant, and is studying the need to extend the water delivery system to meet the increased demand from the city's projected growth. The following sections explore local transfer, exchange and desalination opportunities, as required by the California Urban Water Management Planning Act.

4.3.1 Transfer or Exchange Opportunities

Urban water management planning in California has been motivated by socioeconomic and environmental considerations. The increasing expense and environmental impact of new traditional water supplies (e.g., dams and reservoirs) has motivated innovative use of existing facilities (e.g., surface and groundwater conjunctive-use and pump and storage schemes) and increased demand management efforts.

Continued growth in imported water demands and increasing environmental concerns have caused even these innovations to yield diminishing returns. Economic and environmental conditions, combined with recent droughts, have motivated further efforts to improve traditional supply augmentation and demand management measures and have motivated the recent use and consideration of water transfers and exchanges.

Recent interest in water transfers and exchanges to Southern California and specifically the City and County of San Diego area are currently being implemented through the recently signed Quantification Settlement Agreement (see Section 4.1.1 above).

The water transfer and exchange concept requires extending water markets to include transfers among water use contractors and other agencies who may exchange with the City of Imperial (e.g., the Cities of Brawley and El Centro). Since all cities served by IID have an assured supply of water for the next 25 years, the transfer and exchange market for the City of Imperial can be considered nonexistent.

However, due to the close proximity of the Cities of Imperial and El Centro's water mains along their common border, the City of Imperial is studying the feasibility of installing emergency interties between their water systems. Such interconnections would allow either city to supply water to their neighbor in case of a treatment plant shutdown or other natural or man-made disaster. The city is also in the process of installing a two-million-gallon underground reservoir tank to increase the city's available stored water supply. For more information, see Section 8.4 below.

4.3.2 Desalination Opportunities

The act of changing salt water into potable or fresh drinking water is called “desalination.” As the demand and competition for water in California increases and traditional ways of increasing water supply (construction of dams, aqueducts and pipelines) becomes less publicly acceptable, alternative ways of developing new water sources are being looked at. In 2004 the California Congress passes legislation requiring urban water suppliers to consider desalination opportunities in their Urban Water Management Plans.

The raw Colorado River water supplied to City of Imperial by the IID is considered fresh water, though it does contain relatively high levels of dissolved solids (salts) which are treated using advanced filtration.

The City of Imperial has evaluated the feasibility of installing a brackish groundwater well field and a reverse osmosis (RO) water treatment plant. Brackish water has a higher salt content than fresh water, but not as high as sea water. RO water treatment converts unusable brackish groundwater into high-quality drinking water supply.

Due to the fact that the City of Imperial has a secure and reliable water supply, the installation of a brackish groundwater production and treatment system is considered unnecessary and too costly for serious consideration at this time.

5.0 Water Usage

Law *10631. (e) (1) Quantify, to the extent records are available, past and current water use…and projected water use, identifying the uses among water use sectors including, but not necessarily limited to, all of the following uses:*

(A) Single-family residential.
(B) Multifamily.
(C) Commercial.
(D) Industrial.
(E) Institutional and governmental.
(G) Sales to other agencies.
(H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof.
(I) Agricultural.

This chapter provides an overview of water usage in the City of Imperial. It includes the past, current and projected usage numbers, including unaccounted-for water system losses, for the City of Imperial through 2030.

5.1 Past, Current and Projected Water Deliveries by Sector

The City of Imperial delivered 1,674 acre-feet of water to 2,311 customers in 2000 and 1,992 acre-feet of water to 2,949 customers in 2005. This represents an 84 percent increase in water deliveries in the past five years.

Water deliveries are projected to continue increasing in the next 25 years. Short-term projected rates of increase are derived from permits issued for residential and commercial developments as well as construction currently in progress. The bases for long-term projections of demand are the city's General Plan and Revitalization Plan (see Section 3.1.6 above).

Table 9 lists the past, current and projected water deliveries made by the City of Imperial from 2001 through 2030 in 5-year increments. The resulting water use data is separated by sector into the following categories: single-family and multi-family residential usage, commercial and industrial usage, and other.

Table 9: Past, Current and Projected Water Deliveries

Water Use Sectors	2000		2005		2010	
	Accounts	AFY	Accounts	AFY	Accounts	AFY
Single-Family Residential	1,951	1,424	2,292	1,593	2,916	2,039
Multi-Family Residential	103	167	417	299	546	382
Commercial/Industrial	132	50	147	60	109	77
Other	125	33	93	40	73	51
Total	2,311	1,674	2,949	1,992	3,644	2,549

Water Use Sectors	2015		2020		2025		2030	
	Accs.	AFY	Accs.	AFY	Accs.	AFY	Accs.	AFY
Single-Family Residential	4,242	2,967	5,553	3,884	6,810	4,762	8,016	5,606
Multi-Family Residential	795	556	1,041	728	1,276	893	1,503	1,051
Commercial/Industrial	159	112	208	146	255	179	300	210
Other	106	74	139	97	170	119	200	140
Total	5,302	3,709	6,941	4,855	8,511	5,953	10,019	7,007

5.2 Unaccounted-for Water System Losses

Unaccounted-for water system loss is calculated by subtracting metered water usage from the amount of water purchased from IID. The city's water system averages 10 percent production water loss and 6 percent delivery system loss.

Table 10 documents current and projected unaccounted-for production and delivery system losses:

Table 10: Unaccounted-For Water System Losses

Water Use (AFY)	2000	2005	2010	2015	2020	2025	2030
Production Loss	167	199	255	371	486	595	701
Delivery System Losses	118	140	179	260	341	418	492
Total	285	339	434	631	826	1,013	1,193

5.3 Total Water Usage

The combined current and projected water usage, including system losses, for the City of Imperial is given in Table 11:

Table 11: Total Water Use

	2000	2005	2010	2015	2020	2025	2030
Total Water Use (AFY)	1,959	2,331	2,983	4,340	5,681	6,966	8,200

6.0 Demand Management

Law *10631. (f) Provide a description of the supplier's water demand management measures. This description shall include all of the following…*

(4) An estimate, if available, of existing conservation savings on water use within the supplier's service area, and the effect of the savings on the supplier's ability to further reduce demand.

Many water managers today consider water conservation, or "demand management," as essentially a new source of water supply. Even though the city does not require new water supply sources, the City of Imperial is committed to implementing water conservation programs at the local and regional levels. Doing so will make it possible for the city to manage demand of water in the unlikely event of water scarcity.

This chapter gives an overview of regional water conservation efforts, the statewide water conservation Memorandum of Understanding administered by the California Urban Water Conservation Council, current and future the City of Imperial conservation measures, and water and economic savings from implementing these measures.

6.1 Regional Water Conservation Coordination

Regional water conservation programs are coordinated at the regional level by the Imperial Irrigation District (IID) through various local conservation measures, and by the Bureau of Reclamation through its Water Conservation Field Services Program.

6.1.1 IID Demand Management

IID and its agricultural water users have a long history of efficient water use and agricultural-based water conservation or demand management programs. IID and its agricultural water users together have invested more than $625 million towards water conservation efforts over the past 50 years. Completed programs include concrete lining of canals and lateral, seepage recovery systems, regulating reservoirs, lateral interceptors, distribution system automation, on-farm tailwater recovery systems, 12-hour deliveries, non-leak gates, irrigation water management and several operational, administrative, educational and cooperative programs aimed at reducing operational losses and recovering discharges.

IID currently does not sponsor urban water conservation programs. Over 98 percent of IID's water supply is delivered for agricultural purposes, so the Demand Management Measures and Best Management Practices described in the Urban Water Management Planning Act (see below) are not appropriate measures of IID's conservation efforts. Instead, IID has promoted large-scale water conservation efforts using programs that do not negatively affect agricultural businesses, water users or the Imperial Valley economy. Water conservation is a key component of IID's water management efforts as each unit of water conserved frees up a unit for other uses.

6.1.2 Bureau of Reclamation Water Conservation Field Services Program

As a federal agency with a vital role in the administration of Western water resources, the Bureau of Reclamation leads water management planning, conservation education, innovative technology demonstrations, and conservation measure implementation activities through its Water Conservation Field Services Program (WCFSP).

In the Lower Colorado River Basin (see Section 3.2.3), the WCFSP helps residents and agencies in Southern Nevada, Southern California and Arizona achieve local water conservation goals. While many earlier water conservation methods focused on making structural improvements to water delivery systems, the WCFSP focuses on improving the efficiency of water use in homes, on farms and in industry using a combination of new technology and best management practices.

To help local agencies accomplish their goals, the Bureau of Reclamation offers financial and technical assistance to develop water management plans, underwrites the development of classroom materials and teacher training programs, demonstrates new technologies for efficient water management, and offers matching funds to help agencies implement water conservation measures. The WCFSP encourages water conservation practices, helps water agencies develop and implement effective water management and conservation plans, coordinates with state and other local conservation program efforts, and fosters improved water management on a regional, statewide and watershed basis.

6.2 California Urban Water Conservation Council

Law *10631. (j) Urban water suppliers that are members of the California Urban Water Conservation Council and submit annual reports to that council in accordance with the "Memorandum of Understanding Regarding Urban Water Conservation in California," dated September 1991, may submit the annual reports identifying water demand management measures currently being implemented, or scheduled for implementation…*

The premier statewide organization dedicated to urban water conservation is the California Urban Water Conservation Council (CUWCC). The CUWCC administers the Memorandum of Understanding Regarding Urban Water Conservation in California (MOU), the result of a coordinated effort by the California Department of Water Resources, water utilities, environmental organizations and other interested groups to develop a central list of urban water conservation practices.

The CUWCC has identified fourteen (14) principal areas in which there are significant opportunities for urban water conservation, collectively known as “Best Management Practices,” or BMPs. The State Legislature codified these BMPs into the Urban Water Management Planning Act, renaming them “Demand Management Measures,” or DMMs. Table 12 lists these DMMs/BMPs:

Table 12: Demand Management Measures

DMM Number	DMM Name
1	Water Survey Programs for Single-Family Residential and Multi-Family Residential Connections
2	Residential Plumbing Retrofit
3	System Water Audits, Leak Detection and Repair
4	Metering With Commodity Rates for All New Connections and Retrofit of Existing Connections
5	Large Landscape Conservation Programs and Incentives
6	High-Efficiency Washing Machine Rebate Programs
7	Public Information Programs

8	School Education Programs
9	Conservation Programs for Commercial, Industrial and Institutional Accounts
10	Wholesale Agency Assistance Programs
11	Conservation Pricing
12	Conservation Coordinator
13	Water Waste Prohibition
14	Residential ULFT Replacement Programs

The MOU requires that a water utility implement only the DMMs that are economically feasible. If a DMM is not economically feasible, the water utility may request an economic exemption for that DMM. The DMMs as defined in the MOU are generally recognized as standard definitions of water conservation measures.

Water providers who are signatories to the MOU are allowed to submit copies of their mandatory BMP annual reports to the CUWCC in lieu of a description of the DMMs in their Urban Water Management Plans. The City of Imperial is not a signatory to the MOU.

6.3 City of Imperial Water Conservation Measures

Law *10631. (f) (1) A description of each water demand management measure that is currently being implemented, or scheduled for implementation, including the steps necessary to implement any proposed measures…*

(2) A schedule of implementation for all water demand management measures proposed or described in the plan.

(3) A description of the methods, if any, that the supplier will use to evaluate the effectiveness of water demand management measures implemented or described under the plan.

(4) An estimate, if available, of existing conservation savings on water use within the supplier's service area, and the effect of the savings on the supplier's ability to further reduce demand.

(g) An evaluation of each water demand management measure…not currently being implemented or scheduled for implementation. In the course of the evaluation, first consideration shall be given to water demand management measures, or combination of measures, that offer lower incremental costs than expanded or additional water supplies. This evaluation shall do all of the following:

(1) Take into account economic and non-economic factors, including environmental, social, health, customer impact, and technological factors.

(2) Include a cost-benefit analysis, identifying total benefits and total costs.

(3) Include a description of funding available to implement any planned water supply project that would provide water at a higher unit cost.

(4) Include a description of the water supplier's legal authority to implement the measure and efforts to work with other relevant agencies to ensure the implementation of the measure and to share the cost of implementation.

The City of Imperial is a purveyor of treated water supplied by the Imperial Irrigation District (IID). IID focuses its water conservation efforts on large irrigation interests within the district (see Section 6.1) and sale of its conserved water through transfers to the San Diego County Water Authority via the Metropolitan Water District of Southern California (see Section 4.1.1 above). With that said, the City of Imperial is committed to promoting water conservation through legislative and local policy implementation. Imperial also actively participates in regional water conservation public awareness campaigns.

The City of Imperial is in the process of implementing general water conservation measures which will soon be adopted into its Municipal Code (see Appendix E). In addition, the city's General Plan includes as Objective 4 of its Conservation Element that "[n]ew construction and development should conserve water through minimizing water usage and waste" by installing low-flow toilets, showers and faucets, as well as other water-conserving appliances (e.g., washing machines and dishwashers); using drought-tolerant native plants, xeriscaping and drip irrigation (where possible) for landscaping; and preplumbing for reclaimed water use when available.

Elimination of water waste is the only water conservation requirement for all water utility customers (see DMM #13 below). Beyond this, the City of Imperial has found that it is neither necessary nor economically feasible to implement further water conservation measures.

The following water Demand Management Measures (DMMs—see Table 12) have been evaluated for their application in the City of Imperial:

(1) Water Survey Programs for Single-Family Residential and Multifamily Residential Customers

The City of Imperial does not have the staff or capital resources to implement a water use survey for single-family residential and multifamily residential customers in the community at this time. Data generated would not have a significant impact on water use or supply in the City of Imperial and is therefore deemed uneconomical and unfeasible.

(2) Residential Plumbing Retrofit

The City of Imperial does not have the staff or capital resources to implement a residential plumbing retrofit program in the community at this time. Results would not have a significant impact on water use or supply in the City of Imperial and is therefore deemed uneconomical and unfeasible.

(3) System Water Audits, Leak Detection, and Repair

The City of Imperial has an aggressive water audit, leak detection and system repair program in place at this time. The City of Imperial's goal is to reduce system water loss to below three (3) percent.

(4) Metering with Commodity Rates for All New Connections and Retrofit of Existing Connections

*The City of Imperial meters **ALL** of its water system connections.*

(5) Large Landscape Conservation Programs and Incentives

The City of Imperial does not have a large landscape issue within its service area that would justify implementation of a landscape conservation programs and incentives program and is therefore deemed uneconomical and unfeasible.

(6) High-Efficiency Washing Machine Rebate Programs

The City of Imperial does not have a high-efficiency washing machine rebate program within its service area at this time. However, should a regional program be implemented by IID or the local electric or gas companies, the City of Imperial would support such a program.

(7) Public Information Programs

The City of Imperial does provide its customer with public information about the numerous reasons for water conservation.

(8) School Education Programs

The City of Imperial does not have a water conservation program specifically designed for its school system. However, should a regional program be implemented by IID, the City of Imperial would support such a program.

(9) Conservation Programs for Commercial, Industrial, and Institutional Accounts

The City of Imperial does not have a water conservation program specifically designed for commercial, industrial and institutional accounts. However, should a regional program be implemented by IID, the City of Imperial would support such a program.

(10) Wholesale Agency Programs

The City of Imperial does not have any wholesale water accounts.

(11) Conservation Pricing

The City of Imperial does not have conservation pricing; the amount of water such a program may save is insufficient to support a program at this time and is therefore deemed uneconomical and unfeasible.

(12) Water Conservation Coordinator

The City of Imperial does not have the staff or capital resources to hire a Water Conservation Coordinator for the community at this time. The effort would not have a significant impact on water use or supply in the City of Imperial and is therefore deemed uneconomical and unfeasible.

(13) Water Waste Prohibition

Wasting water is prohibited as a condition of receiving service from the City of Imperial. City of Imperial municipal ordinance requires all customers of the Imperial water system to not waste water delivered by the water utility, whether they live within the city or outside the city. Water waste within the city limits is prohibited even if the water was not provided by the city water utility.

(14) Residential Ultra-Low-Flush Toilet Replacement Programs

The City of Imperial does not have the staff or capital resources to implement a residential ultra-low flush toilet replacement program in the community at this time. Data generated would not have a significant impact on water use or supply in the City of Imperial and is therefore deemed uneconomical and unfeasible.

Table 13 lists the unit cost of water resulting from non-implemented or non-scheduled DMMs mentioned above:

Table 13: Cost of Non-Implemented DMMs

Non-implemented & Not Scheduled DMM	**Cost** (per AF)
Water Survey Programs for Single-Family Residential and Multi-Family Residential Connections	**$25**
Residential Plumbing Retrofit	**$50**
System Water Audits, Leak Detection and Repair	**N/A**
Metering With Commodity Rates for All New Connections and Retrofit of Existing Connections	**N/A**
Large Landscape Conservation Programs and Incentives	**$25**
High-Efficiency Washing Machine Rebate Programs	**$25**
Public Information Programs	**N/A**
School Education Programs	**$20**
Conservation Programs for Commercial, Industrial and Institutional Accounts	**$25**
Wholesale Agency Assistance Programs	**N/A**
Conservation Pricing	**$25**
Conservation Coordinator	**$50**
Water Waste Prohibition	**N/A**
Residential ULFT Replacement Programs	**$50**

7.0 Water Service Reliability Plan

Law *10631. (c) Describe the reliability of the water supply…and provide data for each of the following:*

(1) An average water year.

(2) A single dry water year.

(3) Multiple dry water years.

For any water source that may not be available at a consistent level of use, given specific legal, environmental, water quality, or climatic factors, describe plans to supplement or replace that source with alternative sources or water demand management measures, to the extent practicable.

10635. (a) Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years…

Water supply reliability is a measure of the City of Imperial's ability to provide an adequate water supply during times of shortage. Reliability focuses mostly on drought, though it must take into consideration the other potential threats to the water supply discussed in Section 4.2.

The Imperial Irrigation District (IID) provides the City of Imperial with a highly reliable water supply, regardless of climatic conditions. Combining IID's supply assurance with data from Section 5.3 on the city's total projected water demand, this chapter will lay out the city's water service reliability plan for the next 25 years.

7.1 IID Supply Assurance

As described in Section 4.1.1, IID has a present perfected right to 2.6 million acre-feet (MAF) of Colorado River water, as well as potential access through the Seven-Parties Agreement and resulting water service contracts to an additional 0.8 million acre-feet (MAF)—3.85 MAF minus estimated Priorities 1 and 2 usage (see Table 7 in Section 4.1.1). The significance of IID's present perfected right is that in times of shortage, present perfected rights must be satisfied first.

The IID is currently operating under the Quantification Settlement Agreement (QSA—see Section 4.1.1), under which it voluntarily reduces its diversion and use of Colorado River water for up to 75 years. Nevertheless, the IID retains its present perfected rights claims and considers them still legally enforceable if necessary.

Therefore, IID is confident that its present perfected and contract water rights are unlikely to be affected by the usual state and regional drought conditions. Assuming drought conditions on the Colorado River, California's 4.4 MAF water apportionment is not likely to be impacted due to the massive storage quantities in the Colorado River reservoir system and the structure of water priorities. Arizona's Central Arizona Project must reduce its water diversions by 1 MAF before any other lower basin water entitlement is affected. Additionally, IID's 2.6 MAF of present perfected water rights theoretically protect its water users unless changed by future legislative action (see Section 4.2.2).

Though the IID has not officially guaranteed the city's future water supply in writing, IID makes the following claim in its *2000 Urban Water Management Plan for Imperial Irrigation District and the Cities of Brawley, Calexico, and El Centro* (October 2001):

> *"Under a worst case water supply scenario the Imperial Irrigation District has expressed confidence that urban water users (which comprise less than two percent of its annual water deliveries) can be assured delivery of their required water supply. Due to its present perfected water rights and the relatively small water demand of non-agricultural water users, the Imperial Irrigation District would not reduce or cut back urban water deliveries even in years of reduced deliveries. Since its inception in 1911, IID has never been denied the right to divert the amount of water it has requested for agricultural purposes and other beneficial uses."* (Page 32)

There is no reason to believe that IID has backed off from this claim, and IID personnel continue to confirm this claim verbally.

What's more, IID has never requested future demand projections from the City of Imperial and has maintained that they will supply whatever their urban customers demand. Their reasoning is that urban growth in the Imperial Valley will result in a balanced decrease in agricultural land usage (see Section 3.1.6); since agriculture land usage on the whole uses far more water than residential land usage, increased urban water deliveries will necessarily mean *decreased* overall water deliveries in the Imperial Valley.

7.2 Current and Future Water Supply Reliability Scenarios

Table 14 puts together IID and the City of Imperial's current and future water supply reliability scenarios by setting out the consistent total IID water supply according to the Quantification Settlement Agreement (QSA—see Appendix D, Exhibit B) next to its assured supply of the City of Imperial's current and projected demands for the years 2005 through 2030. Since the City of Imperial, by way of the IID, is assured an adequate supply regardless of climate conditions except in the most extreme circumstances—i.e., circumstances not as yet experienced or reflected in the historical record—no base years for single and multiple dry year scenarios are utilized in these projections:

Table 14: IID and City of Imperial Current and Future Water Supply Reliability

Year	**IID** Colorado River Deliveries under QSA (AFY)	**City of Imperial** Projected Demand = IID Assured Supply (AFY)
2005	2,933,500	2,331
2006	2,909,500	2,461
2007	2,903,500	2,591
2008	2,811,800	2,721
2009	2,772,800	2,852
2010	2,733,800	2,983
2011	2,694,800	3,254
2012	2,654,800	3,256
2013	2,614,800	3,797

Year	**IID** Colorado River Deliveries under QSA (AFY)	**City of Imperial** Projected Demand = IID Assured Supply (AFY)
2014	2,589,800	4,069
2015	2,564,800	4,340
2016	2,539,800	4,608
2017	2,524,800	4,876
2018	2,717,800	5,144
2019	2,682,800	5,413
2020	2,645,300	5,681
2021	2,627,800	5,937
2022	2,625,300	6,195
2023	2,622,800	6,452
2024	2,617,800	6,709
2025	2,612,800	6,966
2026	2,607,800	7,213
2027	2,607,800	7,460
2028	2,607,800	7,706
2029	2,607,800	7,953
2030	2,607,800	8,200

8.0 Water Shortage Contingency Plan

Law *10632. The plan shall provide an urban water shortage contingency analysis that includes each of the following elements that are within the authority of the urban water supplier…*

(f) *A draft water shortage contingency resolution or ordinance.*

The City of Imperial is assured by the Imperial Irrigation District (IID) a full water supply in all but the most extreme scenarios. As such, the city has not felt it necessary to write and enact by ordinance a Water Shortage Contingency Plan until required to do so under the Urban Water Management Planning Act.

The city has now prepared a draft Water Shortage Contingency Plan which will soon be contained in its revised Municipal Code (City of Imperial Municipal Code Chapter 32, Article III, entitled "Conservation Plan"—see Appendix E). The plan outlines three phases of action triggered by shortages of 15, 25 and 50 percent of the city's water supply. This chapter outlines this plan and its integration with the IID's Urban Water Supply Shortage Plan.

8.1 IID Urban Water Supply Shortage Plan

As explained in Section 7.1, IID has never been denied the right to divert the amount of water it has requested for agricultural irrigation and other beneficial uses. Therefore, it is highly unlikely that the urban water supply provided to the City of Imperial by IID would ever be reduced, even under shortage or drought conditions on the Colorado River, in the next 25 years. Urban water use in the IID service area makes up less than two percent of the total water delivered by IID. Under a worst-case water supply scenario, IID is confident it can meet the demands of urban water users.

The entire Southern California region, both urban and agricultural, would be in a severe drought emergency before the City of Imperial's water supply is threatened. The IID and San Diego County Water Authority (SDCWA) water transfer agreement states that both agencies will share, on a pro-rata basis, any reductions in water to IID should a shortage declaration by the Secretary of the Interior for the Lower Colorado River Basin affect the IID's water conservation and transfer programs. When the amount of water in usable storage in Lake Mead is less than 15 million acre-feet and the unregulated inflow into Lake Powell is forecast to be less than 8.8 million acre-feet, IID and SDCWA have agreed to meet and confer to discuss a supplemental water transfer agreement in anticipation of the shortage.

The IID outlined a multi-stage Urban Water Supply Shortage Plan in an addendum to its *2000 Urban Water Management Plan* dated May 2002. In the plan, a Stage 1 urban water supply shortage has cut back conditions of less than 15 percent, Stage 2 has cut back conditions of 15 percent to less than 25 percent, and Stage 3 has cut back conditions of 25 percent to less than 35 percent. The percentages of urban water supply shortage stages would be calculated from the smaller percentage of total urban water.

During a water shortage the expense of reduced urban water sales would be offset by raising the water rate $0.14 for a 15 percent reduction, $0.24 for a 25 percent reduction and $0.34 for a 35 percent reduction. Measures to overcome revenue and expenditure impacts would include raising the current rate or changing the rate structure.

IID makes clear that the mechanisms used to determine actual individual urban customer reductions will remain beyond IID's jurisdiction. Any urban customer mechanism to determine actual water use reductions will remain the responsibility of individual urban water suppliers.

8.2 Stages of Action

Law *10632. (a) Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply, and an outline of specific water supply conditions which are applicable to each stage.*

The City of Imperial follows a three-phase water shortage plan that is keyed to water supply reductions from IID:

- A **Phase I** water shortage is announced if the City Engineer declares a drought and/or IID reduces its water supply to the city by less than fifteen (15) percent;
- A **Phase II** water shortage is announced if IID reduces its water supply to the city by fifteen (15) percent to less than twenty-five (25) percent; and
- A **Phase III** water shortage is announced if IID reduces its water supply to the city by fifteen (25) percent to less than fifty (50) percent.

8.3 Three-Year Minimum Water Supply

Law *10632. (b) An estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency's water supply.*

Table 15 gives the minimum water supply available to the City of Imperial from this year out during normal, one-year and three-year drought scenarios:

Table 15: Three-Year Estimated Minimum Water Supply

Water Supply Source (AFY)	**Normal** (2005)	**Year 1** (2006)	**Year 2** (2007)	**Year 3** (2008)
Imperial Irrigation District	2,331	2,461	2,591	2,721
Total	2,331	2,461	2,591	2,721

8.4 Preparation for Catastrophic Water Supply Interruption

Law *10632. (c) Actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster.*

The City of Imperial water system receives all of its water supply from IID's All-American Canal, which crosses the San Andreas Fault. Many other fault lines bisect major water facilities throughout the Imperial Valley region. Experts consider it unlikely that the supplies will be disrupted in the event of a major earthquake. Such an event, however, could reduce annual deliveries by up to 100 percent for IID-supplied water.

The Urban Water Management Planning Act requires agencies to consider the effect of a 50 percent cutback in water supplies. This falls within the degree of cutback contemplated by IID's most extreme earthquake disruption scenario.

In the event of a partial or total failure of the City of Imperial water system, the City of Imperial would activate the emergency connection(s) which it is contemplating with the City of El Centro.

- **City of El Centro Interconnection** 9,000,000 gallons per day 50%

Further, the City of Imperial has adopted a federal emergency response procedures called the National Incident Management System (NIMS) which can be implemented by the City of Imperial personnel for a localized event such as an accident at one of City of Imperial's facilities or on a broader based regional event such as an earthquake or flood. This system provides a consistent nationwide template to enable federal, state and local governments (and local private sector and non-governmental organizations) to work together effectively and efficiently to prepare for, prevent, respond to and recover from domestic incidents, regardless of cause, size or complexity, including acts of terrorism. The NIMS procedures are expected to be fully implemented by June 2006.

Complementary to NIMS, City of Imperial has completed Mutual Aid Agreements between itself and its adjacent cities and agencies.

8.4.1 IID Emergency Preparedness Plan

Emergency actions and procedures to be taken by IID's Water Department and staff during an emergency or time of disaster are described in the *Emergency Preparedness Plan*. The *Emergency Preparedness Plan* includes required staff actions and procedures to respond to events that impair water operation of canals, laterals, drains, dams and other facilities.

Established actions and procedures exist for extreme events and emergencies that endanger operation of the water system. Possible emergencies/extreme events that endanger operation of the water system could include earthquakes, storms, rain, runoff from desert washes, flooding, facility or structure damage, power outages, fire vehicles in canals, equipment theft/vandalism or other disasters.

IID's water delivery and drainage systems do not totally shut down during an emergency. For the cities in the IID service area there is a ten-day storage holding capacity requirement. The Imperial County Office of Emergency Service requires this storage holding capacity for cities.

8.5 Prohibitions, Penalties and Consumption Reduction Methods

Law *10632. (d) Additional, mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning.*

(e) *Consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply.*

(f) *Penalties or charges for excessive use, where applicable.*

During each phase of a city-wide water shortage, the City of Imperial institutes certain mandatory prohibitions against particular water use practices. These prohibitions are sector-specific and at times detail watering schedules and percentage restrictions on a sector-by-sector basis.

Table 16 lists the mandatory water use prohibitions for each water shortage phase and the percentage of projected reduction in water usage per prohibition:

Table 16: Mandatory Prohibitions

Examples of Prohibitions	Stage When Prohibition Becomes Mandatory	Projected Reduction (%)
Restrict excess runoff – general	Phase I	0
Restrict excess runoff – irrigation	Phase I	0
Restrict lawn/landscape irrigation – 6pm-8am	Phase I	0
Restrict commercial agriculture/nursery – 6pm-11am	Phase I	0
No pavement washdown	Phase I	2
No restaurant water service, except by request	Phase I	1
Water meter tampering protection	Phase I	0
Fire hydrant usage protection	Phase I	0
Required conservation plan and irrigation schedule – major irrigators	Phase I	3
Restrict vehicle washing (reclaimed water exemption)	Phase I	2
No aesthetic water usage	Phase I	5
Post notice of water shortage in hotels/motels	Phase I	2
90% limited overall use (single-family limited exemption)	Phase II	10
Restrict pool use	Phase II	1
Restrict lawn/landscape irrigation – every third day, 6pm-6am (reclaimed water exemption)	Phase II	5
Restrict commercial agriculture/nursery, major irrigators – every other day, 6pm-10am (reclaimed water exemption)	Phase II	1
80% limited overall use (single-family limited exemption)	Phase III	20
No lawn/landscape irrigation	Phase III	20
Restrict commercial agriculture/nursery, major irrigators – every third day, 6pm-10am (reclaimed water exemption)	Phase III	2

The City of Imperial has determined the following penalties, fines, restrictions and criminal charges for excessive water use during each of the water shortage phases, depending on number of notices and extent of violation. These actions are listed in Table 17:

Table 17: Penalties and Charges for Excessive Use

Penalties or Charges	Stage When Penalty Takes Effect
$50 Administrative Fine	All Stages; First Violation
$100 Administrative Fine	All Stages; Second Violation
$200 Administrative Fine	All Stages; Third Violation
Flow Restriction Device Installation	All Stages; Third Violation
Misdemeanor Charge	All Stages; Third Violation
Termination of Water Service (Restoration Charge $100)	All Stages; Fourth Violation
Surcharge equal to 25% use exceedance	All Stages; Each Violation

8.6 Revenue and Expenditure Impacts

Law *10632. (g) An analysis of the impacts of each of the actions and conditions described in subdivisions (a) to (f), inclusive, on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments.*

The City of Imperial is developing a water sales contingency reserve fund to balance the budget during abnormally low water use years. To estimate the impact of each stage on revenues, current commodity rates and charges are applied to the water use levels. These revenue reductions are combined with estimated increased expenses resulting from managing the supply shortfall to derive the net revenue shortfalls. An estimated revenue shortfall, without a water sales contingency fund, must be developed for each stage with and without additional purchased water costs.

To simplify the analysis, only the City of Imperial's revenue most sensitive to variation in annual water use and expenses will be significantly altered by the managing of a water shortage. The net change from the "normal" water supply condition is identified for the revenue and expense items and represents the estimated funding requirement.

Presently, the City of Imperial's water sales contingency fund has not yet been initiated. The balance will be maintained to equal ten (10) percent of the water sales revenue projected for the ensuing fiscal year. The present fund balance is projected to be sufficient to match the estimated revenue shortfall for a Phase I water supply shortage. Additional funding for prolonged Phase II or III shortfalls is expected to come from other sources, including a temporary rate increase and/or excess use charges.

8.7 Use Monitoring Procedure

Law *10632. (i) A mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.*

Demands must be monitored frequently during emergency water shortages to enable the City of Imperial to effectively manage the balance between supply and demand. This section presents suggested the City of Imperial practices to adequately monitor the drought status finances:

- **Normal Monitoring Procedure**

  In normal water supply conditions, production figures are recorded daily. Totals are reported monthly to the Administrative Services and Public Works Departments.

- **Phase I and II Water Shortages**

  During a Phase I or II water shortage, weekly production figures are forwarded to the Administrative Services and Public Works Department. This department compares the weekly production to the target weekly production to verify that the reduction goal is being met. Monthly reports are sent to the City Council. If reduction goals are not met, the Public Works Director will notify the City Council so that corrective action can be taken.

- **Phase III Water Shortage**

  During a Phase III water shortage, the procedure listed above will be followed, with the addition of a daily production report to the Public Work Director. Additionally, regular patrols will be sent out to directly monitor residential water usage and, if necessary, enforce conservation measures.

9.0 Recycled Water Plan

Law *10633. The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. The preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area, and shall include all of the following:*

(a) A description of the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.

(b) A description of the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use.

(c) A description and quantification of the potential uses of recycled water…

The City of Imperial does not recycle its wastewater, and currently there are no plans for the city to do so in the future. The city's Water Pollution Control Plant treats the community's wastewater to high effluent standards before discharging into the Dolson Drain and eventually to the Salton Sea.

9.1 Wastewater Resources

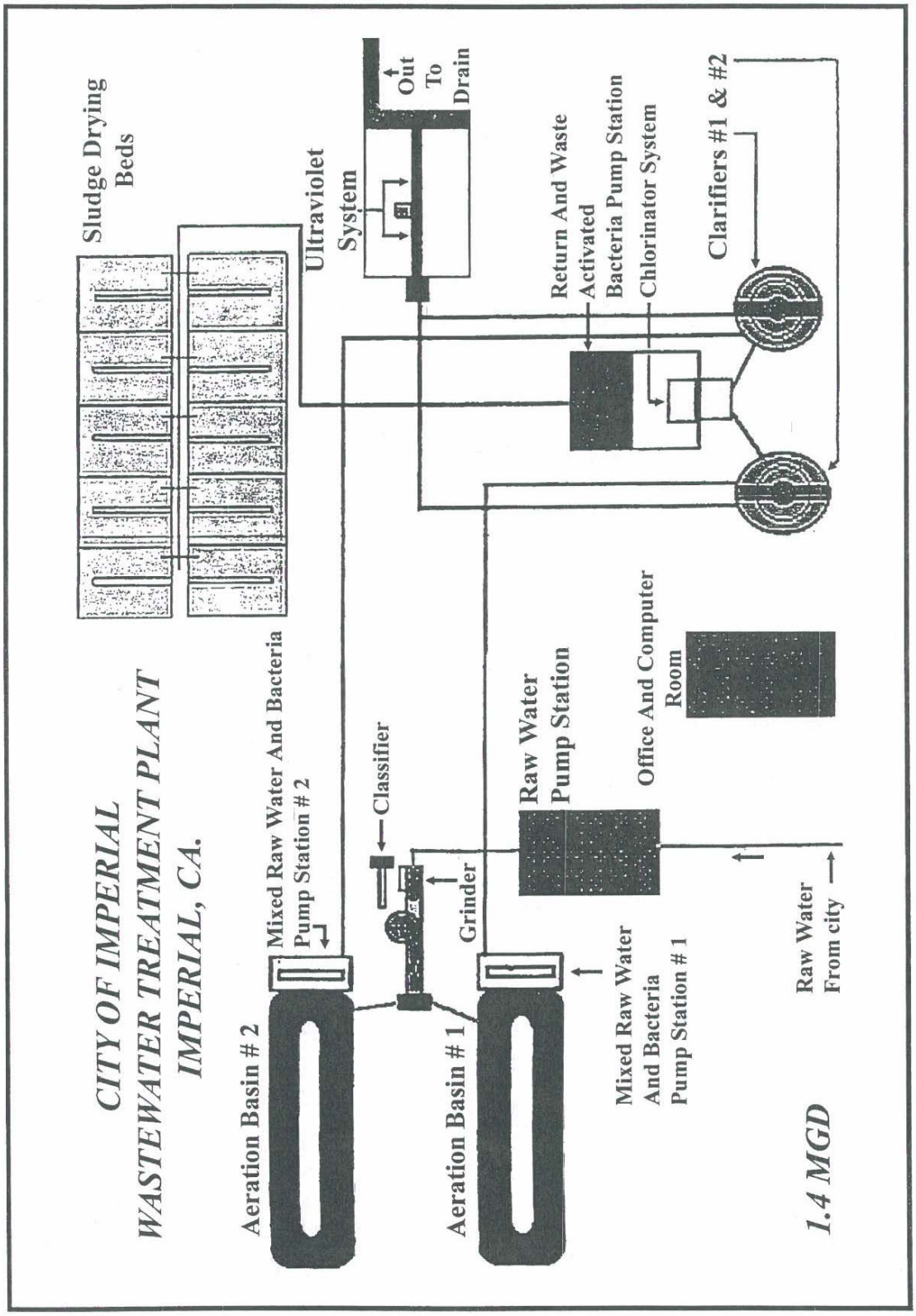
The City of Imperial's wastewater collection and treatment system is operated by the city's Public Works Department. Currently, the district collects an average daily flow of 650,000 gallons per day (mgd) of wastewater from the City of Imperial's water service area.

The City of Imperial Water Pollution Control Plant (WPCA), located at 701 East 14th Street, has a total design capacity of 1.4 mgd. The plant treats the wastewater with a secondary extended aeration and tertiary Ultra Violet (UV) disinfection process (chlorine is used for further disinfection when needed). Dry beds are used for dewatering and sludge handling. See Figure 10 for a graphic illustration of the WPCA.

The WPCA discharges the city's treated wastewater into the Dolson Drain, a water of the United States, which then flows through the Lilac Drain, Rose Drain and Alamo River to the Salton Sea. The discharge is regulated under Section 402 of the Federal Clean Water Act (CWA) and covered by a National Pollution Discharge Elimination System (NPDES) Permit No. CA0104400 for point source discharges issued as Order No. R7-2005-0084 by the California Regional Water Quality Control Board, Colorado River Basin Region.

The annual average concentration of total dissolved solids (TDS) in the discharge of the city's treated wastewater is limited to 4,000 milligrams per liter (mg/L). This is in keeping with the state's EPA-approved 303(d) list of impaired water bodies, which finds the Imperial Valley Drains impaired for sediment/silt, pesticides and selenium. A sedimentation/siltation total daily maximum load (TMDL) for the Alamo River to which Dolson Drain flows was approved by the EPA in June 2002. The Imperial Water Pollution Control Plant's discharge is regulated by its NPDES permit to fall within this TMDL. Additionally, the plant is required to test for two freshwater species—the fathead minnow and the water flea—to monitor chronic and acute toxicity in its outflow into the Dolson Drain.

Table 18 contains estimated current and projected quantities of wastewater collected and treated within the City of Imperial water service area:



Source: City of Imperial General Plan, 1993.

Figure 10: City of Imperial Water Pollution Control Plant

Table 18: Wastewater Collection and Treatment

Type of Wastewater	2001	2005	2010	2015	2020	2025	2030
Wastewater collected & treated in service area	695	918	1,085	1,578	2,066	2,533	2,982
Volume that meets recycled water standard	695	918	1,085	1,578	2,066	2,533	2,982

9.2 Future Recycled Water Uses

Providing treated wastewater for reuse in the City of Imperial simply is not feasible. The costs associated with upgrading treatment systems to produce high-quality effluent and installing pipelines to distribute it locally would be prohibitive compared to the inexpensive water supply available from the Imperial Irrigation District.

Additionally, the city's effluent outflow serves to help maintain the Salton Sea ecosystem; a wastewater recycling system would reduce the city's outflow and potentially cause environmental harm.

For these reasons, the City of Imperial does not plan to generate or use recycled water within the next 25 years.

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Integrated Resource Management, LLC

Address:	405 North Indian Hill Boulevard Claremont, California 91711-4600
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Vincent M. Frankini	Field Support
Phone:	(909) 621-1266 ext. 209
Email:	vfrankini@irmwater.com

Consulting and Coordinating Agencies

Imperial Irrigation District

Address:	333 East Barioni Boulevard Post Office Box 937 Imperial, California 92251
URL:	http://www.iid.com
Vickie Doyle	Resource Planning and Management Section
Phone:	(760) 339-9446
Facsimile:	(760) 339-9009
Email:	VDoyle@IID.com
Mike King	Manager, Water Department
Phone:	(760) 339-9380

City of El Centro

Address:	3010 South 8th Street 1275 Main Street El Centro, California 92243
Phone:	(760) 337-4575
Facsimile:	(760) 337-4576
URL:	http://www.cityofelcentro.org
Paul Steward	Water Plant Supervisor
Hector Munoz	Water Plant Chief Operator

City of Brawley

Address:	400 Main Street Brawley, California 92227
Phone:	(760) 344-5800
URL:	http://www.cityofbrawley.com
Yazmin Arellano	Public Works Director
Phone:	(760) 344-5800 ext. 19
Facsimile:	(760) 344-5612
Ruben Mireles	Water Plant
Phone:	(760) 344-5800 ext. 11
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Email:	ruben.mireles@cityofbrawley.com

City of Calexico

Address:	545 Pierce Avenue Calexico, California 92231
Phone:	(760) 768-2162
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Victor Rodriguez	Water Department Supervisor
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Jose Saldana	Water Treatment Plant

Imperial County

Address:	940 Main Street El Centro, California 92243
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Tim Jones	Director, Department of Public Works
Phone:	(760) 482-4462
Jim Minnick	Planner IV, Planning/Building Department
Phone:	(760) 482-4278
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Community Organizations and Resources

Imperial Chamber of Commerce

Address:	101 East 4th Street Imperial, California 92251
Phone:	(760) 355-1609
URL:	http://www.imperialchamber.org

Salton Sea Authority

Ron Enzweiler	Executive Director
Address:	78-401 Highway 111, Suite T La Quinta, California 92253
Phone:	(760) 564-4888
Facsimile:	(760) 564-5288
Email:	info@saltonsea.ca.gov
URL:	http://www.saltonsea.ca.gov

Sonny Bono Salton Sea National Wildlife Refuge

Jake Vasquez	
Address:	906 West Sinclair Road Post Office Box 120 Calipatria, California 92233-0120
Phone:	(760) 348-5278
URL:	http://pacific.fws.gov/salton

Appendix A

Urban Water Management Planning Act

Established: AB 797, Klehs, 1983
Amended: AB 2661, Klehs, 1990
AB 11X, Filante, 1991
AB 1869, Speier, 1991
AB 892, Frazee, 1993
SB 1017, McCorquodale, 1994
AB 2853, Cortese, 1994
AB 1845, Cortese, 1995
SB 1011, Polanco, 1995
AB 2552, Bates, 2000
SB 553, Kelley, 2000
SB 610, Costa, 2001
AB 901, Daucher, 2001
SB 672, Machado, 2001
SB 1348, Brulte, 2002
SB 1384 Costa, 2002
SB 1518 Torlakson, 2002
AB 105, Wiggins, 2003
SB 318, Alpert, 2004

CALIFORNIA WATER CODE DIVISION 6
PART 2.6. URBAN WATER MANAGEMENT PLANNING
CHAPTER 1. GENERAL DECLARATION AND POLICY

10610. This part shall be known and may be cited as the "Urban Water Management Planning Act."

10610.2. (a) The Legislature finds and declares all of the following:

(1) The waters of the state are a limited and renewable resource subject to ever-increasing demands.

(2) The conservation and efficient use of urban water supplies are of statewide concern; however, the planning for that use and the implementation of those plans can best be accomplished at the local level.

(3) A long-term, reliable supply of water is essential to protect the productivity of California's businesses and economic climate.

(4) As part of its long-range planning activities, every urban water supplier should make every effort to ensure the appropriate level of reliability in its water service sufficient to meet the needs of its various categories of customers during normal, dry, and multiple dry water years.

(5) Public health issues have been raised over a number of contaminants that have been identified in certain local and imported water supplies.

(6) Implementing effective water management strategies, including groundwater storage projects and recycled water projects, may require specific water quality and salinity targets for meeting groundwater basins water quality objectives and promoting beneficial use of recycled water.

(7) Water quality regulations are becoming an increasingly important factor in water agencies' selection of raw water sources, treatment alternatives, and modifications to existing treatment facilities.

(8) Changes in drinking water quality standards may also impact the usefulness of water supplies and may ultimately impact supply reliability.

(9) The quality of source supplies can have a significant impact on water management strategies and supply reliability.

(b) This part is intended to provide assistance to water agencies in carrying out their long-term resource planning responsibilities to ensure adequate water supplies to meet existing and future demands for water.

10610.4. The Legislature finds and declares that it is the policy of the state as follows:

(a) The management of urban water demands and efficient use of water shall be actively pursued to protect both the people of the state and their water resources.

(b) The management of urban water demands and efficient use of urban water supplies shall be a guiding criterion in public decisions.

(c) Urban water suppliers shall be required to develop water management plans to actively pursue the efficient use of available supplies.

CHAPTER 2. DEFINITIONS

10611. Unless the context otherwise requires, the definitions of this chapter govern the construction of this part.

10611.5. "Demand management" means those water conservation measures, programs, and incentives that prevent the waste of water and promote the reasonable and efficient use and reuse of available supplies.

10612. "Customer" means a purchaser of water from a water supplier who uses the water for municipal purposes, including residential, commercial, governmental, and industrial uses.

10613. "Efficient use" means those management measures that result in the most effective use of water so as to prevent its waste or unreasonable use or unreasonable method of use.

10614. "Person" means any individual, firm, association, organization, partnership, business, trust, corporation, company, public agency, or any agency of such an entity.

10615. "Plan" means an urban water management plan prepared pursuant to this part. A plan shall describe and evaluate sources of supply, reasonable and practical efficient uses, reclamation and demand management activities. The components of the plan may vary according to an individual community or area's characteristics and its capabilities to efficiently use and conserve water. The plan shall address measures for residential, commercial, governmental, and industrial water demand management as set forth in Article 2 (commencing with Section 10630) of Chapter 3. In addition, a strategy and time schedule for implementation shall be included in the plan.

10616. "Public agency" means any board, commission, county, city and county, city, regional agency, district, or other public entity.

10616.5. "Recycled water" means the reclamation and reuse of wastewater for beneficial use.

10617. "Urban water supplier" means a supplier, either publicly or privately owned, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually. An urban water supplier includes a supplier or contractor for water, regardless of the basis of right, which distributes or sells for ultimate resale to customers. This part applies only to water supplied from public water systems subject to Chapter 4 (commencing with Section 116275) of Part 12 of Division 104 of the Health and Safety Code.

CHAPTER 3. URBAN WATER MANAGEMENT PLANS

Article 1. General Provisions

10620. (a) Every urban water supplier shall prepare and adopt an urban water management plan in the manner set forth in Article 3 (commencing with Section 10640).

(b) Every person that becomes an urban water supplier shall adopt an urban water management plan within one year after it has become an urban water supplier.

(c) An urban water supplier indirectly providing water shall not include planning elements in its water management plan as provided in Article 2 (commencing with Section 10630) that would be applicable to urban water suppliers or public agencies directly providing water, or to their customers, without the consent of those suppliers or public agencies.

(d) (1) An urban water supplier may satisfy the requirements of this part by participation in area wide, regional, watershed, or basin wide urban water management planning where those plans will reduce preparation costs and contribute to the achievement of conservation and efficient water use.

(2) Each urban water supplier shall coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.

(e) The urban water supplier may prepare the plan with its own staff, by contract, or in cooperation with other governmental agencies.

(f) An urban water supplier shall describe in the plan water management tools and options used by that entity that will maximize resources and minimize the need to import water from other regions.

10621. (a) Each urban water supplier shall update its plan at least once every five years on or before December 31, in years ending in five and zero.

(b) Every urban water supplier required to prepare a plan pursuant to this part shall notify any city or county within which the supplier provides water supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. The urban water supplier may consult with, and obtain comments from, any city or county that receives notice pursuant to this subdivision.

(c) The amendments to, or changes in, the plan shall be adopted and filed in the manner set forth in Article 3 (commencing with Section 10640).

Article 2. Contents of Plans

10630. It is the intention of the Legislature, in enacting this part, to permit levels of water management planning commensurate with the numbers of customers served and the volume of water supplied.

10631. A plan shall be adopted in accordance with this chapter and shall do all of the following:

(a) Describe the service area of the supplier, including current and projected population, climate, and other demographic factors affecting the supplier's water management planning. The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier and shall be in five-year increments to 20 years or as far as data is available.

(b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision (a). If groundwater is identified as an existing or planned source of water available to the supplier, all of the following information shall be included in the plan:

(1) A copy of any groundwater management plan adopted by the urban water supplier, including plans adopted pursuant to Part 2.75 (commencing with Section 10750), or any other specific authorization for groundwater management.

(2) A description of any groundwater basin or basins from which the urban water supplier pumps groundwater. For those basins for which a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree. For basins that have not been adjudicated, information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition.

(3) A detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(4) A detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the urban water supplier. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(c) Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable, and provide data for each of the following:

(1) An average water year.

(2) A single dry water year.

(3) Multiple dry water years.

For any water source that may not be available at a consistent level of use, given specific legal, environmental, water quality, or climatic factors, describe plans to supplement or replace that source with alternative sources or water demand management measures, to the extent practicable.

(d) Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.

(e) (1) Quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, identifying the uses among water use sectors including, but not necessarily limited to, all of the following uses:

(A) Single-family residential.
(B) Multifamily.
(C) Commercial.
(D) Industrial.
(E) Institutional and governmental.
(G) Sales to other agencies.
(H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof.
(I) Agricultural.

(2) The water use projections shall be in the same five-year increments described in subdivision (a).

(f) Provide a description of the supplier's water demand management measures. This description shall include all of the following:

(1) A description of each water demand management measure that is currently being implemented, or scheduled for implementation, including the steps necessary to implement any proposed measures, including, but not limited to, all of the following:

(A) Water survey programs for single-family residential and multifamily residential customers.
(B) Residential plumbing retrofit.
(C) System water audits, leak detection, and repair.
(D) Metering with commodity rates for all new connections and retrofit of existing connections.
(E) Large landscape conservation programs and incentives.
(F) High-efficiency washing machine rebate programs.
(G) Public information programs.
(H) School education programs.
(I) Conservation programs for commercial, industrial, and institutional accounts.
(J) Wholesale agency programs.
(K) Conservation pricing.
(L) Water conservation coordinator.

(M) Water waste prohibition.
(N) Residential ultra-low-flush toilet replacement programs.

(2) A schedule of implementation for all water demand management measures proposed or described in the plan.

(3) A description of the methods, if any, that the supplier will use to evaluate the effectiveness of water demand management measures implemented or described under the plan.

(4) An estimate, if available, of existing conservation savings on water use within the supplier's service area, and the effect of the savings on the supplier's ability to further reduce demand.

(g) An evaluation of each water demand management measure listed in paragraph (1) of subdivision (f) that is not currently being implemented or scheduled for implementation. In the course of the evaluation, first consideration shall be given to water demand management measures, or combination of measures, that offer lower incremental costs than expanded or additional water supplies. This evaluation shall do all of the following:

(1) Take into account economic and non-economic factors, including environmental, social, health, customer impact, and technological factors.

(2) Include a cost-benefit analysis, identifying total benefits and total costs.

(3) Include a description of funding available to implement any planned water supply project that would provide water at a higher unit cost.

(4) Include a description of the water supplier's legal authority to implement the measure and efforts to work with other relevant agencies to ensure the implementation of the measure and to share the cost of implementation.

(h) Include a description of all water supply projects and water supply programs that may be undertaken by the urban water supplier to meet the total projected water use as established pursuant to subdivision (a) of Section 10635. The urban water supplier shall include a detailed description of expected future projects and programs, other than the demand management programs identified pursuant to paragraph (1) of subdivision (f), that the urban water supplier may implement to increase the amount of the water supply available to the urban water supplier in average, single-dry, and multiple-dry water years. The description shall identify specific projects and include a description of the increase in water supply that is expected to be available from each project. The description shall include an estimate with regard to the implementation timeline for each project or program.

(i) Describe the opportunities for development of desalinated water, including, but not limited to, ocean water, brackish water, and groundwater, as a long-term supply.

(j) Urban water suppliers that are members of the California Urban Water Conservation Council and submit annual reports to that council in accordance with the "Memorandum of Understanding Regarding Urban Water Conservation in California," dated September 1991, may submit the annual reports identifying water demand management measures currently being implemented, or scheduled for implementation, to satisfy the requirements of subdivisions (f) and (g).

(k) Urban water suppliers that rely upon a wholesale agency for a source of water , shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water -year types in accordance with subdivision (c). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (c).

10631.5. The department shall take into consideration whether the urban water supplier is implementing or scheduled for implementation, the water demand management activities that the urban water supplier identified in its urban water management plan, pursuant to Section 10631, in evaluating applications for grants and loans made available pursuant to Section 79163. The urban water supplier may submit to the department copies of its annual reports and other relevant documents to assist the department in determining whether the urban water supplier is implementing or scheduling the implementation of water demand management activities.

10632. The plan shall provide an urban water shortage contingency analysis that includes each of the following elements that are within the authority of the urban water supplier:

(a) Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply, and an outline of specific water supply conditions which are applicable to each stage.

(b) An estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency's water supply.

(c) Actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster.

(d) Additional, mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning.

(e) Consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply.

(f) Penalties or charges for excessive use, where applicable.

(g) An analysis of the impacts of each of the actions and conditions described in subdivisions (a) to (f), inclusive, on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments.

(h) A draft water shortage contingency resolution or ordinance.

(i) A mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.

10633. The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. The preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area, and shall include all of the following:

(a) A description of the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.

(b) A description of the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use.

(c) A description and quantification of the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.

(d) The projected use of recycled water within the supplier’s service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected pursuant to this subdivision.

(e) A description of actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year.

(f) A plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.

10634. The plan shall include information, to the extent practicable, relating to the quality of existing sources of water available to the supplier over the same five-year increments as described in subdivision (a) of Section 10631, and the manner in which water quality affects water management strategies and supply reliability.

Article 2.5 Water Service Reliability

10635. (a) Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.

(b) The urban water supplier shall provide that portion of its urban water management plan prepared pursuant to this article to any city or county within which it provides water supplies no later than 60 days after the submission of its urban water management plan.

(c) Nothing in this article is intended to create a right or entitlement to water service or any specific level of water service.

(d) Nothing in this article is intended to change existing law concerning an urban water supplier's obligation to provide water service to its existing customers or to any potential future customers.

Article 3. Adoption and Implementation of Plans

10640. Every urban water supplier required to prepare a plan pursuant to this part shall prepare its plan pursuant to Article 2 (commencing with Section 10630). The supplier shall likewise periodically review the plan as required by Section 10621, and any amendments or changes required as a result of that review shall be adopted pursuant to this article.

10641. An urban water supplier required to prepare a plan may consult with, and obtain comments from, any public agency or state agency or any person who has special expertise with respect to water demand management methods and techniques.

10642. Each urban water supplier shall encourage the active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan. Prior to adopting a plan, the urban water supplier shall make the plan available for public inspection and shall hold a public hearing thereon. Prior to the hearing, notice of the time and place of hearing shall be published within the jurisdiction of the publicly owned water supplier pursuant to Section 6066 of the Government Code. The urban water supplier shall provide notice of the time and place of hearing to any city or county within which the supplier provides water supplies. A privately owned water supplier shall provide an equivalent notice within its service area. After the hearing, the plan shall be adopted as prepared or as modified after the hearing.

10643. An urban water supplier shall implement its plan adopted pursuant to this chapter in accordance with the schedule set forth in its plan.

10644. (a) An urban water supplier shall submit to the department, the California State Library, and any city or county within which the supplier provides water supplies a copy of its plan no later than 30 days after adoption. Copies of amendments or changes to the plans shall be submitted to the department, the California State Library, and any city or county within which the supplier provides water supplies within 30 days after adoption.

(b) The department shall prepare and submit to the Legislature, on or before December 31, in the years ending in six and one, a report summarizing the status of the plans adopted pursuant to this part. The report prepared by the department shall identify the outstanding elements of the individual plans. The department shall provide a copy of the report to each urban water supplier that has filed its plan with the department. The department shall also prepare reports and provide data for any legislative hearings designed to consider the effectiveness of plans submitted pursuant to this part.

10645. Not later than 30 days after filing a copy of its plan with the department, the urban water supplier and the department shall make the plan available for public review during normal business hours.

CHAPTER 4. MISCELLANEOUS PROVISIONS

10650. Any actions or proceedings to attack, review, set aside, void, or annul the acts or decisions of an urban water supplier on the grounds of noncompliance with this part shall be commenced as follows:

(a) An action or proceeding alleging failure to adopt a plan shall be commenced within 18 months after that adoption is required by this part.

(b) Any action or proceeding alleging that a plan, or action taken pursuant to the plan, does not comply with this part shall be commenced within 90 days after filing of the plan or amendment thereto pursuant to Section 10644 or the taking of that action.

10651. In any action or proceeding to attack, review, set aside, void, or annul a plan, or an action taken pursuant to the plan by an urban water supplier on the grounds of noncompliance with this part, the inquiry shall extend only to whether there was a prejudicial abuse of discretion. Abuse of discretion is established if the supplier has not proceeded in a manner required by law or if the action by the water supplier is not supported by substantial evidence.

10652. The California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code) does not apply to the preparation and adoption of plans pursuant to this part or to the implementation of actions taken pursuant to Section 10632. Nothing in this part shall be interpreted as exempting from the California Environmental Quality Act any project that would significantly affect water supplies for fish and wildlife, or any project for implementation of the plan, other than projects implementing Section 10632, or any project for expanded or additional water supplies.

10653. The adoption of a plan shall satisfy any requirements of state law, regulation, or order, including those of the State Water Resources Control Board and the Public Utilities Commission, for the preparation of water management plans or conservation plans; provided, that if the State Water Resources Control Board or the Public Utilities Commission requires additional information concerning water conservation to implement its existing authority, nothing in this part shall be deemed to limit the board or the commission in obtaining that information. The requirements of this part shall be satisfied by any urban water demand management plan prepared to meet federal laws or regulations after the effective date of this part, and which substantially meets the requirements of this part, or by any existing urban water management plan which includes the contents of a plan required under this part.

10654. An urban water supplier may recover in its rates the costs incurred in preparing its plan and implementing the reasonable water conservation measures included in the plan. Any best water management practice that is included in the plan that is identified in the "Memorandum of Understanding Regarding Urban Water Conservation in California" is deemed to be reasonable for the purposes of this section.

10655. If any provision of this part or the application thereof to any person or circumstances is held invalid, that invalidity shall not affect other provisions or applications of this part which can be given effect without the invalid provision or application thereof, and to this end the provisions of this part are severable.

10656. An urban water supplier that does not prepare, adopt, and submit its urban water management plan to the department in accordance with this part, is ineligible to receive funding pursuant to Division 24 (commencing with Section 78500) or Division 26 (commencing with Section 79000), or receive drought assistance from the state until the urban water management plan is submitted pursuant to this article.

10657. (a) The department shall take into consideration whether the urban water supplier has submitted an updated urban water management plan that is consistent with Section 10631, as amended by the act that adds this section, in determining whether the urban water supplier is eligible for funds made available pursuant to any program administered by the department.

(b) This section shall remain in effect only until January 1, 2006, and as of that date is repealed, unless a later enacted statute, that is enacted before January 1, 2006, deletes or extends that date.

Source: *Guidebook to Assist Water Suppliers in the Preparation of a 2005 Urban Water Management Plan*, California Department of Water Resources, January 18, 2005.

Appendix B

Resolution to Adopt the Urban Water Management Plan

RESOLUTION NO. 2005-70

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF IMPERIAL TO ADOPT THE URBAN WATER MANAGEMENT PLAN

The City Council of the City of Imperial does hereby resolve as follows:

WHEREAS, the California Legislature enacted Assembly Bill 797 (Water Code Section 10610, et seq., known as the Urban Water Management Planning Act) during the 1983-1984 Regular Session, and as amended subsequently, which mandates that every supplier providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually, prepare an Urban Water Management Place, the primary objective of which is to plan for the conservation and efficient use of water; and

WHEREAS, the city is an urban supplier of water with a history of providing over 3,000 acre-feet of water annually; and

WHEREAS, the Plan shall be periodically reviewed at least once every five years, and that the City shall make any amendments or changes to its place which are indicated by the review; and

WHEREAS, the City has therefore prepared and circulated for public review a draft Urban Water Management Plan and a properly noticed public hearing regarding said Plan was held by the City Council on December 21, 2005.

NOW THEREFORE, BE IT RESOLVED, by the City Council of the City of Imperial as follows:

The 2005 Urban Water Management Plan is hereby adopted and ordered filed with the City Clerk; the City Public Services Director is hereby authorized and directed to file the 2005 Urban Water Management Plan with the California Department of Water Resources within 30 days after this date;

The City Public Services Director is hereby authorized and directed to implement the Water Conservation Programs as set forth in the 2005 Urban Water Management Plan, which includes water shortage contingency analysis and recommendations to the City Council regarding necessary procedures, rules and regulations to carry out effective and equitable water conservation programs;

In a water shortage, the City Manager is hereby authorized to declare a Water Shortage Emergency according to the Water Shortage Stages and Triggers indicated in the Plan, and implement necessary elements of the Plan;

In a water shortage, the City Public Services Director shall recommend to the City Council additional regulations to carry out effective and equitable allocation of water resources.

ADOPTED this 21st day of December, 2005 by the following vote:

AYES: DALE, GRAN, MAZEROLL, SAMPSON, AND COX

NOES: NONE

ABSENT: NONE

Mayor
City of Imperial

ATTEST:

City Clerk

STATE OF CALIFORNIA)
COUNTY OF IMPERIAL)ss
CITY OF IMPERIAL)

I, the undersigned, City Clerk of the City of Imperial, DO HEREBY CERTIFY that the foregoing Resolution No. 2005-70 was duly and regularly adopted at a regular meeting of the Imperial City Council held on the 21st day of December 2005, by the following vote:

AYES: DALE, GRAN, MAZEROLL, SAMPSON, AND COX
NAYES: NONE
ABSENT: NONE
ABSTAIN: NONE MOTION CARRIED 5-0

DEBRA JACKSON, CITY CLERK
CITY OF IMPERIAL, CALIFORNIA

Appendix C

“Law of the River” Document Synopses

The following is a synopsis of the most significant documents which collectively make up the "Law of the River" governing the apportionment of Colorado River flows:

- **Colorado River Compact of 1922**

  The cornerstone of the "Law of the River," the Compact was negotiated by the seven Colorado River Basin states and the federal government in 1922. It defined the relationship between the upper basin states, where most of the river's water supply originates, and the lower basin states, where most of the water demands were developing. At the time, the upper basin states were concerned that plans for Hoover Dam and other water development projects in the lower basin would, under the Western water law doctrine of prior appropriation, deprive them of their ability to use the river's flows in the future.

  The states could not agree on how the waters of the Colorado River Basin should be allocated among them, so the Secretary of Commerce Herbert Hoover suggested the basin be divided into an upper and lower half, with each basin having the right to develop and use 7.5 million acre-feet (MAF) of river water annually. This approach reserved water for future upper basin development and allowed planning and development in the lower basin to proceed.

- **Boulder Canyon Project Act of 1928**

  This act: (1) ratified the 1922 Compact; (2) authorized the construction of Hoover Dam and related irrigation facilities in the lower Basin; (3) apportioned the lower basin's 7.5 MAF among the states of Arizona (2.8 MAF), California (4.4 MAF) and Nevada (0.3 MAF); and (4) authorized and directed the Secretary of the Interior to function as the sole contracting authority for Colorado River water use in the lower basin.

- **California Seven Party Agreement of 1931**

  This agreement helped settle the long-standing conflict between California agricultural and municipal interests over Colorado River water priorities. The seven principal claimants—Palo Verde Irrigation District, Yuma Project, Imperial Irrigation District, Coachella Valley Irrigation District, Metropolitan Water District, and the City and County of San Diego—reached consensus in the amounts of water to be allocated on an annual basis to each entity. Although the agreement did not resolve all priority issues, these regulations were also incorporated in the major California water delivery contracts.

- **Mexican Water Treaty of 1944**

  Committed 1.5 MAF of the river's annual flow to Mexico.

- **Upper Colorado River Basin Compact of 1948**

  Created the Upper Colorado River Commission and apportioned the Upper Basin's 7.5 MAF among Colorado (51.75 percent), New Mexico (11.25 percent), Utah (23 percent) and Wyoming (14 percent); the portion of Arizona that lies within the Upper Colorado Basin was also apportioned 50,000 acre-feet annually.

- **Colorado River Storage Project of 1956**

  Provided a comprehensive upper basin-wide water resource development plan and authorized the construction of Glen Canyon, Flaming Gorge, Navajo and Curecanti dams for river regulation and power production, as well as several projects for irrigation and other uses.

- ***Arizona v. California* U.S. Supreme Court Decision of 1964**

  In 1963, the Supreme Court issued a decision settling a 25-year-old dispute between Arizona and California. The dispute stemmed from Arizona's desire to build the Central Arizona Project so it could use its full Colorado River apportionment. California objected and argued that Arizona's use of water from the Gila River, a Colorado River tributary, constituted use of its Colorado River apportionment, and that it had developed a historical use of some of Arizona's apportionment, which, under the doctrine of prior appropriation, precluded Arizona from developing the project.

  The Supreme Court rejected California's arguments, ruling that lower basin states have a right to appropriate and use tributary flows before the tributary co-mingles with the Colorado River, and that the doctrine of prior appropriation did not apply to apportionments in the lower basin.

  In 1964, the Court issued its decree. This decree enjoined the Secretary of the Interior from delivering water outside the framework of apportionments defined by the law and mandated the preparation of annual reports documenting the uses of water in the three lower basin states.

  In 1979, the Supreme Court issued a Supplemental Decree which addressed present perfected rights referred to in the Colorado River Compact and in the Boulder Canyon Project Act. These rights are entitlements essentially established under state law, and have priority over later contract entitlements.

- **Colorado River Basin Project Act of 1968**

  This Act authorized construction of a number of water development projects in both the upper and lower basins, including the Central Arizona Project (CAP). It also made the priority of the CAP water supply subordinate to California's apportionment in times of shortage, and directed the Secretary to prepare, in consultation with the Colorado River Basin states, long-range operating criteria for the Colorado River reservoir system.

- **Criteria for Coordinated Long-Range Operation of Colorado River Reservoirs of 1970**

  Provided for the coordinated operation of reservoirs in the upper and lower basins and set conditions for water releases from Lake Powell and Lake Mead.

- **Minute 242 of the U.S.-Mexico International Boundary and Water Commission of 1973**

  Required the United States to take actions to reduce the salinity of water being delivered to Mexico at Morelos Dam.

- **Colorado River Basin Salinity Control Act of 1974**

  Authorized desalting and salinity control projects, including the Yuma Desalting Plant, to improve Colorado River quality.

Several other laws, contracts and document are part of the "Law of the River." In addition to these provisions, the federal Endangered Species Act and various Native American water claim settlements affect the extent to which water developments and diversions can be utilized in the Colorado River Basin.

Source: United States Department of the Interior, 2004. WebPages: http://www.usbr.gov.

Appendix D

Quantification Settlement Agreement

THE SECRETARY OF THE INTERIOR

WASHINGTON

Colorado River Water Delivery Agreement:

Federal Quantification Settlement Agreement

for purposes of Section 5(B) of

Interim Surplus Guidelines

Approved:

Gale A. Norton

Gale A. Norton
Secretary of the Interior

Oct. 10, 2003

Date

COLORADO RIVER WATER DELIVERY AGREEMENT

The United States by and through the Secretary of the Interior (Secretary) hereby enters into this Colorado River Water Delivery Agreement (Agreement) with the Imperial Irrigation District (IID), the Coachella Valley Water District (CVWD), The Metropolitan Water District of Southern California (MWD) (these three districts are collectively referred to herein as the Districts), and the San Diego County Water Authority (SDCWA). The Secretary, IID, CVWD, MWD and SDCWA hereby agree as follows:

RECITALS

A. By regulations dated September 28, 1931, the Secretary incorporated the schedule of priorities provided in the Seven Party Agreement dated August 18, 1931, and established priorities One through Seven for use of the waters of the Colorado River within the State of California. The regulations were promulgated pursuant to the Boulder Canyon Project Act (BCPA) and required that contracts be entered into for the delivery of water within those priorities.

B. The Secretary has entered into contracts with, among others, the Palo Verde Irrigation District (PVID), IID, CVWD, and MWD, for the delivery of Colorado River water pursuant to Section 5 of the BCPA (Section 5 Contracts). Under those Section 5 Contracts, PVID, IID, CVWD and MWD have certain rights to the delivery of Colorado River water, which for PVID and IID include the satisfaction of present perfected rights in accordance with Section 6 of the BCPA. MWD and CVWD also have surplus water delivery contracts with the Secretary.

C. IID, CVWD, MWD and SDCWA have entered into agreements relating to, among other matters, their respective beneficial consumptive use of Colorado River water and desire that, for the term of this Agreement, Colorado River water be delivered by the Secretary in the manner contemplated in this Agreement.

D. The Secretary has the authority to enter into this Agreement on behalf of the United States pursuant to the BCPA, the 1964 Decree in Arizona v. California, and other applicable authorities.

OPERATIVE TERMS

1. WATER DELIVERY CONTRACTS

a. Priorities 1, 2, 3(b), 6(b), and 7 of current Section 5 Contracts for the delivery of Colorado River water in the State of California and Indian and miscellaneous Present Perfected Rights (PPRs) within the State of California and other existing surplus water contracts are not affected by this Agreement.

b. The Secretary agrees to deliver Colorado River water in the manner set forth in this Agreement during the term of this Agreement. The Secretary shall cease delivering water pursuant to this Agreement at the end of the term of this Agreement; provided, however, that the Secretary's delivery commitment to the San Luis Rey Indian Water Rights Settlement Parties (SLR) shall not terminate at the end of the term but shall instead continue, pursuant to Section 106 of Public Law 100-675, 102 Stat. 4000 et seq., as amended, subject to the terms and conditions of any applicable agreement to which the Secretary is a party concerning the allocation of water to be conserved from the lining of the All-American and Coachella Canals.

c. The Districts' respective Section 5 Contracts shall remain in full force and effect and, with this Agreement, shall govern the delivery of Colorado River water.

2. QUANTIFICATION OF PRIORITY 3(a)

a. Except as otherwise determined under the Inadvertent Overrun and Payback Policy identified in Section 9 of this Agreement, the Secretary shall deliver Priority 3(a) Colorado River water to IID in an amount up to but not more than a consumptive use amount of 3.1 million acre-feet per year (AFY) less the amount of water equal to that to be delivered by the Secretary for the benefit of CVWD, MWD, SDCWA, SLR, and Indian and miscellaneous PPRs as set forth in Exhibits A and B hereto. Colorado River water acquired by IID after the date of this Agreement, and where necessary approved by the Secretary, shall not count against this cap.

b. Except as otherwise determined under the Inadvertent Overrun and Payback Policy, the Secretary shall deliver Priority 3(a) Colorado River water to CVWD in an amount up to but not more than a consumptive use amount of 330,000 AFY less the amount of water equal to that to be delivered by the Secretary for the benefit of IID, MWD, SDCWA, SLR, and Indian and miscellaneous PPRs as set forth in Exhibits A and B hereto. Colorado River water acquired by CVWD in any transaction to the extent agreed upon prior to or concurrent with the execution of this Agreement by IID and MWD and, where necessary approved by the Secretary, shall not count against this cap.

3. QUANTIFICATION OF PRIORITY 6(a)

a. Subject to any rights that PVID may have, and except as otherwise provided under the Interim Surplus Guidelines, or under the agreements contemplated by those guidelines, the Secretary shall deliver Priority 6(a) water to MWD, IID and CVWD in the following order and consumptive use volumes: (i) 38,000 AFY to MWD; (ii) 63,000 AFY to IID; and (iii) 119,000 AFY to CVWD, or as those parties may agree to occasionally forbear.

b. Any water not used by MWD, IID or CVWD as set forth above will be available to satisfy the next listed amount in Section 3.a. above. Any additional water available for Priority 6(a) shall

be delivered by the Secretary in accordance with IID and CVWD's entitlements under their respective Section 5 Contracts in effect as of the date of this Agreement.

4. TRANSFERS AND OTHER WATER DELIVERY COMMITMENTS

a. The Secretary shall deliver IID's Priority 3(a) entitlement for the benefit of IID and others as specified in Exhibits A and B hereto and in the amounts and to the points of delivery set forth therein.

b. The Secretary shall deliver CVWD's Priority 3(a) entitlement for the benefit of the CVWD and others as specified in Exhibits A and B hereto and in the amounts and to the points of delivery set forth therein.

c. At SDCWA's election, the Secretary shall deliver water made available for SDCWA's benefit as set forth in Exhibits A and B hereto to the intake facilities for the Colorado River Aqueduct and SDCWA may then exchange up to 277,700 AFY of Colorado River water with MWD at Lake Havasu.

d. If in any given calendar year that the use of Colorado River water in accordance with Priorities 1 and 2, together with the use of Colorado River water on PVID Mesa lands in accordance with Priority 3(b), exceeds the consumptive use amount of 420,000 AFY, the Secretary will reduce the amount of water otherwise available to MWD in Priorities 4, 5 or 6(a) by the amount that such use exceeds 420,000 AFY. To the extent that the amount of water used in accordance with Priorities 1, 2 and 3(b) is less than 420,000 AFY, the Secretary shall deliver to MWD the difference.

e. 1. The Secretary shall deliver to CVWD at Imperial Dam the consumptive use amount of 20,000 AFY or such lesser consumptive use amount as may be requested by CVWD of Priority 3(a) Colorado River water made available to MWD under the Agreement for the Implementation of a Water Conservation Program and Use of Conserved Water between IID and MWD dated December 22, 1988, as amended.

2. Beginning in 2048 and in each year thereafter, the Secretary shall deliver to CVWD at Imperial Dam the consumptive use amount of 50,000 AFY or such lesser consumptive use amount as may be requested by CVWD from the Colorado River water available to MWD.

3. When requested by MWD for the purpose of satisfying an exchange obligation to CVWD under an agreement between CVWD and MWD for exchange of CVWD's State Water Project water, the Secretary shall deliver to CVWD at Imperial Dam the consumptive use amount of 135,000 AFY or such lesser amount as may be requested by MWD.

f. CVWD may decline to take a portion of the water to be conserved by IID for CVWD. In this event, the Secretary shall instead deliver such portion of the water to IID or MWD, or to other unspecified water users provided, further, that any such delivery to an unspecified user is, where necessary, subject to Secretarial approval.

g. Colorado River water will be made available to MWD through forbearance under the existing priority system as a result of a proposed land management program between PVID landowners and MWD. Neither IID nor CVWD will make any claim to or object to delivery to MWD of PVID program water to the extent agreed upon prior to or concurrent with the execution of this Agreement by IID and CVWD. If the transfer of PVID program water is not implemented, then IID has agreed to transfer for the benefit of MWD/SDCWA amounts necessary to meet the minimum Benchmark Quantities as set forth in Section 5(C) of the Interim Surplus Guidelines, not to exceed 145,000 AF in the aggregate.

h. CVWD may utilize Colorado River water outside of Improvement District No. 1 to the extent consented to and agreed upon prior to or concurrent with the execution of this Agreement by IID and MWD.

i. Notwithstanding the transfers set forth in this section and Exhibit B, IID, CVWD, MWD and SDCWA recognize and agree that at the conclusion of the effective period of the Interim Surplus Guidelines, they shall have implemented sufficient measures to be able to limit total uses of Colorado River water within California to 4.4 million AFY, unless the Secretary determines a surplus under a 70R strategy.

5. SHORTAGES

a. The Secretary's authority under II.B.3 of the 1964 Decree in Arizona v. California is not limited in any way by this Agreement.

b. If for any reason there is less than 3.85 million AFY available under Priorities 1, 2 and 3 during the term of this Agreement, any water which is made available by the Secretary to IID and CVWD shall be delivered to IID, CVWD, MWD, and SDCWA in accordance with the shortage sharing provisions agreed upon prior to or concurrent with the execution of this Agreement by IID, CVWD, MWD and SDCWA.

6. TERM

a. This Agreement will become effective upon execution of this Agreement by all Parties.

b. This Agreement will terminate on December 31, 2037, if the 1998 IID/SDCWA transfer program terminates in that year.

c. If this Agreement does not terminate on December 31, 2037, then this Agreement will terminate on December 31, 2047 unless extended by agreement of all parties until December 31, 2077, in which case this Agreement will terminate on December 31, 2077.

d. The Secretary's delivery commitment to the SLR and the Districts' recognition and acceptance of that delivery commitment, shall not terminate but shall instead continue, pursuant to Section 106 of Public Law 100-675, 102 Stat. 4000 et seq., as amended.

7. INTERIM SURPLUS GUIDELINES

The Secretary finds that execution of this Agreement constitutes "all required actions" that the relevant California Colorado River water contractors are required to undertake pursuant to Section 5(B) of the Interim Surplus Guidelines. Accordingly, upon execution of this Agreement by all parties, the interim surplus determinations under Sections 2(B)(1) and 2(B)(2) of the Interim Surplus Guidelines are reinstated.

8. BENCHMARKS FOR THE STATE OF CALIFORNIA'S AGRICULTURAL USE

a. The parties to this Agreement agree to carry out the transfers identified in Section 4 above and in Exhibit A hereto in accordance with the schedule set forth in Exhibit B hereto. Nothing in this Agreement authorizes or precludes carrying out the transfers on a timetable sooner than provided in the schedule set forth in Exhibit B hereto. The transfers in the schedule set forth in Exhibit B hereto are undertaken to allow California agricultural usage (by PVID, Yuma Project Reservation Division, IID, and CVWD) plus 14,500 af of PPR use to be at or below the Benchmark Quantities as set forth in Section 5(C) of the Interim Surplus Guidelines. Nothing in this Agreement authorizes or precludes additional transfers of Colorado River water as agreed upon prior to or concurrent with the execution of this Agreement by the Districts to meet the Benchmark Quantities as set forth in Section 5(C) of the Interim Surplus Guidelines. All determinations by the Secretary with respect to this section shall be based upon Decree Accounting. Repayment of overrun amounts shall not count toward compliance with the transfers in the schedule set forth in Exhibit B hereto or toward compliance with the Benchmark Quantities set forth in Section 5(C) of the Interim Surplus Guidelines.

b. In the event that i) the transfers are carried out as set forth in the schedule in Exhibit B hereto or additional Colorado River transfers as agreed upon prior to or concurrent with the execution of this Agreement by the Districts are carried out and ii) California's Agricultural usage plus 14,500 af of PPR use is at or below the Benchmark Quantities as set forth in Section 5(C) of the Interim Surplus Guidelines, the provisions of this subparagraph shall apply.
1. Notwithstanding the provisions of the November 22, 2002 Supplement to the 2002 Annual Operating Plan, any existing overruns in calendar years 2001 and 2002 by parties to this Agreement must be repaid within an eight-year period beginning in calendar year 2004 in

accordance with the schedule attached in Exhibit C hereto, except that in the event that any Annual Operating Plan 24-Month Study indicates that a shortage will occur within months 13 through 24, any remaining balance of the 2001 and 2002 overruns shall be fully repaid during the next calendar year. Repayment of any overruns other than from calendar years 2001 and 2002 shall be pursuant to the Inadvertent Overrun and Payback Policy identified in Section 9 below.

2. The Secretary has considered the quantification of Priority 3(a) as set forth in Section 2 of this Agreement and the water transfers set forth in the schedule in Exhibit B hereto. These water transfers were developed to assist the Districts and SDCWA to meet the provisions of Section 4(i) of this Agreement and to reduce the occurrence of future reasonable and beneficial use reviews under 43 C.F.R. Pt. 417 to unique circumstances. These water transfers are based upon water conservation activities to be implemented over the term of this Agreement. For these reasons, the Secretary does not anticipate any further review of the reasonable and beneficial use of Colorado River water by IID pursuant to the annual 43 C.F.R. Pt. 417 reviews that are conducted during the initial term of this Agreement as set forth in Section 6.b. (December 31, 2037). Should the Secretary engage in any further review of the reasonable and beneficial use of Colorado River water by IID pursuant to 43 C.F.R. Pt. 417 under this Section, the Secretary will base her decision on (i) the purpose of the quantification of Priority 3(a) and the reductions and transfers set forth on Exhibit B hereto, and (ii) the implementation of the water transfers by IID as set forth in the schedule in Exhibit B, in addition to the consideration of the factors in 43 C.F.R. § 417.3

c. Notwithstanding any other provision of this Agreement, and in addition to any applicable provisions of the Interim Surplus Guidelines, in the event that either i) the transfers are not carried out as set forth in Exhibit B hereto or additional Colorado River transfers as agreed upon prior to or concurrent with the execution of this Agreement by the Districts are not carried out, or ii) California's Agricultural usage plus 14,500 af of PPR use is above the Benchmark Quantities as set forth in Section 5(C) of the Interim Surplus Guidelines, the provisions of this subparagraph shall apply.

1. For each District that has not implemented the water transfers to which it is a party upon the agreed upon schedule as set forth in Exhibit B hereto, the Inadvertent Overrun and Payback Policy identified in Section 9 below will be immediately suspended. During suspension of the Inadvertent Overrun and Payback Policy, for previously incurred overruns, the payback period shall be as provided in the existing Inadvertent Overrun and Payback Policy were such Policy not suspended. The Inadvertent Overrun and Payback Policy will be reinstated at such time as a District has implemented the water transfers to which it is a party upon the agreed upon schedule as set forth in Exhibit B hereto.

2. Any remaining existing overruns from calendar years 2001 and 2002 by parties to this Agreement must be repaid within a three-year period.

3. In addition to any applicable provisions of the Interim Surplus Guidelines, in the event that the transfers are not implemented in accordance with Column 23 in Exhibit B hereto, MWD shall not place any order to the Secretary for any Colorado River water otherwise available pursuant to sections 2(B)(1) and 2(B)(2) as set forth in the Interim Surplus Guidelines.

4. The Secretary anticipates that a further review of the reasonable and beneficial use of Colorado River water by the Districts will be required pursuant to the annual 43 C.F.R. Pt. 417 reviews that are conducted during the initial term of this Agreement as set forth in Section 6.b. (December 31, 2037). In any such review, the Secretary will base her decision on the factors set forth in Section 8.b.2 above as well as the basis for any District's non-implementation of the transfers set forth in Exhibit B hereto, in addition to the consideration of the factors in 43 C.F.R. § 417.3

9. INADVERTENT OVERRUN AND PAYBACK POLICY

For so long as the provisions of Section 8.b of this Agreement are applied, the Secretary will not materially modify the Inadvertent Overrun and Payback Policy for a 30-year period, absent extraordinary circumstances such as significant Colorado River infrastructure failures, and subject to the provisions of Section 5 of this Agreement. In the event that extraordinary circumstances arise, the Secretary will consult with the Districts and other interested parties before initiating any material change.

10. ADDITIONAL PROVISIONS

a. Imperial Irrigation District v. United States of America, et al., CV 0069W (JFS) (D. Cal. filed January 10, 2003) (JFS), is dismissed pursuant to Stipulation under Fed. R. Civ. P. 41(a)(1). Nothing in this Agreement shall affect the preclusive and non-preclusive effects of the Stipulation during the term of this Agreement and thereafter.

b. Upon dismissal of Imperial Irrigation District v. United States, et al., as provided in subsection 10(a) above, the Secretary will irrevocably terminate the *de novo* "Recommendations and Determinations Authorized by 43 C.F.R. Pt. 417, Imperial Irrigation District" for 2003, and IID's water order for 2003 is approved subject to the terms of this Agreement.

c. 1. IID, CVWD, MWD, and SDCWA do not agree on the nature or scope of rights to the delivery, use or transfer of Colorado River water within the State of California. Furthermore, the Districts and SDCWA agree not to use this Agreement or any provision hereof, as precedence for purposes of evidence, negotiation or agreement on any issue of California or federal law in any administrative, judicial or legislative proceeding, including without limitation,

any attempt by IID and SDCWA to obtain further approval of any water transaction.

2. The terms of this Agreement do not control or apply to the nature or scope of rights to the delivery, use or transfer of Colorado River water within the State of California, except as those rights are defined and addressed in this Agreement during the term hereof.

3. By executing this Agreement, the Districts and SDCWA are not estopped from asserting in any administrative, judicial or legislative proceeding, including those involving the United States, that neither this Agreement nor any of its terms was necessary or required to effectuate the transactions contemplated herein.

4. Nothing herein waives the ability of any party to challenge the exercise of particular miscellaneous and Indian PPRs.

d. This Agreement shall not be deemed to be a new or amended contract for the purpose of Section 203(a) of the Reclamation Reform Act of 1982 (Public Law 97-293, 93 Stat. 1263).

e. This Agreement does not (i) guarantee or assure any water user a firm supply for any specified period, (ii) change or expand existing authorities under applicable federal law, except as specifically provided herein with respect to the Districts, (iii) address interstate distribution of water; (iv) change the apportionments made for use within individual States, (v) affect any right under the California Limitation Act (Act of March 4, 1929; Ch. 16, 48th Sess.), or any other provision of applicable federal law.

f. This Agreement is not intended nor shall it be construed to create any third party beneficiary rights to enforce the terms of this Agreement in any person or entity that is not a party.

g. Each party to this Agreement represents that the person executing this Agreement on behalf of such party has full power and authority to do so, and that his/her signature is legally sufficient to bind the party on whose behalf he/she is signing.

h. This Agreement shall remain in full force and effect according to its terms regardless of whether the Interim Surplus Guidelines are in effect or terminated.

i. This Agreement with the United States is subject to and controlled by the Colorado River Compact of 1922.

UNITED STATES SECRETARY OF THE INTERIOR

Gale A. Norton — Oct. 10, 2003

Gale A. Norton — *Date*

COACHELLA VALLEY WATER DISTRICT

By

10/10/03

General Manager/Chief Engineer — *Date*

IMPERIAL IRRIGATION DISTRICT

By

10-10-03

Date

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

By

10/10/03

Date

SAN DIEGO COUNTY WATER AUTHORITY

By

10-10-03

Date

Exhibit A: Delivery of Priority 3(a) consumptive use entitlement to the Imperial Irrigation District and the Coachella Valley Water District

Imperial Irrigation District

The Secretary of the Interior shall deliver Imperial Irrigation District's Priority 3(a) consumptive use entitlement under this Colorado River Water Delivery Agreement, pursuant to this Exhibit A and Exhibit B hereto as follows:

Delivered to (entity):	At (point of diversion):	Amount not to exceed (af):	Notes
CVWD	Imperial Dam	103,000	---
MWD	Lake Havasu	110,000	1
SDCWA	Lake Havasu	56,200	2
SDCWA	Lake Havasu	200,000	3
SLR	*see note 4*	*see note 4*	4
Misc. & Indian PPRs	Current points of delivery	11,500	5
For benefit of MWD/SDCWA	Lake Havasu	145,000	6
IID	Imperial Dam	Remainder	---
IID's Priority 3(a) Total		3,100,000	---

Notes to Imperial Irrigation District:

1. Agreement for the Implementation of a Water Conservation Program and Use of Conserved Water, dated December 22, 1988; Approval Agreement, dated December 19, 1989. Of amount identified: up to 90,000 af to MWD and 20,000 af to CVWD.
2. Water conserved from the construction of a new lined canal parallel to the All-American Canal from Pilot Knob to Drop 3.
3. Agreement for Transfer of Conserved Water, dated April 29, 1998, as amended. As set forth in Exhibit B, delivery amounts shall be 205,000 AF in calendar year 2021 and 202,500 AF in calendar year 2022.
4. Water conserved from All-American Canal lining project and made available for benefit of San Luis Rey Settlement Parties under applicable provisions of Pub. L. No. 100-675, as amended. Quantity may vary, not to exceed 16,000 afy, as may the point of diversion, subject to the terms of the Allocation Agreement.
5. Water to be delivered to miscellaneous and Indian PPRs identified in the Decree in Arizona v. California, as supplemented. The delivery of water will be to current points of delivery unless modified in accordance with applicable law.
6. As provided in subsection 4(g) of this Agreement.

Coachella Valley Water District

The Secretary of the Interior shall deliver Coachella Valley Water District's Priority 3(a) consumptive use entitlement under this Colorado River Water Delivery Agreement pursuant to this Exhibit A and Exhibit B hereto as follows:

Delivered to (entity):	At (point of diversion):	Amount not to exceed (af):	Notes
SLR	*see note 1*	*see note 1*	1
SDCWA	Lake Havasu	21,500	2
Misc. & Indian PPR	Current points of delivery	3,000	3
CVWD	Imperial Dam	Remainder	---
Coachella Valley Water District's Priority 3(a) Total		330,000	---

Notes:

1. Water conserved from Coachella Canal lining project and made available for benefit of San Luis Rey Settlement Parties under applicable provisions of Pub. L. No. 100-675, as amended. Quantity may vary, not to exceed 16,000 afy, as may the point of diversion, subject to the terms of the Allocation Agreement.
2. Water conserved from lining the unlined portion of the Coachella Canal.
3. Water to be delivered to miscellaneous and Indian PPRs identified in the Decree in Arizona v. California, as supplemented. The delivery of water will be to current points of delivery unless modified in accordance with applicable law.

EXHIBIT B

QUANTIFICATION AND TRANSFERS[1]

In Thousands of Acre-feet

Column:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
			IID Priority 3a											CVWD Priority 3a									
				Reductions											Reductions			Additions					
	Calendar Year	[2]Priority 1, 2 and 3b	IID Priority 3a Quantified Amount	[3]IID Reduction: MWD 1988 Agreement Transfer	IID Reduction: SDCWA Transfer	[4]IID Reduction: AAC Lining IID, SDCWA & SLR	[5,6]IID Reduction: SDCWA Mitigation Transfer	[7]Intra-Priority 3 Transfer IID/CVWD	[6]IID Reduction: MWD Transfer with Salton Sea Restoration	[8]IID Reduction: Conditional ISG Backfill	[9]IID Reduction: Misc. PPRs	IID Reductions: Total Amount *(sum of columns 4 through 11)*	[10]IID Net Consumptive Use Amount *(difference between column 3 and column 12)*	CVWD Priority 3a Quantified Amount	[4]CVWD Reduction: CC Lining, SDCWA & SLR	[9]CVWD Reduction: Misc. PPRs	[11]CVWD Reductions: Total Amount *(sum of columns 15 + 16)*	[7]Intra-Priority 3 Transfer IID/CVWD	[3]Intra-Priority 3 Transfer MWD/CVWD	CVWD Net Consumptive Use Amount *(columns 14 - 17 plus columns 18 + 19)*	Total Priority 1-3 Use Plus PPR Consumptive Use *(sum of columns 2+13+20 plus 11+16)*	[12]ISG Benchmarks	[12]Annual Targets
1	2003	420	3,100	110	10	0	5	0	0	0	11.5	136.5	2,963.5	330	0	3	3	0	20	347	3,745.0	3,740	3,740
2	2004	420	3,100	110	20	0	10	0	0	0	11.5	151.5	2,948.5	330	0	3	3	0	20	347	3,730.0		3,707
3	2005	420	3,100	110	30	0	15	0	0	0	11.5	166.5	2,933.5	330	0	3	3	0	20	347	3,715.0		3,674
4	2006	420	3,100	110	40	0	20	0	0	9	11.5	190.5	2,909.5	330	26	3	29	0	20	321	3,665.0	3,640	3,640
5	2007	420	3,100	110	50	0	25	0	0	0	11.5	196.5	2,903.5	330	26	3	29	0	20	321	3,659.0		3,603
6	2008	420	3,100	110	50	67.7	25	4	20	0	11.5	288.2	2,811.8	330	26	3	29	4	20	325	3,571.3		3,566
7	2009	420	3,100	110	60	67.7	30	8	40	0	11.5	327.2	2,772.8	330	26	3	29	8	20	329	3,536.3	3,530	3,530
8	2010	420	3,100	110	70	67.7	35	12	60	0	11.5	366.2	2,733.8	330	26	3	29	12	20	333	3,501.3		3,510
9	2011	420	3,100	110	80	67.7	40	16	80	0	11.5	405.2	2,694.8	330	26	3	29	16	20	337	3,466.3		3,490
10	2012	420	3,100	110	90	67.7	45	21	100	0	11.5	445.2	2,654.8	330	26	3	29	21	20	342	3,431.3	3,470	3,470
11	2013	420	3,100	110	100	67.7	70	26	100	0	11.5	485.2	2,614.8	330	26	3	29	26	20	347	3,396.3		3,462
12	2014	420	3,100	110	100	67.7	90	31	100	0	11.5	510.2	2,589.8	330	26	3	29	31	20	352	3,376.3		3,455
13	2015	420	3,100	110	100	67.7	110	36	100	0	11.5	535.2	2,564.8	330	26	3	29	36	20	357	3,356.3		3,448
14	2016	420	3,100	110	100	67.7	130	41	100	0	11.5	560.2	2,539.8	330	26	3	29	41	20	362	3,336.3		3,440
15	2017	420	3,100	110	100	67.7	150	45	91	0	11.5	575.2	2,524.8	330	26	3	29	45	20	366	3,325.3		
16	2018	420	3,100	110	130	67.7	0	63	0	0	11.5	382.2	2,717.8	330	26	3	29	63	20	384	3,536.3		
17	2019	420	3,100	110	160	67.7	0	68	0	0	11.5	417.2	2,682.8	330	26	3	29	68	20	389	3,506.3		
18	2020	420	3,100	110	193	67.7	0	73	0	0	11.5	454.7	2,645.3	330	26	3	29	73	20	394	3,473.8		
19	2021	420	3,100	110	205	67.7	0	78	0	0	11.5	472.2	2,627.8	330	26	3	29	78	20	399	3,461.3		
20	2022	420	3,100	110	203	67.7	0	83	0	0	11.5	474.7	2,625.3	330	26	3	29	83	20	404	3,463.8		
21	2023	420	3,100	110	200	67.7	0	88	0	0	11.5	477.2	2,622.8	330	26	3	29	88	20	409	3,466.3		
22	2024	420	3,100	110	200	67.7	0	93	0	0	11.5	482.2	2,617.8	330	26	3	29	93	20	414	3,466.3		
23	2025	420	3,100	110	200	67.7	0	98	0	0	11.5	487.2	2,612.8	330	26	3	29	98	20	419	3,466.3		
24	2026	420	3,100	110	200	67.7	0	103	0	0	11.5	492.2	2,607.8	330	26	3	29	103	20	424	3,466.3		
25	2027	420	3,100	110	200	67.7	0	103	0	0	11.5	492.2	2,607.8	330	26	3	29	103	20	424	3,466.3		
26	2028	420	3,100	110	200	67.7	0	103	0	0	11.5	492.2	2,607.8	330	26	3	29	103	20	424	3,466.3		
	2029-2037	420	3,100	110	200	67.7	0	103	0	0	11.5	492.2	2,607.8	330	26	3	29	103	20	424	3,466.3		
	2038-2047[13]	420	3,100	110	200	67.7	0	103	0	0	11.5	492.2	2,607.8	330	26	3	29	103	20	424	3,466.3		
	2048-2077[14]	420	3,100	110	200	67.7	0	100	0	0	11.5	489.2	2,610.8	330	26	3	29	100	20	421	3,466.3		

[1] Exhibit B is independent of increases and reductions as allowed under the Inadvertent Overrun and Payback Policy.

[2] Any higher use covered by MWD, any lesser use will produce water for MWD and help satisfy ISG Benchmarks and Annual Targets.

[3] IID/MWD 1988 Conservation Program conserves up to 110,000 AFY and the amount is based upon periodic verification. Of amount conserved, up to 20,000 AFY to CVWD (column 19), which does not count toward ISG Benchmarks and Annual Targets, and remainder to MWD.

[4] Ramp-up amounts may vary based upon construction progress, and final amounts will be determined by the Secretary pursuant to the Allocation Agreement.

[5] Any amount identified in Exhibit B for mitigation purposes will only be from non-Colorado River sources and these amounts may be provided by exchange for Colorado River water.

[6] Water would be transferred to MWD subject to satisfaction of certain conditions and to appropriate federal approvals. For informational purposes only, these transfers may also be subject to state approvals. Schedules are subject to adjustments with mutual consent. After 2006, these quantities will count toward the ISG Benchmarks (column 22) and Annual Targets (column 23) only if and to the extent that water is transferred into the Colorado River Aqueduct for use by MWD and/or SDCWA.

[7] MWD can acquire if CVWD declines the water. Any water obtained by MWD will be counted as additional agricultural reduction to help satisfy the ISG Benchmarks and Annual Targets. MWD will provide CVWD 50,000 AFY of the 100,000 AFY starting in year 46.

[8] IID has agreed to provide transfer amounts to meet the minimum ISG benchmarks, not to exceed a cumulative total of 145,000 AF. Maximum transfer amounts are 25,000 AF in 2006, 50,000 AF plus the unused amount from 2006 in 2009, and 70,000 AF plus the unused amounts from 2006 and 2009 in 2012. In addition to the maximum transfer amounts IID has also committed that no more than 72,500 AF of reduced inflow to the Salton Sea would result from these additional transfers.

[9] Up to the amount shown, as agreed upon reduction to IID or CVWD to cover collectively the sum of individual Miscellaneous PPRs, federal reserved rights and decreed rights. This is a reduction that counts towards ISG Benchmarks and Annual Targets.

[10] For purposes of Subparagraph 8(b)(2)(i) and (ii) and 8(c)(1) and (4) the Secretary will take into account: (i) the satisfaction of necessary conditions to certain transfers (columns 7 and 9) not within IID's control: (ii) the amounts of conserved water as determined, where such amounts may vary (columns 4, 6, 9 and 10); and (iii) with respect to column 7, reductions by IID will be considered in determining IID's compliance regardless of whether the conserved water is diverted into the Colorado River Aqueduct.

[11] For purposes of Subparagraph 8(c)(1) and (4) the Secretary will take into account: (i) the satisfaction of necessary conditions to certain transfers (columns 15 and 16) not within CVWD's control; and (ii) the amounts of conserved water as determined, where such amounts may vary (column 15).

[12] All-consumptive use of priorities 1 through 3 plus 14,500 AF of PPRs must be within 25,000 AF of the amount stated.

[13] Assumes SDCWA does not elect termination in year 35.

[14] Assumes SDCWA and IID mutually consent to renewal term of 30 years.

Notes:

Substitute transfers can be made provided the total volume of water to be transferred remains equal or greater than amounts shown consistent with applicable federal approvals.

The shaded columns represent amounts of water that may vary.

Exhibit C: Payback Schedule of Overruns for Calendar Years 2001 and 2002

Year	*IID*	*CVWD*	*MWD*	*Total*
2004	18,900	9,100	11,000	39,000
2005	18,900	9,100	11,000	39,000
2006	18,900	9,100	11,100	39,100
2007	18,900	9,100	11,100	39,100
2008	18,900	9,200	11,100	39,200
2009	18,900	9,200	11,100	39,200
2010	19,000	9,200	11,100	39,300
2011	19,000	9,200	11,100	39,300
Cumulative	151,400	73,200	88,600	313,200

Note: Each district may, at its own discretion, elect to accelerate paybacks to retire its payback obligation before the end of the eight-year period ending in calendar year 2011. Each district's payback obligation is subject to acceleration in anticipation of a shortage in the Lower Colorado River Basin as provided for in section 8(b).

Appendix E

Draft Conservation Ordinance

City of Imperial Municipal Code

Chapter 23, Articles III-V

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ARTICLE III. CONSERVATION PLAN

23-16 Definitions.

The following words, terms and phrases, when used in this Article, shall have the meaning ascribed to them in this Section, except where the context clearly indicates a different meaning:

Excess runoff means water accumulation on streets, gutters, neighboring properties, or other surfaces in an amount to cause flow.

New development means any addition, extension, conversion, or enlargement of an existing structure or any new construction requiring a building permit.

Water user means any person, customer, or property served within the incorporated boundaries of the City and the area outside the City boundary served by the City Water Department.

23-17 Application.

This Article shall apply to all water users.

23-18 Water user responsibility.

Water users are deemed to have under control at all times their water distribution facilities and to know the manner and extent of their water use and excess runoff. In multiple dwellings, the owner is the water user in control of the premises and is in control and responsible for water usage.

23-19 Phase I shortages.

A Phase I shortage is declared and conservation measures listed in this section are implemented when the Public Services Director declares a drought condition or the Imperial Irrigation District formally notifies the City that its allotment from the Lower Colorado River Basin has been reduced by up to fifteen (15) percent. No water user within the City and the service area of the City Water Department shall knowingly make, cause use, or permit the use of water for residential, commercial, industrial, agricultural, or any other purpose in a manner contrary to this Article or in any amount in excess of that use permitted by the conservation stages designated in this Article. The conservation methods are as follows:

A. No water user shall cause or permit any water furnished to any property within the City and the City Water Department service area to run or to escape from any hose, pipe, valve, faucet, sprinkler, or irrigation device onto any sidewalk, street, or gutter, or to otherwise escape from the property if such running or escaping can reasonably be prevented. If a break or leak occurs within the customer's plumbing or private distribution system, it shall be presumed that a period of forty-eight (48) hours after the consumer discovers such a break or leak or receives notice from the City Water Department of such a break or leak, whichever occurs first, is a reasonable time within which to correct such a break or leak. If such a break or leak is not corrected after forty-eight (48) hours, it will be a violation of this Article.

B. Commercial and noncommercial watering of grass, lawns groundcover, open ground, shrubbery, crops, gardens, and trees, including agricultural irrigation, in a manner or to an extent which allows substantial amounts of excess water to run off the area being watered is not permitted. A minimum amount of runoff that is a natural consequence of conservation watering, either by hand or mechanical sprinkling facilities, is permitted so long as such runoff is not excess as defined.

C. Lawn watering, landscape irrigation, and watering of public and private recreation facilities are to be done only between six (6) p.m. and eight (8) a.m. If a hand-held hose or drip irrigation system is used, watering may be done at any time.

D. Agricultural water users and commercial nurseries shall conduct watering between (6) six p.m. and eleven (11) a.m. If a hand-held hose or drip irrigation system is used, watering may be done at any time. Watering of livestock is permitted at any time.

E. There shall be no washing down of sidewalks, walkways, driveways, parking lots, and other paved surfaces, except to alleviate immediate health, fire, or sanitary hazards.

F. Restaurants may not serve water to their customers, except on specific request of the customer.

G. It is unlawful to remove, replace, alter, or damage any water meter or any components thereof, including, but not limited to, the meter face, its dials or other water usage indicators and any flow-restricting devices installed.

H. Water from fire hydrants is not used for any purpose other than to fight fires or for other activities where such use is immediately necessary to maintain the health, safety and welfare of the residents of the City and customers of the City water system.

I. Schools, golf courses, governmental agencies, City parks, and cemeteries, public or private, may be required to submit a copy of a water conservation plan and landscape irrigation schedules.

J. Washing of motor vehicles, trailers, boats, and other equipment is done only with a hand-held bucket, or hose equipped with a positive shut-off nozzle for quick rinse, except that washing may be done with reclaimed wastewater or by a commercial car wash using recycled water.

K. No water is used to clean, fill or maintain levels in decorative fountains, ponds, lakes, or other similar aesthetic structures, unless such water is part of a recycling system.

L. The filling or replenishment of swimming pools is permitted, but the property owner will be liable for any use of allotted water in excess of the Phase II or Phase Ill requirements.

M. The owner and operator of every hotel, motel, inn, guesthouse, and short-term commercial lodging shall post a notice of water shortage and any necessary compliance measures.

23-20 Phase II shortages.

A. A Phase II shortage is declared by the Public Services Director and the following conservation measures are implemented when the Imperial Irrigation District notifies the City that its allotment from the Lower Colorado River Basin has been reduced by up to twenty-five (25) percent:

1. Conservation measures listed for a Phase I shortage are in effect, except that the restrictions on watering lawns, landscapes and other turf area are modified to limit the watering only once every third day between the hours of six (6) p.m. and six (6) a.m.

2. Agricultural and commercial nurseries and golf courses are prohibited from watering lawns, landscapes, or commercial stocks more often than every other day and between the hours of ten (10) a.m. and six (6) p.m., except that there is no restriction of watering utilizing reclaimed wastewater.

B. No customer whose water is supplied by the City shall make, cause, use, or permit the use of water for any purpose in an amount in excess of ninety (90) percent of the amount of use on the customer’s premises during the corresponding billing period during the prior calendar year.

23-21 Phase III shortages.

A. A Phase Ill shortage is declared by the Public Services Director and the following conservation measures are implemented when the Imperial Irrigation District notifies the City that its allotment from the Lower Colorado River Basin has been reduced by up to fifty (50) percent:

1. Conservation measures listed for a Phases I and II shortages are in effect, except that there is no watering of residential lawns, landscaping and other turf areas at any time except by bucket.

2. Agricultural, commercial nurseries, golf courses, parks, and other public open spaces and commercial landscaped areas are prohibited from watering more often than every third day and between the hours of ten (10) a.m. and six (6) p.m., except that there is no restriction on watering using reclaimed wastewater.

B. No customer whose water is supplied by the City shall make, cause, use, or permit the use of water for any purpose in an amount in excess of eighty (80) percent of the amount of use on the customer's premises during the corresponding billing period during the prior calendar year.

23-22 Exceptions and relief from compliance.

A. A water user may file an application for relief from this Article. The Public Services Director shall develop such procedures as he/she considers necessary to resolve such applications in accordance with the terms of this section and shall, upon the filing by a water user of an application for relief, take such steps as he/she deems reasonable to resolve the application for relief. The Public Services Director may delegate his/her duties and responsibilities under this section as appropriate.

B. The application for relief may include a request that the water user be relieved, in whole or in part, from the water use curtailment of this Article.

C. In determining whether to grant relief and the nature of any relief, the Public Services Director shall take into consideration the following:

1. Whether any additional reduction in water consumption will result in unemployment;

2. Whether additional members have been added to the household;

3. Whether any additional landscaped property has been added to the property since the corresponding billing period of the prior calendar year;

4. Changes in vacancy factors for multi-family housing;

5. Increased numbers of employees in commercial, industrial and governmental offices;

6. Increased production requiring increased process water;

7. Water uses during construction;

8. Adjustments to water use caused by emergency health and safety hazards;

9. First filling of a permit-constructed swimming pool; and

10. Water use necessary for reasons related to family illness or health.

D. In order to be considered, an application for relief must be in writing, filed with the Public Services Director within twenty (20) days from the date the provision from which relief is sought becomes applicable to the applicant. No relief is granted unless the water user shows that he/she has achieved the maximum practical reduction in water consumption other than in the specific areas in which relief is being sought. No relief is granted to any water user who, when requested by the Public Services Director, fails to provide any information necessary for resolution of the water user's application for relief. The decision is issued within fifteen (15) days and provided to the water user.

23-23 Notices and penalties.

The City will impose the following penalties to consumers in violation of this Article:

A. The City Water Department shall give violators of this Article a courtesy notice of the violation. Upon second and subsequent violations, the violator shall receive a citation and fine, respectfully.

B. The first citation shall specify the nature of the violation, the date on which it occurred and the corrective action taken. Upon a second citation, the water user is charged with an infraction and is subject to the following fines:

1. For the first violation, fifty dollars ($50.00);

2. For the second violation, one hundred dollars ($100.00);

3. For the third violation, two hundred dollars ($200.00), along with the installation of a flow restrictor at the customer's expense. A third violation constitutes a misdemeanor;

4. For a fourth violation, termination of water service. The charge for water service termination and restoration is one hundred dollars ($100.00).

C. For each violation by any water user of the water use curtailment provisions of this section, a surcharge is imposed in an amount equal to twenty-five (25) percent of the portions of the water bill that exceed the respective percentages. This surcharge is paid to the City and is deposited in the water revenue fund as partial payment for the water department's conservation plan for that user.

23-24 Hearing regarding violations.

A. Any water user receiving notice of a second or subsequent violation of this Article shall have a right to a hearing by the Public Services Director.

B. The water user's written request for a hearing must be received within ten days of the issuance of the notice of violation. This request shall stay installation of a flow-restricting device on the water user's premises and the imposition of any surcharge until the Public Services Director renders his/her decision. His/her decision is issued within fifteen (15) days after the hearing, and a copy is provided to the water user.

C. The decision of the Public Services Director may be appealed to the City Manager by the water user filing with the City Manager a written request within fifteen (15) days of receipt of the decision from the Public Services Director. Filing of such a request stays the implementation of any surcharge or installation of a flow-restrictor.

D. The appeal hearing will be scheduled to occur within a reasonable period of time following the filing of the appeal. No formal rules of evidence apply. All evidence customarily relied upon by reasonable persons in the conduct of serious business affairs will be allowed, and the water user may present any such evidence which shows the alleged wasteful water use has not occurred. The decision of the City Manager will be given in writing to the water user within fifteen (15) days after the appeal hearing, and that decision is final.

23-25 Additional measures.

The City Council may order implementation of water conservation measures in addition to those set forth in this Article. Such additional measures are implemented by resolution published one time in a daily newspaper of general circulation covering the service area of the City Water Department. Any prohibitions on the use of water shall become effective immediately upon publication. The application of surcharges shall commence one month after the date the curtailment becomes effective

23-26 Effect on public health and safety.

Nothing in this Article is construed to require the Public Services Director to curtail water to any user when such water is required by that customer to maintain an adequate level of public health and safety. The rights of the City under this Article are in addition to any other rights of the City under any other applicable laws.

ARTICLE IV. LANDSCAPE AND IRRIGATION STANDARDS

23-27 Landscape and irrigation.

No building permit is issued for buildings until the Public Services Director or designee reviews and approves a Landscape Plan for the project. A certificate of occupancy is issued only if landscaping and an irrigation system is installed in compliance with the approved Landscape Plan consisting of the elements set forth below. The Landscape Plan shall include the following elements: a calculation of water consumption for the landscaped area; a planting scheme; an Irrigation Plan; and a grading plan if found to be necessary by the Community Development Director. Projects that must adhere to these standards are: apartments; condominiums; any multiple-unit residential developments; commercial developments; industrial developments; single-family residential and recreational developments.

23-28 General requirements.

A. The standards described in this Article are intended to be minimum requirements of development. Property enhancements beyond these standards are encouraged as they will further the goal of a more beautiful overall environment in which to live and work. Certain conditions outlined in this Article may be waived or changed upon formal request and accepted by the Public Services Director or designee, but in no case will any condition be modified in a manner which will adversely affect the intent of these standards.

B. Prior to any work at the project site, landscape and Irrigation Plans must be approved and signed by the Public Services Director. These drawings shall contain all planting and irrigation work to be constructed as a part of the development. If the plans meet or exceed the requirements, the Public Services Director or designee will approve them. If corrections to the plans are required, the deficiencies will be noted and the plans will have to be corrected by the developer and resubmitted. Compliance with the letter and intent of these standards is the superintendent's responsibility during construction and the property owner's responsibility for the life of the project. The Public Services Director or designee has the responsibility to interpret and enforce these standards.

23-29 Special requirements.

Areas of projects that will be dedicated to the City such as median islands, maintenance districts, parks, etc., shall be clearly delineated on the plans. Special requirements in addition to these standards may be required for those areas. Any special requirements will be noted after initial submittal of plans. Any questions regarding projects with special requirements are directed to the Community Development Department.

23-30 Submittal requirements.

A. The project developer, with the exception of a developer of only one residential unit, is required to submit two sets of planting and Irrigation Plans prepared by a state-licensed landscape architect or landscape contractor to the Community Development Department concurrent with submittal of a building construction plan. The landscape improvement plans are checked and approved by the public works department in accordance with these standards and any conditions of approval required by the City. Approval of the plans by the Public Services Director or designee is required prior to any construction at the project site.

B. The plans shall contain the required information in a clear and understandable format on sheets that are either twenty-four (24) inches by thirty-six (36) inches or thirty (30) inches by forty-two (42) inches and must include a title sheet, Irrigation Plan including general design criteria and information as specified below.

C. Title sheets must include: project name and address; developer's name, address and telephone number; landscape architect's or landscape contractor's name, address, telephone number, state registration stamp and signature; signature line for approval by Public Services Director; site map with property lines and adjacent land uses identified; vicinity map indicating the location of the project within the City; sheet index, if applicable.

23-31 Irrigation plans—General design criteria—Information.

The Irrigation Plan shall indicate irrigation systems designed to be water efficient and water conserving. Devices and equipment that aid in water conservation are encouraged and may be required on large projects. The irrigation system shall be compatible with the types of plantings specified and the specific requirements of the various planting area on the project site. The Irrigation Plan shall clearly note on plans the following information: north arrow; scale; point of connection, including static pressure; pipe size and types; water consumption; and servicing meter location and size.

A. All irrigation systems are to be controlled by a clock specifically designed for irrigation system control, connected to a permanent source of power.

B. Controllers must have multiple cycles start capacity and a flexible calendar program. An automatic rain shutoff valve is required.

C. All systems shall contain an appropriate testable backflow device. Reduced pressure devices are encouraged for all projects but are mandatory for meter box protections.

D. All piping, heads, valves, meters, and other equipment shall be clearly located, sized, and specified on the Plan.

E. All pipes and wires installed under drives, walks or other paving shall be in PVC sleeves.

F. The system shall be valved to ensure variations in water requirements are considered. In no case are lawn and shrub areas allowed on the same valve.

G. All pressure tines two and one-half (2-1/2) inches and smaller shall be PVC Schedule 40. Pressure lines over two and one-half inches shall be Class 315.

H. Notes, specifications, and details are required on the installation of all items to be constructed.

I. Pop-up heads are required adjacent to areas where foot or vehicular traffic is anticipated except where drip-irrigation systems are installed.

J. Drip or bubbler irrigation systems are required for trees within parkways.

K. Sprinklers and sprays shall not be used in areas less than four (4) inches wide. Drip and bubblers shall be used that do not exceed one point five (1.5) gallons per minute per device.

L. Sprinkler heads with a precipitation rate of zero point eight five (0.85) inches per hour or less shall be used on slopes exceeding fifteen (15) percent to minimize runoff, or exceeding ten (10) percent within ten (10) feet of hardscape.

M. Sprinkler head spacing shall be designed for head-to-head coverage. The system should be designed for minimum runoff and overspray onto non-irrigated areas.

N. Valves and circuits shall be separated based on water use.

O. Sprinkler heads must have matched precipitation rates within each control valve circuit.

P. Serviceable check valves are required where elevation differential may cause low head drainage.

Q. Estimated water consumption shall be calculated in gallons per year.

23-32 Planting plans.

A. All planting designs submitted shall be sensitive towards the project site and neighboring developments. All plans should consider water efficiency, practicality of maintenance and enhancement of the site and immediate area of the project. Considerations of the plants' mature size and their appropriateness for the site and climate conditions must be considered. As used in this Article, "hydrozone" means a portion of the landscaped area having plants with similar water needs that are served by a value or set of values with the same schedule. The City encourages the use of trees appropriate for Imperial's hydrozone.

B. The City is located in a climate region classified as Arid Desert.

C. As part of any development, all areas not devoted to paving, building, improved recreational, or open space structures shall be landscaped and permanently maintained by the property owner. This includes all parkway areas not devoted to sidewalks.

D. Approved landscaping shall be maintained on a scheduled basis.

E. The Irrigation Plan shall include an annual irrigation program. A monthly irrigation schedule is required for the plant establishment period, for the established landscape, and for any temporarily irrigated areas.

23-33 Soil conditioning and maintaining.

A. A minimum of two (2) inches of mulch shall be added in non-turf areas to the soil surface after planting. Nonporous material shall not be placed under the mulch.

B. Existing soil shall be scarified to a minimum depth of six (2) inches.

23-34 Turf selection and limitations

A. No more than fifty (50) percent of the total area not covered by structures for multifamily residential projects shall be covered by a combination of turf, pools, spas, and other improved recreational areas. Of this area, no more than seventy-five (75) percent shall be covered with turf.

B. For single-family residential projects, no more than forty (40) percent of the front yard may be covered with turf.

C. For nonresidential projects, no more than twenty-five (25) percent of the total landscaping area shall be covered with turf and/or water (i.e., pools, ponds, and fountains). For such projects irrigated with reclaimed water, turf areas may not exceed forty (40) percent of the total landscaped area. Turf limitation is excluded for public parks, golf courses, cemeteries, and recreation areas.

D. No turf is allowed in areas less than four (4) feet wide.

E. Shrubs shall be minimum five (5) gallons.

F. Ground cover areas will be planted from flats or containers with a maximum spacing of twelve (12) inches on center.

G. Existing plant material to be saved must be healthy and growing. Existing trees and shrubs shall be trimmed in an aesthetically pleasing manner (place noted on Plans).

23-35 Street trees.

The Public Works Department at the current rate of cost may fulfill a parkway tree-planting requirement. Street trees are required for every development project. Every street in the City has a designated street tree. One specified minimum gallon size tree must be installed for every thirty-five (35) feet of property frontage. Trees may be clumped or spaced on a maximum of sixty-five (65) feet on center and planted according to these standards. General design criteria and information required for street trees are indicated below:

A. Trees shall be a minimum fifteen (15) gallon size with the planting of at least one (1) twenty-four (24) inch box tree for every three (3) fifteen (15) gallon trees planted, or one (1) twenty-four (24) inch box tree per thirty-five (35) feet of lineal footage, whichever results in a greater number on on-site planting.

B. Spacing of trees in on-site planters shall be one (1) tree per five (5) parking spaces.

C. Palm tree sizes shall be of a minimum of eighteen (18) to twenty (20) feet of brown trunk.

23-36 General requirements.

Safety and maintenance shall be considered in the placement of all plantings with the following specific guidelines:

A. Twenty (20) feet from the curb returns at street intersections.

B. Ten (10) feet from light standard power poles.

C. Ten (10) feet from fire hydrants.

D. Five (5) feet from service walks, driveways, buildings, walls, and permanent structure.

E. Ten (10) feet from water and sewer lines.

F. Botanical name, common name, variety, sizes, and quantity shall designate all plants specified.

G. All trees and shrubs shall be installed per standard details. The rootball shall be one (1) inch above finished grade set in a temporary water basin with amended backfill. The shrub shall be planted in a plant basin two (2) times the size of the rootball.

H. All trees shall be installed per the standard details. Two (2) ten by two (10x2) inch stakes with #12 gauge galvanized wire in rubber hose placed three (3) feet and seven (7) feet from the ground are required for all trees. A root barrier is required. A one by four (1x4) inch crosstie water basin shall be included in tree planting. The tree shall be planted with amended backfill in a plant basin one and one-half times the size of the rootball.

I. Plant design shall incorporate water saving materials; plants with similar water requirements shall be grouped together.

J. Not more than one-half (1/2) of the planting areas shall be turf grass.

K. All turf areas for a total aggregate area of two thousand (2,000) square feet shall be sod. Any area greater than this may be hydroseed.

L. All turf areas should be mounded where possible at a minimum slope of one to three (1-3) foot ratio. Maximum height of three (3) feet.

M. At least one-half (1/2) of the trees shall be canopy/shade trees.

N. An agricultural suitability soil test is recommended for all projects and may be required by the City.

O. Tree selection shall be in accordance with the Imperial hydrozone. A list of plants, shrubs, and trees appropriate for the City shall be made available through the Public Works Department.

23-37 Parking areas.

A. Parking lots of fifteen (15) or more spaces must devote at least two (2) percent of the total area, excluding perimeter landscaping, to landscape planting. This landscaping shall not be concentrated in any one area.

B. A three-foot wide (minimum) planting buffer is required along the perimeter of any parking area. This landscaping area shall not be considered as part of any required interior landscaping.

23-38 Model homes.

Any residential development that has model homes shall include at least one model furnished with water efficient landscaping. Signs shall be used to identify the model as an example of water effect landscape and feature elements such as hydrozones and irrigation equipment that contribute to water efficiency. Information shall be provided by the seller about designing, installing, and maintaining water efficient landscapes and the requirements of this Article.

23-39 Exemptions.

This Article does not apply to landscaping that is part of a registered historical site or to cemeteries. However, the City will encourage the efficient use of water and long-term landscape water conservation practices for such property.

ARTICLE V. WATER CONSERVATION

23-40 Purpose.

This Article is intended to promote reasonable conservation of water in the City consistent with maintaining a comfortable standard of living and a healthy economy. It provides a framework for the orderly and timely implementation of reasonable water conservation measures by the different elements of the City's economy. This Article also carries out certain provisions of the Water Code of the State as embodied in Article XIV, Section 3 of the Constitution of the State which states that maximum beneficial use of the water resources of the State is necessary to prevent the waste or unreasonable use, or unreasonable method of use, of water.

It is recognized that stricter water conservation measures may be necessary during a future drought or water shortage emergency. Such further measures should not penalize water users for past conservation practices, nor should implementation of water conservation measures constitute a new basis to determine future reduction in case of a declared water shortage emergency. No provision in this Article is intended to supersede any rule or regulation of the Public Utilities Commission of the state.

23-41 Definitions.

The following words and terms as used in this Article shall have the following meanings:

Applied water means water delivered to a user; also called delivered water. Applied water may be used for either inside uses or for outside watering. It does not include precipitations or distribution losses. It may apply to metered or unmetered deliveries.

Commercial establishment means establishments providing services, engaged in the fabrication of structures or other fixed improvements, or otherwise occupied in nonmanufacturing profit motivated activities. Examples are retail stores, restaurants, entertainment facilities, and home building concerns.

Commercial water use means water used by a commercial establishment.

Domestic use means all inside and outside uses of water associated with residential use; water used by commercial and industrial establishments other than in their product manufacture.

Establishment means an economic unit which produces goods or services, such as a farm, a factory or a store. In most instances, the establishment is in a single physical location, and is engaged in only one, or predominantly one, type of economic activity.

Evapotranspiration (ET) means the process of water returning to the atmosphere through evaporation from land and water surfaces and through transpiration of plants.

Farm ditch efficiency means the percent of the total volume of water supplied to the farm which is applied to the fields (a measure of distribution losses.)

Flat rate water means water sold to customers at a fixed rate irrespective of quantity used.

Industrial establishment means an establishment engaged in the mechanical or chemical transformation of inorganic or organic substances into new products, and usually described as plant, factories or mills, which characteristically use power-driven machines and materials-handling equipment. Establishments engaged in assembling component parts of manufactured products are also considered manufacturing establishments if the new product is neither a structure nor other fixed improvement.

Industrial water use means water used by an industrial establishment in the process of their product manufacture.

Inside water use means that part of the water delivery used within a home, commercial establishment, or manufacturing establishment for any purpose; also called "internal water use."

Leaching requirement (LR) means the fraction of the irrigation water that must pass through the root zone in order to prevent soil salinity from reaching a level that would result in reduced growth to crops, trees, gardens, or landscape plants.

Metered water means water sold to customers on the basis of actual measured use; does not include losses in distribution.

Net water use means the sum of delivered water consumptively used or otherwise not recoverable.

Outside water use means the use of water for irrigation of gardens, lawns, and other ornamentals, and for replenishing swimming pools, fountains, ponds, car washing, etc., also called external water use.

Pool cover means an installation over or on a swimming pool and hot tubs which is used to minimize water evaporation.

Precipitation means the total measurable supply of all natural forms of water falling on the land area, including dew, rain, mist, snow, hail and sleet; usually expressed as depth of liquid water on a horizontal surface on a daily, monthly, or yearly basis.

Public facilities mean all structures, parks, and public places, other than open space, engaged either in serving the public or in providing a public use.

Public water use means water use associated with public facilities.

Reasonable use of water involves the application of sufficient applied water to meet demands of a designated beneficial use in a manner consistent with efficiency, public health and sanitation concerns, current technology, and local economic conditions. During dry years, practical and economically feasible means should be taken to minimize applied water use and incidental losses. During periods of normal water supplies, reasonable urban water uses include, but are not limited to, the following beneficial uses:

A The use of water for interior household purposes to maintain personal standards of cleanliness and sanitation;

B The use of water for exterior household purposes to maintain personal standards of exterior cleanliness, landscaping, and recreational facilities;

C The use of water for commercial purposes to maintain the services offered and to satisfy the health, esthetic, and safety needs of both employees and the public;

D The use of water for industrial purposes, including cooling, processing, and other production related needs, and to satisfy health, esthetic, and safety needs of the employees;

E The use of sufficient water to maintain community services including, but not limited to, public safety, including fire fighting; schools and institutions; transportation systems; public streets and buildings; water supplies; sewage and garbage disposals; recreational and esthetic enjoyment areas such as parks, swimming pools, lakes, streams, golf courses, and landscaping.

Recirculation means the reuse of water within a partially or completely closed system of pipes and appliances without the benefit of treatment, where its quality, other than its temperature, may not be altered.

Reclaimed water means the collection and appropriate treatment of used water to bring it to a quality suitable for reuse.

Recycle means the recovery of water suitable for reuse without treatment.

Residential water use means all inside and outside uses of water associated with residential areas.

Service area means the area of land included in the distribution system of a water agency.

Type of water use means a distinction of water use based on either a kind of land use (recreational, residential, commercial, etc.) or a kind of water use (outside use, personal use, swimming pool use, dishwashing use, etc.)

Unaccounted for water means the difference between the quantity of water introduced into the system and the quantity delivered to the eventual consumer; usually expressed as a percentage of water introduced into the system.

Unit water use means the average quantity of water used per person, acre, etc., over a specified period of time.

Unreasonable use (waste) means failure to take appropriate measures to minimize excess application and incidental losses of water. Examples of waste are excessive runoff from irrigation or from broken plumbing.

Unreclaimable water means used water which is uneconomical to reclaim due to its location, or physical or chemical quality.

Urban water use means the use of water for urban purposes, including residential, municipal, commercial, industrial, recreational, military, and institutional classes. The term is applied in the sense that it is a kind of use rather than a place of use; includes delivered water and unaccounted for water.

Water agency means the Imperial water district; water agency organized, founded or established to produce and distribute water directly or indirectly to customers.

Water application efficiency means the percentage of the volume of water delivered to the farm or farms by a conveyance system to the volume of water delivered to the conveyance system at the supply source.

Water produced means the total water introduced into a system or the sum of applied water and unaccounted for water.

23-42 Metering.

On or after adoption of the ordinance codified in this Article, all new water service connections provided by the water agency, including detector check meters on private fire protection services, shall be metered.

23-43 Public assistance.

Water saving devices and information shall be made available by the water agency. However, the cost of any water saving device or devices shall be borne by the consumer requesting the device. The water agency shall also reasonably assist customers to detect leaks and increase the efficiency of applied water.

23-44 Waste.

Unreasonable use of water is prohibited. Upon written notification to the user by the water agency, all unreasonable use of water shall be terminated and any required repairs to broken or defective plumbing, sprinkler, watering or irrigation devices shall be made within five calendar days or water service to the use may be terminated until corrective measures are taken.

23-45 Pool and hot tub covers.

Covers shall be required for all new swimming pools and hot tubs and encouraged to be installed for existing pools.

23-46 Residential water pressure.

Except for fire protection service lines, a pressure reducing valve, or valves, that will limit the static water pressure to any internal water outlet of the structure to eighty (80) pounds per square inch gauge, shall be installed in all new residential structures or those existing residential structures requiring a plumbing permit for modification of, or addition to, the existing plumbing.

23-47 New or remodeled structures.

The following shall be installed in all new or remodeled residential, commercial, or industrial structures:

A Insulation of newly installed hot water pipes where such piping is located in attics, garages, crawl spaces, or unheated spaces other than between floors or in interior walls, to provide a maximum heat loss of fifty (50) British Thermal Units per hour per linear foot for piping up to and including two (2) inches in diameter, and one hundred (100) British Thermal Units per hour per linear foot for all sizes greater than two (2) inches in diameter;

B If newly installed or replaced, tank toilets utilizing not more than three and one-half (3-1/2) gallons of water per flush action;

C If newly installed or replaced, pressure reducing devices, or flow restrictors to limit the flow of water consistent with the intended use.

23-48 Pressure reducing valve.

In new or remodeled commercial or industrial structures requiring a plumbing permit, a pressure reducing valve, or valves, to limit the static water pressure to eighty (80) pounds per square inch gauge to the upper floor of the structure, shall be installed only if no supplemental internal pumping is anticipated. The intent of this section is to limit available water pressure to the structure consistent with uses of water on the premises.

23-49 Vehicle washing.

Any new or remodeled vehicle washing facility requiring a plumbing permit, which utilizes more than twenty-five (25) gallons of water per vehicle, shall have a waste wash water recycling system.

23-50 Recirculation.

Two (2) years from the effective date of the ordinance codified in this Article, no use of water will be permitted where recirculation of the water is economically, technically, and hygienically feasible in all new, commercial, or industrial structures.

An "economically feasible recirculation installation" is defined as, over the useful life of the equipment to be installed, a system where the present worth of the cost of the water saved is more than the present worth of both the capital, and the annual operation and maintenance costs. Such economic and technical feasibility shall be prepared by the user with the determination of feasibility made by the City building official.

23-51 Landscaping.

A. Purpose. The ordinance codified in this section shall be known and referred to as the Water Efficient Landscaping Ordinance and is adopted for the following purposes:

    1. To promote the values and benefits of landscaping while recognizing the need to invest water and other resources as efficiently as possible;

    2. To establish a structure for designing, installing and maintaining water efficient landscapes in new projects; and

    3. To establish provisions for water management practices and water waste prevention for established landscapes.

B. Applicability. This section shall apply to the following types of projects, except as provided in Subsection C of this Section:

    1 All projects where the entire property is being developed or redeveloped with one or more new structures, other than accessory structures. For purposes of this section, "new structures" are defined as those which have completely new foundations, walls and roofs;

    2 All projects where the existing structures are remodeled, renovated and/or expanded in size and where the project includes the relandscaping or loss due to damage or neglect during construction of fifty (50) percent, or more of the remaining landscape area. In such cases, only the newly landscaped areas and/or damaged areas shall be subject to this section;

    3 All landscaping projects, other than the construction of decks, patios, barbecues, play equipment and swimming pools, which require a planning approval or building permit.

C. Exemptions. This section shall not apply to the following types of projects:

    1 Cemeteries;

    2 Properties with an historical site designation;

    3 Ecological restoration projects that do not require a permanent irrigation system;

    4 Land reclamation projects that do not require a permanent irrigation system; or

    5 Any project with a landscaped area and/or existing landscaped area loss due to damage or neglect less than two thousand five hundred (2,500) square feet in area.

D. Review and Approval of Landscape Plans.

1 A Landscape Plan shall be submitted to the City which shall include all of the documentation listed in Subsection E of this Section.

2 Applicants must choose one of the following methods for submitting a Landscape Plan:

3 Prior to submittal to the City, the Landscape Plan and all supporting documentation shall be reviewed by an independent certified landscape architect to ensure that all components of the Landscape Plan adhere to this section. The certified landscape architect shall sign the plans as verification that the Landscape Plans comply with this Section.

4 Applicants may submit a Landscape Plan to the City for review and at the time of submittal, inform the City that they wish to use the City's official landscape and irrigation specialist for the review and verification that the plans comply with this Section. In this case, the applicant shall pay a fee to the City in an amount sufficient to cover the cost of all related reviews, inspections and verifications.

5 Verification by either an independent certified landscape architect or the City's official landscape and irrigation specialist shall be completed prior to issuance of a building permit for the project.

6 Prior to final building inspection of the project, the irrigation and landscaping shall be installed and the certified professional who reviewed the Landscape Plans shall verify that the installation was completed in compliance with the approved Landscape Plans and this Section.

7 Prior to final building inspection of the project, a deed restriction shall be filed with the Imperial County Recorder's Office stating that the property is subject to the requirements of this section and that any relandscaping of the property by the present or future property owners shall adhere to this section.

E. Landscape Plan Components. Landscape Plans shall include the following information:

1 Landscape Area. The "landscape area" is defined as the gross lot area less the building footprint, driveway, parking areas, decks, patio, porches, walkways, and grasscrete areas;

2 Description of Water Delivery Elements. The description of the water delivery elements shall include the following:

a The location, type, and size of equipment such as meters, controllers, main and lateral lines, moisture sensors, valves, sprinkler heads, backflow devices, and quick-couplers.

b Flowrate and static water pressure at the point of connection (POC),

c Flowrate and precipitation rate in inches per hour at each valve station, and

d Projected water use to maintain adequate plant health and growth;

3 Soil Care Before Planting. Information on soil characteristics and preparation, including horticultural suitability of the soil and recommendations for amending and preparing the soil for planting;

4 Soil Care After Planting. A minimum of two (2) inches of mulch shall be used in nonturf areas after planting. Visqueen, sheet plastic, or other nonporous materials shall not be placed under mulch;

5 Turf. The following shall apply:

a Turf area includes turf and water areas such as ponds, fountains, swimming pools, and outdoor spas.

b No trees shall be planted in turf areas.

c No turf shall be allowed in areas eight (8) feet wide or less, or on slopes exceeding fifteen (15) percent (6.6:1).

d Turf areas shall be limited to twenty-five (25) percent of landscape area or, for residential areas, five hundred (500) square feet per dwelling unit, whichever is greater.

e Drought tolerant turf species are encouraged.

6 Valves. The following shall apply:

a Sprinkler head check valves shall be used to prevent low head drainage.

b Separate valves for turf and nonturf areas shall be provided. Each valve shall service only plant materials of similar watering needs as well as similar micro-climates created within the project.

7 Sprinkler Heads. The following shall apply:

a Sprinkler heads shall be spaced at a maximum of fifty (50) percent of the diameter of throw for square spacing and sixty (60) percent for triangular spacing.

b Sprinkler heads shall have matched precipitation rates within each control valve circuit.

c Pop-up sprinklers in turf areas shall have at least a four-inch pop-up height.

8 Controllers. The following shall apply:

a Controllers shall be automatic and capable of dual programming, such that they may be set for separation of turf and nonturf areas.

b Controllers shall have multiple cycle capability.

c Controllers shall have percentage switches which should be able to be set for one season or one month and have switches that will easily increase or decrease the time programmed by a certain percentage. All stations should have their time increased/ decreased with only one entry.

9. Irrigation Schedule and Characteristics. The following shall apply:

    a. A schedule shall be developed which allows for plant material to be established. This shall have a maximum two (2) year time period. Once established, a revised schedule shall be developed for maintenance of the plant material. The schedule presently in effect shall be posted at the controller.

    b. The schedule shall include run times and frequency, an application rate which is less than one-quarter (1/4) inch per cycle on all irrigation, a minimum one hour time interval between all applications, and provisions for irrigation only between the hours of ten (10) p.m. and seven (7) a.m.

    c. Drip, bubbler, or mini-spray irrigation shall be provided for trees and shrubs.

    d. Backflow prevention units shall comply with all applicable health and safety standards.

    e. The irrigation system shall not deliver spray or run-off onto paved area or streets.

    f. Rain sensing override devices shall be required on all irrigation systems.

    g. Soil moisture sensing devices should be considered where appropriate.

10. Plant Selection. Water conserving or drought tolerant plant materials are recommended.

11. Water Features. All decorative pools, ponds, streams, and fountains shall be equipped to recirculate water.

12. Maintenance Schedule. A maintenance schedule shall be prepared which provides for checking, adjusting, and repairing irrigation equipment, aerating and dethatching turf areas, replenishing mulch, and fertilizing, pruning, weeding, and removing litter.

23-52 Agriculture.

In determining the reasonable beneficial use of irrigation water for field agriculture, local custom should be considered, and perhaps modified, according to evapotranspiration rates for different crops, infiltration rates of applied water on different soil types and land areas with varying degrees of slope, and water application efficiency and the types of distribution systems available. The development and utilization, within legal constraints, of the following water saving techniques shall be encouraged with consideration given to the economics of the various agricultural enterprises. These concepts shall be encouraged by advisory and regulatory agencies as follows:

A Field Agriculture.

1 Utilization of an efficient irrigation system suited to the conditions with the scheduling of irrigation according to plant requirements,

2 Use of reclaimed wastewater to irrigate field grown flowers and ornamentals when water quality, environmental conditions, public health, and economic considerations permit such use,

3 Adjustment of planting schedules and amounts to projected water supply,

4 Construction of on-farm reservoirs to collect winter runoff and increase water storage,

5 Collection and recycling of runoff water where possible,

6 Encouragement of cooperation between riparian and nonriparian users who share a stream water supply;

B Greenhouse Culture.

1 Utilization of an efficient irrigation system suited to the conditions,

2 Construction of reservoirs to catch runoff water from greenhouse roofs and adjoining areas,

3 Construction of catch basins with return pumping systems to collect and recycle drainage water from plants grown inside the greenhouse, if the quality is satisfactory,

4 Collection and use of rainfall and runoff from adjoining farm lands.

23-53 Shortages.

Notwithstanding the foregoing relating to conservation of water supplies, it is apparent that in times of a declared water shortage emergency pursuant to Section 350 et seq. of the Water Code of the state, certain additional mandatory water conservation practices will be necessary. It is the intent of this Article that after allocation and setting aside the amount of water needed for domestic use, sanitation and fire protection, the emergency regulations shall establish priorities in the use of water for other purposes and shall provide for the allocation, distribution, and delivery of water for such other purposes, without discrimination between consumers using water for the same purpose or purposes. Regulations so adopted shall not penalize water users for past conservation practices.

Appendix F

Public Notices and Comments

Integrated Resource Management, LLC

October 12, 2005

Ms. Yazmin Arellano
City of Brawley
400 Main Street
Brawley, California 92227

RE: City of Imperial 2005 California Urban Water Management Plan

Dear Ms. Arellano,

The City of Imperial would like to announce to local public officials and community organizations that it is in the process of preparing its 2005 Urban Water Management Plan, as required by California Water Code Sections 10610 – 10656.

The City of Imperial Community Development Department has hired Integrated Resource Management, LLC to develop this Plan. We invite anyone who has questions or wishes to raise concerns about this process to contact us directly at (909) 621-1266.

We may soon be in contact with you to request information necessary for the development of the Plan, and appreciate in advance your assistance.

A draft of the Plan will soon be completed and made available for comment and clarification.

We look forward to your participation in the development of the City of Imperial's 2005 Urban Water Management Plan.

Sincerely,

Robert W. Bowcock, President
Integrated Resource Management, LLC

405 North Indian Hill Boulevard
Claremont, CA 91711-4600

(909) 621-1266
(909) 621-1196 Fax

Integrated Resource Management, LLC

November 18, 2005

Ms. Yazmin Arellano
City of Brawley
400 Main Street
Brawley, California 92227

RE: Notice of Draft Availability
City of Imperial 2005 California Urban Water Management Plan

Dear Ms. Arellano,

The City of Imperial would like to announce to local public officials and community organizations that the Draft City of Imperial 2005 Urban Water Management Plan will be available for public review for two weeks from November 23 through December 7, 2005.

Copies of the Draft Plan will be available at the City of Imperial's City Hall (420 Imperial Avenue, Imperial, California 92251) and the City Public Library (200 West 9th Street, Imperial, California 92251), as well as on the city's website (http://www.imperial.ca.gov).

A public hearing is scheduled at the beginning of the City Council Meeting on December 7, 2005. All those who wish to make public comment concerning the content and/or development of this Draft Plan should do so at that time.

The City of Imperial Community Development Department has hired Integrated Resource Management, LLC to develop this Plan. We invite anyone who has questions or wishes to raise concerns about this Draft Plan to contact us directly at (909) 621-1266.

We look forward to your participation in the development of Imperial's 2005 Urban Water Management Plan, and appreciate your involvement.

Sincerely,

Justin M. Scott-Coe
Integrated Resource Management, LLC

405 North Indian Hill Boulevard
Claremont, CA 91711-4600

(909) 621-1266
(909) 621-1196 Fax

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mudslinging campaign, trouncing Republican Doug Forrester by 10 percentage points. Polls in the last week had forecast a much closer race.

redistricting powers, making teachers work five years instead of two to pass probation, and restricting political spending by public employee unions.

City of Imperial
Update of Urban Water Management Plan

The City of Imperial has hired Integrated Resource Management, LLC to develop the City's Urban Water Management Plan during 2005.

The City encourages all of its customers to participate in this review process. Any proposed revisions to the Plan will be made available for public review and will be the subject of a public hearing later this year.

In the meantime, if you would like to learn more about the current Plan, the schedule for considering changes to it, or how to participate in the process, please contact:

Justin M. Scott-Coe
Integrated Resource Management, LLC
405 North Indian Hill Boulevard
Claremont, California 91711

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included a raffle, in which a lucky few walked away with gifts ranging from gift certificates to kitchen essentials.

wide company and make it local."

» Robert Hong can be reached at rhong@ivpressonline.com or 344-1221

City of Imperial
Update of Urban Water Management Plan

The City of Imperial has hired Integrated Resource Management, LLC to develop the City's Urban Water Management Plan during 2005.

The City encourages all of its customers to participate in this review process. Any proposed revisions to the Plan will be made available for public review and will be the subject of a public hearing later this year.

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Justin M. Scott-Coe
Integrated Resource Management, LLC
405 North Indian Hill Boulevard
Claremont, California 91711

Imperial Valley Press and KX

Appendix G

California Department of Water Resources UWMP Review Sheets

2005 Urban Water Management Plan "Review for Completeness" Form

Coordination with Appropriate Agencies **(Water Code § 10620 (d)(1)(2))**

Yes

N/A Participated in area, regional, watershed or basin wide plan — N/A Reference & Page Number

Name of plan N/A Lead Agency Imperial Irrigation District — N/A Reference & Page Number

X Describe the coordination of the plan preparation and anticipated benefits. — Sect. 2.2, pg 12 Reference & Page Number

Table 1
Coordination with Appropriate Agencies

Check at least one box on each row	Participated in developing the plan	Commented on the draft	Attended public meetings	Was contacted for assistance	Was sent a copy of the draft plan	Was sent a notice of intention to adopt	Not Involved / No Information
Imperial Irrigation District	√	√		√	√	√	
County of Imperial						√	
City of El Centro						√	
City of Westmoreland						√	
City of Brawley						√	
City of Holtville						√	
City of Calexico						√	
Imperial Chamber of Commerce						√	
Salton Sea Authority						√	
Salton Sea National Wildlife Refuge						√	

Describe resource maximization / import minimization plan **(Water Code §10620 (f))**

N/A Describe how water management tools / options maximize resources & minimize need to import water — Reference & Page Number

Plan Updated in Years Ending in Five and Zero **(Water Code § 10621(a))**

X Date updated and adopted plan received Dec. 31, 2005 (enter date) — Sect. 2.4, pg 13 Reference & Page Number

City and County Notification and Participation **(Water Code § 10621(b))**

X Notify any city or county within service area of UWMP of plan review & revision — Sect. 2.2, pg 12 Reference & Page Number

X Consult and obtain comments from cities and counties within service area — Sect. 2.2, pg 12 Reference & Page Number

Service Area Information — Water Code § 10631 (a))

X	Include current and projected population	Sect. 3.1.4, pg 18 Reference & Page Number
X	Population projections were based on data from state, regional or local agency	Sect. 3.1.4, pg 18 Reference & Page Number

Table 2
Population - Current and Projected

	2005	2010	2015	2020	2025	2030
Service Area Population	10,289	13,260	19,299	25,259	30,970	36,448

X	Describe climate characteristics that affect water management	Sect. 3.2.2, pg 24 Reference & Page Number
X	Describe other demographic factors affecting water management	Sect. 3.1, pg 15-2 Reference & Page Number

Table 3
Climate

	January	February	March	April	May	June
Standard Average ETo	2.47	3.24	5.5	7.46	8.92	9.17
Average Rainfall	0.44	0.35	0.28	0.08	0.02	0
Average Temperature	55.9	59.9	64.6	70.7	77.8	86

Table 3 (continued)
Climate

	July	August	September	October	November	December	Annual
Average ETo	9.02	8.46	6.77	5.3	3.09	2.22	**71.62**
Average Rainfall	0.11	0.26	0.27	0.24	0.21	0.35	**2.61**
Average Temperature	91.7	91.4	86.4	75.8	63.6	55.9	**73.31**

Water Sources — (Water Code § 10631 (b))

X	Identify existing and planned water supply sou	Sect. 4.1, pg 27 Reference & Page Number
X	Provide current water supply quantities	Sect. 4.1, pg 27 Reference & Page Number
X	Provide planned water supply quantities	Sect. 4.1, pg 27 Reference & Page Number

Table 4
Current and Planned Water Supplies - AFY

Water Supply Sources	2005	2010	2015	2020	2025	2030
Imperial Irrigation District	2,331	2,983	4,340	5,681	6,966	8,200
Local Groundwater	0	0	0	0	0	0
Recycled Water (projected use)	0	0	0	0	0	0
Desalination	0	0	0	0	0	0
Total	**2,331**	**2,983**	**4,340**	**5,681**	**6,966**	**8,200**

If Groundwater identified as existing or planned source		(Water Code §10631 (b)(1-4))
N	Has management plan	Sect. 4.1.2, pg 32 Reference & Page Number
N/A	Attached management plan (b)(1)	Reference & Page Number
X	Description of basin(s) (b)(2)	Sect. 4.1.2, pg 33 Reference & Page Number
N	Basin is adjudicated	Sect. 4.1.2, pg 33 Reference & Page Number
N/A	If adjudicated, attached order or decree (b)(2)	Reference & Page Number
N/A	Quantified amount of legal pumping right (b)(2)	Reference & Page Number

Table 5
Groundwater Pumping Rights - AF Year

Basin Name	Pumping Right - AFY
Imperial Valley Groundwater Basin	N/A
Total	0

N	DWR identified, or projected to be, in overdraft (b)(2)	Sect. 4.1.2, pg 32 Reference & Page Number
N/A	Plan to eliminate overdraft (b)(2)	Reference & Page Number
X	Analysis of location, amount & sufficiency, last five years (b)(3)	Sect. 4.1.2, pg 32 Reference & Page Number
X	Analysis of location & amount projected, 20 years (b)(4)	Sect. 4.1.2, pg 32 Reference & Page Number

Table 6
Amount of Groundwater pumped - AFY

Basin Name (s)	2000	2001	2002	2003	2004
Imperial Valley Groundwater Basin	0	0	0	0	0
% of Total Water Supply	0	0	0	0	0

Table 7
Amount of Groundwater projected to be pumped - AFY

Basin Name(s)	2010	2015	2020	2025	2030
Imperial Valley Groundwater Basin	0	0	0	0	0
% of Total Water Supply	0.0%	0.0%	0.0%	0.0%	0.0%

Reliability of Supply (Water Code §10631 (c) (1-3)

X	Describes the reliability of the water supply and vulnerability to seasonal or climatic shortage	Sect. 7.1, pg 49	Reference & Page Number

Table 8
Supply Reliability - AF Year

		Multiple Dry Water Years			
Average / Normal Water Year	Single Dry Water Year	Year 1	Year 2	Year 3	Year 4
2,331	2,461	2,461	2,591	2,721	2,852
% of Normal	105.6%	105.6%	111.2%	116.7%	122.4%

Table 9
Basis of Water Year Data

Water Year Type	Colorado River		
Average Water Year	N/A		Reference & Page Number
Single-Dry Water Year	N/A		Reference & Page Number
Multiple-Dry Water Years	N/A		Reference & Page Number

Water Sources Not Available on a Consistent Basis (Water Code §10631 (c))

X		Describe the reliability of the water supply due to seasonal or climatic shortages	Sect. 7.1, pg 49	Reference & Page Number
X		Describe the vulnerability of the water supply to seasonal or climatic shortages	Sect. 4.2.1, pg 37	Reference & Page Number
	X	No unreliable sources	Sect. 7.1, pg 49	Reference & Page Number

Table 10
Factors resulting in inconsistency of supply

Name of supply	Legal	Environ-mental	Water Quality	Climatic
Imperial Irrigation District	Law of River	Recent Leg.	TDS, Nitrate	Drought

N/A		Describe plans to supplement or replace inconsistent sources with alternative sources or DMMs		Reference & Page Number
	X	No inconsistent sources	Sect. 4.2, pg 36	Reference & Page Number

Transfer or Exchange Opportunities (Water Code §10631 (d))

N/A		Describe short term and long term exchange or transfer opportunities	Reference & Page Number
	X	No transfer opportunities	Sect. 4.3.2, pg 39 Reference & Page Number

Table11 Transfer and Exchange Opportunities - AF Year					
Transfer Agency	Transfer or Exchange	Short term	Proposed Quantities	Long term	Proposed Quantities
N/A					
Total			0		0

Water Use Provisions (Water Code §10631 (e)(1)(2))

X	Quantify past water use by sector	Sect. 5.1, pg 41 Reference & Page Number
X	Quantify current water use by sector	Sect. 5.1, pg 41 Reference & Page Number
X	Project future water use by sector	Sect. 5.1, pg 41 Reference & Page Number

TABLE 12 - Past, Current and Projected Water Deliveries						
	2000		2005		2010	
	metered		metered		metered	
Water Use Sectors	# of accounts	Deliveries AFY	# of accounts	Deliveries AFY	# of accounts	Deliveries AFY
Single family	1,951	1,424	2,292	1,593	2,916	2,039
Multi-family	103	167	417	299	546	382
Commercial / Industrial	132	50	147	60	109	77
other	125	33	93	40	73	51
Total	2,311	1,674	2,949	1,992	3,644	2,549

TABLE12 (continued) - Past, Current and Projected Water Deliveries								
	2015		2020		2025		2030	
	metered		metered		metered		metered	
Water Use Sectors	# of accounts	Deliveries AFY	# of accounts	Deliveries AFY	# of accounts	Deliveries AFY	# of accounts	Deliveries AFY
Single family	4,242	2,967	5,553	3,884	6,810	4,762	8,016	5,606
Multi-family	795	556	1,041	728	1,276	893	1,503	1,051
Commercial / Industrial	159	112	208	146	255	179	300	210
other	106	74	139	97	170	119	200	140
Total	5,302	3,709	6,941	4,855	8,511	5,953	10,019	7,007

N/A		Identify and quantify sales to other agencies	Reference & Page Number
	X	No sales to other agencies	Sect. 4.3.2, pg 39 Reference & Page Number

Table 13 Sales to Other Agencies - AF Year							
Water Distributed	**2000**	**2005**	**2010**	**2015**	**2020**	**2025**	**2030**
N/A	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

X	Identify and quantify additional water uses	Sect. 5.2, pg 42	Reference & Page Number

Table 14 Additional Water Uses and Losses - AF Year							
Water Use	**2000**	**2005**	**2010**	**2015**	**2020**	**2025**	**2030**
Production Loss	167	199	255	371	486	595	701
Delivery System Losses	118	140	179	260	341	418	492
Total	285	339	434	631	826	1,013	1,193

Table 15 Total Water Use - AF Year							
Water Use	**2000**	**2005**	**2010**	**2015**	**2020**	**2025**	**2030**
Total of Tables 12, 13, 14	1,959	2,331	2,983	4,340	5,681	6,966	8,200

2005 Urban Water Management Plan "Review of DMMs for Completeness" Form **(Water Code §10631 (f)**

(Water Code §10631 (f) & (g), the 2005 Urban Water Management Plan "Review of DMMs for Completeness" Form is found on Sheet 2

See Section 6.3, page 45 in Plan

Planned Water Supply Projects and Programs, including non-implemented DMMs **(Water Code §10631 (g))**

N/A	No non-implemented / not scheduled DMMs		Reference & Page Number
X	Cost-Benefit includes economic and non-economic factors (environmental, social, health, customer impact, and technological factors)	Sect. 6.3, pg 45	Reference & Page Number
X	Cost-Benefit analysis includes total benefits and total costs	Sect. 6.3, pg 45	Reference & Page Number
N/A	Identifies funding available for Projects with higher per-unit-cost than DMMs		Reference & Page Number
X	Identifies Suppliers' legal authority to implement DMMs, efforts to implement the measures and efforts to identify cost share partners	Sect. 6.3, pg 45	Reference & Page Number

Table 16 Evaluation of unit cost of water resulting from non-implemented / non-scheduled DMMs and planned water supply project and programs	
Non-implemented & Not Scheduled DMM / Planned Water Supply Projects (Name)	**Per-AF Cost ($)**
Water Survey Programs for Single-Family Residential and Multi-Family Residential Connections	**25**
Residential Plumbing Retrofit	**50**
System Water Audits, Leak Detection and Repair	**N/A**
Metering With Commodity Rates for All New Connections and Retrofit of Existing Connections	**N/A**
Large Landscape Conservation Programs and Incentives	**25**
High-Efficiency Washing Machine Rebate Programs	**25**
Public Information Programs	**N/A**
School Education Programs	**20**
Conservation Programs for Commercial, Industrial and Institutional Accounts	**25**
Wholesale Agency Assistance Programs	**N/A**
Conservation Pricing	**25**
Conservation Coordinator	**50**
Water Waste Prohibition	**N/A**
Residential ULFT Replacement Programs	**50**

Planned Water Supply Projects and Programs		**(Water Code §10631 (h))**	
X	No future water supply projects or programs	Sect. 4.3.1, pg 39	
N/A	Detailed description of expected future supply projects & programs		Reference & Page Number
N/A	Timeline for each proposed project		Reference & Page Number
N/A	Quantification of each projects normal yield (AFY)		Reference & Page Number
N/A	Quantification of each projects single dry-year yield (AFY)		Reference & Page Number
N/A	Quantification of each projects multiple dry-year yield (AFY)		Reference & Page Number

Table 17 Future Water Supply Projects							
Project Name	**Projected Start Date**	**Projected Completion Date**	**Normal-year AF to agency**	**Single-dry year yield AF**	**Multiple-Dry-Year 1 AF**	**Multiple-Dry-Year 2 AF**	**Multiple-Dry-Year 3 AF**
N/A							

Opportunities for development of desalinated water (Water Code §10631 (i))

N/A Describes opportunities for development of desalinated water — Sect. 4.3.3, pg 40 Reference & Page Number

X No opportunities for development of desalinated water

Table 18 Opportunities for desalinated water	
Sources of Water	Check if yes
Brackish groundwater	√

District is a CUWCC signatory (Water Code § 10631 (j))

Urban suppliers that are California Urban Water Conservation Council members may submit the annual reports identifying water demand management measures currently being implemented, or scheduled for implementation, to satisfy the requirements of subdivisions (f) and (g). The supplier's CUWCC Best Management Practices Report should be attached to the UWMP.

N Agency is a CUWCC member — Sect. 6.2, pg 44 Reference & Page Number

N/A 2003-04 annual updates are attached to plan — Reference & Page Number

N/A Both annual updates are considered completed by CUWCC website — Reference & Page Number

If Supplier receives or projects receiving water from a wholesale supplier (Water Code §10631 (k))

Yes

X Agency receives, or projects receiving, wholesale water — Sect. 4.1.1, pg 27 Reference & Page Number

N Agency provided written demand projections to wholesaler, 20 years — Sect. 4.1.1, pg 27 Reference & Page Number

Table 19 Agency demand projections provided to wholesale suppliers - AFY					
Wholesaler	2010	2015	2020	2025	2030
Imperial Irrigation District	N/A				

N Wholesaler provided written water availability projections, by source, to agency, 20 years — Sect. 4.1.1, pg 27 Reference & Page Number
(if agency served by more than one wholesaler, duplicate this table and provide the source availability for each wholesaler)

Table 20 Wholesaler identified & quantified the existing and planned sources of water- AFY					
Wholesaler sources	2010	2015	2020	2025	2030
Imperial Irrigation District	N/A				

Y/N Reliability of wholesale supply provided in writing by wholesale agency — Sect. 7.1, pg 49 Reference & Page Number
(if agency served by more than one wholesaler, duplicate this table and provide the source availability for each wholesaler)

Table 21 Wholesale Supply Reliability - % of normal AFY					
	Multiple Dry Water Years				
Wholesaler sources	Single Dry	Year 1	Year 2	Year 3	Year 4
Imperial Irrigation District	100%	100%	100%	100%	100%

Table 22 Factors resulting in inconsistency of wholesaler's supply				
Name of supply	Legal	Environ.	Water Quality	Climatic
Imperial Irrigation District	Law of River	Recent Leg.	TDS, Nitrate	Drought

Water Shortage Contingency Plan Section **(Water Code § 10632)**

Stages of Action **(Water Code § 10632 (a))**

X	Provide stages of action	Sect. 8.2, pg 53	Reference & Page Number
X	Provide the water supply conditions for each stage	Sect. 8.2, pg 53	Reference & Page Number
X	Includes plan for 50 percent supply shortage	Sect. 8.4, pg 53	Reference & Page Number

Table 23 Water Supply Shortage Stages and Conditions RATIONING STAGES		
Stage No.	Water Supply Conditions	% Shortage
Phase I	y Engineer drought declaration; 20% reduction from SFPUC	20
Phase II	40% reduction from SFPUC	40
Phase III	60% reduction from SFPUC	60

Three-Year Minimum Water Supply **(Water Code §10632 (b))**

N/A	Identifies driest 3-year period		Reference & Page Number
X	Minimum water supply available by source for the next three years	Sect. 8.3, pg 53	Reference & Page Number

Table 24 Three-Year Estimated Minimum Water Supply - AF Year				
source**	Normal	Year 1	Year 2	Year 3
Imperial Irrigation District	2,331	2,461	2,591	2,721
Total	2,331	2,461	2,591	2,721

*Note: If reporting after 2005, please change the column headers (Year 1, 2, & 3) to the appropriate years

Preparation for catastrophic water supply interruption (Water Code §10632 (c))

X Provided catastrophic supply interruption plan — Sect. 8.4, pg 53 Reference & Page Number

Table 25 Preparation Actions for a Catastrophe	
Possible Catastrophe	**Check if Discussed**
Regional Power Outage	√
Earthquake	√
Terrorist Attack	√
SFPUC Pipe Breakage	√

Prohibitions (Water Code § 10632 (d))

X List the mandatory prohibitions against specific water use practices during water shortages — Sect. 8.5, pg 54 Reference & Page Number

Table 26 Mandatory Prohibitions	
Examples of Prohibitions	**Stage When Prohibition Becomes Mandatory**
Restrict excess runoff - general	Phase I
Restrict excess runoff - irrigation	Phase I
Restrict lawn/landscape irrigation - 6pm-8am	Phase I
Restrict commercial agr./nursery - 6pm-11am	Phase I
No pavement washdown	Phase I
No restaurant water service, except by request	Phase I
Water meter tampering protection	Phase I
Fire hydrant usage protection	Phase I
Required conservation plan and irrigation schedule - major irrigators	Phase I
Restrict vehicle washing (reclaimed water exemption)	Phase I
No aesthetic water usage	Phase I
Post notice of water shortage in hotels/motels	Phase I
90% limited overall use (single-family limited exemption)	Phase II
Restrict pool use	Phase II
Restrict lawn/landscape irrigation - every third day, 6pm-6am (reclaimed water exemption)	Phase II

Restrict commercial agr./nursery, major irrigators - every other day, 6pm-10am (reclaimed water exemption)	Phase II
80% limited overall use (single-family limited exemption)	Phase III
No lawn/landscape irrigation	Phase III
Restrict commercial agr./nursery, major irrigators - every third day, 6pm-10am (reclaimed water exemption)	Phase III

Consumption Reduction Methods (Water Code § 10632 (e))

[X] List the consumption reduction methods the water supplier will use to reduce water use in the most restrictive stages with up to a 50% reduction.

Sect. 8.5, pg 54 Reference & Page Number

Table 27
Consumption Reduction Methods

Consumption Reduction Methods	Stage When Method Takes Effect	Projected Reduction (%)
Restrict excess runoff - general	Phase I	1
Restrict excess runoff - irrigation	Phase I	1
Restrict lawn/landscape irrigation - 6pm-8am	Phase I	1
Restrict commercial agr./nursery - 6pm-11am	Phase I	1
No pavement washdown	Phase I	2
No restaurant water service, except by request	Phase I	1
Water meter tampering protection	Phase I	1
Fire hydrant usage protection	Phase I	1
Required conservation plan and irrigation schedule - major irrigators	Phase I	3
Restrict vehicle washing (reclaimed water exemption)	Phase I	2
No aesthetic water usage	Phase I	5
Post notice of water shortage in hotels/motels	Phase I	2
90% limited overall use (single-family limited exemption)	Phase II	10
Restrict pool use	Phase II	1
Restrict lawn/landscape irrigation - every third day, 6pm-6am (reclaimed water exemption)	Phase II	5
Restrict commercial agr./nursery, major irrigators - every other day, 6pm-10am (reclaimed water exemption)	Phase II	1
80% limited overall use (single-family limited exemption)	Phase III	20
No lawn/landscape irrigation	Phase III	20
Restrict commercial agr./nursery, major irrigators - every third day, 6pm-10am (reclaimed water exemption)	Phase III	2

Penalties (Water Code § 10632 (f))

X	List excessive use penalties or charges for excessive use	Sect. 8.5, pg 54	Reference & Page Number

Table 28 Penalties and Charges	
Penalties or Charges	**Stage When Penalty Takes Effect**
$50 fine	All stages; First violation
$100 fine	All stages; Second violation
$200 fine	All stages; Third violation
Flow restriction device installation	All stages; Third violation
Midemeanor charge	All stages; Third violation
Termination of water service (restoration charge $100)	All stages; Fourth violation
Surcharge equal to 25% use exceedance	All stages; Each violation

Revenue and Expenditure Impacts (Water Code § 10632 (g))

X	Describe how actions and conditions impact revenues	Sect. 8.6, pg 56	Reference & Page Number
X	Describe how actions and conditions impact expenditures	Sect. 8.6, pg 56	Reference & Page Number
X	Describe measures to overcome the revenue and expenditure impacts	Sect. 8.6, pg 56	Reference & Page Number

Table 29 Proposed measures to overcome revenue impacts	
Names of measures	**Check if Discussed**
Rate adjustment	√
Development of reserves	√

Table 30 Proposed measures to overcome expenditure impacts	
Names of measures	**Check if Discussed**
Defered Capital Program	√
Decreased Imported Water Purchases	√

Water Shortage Contingency Ordinance/Resolution (Water Code § 10632 (h))

X	Attach a copy of the draft water shortage contingency resolution or ordinance.	Appendix E	Reference & Page Number

Reduction Measuring Mechanism (Water Code § 10632 (i))

X Provided mechanisms for determining actual reductions — Sect. 8.7, pg 57 Reference & Page Number

Table 31 Water Use Monitoring Mechanisms	
Mechanisms for determining actual reductions	**Type data expected (pop-up?)**
Meters	**Recorded Production Figures**
Monthly and Daily Production Reports	**Whether Reduction Goals Are Being Met**
Patrols	**Direct Observation of Conservation Measures**

Recycling Plan Agency Coordination Water Code § 10633

X Describe the coordination of the recycling plan preparation information to the extent availabl — Sect. 9.0, pg 58 Reference & Page Number

Table 32 Participating agencies	
	participated
Water agencies	City of Imperial Water Plant
Wastewater agencies	City of Imperial Wastewater Plant
Groundwater agencies	N/A
Planning Agencies	N/A

Wastewater System Description (Water Code § 10633 (a))

X Describe the wastewater collection and treatment systems in the supplier's service area — Sect. 9.1, pg 58 Reference & Page Number

X Quantify the volume of wastewater collected and treated — Sect. 9.1, pg 59 Reference & Page Number

Table 33 Wastewater Collection and Treatment - AF Year							
Type of Wastewater	**2001**	**2005**	**2010**	**2015**	**2020**	**2025**	**2030**
Wastewater collected & treated in service area	695	918	1,085	1,578	2,066	2,533	2,982
Volume that meets recycled water standard	695	918	1,085	1,578	2,066	2,533	2,982

Wastewater Disposal and Recycled Water Uses (Water Code § 10633 (a - d))

X		Describes methods of wastewater disposal	Sect. 9.1, pg 58 Reference & Page Number
N/A		Describe the current type, place and use of recycled water	Reference & Page Number
	x	None	Sect. 9.2, pg 59 Reference & Page Number
N/A		Describe and quantify potential uses of recycled water	Reference & Page Number

Table 34
Disposal of wastewater (non-recycled) AF Year

Method of disposal	Treatment Level	2005	2010	2015	2020	2025	2030
Discharge to Dolson Drain	Tertiary (UV)	918	1,085	1,578	2,066	2,533	2,982
	Total	918	1,085	1,578	2,066	2,533	2,982

Table 35
Recycled Water Uses - Actual and Potential (AFY)

User type	Treatment Level	2005	2010	2015	2020	2025	2030
Landscape	N/A	0	0	0	0	0	0
Wildlife Habitat		0	0	0	0	0	0
Wetlands		0	0	0	0	0	0
Industrial		0	0	0	0	0	0
	Total	0	0	0	0	0	0

X		Determination of technical and economic feasibility of serving the potential uses	Sect. 9.2, pg 59 Reference & Page Number

Projected Uses of Recycled Water (Water Code § 10633 (e))

X		Projected use of recycled water, 20 years	Sect. 9.2, pg 59 Reference & Page Number

Table 36
Projected Future Use of Recycled Water in Service Area - AF Year

	2010	2015	2020	2025	2030
Projected use of Recycled Water	0	0	0	0	0

N/A		Compare UWMP 2000 projections with UWMP 2005 actual (§ 10633 (e))	Reference & Page Number
	X	None	Sect. 9.2, pg 59 Reference & Page Number

Table 37
Recycled Water Uses - 2000 Projection compared with 2005 actual - AFY

User type	2000 Projection for 2005	2005 actual use
Agriculture, Landscape etc.	N/A	
Total	0	0

Plan to Optimize Use of Recycled Water (Water Code § 10633 (f))

N/A Describe actions that might be taken to encourage recycled water uses _____ Reference & Page Number

N/A Describe projected results of these actions in terms of acre-feet of recycled water used per year _____ Reference & Page Number

Table 38 Methods to Encourage Recycled Water Use					
	AF of use projected to result from this action				
Actions	2010	2015	2020	2025	2030
N/A					
Total	0	0	0	0	0

N/A Provide a recycled water use optimization plan which includes actions to facilitate the use of recycled water (dual distribution systems, promote recirculating uses) _____ Reference & Page Number

Water quality impacts on availability of supply (Water Code §10634)

X Discusses water quality impacts (by source) upon water management strategies and supply Sect. 4.2.3, pg 37 Reference & Page Number

X No water quality impacts projected Sect. 4.2.3, pg 37

Table 39 Current & projected water supply changes due to water quality - percentage						
water source	2005	2010	2015	2020	2025	2030
Colorado River	0	0	0	0	0	0

Supply and Demand Comparison to 20 Years (Water Code § 10635 (a))

X Compare the projected normal water supply to projected normal water use over the next 20 years, in 5-year increments. Sect. 7.3, pg 50 Reference & Page Number

Table 40 Projected Normal Water Supply - AF Year					
(from table 4)	2010	2015	2020	2025	2030
Supply	2,983	4,340	5,681	6,966	8,200
% of year 2005	128%	186%	244%	299%	352%

Table 41 Projected Normal Water Demand - AF Year					
(from table 15)	2010	2015	2020	2025	2030
Demand	2,983	4,340	5,681	6,966	8,200
% of year 2005	128%	186%	244%	299%	352%

Table 42 Projected Supply and Demand Comparison - AF Year					
	2010	2015	2020	2025	2030
Supply totals	2,983	4,340	5,681	6,966	8,200
Demand totals	2,983	4,340	5,681	6,966	8,200
Difference	0	(0)	(0)	(0)	0
Difference as % of Supply	0%	0%	0%	0%	0%
Difference as % of Demand	0%	0%	0%	0%	0%

Supply and Demand Comparison: Single-dry Year Scenario **(Water Code § 10635 (a))**

X Compare the projected single-dry year water supply to projected single-dry year water use over the next 20 years, in 5-year increments. Sect. 7.2, pg 50 Reference & Page Number

Table 43 Projected single dry year Water Supply - AF Year					
	2010	2015	2020	2025	2030
Supply	2,983	4,340	5,681	6,966	8,200
% of projected normal					

Table 44 Projected single dry year Water Demand - AF Year					
	2010	2015	2020	2025	2030
Demand	2,983	4,340	5,681	6,966	8,200
% of projected normal					

Table 45 Projected single dry year Supply and Demand Comparison - AF Year					
	2010	2015	2020	2025	2030
Supply totals	2,983	4,340	5,681	6,966	8,200
Demand totals	2,983	4,340	5,681	6,966	8,200
Difference	0	0	0	0	0
Difference as % of Supply	0.0%	0.0%	0.0%	0.0%	0.0%
Difference as % of Demand	0.0%	0.0%	0.0%	0.0%	0.0%

Supply and Demand Comparison: Multiple-dry Year Scenario (Water Code § 10635 (a))

X Project a multiple-dry year period (as identified in Table 9) occurring between 2006-2010 and compare projected supply and demand during those years

Sect. 7.3, pg 50 Reference & Page Number

Table 46 Projected supply during multiple dry year period ending in 2010 - AF Year					
	2006	2007	2008	2009	2010
Supply	2,461	2,591	2,721	2,852	2,983
% of projected normal					

Table 47 Projected demand multiple dry year period ending in 2010 - AFY					
	2006	2007	2008	2009	2010
Demand	2,461	2,591	2,721	2,852	2,983
% of projected normal	17.0%	17.9%	18.8%	19.7%	20.6%

Table 48 Projected Supply and Demand Comparison during multiple dry year period ending in 2010- AF Year					
	2006	2007	2008	2009	2010
Supply totals	2,461	2,591	2,721	2,852	2,983
Demand totals	2,461	2,591	2,721	2,852	2,983
Difference	0	0	0	0	0
Difference as % of Supply	0.0%	0.0%	0.0%	0.0%	0.0%
Difference as % of Demand	0.0%	0.0%	0.0%	0.0%	0.0%

X Project a multiple-dry year period (as identified in Table 9) occurring between 2011-2015 and compare projected supply and demand during those years

Sect. 7.3, pg 50 Reference & Page Number

Table 49 Projected supply during multiple dry year period ending in 2015 - AF Year					
	2011	2012	2013	2014	2015
Supply	3,254	3,256	3,797	4,069	4,340
% of projected normal					

Table 50 Projected demand multiple dry year period ending in 2015 - AFY					
	2011	2012	2013	2014	2015
Demand	3,254	3,256	3,797	4,069	4,340
% of projected normal					

Table 51 Projected Supply and Demand Comparison during multiple dry year period ending in 2015- AF Year					
	2011	2012	2013	2014	2015
Supply totals	3,254	3,256	3,797	4,069	4,340
Demand totals	3,254	3,256	3,797	4,069	4,340
Difference	0	0	0	0	0
Difference as % of Supply	0.0%	0.0%	0.0%	0.0%	0.0%
Difference as % of Demand	0.0%	0.0%	0.0%	0.0%	0.0%

X Project a multiple-dry year period (as identified in Table 9) occurring between 2016-2020 and compare projected supply and demand during those years — Sect. 7.3, pg 50 Reference & Page Number

Table 52 Projected supply during multiple dry year period ending in 2020 - AF Year					
	2016	2017	2018	2019	2020
Supply	4,608	4,876	5,144	5,413	5,681
% of projected normal					

Table 53 Projected demand multiple dry year period ending in 2020 - AFY					
	2016	2017	2018	2019	2020
Demand	4,608	4,876	5,144	5,413	5,681
% of projected normal					

Table 54 Projected Supply and Demand Comparison during multiple dry year period ending in 2020- AF Year					
	2016	2017	2018	2019	2020
Supply totals	4,608	4,876	5,144	5,413	5,681
Demand totals	4,608	4,876	5,144	5,413	5,681
Difference	0	0	0	0	0
Difference as % of Supply	0.0%	0.0%	0.0%	0.0%	0.0%
Difference as % of Demand	0.0%	0.0%	0.0%	0.0%	0.0%

X Project a multiple-dry year period (as identified in Table 9) occurring between 2021-2025 and compare projected supply and demand during those years — Sect. 7.3, pg 50 Reference & Page Number

Table 55 Projected supply during multiple dry year period ending in 2025 - AF Year					
	2021	2022	2023	2024	2025
Supply	5,937	6,195	6,452	6,709	6,966
% of projected normal					

Table 56 Projected demand multiple dry year period ending in 2025 - AFY					
	2021	2022	2023	2024	2025
Demand	5,937	6,195	6,452	6,709	6,966
% of projected normal					

Table 57 Projected Supply and Demand Comparison during multiple dry year period ending in 2025- AF Year					
	2021	2022	2023	2024	2025
Supply totals	5,937	6,195	6,452	6,709	6,966
Demand totals	5,937	6,195	6,452	6,709	6,966
Difference	0	0	0	0	0
Difference as % of Supply	0.0%	0.0%	0.0%	0.0%	0.0%
Difference as % of Demand	0.0%	0.0%	0.0%	0.0%	0.0%

X Project a multiple-dry year period (as identified in Table 9) occurring between 2025-2030 and compare projected supply and demand during those years

Sect. 7.3, pg 50 Reference & Page Number

Table 55 Projected supply during multiple dry year period ending in 2025 - AF Year					
	2026	2027	2028	2029	2030
Supply	7,213	7,460	7,706	7,953	8,200
% of projected normal					

Table 56 Projected demand multiple dry year period ending in 2025 - AFY					
	2026	2027	2028	2029	2030
Demand	7,213	7,460	7,706	7,953	8,200
% of projected normal					

Table 57 Projected Supply and Demand Comparison during multiple dry year period ending in 2025- AF Year					
	2021	2022	2023	2024	2025
Supply totals	7,213	7,460	7,706	7,953	8,200
Demand totals	7,213	7,460	7,706	7,953	8,200
Difference	0	0	0	0	0
Difference as % of Supply	0.0%	0.0%	0.0%	0.0%	0.0%
Difference as % of Demand	0.0%	0.0%	0.0%	0.0%	0.0%

Provision of Water Service Reliability section to cities/counties within service area		**(Water Code § 10635(b))**	
X	Provided Water Service Reliability section of UWMP to cities and counties within which it provides water supplies within 60 days of UWMP submission to DWR	Sect. 2.4, pg 13	Reference & Page Number

Does the Plan Include Public Participation and Plan Adoption		**(Water Code § 10642)**	
X	Attach a copy of adoption resolution	Appendix B	Reference & Page Number
X	Encourage involvement of social, cultural & economic community groups	Sect. 2.3, pg 13	Reference & Page Number
X	Plan available for public inspection	Sect. 2.3, pg 13	Reference & Page Number
X	Provide proof of public hearing	Appendix F	Reference & Page Number
X	Provided meeting notice to local governments	Sect. 2.2, pg 12	Reference & Page Number

Review of implementation of 2000 UWMP		**(Water Code § 10643)**	
N/A	Reviewed implementation plan and schedule of 2000 UWMP		Reference & Page Number
N/A	Implemented in accordance with the schedule set forth in plan		Reference & Page Number
X	2000 UWMP not required	Sect. 2.1, pg 11	Reference & Page Number

Provision of 2005 UWMP to local governments		**(Water Code § 10644 (a))**	
X	Provide 2005 UWMP to DWR, and cities and counties within 30 days of adoption	Sect. 2.4, pg 13	Reference & Page Number

Does the plan or correspondence accompanying it show where it is available for public review		**(Water Code § 10645)**	
X	Does UWMP or correspondence accompanying it show where it is available for public reviev	Sect. 2.3, pg 13	Reference & Page Number