

# Technical Memorandum

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**Date:** 05/22/2020

**To:** Kuldeep Sharma, *Utilities Director, City of Tracy*

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**Subject:** 2020 Recycled Water Rate Development

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## Introduction

HDR Engineering, Inc. was retained by the City of Tracy (City) to develop a recycled water rate and initial financial plan analysis based on current recycled water projected costs. This plan, and proposed rate, is based on the City being the only customer utilizing the recycled water system and it is not sold to any other water or sewer utility customers. Should the City decide in the future to make recycled water service available to customers other than the City itself, the methodology and framework that is outlined in this tech memo could be employed. However, the analysis would need to be updated to reflect the appropriate costs and sales as well as the likely public process as is necessary with water and sewer rates to meet the Proposition 218 requirements.

The development of the revenue requirement (financial analysis) in this technical memorandum was developed to allow the City to equitably recover the costs of providing recycled water service for use on City properties only. It is important for any utility to be self-sustaining and fully funded through the rates that are charged for services and future recycled water rates would likely achieve this by using generally accepted rate setting methodologies as has been done in this analysis. This memo presents the basis for the development of the projected expenses – both operating and capital - for the City's recycled water services and subsequent recycled water rates.

## Operations & Maintenance

The first component of the revenue requirement analysis was to project the expenses incurred to provide recycled water service, at this time only to City owned properties. The projection of operating expenses is based on a number of assumptions based on typical utility costs. The costs were then escalated annually through 2029 using the inflationary factors which range from 2.7% – 4.0% for the various types of O&M expenses. These are similar to the inflationary factors used in the development of the most recent water rate study.

- Pump Station Maintenance – For the City's recycled water system, maintenance expenses for the pump stations was estimated at \$310,000 per mgd. This figure was taken from the Recycled Water Optimization Evaluation by CH2M Hill Engineers, Inc. in 2017 on page 3-7. The full details of the estimate are not specified, but for purposes of this analysis, it is assumed that the costs did not include labor expenses. For 2020, the assumed recycled

water demand is 0.18 mgd and results in an O&M cost of \$57,000 for pump station maintenance. It is important to note that the system demand is anticipated to increase in 2021 to 0.29 mgd. This line item in the O&M costs will scale with the system demand at a rate of \$310,000 per mgd, which is escalated each year by 2.7%.

- Turbidimeter Calibration – City staff noted that turbidimeter calibration would be necessary as part of the pump maintenance. It was estimated that an instrumentation tech would spend 1 hour per week for the calibration. At the estimated fully loaded hourly rate, the cost was estimated at \$5,200 per year. This line item is assumed to increase as salaries which is estimated at 3.5% per year.
- Pumping Operations – As mentioned above, it is assumed that the pump station maintenance costs do not include labor for operations. Given that, it was assumed that one employee would work 0.5 hrs per day on pump operations. For 2020, that is estimated to cost \$18,250 and is escalated annually by the salaries escalation rate of 3.5% per year. Again, as the system demand increases such as in 2021, the labor is scaled up proportionally to address an assumed increase in labor requirements.
- The final O&M component is a materials and supplies line item. This line item is in place to supply adequate budget capacity for any small items used in maintenance, minor equipment or tools, and other similar items. Materials and supplies are estimated at \$2,500 in 2020 and increases annually by 2.7%.

In total, the estimated O&M expenses are \$82,800 for 2020. Those figures are expected to increase due to the noted projected increases in recycled water system demand in 2021 to \$135,800 in O&M expenses. Additionally, inflationary pressures on the O&M expenses have been estimated and incorporated through cost escalation factors. Given the increase in system demand and cost escalation, annual O&M expense is projected to be \$170,300 by 2029.

Given that the recycled water system is not currently operating, and there are no “actual” costs being identified for recycled water service, it is difficult to project the annual O&M costs for the recycled water system. However, as the recycled water system becomes operational, these costs will be identified, reviewed, and updated as actual cost data is available and the service is being provided. Additionally, if the City should decide to make recycled water services available to the public, there would likely be included administrative and other indirect costs that are not currently included in the development of the rate for City use only.

## Rate Funded Capital

The next component of the City’s recycled water revenue requirement analysis is the rate funded capital line item. As the name eludes, this expense is a funding mechanism built into the rate levels that allows for the cash funding of capital improvements to be made to the recycled water system. It is important for the revenue requirement to have the capacity to invest in the system on a cash basis as it would be impractical and not prudent to debt finance all capital. Contemporary rate making principles suggest that in order for the City to maintain the recycled water system and level of service, it is important to reinvest in the system at a minimum level at

least equal to depreciation. It is prudent, therefore, to have a level of annual capital projects funded by rates greater than this target level. This is because the replacement cost of the system will continue to increase due to inflation and replacement cost. Currently, the annual depreciation is not known and the recycled water system was largely constructed with grant funds. Although the typical target of annual depreciation may not yet apply, a value was established as a starting point for annual capital investment in renewal and replacement of the recycled water system. For 2020, it was set at \$20,000 increasing annually which is shown below in Table 1

<b>Table 1</b>					
<b>Rate Funded Capital</b>					
	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>
Rate Funded Capital	\$20,000	\$21,500	\$23,100	\$24,800	\$26,700

In much the similar way as with O&M expense projection, the rate funded capital expense will be reviewed and updated as necessary when actual costs are incurred. At this time, no specific capital projects or items have been identified, however, this approach provides an annual funding source for capital improvements and annual renewal and replacements of the recycled water system. As with the O&M projections, as the system begins providing service, and if it expands beyond serving City properties, The City will want to review and update the analysis to determine the appropriate level of renewal and replacement needs and annual funding of capital through rates for rate establishment.

## Debt

The recycled water system currently has no annual debt service payment. The existing system was largely constructed with grant revenues as a funding source. It is important to note that future recycled water system expansion – specifically for non-City customers – would likely need to be funded by long-term debt service. The issuance of long-term debt can be an important tool for the City as it tends to attribute well the cost of a capital expense to the customers that benefit from that improvement, typically those in the future. In this way, it shields current customers from the burden of funding projects that may have limited benefit to them. As mentioned in the rate funded capital section, long-term debt should not be used as the sole capital funding source as over reliance on debt can over leverage the utility and could also lead to reduced bond ratings.

## Reserve Funding

The final component in the development of the recycled water revenue requirement is reserve funding. As part of prudent financial planning for utilities, reserves play a vital role in maintaining the financial stability of the utility. Reserve funds serve a variety of purposes which include to provide funds for monthly cash flows to bridge the gap between when the utility incurs costs and when it receives the rate revenues. Also, in the case of catastrophic event resulting in a large capital funds need or loss of revenue. Additionally, the reserve acts - as the name implies - as a

place that can store money from a surplus year and disburse in a deficit year thereby avoiding needed rate increase and decreases and smoothing the rates over time. Although the recycled water does not currently have any reserve funds, it was appropriate to establish the funding of reserves as this would likely occur in the recycled water utility was to develop rates in a traditional manner. The target for the recycled water system reserve fund was set at 90 days of O&M expenses which is an industry standard and prudent level.

With the development of the recycled water system revenue requirement based on the major expense categories above, a summary can be determined. Table 2 shows a summary of the annual operating expenses for the City’s recycled water system based on the components described above.

<b>Table 2</b>					
<b>Revenue Requirement Summary (\$000s)</b>					
	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>
<b>Expenses</b>					
O&M	\$83	\$86	\$136	\$140	\$145
Rate Funded Capital	20	22	23	25	27
Debt Service	0	0	0	0	0
Reserve Funding	<u>0</u>	<u>0</u>	<u>12</u>	<u>7</u>	<u>5</u>
<b>Total Expenses</b>	<b>\$103</b>	<b>\$107</b>	<b>\$171</b>	<b>\$172</b>	<b>\$177</b>
<i>Est. System Demand (CCF)</i>	<i>87,120</i>	<i>87,556</i>	<i>139,828</i>	<i>140,527</i>	<i>141,229</i>
Unit Cost - \$ / CCF	\$1.18	\$1.22	\$1.22	\$1.22	\$1.25

Table 2 above shows the summary of the expenses for the City’s recycled water system which have been developed as part of the revenue requirement. The assumed demand for recycled water is also shown and the unit cost – dollars per hundred cubic feet (CCF) – is then derived. Based on the analysis, to fund the recycled water expenses, the City would charge its internal department’s up to \$1.25/CCF of recycled water through 2024. This would reasonably and adequately fund the operating expenses related to providing recycled water services.

## Summary of the Financial Plan

The individual components discussed above combined to develop the recycled water system revenue requirement. The revenue requirement presented in this tech memo is based upon an assumed level of demand on the system, costs to operate and maintain the system, and assumptions related to inflation. Should these assumptions change the level of revenue required to prudently and adequately fund the recycled water system will be affected. As noted, the City currently does not supply or provide recycled water services to the general public but rather for only internal or City uses. This memo aims to lay the groundwork for the development of the revenue requirement for the recycled water system which would be the first step in determining

rates to charge for all recycled water service. It is important to note that this analysis was not developed to meet the requirements of Proposition 218 and that a cost of service analysis would also need to be done to develop proposed recycled water rates for customers other than internal City properties.