
ATTACHMENT 8**ECONOMIC ANALYSIS – WATER SUPPLY COSTS AND BENEFITS**

Tables 7/14 and 14(a) are included in this document to quantify water supply costs and benefits for the Ortega Reservoir Project. Narrative supporting the tables is provided below:

I. Narrative Description of the Project's Economic Costs

The Project's economic costs consist of costs contained in the project budget (Attachment 4), as well as annual administration, maintenance and replacement costs associated with the Ortega Reservoir Project. Maintenance and replacement costs are associated with removal of sediment accumulation, clearing, making adjustments or replacements to appurtenant measurement devices (as described in Attachment 6), and periodic inspections. Administration costs are associated with SMWD's management of annual maintenance and reporting realized benefits to DWR.

Although there are pumping costs associated with moving the recycled water from the Reservoir to end users, these costs would also be incurred using water purchased from the State Water Project ("SWP"). Since these costs offset each other, they were not included in the analysis.

II. Cost Details

Budget categories (a) through (h) are included in the cost details as described in Table 6.

III. Estimates of Without-Project conditions; e.g. Current and Future Water Supplies and Demand.

In the current condition, likely water shortages in the Chiquita Water Reclamation Plant are creating the need to purchase water from the SWP.

IV. Estimates of With-Project Conditions; e.g. Improvements in New Water Supplies Made Available to Meet Demand

At the High Water Level of 580 feet the total storage is 5,300 af. The operating range where no pumping out of the Reservoir will be needed is between the range of 540 ft and the high water level of 580 feet – the initial operating range holds 2,900 af of storage.

Accordingly, the Reservoir will be used for water recycling and harvesting of that 2,900 acre-feet for all designated uses per year. Of the overall capacity, approximately 2,052 af will be dedicated toward SMWD uses: the Ranch Plan for a total of 1315.5 af, Ladera Ranch 446.4 af, and Talega 290.1 af (totaling 2,052 af). This leaves a surplus/balance to the operating storage of 848 af (2900-2052). This approximately 848 af of storage is presently being discussed with nearby agencies, such as the City of San Juan Capistrano, Moulton Niguel Water District, the City of San Clemente, etc. ***Thus, a total of 2,900 (or 2,052 + 848) af of water will flow to interested water agencies for designated uses, thus eliminating their need to pump from the SWP.***

Additionally, approximately ten (10) years following Project completion, excess capacity (up to the 5,300 AF maximum) can be used to serve reclaimed water to additional communities where SMWD has never had the ability previously, e.g. City of Rancho Santa Margarita (in SMWD's Sphere of Influence). This available capacity has been discounted appropriately to reflect the

associated future benefits of the additional 2,000 af of capacity. This reclaimed water can be used to serve future development, existing development, golf courses, growing cities in one of the State's fastest growing regions, and unincorporated communities in the County.

V. Description of Methods used to Estimate Without- and With-Project Conditions.

With and without project conditions are based on discussions with the project engineer, Orange County Flood Control, various Project proponents, and SMWD, as well as information contained in the attached Exhibits described below.

The estimate for non-potable water harvesting is based on the current utilization of nearby detention/retention basins and the projected total capacity of the Chiquita Water Reclamation Plant by SMWD. The pumping characteristics of the Reservoir preliminarily indicate that this level of demand will be satisfied.

VI. Description of the Distribution of Local, Regional, and Statewide Benefits

Benefits are primarily local in nature. However, any reduction in demand on SWP water will benefit water agencies throughout the state whose need for additional water exceeds that of SMWD.

VII. Identification of Beneficiaries

SMWD, all local water users and rate payers, Metropolitan Water District, and all urban water suppliers intending to purchase SWP water in the future.

VIII. When the Benefits will be Received

The benefits will be realized as of the completion date of the project, when the stormwater flows are captured by the Reservoir and dams, and pumped to the local facilities for treatment and distribution.

IX. Uncertainty of the Benefits

The benefits were calculated based on monitoring of dry weather flows. There will be variation in these flows, but it is expected that the demand for non-potable water will not exceed the amount extracted from the Reservoir.

X. Description of any Adverse Effects

N/A

XI. Narrative Discussion that Describes, Qualifies, and Supports the Values Entered in the Tables

According to the Project engineer, stream monitoring of dry weather flows indicate that SMWD will not need to purchase non-potable water for irrigation purposes after this project is built.

Water valuation is based on the Tier 2 full service treated volumetric cost for 2013, which is the actual amount paid by SMWD and other local entities to purchase SWP water for designated uses and irrigation purposes.

Estimated administration, operations, maintenance and replacement costs for the Project are based on discussions with SMWD and maintenance data collected by David Taussig & Associates, Inc. for comparable projects.

XII. Documentation to Support Information Presented

See the following attached as Att8_SWF_WSBen_2of2:
Exhibit A - Metropolitan Water District Rates and Charges

Table 7/14 - Annual Water Supply Benefits									
Project: Ortega Reservoir									
Type of Benefit Claimed: Reduced Importation of Water from State Water Project ("SWP")									
Measure of Benefit: Acre-Feet									
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Year	Type of Benefit	Measure of Benefit (Units)	Without Project	With Project	Change Resulting from Project (e) - (d)	Unit \$ Value	Annual \$ Value (f) x (g)	Discount Factor	Discounted Benefits (h) x (i)
2012	Reduced Importation	Acre-Feet	0	0	0	\$997	\$0	1.000	\$0
2013	Reduced Importation	Acre-Feet	0	0	0	\$997	\$0	0.943	\$0
2014	Reduced Importation	Acre-Feet	0	848	848	\$997	\$845,456	0.890	\$752,453
2015	Reduced Importation	Acre-Feet	0	848	848	\$997	\$845,456	0.840	\$709,861
2016	Reduced Importation	Acre-Feet	0	2,900	2,900	\$997	\$2,891,300	0.792	\$2,290,180
2017	Reduced Importation	Acre-Feet	0	2,900	2,900	\$997	\$2,891,300	0.747	\$2,160,548
2018	Reduced Importation	Acre-Feet	0	2,900	2,900	\$997	\$2,891,300	0.705	\$2,038,252
2019	Reduced Importation	Acre-Feet	0	2,900	2,900	\$997	\$2,891,300	0.665	\$1,922,880
2020	Reduced Importation	Acre-Feet	0	2,900	2,900	\$997	\$2,891,300	0.627	\$1,814,037
2021	Reduced Importation	Acre-Feet	0	2,900	2,900	\$997	\$2,891,300	0.592	\$1,711,356
2022	Reduced Importation	Acre-Feet	0	2,900	2,900	\$997	\$2,891,300	0.558	\$1,614,487
2023	Reduced Importation	Acre-Feet	0	2,900	2,900	\$997	\$2,891,300	0.527	\$1,523,101
2024	Reduced Importation	Acre-Feet	0	2,900	2,900	\$997	\$2,891,300	0.497	\$1,436,888
2025	Reduced Importation	Acre-Feet	0	4,900	4,900	\$997	\$4,885,300	0.469	\$2,290,419
2026	Reduced Importation	Acre-Feet	0	4,900	4,900	\$997	\$4,885,300	0.442	\$2,160,773
2027	Reduced Importation	Acre-Feet	0	4,900	4,900	\$997	\$4,885,300	0.417	\$2,038,465
2028	Reduced Importation	Acre-Feet	0	4,900	4,900	\$997	\$4,885,300	0.394	\$1,923,080
2029	Reduced Importation	Acre-Feet	0	4,900	4,900	\$997	\$4,885,300	0.371	\$1,814,227
2030	Reduced Importation	Acre-Feet	0	4,900	4,900	\$997	\$4,885,300	0.350	\$1,711,535
2031	Reduced Importation	Acre-Feet	0	4,900	4,900	\$997	\$4,885,300	0.331	\$1,614,655
2032	Reduced Importation	Acre-Feet	0	4,900	4,900	\$997	\$4,885,300	0.312	\$1,523,260
2033	Reduced Importation	Acre-Feet	0	4,900	4,900	\$997	\$4,885,300	0.294	\$1,437,037
2034	Reduced Importation	Acre-Feet	0	4,900	4,900	\$997	\$4,885,300	0.278	\$1,355,696
2035	Reduced Importation	Acre-Feet	0	4,900	4,900	\$997	\$4,885,300	0.262	\$1,278,958
2036	Reduced Importation	Acre-Feet	0	4,900	4,900	\$997	\$4,885,300	0.247	\$1,206,564
2037	Reduced Importation	Acre-Feet	0	4,900	4,900	\$997	\$4,885,300	0.233	\$1,138,268
2038	Reduced Importation	Acre-Feet	0	4,900	4,900	\$997	\$4,885,300	0.220	\$1,073,838
2039	Reduced Importation	Acre-Feet	0	4,900	4,900	\$997	\$4,885,300	0.207	\$1,013,055
2040	Reduced Importation	Acre-Feet	0	4,900	4,900	\$997	\$4,885,300	0.196	\$955,712
2041	Reduced Importation	Acre-Feet	0	4,900	4,900	\$997	\$4,885,300	0.185	\$901,615
2042	Reduced Importation	Acre-Feet	0	4,900	4,900	\$997	\$4,885,300	0.174	\$850,580
Total Present Value of Discounted Benefits Based on Unit Value									\$44,261,779
Comments: Reduced capacity in 2014/2015 as surplus would be required to accommodate initial loading of the Reservoir. During subsequent operational years, there will be surpluses of 848 AF (over SMWD's needs) and 2,052 AF (amount SMWD will not need to pump from State Water Project). Additionally, approximately ten (10) years following Project completion, excess capacity (up to 5,300 AF) can be used to serve reclaimed water to additional communities where SMWD has never had the ability previously, e.g. City of Rancho Santa Margarita (in SMWD's Sphere of Influence). Values further explained in Attachment 8.									

Table 14(a). Total Water Supply Benefits (All benefits should be in 2012 dollars)			
Project: Ortega Reservoir			
Total Discounted Water Supply Benefits (a)	Total Discounted Avoided Project Costs (b)	Other Discounted Water Supply Benefits (c)	Total Present Value of Discounted Benefits (d) (a) + (c) or (b) + (c)
\$44,261,779	NA	\$0	\$44,261,779
Comments:			



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Adopted Water Rates & Charges

[Historical Water Rates](#)

	Effective January 1st	2012	2013	2014
Tier 1 Supply Rate (\$/AF)		\$106	\$140	\$148
Delta Supply Surcharge (\$/AF)		\$58	*	*
Tier 2 Supply Rate (\$/AF)		\$290	\$290	\$290
System Access Rate (\$/AF)		\$217	\$223	\$243
Water Stewardship Rate (\$/AF)		\$43	\$41	\$41
System Power Rate (\$/AF)		\$136	\$189	\$161
Full Service Untreated Volumetric Cost (\$/AF)				
Tier 1		\$560	\$593	\$593
Tier 2		\$686	\$743	\$735
Replenishment Water Rate: untreated (\$/AF)		\$442	**	**
Interim Agricultural Water Program: untreated (\$/AF)		\$537	***	***
Treatment Surcharge (\$/AF)		\$234	\$254	\$297
Full Service Treated Volumetric Cost (\$/AF)				
Tier 1		\$794	\$847	\$890
Tier 2		\$920	\$997	\$1,032
Treated Replenishment Water Rate (\$/AF)		\$651	**	**
Treated Interim Agricultural Water Program (\$/AF)		\$765	***	***
Readiness-to-Serve Charge (millions of dollars)		\$146	\$142	\$166
Capacity Charge (\$/cfs)		\$7,400	\$6,400	\$8,600

* The Delta Supply Surcharge will be suspended after 2012

** Discussions on the replenishment program are continuing with the Member Agencies

*** The Interim Agricultural Water Program will be discontinued after 2012

Definitions

Tier 1 Supply Rate - recovers the cost of maintaining a reliable amount of supply.

Delta Supply Surcharge - reflects the additional supply costs that Metropolitan faces along with other costs due to the pumping restrictions on the State Water Project.

Tier 2 Supply Rate - set at Metropolitan's cost of developing additional supply to encourage efficient use of local resources.

System Access Rate – recovers a portion of the costs associated with the delivery of supplies.

System Power Rate – recovers Metropolitan's power costs for pumping supplies to Southern California.

Water Stewardship Rate – recovers the cost of Metropolitan's financial commitment to conservation, water recycling, groundwater clean-up and other local resource management programs.

Replenishment Water Rate – a discounted rate for surplus system supplies available for the purpose of replenishing local storage.

Treated Replenishment Water Rate – a discounted rate for surplus system supplies available for the purpose of replenishing local storage.

Interim Agricultural Water Rate – discounted rate for surplus system supplies available for the purpose of growing agricultural, horticultural, or floricultural products.

Treated Interim Agricultural Water Program Rate – discounted rate for surplus system supplies available for the purpose of growing agricultural, horticultural, or floricultural products.

Treatment Surcharge – recovers the costs of treating imported water.

Readiness-to-Serve Charge - a fixed charge that recovers the cost of the portion of system capacity that is on standby to provide emergency service and operational flexibility.

Capacity Charge – the capacity charge recovers the cost of providing peak capacity within the distribution system.

Page updated: April 19, 2012