Recycled Water Cost of Service Study

San Elijo Joint Powers Authority

Public Review Draft

April 2013

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1. Background and Purpose

The San Elijo Joint Powers Authority (SEJPA) owns and operates a recycled water utility which has provided service to customers within the Santa Fe Irrigation District (SFID), the San Dieguito Water District (SDWD), and the City of Del Mar (together the "participating water agencies") since September 2000. In 2011, SEJPA began providing interruptible service to the Encinitas Ranch Golf Course (Golf Course), as part of a three way agreement between SEPJA, SDWD, and the Golf Course. In October 2012, SEJPA began providing recycled water service, on an interruptible wholesale basis, to Olivenhain Municipal Water District (OMWD).

The recycled water system currently includes tertiary treatment, transmission, storage, and distribution facilities. SEJPA has just completed construction of an advanced water treatment (AWT) facility which will reduce the Total Dissolved Solids (TDS) in its recycled water, which both enhances permit compliance and makes its product easier to use for a wide range of irrigation and other nonpotable purposes. As of April 2013, the AWT facility is operational and the contractor has commenced the 30-day system startup.

SEJPA's recycled water is used to offset potable water demands, which improves the reliability of the local potable water systems. Both San Diego County Water Authority (County Water Authority) and the Metropolitan Water District of Southern California (Metropolitan) provide financial incentives to SEJPA for producing recycled water, because recycled water provides supply reliability in their service area. SEJPA's recycled water system has the capacity to deliver 3 million gallons per day (mgd) or approximately 1,800 to 2,000 acre-feet (AF) per year. Recycled water sales have been as high as 1,300 acre feet per year, however in the past two fiscal years sales have declined to approximately 1,100 acre feet per year. SEJPA attributes this reduction to the retail price of the recycled water and a strong emphasis on water conservation in its service area, which has caused users of both potable and recycled water to become more efficient in their practices. While SEJPA supports water use efficiency, its recycled water system will be most cost-effective for all users when its average annual delivery rates are closer to the full design capacity of the system.

SEJPA's agreements with SFID, SDWD, and the City of Del Mar were originally developed in the mid-1990s and were structured to assure that the system could be financed and operated. Each of these three participating water agencies agreed to a "minimum purchase volume" and a recycled water rate set at 85% of the potable water rate in their service area. This practice means that SEJPA's rate revenue automatically increases when one or more of the participating water agencies raise potable water rates. This revenue recovery structure has provided sufficient revenue for SEJPA to finance and operate the system and has also provided a financial incentive to recycled water customers.

However, with recycled water use well below system capacity and changes to participating water agency rate structures, SEJPA has modified its agreements with SFID and SDWD to better encourage use. Specifically, because of large water rate increases in the SFID service

area, SEJPA has “decoupled” its recycled water rate from the potable water rate and has established a fixed rate with an escalator that is reviewed on a roughly annual basis. Within the SDWD service area, SEJPA, SDWD, and the Golf Course agreed that SEJPA would provide direct service to the Golf Course and that SDWD’s minimum purchase volume would be reduced by 275 acre feet per year to compensate for the loss of this customer. Providing direct interruptible service to the Golf Course’s storage ponds has resulted in operational efficiencies and some increase in financial program incentives to the SEJPA. Also, the interruptible service coupled with the large water storage ponds at the Golf Course has allowed the SEJPA to serve more customers on that distribution system. In its supply agreement with OMWD, SEJPA has provided for an “infrastructure credit” or “rent back”, because OWMD has constructed the recycled water distribution infrastructure within its service area. Without this infrastructure (valued at approximately $3 million), the SEJPA could not provide water service to the end customers.

1.1 Goals for the Cost of Service Study

The primarily goals of this cost of service study are to:

- provide decision makers with information on the cost of providing recycled water service relative to revenues generated from the program
- provide decision makers with information regarding the estimated future financial condition of the program under a range of planning scenarios
- analyze the financial impacts of decoupling all wholesale agreements from the potable water rate structure
- describe the policy decisions that are necessary to implement reserve funds and a cost-of-service revenue model.

2. Current Fiscal Model

SEJPA is in the twelfth year of operating its recycled water system and has developed a fiscal model that allows it to both track the past performance of the utility and forecast its future performance. The fiscal model accounts for both expenditures and revenues and allows SEJPA to track its fund balance and available reserves. The model indicates that the system currently has an unrestricted fund balance of approximately $2.2 million, and an additional $630,000 in a dedicated repair and replacement reserve required by the State Revolving Fund (SRF) program, based on Fiscal Year 2012-13 budget projections for revenue and expenditures.

This section describes the current program expenditures and revenues and describes the trends in the recycled water fund balance.

2.1 Expenditure Pattern

Historically, SEJPA has managed two major categories of expenditure: debt service and operational costs.

Debt service includes its SRF loan, a recent loan secured for its AWT project, and a purchase agreement with SFID for a recycled water pipeline. The rates and terms of each loan are described below.

State Revolving Fund Loan: SEJPA's SRF loan is for an original loan amount of $12,633,522 with a 2.5% interest rate and a 20 year term. The annual payment on the SRF loan is $834,675. The loan was secured in 2000, it has a current outstanding balance of approximately $6.65 million and the final payment is due on August 17, 2020.

AWT Loan: SEJPA's AWT loan is for an original loan amount of $2,000,000 with 4.15% interest rate and a 20 year term. The annual payment on the AWT loan is $148,153. The loan was secured in 2012, it has a current outstanding balance of approximately $1.90 million and the final payment is due on December 2, 2031.

SFID Pipeline Purchase Agreement: the pipeline purchase agreement between SEJPA and SFID is for an original principal amount of $526,149 with a minimum interest rate of 1% and a maximum interest rate of 2.5% annually. The actual interest rate paid in any one year is set by the prior four quarters average rate of return paid by the state's Local Agency Investment Fund (LAIF). SEJPA makes monthly payments to SFID to retire the debt, based on the amount of recycled water delivered through the pipeline. If the average volume delivered through the pipeline exceeds 50 AF annually from year 13 through 15, the SEJPA will pay the loan in full at the completion of the 20th year, otherwise payments will continue based on usage through the pipeline. As this is a new loan, the SEJPA plans to makes its first payment along with a down payment of $50,000 by July 2013.

Operational costs include personnel costs for staff that work on the recycled water program and services and supplies for treatment beyond the secondary level as well as distribution of the recycled water.

This cost of service study categorizes operational as fixed and variable. Debt service and fixed operational costs are required program expenditures, regardless of the volume of recycled water sold. Variable operational costs include chemicals, utilities, and other supplies and services that increase and decrease with the volume of recycled water delivered. Within its annual budgets, SEJPA has, from time to time, budgeted for contingencies and capital expenditures from its Fund Balance which functions as an "unrestricted" reserve. For example, approximately half of the capital costs of the AWT Project have been advanced from unrestricted reserves. These types of expenditures, although capital in nature, are also considered variable costs because these types of costs can be modified from year to year.

Table 1 presents the past expenditure pattern for Fiscal Years 2008-09 through 2011-12 and the estimated pattern for Fiscal Year 2012-13. The table illustrates that approximately one half of the recycled water program's costs are associated with debt service and approximately 85% of the program costs are fixed.

Table 1 – Operational Program Expenditure Pattern

	FY 2008-09		FY 2009-10		FY 2010-11		FY 2011-12		FY 2012-13	
Budget Item	**Budget**	**% of Total**	**Budget**	**% of Total**	**Budget**	**% of Total**	**Budget**	**% of Total**	**Budget**	**% of Total**
Debt Service										
SRF Loan	$ 834,675		$ 834,675		$ 834,675		$ 834,675		$ 834,675	
AWT Loan	$ -		$ -		$ -		$ 74,077		$ 148,153	
Pipeline Purchase Agreement	$ -		$ -		$ -		$ -		$ -	
Subtotal Debt Service	$ 834,675	51%	$ 834,675	49%	$ 834,675	54%	$ 908,752	55%	$ 982,828	50%
Fixed Operations	$ 549,028	34%	$ 639,845	38%	$ 539,028	35%	$ 572,718	35%	$ 710,400	36%
Chemicals	$ 74,047	5%	$ 66,428	4%	$ 54,098	3%	$ 31,942	2%	$ 64,000	3%
Utilities	$ 148,887	9%	$ 144,162	8%	$ 112,938	7%	$ 127,846	8%	$ 195,000	10%
Capital Outlay	$ 26,214	2%	$ 11,210	1%	$ 14,917	1%	$ 18,522	1%	$ 4,800	0%
Capital Projects	$ -	0%	$ -	0%	$ -	0%	$ -	0%	$ -	0%
Total Expenditures	$ 1,632,851	100%	$ 1,696,320	100%	$ 1,555,656	100%	$ 1,659,780	100%	$ 1,957,028	100%

Sources:
SRF Loan: Exhibit F - SRF Loan Repayment Scheduled dated 11-July-03
AWT Loan: Exhibit A - Schedule of Loan Repayments, undated
Capital Projects: July 11-12 Financial Model -gl, Capital Projects
Demineralization Project: Fixed Operations Costs: July 11-12 Financial Model -gl, Demineralization Project

SEJPA's Fund Balance provides it with financial flexibility and stability. The current recycled water utility Fund Balance is sufficient to cover slightly more than one year of operating and debt service expenses. This is highly desirable because much of the utility's costs are fixed and there is a potential risk of variable future revenues. However, the utility only has $630,000 in a dedicated repair and replacement fund, which represents roughly 20% funding of the recycled water utility's FY 2012-13 straight-line asset depreciation value. Developing a robust repair and replacement reserve is desirable for supporting necessary future capital expenditures as the system ages.

2.2 Revenue Recovery Pattern

SEJPA's program has two major sources of revenue: incentive funding and recycled water sales. From time to time, SEJPA also receives grants and interest on its Fund Balance but these are not predictable sources of revenue. This section provides a detailed description of each source of revenue available to SEJPA.

2.2.1 Recycled Water Sales Agreements

SEJPA has wholesale agreements with SFID, SDWD, the City of Del Mar, the Encinitas Ranch Golf Course, and OMWD. These agreements outline the business arrangement between the entities, including minimum purchase volumes, water quality requirements, the recycled water rate, and provisions for escalating the rate over time. These agreements are described in detail below.

At program inception, SFID, SDWD, and City of Del Mar agreed to purchase a minimum volume of water. Together the current minimum purchases total 1,250 acre feet or about 70% of the total system capacity. In the past several years, total recycled water deliveries have been less than the sum of the minimum purchase agreements. While SFID, SDWD, and the City of Del Mar each pay for their minimum purchase volume, which helps maintain SEJPA's revenue, the reduced sales have impacted SEJPA's ability to access the incentive funding (discussed below), which is tied to actual recycled water sales. The more recent interruptible supply agreements, negotiated with Encinitas Ranch Golf Course and OMWD, help increase the volume of actual recycled water deliveries, making better use of system capacity and allowing SEJPA to access additional incentive funding.

The City of Del Mar: The City of Del Mar (Del Mar) delivers recycled water to the 22nd Agricultural District Association. Del Mar's agreement with SEJPA, expires in 2020 and commits it to a minimum purchase volume of 150 acre feet per year but it typically uses 80 acre feet annually. The agreement sets the price of recycled water at 85% of the "domestic water rate per acre foot." The "domestic water rate per acre foot" is defined in the agreement as the lowest of the total domestic potable water rates for non-residential class charged per acre foot by the San Dieguito Water District, the Santa Fe Irrigation District, or the City of Del Mar. Table 2 compares these rates and illustrates that currently Del Mar's recycled water rate would be set at 85% of $2.80 per hundred cubic feet (HCF), which is the agricultural water rate charged by SDWD. This rate is $2.38 per HCF or approximately $1,037 per acre foot for the minimum purchase volume of 150 acre feet. SEJPA anticipates receiving $155,550 in revenue from the Del Mar in FY 2012-13 ($1,037 per acre foot x 150 acre feet). When this revenue is divided by Del Mar's

actual use of 80 acre feet, its effective recycled water rate is closer to $1,950 per acre foot or $4.48 per HCF.

Table 2 – "Domestic Water Rate" Comparison for Calculating Del Mar Recycled Water Rate (all rates in HCF)

Rate Class	Del Mar	SFID	SDWD
Non-residential	$3.83	$3.71	
Irrigation		$4.04	
Agricultural			$2.80
Temporary Construction		$4.39	$3.98
Fire Lines		$4.39	
Commercial, Public and Government			$3.16
Landscaping & Excess Use			$3.98

Santa Fe Irrigation District: SFID's agreement with SEJPA expires in 2016 and includes a minimum purchase volume of 450 acre feet per year, which SFID meets or exceeds. SFID has experienced rapid water rate increases and in 2011, SEJPA and SFID entered an agreement that decoupled the recycled water rate from the potable water rate and limited the increase in recycled water rates to 5% per year for 2 years. Recently, SEJPA's Board of Directors approved a 0% rate increase for SFID for the calendar year 2013. The current recycled water rate is $3.01 per HCF, which translates to a rate of approximately $1,310 per acre foot or $2.66 per HCF delivered. This is approximately 74.5% of the applicable potable water rate. SFID adds administration costs of approximately $120,000 per year, which is added to the final cost to the customer. Of this cost, approximately $40,000 (or $0.18 per HCF) is added to the retail water rates and approximately $80,000 is added through customer meter fees. The net result is that recycled water customers within SFID's service area pay $3.19 per HCF, or 79.5% of the applicable potable water rate, and about 50% of the potable water meter fee.

San Dieguito Water District: SDWD's agreement with SEJPA expires in 2017 and originally included a minimum purchase volume of 700 acre feet per year. SDWD struggled to consistently meet the minimum purchase volume. As a result, when SEJPA entered into the interruptible supply agreement with the Encinitas Ranch Golf Course, described below, it also reduced SDWD's minimum purchase volume to 425 acre feet. SDWD currently retails recycled water rate at 85% of its potable water rate, which varies from $2.38 per HCF for agricultural use up to $3.38 per HCF for landscaping use. Review of recent sales data indicates that most recycled water customers within the SDWD service area pay $3.38 per HCF or 85% of the landscaping water rate of $3.98 (see Table 2). However, during years when SDWD does not meet the minimum purchase volume, it pays for 425 acre feet at 85% of its middle potable water rate of $3.16 per HCF. This means that SDWD pays SEJPA a rate of $2.69 per HCF (0.85 x $3.16 = $2.69) for its minimum purchase volume of 425 acre feet, irrespective of the actual rate it collects from the customer. Typically, when SDWD recycled water sales do not meet the minimum purchase volume, SDWD operates the program at a slight loss.

Encinitas Ranch Golf Course: In 2011, SEJPA entered into a six year interruptible service agreement with the Golf Course, which is located in the SDWD service area. The agreement provides the SEJPA full access to the Golf Course storage ponds which allows the SEJPA to fill the ponds during low demand periods thus allowing the utility to serve more customers. The Golf Course is also responsible for pressurizing their irrigation system which is a cost savings to the SEJPA. For FY 2012-13, the agreement allows the Golf Course to purchase 200 acre feet of recycled water annually for a lump sum payment $204,750, which escalates at 5% annually. This is roughly equivalent to a price of $1,023 per acre foot or $2.35 per HCF assuming a purchase of 200 acre feet. The agreement also allows the Golf Course to receive any recycled water beyond the 200 acre foot commitment that would otherwise be discharged to the ocean.

Because the Golf Course purchases recycled water that would otherwise not be used, this arrangement allows SEJPA to avoid some ocean discharge costs and to qualify for additional incentive funding from Metropolitan and the County Water Authority, which is worth up to $450 per acre foot annually. However, the County Water Authority's incentive payments are calculated based on 85% of SDWD's equivalent potable water rate of $3.98 per HCF, not the rate paid by the Golf Course. This means that in the future, the County Water Authority incentive payments will be calculated based on an "assumed" revenue profile for Encinitas Ranch Golf Course, which is somewhat higher than the actual revenues received by SEJPA.

Olivenhain Municipal Water District: In 2012, SEJPA entered into a 20 year interruptible service agreement with OMWD that allows OMWD to purchase recycled water at a rate of $1,193 per acre foot, or $2.74 per HCF, which is approximately 85% of OMWD's potable water price. Also, SEJPA provides OMWD with a $450 per acre foot rental payment for infrastructure constructed by OMWD that allows SEJPA's recycled water to be delivered into OMWD's service area. The agreement provides for the base recycled water rate to increase between 2% and 5% per year. There is a 25 acre foot per year minimum purchase clause and OMWD anticipates using between 50 and 100 acre feet annually. Furthermore, it appears that recycled water sales to OMWD will qualify for incentive payments by Metropolitan and the Authority.

2.2.2 Incentive Funding

Metropolitan and the County Water Authority each provide incentive payments to SEJPA. Both programs extend through Fiscal Year 2025-26, however, the County Water Authority's incentive program includes provisions for "early expiration," as described below and it is likely that SEJPA's incentives will expire before Fiscal Year 2025-26.

Incentives from both programs are paid based on the volume of water delivered, so in years where recycled water sales are low, SEJPA receives lower incentive payments. Over its twelve year history, SEJPA has received annual incentive payments varying from a low of approximately $370,000 to a high of approximately $678,000 (which included retroactive incentives from the County Water Authority). The variable incentive payments are a reflection of the variable recycled water deliveries made by the system. Both incentive programs are described in greater detail below.

The Local Resources Program (Metropolitan): Metropolitan's program provides incentives from $0 to $250 per acre foot. The incentive payment is calculated as the difference between a recycled water agency's annual cost per acre foot for producing recycled water, including capital, operations and maintenance and annualized replacement costs, and the cost of purchasing an equivalent acre foot of supply from Metropolitan. If this difference exceeds the maximum annual payment of $250 per acre foot, the deferred cost may be carried over into the following year's calculation.

The Local Water Supply Development Program (County Water Authority): The County Water Authority's Local Water Supply Development Program provides additional incentives from $0 to $200 per acre foot delivered by SEJPA and takes into account the financial need of the program. Therefore, SEJPA only qualifies for incentives during the period when its recycled water program has operating or capital losses. Losses accrue cumulatively and can be carried forward from year to year as deferred credits. At the end of Fiscal Year 2011-12, SEJPA had approximately $2.3 million in deferred County Water Authority credits, which can be applied to the program moving forward.

The County Water Authority's incentive payments are calculated as the difference between a recycled water agency's annual cost per acre foot (after the Metropolitan incentive is applied) and the larger of the agency's recycled water rate or 85% of the equivalent potable water rate. While the County Water Authority acknowledges that recycled water suppliers may elect to sell recycled water for less than 85% of the potable water rate, incentive payments will not cover this revenue gap. If the recycler chooses to sell the water at a lower cost, then the incentive analysis is based on a hypothetical revenue stream using 85% of the potable water rate. Examples of how this hypothetical calculation can impact each of SEJPA's contract customers are provided below.

- City of Del Mar: when examining the Del Mar agreement and revenues associated with it, the revenues currently generated exceed the 85% indexing requirement of the County Water Authority incentive agreement. As described above, because Del Mar does not meet its minimum purchase volume, its effective recycled water on the 80 acre feet used is over $4.00 per HCF.

- SFID: SEJPA wholesales recycled water to SFID at $3.01 per hundred cubic feet (HCF), which is 74.5%, SFID's potable water rate of $4.04 per HCF. The County Water Authority incentive calculation assumes the water is sold at 85% of potable water cost, or $3.43 per HCF. The difference between 74.5% ($3.01/HCF) and 85% ($3.43/HCF) is $0.42 per HCF. Typically SFID purchases roughly 500 AF, or 217,800 HCF, per year. Assuming SFID purchases 500 AF in FY 2013-14, then the cash difference between wholesaling the recycled water at 74.5% and 85% is $91,476 as calculated as [($3.43-$3.01) per HCF x 217,800 HCF = $91,476]. Therefore, in the County Water Authority calculations, SEJPA will be credited with more revenue than it will actually receive, because it elected to sell its recycled water at less than 85% of the potable water rate. This difference between assumed and actual revenue reduces the financial need and deferred credit balance of the program, as calculated by the County Water Authority, and may cause SEJPA's incentives to expire before 2025.

- SDWD and Encinitas Ranch Golf Course: when examining the scenario for the SDWD service area, which includes the Encinitas Ranch Golf Course, the calculation is more complex because the recycled water rates are indexed to multiple potable water rates and because of the minimum purchase volume requirement of the contract. For Fiscal Year 2013-14, SEJPA is forecasted to receive $737,000 in revenue for the estimated delivery of 590 acre feet, or 257,004 HCF, of recycled water, including recycled water sold to the Golf Course. This equates to an average recycled water rate of $1,249 per acre foot ($737,000/590 acre feet = $1249/acre foot), or $2.86 per HCF. The applicable potable water rates are $3.98 per HCF for landscaping and $3.16 for Commercial/Government. Approximately 300 acre feet are sold as landscaping and 290 as Commercial/Government. This equates to a melded rate of $3.58 per HCF and 85% of this melded potable water rate is $3.04 per HCF. The cash difference between wholesaling the recycled water at $2.86 per HCF and the melded potable water rate $3.04 per HCF is $0.18 per HCF. Assuming the purchase of 590 AF, the cash difference is $46,261 (257,004 HCF x $0.18/HCF = $46,261). Again, in the County Water Authority calculations, SEJPA will be credited with more revenue than it will actually receive, because it elected to sell its recycled water at less than 85% of the potable water rate. This difference between assumed and actual revenue reduces the financial need and deferred credit balance of the program, as calculated by the County Water Authority, and may cause SEJPA's incentives to expire before 2025.

- OMWD: in the recently executed OMWD interruptible wholesale agreement, the recycled water wholesale rate for Fiscal Year 2013-14 will be $1,253 per acre foot or $2.88 per HCF (this is the initial rate of $1,193 per acre foot escalated at 5% as stipulated in the wholesale agreement). The OMWD potable water rate is $3.60 per HCF. Therefore, SEJPA wholesales recycled water to OMWD at approximately 80% of OMWD's potable water rate. As OMWD is budgeted to purchase 50 AF (or 21,780 HCF) in Fiscal Year 2013-14, the cash difference between wholesaling the recycled water at 80% and 85% is as calculated as [($3.06-$2.88) per HCF x 21,780 HCF = $3,920]. The net impact to the County Water Authority incentive calculation is minimal.

Because of the differences in the Metropolitan and County Water Authority programs, it is possible for an agency to receive payments from Metropolitan's program but to not qualify for the County Water Authority's program.

2.2.3 Summary of Program Revenue

Table 3 summarizes the SEJPA's estimated program revenue for Fiscal Year 2012-13. The table highlights that recycled water rates are somewhat variable among the customers, reflecting the fact that the County Water Authority's incentive program encourages indexing to 85% of the potable water rate. The table also illustrates that the program is not operating at full capacity. Because the program expenses are largely fixed and because the incentive payments are indexed to actual deliveries, expanding system deliveries could help reduce the revenue requirements for any particular customer or participating water agency.

Table 3 – Estimated Fiscal Year 2012-13 Program Revenue

	Recycled Water Wholesale Rate	Minimum Purchase Volume (AF)	Estimated Actual Purchases (AF)	Estimated Total Revenue
City of Del Mar	$1,037/AF	150	80	$155,509
Santa Fe Irrigation District	$1,310/AF	450	510	$668,690
San Dieguito Water District	$1,170/AF	425	320	$498,000
Encinitas Ranch Golf Course	$204,750 lump sum	200	250	$204,750
Olivenhain Municipal Water District	$1,193/AF	25	35	$26,005
Totals		1,250	1,195	$1,552,954
Metropolitan Incentive (paid on actual purchases)	$250/AF		1,195	$298,750
County Water Authority Incentive (paid on actual purchases)	$200/AF		1,195	$239,000
			TOTAL	2,090,704

Note: If the estimated actual is less than the minimum purchase volume, the purveyor pays their wholesale rate times the minimum purchase volume. SEJPA only receives Metropolitan or County Water Authority incentives on actual recycled water delivered.

2.3 Current Fund Balance and Cost of Service

A fund balance model has been developed that allows SEJPA to understand the relationship between expenditures and revenue over time. The model includes historic data on revenue and expenditures and tracks the recycled water fund balance, allowing SEJPA to understand the balance between its expenditures and revenues and confirm that it is maintaining the required SRF reserve. Figure 1 illustrates the fund balance profile for the past four years and the projected profile through Fiscal Year 2013-14, including the SRF repair and replacement reserve of $630,000 and the remaining “unrestricted” balance. The figure illustrates that the balance has demonstrated consistent but slow growth from Fiscal Year 2008-09 to Fiscal Year 2012-13, when SEJPA withdrew $2 million to fund the construction of the AWT Facility. Based on the projected revenue stream, the Fund Balance will continue to grow in the future.

Figure 1 – Recycled Water Fund Balance Profile

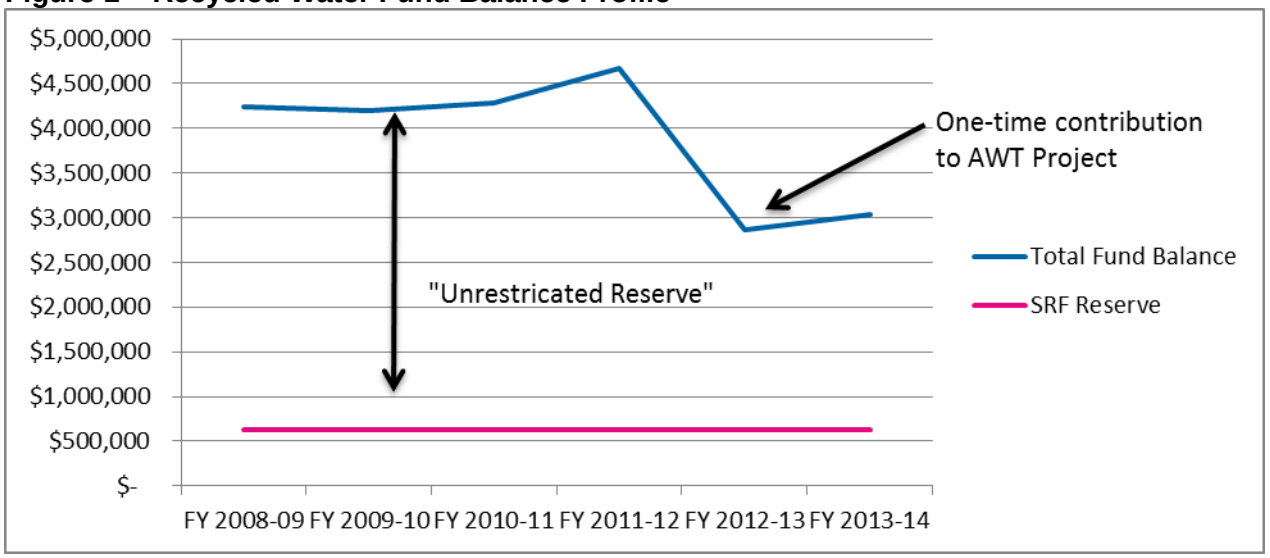


Table 4 provides additional detail on the performance of the recycled water utility and the "cost of delivery" over the past four years. The table illustrates that SEJPA's current cost of delivery is $1,638 per acre foot, which is higher than any of the recycled water rates established by SEJPA's various agreements. While this difference has allowed SEJPA to regularly qualify for the incentive payments, it highlights the fact that the recycled water utility would not be self-sustaining without incentive payments. It is also important to note that the current expenditure program does not include an allowance for depreciation or a contribution to a repair and replacement reserve. Because depreciation is currently "unfunded", the figures in Table 4 are not the full cost of service for SEJPA's recycled water utility.

Table 4 - Summary of Financial Trends FY 2007-08 through 2011-12

	FY 2008-09	FY 2009-10	FY 2010-11	FY 2011-12	FY 2012-13 (Estimated)
Revenues					
Recycled Water Sales	$ 1,412,478	$ 1,421,461	$ 1,530,480	$ 1,508,500	$ 1,552,953
Incentive Revenue	$ 677,706	$ 522,135	$ 454,950	$ 508,500	$ 537,750
"Other" Revenues (includes note & grants)	$ -	$ 28,055	$ 13,582	$ 2,025,484	$ 790,000
Total Revenue	**$ 2,090,184**	**$ 1,971,651**	**$ 1,999,012**	**$ 4,042,484**	**$ 2,880,703**
Total Expenditures	**$ 1,632,851**	**$ 1,696,320**	**$ 1,555,656**	**$ 1,659,780**	**$ 1,957,028**
Annual Cash Flow	$ 457,333	$ 275,331	$ 443,356	$ 2,382,704	$ 923,675
Cost per AF w/ incentives	$ 723	$ 1,011	$ 1,082	$ 996	$ 1,188
Cost per AF w/o incentives	$ 1,236	$ 1,461	$ 1,530	$ 1,436	$ 1,638

Note: 1) AWT Loan of $2 million obtained in FY 2011-12.
2) IRWM Grant Commitment, estimated at $790,000, FY 2012-13.
3) Total Expenditures for FY 2012-13 are estimated and actual expenditures may be lower.

3. Future Fiscal Scenarios

As noted above, SEJPA has developed a fiscal model that allows it to project future performance of the utility. The program's future financial performance is tied to three key time periods:

- Fiscal Year 2016-17 when the current agreements with several of the participating water agencies expire and the business arrangement between SEJPA and its current partners is renegotiated.
- Fiscal Year 2021-22 which is the first year after the payoff of the State Revolving Fund Loan, when debt service demands on the program are reduced.
- Fiscal Year 2025-26 when the financial incentive programs from the County Water Authority and Metropolitan expire, which increases the cash flow demands on the program.

The program's future sustainability depends on SEJPA's ability to effectively implement a fiscal strategy that covers its cost of service, including repair and replacement costs. The payoff of the SRF loan offers SEJPA the opportunity to reprogram revenues, which had been dedicated to debt service, to other uses. The expiration of the incentive programs requires that SEJPA develop a revenue recovery model that will fully cover its costs. The expiration of the current agreements with participating water agencies provides all parties with an opportunity to restructure the current business arrangements to support a more sustainable utility.

SEJPA has some time to manage the transition of its recycled water program and this analysis is intended to assist with planning the transition. This analysis includes three future scenarios which are intended to "bookend" potential utility performance. The scenarios include varied assumptions about recycled water deliveries and consistent assumptions about program expenditures, because expenditures are largely fixed. The "cost of service" recycled water rate can then be estimated for each delivery scenario. No individual scenario is intended to be "predictive"; rather the range of scenarios is intended to assist SEJPA in understanding the potential effects of changes in the recycled water delivery pattern.

By evaluating a range of scenarios, SEJPA will have a planning tool against which it can gauge future system performance and it can begin developing the policies and agreements that will allow for a successful transition.

3.1 Recycled Water Delivery Scenarios

SEJPA's revenue is fundamentally tied to the volume of recycled water delivered. Because the majority of SEJPA's costs are fixed, higher deliveries allow SEJPA to cover its costs with lower recycled water rates. SEJPA has requested that this analysis review the three recycled water delivery rates described below.

- Status Quo: this scenario assumes recycled water deliveries increase from 1,195 acre feet annually in Fiscal Year 2012-13 to 1,240 acre feet annually in Fiscal Year 2018-19. The increase is associated with use developing in the OMWD service area.
- Ten Percent Increase or 1,335 AFY by 2019 Scenario: this scenario assumes recycled water deliveries increase from 1,195 acre feet annually in Fiscal Year 2012-13 to 1,335 acre feet annually in Fiscal Year 2018-19. In addition to developing use within the OMWD service area, this scenario assumes a 10% increase (2% per year) within the SFID, SDWD, and City of Del Mar service areas.
- Twenty Percent Increase or 1,437 AFY by 2019 Scenario: this scenario assumes recycled water deliveries increase from 1,195 acre feet annually in Fiscal Year 2012-13 to 1,437 acre feet annually in Fiscal Year 2018-19. In addition to developing use within the OMWD service area, this scenario assumes a 20% increase (4% per year) within the SFID, SDWD, and City of Del Mar service areas.

3.2 Future Expenditure Pattern

SEJPA's future expenditure program has been modeled to reflect full cost recovery for the recycled water system. The specific assumptions for expenditures are described below.

3.2.1 Debt Service

SEJPA currently has three debt service payments. The payment for its SRF loan, which financed the initial construction of its system, is $834,000 per year and will be paid off in Fiscal Year 2020-21. The payment for the note, which financed the construction of the AWT project, is $148,000 and it will be paid off in Fiscal Year 2030-31. The payment for the SFID pipeline extension is estimated to include an initial payment of $50,000 and an annual payment stream based on an interest rate between 1.0% and 2.5% and the volume of recycled water sold. This amount can vary based upon the actual volume of recycled water delivered through the pipeline. This loan will be paid off in Fiscal Year 2032-33 if the volume of water delivered is in excess of 50 acre feet per year during year 13 through 15 of this agreement.

3.2.2 Operations and Maintenance

The fund balance model assumes that SEJPA's operational costs will increase at 3% per year. The model also assumes that operational costs will increase by $200 per acre-foot for each additional acre-foot delivered. This assumption is designed to account for the additional energy and chemical costs associated with increased recycled water production.

3.2.3 Debt Service Reserve

SEJPA is currently not required to maintain a "debt service reserve" for either its SRF loan or AWT note. However, because debt service is required to be paid, regardless of recycled water sales, the fiscal model assumes that the operational reserve, described below, will be established to include the costs of debt service. As SEJPA retires its debt, the operational reserve requirement will be reduced accordingly.

3.2.4 Operational Reserve

For future planning, this analysis assumes that SEJPA will maintain one year of operational costs, including debt service costs, in an operational reserve to allow it to manage its high percentage of “fixed costs” in the face of fluctuating revenue from water sales. Based on the current balance in the Recycled Water Program Fund, estimated at $2.2 million, there is adequate funding here to create the proposed operational reserve. Creating the operational reserve provides purpose and transparency for the funds within the reserve.

3.2.5 Capital Reserve

A core principal of utility management is to maintain a repair and replacement reserve that allows the utility to undertaken necessary capital projects and maintain its asset base over the long term. SEJPA’s recycled water utility is relatively new. To date, the utility has established a $630,000 repair and replacement reserve as required by its SRF loan and has included small capital outlay and improvement projects in its annual budget. It has managed one major upgrade project, the AWT project, through a combination of grants, additional bonded debt, and drawing upon unrestricted reserves. However the recycled water utility does not annually budget for depreciation of its assets and it does not have a dedicated capital reserve that would allow it to undertake projects necessary to maintain existing facilities or expand facilities to support increased recycled water deliveries within its service area.

Long term, as the utility looks to understand its full cost of service, it is important that it include the investment necessary to maintain its assets, acknowledging that incentive payments will not always be available to help offset utility systems cost. SEJPA’s Board of Directors has acknowledged the importance of planning for asset management and when it approved the OMWD agreement, the Board directed that at least one-half of the annual revenue received from OMWD be dedicated to a repair and reserve fund for SEJPA’s infrastructure.

One strategy for managing repair and replacement of the recycled water system is to fully fund depreciation of the system. SEJPA’s existing recycled water infrastructure had an initial cost of approximately $16.8 million, which if depreciated over a 50 year life, would result in an annual depreciation expense of $337,334. When the new AWT facilities come on line, SEJPA’s calculated annual depreciation rate increases to $451,734, again based on a 50 year facility life. If SEJPA had been fully funding depreciation, its repair and replacement reserve would currently be approximately $3.7 million, which exceeds the value of the current fund balance.

Practically, there are a number of ways to manage repair and replacement of utility system assets. Bond financing, low interest loans, and grants are all mechanisms for funding capital projects within the system, without placing the full burden of depreciation on current rate payers. In addition, utility system assets can provide service beyond the term of their useful life, allowing system replacement to be funded over a longer term. Finally, in SEJPA’s case, the life of its asset base is generally longer than the term of its loans. This affords the utility the ability to “reprogram” the expenditures currently dedicated to debt service, to a capital reserve as its debt is retired, effectively increasing its capital reserve contribution as its assets age.

Acknowledging these practical realities, SEJPA utilized its fiscal model to help it determine "milestone" capital reserve goals that would allow it to accrue a capital reserve with a value close to the depreciated value of its assets in Fiscal Year 2030-31, when its debt is retired. This initial analysis suggests that SEJPA should budget for a capital reserve of approximately $3.0 million in Fiscal Year 2020-21, a key program milestone after which its SRF loan is paid off. The analysis also suggests that SEJPA should budget for a capital reserve of approximately $4.8 million in Fiscal Year 2025-26, another key program milestone after which the last of the incentive funding expires. These repair and replacement goals reflect a practical strategy for managing replacement of assets, given the current fiscal status of the system.

3.2.6 Repaying SEJPA Member Agencies

In order to undertake the initial water recycling program, SEJPA's member agencies made an investment of approximately $5.2 million, which was advanced to the recycled water utility interest free.

Some of this investment was funded from sewer connection fees collected from new sewer connections to the Cardiff Sanitation District and the Solana Beach Sanitation District beginning around 1982. These connection fees were approved by Cardiff Sanitation District through the passage of the 1982 Proposition M, and approved at Board level by the Solana Beach Sanitation District. The fee amount was $1,000 per Equivalent Dwelling Unit (EDU) with the funds being specifically directed for the construction of a recycled water facility. These dedicated funds were appropriately invested in the recycled water utility and should not be repaid to the member agencies. SEJPA is working with the member agencies to determine the actual value of the funds collected.

For the purpose of modeling, this cost of service analysis assumes that the amount of repayment actually due to member agencies is $4 million. This analysis assumes that SEJPA will repay this amount at a rate of $800,000 per year for five years beginning in Fiscal Year 2021-22, when its SRF debt is retired. Upon determination of the actual value of the connection fees appropriately invested in the recycled water utility, SEJPA will update the fiscal model to reflect the appropriate repayment balance.

While the model provides a budgetary guide for how SEJPA will go about its goal of repaying its member agencies, actual repayments will be based on available recycled water utility cash flow and will be net any revenue collected by the member agencies for the specific purpose of constructing a recycled water system.

3.3 Cost of Service at Various Delivery Scenarios

SEJPA's cost of delivering service is the fundamental parameter to consider when evaluating both current recycled water rates and the costs and benefits of connecting new customers. Because so much of SEJPA's budgeted costs are fixed, the opportunity to reduce the cost of service to any individual customer is contingent upon increasing the volume of recycled water deliveries.

As described above, a range of assumptions have been made about future recycled water use in order to analyze the impacts of various growth scenarios on future recycled water rates. These assumptions are intended to allow for a reasonable projection of future performance. Table 5 summarizes the assumptions that are included in the fund balance model for each scenario.

Table 5 – Summary of Assumptions in the Fiscal Model

	Minimum Purchase Volume	Actual Purchase Volume		Starting Recycled Water Rate (FY 2012-13)	
	AFY	AFY			
		FY 2012-13	FY 2018-19	$ HCF	$ AF
Status Quo Scenario					
City of Del Mar	150	80	80	$2.38	$1,037
Santa Fe Irrigation District	450	510	510	$3.01	$1,310
San Dieguito Water District	425	320	320	$2.69	$1,170
Encinitas Ranch Golf Course	NA	250	250	NA	$204,750 lump sum
Olivenhain Municipal Water District	25	35	80	$2.74	$1,193
Ten Percent Increase Scenario					
City of Del Mar	150	80	88	$2.38	$1,037
Santa Fe Irrigation District	450	510	563	$3.01	$1,310
San Dieguito Water District	425	320	353	$2.69	$1,170
Encinitas Ranch Golf Course	NA	250	250	NA	$204,750 lump sum
Olivenhain Municipal Water District	25	35	80	$2.74	$1,193
Twenty Percent Increase Scenario					
City of Del Mar	150	80	97	$2.38	$1,037
Santa Fe Irrigation District	450	510	620	$3.01	$1,310
San Dieguito Water District	425	320	390	$2.69	$1,170
Encinitas Ranch Golf Course	NA	250	250	NA	$204,750 lump sum
Olivenhain Municipal Water District	25	35	80	$2.74	$1,193

In addition to assumptions about recycled water use patterns and starting rates, the model includes the following assumptions:

- Metropolitan incentives are received on the volume of water delivered until Fiscal Year 2025-26.
- County Water Authority incentives are calculated based on the expenditure and revenue pattern for each scenario until Fiscal Year 2025-26 and generally expire in Fiscal Year 2020-21.
- The operational reserve will be set at each years' expenditures including debt service.
- Remaining fund balance reserves will be placed in a capital reserve.

3.3.1 Status Quo

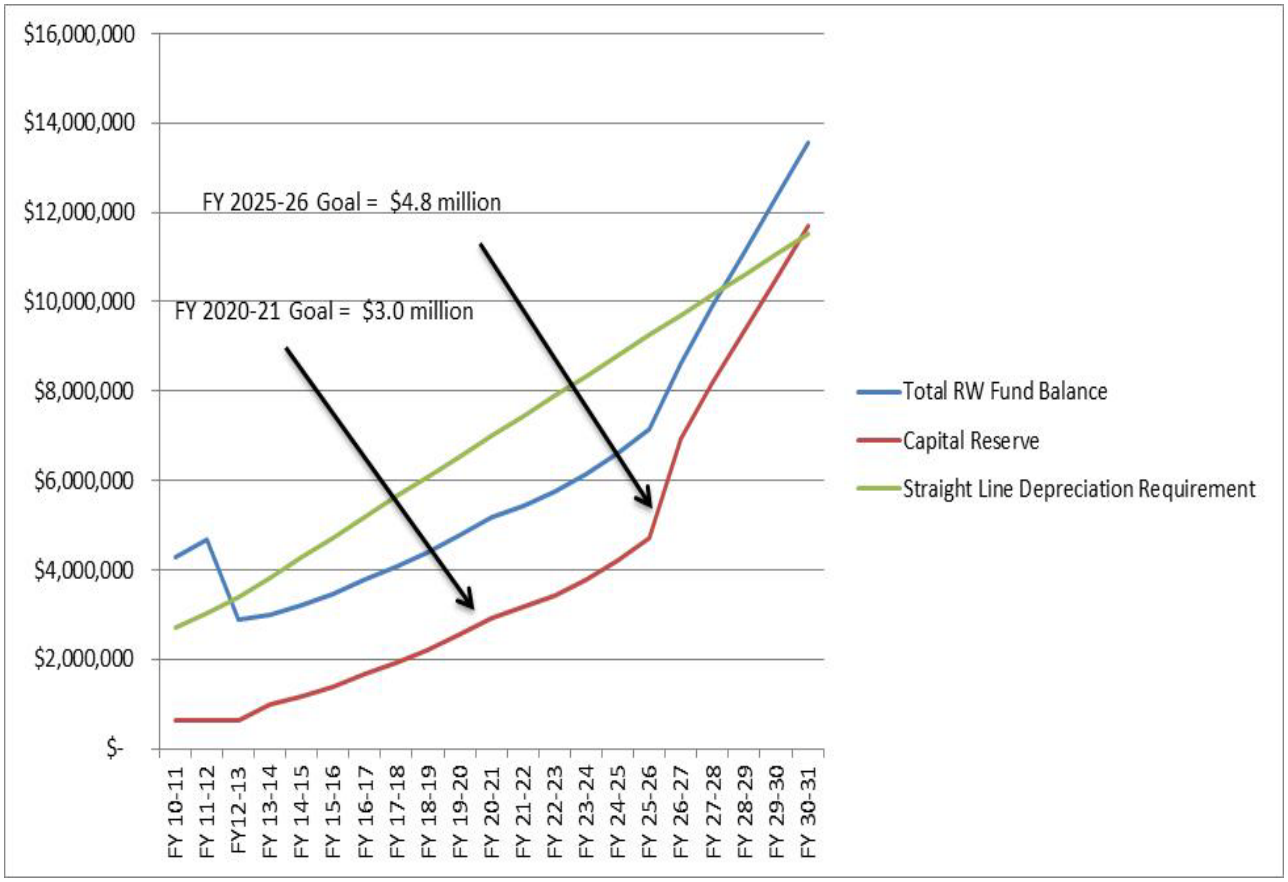
Under this scenario, SEJPA is able to meet its goals for repaying its member agencies and establishing a capital reserve program. In Fiscal Year 2020-21, the total fund balance is estimated at $4.9 million with $2.6 million in a dedicated capital reserve, very close to the goal of $3.0 million. By Fiscal Year 2025-26, the total fund balance is $6.7 million with $4.3 million in a dedicated capital reserve, which is very close to the goal. This is illustrated in Figure 2.

In this scenario, recycled water rates for the participating agencies are $4.24 per HCF (or $1,845 per acre foot) in Fiscal Year 2020-21. This is generally achieved by a series of 5% annual rate increases, although the model assumes slightly higher one-time increases when the minimum purchase volumes expire for SDWD and Del Mar. In both cases, the increase in unit rate is balanced by the reduction in purchase volume so that the overall revenue requirement from the participating agencies does not increase. By comparison the current potable water landscape rate is $3.98 per HCF in the SDWD and $4.04 per HCF in the SFID service area, suggesting the potable water rates would need to increase by about 4% per year in order to allow recycled water to continue to sell at a 15% discount.

By Fiscal Year 2025-26, recycled water rates for the participating agencies would be $5.40 per HCF or $2,355 per acre foot, which is again generally achieved by a series of 5% annual rate increases. Rate increases are modest after this point.

The analysis suggests that in order for SEJPA to achieve its capital reserve goals, under a Status Quo scenario, potable water rates will need to continue to increase in order for recycled water to remain price competitive. If potable water rates do not continue to increase, SEJPA may not be able to keep its product "price competitive" while still achieving its milestone capital reserve goals, in which case the actual capital reserve may be less than the initial "goal".

Figure 2 - Fund Balance Trends: Status Quo



3.3.2 Ten Percent Increase Scenario (1,335 AFY by FY 2018-19)

Under this scenario, SEJPA is able to meet its goals for repaying its member agencies and establishing a capital reserve program. In Fiscal Year 2020-21, the total fund balance is $5.2 million with $2.9 million in a dedicated capital reserve, which is very close to the goal of $3.0 million. By Fiscal Year 2025-26, the total fund balance is $7.5 million with $5.0 million in a dedicated capital reserve, which is slightly over the goal of $4.8 million. This is illustrated in Figure 3.

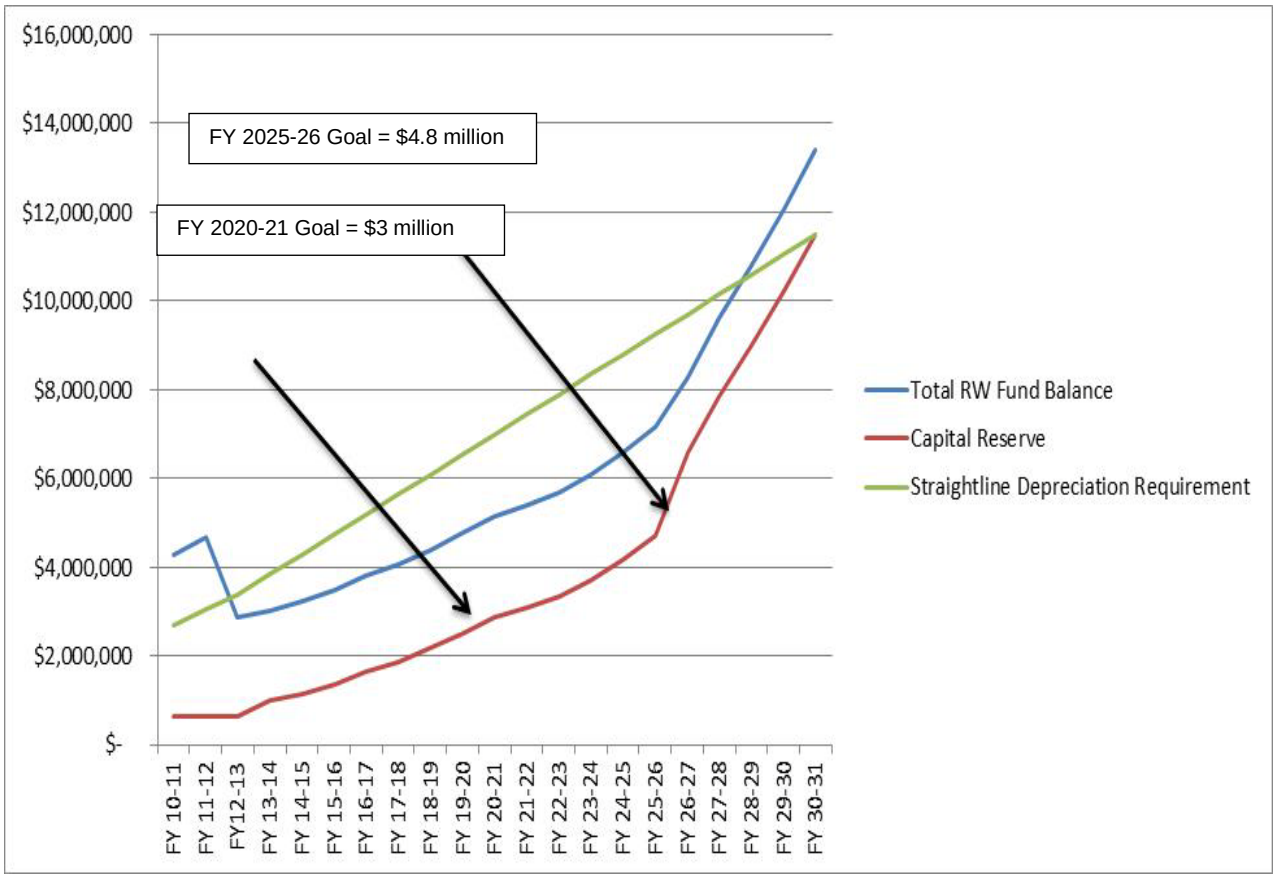
In this scenario, recycled water rates for the participating agencies are $3.92 per HCF (or $1,710 per acre foot) in Fiscal Year 2020-21. This is generally achieved by a series of 3% to 5% annual rate increases, although the model assumes slightly higher one-time increases when the minimum purchase volume expires for Del Mar (in the SDWD service area, the planned growth minimizes the need for any one-time increase). As with the Status Quo scenario, the increase in unit rate is balanced by the reduction in purchase volume so that the overall revenue requirement does not increase. By comparison the current potable water landscape rate is

$3.98 per HCF in the SDWD and $4.04 per HCF in the SFID service area, suggesting that with growth in the participating water agencies service area, recycled water's price could remain competitive even without regular increases in water rates.

By Fiscal Year 2025-26, recycled water rates for the participating agencies would be $5.20 per HCF or $2,267 per acre foot, which is generally achieved by a series of 6% annual rate increases. Rate increases are modest after this point.

The analysis suggests that in the Ten Percent Increase Scenario, SEJPA's ability to achieve its capital reserve goals is less dependent on concomitant potable water rate increases to keep its product price competitive.

Figure 3 - Fund Balance Trends – 1,335 AFY Scenario



3.3.3 Twenty Percent Increase Scenario (1,437 AFY by FY 2018-19)

Under this scenario, SEJPA is able to meet its goals for repaying its member agencies and establishing a capital reserve program. In Fiscal Year 2020-21, the total fund balance is $5.6 million with $3.3 million in a dedicated capital reserve, which exceeds the goal of $3.0 million.

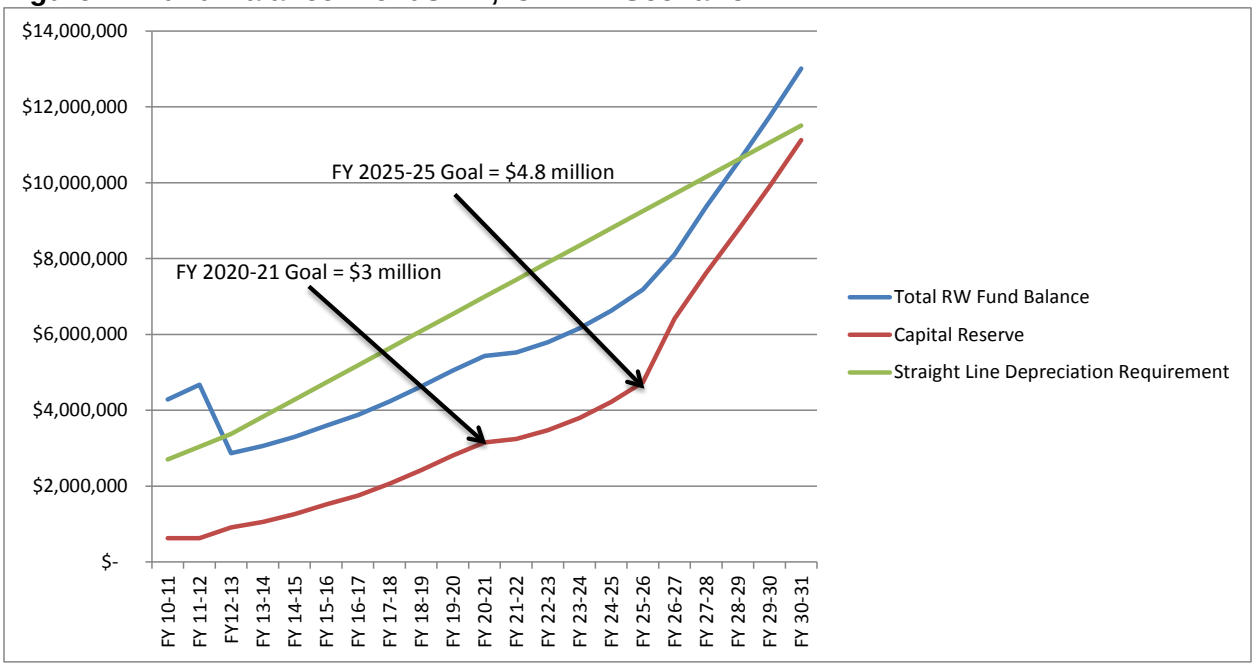
By Fiscal Year 2025-26, the total fund balance is $7.7 million with $5.2 million in a dedicated capital reserve, which also exceed the goal of $4.8 million. This is illustrated in Figure 4.

In this scenario, recycled water rates for the participating agencies are $3.59 per HCF or ($1,565 per acre foot) in Fiscal Year 2020-21. This is generally achieved by a series of 1% to 5% annual rate increases, although the model assumes slightly higher one-time increases when the minimum purchase volume expires for Del Mar (in the SDWD service area, the planned growth minimizes the need for any one-time increase). As with the other scenarios, the increase in unit rate is balanced by the reduction in purchase volume so that the overall revenue requirement does not increase. By comparison the current potable water landscape rate is $3.98 per HCF in the SDWD and $4.04 per HCF in the SFID service area, suggesting that with growth in the participating water agencies service area, recycled water's price could remain competitive even without regular increases in water rates.

By Fiscal Year 2025-26, recycled water rates for the participating agencies would be $4.58 per HCF or $1,996 per acre foot, which is generally achieved by a series of 6% annual rate increases. Rate increases are modest after this point.

While this modeled scenario predicts a series of 1% rate increases followed by 6% increases in order to meet the targets for the capital reserve fund balance, it is likely that SEJPA would implement higher rates increases (3% to 5%) early in the planning period and reduced rate increases later in the planning period, as it becomes clear that recycled water sales are really increasing. This strategy provides for a smoother transition of rate increases and a better ability to manage revenue needs to the actual growth trajectory of the recycled water utility.

Figure 4 - Fund Balance Trends – 1,437 AFY Scenario



3.3.4 Scenario Comparisons

Each of the scenarios considered allows SEJPA to cover its costs, meet its capital reserve goals, and repay its member agencies. For the growth scenarios (10% and 20%), the capital reserve goals of $2.8 million by 2021 and $4.8 million by 2026 are reached and exceeded. The Status Quo scenario does not quite reach the target reserve goals in either year. Also, each scenario results in differences in the “cost of service” and the recycled water rates required to meet the revenue goals.

Table 6 below, compares these various factors for each scenario at the end of Fiscal Year 2020-21 and Fiscal Year 2025-26. In general, the scenarios that result in growth in recycled water deliveries result in a lower predicted cost of service and are less reliant on incentives for financial viability.

Table 6 - Scenario Comparison

Fiscal Year 2021-22			
	Status Quo	**1,335 AFY**	**1,437 AFY**
Cost of Service			
with incentives	$ 1,654	$ 1,563	$ 1,451
without incentives	$ 2,104	$ 2,013	$ 1,901
Capital Reserve Fund Balance	$ 2,620,226	$ 2,915,637	$ 3,336,376
Total Fund Balance	$ 4,911,764	$ 5,229,152	$ 5,673,677
Recycled Water Rates			
Participating Water Agencies	$ 1,845	$ 1,710	$ 1,565
"Interuptible" Golf Course Rate	$ 1,210	$ 1,210	$ 1,210
"Interuptible" Municipal Rate	$ 1,779	$ 1,710	$ 1,564
Fiscal Year 2025-26			
"Cost of Service"	**Status Quo**	**1,335 AFY**	**1,437 AFY**
with incentives	$ 2,128	$ 2,074	$ 1,862
without incentives	$ 2,378	$ 2,324	$ 2,112
Capital Reserve Fund Balance	$ 4,274,805	$ 5,052,464	$ 5,174,170
Total Fund Balance	$ 6,737,961	$ 7,540,381	$ 7,688,946
Recycled Water Rates			
Particpating Agencies	$ 2,355	$ 2,267	$ 1,996
"Interuptible" Golf Course	$ 1,544	$ 1,544	$ 1,544
"Interuptible" Municipal Rate	$ 2,354	$ 2,267	$ 1,996

3.4 Potable Water Rate Considerations

SEJPA's recycled water program is predicated on the fact that recycled water can be sold for less than potable water. In the scenarios described above, some increases in recycled water rates are necessary to allow the program to become financially self-sufficient, without incentives, and to meet its reserve fund goals. Generally these increases range from 1% to 6% annually, with the lower increases being associated with higher sales of recycled water. This need for some increase in recycled water rates, suggests that potable water rates will also need to increase in order for SEJPA's program to remain viable.

The County Water Authority is forecasting wholesale rate increases in the range of 5% to 9% annually, which generally exceeds the rate of increase necessary to make SEJPA's program self-sufficient. These wholesale increases may or may not translate directly to retail water rates because some retailers have local sources of water, which allows them to reduce their need for imported water, and because the local retailers' water rates include their own costs for local storage, distribution, capital, and administration.

However, because wholesale water costs are projected to rise, SEJPA and its partner agencies can reasonably expect that retail water rates will continue to increase in the future. This reasonable expectation means that SEJPA and its partners will likely have the flexibility to renegotiate some terms of their business relationship without undermining the viability of the recycled water program.

4. Summary Conclusions and Next Steps

SEJPA is currently managing a viable recycled water utility with its revenue coming from a combination of recycled water sales, under minimum purchase agreements, and incentives from Metropolitan and the County Water Authority. This study examined three different future scenarios for SEJPA including different future program growth rates and different future revenue structures. This study indicates that all of these future scenarios are potentially sustainable. However, this study indicates that growing the recycled water utility from current deliveries of approximately 1,195 acre feet per year to future deliveries of 1,400 acre feet per year or more will result in the lowest future recycled water costs and the best opportunities to manage future water rate increases.

4.1 Next Steps

This initial analysis has been based on a series of assumptions in order to allow a range of options to be evaluated at a relatively limited cost. This analysis is not a substitute for a true rate analysis or a detailed asset management plan, but it provides SEJPA with some initial guidance on developing its future strategy. In order to continue to move towards a long-term, self-sustaining utility, SEJPA will want to consider the "next steps" detailed below.

1. Adopt Operational Reserve and Capital Reserve Policies. This analysis assumes that SEJPA will keep a portion of its reserves, equal to one year's expenses, in an Operational Reserve in order to manage cash flow for the utility. Such a reserve policy provides fund liquidity to manage future cash flow risk associated with a program that has relatively high fixed expenses as compared to the total operating program costs and the potential for varying revenues due to consumer purchasing habits. This analysis also assumes that program revenue above the Operational Reserve requirements will be dedicated to a Capital Reserve. While these are reasonable assumptions for the purpose of evaluating scenarios, formal policies will enhance the transparency of SEJPA's program to member agencies, participating water agencies, and other partners. It will also help the Board and staff regularly evaluate the fiscal health of the program.
2. Develop a refined, current market assessment. This analysis makes assumptions about the recycled water demand and concludes that an expanded utility is more viable over time. In order to grow the utility, SEJPA will need to work with its members, its participating agencies and other interested parties to understand where 200 to 350 acre feet per year of new demand can be committed to the system over the next five to seven years.
3. Refine the Fiscal Model. This analysis sets Fiscal Year 2020-21 and Fiscal Year 2025-26 Capital Reserve Fund goals and then develops rate projections based on recycled water deliveries. One scenario, the Status Quo scenario, requires potable water rates to increase along with recycled water rates in order for SEJPA to meet its reserve goals and still provide a viably priced commodity. The other two scenarios, which assume

growth in the recycled water market, appear viable even if potable water rates remain flat. When more detailed information is available on new customers, connection timing, and rate preferences, the fiscal model can and should be updated and used to refine the strategy for expansion and confirm that long term goals can be met.

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