Indio Water Authority

Your Water. Our Responsibility.

Supplemental Water Supply Program and Fee Study

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1.0 Background

The City of Indio is located in Riverside County in the arid desert of Coachella Valley (Valley). Indio is the largest city in the Valley with approximately 78,000 residents encompassing roughly 69 square miles. The Indio Water Authority (IWA) supplies on average 17.9 million gallons per day (MGD) of water to residential and businesses customers in the City of Indio.

The City of Indio has experienced substantial growth over the past decade and expects to experience additional growth over the next 20 years. The increase in demand due to growth over the past decade has placed additional demands on the natural supply. At present, IWA relies solely on groundwater from an un-adjudicated basin that is in a condition of overdraft. As a result, IWA has been investigating opportunities to develop a more sustainable water supply that will allow for continued growth.

2.0 Future Water Demands

Based on the Malcolm Pirnie 2012 Water Master Plan Update (WMP Update) dated September 2012, the baseline water demand for the IWA is 17.9 MGD (20,052 AFY). This baseline is the average of the previous five years' demand. Recent economic conditions have had a significant impact on the pace of development within the IWA service area. Projections for future water demands in the IWA's 2010 Urban Water Management Plan (UWMP) assumed a rapid build out of planned developments within the IWA service area through 2030. Because of the slowdown in development, three build-out scenarios were developed in the 2012 WMP Update – aggressive, moderate and conservative. For purposes of the Supplemental Water Supply Program (SWSP) the moderate build-out scenario was used to identify water demands through the year 2030. Details regarding the planned projects and assumptions made pertaining to projected demands may be found in Tables 2-7 through 2-9 of the WMP Update. Presented below are a summary of the additional demands from planned development under each scenario and a summary of the resulting total demand for the service area.

Table 2.1: Summary of Additional Projected Demand (AFY) from Planned Developments through 2030

Scenario	2015	2020	2025	2030	Total
Aggressive	1,792	5,041	4,929	1,568	13,331
Moderate	1,120	3,809	4,257	3,137	12,322
Conservative	896	3,025	3,585	2,913	10,418

Table 2.2: Summary of IWA Projected Demand (AFY) through 2030

Scenario	Baseline	2015	2020	2025	2030
Aggressive	20,052	21,844	26,885	31,814	33,383
Moderate	20,052	21,172	24,981	29,238	32,374
Conservative	20,052	20,948	23,973	27,557	30,470

The actual IWA average demand for 2010 and 2011 was approximately 19,157 AFY which is lower than the baseline average presented in Table 2.2. In the IWA 2010 Urban Water Management Plan Update, a goal was set of meeting 20,000 AFY demand through continued pumping from the Lower Whitewater River Sub-basin and any additional demand with alternative sources of water. Based on the revised demand projections, under the moderate build-out scenario, an additional 12,374 AFY will be needed by the year 2030 which is an anticipated increase of about 69 percent over existing demands.

3.0 Annual Water Consumption

IWA studied the annual water consumption of different development types within the service area utilizing the IWA Geographical Information System (GIS) database and actual consumption rates per development type. It should be noted that the information contained in the GIS database is currently been updated and thus, values used were based on the data used in both the IWA 2010 Urban Water Management Plan Update and the WMP Update. Consumption data are based on 2011 billing information. New accounts added since 2008 where assigned average usage per account values and the additional acreage associated with these accounts were based on the new development parcel sizes.

An Annual Consumption Factor (ACF) expressed as acre-feet per acre was developed based on the collected data. The ACF was then reduced to account for return flow. Return flow is the quantity of water applied at or near the land surface which infiltrates (returns) to the groundwater system. To ensure consistency with regional groundwater management practices and our Coachella Valley Regional Water Management Group partner the Coachella Valley Water District, the IWA applied a return flow value of 35 percent as established by CVWD for the Lower Whitewater River Subbasin. The following is a list planning and engineering documents used as reference:

- CVWD 2010 Urban Water Management Plan
- Coachella Valley Water Management Plan 2010
- Engineer's Report on Water Supply and Replenishment Assessment Lower Whitewater River Subbasin Area of Benefit 2012-13
- Draft CVWD 2012 Water System Backup Facility Charge Study- Section 4.0 Supplemental Water Supply Charge

Table 3.1: Annual Consumption Factor by Development Type

IWA Development Type	Annual Consumption Factor (ac-ft/ac/yr)	Annual Consumption Factor with Return Flows [(1)] (ac-ft/ac/yr)
Commercial/Institutional	1.01	.65
Hotel/Motel	2.19	1.42
Industrial	1.43	.93
Irrigation	2.37	1.54
Multi Family Residential	1.90	1.23
Single Family Residential	3.44	2.23
City Parks/Irrigation and Landscape Lighting Districts	2.09	1.36

Notes:
(1)- A return flow of 35% was used

Analysis of the updated billing information confirms a similar trend observed throughout the Coachella Valley: Use per acre has decreased for all development types except Hotels / Motels and Irrigation.

4.0 Supplemental Water Supply Program Components

In 2008, IWA developed a Water Resources Development Plan (WRDP) that provides a road map with an integrated approach to managing IWA's long-term water resources. The plan considered sustainable use of groundwater, surface water, recycled water, and water efficiency measures over the next 20 years, while still achieving IWA's long-term goals. These goals are reduction of the groundwater overdraft, maximization of conjunctive use opportunities, minimization of adverse economic impacts to Indio water users, and minimization of environmental impacts.

The intent of the SWSP is to provide a framework to alleviate the strain on the Indio Water Authority's groundwater supply. Set forth in the following sections are the proposed elements for IWA's SWSP to ensure an integrated approach to managing IWA's long-term water resource needs.

4.1 Recycled Water Program

IWA has been working cooperatively with the Valley Sanitary District (VSD) for the past several years under a Memorandum of Understanding. The Programmatic Environmental Impact Report (EIR) for the Recycled Water Project was certified in December of 2011 and subsequent discussions with the VSD are moving the project forward with consideration of a Joint Powers Authority for the programming and permitting of the Recycled Water Project.

The State of California Water Resources Control Board is currently updating their Recycled Water Policy which includes mandates for increasing the use of recycled water. Regulatory enhancements are also under way to enable the timely permitting of projects while ensuring the protection of public health. A recycled water supply meets the requirements to be considered a new supply.

The IWA will pursue the development of recycled water for future growth in Indio through Indirect Potable Reuse through Injection (IPR). The IWA will comply with the processes for permitting, designing and constructing the project, and meeting all regulatory requirements. A preliminary engineering estimate has been developed that covers the estimated cost of the facilities needed to build the Recycled Water Project in two phases for development of 13,600 AFY at build out. The components of the project include pumping equipment, transmission lines, microfiltration, reverse osmosis, ultra violet/advanced oxidation process, injection wells and the structures needed to house the equipment. The estimated capital cost for Phase I is $8,735 per acre foot and provides 5,300 AFY. The entire program is estimated at $7,334 per acre ft. Details regarding the Recycled Water Project costs may be found in the EIR.

4.2 Purchased Water

The IWA has been actively considering several different water purchase options. The volatility of the water purchase market, climate change, reliability of the State Water Project (SWP), and environmental issues that are outside the IWA's control have been carefully considered. The IWA continues to evaluate potential deals realizing that actual delivery of a water supply will require the cooperation of many outside partners including the Coachella Valley Water District, the Imperial Irrigation District and Metropolitan Water District, to name a few. The purchase of a State Water Project (SWP) entitlement Table A is considered a permanent transfer, similar to paying for a project. For purposes of comparison and to establish a reasonable expectation of future costs of Table A water, Table 4.1 summarizes two Table A purchase deals made by Mojave Water Agency and CVWD. CVWD's proposed unit cost for supplemental water supplies used in their Supplemental Water Supply Charge is assumed to be representative of permanent transfers of all types. A Consumer Price Index adjusted weighted average unit cost is $3,225 per acre-foot. (CVWD's Draft Water System Backup Facilities Charge Study, July 2012). The analysis includes the application of a reliability factor to account for the many uncertainties surrounding the State Water Project. The current reliability of the SWP is 65 percent as reported by the Department of Water Resources in Notice 12-09.

Table 4.1: Estimated Price of Table A Water

Agency	Cost per AF	Reliability Factor	Adjusted Cost
CVWD	$3,225	65%	$5,321
Mojave Water Agency	$5,250	65%	$8,663

For purposes of quantifying the cost of water purchase agreements other than SWP entitlement water, the annual cost of the water and the term of the agreement must be measured. The terms of the agreements under consideration range from 5 years to 30 years and the annual cost per acre foot

ranges from $400-$1,000 AF. The amount of water available for purchase also varies between agreements with some only offering a set amount such as 8,400 AFY or a minimum of 20,000 AFY. Most purchase water agreements will require that IWA pay for the water on an annual basis but the funds must be available to make those payments for the length of the contract. For purposes of comparison to establish a reasonable expectation of water purchase cost, Table 4.2 summarizes the weighted average cost associated with the purchase and an assigned probability factor based on the status of each deal.

Table 4.2: Estimated Price of Purchased Water

Purchase Option	Contract Amount (AF)	Annual cost per AF	Probability Factor	Weighted Cost, $/AF
Deal 1	8,400	$750	20%	$150
Deal 2	5,000	$550	10%	$55
Deal 3	5,000	$1,000	30%	$300
Deal 4	4,000	$400	40%	$160
				Weighted Average Cost, $/AF = $665

Implementation of an imported surface water source will require coordination with CVWD for use of their facilities for both delivery and storage. Discussions with CVWD have been promising and it is anticipated that an arrangement will be arrived at in the near future that will allow the IWA to enter in to a water purchase agreement under contract or on the spot market for imported water to be stored in the basin. In-lieu recharge options are also under consideration in which the IWA may fund capital infrastructure improvements allow existing groundwater pumpers to take delivery of Colorado River Water from CVWD in-lieu of pumping. An agreement between the IWA and CVWD will quantify the amount of water that will be available for future use.

In order for IWA to integrate a new surface water supply directly in to the IWA water distribution system, a Conceptual Design Report for a Surface Water Treatment Plant has been completed. The new SWTP would provide a new potable, surface water supply to IWA for domestic use and groundwater recharge. In analyzing the associated costs, it was determined that the costs of the design and construction of the Surface Water Treatment Plant would not be included in the Supplemental Water Supply Fee. IWA currently imposes a water connection fee on all new developments to cover the costs of new capital projects for new facilities used to transport, treat and distribute water.

5.0 Supplemental Water Supply Fee Calculation

The IWA is committed to the reduction of the groundwater overdraft, maximization of conjunctive use opportunities, minimization of adverse economic impacts to Indio water users, and minimization of environmental impacts. Employing a strategy that focuses on developing a local, reliable supply of water

through development of recycled water and continuing to explore an appropriate imported water supply builds a sustainable water supply portfolio for existing and future IWA customers.

For purposes of developing a unit cost calculation for the Supplemental Water Supply Fee (SWSF), a weighted average cost for each deal presented in Table 4.2 together with the Phase I cost for the Recycled Water Program will be used. Each year, the calculation of the SWSF will be reviewed and updated as purchased water deals are signed and the Recycled Water Program moves forward.

The estimated full unit cost for Phase I of the Recycled Water Program is $8,736/AF for 5,300 AFY that will be recharged in the basin and as such provides a benefit to existing and future customers. The estimated increase in demand from new development through 2015 is 1,172 AFY which is 22 percent of the water available for recharge. Therefore the unit cost for new development will be 0.22 x $8,736/AF = $1,922/AF.

To determine a reasonable cost per AF for purchased water, an annuity formula planning for the next five years will be used. The short term cost of capital will be estimated at 2.75% and the weighted average cost per acre foot from Table 4.2 ($665/AF) is used in calculation as summarized below:

FV = C*[(1+i)^n-1]/i
Where: C = cash flow per period
i = interest rate
n = number of payments

So: FV = $665 * [(1+0.0275)^5-1]/0.0275 = $3,513

Recycled Water Program cost = $1,922

Total Combined cost = $3,513 + $1,922 = $5,435

This value is consistent with CVWD's adjusted cost of $5,321/AF and will ensure the IWA is positioned to purchase Table A water should it also become available. The SWSF for each development type will be calculated using the annual consumption factor (ACF) with return flow.

SWSF = ACF (with return flows) x $5,435

Table 5.1: Supplement Water Supply Fee by Development Type

IWA Development Type	Annual Consumption Factor with Return Flows [1] (ac-ft/ac/yr)	SWSF [2] ($/acre)
Commercial/Institutional	.65	$3,533
Hotel/Motel	1.42	$7,718
Industrial	.93	$5,055
Irrigation	1.54	$8,370
Multi Family Residential	1.23	$6,685
Single Family Residential	2.23	$12,120
City Parks/Irrigation and Landscape Lighting Districts	1.36	$7,392

Notes:
(1)-A return flow of 35% was used
(2)-Unit cost for development of Supplemental Water