TUALATIN VALLEY WATER DISTRICT

2019-2020
Financial Plan

ISSUED MAY 2019

1850 SW 170th Ave., Beaverton, OR 97003
Phone: (503) 848-3000
www.TVWD.org

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1 Introduction

Tualatin Valley Water District (*TVWD* or *District*) serves about 57,000 accounts in parts of Washington County, Oregon. The District's service area is about 42 square miles, home to approximately 215,000 people in portions of the cities of Beaverton, Hillsboro, Tigard, and unincorporated Washington County. In the fiscal year ended June 30, 2018 (FY2018), the District supplied an average of 23.3 million gallons of water per day (MGD) to its customers. The daily amounts ranged from a minimum of approximately 14 million gallons (MG) to a peak day of 45 MG.

To provide this service to its customers, the District currently relies on three water sources: the City of Portland Water Bureau (Portland), the Joint Water Commission (JWC)[1], and Grabhorn Aquifer Storage and Recovery (ASR). The District's capacity from Portland is 42.3 MGD, with another 12.5 MGD available from the JWC. The total of these amounts is well above the average and peak daily flow requirements of the District's customers.

To deliver water to its customers, the District maintains approximately 750 miles of pipe, ranging in size from 2 to 60 inches. Twelve pumping stations are on-line to move water throughout the District. There are 21 finished water reservoirs with a combined storage capacity of 67 MG. The major pumping stations and the reservoirs have full telemetry control systems. The District's water system is monitored 24 hours a day, seven days a week. In addition to monitoring water flows and pressure, the District's state-of-the-art Supervisory Control and Data Acquisition (SCADA) system monitors several water quality parameters and security alarms. If the system identifies anything out of the ordinary, alarms alert an operator to the possible problem and staff are dispatched as needed.

Maintaining a reliable and efficient water system is a major focus at TVWD. Capital improvement projects are planned and constructed throughout the year to meet current and future water needs. At any given time, the District has a variety of these projects underway, including pipe replacement, reservoir construction, and building improvements.

In addition to the types of capital expenditures just mentioned, the District is engaged in a major infrastructure project to develop a new water source on the mid-Willamette River for the Tualatin Valley. This project is commonly referred to as the Willamette Water Supply Program (WWSP), and includes capital improvements that are part of two new regional water entities.

1. Willamette Intake Facilities (WIF) Commission – The WIF is a joint venture of the District and the cities of Beaverton, Hillsboro, Sherwood, Tigard, and Wilsonville to jointly own and operate a raw water intake facility located at the current Willamette River Water Treatment Plant in Wilsonville, Oregon. The District serves as the Managing Agency for the WIF.

2. Willamette Water Supply System (WWSS) Commission – The WWSS will soon be a joint venture of the District and the cities of Hillsboro and Beaverton[2] to construct and operate supply facilities that convey raw water from the WIF, treat the raw water to potable standards, and

[1] The District is a partner in the JWC along with the cities of Beaverton, Forest Grove, and Hillsboro.
[2] The District and the cities are currently in the process of adopting the intergovernmental agreement required to form the WWSS. As currently planned, the new WWSS entity will be established on July 1, 2019.

convey the potable water to each partner's distribution systems.[3] The District will serve as the Managing Agency for the WWSS.

The WWSP began in FY2014 and will be complete in FY2026. Its total program cost (including inflation) is substantial at approximately $1.3 billion. Until 2018, the District had assumed that it would fund its projected share (approximately $729 million) with cash and revenue bond proceeds.[4] In July 2018, the District and its WWSS partner, the City of Hillsboro (Hillsboro), were selected by the U.S. Environmental Protection Agency (EPA) to apply for up to $616.6 million in long-term, low-cost supplemental loans, administered through EPA's Water Infrastructure Finance and Innovation Act (WIFIA). The District estimates that its share of WIFIA funding will save its ratepayers over $230 million through 2045, free up financial resources for other purposes, and lower the overall levels of annual revenues required from rates and charges.

To forecast its financial resource requirements, including future revenues from rates and charges, the District maintains a financial forecast model (Forecast) that is used to analyze revenue requirement[5] scenarios under alternative capital improvements plans and cost assumptions.

1.1 The Forecast Model

This Financial Plan summarizes the Forecast results, which are based on the District's latest data and assumptions. These data and assumptions include capital improvement plan (CIP) costs, operations and maintenance (O&M) costs, rate and non-rate revenues, system development charge (SDC) collections, reserve funds, and various assumptions around interest rates and cost escalation factors for future years of the projection period.

The model examines the impacts of funding capital improvements with a mix of rate revenue, reserves, system development charges, and proceeds from future borrowings. The scenario presented in this Financial Plan is based on the District's latest CIP projections, budget numbers, and collective estimates of interest rates and escalation factors as of April 24, 2019. The scenario is projected to generate enough revenue to meet the District's future revenue requirements, maintain prudent reserve fund balances, and achieve target debt service coverage ratios.

The Forecast that this Financial Plan is based on uses the 30-year planning period of FY2019 through FY2048. However, in most instances, this Financial Plan provides summary data from the first 10 years of the forecast period (FY2020-FY2029). Throughout this document, this period may be referred to as the "10-year presentation period" or simply the "presentation period".

1.2 Financial Plan Section Descriptions and Highlights

Presented here is an overview of each section of the Financial Plan, a document that will be updated periodically to reflect future assumptions and outcomes, and provide guidance for the financial management of the District. In addition to regular updates, the District anticipates that its Financial Plan

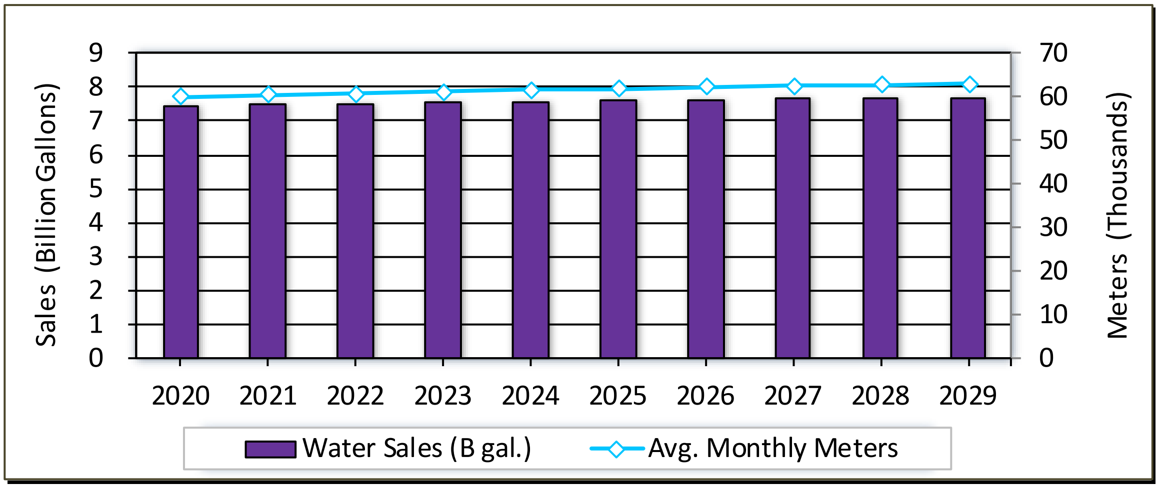
[3] The WWSP website (http://www.ourreliablewater.org/) provides additional information including activities-to-date, maps, and other related information for all WIF and WWSS projects.
[4] WWSP partner costs will be funded individually by the District's partners, with payments made through the District as Managing Agency of the WWSP.
[5] Revenue requirements include cash-funded capital improvements, debt service, and operational expenditures.

will evolve to provide additional information intended to help the Board and management in the execution of their responsibilities. Therefore, the sections highlighted below may change over time.[6]

SECTION 2 – FINANCIAL MANAGEMENT OBJECTIVES AND POLICIES. This section describes the objectives that form the basis of the District's financial management activities, and the key financial planning assumptions and policies used in the Forecast model.

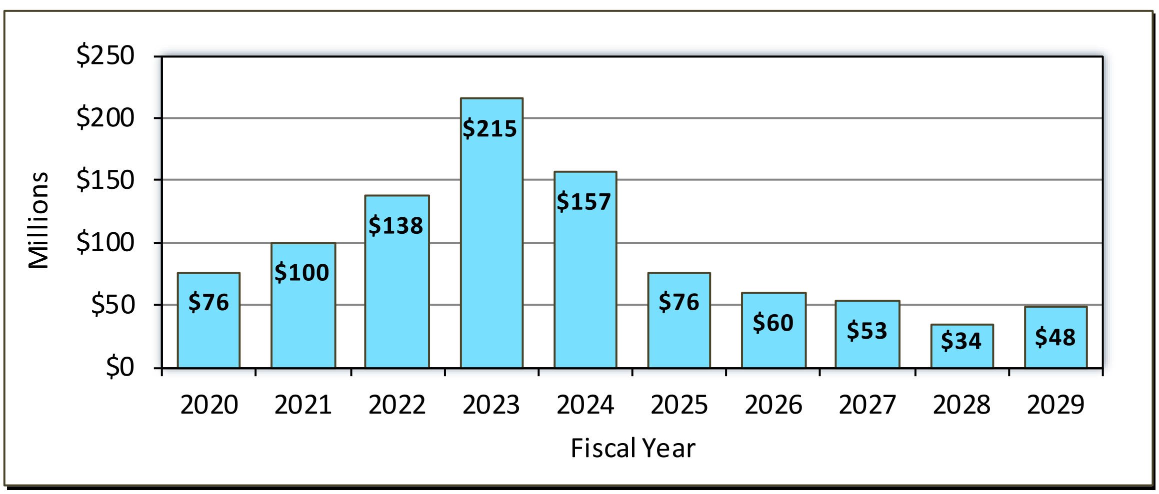
SECTION 3 – WATER SALES PROJECTIONS. This section describes the District's water sales forecast and the data used in the preparation of this Financial Plan (Figure 1-1).

Figure 1-1: Water Sales and Meters Forecast by Fiscal Year



SECTION 4 – CAPITAL IMPROVEMENT PLAN. This section describes various elements of the District's CIP, including projected costs by category. Figure 1-2 provides a summary of projected CIP expenditures over the 10-year presentation period. Total expenditures over this period are approximately $957.1 million.

Figure 1-2: Projected CIP Expenditures



[6] As an example, a future version of the Financial Plan may include sections for an Operations Plan and historical financial performance information.

SECTION 5 – CAPITAL FINANCING PLAN. This section provides a detailed overview of the types and anticipated timing of debt required to finance the CIP and the methodology used to optimize the District's capital financing mix (Figure 1-3). Section 5 also describes the debt assumptions used in the Forecast model and projections of future debt repayments (Figure 1-4).

Figure 1-3: Ten-year Financing Mix (Cash v. Debt through FY2029)

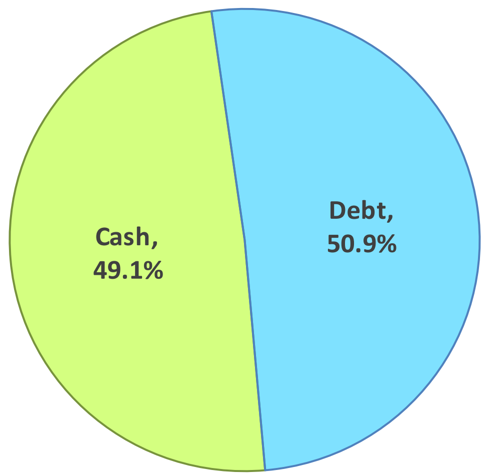
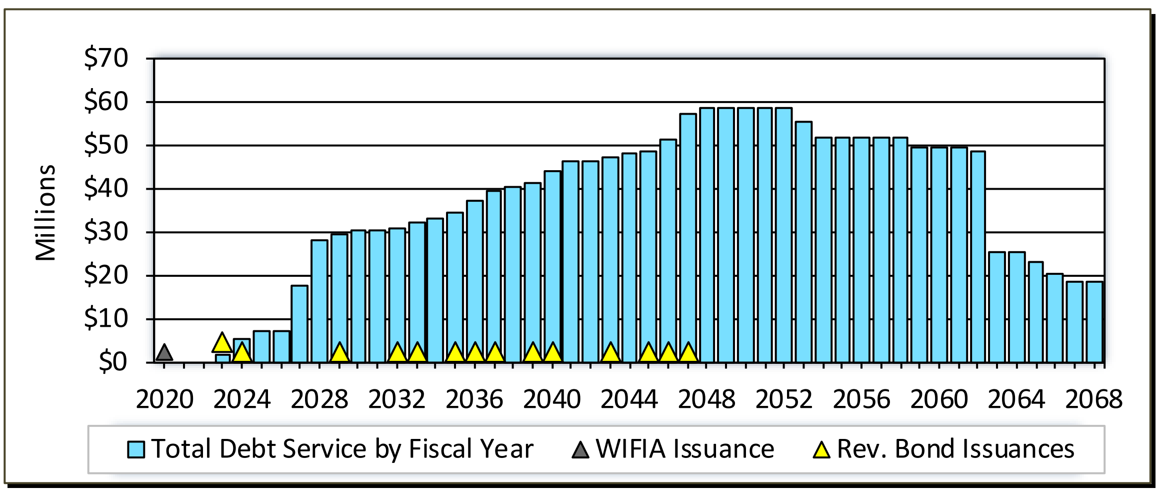


Figure 1-4: Projected Debt Repayments (Total Debt Service on WIFIA and Revenue Bonds)



SECTION 6 – FINANCIAL FORECAST. This section demonstrates the overall feasibility of the District's capital financing plan. It provides descriptions of the District's current and projected rates and charges, and descriptions of the projected sources and uses of funds during the presentation period.

Figure 1-5 presents the Forecast rate revenue adjustments (3.9% per year) and typical monthly bill over the presentation period.

Figure 1-5: Rate Adjustments and Typical Bill Impacts by Fiscal Year

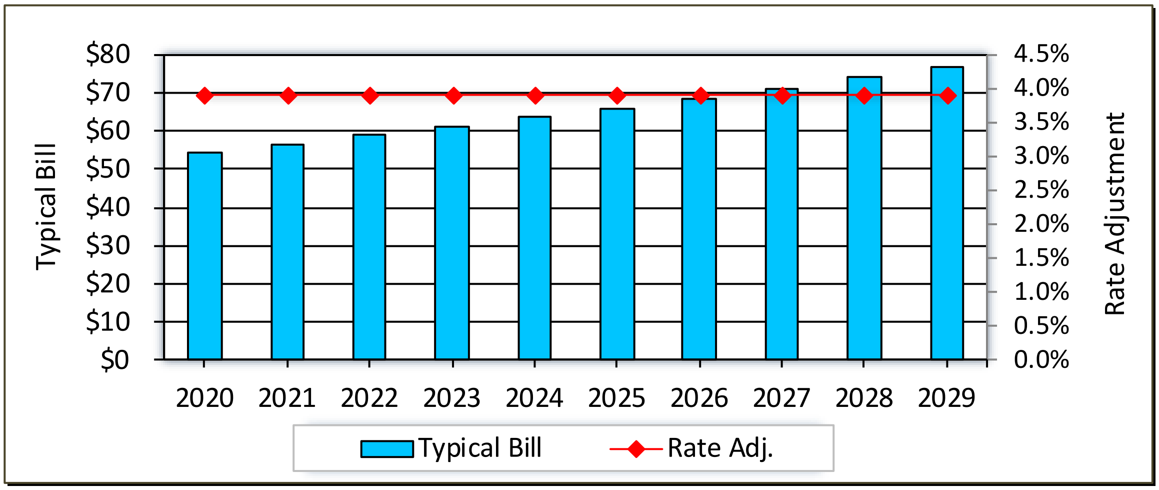
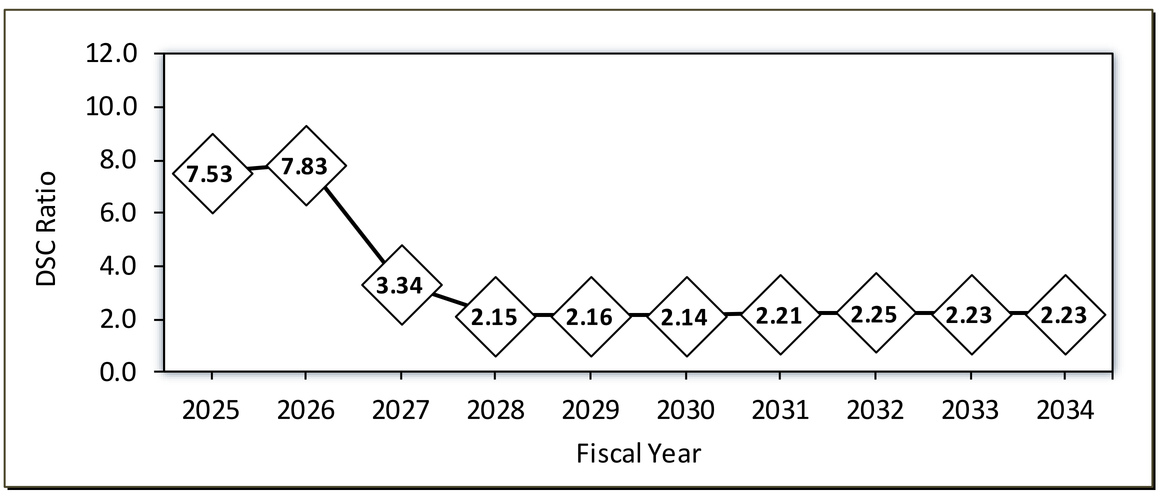


Figure 1-6 below shows that projected debt service coverage (DSC)[7] will be at or above the District's target of 2.0 times. Note that Figure 1-6 presents ten years of results beginning with FY2025 instead of FY2020. This is to show projected DSC for a period after which the bulk of the District's near-term debt service requirements will be in place.

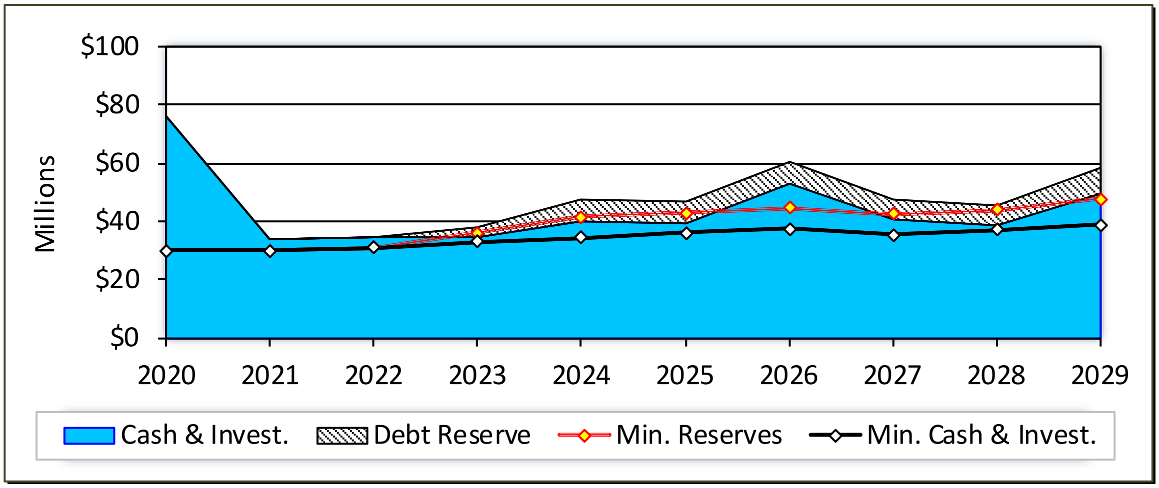
Figure 1-6: Projected Debt Service Coverage Ratio



[7] A DSC ratio measures the availability of current financial resources to pay for debt service. It is the ratio of annual revenues (net of operating expenses) to total annual debt service.

SECTION 7 – FUNDS AND RESERVES. This section describes the summary funds used in the Forecast model. The projections in this section, summarized in Figure 1-7, demonstrate that the District will have enough liquidity to meet both its operating and capital investment commitments.

Figure 1-7: Projected Year-End Cash Balances by Fiscal Year



APPENDICES. Along with a service area map inside the back cover, the Appendices include the following:

- Appendix A – Financial Management Policies
- Appendix B – Capital Improvement Plan
- Appendix C – Ordinance 01-19 – Authorizing the Issuance of Debt
- Appendix D – Draft Master Revenue Bond Declaration
- Appendix E – Forecast Model Summary Results
- Appendix F – Map – Tualatin Valley Water District (Washington County, Oregon)

1.3 Conclusion

It must be noted that many assumptions were employed in the financial planning analysis underlying this document. For this reason, the results presented herein are not concrete in nature and should be considered as planning estimates.

In the future, the actual rate adjustments required to fund revenue requirements may vary from the estimates presented in Section 6 – *Financial Forecast*. As time passes and projections become reality, future capital requirements, O&M costs, customer demands, and other assumptions will influence the accuracy of these estimates. Therefore, the District will continue to take great care to mitigate risk by following prudent management practices, including reviewing rates and revenues annually (at a minimum) to see if additional adjustments are necessary.

2 Financial Management Objectives and Policies

The District's Financial Plan incorporates the Board's financial policies and objectives into an actionable plan that guides the District's financial activities. To develop the District's Financial Plan, the Board considers alternative financial outcomes at public meetings and workshops periodically throughout the year. The Forecast is used to inform the Board on the impact that various policy decisions have on the District's financial outcomes. This includes, for example, changes in water rates, use of long-term debt, etc.

Most of the District's financial policies are included in its *Financial Management Policies* document.[8] In addition to the *Financial Management Policies*, the Board separately adopts the District's *Investment Policy* annually as required by Oregon law.[9]

The aim of this section is threefold:

- Provide context for understanding the policies in terms of financial management objectives.
- Describe key District financial policies, including recent enhancements.
- Present background information on credit ratings.

2.1 Financial Management Objectives

This section provides a context for understanding the District's financial policies in terms of certain financial management objectives –

- Promoting Stability and Continuity
- Providing Best Value to the Community
- Providing a Definitive Policy Framework for District Staff
- Managing Risks to Financial Condition
- Following Established Public Management Best Practices

PROMOTING STABILITY AND CONTINUITY. The long-term, strategic intent articulated by many financial policies necessarily demands a long-term perspective from the organization. These policies promote stability and continuity by institutionalizing good financial management practices. They also prevent the need to re-invent responses to recurring issues.

PROVIDING BEST VALUE TO THE COMMUNITY. By clarifying and crystallizing strategic intent for financial management, financial policies define a shared understanding of how the organization will develop its financial practices and manage its resources to provide the best value to the community.

PROVIDING A DEFINITIVE POLICY FRAMEWORK FOR DISTRICT STAFF. Financial policies define limits on the actions staff may take. The policy framework provides the boundaries within which staff can innovate in order to realize the organization's strategic intent.

[8] Appendix A contains the District's current *Financial Management Policies*. These policies were adopted by the Board of Commissioners on March 20, 2019 by Resolution 08-19.
[9] The District's current *Investment Policy* was adopted by the Board of Commissioners on January 16, 2019 by Resolution 01-19.

MANAGING RISKS TO FINANCIAL CONDITION. A key component of governance accountability is not to incur excessive risk in the pursuit of public goals. Financial policies identify important risks to financial condition.

FOLLOWING ESTABLISHED PUBLIC MANAGEMENT BEST PRACTICES. The Government Finance Officers Association (GFOA), through its officially adopted Best Practices endorsement of National Advisory Council on State and Local Budgeting (NACSLB) budget practices and the GFOA Distinguished Budget Presentation Award Program, has recognized financial policies as an essential part of public financial management.

2.2 Key Financial Policies and Assumptions

The District's financial policies cover a range of diverse activities. However, for long-range financial planning, policies related to capital financing and reserve levels are of particular importance. The following subsection describes each of these key policies in greater detail.

Financial Planning Assumptions[10]

- Debt Service Coverage Ratio
- Additional Bonds Test
- Debt Structure Considerations

Reserve Policies

- Working Capital
- Capital Reserves
- Debt Service Reserves

2.2.1 Financial Planning Assumptions

The financial planning assumptions provide guidance for future debt issuance, structure, and management. The assumptions are incorporated into policies that establish certain limits which recognize the District's capital requirements, its ability to repay financial obligations, and the existing legal, economic, financial, and debt market conditions. Specifically, the policies are intended to assist the District in the following:

1. Evaluating available debt issuance options;
2. Maintaining appropriate capital assets for present and future needs;
3. Promoting sound financial management through accurate and timely information on financial conditions;
4. Protecting and enhancing the District's credit rating(s); and
5. Safeguarding the legal use of the District's financing authority through an effective system of internal controls.

The District's debt financing assumptions and debt structure considerations are discussed in the following two subsections. For more detail and additional information on the District's policies on *Debt Financing*, see *Appendix A – Financial Management Policies*.

[10] Assumptions used in the Forecast are from the District's *Financial Management Policies*, except for the additional WIFIA-related assumptions described in *Section 5.3.1 – WIFIA Debt Assumptions*.

2.2.1.1 Forecast Model Assumptions for Debt Financing

DEBT SERVICE COVERAGE (DSC) RATIO. A DSC ratio measures the availability of current financial resources to pay for debt service. It is the ratio of annual revenues (net of operating expenses) to total annual debt service. For example, a DSC ratio of 1.0x means that after paying all operating expenses[11], an issuer only has exactly enough funds to pay debt service obligations. Similarly, a DSC ratio of 1.5x means that after paying all operating expenses, an issuer has 50% more than the amount needed to pay debt service obligations. This additional capacity allows the issuer to fund other capital expenditures with cash (thereby resulting in less debt leverage) and providing a buffer should revenue be unexpectedly lower (e.g., due to weather or other unforeseen events), or operating expenses being unexpectedly higher.

DSC is one of the primary metrics used by credit ratings agencies and investors to assess the credit worthiness of an issuer. In this way, it's like a ratio of monthly income to mortgage payment used in qualifying for a home mortgage. All other things being equal, an issuer with a higher DSC ratio may indicate less borrowing, better credit ratings, and a lower cost of debt. Conversely, a similar utility with a lower DSC ratio may indicate more debt outstanding, lower credit ratings, and more expensive debt.

The District's master revenue bond declaration (Master Declaration) is the document that will govern debt issuance. In this document, the District commits to set rates at levels to meet rate covenants and additional bonds tests imposed by then-existing financing covenants. In addition to the legal and/or contractual requirements associated with future revenue bonds, the District will strive to maintain a minimum annual debt service coverage ratio of 2.0 times average annual debt service.[12]

2.2.1.2 Debt Structure Considerations

MATURITY OF DEBT. The final maturity of the debt shall not exceed, and preferably be less than, the remaining useful life of the assets being financed, and to comply with Federal tax regulations, the average life of a financing shall not exceed 120% of the average life of the assets being financed.

DEBT SERVICE STRUCTURE. Debt service payments for any new money debt issue will generally be structured to create approximately level debt service payments over the life of the debt. Exceptions are permitted for refunding debt that will have varying principal repayments structured to fill in the gaps created by refunding specific principal maturities. The CFO may also structure the amortization of principal to wrap around existing obligations or to achieve other financial planning goals. Deferring the repayment of principal should be avoided except in select instances where it will take time before project revenues are enough to pay debt service.

LIEN STRUCTURE. Senior and subordinate liens may be used to maximize the most critical constraint, either cost or capacity, thus allowing for the most beneficial leverage of revenues.

CAPITALIZED INTEREST. The District may elect to fund capitalized interest in connection with the construction of certain projects if revenue from such projects is not initially available to pay debt service

[11] Excluding depreciation. Although depreciation is an operating expense, it is a non-cash expense and is therefore excluded from the calculation of the DSC ratio.

[12] The District sets its minimum DSC ratio target higher than the expected required minimum of 1.25 times debt service. This is a matter of prudent financial policy, in which the District strives to achieve a higher standard than the requirements typically set forth in bond covenants.

on related debt. Additionally, the District may consider funding capitalized interest if it would minimize the financial impact of such borrowing on District ratepayers.

RESERVE FUNDS. A reserve fund for a debt issuance may be required for credit rating or marketing reasons. If required, such reserve fund can be funded with:

- The proceeds of a debt issue,
- The reserves of the District, or
- A surety policy.

A cash reserve fund will be invested pursuant to the investment restrictions associated with the respective financing documents and the District's separate investment policy. For each debt issue, the CFO will evaluate whether a reserve fund is required for credit rating or marketing purposes and the benefits of funding or maintaining the reserve requirement with cash or a surety policy, in addition to determining the benefits of borrowing the necessary funds or using cash reserves.

REDEMPTION PROVISIONS. In general, the District will have the right to optionally redeem debt at par no later than 10 1/2 years after issuance. Redemption provisions will be established on a case-by-case basis, taking into consideration market conditions and the results of a call option analysis prior to the time of sale. Because the issuance of non-callable debt may restrict future financial flexibility, cost will not be the sole determinant in the decision to issue non-callable debt.

CREDIT ENHANCEMENT. Credit enhancement (e.g., bond insurance or letters of credit) on District financings will only be used when net debt service is reduced by more than the cost of the enhancement. The District will evaluate the availability and cost/benefit of credit enhanced debt versus unenhanced debt prior to issuing any debt.

2.2.2 Reserve Policies

Maintaining fund balances is an important function for the District to operate efficiently over the long run. The District's reserve policies guide the development of minimum cash balances that directly affect this District's Financial Plan, rates and charges, and budget. The accumulation or use of fund balances and reserves is a practice that may allow financial decisions in one year to affect future years. Because of the nature of these effects, these policies provide guidance to:

- District management in developing the various plans proposed to the Board, and
- The Board in making its financial decisions.

The decision to retain financial resources in fund balance or reserves directly affects:

- Financial risks from unexpected disruptions to revenue or unexpected expenditures.
- Water rates required in the current and future years.
- The District's credit rating(s).
- Other related financial matters.

The District's reserves requirements are highlighted in the following three subsections. For more detail and additional information on the District's policies on *Minimum Fund Balances and Reserves*, see *Appendix A – Financial Management Policies*.

2.2.2.1 Working Capital

The District separately measures its current and non-current assets and liabilities. The District can use this distinction to calculate working capital (i.e., current assets less current liabilities). The measure of working capital indicates the relatively liquid portion of the District's capital, which constitutes a margin or buffer for meeting obligations. Additionally, credit ratings agencies consider the availability of working capital in their evaluations of the District's creditworthiness. Therefore, working capital is a crucial consideration in this Financial Plan.

The District's *Financial Management Policies* state that working capital shall be maintained at a level considered adequate to mitigate current and future risks (e.g., revenue shortfalls and unanticipated expenses) and to provide stable services and fees. The policies state that this level will be at least equal to two months of annual operations and maintenance expense (i.e., 60 days cash on hand). However, in the Forecast model, the District targets 250 days of annual O&M for financial planning purposes.

2.2.2.2 Capital Reserves

The District's rate setting goals include a preference to avoid sudden and/or unexpected rate increases for customers. Capital reserves are one mechanism the District can use to lower the overall costs of acquiring capital assets by saving money early in the planning process. Capital reserve levels are determined through the financial planning process and identified in this Financial Plan.

2.2.2.3 Debt Service Reserves

A reserve fund for a debt issuance may be required for credit rating or marketing reasons. The District fully redeemed its last outstanding revenue bonds in June of 2015 and its Debt Service Fund has not been used since that time. However, when the District issues revenue bonds for future capital expenditures, it assumes that any required debt reserves will be funded from the proceeds of each debt issuance.

This cash reserve fund will be invested pursuant to the investment restrictions associated with the respective financing documents and the District's separate investment policy. For each debt issue, the CFO will evaluate whether a reserve fund is required for credit rating or marketing purposes and the benefits of funding or maintaining the reserve requirement with cash or a surety policy, in addition to determining the benefits of borrowing the necessary funds or using cash reserves.

2.3 District Credit Ratings

The primary goal of the District's Financial Plan is to provide the financial foundation on which to build and operate its expanding system infrastructure. As described earlier, financial policies represent a tradeoff among various objectives. Prudent financial management means striking a balance among these objectives in a manner that provides for a sustainable enterprise with the ability to face the risks and capitalize on the opportunities before it.

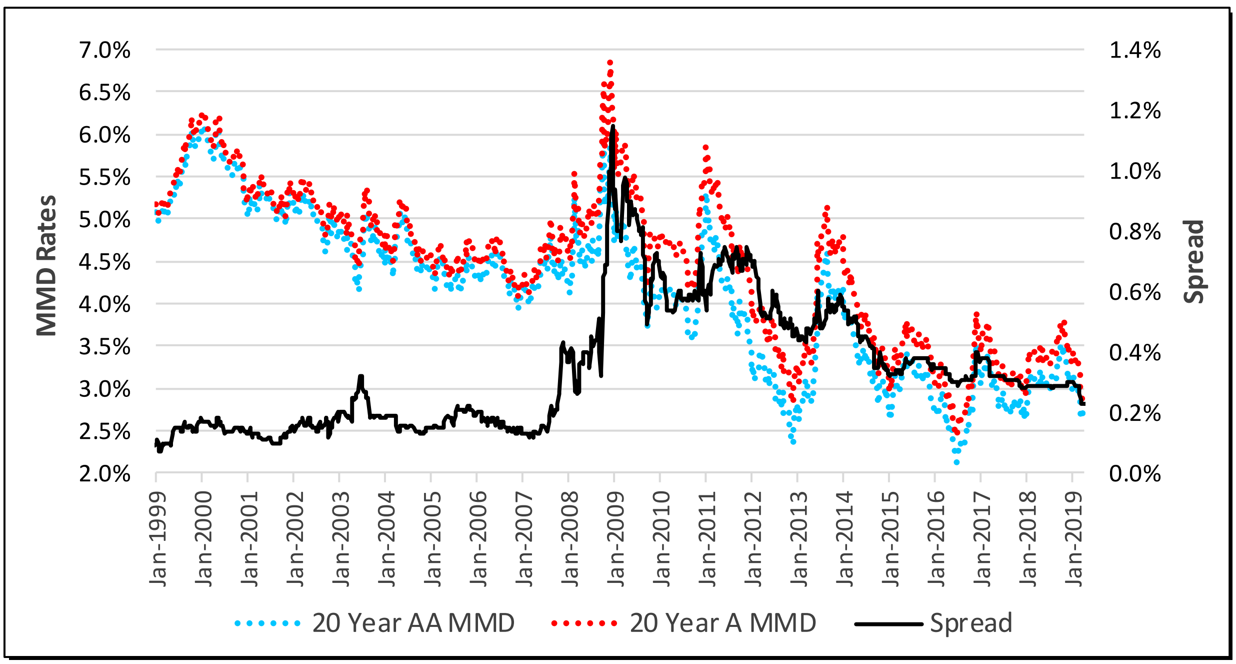
Though high underlying credit ratings are not an end in-and-of themselves, they are one of the best measures of success in creating a financially sustainable enterprise. The District has worked with its professional advisors to develop a targeted credit rating for its long-term debt. Based on the District's alignment with the rating criteria of the various rating agencies and considering the effect on the District's cost of capital, the District intends to target financial performance that would result in a credit rating of at least AA+/Aa1. For comparison, Table 2-1 provides the scale for investment grade securities for three of the national rating agencies.

Table 2-1: Rating Scales by Agency

Standard & Poor's	Fitch Ratings	Moody's Investor's Service
AAA	AAA	Aaa
AA+	AA+	Aa1
AA	AA	Aa2
AA-	AA-	Aa3
A+	A+	A1
A	A	A2
A-	A-	A3
BBB+	BBB+	Baa1
BBB+	BBB+	Baa2
BBB-	BBB-	Baa3

The direct financial value of a strong credit rating is a function of investor perceptions of risk. In terms of basis points savings on long-term debt, the graph below shows the value of 'AA'-rated credit vs. 'A'-rated credit since 1999.

Figure 2-1: Spread Between 'AA' versus 'A' Rated Debt* – The Benefit of Staying 'AA' or Better



* 20-year AA vs. A MMD Historical Rate Comparison (1/1/1999-4/24/2019); from PFM Financial Advisors LLC.

The graph makes clear that the value of a strong credit rating varies over time. Over the period presented, the value has ranged from a low of 7 basis points to a high of 115 basis points, while averaging 34 basis points. To put this in perspective, an additional 34 basis points results in an additional $340,000 in interest per year ($10.2 million over 30 years) on every $100 million in outstanding debt.

3 Water Sales Projections

3.1 Water Sources

One of the District's primary responsibilities is to meet the projected water demands of existing and future customers. No single water source is sufficiently robust to meet this challenge, and the District's Board has long recognized the need to balance water supplies among multiple sources. Currently, the District purchases most of its water through a wholesale contract with the City of Portland. The remainder of the water needed by the District comes from the Joint Water Commission (JWC) and the District's aquifer storage and recovery facilities (ASR).

3.1.1 City of Portland Water Bureau

TVWD purchases water from Portland under an existing regional water sales agreement. TVWD has no equity share in the Portland supply and, under the terms of the agreement, is required to pay for a minimum average of 13.16 MGD even if the District uses less. If the District uses more it will pay for the additional costs. Water is billed at a pre-determined rate including a rate of return to Portland, with significant rate increases tied to high usage during summer months. The District can receive up to 42.3 MGD from Portland, however, there are significant incentives to manage the existing supply system to limit the financial impacts of the existing Portland water sales agreement.

3.1.2 Joint Water Commission

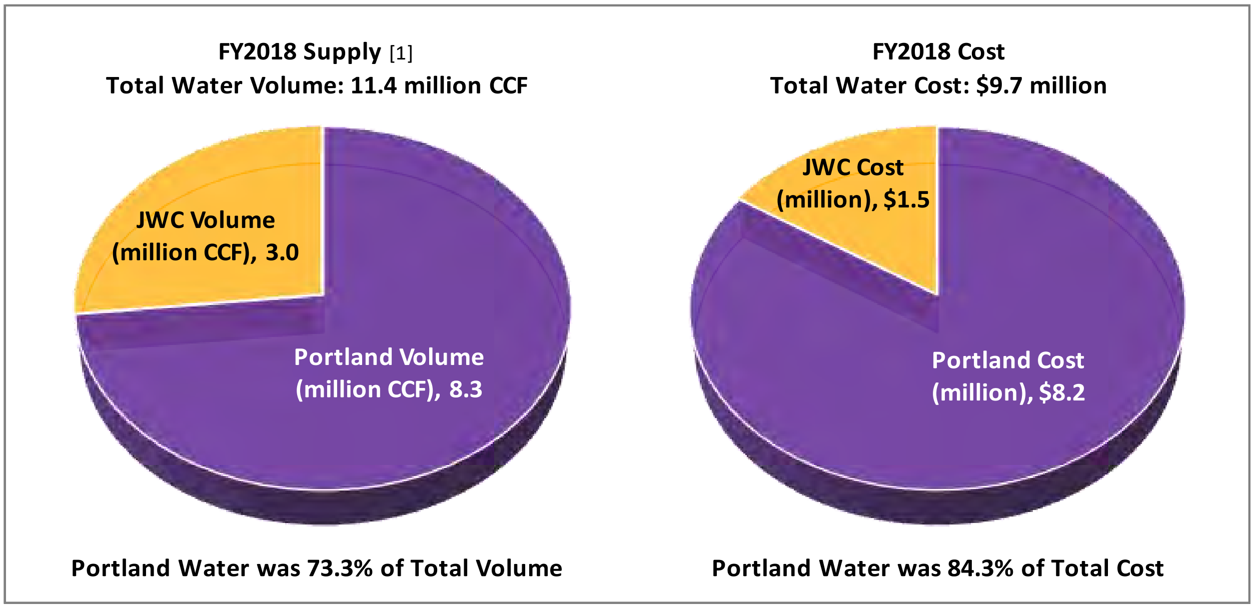
The JWC is a partnership of the District and the cities of Hillsboro, Beaverton and Forest Grove. The JWC operates a treatment plant and related storage and transmission facilities. As a member of the Joint Water Commission, the District owns capacity rights in JWC facilities. TVWD's capacity share of the JWC water treatment plant is 12.5 MGD,[13] and the District owns rights to approximately 7,000 acre-feet of storage[14] at Barney Reservoir, one of the two primary impoundments that provide raw surface water supply to the JWC (the other is Hagg Lake). JWC members share actual operating and maintenance costs in proportion to their water usage and ownership shares.

JWC water is billed to the District at actual water production cost with no rate of return element. In the summer months, purchased water costs from the JWC are significantly lower than the cost of Portland water. Therefore, the District maximizes its purchases from the JWC source while concurrently making the contractually required minimum purchases from Portland during the peak season.

Figure 3-1 (next page) illustrates the comparative volume and costs of the District's supplies from Portland and the JWC.

[13] The District currently owns 12.5 MGD of JWC treatment capacity, expanding to 14.5 MGD in FY2020.
[14] 7,000 acre-feet is equivalent to approximately 12.5 MGD over a 180-day peak-season period.

Figure 3-1: Comparison of Existing Supplies and Related Costs



[1] CCF = one hundred cubic feet or 748 gallons.

3.1.3 Grabhorn Aquifer Storage and Recovery

The District also uses its existing Grabhorn ASR well to supplement supply during peak-summer periods. The Grabhorn ASR facility can store up to 300 million gallons of water and deliver up to 3 MGD of supply over a 100-day period.

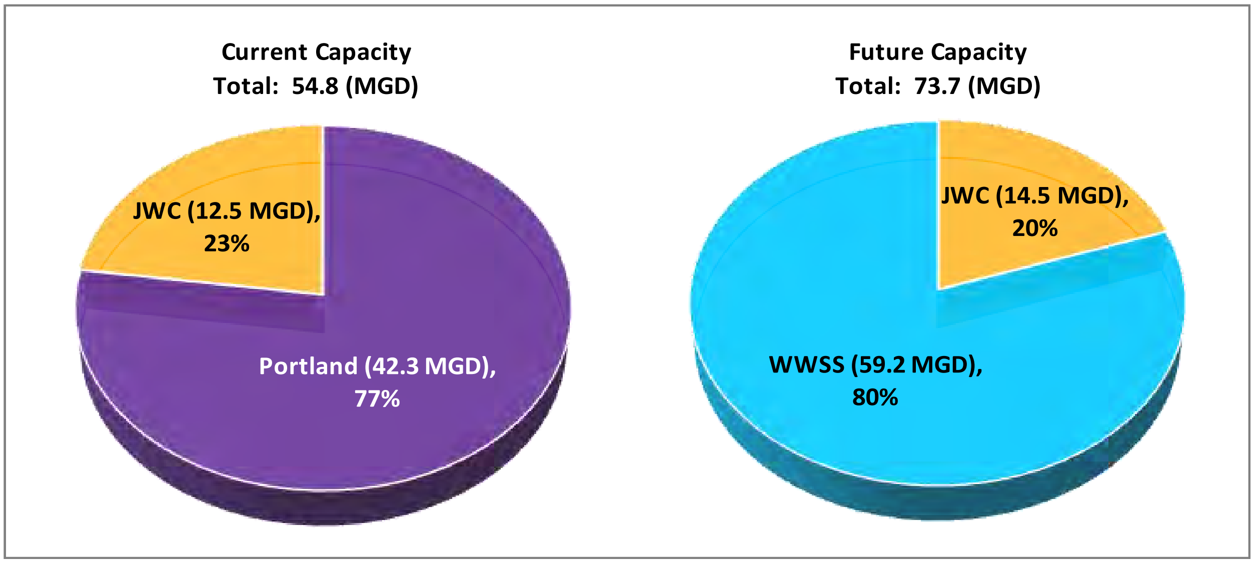
To reduce the higher costs of purchasing water for peak-summer use, the District forecasts its projected demand on a regular basis. This short-term demand forecasting helps the District meet the minimum purchase requirement of the Portland agreement while efficiently using the JWC and ASR sources to help meet higher demands during summer months.

3.1.4 Willamette Water Supply System

In 2013, the District's Board decided to expand the District's portfolio of water sources and develop a new water supply on the Willamette River. With the development of the Willamette Water Supply System (WWSS), the District plans to replace its Portland purchased water with this new source. The WWSS is scheduled to be available by July 1, 2026.

Figure 3-2 (next page) summarizes the District's current source water capacities and its planned capacities beginning in FY2027.

Figure 3-2: Current v. Future Source Water Capacity



Developing the new water supply is considered an integral element of the District's core mission. The planning, design and construction of the WWSS is being done by the Willamette Water Supply Program (WWSP). Once complete, the WWSS will be a seismically hardened water supply system to meet the long-term needs of its residential, commercial, and industrial customers.

The WWSS is a regional effort which will result in long-term regional benefits. It is being implemented as a regional partnership, with TVWD serving as the Managing Agency for two new regional water entities with ownership interest in different parts of the total program:

1. Willamette Intake Facilities (WIF) Commission – The WIF is a joint venture of the District and the cities of Beaverton, Hillsboro, Sherwood, Tigard, and Wilsonville to jointly own and operate a raw water intake facility located at the current Willamette River Water Treatment Plant in Wilsonville, Oregon. The District serves as the Managing Agency for the WIF.

2. Willamette Water Supply System Commission – The WWSS will soon be a joint venture of the District and the cities of Hillsboro and Beaverton[15] to construct and operate supply facilities that convey raw water from the WIF, treat the raw water to potable standards, and convey the potable water to each partner's distribution systems.[16] The District will serve as the Managing Agency for the WWSS.

[15] The District and the cities are currently in the process of adopting the intergovernmental agreement required to form the WWSS. As currently planned, the new WWSS entity be established on July 1, 2019.
[16] The WWSP website (http://www.ourreliablewater.org/) provides additional information including activities-to-date, maps, and other related information for all WIF and WWSS projects.

3.2 Water Demand Forecast

In February 2018, the District entered into a service area agreement (Beaverton Service Area Agreement) with the City of Beaverton (Beaverton). This service area agreement provided a framework for the District and Beaverton to plan for serving customers within Beaverton's corporate jurisdiction in places where it overlaps with the District's boundaries. The agreement provided Beaverton an opportunity to withdraw a limited number of customers from the District, thereby making them Beaverton customers. Effective July 1, 2018, Beaverton withdrew approximately 4,000 water services from the District.

In the coming years, the District expects Beaverton to withdraw some additional customers. The timing and the ultimate number of customers that will be affected by withdrawal is not now certain. However, the water demand forecast underlying this Financial Plan incorporates Beaverton's planned withdrawal of an additional 286 services. The District assumed this withdrawal would be effective by the end of FY2019, so the related reductions in the District's service accounts and associated water consumption are embedded in the projected source water purchases and rate revenue (fixed charges and water sales) included in the Forecast model.

At this time, the District is aware of only one additional area from which Beaverton could withdraw customers in the future.[17] Regardless of the ultimate number of services that Beaverton withdraws, the probability is low that future withdrawal(s) would occur all at once. Rather, a series of withdrawals with subsequent transfer activities over multiple years may impact the District's finances in a gradual way.

Given the staggered timing of customer transfers to wheeling status and then separated status (i.e., served directly by Beaverton), the impact to the District's finances is projected to be gradual. As the implementation of the agreement proceeds, and transfers are completed, the District will refine the assumed revenue impacts included in the forecast model.

Before factoring in assumed losses to Beaverton, the assumed annual customer growth rate begins at 0.75% in FY2020 through FY2021, and then the growth rate declines by 0.05% annually until it hits zero in FY2036. These reductions in growth recognize the anticipation of slowing of development as the District approaches its build-out capacity. Expansions of the region's urban growth boundary on the northern edge of the District's current service area may increase these assumed growth rates for future years.

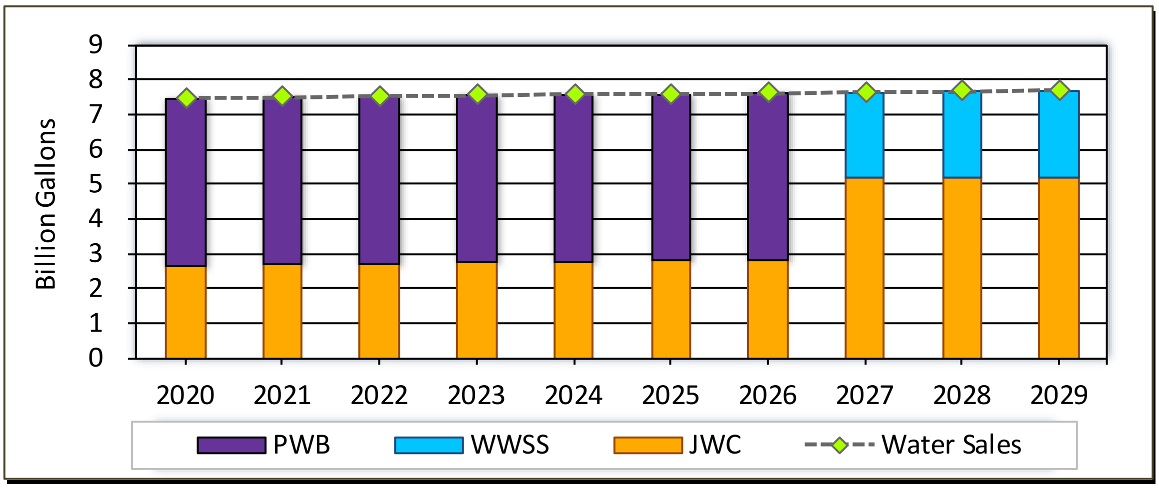
Water usage per customer has declined more than 20% over the past eight years, from 900 cubic feet (9 CCF) per month to 7 CCF per month.[18] Declines in per capita water use have stabilized in recent years. In its Forecast modeling, the District assumes that these past conservation savings are permanent and forecasts sales growth at approximately one-third of a percent (i.e., 0.34%) through FY2029. This assumption is related to a combination of factors including mild weather, a successful conservation program that have depressed summer water demands, and the District's similar experience to the nation-wide trends towards smaller family sizes and widespread assimilation of water-efficient appliances. After FY2029, the District assumed that sales growth would begin to align with customer growth, ultimately zeroing out in FY2036.

[17] Section 3.7 of the Beaverton Service Area Agreement defines the obligations of Beaverton to assume a proportionate share of the District's the outstanding debt for all withdrawals effective after July 2, 2020.
[18] One hundred cubic feet of water (1 CCF) is equal to approximately 748 gallons.

In FY2020, after factoring in past and projected withdrawals to Beaverton, the District expects an internal rate revenue loss of approximately 5.8% from the FY2019 total. In future years, the combination of low customer growth and stagnant sales results in annual internal revenue growth rates that decline from approximately 0.45% in FY2021 to approximately 0.35% in FY2029.

Figure 3-3 summarizes projected water demand and the assumed mix of supply sources used as the basis for purchased water costs in the Forecast model. Note that the impacts of the known Beaverton withdrawals are already included in the FY2020 numbers. Additional future withdrawals by Beaverton would impact the projections shown below, and the District would necessarily adjust its assumptions and Financial Plan.

Figure 3-3: Balancing Water Supplies and Demand by Fiscal Year



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4 Capital Improvement Plan

Each biennium the District updates its capital improvement plan, which includes expenditures for the Willamette Water Supply Program, Joint Water Commission, and in-District projects.

- The WWSP was established to develop and deliver the Willamette Intake Facilities (WIF), Willamette Water Supply System (WWSS), and Metzger Pipeline East (MPE) to the District and its partners by July 2026.
- As discussed in Section 3.1.2, the District is a partner in the JWC along with the cities of Beaverton, Forest Grove, and Hillsboro. As a member of the JWC, the District also participates in the development of its capital budget.
- For in-District projects, status updates on current projects and new project requests are prepared by the Engineering & Operations Department.

Table 4-1 summarizes the current biennial CIP budget (FY2020 and FY2021) and forecast expenditures through FY2029.[19] The District's share of projected *WWSP* (including WIF & WWSS projects) and *JWC* capital costs are summarized in the top two rows of the table. The categories listed below *JWC* are all in-District capital expenditures.

Table 4-1: Summary of Forecast CIP Expenditures by Category and Fiscal Year ($ Millions)

Category	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Totals
WWSP	$47.1	$65.1	$81.7	$148.1	$117.9	$48.5	$33.8	$4.3	$0.0	$0.0	**$546.7**
JWC	1.3	0.6	0.8	0.5	0.3	0.4	0.4	0.8	0.8	1.1	**7.1**
TVWD Source	0.1	0.0	1.1	0.7	0.1	0.0	0.0	0.0	0.0	0.0	**2.0**
Storage	0.4	2.1	7.4	0.4	3.0	3.1	1.4	4.8	2.8	2.9	**28.2**
Pumping	1.0	4.9	1.1	3.2	3.0	0.1	1.4	2.8	1.0	1.0	**19.6**
Pipelines*	20.3	20.0	39.4	58.3	28.1	19.7	18.3	27.8	16.1	29.3	**277.3**
PRVs/Vaults	0.3	0.3	0.3	0.4	0.4	0.4	0.3	0.3	0.3	0.3	**3.3**
Facilities/Fleet/IT	3.0	4.0	2.5	0.5	0.5	0.6	0.6	0.9	1.0	1.0	**14.5**
Meters/Svcs	1.6	1.8	1.5	1.6	1.7	1.7	1.6	1.7	1.8	1.8	**16.7**
Other	1.0	1.1	1.7	1.7	1.8	1.8	1.9	9.9	10.2	10.6	**41.7**
Totals	**$76.1**	**$100.0**	**$137.6**	**$215.5**	**$156.8**	**$76.3**	**$59.6**	**$53.3**	**$33.9**	**$48.0**	**$957.1**
Summary											
WWSP	$47.1	$65.1	$81.7	$148.1	$117.9	$48.5	$33.8	$4.3	$0.0	$0.0	**$546.7**
JWC	1.3	0.6	0.8	0.5	0.3	0.4	0.4	0.8	0.8	1.1	**7.1**
In-District	27.8	34.2	55.0	66.8	38.5	27.5	25.4	48.2	33.1	46.9	**403.3**

*Includes Metzger Pipeline East ($112 million, FY2020-25), previously classified as part of the WWSP.

- The largest element of the District's ten-year CIP is the WWSP at nearly $547 million. This number represents the District's share of all remaining WWSP project expenditures, including the costs of the raw water facilities, water treatment plant, finished water pipelines, and terminal reservoirs. All WWSP projects will be complete in FY2026, with $4.3 million in program close-out costs projected for FY2027.

[19] Detailed project cost estimates and descriptions from the District's 2019-2021 requested budget are included in *Appendix B – Capital Improvement Plan*.

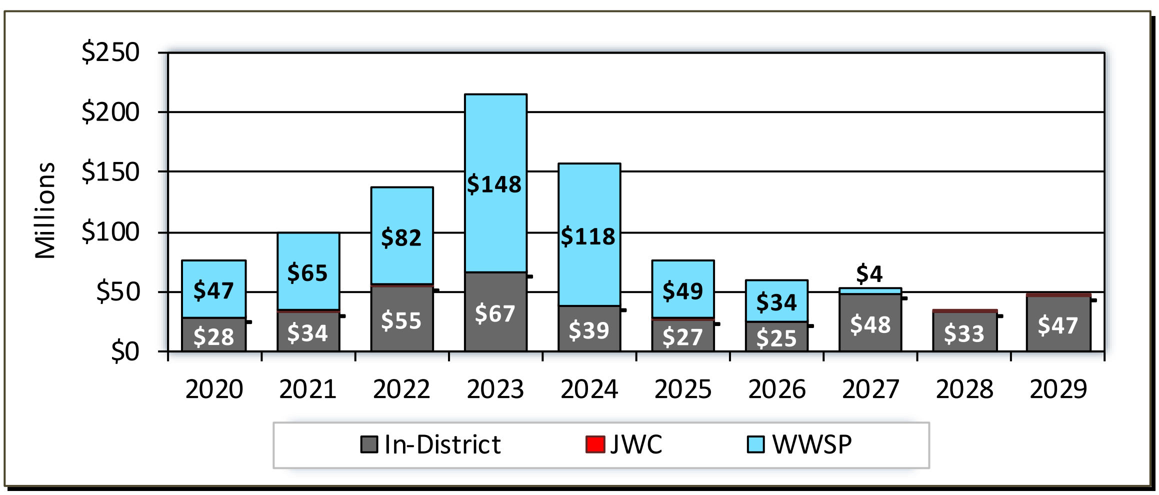
- Pipelines will be another major element of ten-year and future CIP expenditures. Included in the $277 million shown above is the District's Mains Replacement Program (approximately $80 million) and Metzger Pipeline East ($112 million) which will deliver WWSS water to the District's Metzger service area.
- Several reservoir replacements and seismic upgrades are included in the $28 million for Storage.
- Similarly, at nearly $20 million for Pumping, the District is planning several major improvements/replacements of pump stations over the next ten years.

Figure 4-1 presents a graphical summary of the projected annual CIP expenditures for the next ten years. As shown in Table 4-1 above, the costs shown below total $957.1 million for the presentation period. This total represents the costs of the in-District CIP and the District's cost shares of JWC and WWSP capital expenditures. These projected expenditures form the capital funding needs of the District during the Financial Plan period.

As shown, the funding needs decline after completion of the WWSS. However, in FY2027 and beyond, the District is projecting increased spending in its Mains Replacement Program and in additional future improvements/replacements of storage and pump station facilities.

In Figure 4-1 below, note that only the in-District and WWSP costs are labeled. The JWC amounts are not labeled because they are relatively small, and the labels would crowd the larger in-District and WWSP amounts shown.

Figure 4-1: Projected Annual CIP Expenditures by Fiscal Year



5 Capital Financing Plan

The capital financing plan for the District's projected capital expenditures is one of the primary drivers for this Financial Plan. The capital financing plan considers the District's financial objectives and the mix of current and future funds available for capital investment to determine the optimal funding sources for the projected CIP expenditures. The optimal funding mix will be achieved by balancing the use of cash funding and debt proceeds to fund the CIP while minimizing increases to customers' rates.

This section provides an overview of the debt instruments the District anticipates using to finance the current CIP, the methodology used to optimize the CIP financing mix, and the fundamental assumptions underlying the projected debt service schedules for new debt.

5.1 Borrowing Options

Certain rules and regulations make clear the types and limits of debt financing available to the District. Some rules exist on the national level, while others are specified by Oregon law. The District shall comply with the all debt limitations imposed by the Oregon Constitution, Oregon Revised Statutes (ORS), and Oregon Administrative Rules (OAR). The District will further comply with Security and Exchange Commission (SEC) and Municipal Securities Rulemaking Board (MSRB) rules regarding debt issuance, and with IRS regulations for tax-exempt or tax-advantaged debt.

The following describes the specific debt instruments that the District has selected for its capital financing plan.

5.1.1 Types and Use of Long-Term Debt

REVENUE BONDS. Revenue bonds are obligations payable from the net revenues of the District's operations. As users of the District facilities will benefit from long-term capital investments in future years, it is appropriate that future revenues pay a share of the costs and more closely match the term of repayment to the expected economic useful life of the project being financed.

Long-term revenue bonds issued by the District will only be used to finance and refurbish capital facilities, projects and certain equipment where it is determined to be cost effective and fiscally prudent. Revenue bonds will be structured to achieve the lowest possible net cost to the District considering market conditions, terms that are advantageous to the District, risks, the Financial Plan, and the nature and type of security to be provided.

Although revenue bonds are not subject to constitutional or statutory debt limits, the District's debt will not exceed legal or contractual limitations, such as rate covenants or additional bonds tests imposed by then-existing financing covenants. Prior to the issuance of any new revenue bonds, the CFO will cause the impact of future debt service payments on total annual fixed costs to be analyzed.

WIFIA. The Water Infrastructure Finance and Innovation Act (WIFIA) program is a federal loan and guarantee program, administered by the U.S. EPA, that aims to accelerate investment in the nation's water infrastructure by providing credit assistance for regionally and nationally significant projects. The program received 62 applications in 2018 and selected 39 finalists with projects that will enhance water quality and public health. The District, with its partner the City of Hillsboro, was selected as one of the 39 finalists.

WIFIA is a highly valuable addition to the District's portfolio of future debt because it will lock in a low interest rate for the length of the program, provide favorable loan terms, and allow for customized disbursement and repayment schedules. The District estimates that its share of WIFIA funding will save its ratepayers over $230 million between 2020 and 2045.

FEDERAL, STATE, OR OTHER LOAN PROGRAMS. To the extent it benefits the District, the District may participate in federal, state, or other loan programs. The CFO shall evaluate the requirements of these programs to determine if the District is well served by employing them. For planning purposes and in the event the District employs a federal, state, or other loan program, the District shall treat and report these obligations in a manner consistent with other similar debt instruments. To the extent required by the loans or other outstanding debt agreements, the District shall include the financial requirements of these obligations when determining additional bonds test, coverage requirements, etc.

5.1.2 Authority to Issue Debt

The District has authority under state law to enter into financial obligations for the borrowing options described above. Below are descriptions of the actions the District has taken or will take to obtain the authority to issue debt.

ORDINANCE. At its April 17, 2019 regular meeting, the Board of Commissioners adopted Ordinance 01-19 (Ordinance) authorizing the issuance of debt. The Ordinance authorizes $600 million in net bond proceeds to fund capital expenditures, identifies an additional $80 million to fund debt service reserves and issuance costs, authorizes the District's participation in the WIFIA loan program as well as additional revenue bond issuances, and identifies the types of capital expenditures that may be funded by the borrowings.[20] The Ordinance also delegates to the District's Chief Financial Officer, Chief Executive Officer, or other designated employees of the District to issue the revenue bonds authorized by the Ordinance.[21]

MASTER DECLARATION. The District has prepared a draft master revenue bond declaration (Master Declaration) that is scheduled to be approved by the Board at its May 15, 2019 regular meeting. The Master Declaration establishes the terms under which the District's long-term borrowings are incurred and the terms under which future obligations may be issued on a parity. Under certain circumstances, the Master Declaration may be supplemented or amended by a future Supplemental Declaration.[22]

5.1.3 Other Debt Considerations

DEBT REFINANCING. Refunding obligations may be issued to retire all or a portion of an outstanding debt issue. Economic refundings may refinance high-coupon debt at lower interest rates to realize debt service savings. Alternatively, the District may conduct a refunding for reasons other than cost savings, such as to restructure debt service payments, to change the type of debt instruments, to release restricted revenues, to ease administrative requirements, or to remove undesirable covenants.

REIMBURSEMENT DECLARATION. The District's Board of Commissioners authorized the District's Chief Executive Officer to declare official intent on behalf of the District to reimburse the District's cash reserves for capital expenditures with the proceeds from tax-advantaged obligations. This authorization

[20] The authorized capital expenditures include all system improvements of the District, including investments in the District's joint ventures such as the Willamette Water Supply System.
[21] A signed copy of the Ordinance is included as *Appendix C – Ordinance 01-19 – Authorizing the Issuance of Debt*.
[22] A draft copy of the Master Declaration is included as *Appendix D – Draft Master Revenue Bond Declaration*.

was approved by Resolution No. 08-13, adopted on June 19, 2013. In addition to this reimbursement declaration, the District's Board further declared its intent as part of the Ordinance.

5.2 Optimizing the Capital Financing Mix

The District's CIP funding sources include accumulated revenues (fund balances), future revenues allocated towards capital expenditures (cash financing, also known as "pay-as-you-go"), and debt financing which will lead to debt service repayments (sometimes referred to as "pay-as-you-use" financing). All of these funding sources must be integrated into the capital financing plan.

Optimizing the capital financing plan is a complex and iterative process that involves several key steps. These steps are:

1. Determine the CIP funding mix of cash and debt financing for each Forecast year.
2. Determine the types and estimate the amounts of debt financing that will be used.
3. Calculate amortization schedules for the forecasted debt issuances.

The steps and process are discussed in greater detail in the following subsections.

5.2.1 Target Cash and Debt Financing Profile

Like any business, the District must determine the best mix of resources (cash and debt financing) to fund both its operations and its capital program. The cash/debt profile aims to maintain some cash investment into both existing facilities (renewal and replacement) and new system assets, while minimizing rates and achieving intergenerational equity among customers.

Figure 5-1 illustrates the mix of cash and debt planned to finance the CIP over the 10-year presentation period. Note that the ratio of cash-to-debt is projected to vary each year. Ultimately, the mix will vary from the projections shown, depending on future market conditions and input from the District's financial consultants.

Figure 5-1: CIP Funding Sources by Fiscal Year

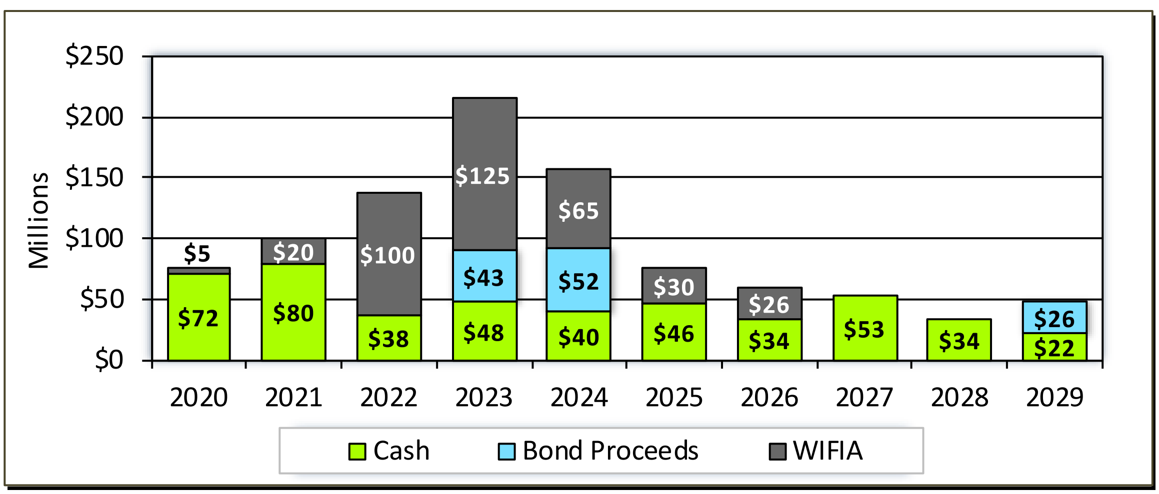
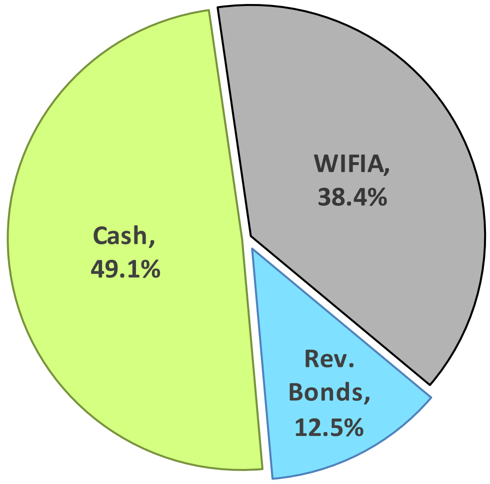


Figure 5-2 illustrates the proportional amounts of CIP funding through the end of FY2029.

Figure 5-2: Ten-Year CIP Funding Ratios by Source



5.2.2 Debt Structure and Principal Amortization

Ultimately, the structuring of the District's future debt obligations and repayments will depend on market factors and input from professional advisors (municipal advisors, underwriters, etc.) at the time of each issuance. For the purposes of the Forecast model and this Financial Plan, the District used what it considers to be standard, and slightly conservative, assumptions to calculate future debt service requirements. These assumptions are outlined in Section 5.3 below.

5.3 Significant Debt Program Assumptions

As mentioned in the *Introduction* (Section 1), the District will fund a significant portion of its WWSS expenditures with financing from the Water Infrastructure Finance and Innovation Act (WIFIA), with revenue bonds augmenting the remaining WWSS costs and providing outside funding at times when future debt financing will be required.

5.3.1 WIFIA Debt Assumptions

TERM. The total WIFIA loan amount will be repaid over 35 years, beginning after "substantial completion" of the project (WWSS). The District assumes that "substantial completion" of the WWSS will be in FY2026 and that WIFIA repayments will begin in FY2027.

INTEREST RATE. Currently, the District is using a 3.5% assumed interest rate for the WIFIA financing and capitalized interest calculation. The actual rate will be set by the WIFIA program at the time the WIFIA loan is closed.

ISSUANCE COSTS. WIFIA issuance costs are estimated to be $500,000, funded from WIFIA loan proceeds.

CAPITALIZED INTEREST. Using the assumed 3.5% WIFIA interest rate and guidance from the WIFIA program, the District calculated compounding interest on each of its projected WIFIA draws from the year each draw is taken to FY2027 (when the total WIFIA loan is sized), at which point the total accumulated amounts would be rolled into the final WIFIA loan. Table 5-1 presents a summary of the capitalized interest calculation and resulting WIFIA loan amount financed.

Table 5-1: WIFIA Capitalized Interest and Total Financing

	WIFIA Proceeds [1]	Years to Loan	Compound Rate [2]	Total Cap-i	Total Financed
FY2020	$5.0	7	27.2%	$1.4	$6.4
FY2021	20.0	6	22.9%	4.6	24.6
FY2022	100.0	5	18.8%	18.8	118.8
FY2023	125.0	4	14.8%	18.4	143.4
FY2024	65.0	3	10.9%	7.1	72.1
FY2025	30.0	2	7.1%	2.1	32.1
FY2026	25.5	1	3.5%	0.9	26.4
Totals	**$370.5**			**$53.3**	**$423.8**

[1] FY2020 includes $500,000 for issuance costs.

[2] Annual int. rate: 3.5%

PRINCIPAL AMORTIZATION. For planning purposes, the principal amount of $423.8 million was amortized over 35 years using levelized annual debt service.

DEBT SERVICE RESERVE. Based on current strategies, the District is not forecasting a debt reserve requirement for the WIFIA financing.

5.3.2 Revenue Bond Debt Assumptions

TERM & INTEREST RATE. All projected bonds are based on a 30-year term and 5.5% interest rate.

ISSUANCE COSTS. Revenue bond issuance costs are estimated at 1.5% of each issuance, with the costs included in the total issuance amount.

PRINCIPAL AMORTIZATION. For planning purposes, revenue bonds were amortized over 30 years using levelized annual debt service.

DEBT SERVICE RESERVE. Revenue bond reserve requirements were calculated based on the maximum annual debt service (MADS) of each issuance.

5.4 Schedule of Future Debt Issuance

Projected debt issuances are presented in Table 5-2 on the next page. For WIFIA and each revenue bond issuance, Table 5-2 includes the proceeds available for capital expenditures, estimated issuance costs, reserve requirements (revenue bonds only), capitalized interest (WIFIA loan only), and total issue amounts during the 10-year and 30-year projection periods.

Table 5-2: Projected WIFIA Funding and Revenue Bond Issuances ($ Millions)

	Proceeds for CIP	Issuance Costs [1][2]	Reserve Req. [3]	Capitalized Interest	Total Financed
Debt Issuances through FY2029					
WIFIA	$370.0	$0.5	$0.0	$53.3	**$423.8**
FY2023 Revenue Bonds	42.8	0.7	3.2	0.0	**46.7**
FY2024 Revenue Bonds	51.5	0.8	3.9	0.0	**56.2**
FY2029 Revenue Bonds	25.7	0.4	1.9	0.0	**28.1**
10-year Totals	**$490.0**	**$2.5**	**$9.0**	**$53.3**	**$554.8**
Future Debt Issuances					
FY2032 Revenue Bonds	$12.2	$0.2	$0.9	$0.0	**$13.4**
FY2033 Revenue Bonds	28.9	0.5	2.2	0.0	**31.6**
FY2035 Revenue Bonds	32.3	0.5	2.4	0.0	**35.2**
FY2036 Revenue Bonds	34.7	0.6	2.6	0.0	**37.8**
FY2037 Revenue Bonds	26.4	0.4	2.0	0.0	**28.8**
FY2039 Revenue Bonds	23.5	0.4	1.8	0.0	**25.6**
FY2040 Revenue Bonds	55.4	0.9	4.2	0.0	**60.5**
FY2043 Revenue Bonds	25.2	0.4	1.9	0.0	**27.5**
FY2045 Revenue Bonds	15.7	0.3	1.2	0.0	**17.1**
FY2046 Revenue Bonds	47.7	0.8	3.6	0.0	**52.1**
FY2047 Revenue Bonds	77.4	1.3	5.8	0.0	**84.5**
Future Totals	**$379.3**	**$6.2**	**$28.5**	**$0.0**	**$414.0**
30-year Totals	**$869.3**	**$8.7**	**$37.5**	**$53.3**	**$968.8**

[1] WIFIA issuance costs assumed at $500,000.

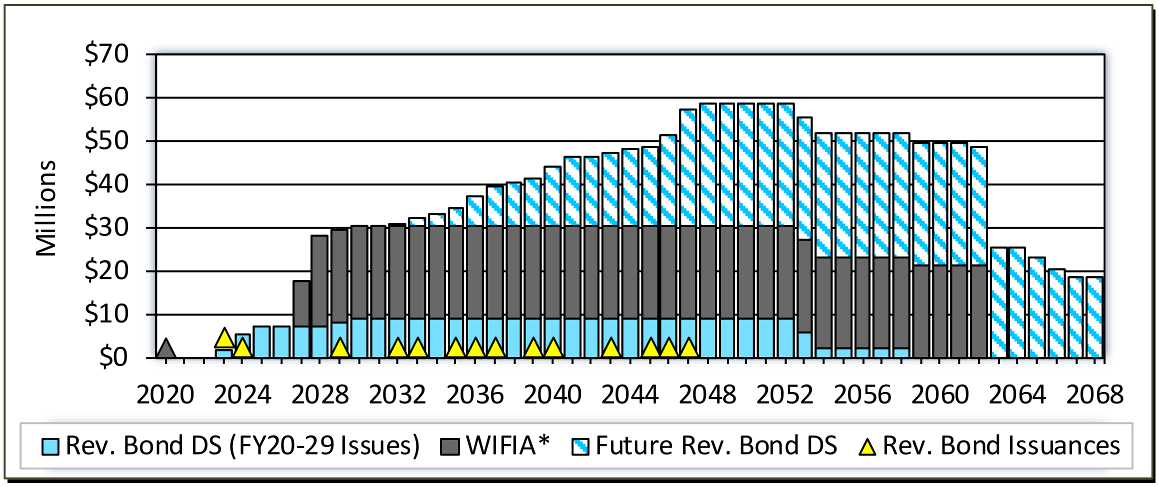
[2] Revenue bond issuance costs assumed at 1.5% of total issuance.

[3] Revenue bond reserve requirement assumed at maximum annual debt service (MADS) per issuance.

It should be noted that Table 5-2 is not intended as an outline or planned schedule for future revenue bond issuances, as the District will not likely issue revenue bonds annually over 2- and 3-year periods. Rather, the schedule above is meant to demonstrate the approximate size and timing of needed debt financing. In future years when debt funding is needed, the District may execute a single bond issuance to cover needs for multiple successive years. Conversely, short-term debt instruments may be employed to cover interim capital costs for a given period, with revenue bonds then issued to close-out the interim financing and provide additional funding for then-current and/or future capital expenditures.

Figure 5-3 (next page) shows the resulting debt service based on the projected borrowings in Table 5-2 above and the debt service assumptions described in Section 5.3.

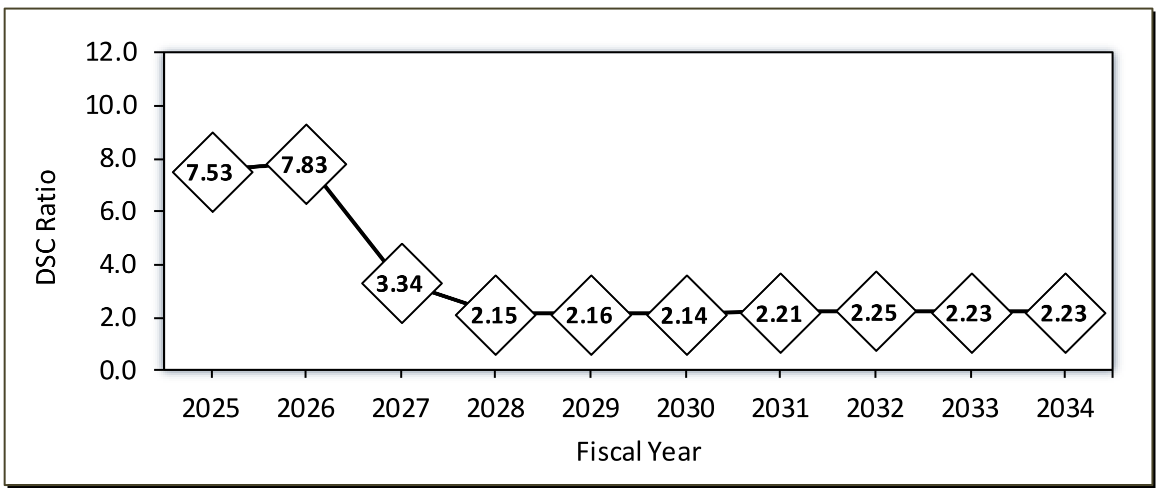
Figure 5-3: Projected Annual Debt Service



* WIFIA debt repayments based on program funding plus capitalized interest in FY2020 through FY2026.

As shown in Figure 5-4, the District expects to meet or exceed its target debt service coverage of 2.0 times total annual debt service (WIFIA and revenue bonds).

Figure 5-4: Projected Debt Service Coverage



Note that Figure 5-4 presents ten years of results beginning with FY2025 instead of FY2020. This is to show projected DSC for a period after which the bulk of the District's near-term debt service requirements will be in place.

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6 Financial Forecast

This section provides a brief description of the District's rates and charges, forecast financial projections, and a summary of the District's projected sources and uses of funds over the presentation period. The forecast represents the District's current projections, which are based on current data and assumptions. It is important to note that these projections are subject to change and should be viewed as estimates.

6.1 District Rates and Charges

The District collects revenues from a variety of sources. Some sources are fixed (i.e., not dependent on water sales or the economy), while others are variable being based on the amount of water sold or the local/regional economy (e.g., system development charges). Brief descriptions for each of the District's rates and charges categories are provided below.

FIXED CHARGE. Water rates include two types: fixed and volumetric. The *fixed charge* is assessed to customers monthly or bi-monthly and varies by meter size.

VOLUMETRIC WATER RATE. The *volumetric rate* is based on the amount of water consumed. TVWD assesses this rate to each unit of water sold, on a $/CCF basis.

OTHER RATES AND CHARGES (NON-RATE REVENUE). For planning purposes, *non-rate revenue* includes meter and service revenue, dispatch fees, backflow program reimbursements, contract reimbursements, miscellaneous income, and some other small dollar items. Together, these line items will be almost $3.4 million in FY2019.

SYSTEM DEVELOPMENT CHARGES. Sometimes referred to as improvement fees, impact fees, capacity reserve charges, or infrastructure investment fees, SDCs are contributions of capital to either reimburse existing customers for the available capacity in the existing system or help finance growth-related capacity improvements. For FY2019, the District is projecting approximately $5.5 million from water SDCs.

6.2 Projected Rates and Charges

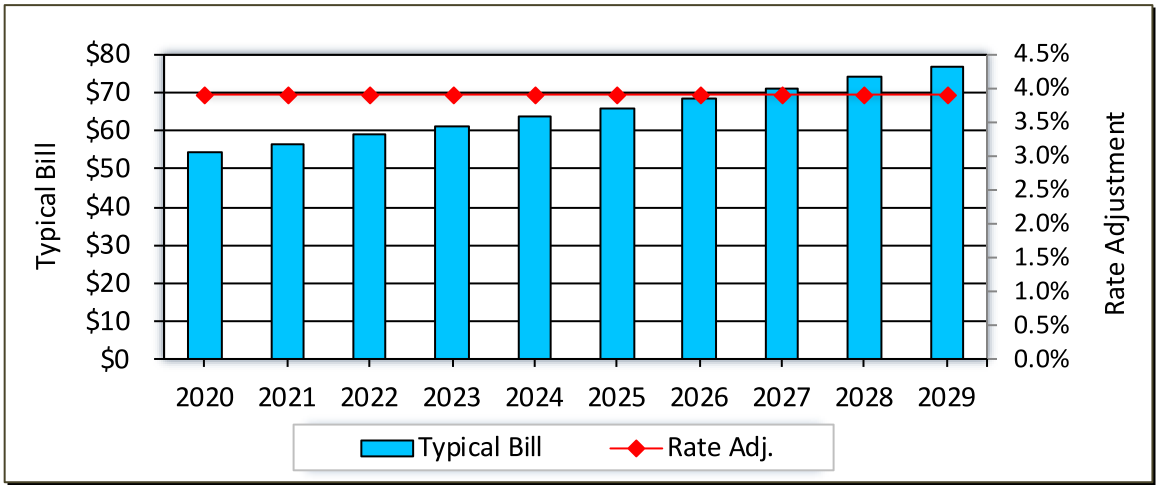
The District developed its financial projections based on its financial objectives and policies (presented in Section 2), water sales projections (Section 3), and projections of future revenue requirements which are based on the following:

- CIP (Section 4)
- Capital financing plans (Section 5)
- Operating cost forecast – discussed later in this section (Section 6)

Using all these inputs and assumptions, District staff uses its Forecast model to determine the level of rate revenue needed to meet the District's requirements in each year of the model's forecast period.

Figure 6-1 presents the Forecast rate revenue adjustments (3.9% per year) and typical monthly bill over the presentation period.

Figure 6-1: Projected Rate Adjustments and Typical Bills by Fiscal Year



6.3 Projected Sources of Funds

Figure 6-2 presents a summary of the District's projected sources of funds over the presentation period. On the next page, Table 6-1 presents the same information in tabular detail with descriptions included below it.

Figure 6-2: Projected Sources of Funds by Fiscal Year

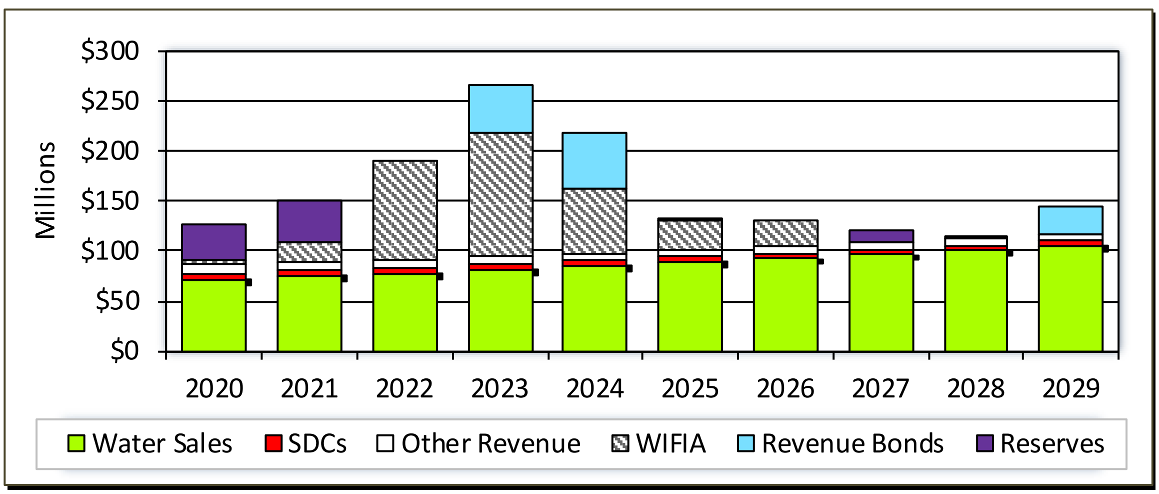


Table 6-1: Revenues and Other Funding Sources by Fiscal Year

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Totals
Water Sales	$71.6	$74.7	$77.9	$81.3	$84.8	$88.4	$92.2	$96.2	$100.3	$104.6	$871.9
SDCs	5.7	5.7	5.7	5.7	5.7	5.7	5.6	5.6	5.5	5.4	56.3
Other Revenue	8.7	7.6	7.0	7.2	7.4	7.5	7.8	6.4	6.3	6.6	72.4
WIFIA	5.0	20.0	100.0	125.0	65.0	30.0	25.5	-	-	-	370.5
Revenue Bonds	-	-	-	46.7	56.2	-	-	-	-	28.1	131.0
Reserves	36.6	42.5	-	-	-	0.7	-	12.5	2.0	-	94.3
Totals	**$127.6**	**$150.5**	**$190.6**	**$265.8**	**$219.1**	**$132.3**	**$131.1**	**$120.6**	**$114.1**	**$144.7**	**$1596.4**

RATE REVENUE (WATER SALES). Water rate revenue projections include revenue from both fixed and volumetric charges, as discussed in *Section 6.1 – District Rates and Charges*. Over the presentation period, increasing rate revenue is due to the projected rate revenue adjustments shown in Figure 6-1 as well as minor annual increases in customers and water sales after net losses due to withdrawals by the City of Beaverton, which were discussed in *Section 3.2 – Water Demand Forecast.*

SYSTEM DEVELOPMENT CHARGES (SDCs). In FY2020, the District projects that it will receive approximately $5.7 million from water SDCs. For the first 10 years of the forecast, the District assumed that SDC collections would remain steady between $5.7 million and $5.4 million annually, declining slightly over time. These assumptions are important as the overreliance on growth-related fees for rate setting purposes may result in the need for additional rate adjustments to fund capital improvements should growth not occur at the projected levels.

NON-RATE REVENUE (OTHER REVENUE). As mentioned in Section 6.1 above, non-rate revenue includes meter and service revenue, dispatch fees, backflow program reimbursements, contract reimbursements, miscellaneous income, and some other small dollar items. The District's proposed 2019-2021 budget has these items totaling almost $3.5 million in FY2020 and $3.6 million in FY2021. From FY2022 forward, non-rate revenue line items were projected to increase at a rate of 3.0% annually.

PAYMENTS FROM PARTNERS (OTHER REVENUE). For capital budgeting purposes, District personnel costs directly associated with the development of capital projects are included in the CIP cost projections and ultimately capitalized with the projects. For the WWSP and other partner projects, the District receives payments from its partners for their share of project costs (including District overhead).

Although the Forecast model includes only the District's share of partner project costs like the WWSP, it recognizes the partners' share of capitalized overhead as a resource (non-rate revenue) since that portion of the District's operational costs is included in its budget and Forecast O&M expenses but will be paid by partners. In other words, the Forecast includes the District's total operational expenses, but offsets a portion of those expenses with the amounts the District will receive from its partners for capitalized overhead.

From FY2020 to FY2026, the Forecast includes between $1.0 and $1.3 million per year from partner reimbursements for capitalized overhead related to WWSP projects. This resource is eliminated after FY2026 as the WWSP will be complete, resulting in the FY2027 decline in *Other Revenue* in Table 6-1.

WHEELING REVENUE (OTHER REVENUE). As discussed in *Section 3.2 – Water Demand Forecast*, the service area agreement with Beaverton affected a portion of the District's service area subject to withdrawal. Although withdrawn from the District, the District continues to serve these customers until Beaverton undertakes certain "transfer activities" governed by the agreement. Beaverton can transfer customers to a wheeling status in which Beaverton will provide water for the District to convey to Beaverton's customers. The agreement provides a basis for compensation to the District for providing wheeling services to Beaverton. Beaverton can also serve withdrawn customers directly with its own infrastructure.

As Beaverton transfers these customers into a wheeling arrangement, wheeling revenue from Beaverton is projected to increase from approximately $550,000 in FY2019 to a high of $1.7 million in FY2020. As Beaverton separates the withdrawn customers from the District's service area, the wheeling revenue will decline. The District assumes that a small portion of withdrawn customers will receive wheeled water on a permanent basis. From a low of approximately $213,000 in FY2027, Beaverton wheeling revenue is projected to increase at a rate of 3.0% annually thereafter.

INTEREST INCOME (OTHER REVENUE). Interest earnings on the District's reserve funds were calculated based on assumed interest rates of 2.70% in FY2020, 3.00% in FY2021, 3.25% in FY2022, and 3.50% annually thereafter. Given the substantial level of reserves currently held by the District, the Forecast includes over $2.5 million of interest earnings in FY2020. As the District uses cash reserves for capital expenditures over the next two years, interest earnings are projected to decline to $1.65 million in FY2021 and $1.1 million in FY2022. In FY2023 and beyond, interest earnings are projected to increase slightly each year as the District's reserve fund balance grows to keep pace with increasing O&M costs.

WIFIA. The WIFIA program is described in detail in Section 5 of this Financial Plan

REVENUE BONDS. Along with the WIFIA program, revenue bond issuances are described in detail as part of Section 5 – *Capital Financing Plan*.

RESERVES (NET FUND WITHDRAWALS). Cash fund withdrawals will provide an important source of funds for the District as the WWSP moves into full swing. For the last 5-10 years, the District has been proactive in planning for these future capital investments, which will require sizable capital expenditures. When combined with projected debt proceeds, the reserves that the District has amassed will play an important role in keeping future rate revenue adjustments steady and low.

6.4 Projected Uses of Funds

The following graph and table show the projected uses of funds over the presentation period. The major categories of uses include:

- Operations and Maintenance (O&M) Costs (including PERS Side Account deposits and debt issuance costs)
- Purchased Water Program (including pumping power costs)
- Capital Expenditures
- Net Increases in Reserves
- Debt Service

As shown in Figure 6-3, the largest variability in the projected uses of funds is driven by the District's planned capital expenditures. Table 6-2 presents a tabular detail of the projected uses of funds, with descriptions below and on following pages.

Figure 6-3: Projected Uses of Funds by Fiscal Year

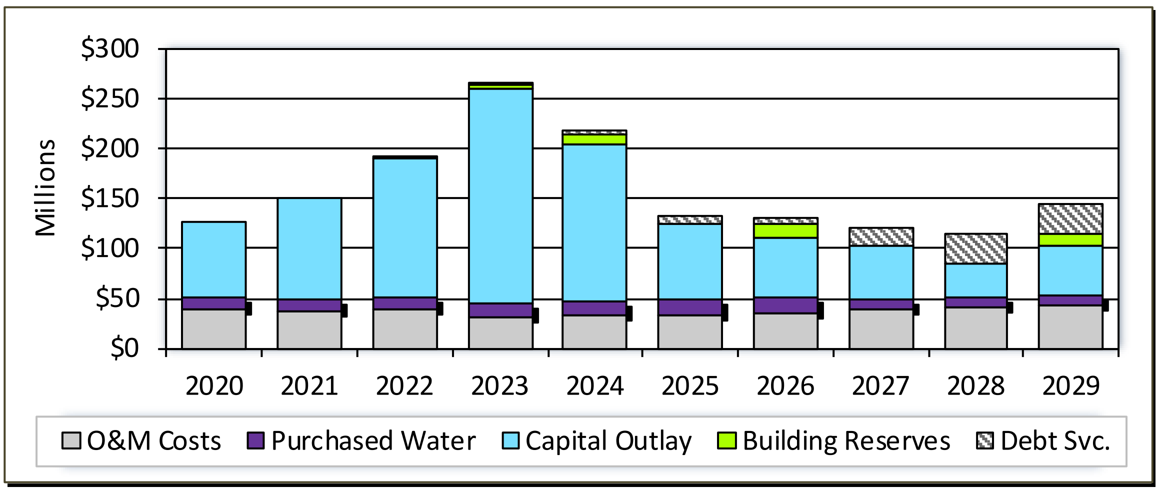


Table 6-2: Annual Expenditures and Increases in Reserves by Fiscal Year

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Totals
O&M Costs [1]	$38.8	$37.7	$39.8	$31.8	$33.9	$34.1	$35.5	$39.1	$40.8	$43.0	$374.5
Purchased Water [2]	12.1	12.3	11.9	13.0	13.1	14.2	14.7	9.9	10.4	10.9	122.6
Capital Outlay	76.6	100.5	138.1	216.0	157.4	77.0	60.3	53.9	34.6	48.7	963.2
Building Reserves	-	-	0.8	3.4	9.5	-	13.5	-	-	12.7	40.0
Debt Service	-	-	-	1.6	5.1	7.1	7.1	17.7	28.3	29.2	96.1
Totals	**$127.6**	**$150.5**	**$190.6**	**$265.8**	**$219.1**	**$132.3**	**$131.1**	**$120.6**	**$114.1**	**$144.7**	**$1596.4**

[1] O&M costs shown include debt issuance costs and OPERS side account deposits ($10 million/yr in FY2020-22).
[2] Costs shown represent TVWD's Purchased Water Program, which includes pumping power costs.

O&M COSTS. Operations and maintenance costs account for most of the day-to-day expenditures for operating a water utility. O&M costs include labor, benefits, materials and services among other items. Management's requested 2019-2021 budget served as a starting point for the O&M forecast included in this Financial Plan. Most O&M costs were projected to escalate from FY2021 data at 4.5% annually.

Also included in the *O&M Costs* row in Table 6-2 are proposed deposits into a side account to offset a portion of the District's pension liabilities and debt issuance costs which were discussed in Section 5.3 – *Significant Debt Program Assumptions*.

PENSION SIDE ACCOUNT DEPOSITS (O&M COSTS). Employees of the District are provided pensions through the Oregon Public Employees Retirement System (OPERS). OPERS provides a variety of pension plans for public employees based on when an employee first enters public service. These pension plans are commonly referred to as OPERS Tier 1 and Tier 2, and Oregon Public Service Retirement Plan (OPSRP). These plans vary in benefits but include both a defined benefits component and a defined contribution component.

Like many pension plans, the OPERS plans currently have an unfunded actuarial liability (UAL). The OPERS UAL is allocated to employers of the plan. The District estimates it current share of OPERS UAL is approximately $20 million. In addition, District management believes the assumed discount rate currently used by OPERS to value the UAL may be reduced in the future. A reduction in the assumed discount rate, everything else being equal, increases the OPERS UAL and the UAL allocated to the District. Based on analysis conducted by OPERS consultants and actuaries, a change in the assumed discount rate by 1% could add another $10 million to the District's UAL.

The District's share of the OPERS UAL is the result of many factors. These factors include changes in actuarial assumptions, earnings on the OPERS investments, and other OPERS policies (e.g., rate collaring). The District's share of OPERS UAL is a liability of the District and is reported in the District's financial statements consistent with the requirements of the various Government Accounting Standards Board (GASB) statements on pension reporting.

The District's management will request $20 million in the 2019-21 biennium to fund an OPERS side account with two deposits of $10 million each. The deposits will be separated in time to mitigate market risks since the OPERS investments of side accounts has greater market risk than the District's investment portfolio. Funding the side account results in lower OPERS rates and payments by the District and allows the District's assets to be invested in a manner more consistent with long-term retirement needs.[23]

The Financial Plan also includes an additional $10 million in FY2022 (the subsequent biennium) to account for the likely change in the assumed discount rate. At that time, the Board and Budget Committee will be asked to consider funding another side account to offset the increased UAL. Alternatively, if no OPERS side account is funded, the $10 million would be available to offset the expected increase in OPERS rates resulting from the change in the assumed discount rate.

[23] The District's investment policies restrict investments to have a maturity of no more than five years whereas OPERS funded side accounts are invested consistent with long-term retirement funds.

PURCHASED WATER PROGRAM. Following the 2019-2021 requested budget numbers, water purchases are projected to escalate from FY2021 to FY2026 as follows in Table 6-3, listed by source:

Table 6-3: Source Water Rates and Costs (FY2021–FY2026)

	2021	2022	2023	2024	2025	2026
Portland						
Rate ($/CCF) [1]	$1.367	$1.418	$1.570	$1.562	$1.710	$1.757
% Change		*3.7%*	*10.7%*	*(0.5%)*	*9.5%*	*2.75%*
Purchase (MGD) [2]	13.16	13.16	13.16	13.16	13.16	13.16
Annual Cost ($ million)	**$8.8**	**$9.1**	**$10.1**	**$10.0**	**$11.0**	**$11.3**
% Change		*3.7%*	*10.7%*	*(0.5%)*	*9.5%*	*2.75%*
JWC						
Rate ($/CCF) [3]	$0.582	$0.608	$0.636	$0.664	$0.694	$0.725
% Change		*4.5%*	*4.5%*	*4.5%*	*4.5%*	*4.5%*
Purchase (MGD) [4]	7.35	7.42	7.49	7.56	7.63	7.70
Annual Cost ($ million)	**$2.1**	**$2.2**	**$2.3**	**$2.5**	**$2.6**	**$2.7**
% Change		*5.5%*	*5.5%*	*5.5%*	*5.5%*	*5.5%*
Total Annual Cost	**$10.9**	**$11.3**	**$12.4**	**$12.5**	**$13.6**	**$14.0**
% Change		*4.1%*	*9.7%*	*0.6%*	*8.7%*	*3.3%*

[1] Portland rate forecast provided by Portland.

[2] Contract minimum (as annual avg.); min. purchase assumed for financial planning purposes.

[3] JWC rates escalated from current rate by 4.5% per year.

[4] Annual average amounts required to meet Forecast water demands after Portland purchases.

In FY2027, the melded cost of the District's water will drop due to the change in source water supplies. As presented in Figure 3-3, the Forecast assumes that the District will purchase more JWC water after switching its other source from Portland to the WWSS. By doing so, overall source water costs decline by $5.8 million (41%) in FY2027.

PUMPING POWER COSTS (PURCHASED WATER). Pumping power costs are also included in the District's Purchased Water Program. Currently, the District incurs these costs for moving water from its 385, 426, and 435 pressure zones to higher elevations in its service area.

Pumping power costs are projected to escalate from the FY2021 requested budget at an annual rate of 4.5% until FY2026. However, when the District switches its gravity-fed water supply (Portland) to a pumped source (WWSS), pumping power costs will increase by more than $1 million, from $616,000 in FY2026 to $1.65 million in FY2027.

When the WWSS pumping costs are added to in-District pumping and combined with the FY2027 reduction in source water costs, the net decrease in *Purchased Water* shown in Table 6-2 is approximately $4.75 million. After FY2027, Purchased Water Program costs are projected to escalate at approximately 4.95% in FY2028, then slow gradually to 4.5% annual increases in FY2036 and beyond.

CAPITAL EXPENDITURES (CAPITAL OUTLAY). The District's CIP is described in Section 4 of this Financial Plan, while detailed project cost estimates and descriptions are included in *Appendix B – Capital Improvement Plan*.

Capital outlays from O&M are also included as *Capital Outlay* in Table 6-2. These outlays are minor in comparison to the CIP, starting at approximately $550,000 in FY2022 and escalating 4.5% annually.

NET INCREASES IN RESERVES (BUILDING RESERVES). In years when the District will use WIFIA and revenue bond funding for portions of its capital expenditures, revenue from rates and other sources may be available to increase reserve balances, thereby making it available for use in future years.

DEBT SERVICE. Projected debt service is driven by the capital financing mix discussed in Section 5.2.1 – *Target Cash and Debt Financing Profile* and the debt program assumptions detailed in Section 5.3.

6.5 Detailed Financial Projections

Appendix E – Forecast Model Summary Results includes a copy of detailed projections from the summary version of the District's Forecast model.

7 Funds and Reserves

Reserves are critical to the prudent financial management of any utility. Adequate reserve levels can provide the necessary funding in low sales years or offset emergency capital projects, both minimizing the impacts to rates in the short-term. This section presents the summary reserves that the District uses in the Forecast model. The projections in this section demonstrate that the District will have enough liquidity to meet both its operating and capital investment commitments.

Before presenting the summary reserves and results from the Forecast model, however, it may help to understand the District's budgetary fund structure and how the District combines some funds (and ignores others) for financial planning purposes. The District's budget and accounting systems are structured around the following funds (fund titles italicized):

- On a day-to-day basis, all administration, operations, and maintenance activities are accounted for in the *General Fund*.
- Construction and capital improvement activities are accounted for in the *Capital Improvement Fund*.
- The *Capital Reserve Fund* is used to hold resources available for current and future capital investments for the District.
- Historically, the *Revenue Bond Debt Service Fund* accounted for the District's debt service obligations.
- The District is a member of, and provides management services for, the *Willamette River Water Coalition (WRWC)*, and accounts for these activities in a separate fund.
- The *Customer Emergency Assistance (CEA) Fund* accounts for the resources and requirements used to provide limited emergency assistance to qualified District customers.
- Introduced in a supplemental budget for 2017-2019 Biennial Budget is the *Willamette Intake Facilities Fund*, which accounts for the activities of the WIF Commission; an intergovernmental agreement among TVWD and six neighboring cities.
- New in the 2019-2021 Biennial Budget is the *Willamette Water Supply System Fund*, which accounts for the activities of the WWSS Commission; an intergovernmental agreement among TVWD and the cities of Hillsboro and Beaverton.

Each of these funds is described below.

7.1 Description of District Funds

GENERAL FUND (FUND 01). All six of the District's operating departments and District staff are accounted for in the General Fund. Additionally, the Purchased Water budget is in the General Fund as a non-departmental expenditure. Purchased Water represents the District's single largest Materials and Services (M&S) expenditure.

CAPITAL IMPROVEMENT FUND (FUND 11). The Capital Improvement Fund does not maintain a fund balance. All reserves for capital investments are held in the Capital Reserve Fund and transferred to the Capital Improvement Fund as needed. The sole resource for the Capital Improvement Fund is to receive transfers from the Capital Reserve Fund and account for capital expenditures.

CAPITAL RESERVE FUND (FUND 18). The Capital Reserve Fund is used to hold resources available for current and future capital investments for the District. The use of the Capital Reserve Fund allows the flow of funds for current and future uses to be managed in a transparent manner consistent with budgeting best practices. In anticipation of the significant costs associated with WWSP, the District has increased its reserves deliberately. These reserves are easily monitored in a single fund.

DEBT PROCEEDS FUND (FUND 22). The Debt Proceeds Fund is used to hold resources from debt issuances that are available to fund capital expenditures of the District. The use of the Debt Proceeds Fund allows the flow of funds for current and future uses to be managed in a transparent manner consistent with budgeting best practices.

REVENUE BOND DEBT SERVICE FUND (FUND 31). The Revenue Bond Debt Service Fund accounts for the District's obligations for principal and interest payments on its outstanding revenue bonds. The District fully redeemed its last outstanding revenue bonds in June of 2015, however, the fund is maintained for future use.

WILLAMETTE RIVER WATER COALITION (FUND 41). This partnership fund is used to account for the Willamette River Water Coalition (WRWC), a coalition of four local governments of which the District is a member. The organization's purpose is to preserve access to the Willamette River as a municipal and industrial water source. The budget is set by the WRWC governing body and administered by the District. Resources for the WRWC Fund come from member agency dues based on a formula agreed to in an intergovernmental agreement.

CUSTOMER EMERGENCY ASSISTANCE FUND (FUND 43). The purpose of the Customer Emergency Assistance (CEA) Fund is to account for the resources and requirements used to provide limited emergency assistance to qualified District customers. The resources for the CEA Fund are transferred in from the General Fund and come from voluntary contributions from customers, District staff, and the Board. A third-party administrator reviews and qualifies requests from customers facing temporary financial hardships. Any unspent funds remaining at the end of each budgetary period remain in the CEA Fund to meet future customer assistance needs.

WILLAMETTE INTAKE FACILITIES (FUND 44). The WIF Fund accounts for the activities of the WIF Commission; an intergovernmental agreement whose members include the cities of Beaverton, Hillsboro, Sherwood, Tigard, Wilsonville, and TVWD. The WIF owns, operates, and maintains the intake facilities at the Willamette River Water Treatment Plant in Wilsonville for the benefit of its members. As the Managing Agency, TVWD incorporates the budget adopted by the WIF Board of Commissioners into the District's biennial budget. Resources for the fund include member dues and contributions for capital outlay. The WIF is audited separately and the fund is not included as part of TVWD's audited financial statements.

WILLAMETTE WATER SUPPLY SYSTEM (FUND 45). The WWSS Fund accounts for the activities of the WWSS Commission; an intergovernmental agreement among the cities of Beaverton, Hillsboro, and TVWD. The WWSS Commission was established to design and construct the Willamette Water Supply System by 2026, and will own, operate, and maintain the assets that make up the system for the benefit of the partners. As the Managing Agency, TVWD incorporates the budget adopted by the WWSS Board of Commissioners into the District's biennial budget. Resources for the fund include member dues and contributions for capital outlay. The WWSS is audited separately and the fund is not included as part of TVWD's audited financial statements.

7.2 Projected Reserve Balances

The Forecast is a cash flow model designed for financial planning around the District's future cash requirements. As such, the District uses it to forecast *reserves* rather than *funds*. In doing so, some of the *Funds* described in Section 7.1 above are either combined into a *cash reserve*, while most are excluded from the Forecast altogether.

For example, some of the *Funds* listed above were established only for managing partnerships. Funds 41, 44, and 45 exist to account for the activities of various partnerships, where the costs and partner contributions are tracked for budgeting, accounting, and reporting purposes.

In contrast, the Forecast is only concerned with the *District's* revenue requirements and how those requirements will be met with available cash (including liquid investments) and future debt. Therefore, partner costs shares are not included, and the District's costs are tracked as uses of cash reserves and debt proceeds (from debt issued to the District only). For this reason, it is unnecessary to forecast the District's *Funds*. Rather, the following *Reserves* are tracked for financial planning purposes:

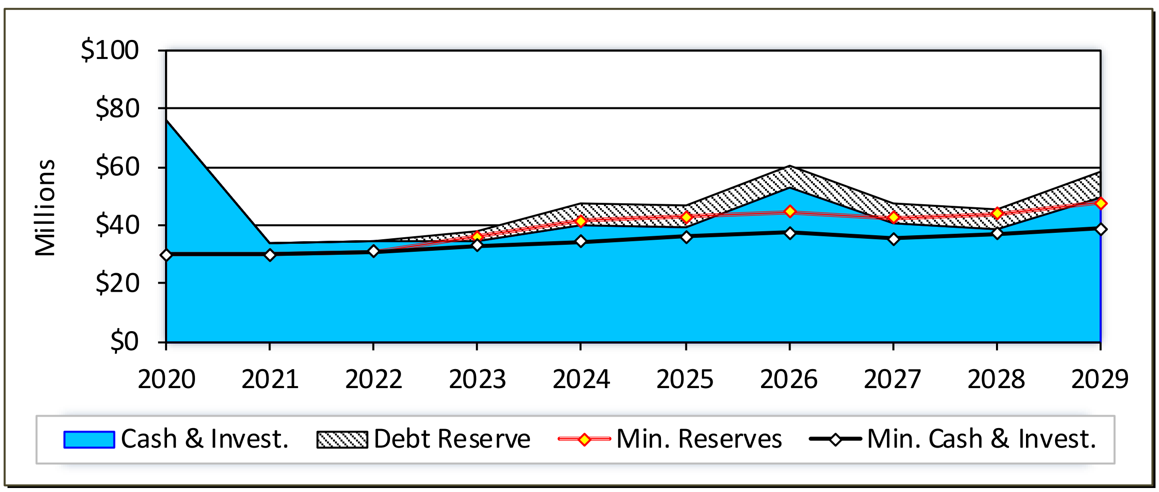
- **Cash & Investments**
    - Includes the estimated combined balance of the General Fund (Fund 01) and Capital Reserves Fund (Fund 18).
    - Sources of Funds include all *Rate Revenue* and *Other Revenue* described in Section 6.3.
    - Uses of Funds include:
        - All *O&M Costs* and *Purchased Water* described in Section 6.4.
        - *Capital Outlays from O&M Budget* which is mentioned under *Capital Expenditures (Capital Outlay)* in Section 6.4.
        - Transfers to other Reserves for capital expenditures and debt service.
- **Bond Proceeds Reserve**
    - Sources of Funds are future revenue bond issuances, as outlined in Section 5 – *Capital Financing Plan*.
    - Uses of Funds include splitting each revenue bond issuance into:
        - Issuance costs,
        - Debt reserve requirement, and
        - Proceeds for capital expenditures.
    - The Forecast assumes that 100% of each revenue bond issuance will be spent or transferred to another Reserve for one of these purposes in the year it is issued. Therefore, this Reserve does not carry a balance.
- **Revenue Bond Debt Service Reserve**
    - Sources of Funds include transfers for debt service and bond reserve requirements.
    - Interest earnings on reserve balances also accumulate in this Reserve.
    - Revenue bond debt service is the only Use of Funds from this Reserve.
- **Reimbursement Fee SDC Account**
    - The reimbursement fee portion of SDC receipts is tracked as the Source of Funds in this Reserve.
    - In each Forecast year, all SDC receipts are used to fund a portion of capital expenditures.
    - This Reserve carries no balance.

- **Improvement Fee SDC Account**
  - The improvement fee portion of SDC receipts is tracked as the Source of Funds in this Reserve.
  - In each Forecast year, all SDC receipts are used to fund a portion of capital expenditures.
  - This Reserve carries no balance.

- **WIFIA Reserve**
  - Sources of Funds include:
    - WIFIA proceeds, as outlined in Section 5 – *Capital Financing Plan*, and
    - Transfers for WIFIA loan repayments.
  - Uses of Funds include:
    - Issuance costs,
    - Proceeds for capital expenditures, and
    - WIFIA loan repayments.
  - The Forecast assumes that 100% of each WIFIA draw will be spent in the year it is issued and future WIFIA loan repayments will be transferred in annually from Cash & Investments. Therefore, this Reserve does not carry a balance.

Figure 7-1 presents the District's projected cash reserve balances over the 10-year presentation period.

Figure 7-1: Projected Year-End Cash Balances by Fiscal Year



As shown in Figure 7-2 and Figure 7-3 on the next page, the District is projecting that its Cash & Investments Reserves and Debt Service Reserve will meet their balance targets (250 days of O&M and MADS, respectively) throughout the presentation period.

Figure 7-2: Cash and Investments Year-end Balances and Annual Targets by Fiscal Year

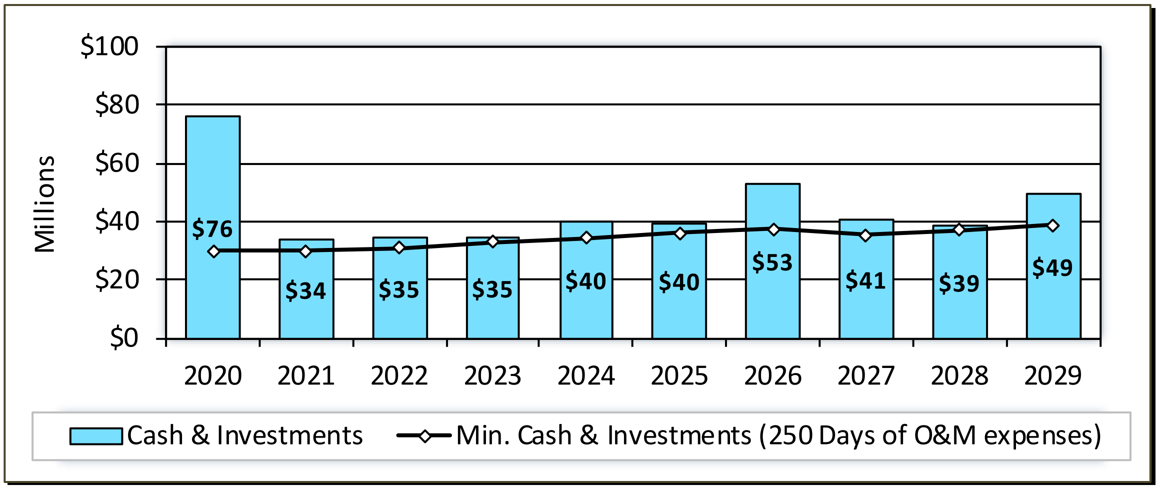
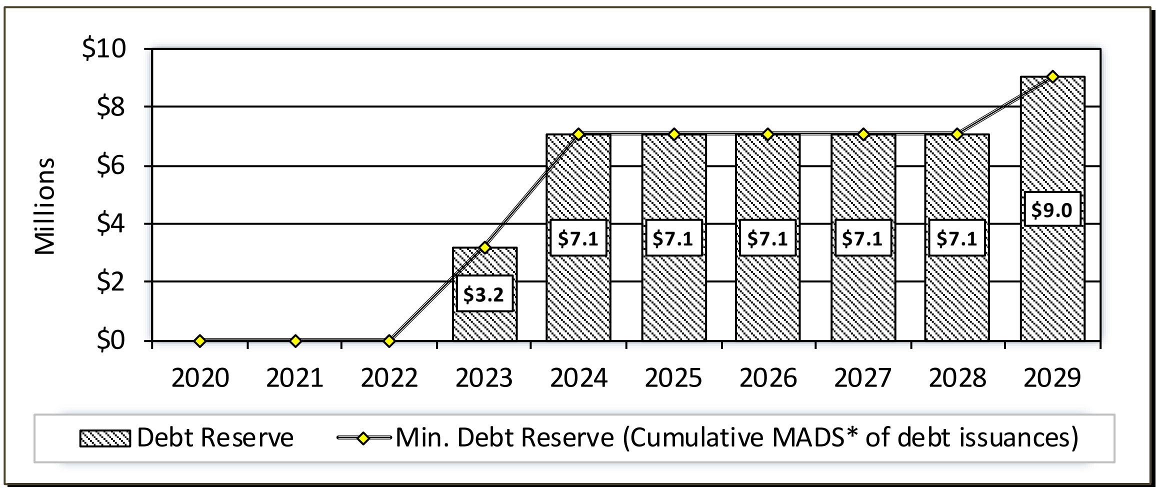


Figure 7-3: Debt Service Reserve Balance Requirements by Fiscal Year



* Maximum annual debt service.

7.3 Conclusion

As stated in Section 1.3, many assumptions were employed in the financial planning analysis underlying this document. For this reason, the projected results presented are not concrete in nature and should be considered as planning estimates.

In the future, the actual rate adjustments required to fund the District's revenue requirements may vary from the estimates presented in Section 6, and the resulting reserve balances will vary from the projections shown above. As time passes and projections become reality, future capital requirements, O&M costs, customer demands, and other assumptions will influence the accuracy of these estimates. Therefore, the District will continue to take great care to mitigate risk by following prudent management practices, including reviewing rates and revenues annually (at a minimum) to see if additional adjustments are necessary.

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Appendices

The following subsections contain supporting documents and other related materials including:

A – Financial Management Policies

B – Capital Improvement Plan

C – Ordinance 01-19 – Authorizing the Issuance of Debt

D – Draft Master Revenue Bond Declaration

E – Forecast Model Summary Results

F – Map – Tualatin Valley Water District (Washington County, Oregon)

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A. Financial Management Policies

FINANCIAL MANAGEMENT POLICIES

Tualatin Valley Water District

Overview

March 20, 2019

Table of Contents

1 INTRODUCTION

1.1 PURPOSE

The purpose of these Financial Management Policies ("Policies and/or Policy") is to guide the Tualatin Valley Water District's (District's) financial management efforts, including policies related to financial planning, budgeting, debt management, accounting and reporting, business case evaluations, and related matters. These policies affirm the commitment of the District's Board of Commissioners (the "Board") to the practices of sound financial management.

The Government Finance Officers Association (GFOA) recommends adopting financial management policies as a best practice. The GFOA states:

> *Financial policies are central to a strategic, long-term approach to financial management. Some of the most powerful arguments in favor of adopting formal, written financial policies include their ability to help governments:*
>
> 1. *Institutionalize good financial management practices. Formal policies usually outlive their creators, and, thus, promote stability and continuity. They also prevent the need to re-invent responses to recurring issues.*
> 2. *Clarify and crystallize strategic intent for financial management. Financial policies define a shared understanding of how the organization will develop its financial practices and manage its resources to provide the best value to the community.*
> 3. *Define boundaries. Financial policies define limits on the actions staff may take. The policy framework provides the boundaries within which staff can innovate in order to realize the organization's strategic intent.*
> 4. *Support good bond ratings and thereby reduce the cost of borrowing.*
> 5. *Promote long-term and strategic thinking. The strategic intent articulated by many financial policies necessarily demands a long-term perspective from the organization.*
> 6. *Manage risks to financial condition. A key component of governance accountability is not to incur excessive risk in the pursuit of public goals. Financial policies identify important risks to financial condition.*
> 7. *Comply with established public management best practices. The Government Finance Officers Association (GFOA), through its officially adopted Best Practices endorsement of National Advisory Council on State and Local Budgeting (NACSLB) budget practices and the GFOA Distinguished Budget Presentation Award Program, has recognized financial policies as an essential part of public financial management.*

1.2 GOALS AND OBJECTIVES

These Policies sets forth the guidelines for the management of the District's financial affairs. These Policies establish requirements that recognize the District's specific financial, capital, and

Tualatin Valley Water District Financial Management Policies
March 20, 2019
Page 2

accounting requirements, its ability to fulfil its financial obligations, and the existing legal, economic, financial conditions. Specifically, the Policies are intended to assist the District in the following:

a) Establishing accounting procedures;
b) Making business decisions for operations and capital expenditures;
c) Evaluating available debt issuance options;
d) Protecting the District's financial resources;
e) Maintaining appropriate capital assets for present and future needs;
f) Promoting sound financial management through accurate and timely information on financial conditions;
g) Protecting and enhancing the District's credit rating(s);
h) Controlling appropriations processes by developing budgets consistent with Oregon local budget law; and
i) Protecting the legal use of the District's financing authority through an effective system of internal controls.

The District's investment policy is maintained separately and approved separately by the Board as required by Oregon law.

1.3 ROLES AND RESPONSIBILITIES

The Chief Financial Officer (CFO) is the designated administrator of these Policies. The CFO shall have the day-to-day responsibility and authority for implementing and managing the District's accounting, debt, and finance programs.

The Board acknowledges that changes in the accounting standards, capital markets and other events may create situations and opportunities that are not contemplated by these Policies. These unexpected events may require adjustments or exceptions to the guidelines of these Policies. In such circumstances, the ability of the District to be flexible is important; however, any authorization granted by the Board to proceed with using a debt instrument not expressly permitted by the Policies must be approved by the Board before the action is taken by the District.

The Board shall review and adopt these Policies at least biennially.

2 LONG-RANGE FINANCIAL PLAN

2.1 PURPOSE

This Policy provides guidance on conducting the District's long-range financial plan (Financial Plan). The Policy includes specific limits and requirements to guide the District's long-range financial plan.

Long-term financial planning combines financial forecasting with strategic planning. The process of developing a long-range financial plan is a highly collaborative and considers future scenarios and helps the District navigate challenges. Long-term financial planning works best as part of an overall strategic plan.

Financial forecasting is the process of projecting revenues and expenditures over a long period, using assumptions about economic conditions, future spending scenarios, and other important variables. Long-term financial planning is the process of aligning financial capacity with long-term service objectives. Financial planning uses forecasts to provide insight into future financial capacity so that strategies can be developed to achieve long-term sustainability considering the District's service objectives and financial challenges.

2.2 GOALS

The District's long-term financial planning process is intended to stimulate discussion and create a long-range perspective for the Board and other decision makers. The Financial Plan assists in avoiding financial challenges; stimulating long-term and strategic thinking; creating a consensus on long-term financial direction; and communicating with internal and external stakeholders.

This Policy sets forth the guidelines for the development and maintenance of the District's Financial Plan. The Policy establishes parameters which recognize the District's specific financial situation and long-term goals. Specifically, the Policy is intended to assist the District in the following:

1. Setting water rates over the long term, thereby avoiding unnecessary and/or unexpected large increases in rates and customer bills.

2. Providing the Board, customers, and the debt market insight into the District's long-term financial needs.

3. Promoting sound financial management through long-range planning.

4. Contributing to the preservation or enhancement of the District's credit rating(s).

5. Informing the biennial operating and capital budget development process by identifying current budgetary needs and considering the phasing of changes to service levels, particularly capital improvement projects.

2.3 REQUIREMENTS

2.3.1 Biennial Preparation of Financial Plan

At least biennially, the CFO shall work with the District's Chief Executive Officer (CEO), Chief Engineer, and other managers to update the District's Financial Plan that forecasts the District's financial needs and financial results for no fewer than 10 years. Once prepared, the CFO shall present the proposed Financial Plan to the Board for its consideration and approval. Once approved, the CFO shall update Appendix A of this document to reflect the financial planning assumptions contained in the Board-approved Financial Plan.

The Financial Plan should consider new and updated information contained in other planning documents such as the District's Water Master Plan, Capital Improvement Plan, and biennial Budget as described further under section 3.4.6 below.

2.3.2 Required Components of Financial Plan

At a minimum, the Financial Plan shall include:

1. Forecast of sources and uses of funds.
2. Forecast of operating expenses.
3. Forecast of capital expenditures.
4. Forecast the use of cash ("pay as you go") and debt issuance for capital needs
5. Forecast of debt service requirements for existing debt and planned debt.
6. Project the impact of new capital projects on the District's debt.
7. Designated levels of cash reserves and/or assumptions regarding external credit facilities (e.g., bank lines of credit) in lieu of (or in addition to) cash reserves.
8. Forecast compliance with debt covenants (e.g., additional bonds tests, debt service coverage ratios)
9. Forecast of growth in customers and demands.
10. Forecast of future rate increases and revenues.

2.3.3 Financial Planning Assumptions

Appendix A presents the assumed values to be used in the District's Financial Plan until another Board-approved financial plan results in its revision. This Appendix will be updated as described in Section 2.3.1 above.

3 DISTRICT BUDGET

3.1 PURPOSE

The District makes program and service decisions to allocate scarce resources for operational and capital needs through its budget process. As a result, the budget process is one of the most important activities undertaken by the District. The quality of decisions resulting from the budget process and the level of their acceptance depends on the budget process that is used.

3.2 GOALS

The District's budget is intended to help decision makers (including the Board and Budget Committee) make informed choices about the provision of services and capital projects and to promote participation by the District's stakeholders in the process. The District's budget provides guidance to the management of the District by:

1. Establishing priorities for work during the budget period.
2. Establishing the legal spending limits for achieving those priorities.

3.3 RESPONSIBILITIES

The Board shall appoint the District's Budget Officer by resolution. The Budget Officer is responsible for the preparation of the District's budget in compliance with Oregon local budget law.

3.4 REQUIREMENTS

3.4.1 Biennial Budget Process

The District shall adopt a biennial budget (Budget) consistent with Oregon law. The Budget provides a short-term financial expenditure plan and promote efficiencies. The Budget shall be prepared and adopted in accordance with State legal requirements and conform to standards consistent with nationally recognized practices.

3.4.2 Citizens Budget Committee

Oregon law requires the District to have a citizens' budget committee (Budget Committee). The Budget Committee consists of 10 members: Five citizen members appointed by the Board of Commissioners, and the five commissioners.

The citizen members of the Budget Committee shall be appointed for a term of 4 years. The appointments will be offset by two years so that at most three committee positions will have their terms end at once.

As required by Oregon law, the citizen members of the Budget Committee must be electors of the District. Should a citizen member of the Budget Committee resign, or otherwise become ineligible to serve as a citizen member, the Budget Officer shall notify the Board President of such vacancy. The Board may direct the Budget Officer, the CEO, or the CFO to undertake an effort to fill the vacant position. Vacancies in citizen member positions of the Budget Committee shall be filled by vote of the Board.

Citizen members of the Budget Committee whose term is expiring may elect to reapply to the Budget Committee. The Budget Officer shall advise the Board President of such elections and the Board shall direct the Budget Officer, the CEO, or the CFO to undertake an effort to find candidates for expiring positions. Consistent with Oregon law, the appointment of the citizen members of the Budget Committee is by official action of the Board.

3.4.3 Balanced Budget

The Budget proposed by the Budget Officer to the Budget Committee must present a balance of resources and requirements as required by Oregon law.

3.4.4 Basis of Budgeting

The District prepares its budget on a modified accrual basis. For budget purposes, the District recognizes revenues when they are both measurable and available. Measurable means the amount of the transaction can be determined and revenues are considered available when they are collected within the current period or expected to be collected soon enough thereafter to be used to pay liabilities of the current period. Expenses are recognized when the liability is incurred. An exception to this rule on recognizing expenses is debt service. The payment of debt service is recognized when payments are due. Other accounting treatments under generally accepted accounting principles (GAAP) such as depreciation, are not considered expenses under the District's budgetary basis.

3.4.5 Sufficiency of Operating Revenues

The District's budget shall require that operating revenues be sufficient to cover operating expenses (excluding depreciation), and that net revenues are sufficient to comply with bond covenant requirements each year. Sufficiency of operating revenues shall be included in determining water rates, fees, and charges, as described in Sections 4.3.2, 4.3.4, and 4.3.5 below.

3.4.6 Capital Planning

The District shall periodically review and update its Water System Master Plan and Water Management and Conservation Plan to satisfy the requirements for these plans under Oregon administrative rules and statutes. The review and update should consider information contained in other planning documents and provide the District with a coordinated capital plan for system development and an overview of source options to meet growth needs.

Each biennium, the District shall develop and adopt a six-year Capital Improvement Plan (CIP) that details capital projects and fixed asset acquisitions for the District consistent with its current Water System Master Plan, Financial Plan (as described in Section 2 above), fleet and facility plans, asset management plan (as described in Section 10.3.2 below) and capital plans prepared by other agencies with whom the District has contractual or other legal obligations (e.g., the District's joint ventures). The District's Chief Engineer will prioritize proposed projects based on criteria reflecting the direction and policies established by the Board and needs of the District. The District's Chief Engineer will identify significant operating expenses associated with each project that will be required when the asset is placed into service.

Where practical and in the District's best interest, the District may use a blend of cash and debt funding for capital infrastructure. Normal repair and maintenance will be funded only with cash from operations. Debt will be considered as an optional financing mechanism for long-lived improvements and expansions or one-time major system component replacements. As part of the CIP process, the CFO will analyze the proposed capital projects so that each project is funded from an appropriate revenue source.

3.4.7 Supplemental Budgets

When necessary, the Budget Officer may notify the Board of the need to consider a supplemental budget. Supplemental budgets will be prepared and propose action shall be noticed as required by Oregon local budget law.

4 WATER RATES, FEES, AND CHARGES

4.1 PURPOSE

This Policy provides guidance on setting the District's water rates, fees, and charges. The Policy describes the Board's general rate-setting goals and directives.

4.2 GOALS

The District recovers its costs from water sales and other fees and charges assessed on customers. Setting rates, fees, and charges includes a combination of technical analysis and policy implementation. The goal of this Policy is to provide the District's management guidance in setting rates, fees, and charges consistent with the Board's Policy direction.

4.3 REQUIREMENTS

4.3.1 Cost-of-Service Framework

The District's water rates, fees, and charges should reflect the costs of providing the various services to the District's customers, following generally accepted ratemaking methodologies. The cost of service should include operating and capacity costs and send appropriate price signals to customers to encourage the wise use of water.

4.3.2 Water Rates

Water rates should be adjusted annually, with those annual adjustments adopted on a biennial or annual basis depending on financial planning needs (e.g. projected revenue requirements) or specific direction from the Board. The proposed water rate increases will be consistent with the Board-approved Financial Plan discussed in Section 2.3.1 above.

To the extent possible, the District should use the financial planning process to anticipate increases in costs for future years to avoid sudden and/or unexpected rate increases. The District should use the Financial Plan described in Section 2 above to inform its rate-setting process.

Consistent with Oregon law, the District will set its rates by resolution or ordinance after conducting a public hearing, if required.

4.3.3 System Development Charges

System development charges (SDCs) are intended to implement the cost-of-service framework for new and existing customers. SDCs are one-time charges made to new connections to the District's water system to recover growth-related costs. Revenue from SDCs will not fund operations and will only be spent consistent with Oregon law.

SDCs may be updated consistent with Oregon law. SDCs will generally be updated each year during the Board's regular meeting in February with an effective date of March 1st. Unless increased pursuant to a formal SDC study, the District may increase the SDC as allowed under Oregon law based on changes to the *Engineering News Record* Construction Cost Index for Seattle (ENR CCI) as published for the December prior to the SDC adoption. If SDCs are adopted to have an effective date other than March 1, the ENR CCI for another more appropriate month may be used.

4.3.4 Services Provided to Other Utilities

When in the interest of the District's customers, the District may provide services, including the provision of wholesale water, utility billing, meter reading or other water-related services, to other utilities, including joint ventures. In such cases, the rates and fees charged to the other utilities should, at a minimum, recover the estimated cost of providing those services. The provision of services to other utilities will require Board approval, normally through approving the signing of an intergovernmental agreement.

4.3.5 Miscellaneous Fees and Charges

The District assesses many fees and charges for miscellaneous services to customers and meter and service installations. In addition, the District may assess fees for development plan review and inspection, fire hydrant use permits, and penalty fees for non-payment of utility bills and unauthorized use of water or firelines. These charges should be reviewed at least biennially to reflect the cost of providing the services. When the costs of service have changed a material amount, the CFO shall propose changes to the miscellaneous fees and charges to the Board for its consideration. Fees and charges shall be set by the Board by resolution or ordinance.

4.3.6 Forgiveness of Fees and Charges

The CEO or designee may waive all or a portion of *Other Service Charges & Penalties*, as adopted by the Board, if the CEO or designee determines that it is in the equitable and best interest of the District considering the particular circumstances involved in each case.

5 MINIMUM FUND BALANCES AND RESERVES

5.1 PURPOSE

Maintaining fund balances is an important function for the District to operate efficiently over the long run. This policy guides the development of minimum cash balances that directly affect the District's Financial Plan (See Section 2 above), rates and charges (see Section 4 above), and budget (see Section 3 above). The accumulation or use of fund balances and reserves is one mechanism that financial decision in one year can affect future years. This policy provides guidance on making those decisions.

5.2 GOALS

The decision to retain financial resources in fund balance or reserves directly affects:

1. Financial risks to the District from unexpected disruptions to revenue or unexpected expenditures.
2. Water rates required in the current and future years.
3. The District's credit rating(s).
4. Other financial related matters.

Because of the nature of these effects, these Policies provide management guidance from the District's Board in developing the various plans proposed to the Board.

5.3 REQUIREMENTS

5.3.1 Working Capital

As an enterprise fund, the District separately measures its current and non-current assets and liabilities. The District can use this distinction to calculate working capital (i.e., current assets less current liabilities). The measure of working capital indicates the relatively liquid portion of the District's capital, which constitutes a margin or buffer for meeting obligations.

The District should maintain an adequate level of working capital to mitigate current and future risks (e.g., revenue shortfalls and unanticipated expenses) and to provide stable services and fees. Working capital is a crucial consideration, too, in the Financial Plan (See Section 2 above.) Credit rating agencies consider the availability of working capital in their evaluations of the District's creditworthiness.

The District shall maintain working capital consistent with the levels of working capital presented in Appendix A, as revised in the future. Working capital shall be at least equal to the two months' operations and maintenance expense (i.e., 60 days cash on hand).

5.3.2 Capital Reserves

The District's rate setting goals include a preference to avoid sudden and/or unexpected rate increases for customers. Capital reserves are one mechanism the District can use to lower the overall costs of acquiring capital assets by saving money early in the planning process.

Capital reserve levels shall be determined through the financial planning process and identified in the District's Financial Plan (see Section 2.3.1 above).

5.3.3 Debt Service Reserves

Debt Service Reserves shall be treated as described in Section 6.3.10.5 below.

6 DEBT FINANCING

6.1 PURPOSE

These Policies provide guidance on the issuance, structure, and management of the District's long- and short-term debt.

6.2 GOALS

The Policy sets forth the guidelines for the issuance of debt and the management of outstanding debt. The Policy establishes certain limits which recognize the District's capital requirements, its ability to repay financial obligations, and the existing legal, economic, financial, and debt market conditions. Specifically, the Policy is intended to assist the District in the following:

1. Evaluating available debt issuance options;
2. Maintaining appropriate capital assets for present and future needs;
3. Promoting sound financial management through accurate and timely information on financial conditions;

4. Protecting and enhancing the District's credit rating(s); and
5. Safeguarding the legal use of the District's financing authority through an effective system of internal controls.

6.3 REQUIREMENTS

6.3.1 Type and Use of Debt

The District shall comply with the all debt limitations imposed by the Oregon constitution, Oregon Revised Statutes (ORS), and Oregon Administrative Rules (OAR). The District will further comply with Security and Exchange Commission (SEC) and Municipal Securities Rulemaking Board (MSRB) rules regarding debt issuance, and with IRS regulations for tax-exempt or tax-advantaged debt.

Long-term obligations will not be used to fund operations of the District. The scope, requirements, and demands of the budget, reserve levels, the Financial Plan, and the ability or need to expedite or maintain the programmed schedule of approved capital projects, will also be considered when deciding to issue long-term debt. All borrowings will be authorized by the District's Board.

The District is authorized to issue general obligation bonds and revenue bonds. Except in unique circumstances, the District will primarily rely on revenue bonds to fulfill its debt issuance needs.

6.3.1.1 Revenue Bonds

Revenue bonds are obligations payable from the net revenues of the District's operations. As users of the District facilities will benefit from long-term capital investments in future years, it is appropriate that future revenues pay a share of the costs and more closely match the term of repayment to the expected economic useful life of the project being financed.

Long-term revenue bonds issued by the District shall only be used to finance and refurbish capital facilities, projects and certain equipment where it is determined to be cost effective and fiscally prudent. Revenue bonds will be structured to achieve the lowest possible net cost to the District considering market conditions, terms that are advantageous to the District, risks, the Financial Plan, and the nature and type of security to be provided.

Although revenue bonds are not subject to constitutional or statutory debt limits, the District's debt will not exceed legal or contractual limitations, such as rate covenants or additional bonds tests imposed by then-existing financing covenants. Prior to the issuance of any new revenue bonds, the CFO will cause the impact of future debt service payments on total annual fixed costs to be analyzed.

In addition to the legal and/or contractual requirements associated with revenue bonds, the District will strive to maintain a minimum annual debt service coverage ratio of 2.0 times average annual debt service or another ratio when included in Appendix A.

6.3.1.2 General Obligation Bonds

General obligation bonds are payable from a dedicated tax levy and subject to voter approval. The District shall not generally use general obligation bonds to finance projects, other than projects of a general public nature. In no cases shall the District's outstanding general obligation debt exceed the statutory debt limit. General obligation bonds will mature no later than 30 years from their issue date.

6.3.1.3 Variable Rate Obligations

The District will generally seek to obtain financing through fixed rate obligations. When appropriate, however, the District may choose to issue variable rate obligations. Such variable rate obligations may pay a rate of interest that varies according to a predetermined formula or a rate of interest that is based on a periodic remarketing of securities.

Types of variable rate obligations may include variable rate demand obligations, commercial paper, and floating-rate notes. Each type of variable rate obligation carries its own risks and considerations. Prior to issuing any variable rate debt, the CFO will consult with the District's Municipal Advisor to evaluate the risks and benefits of a particular type of debt. The Municipal Advisor will also provide a formal recommendation to the Board.

The maximum level of net variable rate obligations incurred shall not exceed the lessor of the District's unrestricted reserves or 20% of outstanding debt. In calculating "net" variable rate debt, the District will consider interest-rate swaps. Prior to considering any interest rate swaps, the District will establish a separate swaps policy.

6.3.1.4 Anticipation Notes

The District may issue short-term notes to be repaid with the proceeds of state or federal grants/loans or other anticipated one-time revenue sources if appropriate for the project and in the best interest of the District. Generally, such grant or revenue anticipation notes ("GANs" or "RANs") will only be issued if there is no other viable source of up-front cash for the project, although the District may elect to utilize such notes if they provide a financial benefit under the Financial Plan. Anticipation notes may be secured by a revenue pledge on parity with or subordinate to the District's long-term revenue bonds. Prior to embarking on selling anticipation notes the District must identify a secondary source of repayment for the notes if expected grant/loan funding does not occur.

6.3.1.5 Lease Financings

Lease obligations are routine and can be an appropriate means of financing certain types of equipment. Generally, however, leases are not appropriate for long-term financing of capital assets such as land or facilities. The CFO should consider leases where lease financing will be more beneficial than funding from reserves or current revenues. The useful life of capital equipment, the term and conditions of the lease, the direct impact on debt capacity and budget flexibility will be evaluated prior to the implementation of a lease program. Cash flow sufficiency, capital program requirements, lease program structures and cost, and market factors will be considered by the CFO in conjunction with "pay-as-you-go" strategies in lieu of lease financing.

6.3.2 Federal, State, or Other Loan Programs

To the extent it benefits the District, the District may participate in federal, state, or other loan programs. The CFO shall evaluate the requirements of these programs to determine if the District is well served by employing them.

For purposes of this Policy, the District shall treat and report these obligations in a manner consistent with other similar debt instruments. To the extent required by the loans or other outstanding debt agreements, the District shall include the financial requirements of these obligations when determining additional bonds test, coverage requirements, etc.

6.3.3 Debt Refinancing

Refunding obligations may be issued to retire all or a portion of an outstanding debt issue. Economic refundings may refinance high-coupon debt at lower interest rates to effectuate debt service savings. Alternatively, the District may conduct a refunding for reasons other than cost savings, such as to restructure debt service payments, to change the type of debt instruments, to release restricted revenues, to ease administrative requirements, or to remove undesirable covenants.

The District will target current refundings (refundings within 90 days of the call date) that produce net present value savings of at least 3% of the refunded par amount of each maturity being refunded. Refundings producing less than 3% net present value savings for each maturity being refunded will be considered for other purposes, such as to restructure debt service payments, to change the type of debt instruments, to release restricted revenues, to ease administrative requirements, or to remove undesirable covenants.

The District will target advance refundings (refundings that occur more than 90 days prior to the call date of the refunded bonds) that produce net present value savings (including cash contributions and foregone interest earnings) of at least 5% of the refunded par amount of each maturity being refunded, and achieve at least 50% escrow efficiency (where escrow efficiency is defined such that negative arbitrage does not exceed 50% of net present value savings). Refundings producing less than 5% net present value savings for each maturity being refunded may be considered for other purposes, such as to restructure debt service payments, to change the type of debt instruments, to release restricted revenues, to ease administrative requirements, or to remove undesirable covenants. (As of January 2018, advance refundings may no longer be issued on a tax-exempt basis.)

The District may also consider alternatives to current and advance refundings (e.g., delayed-delivery refundings) in consultation with its Municipal Advisor and bond counsel. In evaluating such alternatives, the CFO will consider the proposed structure, and establish a required threshold of interest rate savings.

The CFO will monitor refunding opportunities for all outstanding debt obligations on a periodic basis applying established criteria in determining when to issue refunding debt and bring forth the recommended opportunities with appropriate Board actions and related documentation.

6.3.4 Debt Structure Considerations

6.3.4.1 Maturity of Debt

The final maturity of the debt shall not exceed, and preferably be less than, the remaining useful life of the assets being financed, and to comply with Federal tax regulations, the average life of a financing shall not exceed 120% of the average life of the assets being financed.

6.3.4.2 Debt Service Structure

Debt service payments for any new money debt issue will generally be structured to create approximately level debt service payments over the life of the debt. Exceptions are permitted for refunding debt that will have varying principal repayments structured to fill in the gaps created by refunding specific principal maturities. The CFO may also structure the amortization of principal to wrap around existing obligations or to achieve other financial planning goals. Deferring the repayment of principal should be avoided except in select instances where it will take time before project revenues are sufficient to pay debt service.

6.3.4.3 Lien Structure

Senior and subordinate liens may be used to maximize the most critical constraint, either cost or capacity, thus allowing for the most beneficial leverage of revenues.

6.3.4.4 Capitalized Interest

The District may elect to fund capitalized interest in connection with the construction of certain projects, if revenue from such projects is not initially available to pay debt service on related debt. Additionally, the District may consider funding capitalized interest if such a strategy will minimize the financial impact to of such borrowing on District ratepayers.

6.3.4.5 Reserve Funds

A reserve fund for a debt issuance may be required for credit rating or marketing reasons. If required, such reserve fund can be funded with:

1. The proceeds of a debt issue,
2. The reserves of the District, or
3. A surety policy.

A cash reserve fund will be invested pursuant to the investment restrictions associated with the respective financing documents and the District's separate investment policy. For each debt issue, the CFO will evaluate whether a reserve fund is required for credit rating or marketing purposes and the benefits of funding or maintaining the reserve requirement with cash or a surety policy, in addition to determining the benefits of borrowing the necessary funds or using cash reserves.

6.3.4.6 Redemption Provisions

In general, the District will have the right to optionally redeem debt at par no later than 10 1/2 years after issuance. Redemption provisions will be established on a case-by-case basis, taking into consideration market conditions and the results of a call option analysis prior to the time of sale. Because the issuance of non-callable debt may restrict future financial flexibility, cost will not be the sole determinant in the decision to issue non-callable debt.

6.3.4.7 Credit Enhancement

Credit enhancement (e.g., bond insurance or letters of credit) on District financings will only be used when net debt service is reduced by more than the cost of the enhancement. The District will evaluate the availability and cost/benefit of credit enhanced debt versus unenhanced debt prior to issuing any debt.

6.3.5 Method of Sale

The District will select a method of sale that is the most appropriate when considering the financial, market, transaction-specific and District-specific conditions and advantages. There are three basic methods of sale: Competitive Sale, Negotiated Sale, and Direct Placement. Each type of debt sale has the potential to provide the lowest cost given the right conditions. The CFO will select the most appropriate method of sale considering the prevailing financial, market and transaction-specific conditions. If a negotiated sale is expected to provide overall benefits, the senior managing underwriters and co-managers shall be selected through the process described below.

6.3.6 Investment of Proceeds

Investment of proceeds are subject to the District's separately adopted Investment Policy. The District shall competitively bid the purchase of securities, investment agreements, float contracts, forward purchase contracts and any other investment products used to invest proceeds of a financing. The District shall comply with all applicable Federal, State, and contractual restrictions regarding the use and investment of financing-related funds. The primary investment objectives are safety, liquidity, and yield. The District's independent investment advisor must be a registered Investment Advisor. The District shall diversify invested proceeds to reduce risk exposure to providers, types of investment products and types of securities held. The District will require that all fees resulting from investment services or sale of products to the District be fully disclosed to the District (including fees paid by third parties) to avoid actual or perceived conflicts of interest on whether the investments are being purchase at a fair market price, consistent with the District's Investment Policy.

6.3.7 Credit/Ratings Objectives

The District's objective is to maintain an appropriate credit rating (or ratings) considering the District's financial condition as a way of balancing financing costs and cash flow. The CFO shall be responsible for implementing and managing the District's credit rating agencies relations program. This effort shall include providing the rating agencies with the District's annual budget, financial statements and other information they may request. Full disclosure of operations will be made to the credit rating agencies. The CFO shall also coordinate periodic meetings with the rating agencies and communicate with them prior to each debt issuance. The District will evaluate the benefits of a higher rating at lower debt cost versus a lower rating that provides more debt capacity and flexibility.

6.3.8 Investor Relations

The CFO shall be responsible for implementing and managing the District's investor relations program. The CFO will also be responsible for responding to inquiries from institutional and retail investors, and for proactively communicating with such investors if necessary. Such communication shall be made only as permitted under applicable federal securities laws, in consultation with the District's bond counsel.

6.3.9 Tax and Arbitrage Rebate Compliance

The District will comply with all financing covenants to maintain the validity of the issuance of debt, including, but not limited to tax-exemption, Arbitrage Rebate compliance, insurance provisions, reporting and monitoring requirements. Any instance of noncompliance will be reported to the Board.

6.3.9.1 Post Issuance Tax Compliance

6.3.9.1.1 External Advisors and Documentation

The District shall consult with bond counsel and other legal counsel and advisors, as needed, throughout the debt issuance process to identify requirements and to establish procedures necessary or appropriate so that the bonds or other obligations will continue to qualify for tax-exempt status, if applicable. Those requirements and procedures shall be documented in the tax certificate and agreement ("Tax Certificate") and/or other documents finalized at or before issuance of the bonds. Those requirements and procedures shall include future compliance with applicable arbitrage rebate requirements and certain other applicable post-issuance requirements of federal tax law throughout (and, in some cases, beyond) the term of the bonds. This shall include, without limitation, consultation in connection with any potential changes in use of bond-financed or refinanced assets.

The District may engage expert advisors (each a "Rebate Service Provider") to assist in the calculation of arbitrage rebate payable in respect of the investment of bond proceeds, unless the Tax Certificate documents that arbitrage rebate will not be applicable to an issue of bonds. Unless otherwise provided by the transaction documentation relating to the bonds, unexpended bond proceeds shall be segregated from other funds of the District, and the investment of bond proceeds shall be managed by the District. The District shall prepare (or cause to be prepared) regular, periodic statements regarding the investments and transactions involving bond proceeds.

6.3.9.1.2 Arbitrage Rebate and Yield

Unless the Tax Certificate documents that arbitrage rebate will not be applicable to an issue of bonds, the CFO, or persons reporting to the CFO, shall be responsible for:

1. Either (1) engaging the services of a Rebate Service Provider and, prior to each rebate calculation date, causing the trustee or other financial institution to deliver periodic statements concerning the investment of bond proceeds to the Rebate Service Provider, or (2) undertaking rebate calculations themselves and retaining and obtaining periodic statements concerning the investment of bond proceeds;

2. Providing to the Rebate Service Provider additional documents and information reasonably requested;

3. Monitoring efforts of the Rebate Service Provider;

4. Assuring payment of required rebate amounts, if any, no later than 60 days after each five-year anniversary of the issue date of the bonds, and no later than 60 days after the last bond of each issue is redeemed;

5. During the construction period of each capital project financed in whole or in part by bonds, monitoring the investment and expenditure of bond proceeds and consulting with the Rebate Service Provider to determine compliance with any exceptions from the arbitrage rebate requirements during each 6-month spending period up to 6 months, 18 months, or two years, as applicable, following the issue date of the bonds; and

6. Retaining copies of all arbitrage reports, investment records, and trustee statements.

6.3.9.1.3 Use of Bond Proceeds and Bond-Financed or Refinanced Assets

The CFO, or persons under the supervision of the CFO, shall be responsible for:

1. Monitoring the use of bond proceeds (including investment earnings and reimbursement of expenditures made before bond issuance) and the use of the financed asset throughout the term of the bonds to ensure compliance with covenants and restrictions set forth in the Tax Certificate relating to the bonds;

2. Maintaining records identifying the assets or portion of assets that are financed or refinanced with proceeds of each issue of bonds (including investment earnings and reimbursement of expenditures made before bond issuance), including a final allocation of the bond proceeds documented on or before the later of 18 months after an expenditure is paid or the related project is placed in service, and in any event before the fifth anniversary of the bond issuance;

3. consulting with bond counsel, other legal counsel, and other advisors in the review of any change in use or transfer of bond-financed or refinanced assets to ensure compliance with all covenants and restrictions set forth in the Tax Certificate relating to the bonds;

4. To the extent the District discovers that any applicable tax restrictions regarding use of bond proceeds and bond-financed or refinanced assets will or may be violated, consulting promptly with bond counsel, other legal counsel, and other advisors to determine a course of action to preserve the tax-exempt status of the bonds (if applicable).

6.3.10 Disclosure Documents

The District is required to provide disclosure, generally in the form of an official statement, relating to each public offering of debt. The District is responsible for providing complete and accurate information to be included in the official statement and is responsible for the overall content of the document, although it may rely on an external party (e.g., bond counsel or disclosure counsel) to assist in the creation of the document.

6.3.10.1 Primary Disclosure Policies

The CFO will serve as the focal point for information requests relating to official statements to be used in the initial offering of the District's borrowings. The CFO will request information required for disclosure to investors and rating agencies from relevant departments and will sign a statement attesting to the accuracy and completeness of the information therein. The Board will be provided with a copy of the official statement for each issue of debt.

6.3.10.2 Continuing Disclosure Policies

Under Rule 15c2-12 of the Securities and Exchange Commission, adopted under the Securities Exchange Act of 1934, the District is required to enter into a contract to provide "secondary market disclosure" relating to each publicly offered bond issue (referred to as an "undertaking"). The CFO shall review any proposed undertaking to provide secondary market disclosure and negotiate any commitments therein. Additionally, bonds sold via the direct placement method may have specific disclosure requirements required by the purchaser.

The District will ensure compliance with all continuing disclosure requirements as part of its ongoing debt program. The CFO, or persons under the supervision of the CFO, shall have a clear understanding of the continuing disclosure requirements for each bond transaction.

Internal procedures shall be developed that identify the information that is obligated to be submitted in an annual filing, the dates on which filings are to be made, list the events required to be disclosed, and identify the person responsible for making the filings.

The Comprehensive Annual Financial Report (CAFR) may fulfill annual financial information filing obligations. The information provided in a CAFR does not have to be replicated when filing with the Electronic Municipal Market Access (EMMA) portal. If the District agrees to furnish information that is outside the scope of its CAFR, that information may be included as a supplement to the CAFR when filing with EMMA. On its completion, the CAFR should be immediately submitted to EMMA.

Each time the District issues new bonds, the CFO (in consultation with bond counsel and the municipal advisor) will review the District's compliance with prior continuing disclosure undertakings and make any necessary corrective filings.

In addition to continuing disclosure undertakings associated with public bond offerings as required by SEC Rule 15c2-12, the District may also be subject to ongoing reporting requirements associated with other debt obligations, such as bank loans. The CFO shall also be responsible for ensuring compliance with such reporting requirements.

6.3.11 <u>Consultants and Advisors</u>

6.3.11.1 Municipal Advisor

The District will retain an independent registered municipal advisor (MA) through a competitive process administered by the CFO at least every five years. Selection of the District's MA should be based on the following:

1. Experience in providing consulting services to issuers similar to the District;

2. Meets all regulatory requirements;

3. Knowledge and experience in structuring and analyzing large complex debt issues;

4. Ability to conduct competitive selection processes to obtain related financial services (including underwriters and other service providers);

5. Experience and reputation of assigned personnel; and

6. Fees and expenses.

The District expects that its MA will provide objective advice and analysis, maintain confidentiality of District financial plans, and fully disclose any potential conflicts of interest.

6.3.11.2 Bond Counsel

For all debt issues, the District will engage and retain an external bond counsel through a competitive process administered by the CFO at least every five years. Where required by the lender and/or investors, debt issued by the District will include a written opinion by a nationally recognized bond counsel affirming that the District is legally authorized to issue the debt, stating that the District has met all state constitutional and statutory requirements necessary for issuance, and determining the debt's federal income tax status. Bond Counsel may also draft the Official Statement in lieu of having a separate disclosure counsel.

6.3.11.3 Disclosure Counsel

The District may engage and retain, when appropriate, Disclosure Counsel through a competitive process administered by the CFO to prepare official statements for debt issues. Disclosure Counsel will be responsible for providing that the official statement complies with all applicable rules, regulations, and guidelines. Disclosure Counsel will be a nationally recognized firm with extensive experience in public finance.

6.3.11.4 Underwriters

For negotiated sales, underwriters will be required to demonstrate sufficient capitalization and experience related to the debt issuance. The CFO will establish a pool of qualified underwriters through a competitive process at least every five years and may designate one or more firms as eligible to be senior managers and one or more firms as eligible to be co-managers. Criteria to be used in the appointment of qualified underwriters will include:

1. Quality and applicability of financing ideas;

2. Demonstrated ability to manage complex financial transactions;

3. Demonstrated ability to structure debt issues efficiently and effectively;

4. Demonstrated ability to sell debt to institutional and retail investors;

5. Demonstrated willingness to put capital at risk;

6. Experience and reputation of assigned personnel;

7. Past performance and references; and

8. Fees and expenses.

If an underwriting pool is established, the CFO will regularly monitor the performance of the members of the underwriting pool and recommend changes as appropriate.

6.3.12 <u>Reporting Requirements</u>
The CFO will report to the Board on a quarterly basis the following information:

1. A summary of outstanding debt obligations to include the series name, original amount of issuance, outstanding principal amount, issue date, maturity dates, interest rates, and annual debt service;

2. The amount of the net variable rate obligation and percentage as compared to outstanding debt, if applicable;

3. Other considerations if applicable, including (but not limited to): refunding opportunities, performance of variable rate obligations, and/or proposed new debt issuances.

7 ACCOUNTING STANDARDS AND FINANCIAL REPORTING

7.1 PURPOSE

This Policy provides guidance to management on the accounting standards to be used by the District and the expectations for financial reporting.

7.2 GOALS

Providing accurate, transparent, and reliable accounting of the District's financial performance is important to the public, investors, and other District stakeholders. Furthermore, the timely disclosure of the District's financial performance helps those stakeholders better assess the District's financial condition. These policies will provide management guidance it needs to produce and disseminate timely financial statements that meet those needs.

7.3 REQUIREMENTS

7.3.1 <u>Basis of Accounting</u>
The District's financial statements are maintained on the flow of economic resources measurement focus using the accrual basis of accounting and accounting principles applicable to governmental enterprise funds. Under the accrual basis of accounting, revenues are recognized when earned and expenses are recognized when liabilities are incurred.

The District shall prepare its financial statements using the accrual basis of accounting in accordance with accounting principles generally accepted in the United States of America (generally accepted accounting principles or "GAAP") issued by the Governmental Accounting Standards Board (GASB) applicable to governmental entities that use proprietary fund accounting.

7.3.2 Reporting Entity

GAAP require that the reporting entity include: (1) the primary government, (2) organizations for which the primary government is financially accountable, and (3) other organizations for which the nature and significance of their relationship with the primary government are such that exclusion would cause the reporting entity's financial statements to be misleading or incomplete.

The District is governed by its Board of Commissioners whose members are elected directly by the citizens residing within the District. As such, the District is, by definition, a primary government.

7.3.3 Capitalization Standards

The District capitalizes expenditures on assets that have a useful life exceeding one year and an original cost of $7,500 or more. To be capitalized, an expenditure must meet the other capital-asset requirements under GAAP.

7.3.4 Depreciable Lives and Depreciation Rates

The District shall determine depreciation rates for classes of assets and, when appropriate, individual assets, based on the expected useful lives of the assets considering local conditions within the District. Estimates of the depreciable lives shall be based on engineering assumptions for the District and operational experience. Unless otherwise more appropriate, the depreciation rates shall be calculated to recover the original costs using a straight-line basis over the depreciable life of an asset.

7.3.5 Accounting for Joint Ventures

The District participates in various joint ventures with neighboring water providers. In some cases, the District acts as the managing agency for joint ventures. When acting as the managing agency and authorized by the intergovernmental agreement (IGA) that forms the joint venture, the District will prepare separate financial statements for the joint venture. When appointed as the managing agency and required by the IGA that forms the joint venture, the District's Board and Budget Committee will also serve as the local budget law authority for the joint venture. In those cases, the Board will adopt budgets consistent with the requirements of the joint venture(s) to enable the District to fulfill its duties and the managing agency.

7.3.6 Valuation of Inventory

Inventory of materials and supplies is stated at cost using average cost and is charged against operations as used.

7.3.7 Indirect Cost Allocation Plan

The CFO will cause the District to maintain an indirect cost allocation plan suitable for allocating overhead costs to the various joint ventures and contracts the District manages and the capital projects it undertakes. The CFO may engage the services of professional consultants from time-to-time to review and update the indirect cost allocation plan.

7.3.8 Financial Reports

7.3.8.1 Monthly Financial Reports

The CFO shall provide the Board with unaudited reports on the District's financial performance each month. These reports shall be available to the Board within 30 days of the close of the month. Subsequent adjustments to prior months financial reports are expected to account for routine month-end and year-end closing activities.

7.3.8.2 Comprehensive Annual Financial Report

Although not required by law, the District embraces the recommendation of the Government Finance Officers Association recommendation to issue its financial reports in the form of a Comprehensive Annual Financial Report (CAFR) within 180 days of the close of the fiscal year.

8 INTERNAL CONTROLS

8.1 PURPOSE

Internal controls are those management means used to mitigate the risk that the District's economic resources are not properly used. Internal controls focus on operational effectiveness and efficiency, fraud preventions, reliable financial reporting, and compliance with laws, regulations, and policies. Policies on internal controls are important to managing the District's risks.

8.2 GOALS

The goals of these Policies are to:

1. Manage the risk that financial transactions bring to the District.
2. Establish the legal authority of the procurement function within the District.
3. Simplify, clarify, and reflect the District's approach to maintaining internal controls.
4. Enable uniform internal controls throughout the District.
5. Build public confidence in the District's stewardship of its economic resources and management of its risks.
6. Safeguard the integrity of the District's procurement and accounting systems and protect against corruption, fraud, waste, and abuse.

8.3 REQUIREMENTS

8.3.1 Purchasing Goods and Services for the District

The District purchases various goods and services from many vendors with differing business models. The District's internal controls are intended to govern those procurement matters subject to the District's Local Contract Review Board Rules. The procurement rules and the internal controls that assess compliance with those rules are intended to:

1. Provide for the fair and equitable treatment of everyone who deals with procurement.

2. Increase efficiency, economy, and flexibility in the District's internal controls activities and maximize the District's purchasing power.

3. Foster effective broad-based competition from the District's suppliers.

There are three requirements to procure goods or services for the District. These requirements are:

1. Compliance with formal procurement rules. To achieve compliance with state law and the Local Contract Review Board Rules, all purchases must follow District procurement rules.

2. Proper authorization for the purchase. The District has established dollar limits that provide varying levels of authorization for employees to purchase on behalf of the District. This Policy formalizes the requirements for receiving and/or confirming the authorization for purchase.

3. Approval requirements for payments. These policies set forth the approval requirements.

The CFO shall maintain and publish guidelines and rules to facilitate the above-listed objectives.

8.3.1.1 Purchasing Limits

8.3.1.1.1 Authorization for Purchases

In consultation with the CEO, the CFO shall periodically establish and publish purchasing limits for employees within the District. The purchasing limits will include the limits for purchases by contract, purchasing card, petty cash, and all other payment methods.

8.3.1.1.2 Approval of Purchases

All purchases are to be approved by the supervisor or manager of the purchaser, including petty cash reimbursements, unless the purchase is being charged to the budget of another department. In that case, the supervisor or department manager that is responsible for the budget shall approve the request.

Supervisors and managers have approval authority to the limits as published by the CFO. If the supervisor is unavailable, another supervisor in the department can approve. If the department manager or another supervisor within the department is unavailable, another department manager can approve the purchase request. Any transaction exceeding the approval authority of the department manager must be approved by the CEO or by the manager acting in capacity (AIC) for the CEO. The CFO will serve as the approval authority for all purchases of the CEO.

Master service agreements, task-order agreements, indefinite delivery/indefinite quantity agreements, and other similar agreements that do not have a specific dollar amount must be approved by the CEO. Approval authority for task orders issued based on these agreements are established by the purchasing limits published by the CFO.

8.3.1.2 Purchase Orders

Purchase orders are required for all purchases more than $1,000 unless otherwise authorized in advance by the CFO or CEO.

8.3.1.3 Splitting of Purchases

Purchases may not be split into multiple transactions to avoid the application of these Policies. Splitting a purchase is the act of creating two purchases that have one purpose with the intent of avoiding requirements of these Policies and the associated management controls. Intentionally splitting a purchase to defeat the internal controls can be gross misconduct and subject the offender to sanctions up to, and including, termination for dishonesty.

8.3.2 Obligations (Contracts, Leases, Etc.)

The District is required to track its contracts, leases, and other obligations as part of its financial reporting requirements. The CFO shall develop and maintain a process of recording these obligations with sufficient detail to report the District's obligations.

9 BUSINESS CASE EVALUATIONS

9.1 PURPOSE

The District strives to reduce costs and improve service quality. A proper evaluation of how to commit the District's resources in an alternative manner has the potential to both reduce costs and improve service quality.

Often there are multiple options for delivering a service. The business case evaluation for service delivery alternatives should be done thoroughly and objectively with the goal of acting as a steward for the public financial resources.

A business case evaluation captures the rationale for undertaking a specific project or task. It should be presented in a well-structured written document but may also be a short verbal agreement or presentation. Business case evaluations are used to guide the expenditure of resources, so that the expenditures are known or expected to support a commensurate business need of the District.

9.2 GOALS

The goal of these Policies is to promote efficient resource allocation through well-informed decision-making by the District. These Policies shall provide guidance for conducting benefit-cost and cost-effectiveness analyses. These Policies shall also provide specific guidance on the discount rates to be used in evaluating alternative programs at the District whose benefits and costs are distributed over time.

The economic resource available to the District are public resources that require prudent management. The Policies on business case evaluations are intended to:

1. Protect the District's economic resources by forecasting the expected returns from the District's efforts and investments.

2. Provide a common framework for evaluating business decisions throughout the District consistent with the District's fundamental economic and financial circumstances.

9.3 REQUIREMENTS

9.3.1 Business Case Evaluation Guidelines

The CFO shall periodically publish guidelines for the conduct of business case evaluations at the District. These guidelines shall provide a framework for the consistent evaluation of alternatives throughout the District and require the use of appropriate financial and economic techniques.

9.3.2 Least-Cost Requirement

As part of its business case evaluation, the District shall evaluate alternatives to identify the alternative that meets the service level at the least cost. In cases where the service level can vary, the District shall consider both the costs and the benefits in its evaluation.

The guidelines published by the CFO described in Section 9.3.1 above may exclude certain fixed costs of the District from the evaluation when including those fixed costs would result in an improper business decision based on the District's least-cost requirement Policy.

9.3.3 Discount Rates

The CFO shall periodically publish appropriate Discount rates to be used in conducting business case evaluations. The Discount rates shall reflect the CFO's best estimate of the District's cost of capital for varying terms.

10 OTHER BOARD FINANCIAL GOALS AND OBJECTIVES

10.1 PURPOSE

The Board has adopted other financial goals and objectives that do not fall within one of the categories listed above. The Policies related to those goals and objectives are included in this section.

10.2 GOALS

These Policies provide additional guidance to management on other Board financial goals and objectives.

10.3 REQUIREMENTS

10.3.1 Water Supply

10.3.1.1 Purchased Water

The District shall purchase water for distribution in a manner that balances the need to minimize cost and maximize water quality and reliability for its customers.

10.3.1.2 Multiple Sources of Water Supply

The District is committed to resiliency and reliability of service. In achieving that goal, the District will have access to multiple sources of supply with the goal to provide redundant supplies to all customers.

10.3.2 Asset Management Plan

Renewing and replacing the District's infrastructure is an ongoing task. The District shall maintain an Asset Management Plan that protects the value of the District's infrastructure and maximizes the value of the District's expenditures on operations and maintenance.

The District's Asset Management Plan shall make sure that planned maintenance can be conducted and capital assets (pumps, motors, pipes, fleet, information technology equipment, etc.) can be repaired, replaced, or upgraded on time. The District's Asset Management Plan should address the:

1. Current state of the District's assets.
2. District's required "sustainable" level of service.
3. Assets that are critical to sustained performance.
4. District's minimum life-cycle costs

The Asset Management Plan should provide the District critical information on capital assets and timing of investments. The Asset Management Plan should include an inventory of critical assets, evaluation of their condition and performance, and strategies to maintain, repair, and replace assets and to fund these activities.

The Asset Management Plan should result in the management of infrastructure capital assets to optimize the total cost of owning and operating these assets while prudently managing risks and delivering the desired service levels. The District shall use the Asset Management Plan to pursue and achieve sustainable infrastructure. The Asset Management Plan shall be used in the District's Capital Planning (see Section 3.4.6 above).

APPENDIX A

Financial Plan Assumptions

DEBT CAPACITY

The Financial Plan shall rely on no more than $600 million in debt to fund the District's capital expenditures through 2030.

ISSUANCE COSTS

Issuance costs for revenue bonds shall be estimated at 1.5% of the par amount of the bond issue.

TERM

The term assumed for future revenue bond issues shall be 30 years. The term for federal or state loan programs shall be the maximum allowed within the program unless a shorter duration is in the financial interest of the District.

INTEREST RATES

Presented below are the assumed interest rates to be included in the financial plan:

Description	FY2019	FY2020	FY2021	FY2022	FY2023
Future Revenue Bond Issues	5.00%	5.00%	5.00%	5.50%	5.50%
Earnings	2.35%	2.70%	3.00%	3.25%	3.50%
	FY2024	FY2025	FY2026	FY2027	FY2028
Future Revenue Bond Issues	5.50%	5.50%	5.50%	5.50%	5.50%
Earnings	3.50%	3.50%	3.50%	3.50%	3.50%

DEBT SERVICE RESERVE FUND

Depending on market conditions, a debt service reserve may not be required. However, the Financial Plan shall assume a debt service reserve as the minimum of:

1. The maximum annual debt service for a future revenue bond
2. 125% of the average annual debt service for a future revenue bond issue
3. 10% of the par amount of a future revenue bond issue.

DEBT SERVICE COVERAGE RATIOS

The target for the debt service coverage ratios used in the Financial Plan shall be:

1. 2.0x by including SDCs in gross revenues.
2. 1.5x by excluding SDCs in gross revenues.

ADDITIONAL BONDS TEST
The Financial Plan shall use an additional bonds test ratio of 1.3x by including SDCs in gross revenues and 1.15x by excluding SDCs from gross revenues.

MINIMUM CASH BALANCES
The Financial Plan shall include 250 days of forecast operations and maintenance expense as the minimum cash balances. The minimum is in addition to any balances in a debt service reserve account.

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Tualatin Valley Water District Six-Year CIP Planned Expenditures (FY2020-25)

PROJECT TITLE	Project Page	2019-2021 Biennial Budget 6-Year CIP FY2020 Requested	FY2021 Requested	FY2022 Projected	FY2023 Projected	FY2024 Projected	FY2025 Projected	Six-Year FY2020-25	Future Years
SOURCE: TVWD									
Metzger Supply Improvements for WWSS	1	$ -	$ -	$ -	$ 574,000	$ -	$ -	$ 574,000	$ -
WCSL valve & Center St Seismic & Piping Improvements	2	-	-	1,110,000	-	-	-	1,110,000	-
Miller Hill ASR	3	103,500	-	-	-	-	-	103,500	-
Water Quality Integration Projects	4	-	-	-	115,000	119,000	-	234,000	-
TOTAL SOURCE: TVWD		$ 103,500	$ -	$ 1,110,000	$ 689,000	$ 119,000	$ -	$ 2,021,500	$ -
STORAGE									
ST-9 Grabhorn Reservoir Replacement - Tank 1 (5 MG)	5	$ 362,500	$ -	$ -	$ -	$ -	$ -	$ 362,500	$ -
ST-3 Goyak Reservoir Seismic Upgrades	6	-	-	416,000	430,500	-	-	846,500	-
ST-4 Cooper Mountain 3 Reservoir	7	-	-	-	-	2,970,000	3,075,000	6,045,000	-
Taylors Ferry Reservoir Replacement & Seismic Upgrades	8	-	1,030,000	6,950,000	-	-	-	7,980,000	-
ST-1 Rosander 2 Reservoir	9	-	-	-	-	-	-	-	3,495,000
ST-8 Reservoir Isolation Valve Program	10	51,800	-	-	-	-	-	51,800	2,119,200
Florence Lane Reservoir Coatings & Cathodic Improvements	11	-	696,500	-	-	-	-	696,500	-
Steel Reservoir Gutters and Downspouts	12	20,700	21,400	-	-	-	-	42,100	-
Somerset Reservoir Modifications	13	-	321,500	-	-	-	-	321,500	-
TOTAL STORAGE		$ 435,000	$ 2,069,400	$ 7,366,000	$ 430,500	$ 2,970,000	$ 3,075,000	$ 16,345,900	$ 5,614,200
PUMP STATIONS									
Catlin Crest / Viewmont pump station replacement/relocation	14	$ 207,000	$ -	$ -	$ -	$ -	$ -	$ 207,000	$ -
BP-1 Cooper Mountain Booster Pump Station Expansion	15	-	-	332,500	2,765,000	-	-	3,097,500	-
BP-4 Farmington Road BPS	16	621,000	4,745,000	-	-	-	-	5,366,000	-
BP-6 Rosander Booster Pump Station	17	-	-	-	-	-	-	-	3,115,000
Florence Lane Booster Pump Station Improvements	18	-	-	-	344,500	2,860,000	-	3,204,500	-
Taylors Ferry Booster Pump Station	19	-	75,000	628,500	-	-	-	703,500	-
Pump Replacement Program	20	124,000	128,500	133,000	137,500	142,500	147,500	813,000	5,261,000
TOTAL PUMP STATIONS		$ 952,000	$ 4,948,500	$ 1,094,000	$ 3,247,000	$ 3,002,500	$ 147,500	$ 13,391,500	$ 8,376,000
PIPELINE									
P-4 Mains Replacement Program	21	$ 2,135,000	$ 1,820,000	$ 6,465,000	$ 6,435,000	$ 9,145,000	$ 10,660,000	$ 36,660,000	$ 350,750,000
Pettygrove & 135th Ave Main Replacement & Fireflow	22	683,000	-	-	-	-	-	683,000	-
NW 119th Ave Main Replacement	23	931,500	-	-	-	-	-	931,500	-
SW Greenberg - Oak to Prospect	24	-	1,110,000	-	-	-	-	1,110,000	-
SW Tualatin Valley Hwy	25	-	988,500	-	-	-	-	988,500	-
Todd St & Linda Ln - Mainline replacement & upgrade	26	-	1,145,000	-	-	-	-	1,145,000	-
Pipeline Upgrades and Renewals - Agency Driven									
Agency-Driven Pipeline Upgrade & Renewal Projects	27	51,800	760,500	1,185,000	1,230,000	1,270,000	1,315,000	5,812,300	46,915,000
SW 198th- Farmington Rd to TV Hwy Pipeline Relocation	28	841,500	-	-	-	-	-	841,500	-
80th Ave at Florence Lane & Taylors Ferry Rd Pipeline Relocation	29	467,000	-	-	-	-	-	467,000	-
Jenkins Road Bridge Pipeline Relocation	30	186,500	-	-	-	-	-	186,500	-
Walker Rd 12" Replacement - 185th to 174th	31	-	385,500	-	-	-	-	385,500	-
Development Opportunity & Reimbursement Projects									
Unidentified Development Opportunity & Reimbursement Projects	32	259,000	268,000	277,000	287,000	297,000	307,500	1,695,500	10,961,000

CIP 2019-21 Proposed

6 year Summary

Tualatin Valley Water District Six-Year CIP Planned Expenditures (FY2020-25)

PROJECT TITLE	Project Page	FY2020 Requested	FY2021 Requested	FY2022 Projected	FY2023 Projected	FY2024 Projected	FY2025 Projected	Six-Year FY2020-25	Future Years
		2019-2021 Biennial Budget 6-Year CIP							
Transmission Improvement Program	33	-	-	-	-	-	-	-	171,441,000
Fire Flow Improvements									
P-156 - Metzger N-S 498 Zone Improvements	34	6,925,000	-	-	-	-	-	6,925,000	-
P-166 - Hampton St from 68th Ave to 66th Ave	35	155,500	1,090,000	-	-	-	-	1,245,500	-
P-164 - 69th Ave from Dartmouth St to Atlanta St	36	51,800	483,000	-	-	-	-	534,800	-
P-161 - Pacific Hwy from Hwy 217 to 71st Ave	37	-	-	1,110,000	1,855,000	-	-	2,965,000	-
P-80 - Viewmont Dr south of Barnes	38	-	-	-	215,500	-	-	215,500	-
P-165 - 72nd Ave from Cherry Dr to Hunziker	39	-	-	-	-	297,000	1,405,000	1,702,000	-
P-99 - Polsky Rd / Hawthorne Ln / to Scenic Dr	40	-	-	-	-	356,500	2,900,000	3,256,500	-
Future Fire Flow Improvements	41								***72,864,100***
Other Pipeline									
P-5 Farmington Rd BPS 16-inch Discharge Main	42	414,000	4,275,000	-	-	-	-	4,689,000	-
North Road Pipeline Landslide Repair	43	400,000	-	-	-	-	-	400,000	-
Minor System Improvements	44	103,500	107,000	111,000	115,000	119,000	123,000	678,500	-
Metzger Pipeline East	45	4,591,157	5,592,846	28,801,425	46,651,365	15,030,323	1,440,443	102,107,561	-
Metzger Pipeline East Real Estate	46	623,140	429,970	-	-	-	-	1,053,110	-
Metzger Pipeline East System-wide Costs	47	1,460,136	1,478,384	1,441,661	1,417,245	1,506,140	1,534,404	8,837,971	-
PRV / Vault Replacements & Upgrades: Unidentified Projects	48	221,500	229,000	237,500	245,500	254,000	263,000	1,450,500	9,382,500
Transmission Mains CARV Rehabilitation	49	103,500	107,000	111,000	115,000	119,000	123,000	678,500	-
TOTAL PIPELINE		$ 20,604,533	$ 20,269,701	$ 39,739,586	$ 58,566,610	$ 28,393,963	$ 20,071,347	$ 187,645,741	$ 662,313,600
FACILITIES									
Seismic Upgrades District Headquarters	50	$ -	$ -	$ 1,185,000	$ -	$ -	$ -	$ 1,185,000	$ -
Engineering/Operations Space Reorganization	51	165,500	139,500	-	-	-	-	305,000	-
Headquarters Lobby Improvements	52	155,500	-	-	-	-	-	155,500	-
Headquarters Yard Modifications	53	-	289,000	-	-	-	-	289,000	-
Safety and Security Improvements	54	207,000	214,000	55,400	-	-	-	476,400	-
Board Room Audio Visual Improvements	55	186,500	-	-	-	-	-	186,500	-
HVAC Replacements	56	31,100	160,500	83,200	-	-	-	274,800	-
Headquarters Lighting Improvements	57	20,700	32,100	33,300	-	-	-	86,100	-
TOTAL FACILITIES		$ 766,300	$ 835,100	$ 1,356,900	$ -	$ -	$ -	$ 2,958,300	$ -
FLEET									
Fleet Replacements (per schedule)	58	$ 674,000	$ 637,500	$ 499,000	$ 516,500	$ 534,500	$ 553,000	$ 3,414,500	$ 19,730,000
TOTAL FLEET		$ 674,000	$ 637,500	$ 499,000	$ 516,500	$ 534,500	$ 553,000	$ 3,414,500	$ 19,730,000
INFORMATION TECHNOLOGY									
Customer Information System	59	3,110,000	5,070,000	1,225,000	-	-	-	9,405,000	-
TOTAL INFORMATION TECHNOLOGY		$ 3,110,000	$ 5,070,000	$ 1,225,000	$ -	$ -	$ -	$ 9,405,000	$ -
METERS AND SERVICES									
Service Installations	60	$ 1,335,000	$ 1,490,000	$ 1,540,000	$ 1,595,000	$ 1,650,000	$ 1,710,000	$ 9,320,000	$ 56,560,000
Customer Service: Meter Installations	61	238,500	270,500	-	-	-	-	509,000	-
Automated Meter Reading Program (AMR)	62	-	-	-	-	-	-	-	-
TOTAL METERS AND SERVICES		$ 1,573,500	$ 1,760,500	$ 1,540,000	$ 1,595,000	$ 1,650,000	$ 1,710,000	$ 9,829,000	$ 56,560,000

CIP 2019-21 Proposed 6-year Summary

Tualatin Valley Water District Six-Year CIP Planned Expenditures (FY2020-25)

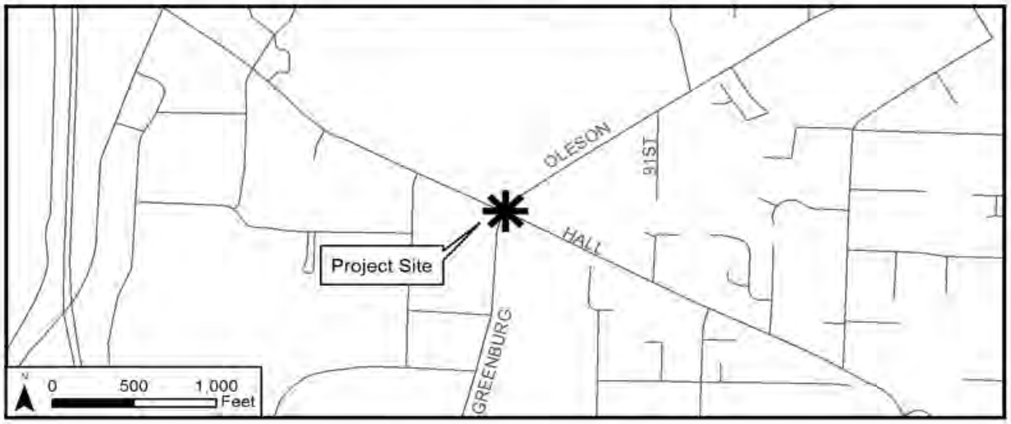
PROJECT TITLE	Project Page	FY2020 Requested	FY2021 Requested	FY2022 Projected	FY2023 Projected	FY2024 Projected	FY2025 Projected	Six-Year FY2020-25	Future Years
		2019-2021 Biennial Budget 6-Year CIP							
JOINT VENTURES									
Joint Venture: WIF	63	$ 350,765	$ 3,271,701	$ 2,128,537	$ -	$ -	$ -	$ 5,751,002	$ -
Joint Venture: WWSS	64	47,348,659	62,432,264	79,896,470	148,166,181	117,680,516	48,006,928	503,531,018	36,982,798
JWC WTP improvements to existing 75 MGD	65	303,500	-	-	-	-	-	303,500	-
JWC WTP improvements to increase to 85 MGD	66	427,500	-	-	-	-	-	427,500	-
JWC Fern Hill Reservoir 1 Repair	67	100,000	-	-	-	-	-	100,000	-
JWC Misc. Capital Projects, Repairs, & Replacements	68	213,000	310,500	312,000	176,000	243,000	251,500	1,506,000	10,513,500
BRJOC Capital Repair/Replacement	69	81,300	46,900	48,500	50,200	52,000	53,800	332,700	1,918,300
JWC Water Line Cathodic Protection	70	21,200	45,700	47,300	48,900	50,700	52,400	266,200	228,800
JWC Powder Activated Carbon Injection System Expansion	71	26,500	128,000	-	-	-	-	154,500	-
JWC Spring Hill Pumping Plant Mitigation Project	72	39,700	100,500	-	-	-	-	140,200	-
JWC Disinfection Facility (chlorine replacement)	73	-	18,300	428,500	222,000	-	-	668,800	-
JWC Intake Facility Expansion Site	74	106,000	-	-	-	-	-	106,000	-
JWC Equipment Replacement	75	341,200	-	341,200	-	341,200	-	1,023,600	4,094,400
TOTAL JOINT VENTURES		$ 49,359,323	$ 66,353,865	$ 83,202,507	$ 148,663,281	$ 118,367,416	$ 48,364,628	$ 514,311,020	$ 53,737,798
TOTAL CIP		$ 77,578,157	$ 101,944,565	$ 137,132,993	$ 213,707,891	$ 155,037,379	$ 73,921,476	$ 759,322,461	$ 806,331,598
TOTAL CIP *less* JOINT VENTURES		$ 28,218,833	$ 35,590,701	$ 53,930,486	$ 65,044,610	$ 36,669,963	$ 25,556,847	$ 245,011,441	$ 752,593,800

CIP 2019-21 Proposed

6-year Summary

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE: Metzger Supply Improvements for WWSS



KEY DRIVERS FOR CIP PROJECT		
1.	Project Urgency	Associated improvements required to take water from the Willamette Water Supply System, and required to be done by 2026.
2.	Growth/Future Demands	Allows / supports additional growth and offsets reduction in Portland water.
3.	Reliability	The WWSS will be designed and constructed to current seismic resiliency standards.

PROJECT DESCRIPTION

These improvements will include operational and any other changes necessary to operate the new supply from the Willamette. The goal of this project is to move water from the WWSS turnout at Hall Blvd & Oleson Road to the Florence Lane tanks with the goal of maintaining low water age. The above-ground flow control facility, meter vault, and valving will be budgeted and delivered by the WWSP.

PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	Source	Water Rates:	Yes	There will be some minor increases to District operating costs for added infrastructure.
		Service Fees:	No	
Project Manager:	Nick Augustus	SDC Improvemt. Fee Elg.:	61%	
Work Performed By:	Outside Contract			
Total Priority Score:	26	Partner Cost Percentage:	0%	

BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
-	-	-	-	-	574,000	-	-	574,000	-

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE:	WCSL valve & Center St Seismic & Piping Improvements

KEY DRIVERS FOR CIP PROJECT		
1.	Project Urgency	Associated improvements required to take water from the Willamette Water Supply System, and required to be done by 2026.
2.	Growth/Future Demands	Allows / supports additional growth and offsets reduction in Portland water.
3.	Reliability	The WWSS will be designed and constructed to current seismic resiliency standards.

PROJECT DESCRIPTION

These improvements include potentially installing a valve on the WCSL near the Inglewood connection to the 54" supply. It will also include seismic and other improvements at the Center Street generator facility to allow full utilization of the WWSS.

PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	Source	Water Rates:	Yes	No anticipated impact on District operating costs.
		Service Fees:	No	
Project Manager:	Nick Augustus	SDC Improvemt. Fee Elg.:	61%	
Work Performed By:	Outside Contract			
Total Priority Score:	26	Partner Cost Percentage:	0%	

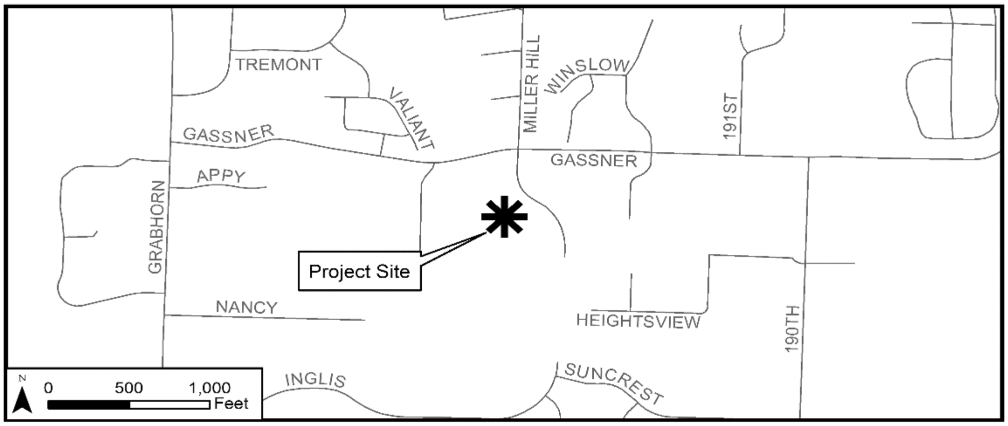
BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
-	-	-	-	1,110,000	-	-	-	1,110,000	-

CIP 2019-21 Proposed CIP - 2

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE: **Miller Hill ASR**



KEY DRIVERS FOR CIP PROJECT		
1.	Project Urgency	On-going project to make the ASR functional.
2.	Growth/Future Demands	The original design of the ASR was to account for additional growth and water demand in the Cooper Mountain area.
3.	Reliability	The new facility is designed to meet seismic standards.

PROJECT DESCRIPTION

This project includes a new two million gallons-per-day (MGD) ASR facility located on Cooper Mountain to provide additional storage and supply to meet peak summer demands. It is the second TVWD ASR facility, joining the Grabhorn ASR that has been in operation for 11 years. The project is expected to be placed in service this biennium.

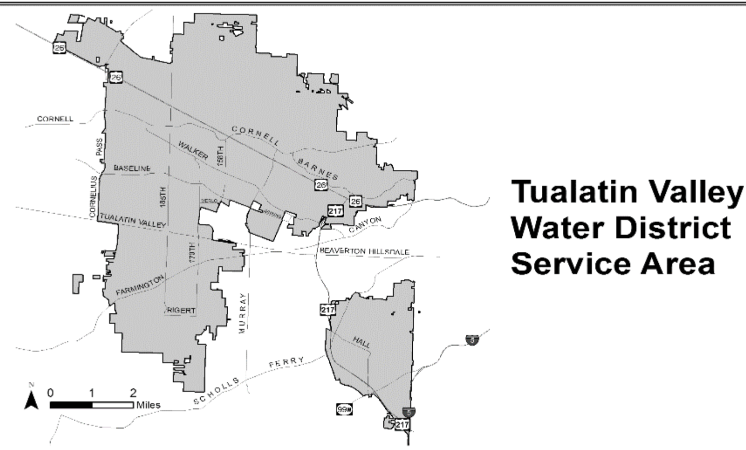
PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	Source	Water Rates:	Yes	Operating costs will increase if this project is completed and placed into service.
		Service Fees:	No	
Project Manager:	Pete Boone	SDC Improvemt. Fee Elg.:	85%	
Work Performed By:	Outside Contract			
Total Priority Score:	25	Partner Cost Percentage:	0%	

BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
-	336,270	103,500	-	-	-	-	-	103,500	-

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE: Water Quality Integration Projects



KEY DRIVERS FOR CIP PROJECT		
1.	Water Quality	This project is to address water quality considerations prior to the WWSS being tested and implemented as a source of supply.
2.	Growth/Future Demands	Projects associated with the WWSS allows / supports additional growth and offsets reduction in Portland water.
3.	Project Urgency	This work is necessary to be done prior to 2026.

PROJECT DESCRIPTION

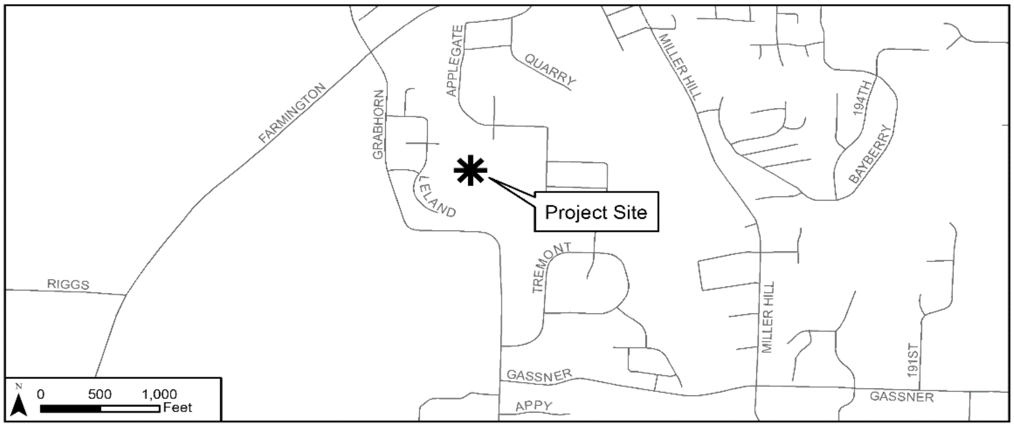
These projects will be done in collaboration with the water system integration study and recommendations proposed as part of the WWSS. A Water Quality Integration firm has been hired as part of the WWSS and will be developing recommendations in collaboration with District personnel. Projects identified as part of that study will be implemented under this line item. These projects could include removing existing piping and other activities to study the future impact of changing water sources.

PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	Source	Water Rates:	Yes	No anticipated impact on District operating costs.
		Service Fees:	No	
Project Manager:	Joel Cary	SDC Improvemt. Fee Elg.:		
Work Performed By:	Outside Contract		61%	
Total Priority Score:	28	Partner Cost Percentage:		
			0%	

BUDGET INFORMATION & PROJECTED COSTS									
FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
-	-	-	-	-	115,000	119,000	-	234,000	-

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE:	ST-9 Grabhorn Reservoir Replacement - Tank 1 (5 MG)



KEY DRIVERS FOR CIP PROJECT		
1.	Project Urgency	This project is on-going and nearing completion. The budget accounts for items associated with final completion of the project.
2.	Asset Condition	The existing reservoir was in disrepair and at the end of its useful life.
3.	Reliability	Improvements required to maintain reliable and seismically resilient facilities.

PROJECT DESCRIPTION
This project involves the demolition of the existing 5 MG concrete reservoir, then design and construction of a 5 MG pre-stressed concrete reservoir within the footprint of the existing reservoir. Onsite piping and valves will also be replaced.

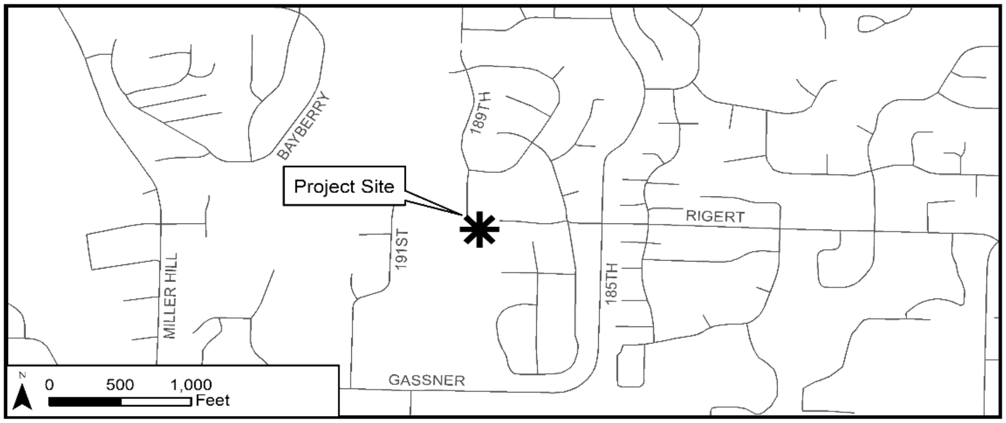
PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	Storage	Water Rates:	Yes	No anticipated impact on District operating costs. This project replaces existing infrastructure. Near-term operating costs are anticipated to be reduced.
		Service Fees:	No	
Project Manager:	Andrew Barrett	SDC Improvemt. Fee Elg.:	0%	
Work Performed By:	Outside Contract			
Total Priority Score:	30	Partner Cost Percentage:	0%	

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
10,915,898	14,614,782	362,500	-	-	-	-	-	362,500	-

CIP 2019-21 Proposed CIP - 5

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE: ST-3 Goyak Reservoir Seismic Upgrades



KEY DRIVERS FOR CIP PROJECT		
1.	Project Urgency	The existing facility is in need of roof maintenance and seismic improvements. The reservoir cannot be completed until a second source of supply to the Cooper Mountain area is complete.
2.	Asset Condition	The facility was constructed in 1974 and is in need of maintenance in order to keep the reservoir functioning as intended.
3.	Reliability	This will bring the reservoir into compliance with seismic standards.

PROJECT DESCRIPTION

Structural upgrades are recommended for the Goyak Reservoir to improve seismic resilience at the facility. These upgrades were first recommended in the Concrete Water Reservoir Seismic Rehabilitation Project (2002, CH2MHILL) with a construction cost of $340,000. In addition, the updated project includes repairs to fix leaking in the reservoir floor, which was estimated at $20/square-foot. Farmington Road BPS and discharge main are necessary prior to performing these upgrades to reduce risk.

PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	Storage	Water Rates:	Yes	This project will reduce immediate maintenance costs, and will bring the tank up to current seismic standards. On-going maintenance is anticipated.
		Service Fees:	No	
Project Manager:	Ryan Smith	SDC Improvemt. Fee Elg.:	0%	
Work Performed By:	Outside Contract			
Total Priority Score:	27	Partner Cost Percentage:	0%	

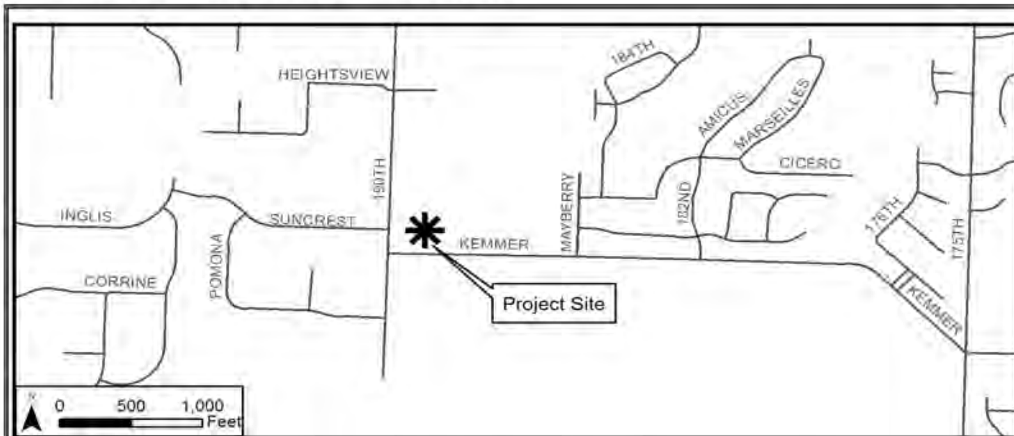
BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
-	-	-	-	416,000	430,500	-	-	846,500	-

CIP 2019-21 Proposed CIP - 6

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE: ST-4 Cooper Mountain 3 Reservoir



KEY DRIVERS FOR CIP PROJECT

1.	Project Urgency	There are increasing time sensitivities to complete this project due to growth in the area.
2.	Growth/Future Demands	The project is being done to address storage deficiencies related to fire flow in the Cooper Mountain area.
3.	Reliability	This reservoir will establish seismically resilient storage in the Cooper Mountain upper pressure zones.

PROJECT DESCRIPTION

The Cooper Mountain 3 Reservoir project is recommended to address storage deficiencies in the 800 Zone and to provide seismically resilient storage. It is assumed that this 2.5-MG reservoir will be constructed at a District-owned property adjacent to the existing Cooper Mountain Pump Station and Reservoir.

PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	Storage	Water Rates:	Yes	This replacement reservoir will result in a net 2.5 million gallon increase in storage with only a minor increase in operating costs for the first several years.
		Service Fees:	No	
Project Manager:	Andrew Barrett	SDC Improvemt. Fee Elg.:	85%	
Work Performed By:	Outside Contract			
Total Priority Score:	21	Partner Cost Percentage:	0%	

BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
-	-	-	-	-	-	2,970,000	3,075,000	6,045,000	-

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE: Taylors Ferry Reservoir Replacement & Seismic Upgrades

KEY DRIVERS FOR CIP PROJECT		
1.	Asset Condition	The existing concrete reservoir is approaching the end of its useful life. The concrete walls are cracked and an internal liner is being used to maintain a leak free reservoir. The steel tank is not seismically resilient, and the roof is in poor condition.
2.	Growth/Future Demands	Will provide additional storage required to accommodate projected growth in the Metzger service area.
3.	Reliability	Improvements required to provide a seismically resilient, reliable supply to the Metzger 498 pressure zone.

PROJECT DESCRIPTION

It is recommended that the District replace the existing 1.0-MG Taylors Ferry South Reservoir with a new 2.0-MG pre-stressed concrete reservoir in the same location, and that seismic upgrades and rehabilitation of the northern 2.3 MG steel tank be completed. These recommendations were first made in the Taylors Ferry Site Assessment (MSA, 2013) and it is reiterated here to improve the resiliency of storage in the Metzger service area. In the 2013 study, it was recommended that the northern 2.3 MG tank be rehabilitated and seismic upgrades be performed on that tank prior to replacing the southern tank due to the poor condition of the steel roof. A study is currently being done to further refine the scope and plan the site usage for this project. Potential FEMA funding for pre-disaster mitigation is being evaluated as a potential funding source for the northern steel tank. As part of this project, the existing office space is also being evaluated to provide more usable space of the site.

PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	Storage	Water Rates:	Yes	Operating costs will be reduced near term by removing the existing reservoir and constructing a new one in its place, and by maintaining the roof of the steel tank.
		Service Fees:	No	
Project Manager:	Andrew Barrett	SDC Improvemt. Fee Elg.:	31%	
Work Performed By:	Outside Contract			
Total Priority Score:	29	Partner Cost Percentage:	0%	

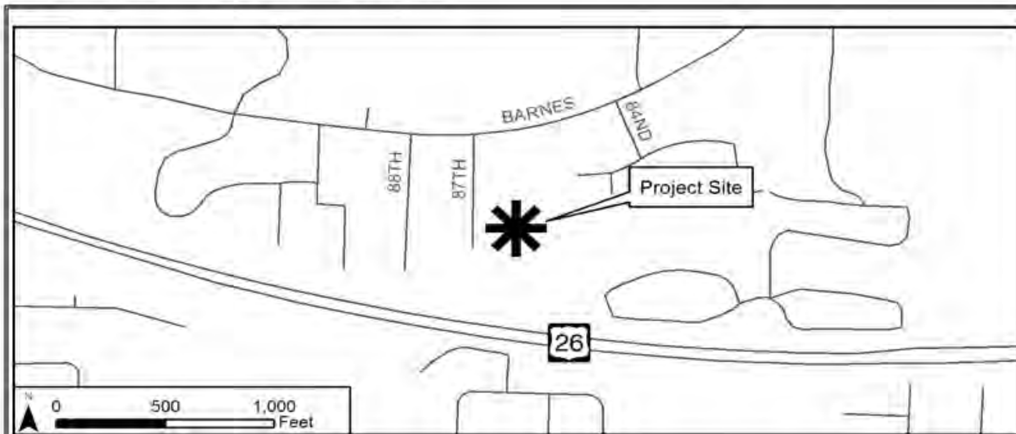
BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
-	100,000	-	1,030,000	6,950,000	-	-	-	7,980,000	

CIP 2019-21 Proposed CIP - 8

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE: ST-1 Rosander 2 Reservoir



KEY DRIVERS FOR CIP PROJECT		
1.	Project Urgency	This project will add additional storage to the 575 pressure zone and is expected to be completed mid-term.
2.	Growth / Future Demands	The reservoir will address storage deficiencies due to increased growth in the 575 pressure zone.
3.	Reliability	The new facility will be designed to meet current seismic standards.

PROJECT DESCRIPTION

The Rosander 2 Reservoir project is recommended to address long-term storage deficiencies in the West Hills 575 Zone and to provide seismically resilient storage. It is assumed that the existing reservoir will remain in service while a new 1.0-MG reservoir is constructed along with the Rosander Pump Station Project (BP-6).

PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	Storage	Water Rates:	Yes	There will be a minor increase in operating expenses by adding a new facility.
		Service Fees:	No	
Project Manager:	Andrew Barrett	SDC Improvemt. Fee Elg.:	50%	
Work Performed By:	Outside Contract			
Total Priority Score:	21	Partner Cost Percentage:	0%	

BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
-	-	-	-	-	-	-	-	-	3,495,000

CIP 2019-21 Proposed CIP - 9

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE:	ST-8 Reservoir Isolation Valve Program

KEY DRIVERS FOR CIP PROJECT		
1.	Project Urgency	The valve isolation program could be required at any time due to seismic hazards in the area.
2.	Customer Criticality	This project could help maintain vital water resources for a large customer base.
3.	Reliability	The new valves will address seismic concerns for select facilities.

PROJECT DESCRIPTION

Seismically-activated isolation valves are recommended where one or more storage facilities are available to a pressure zone or operating area. Facilities with the valves are assumed to be isolated following a seismic event, thereby preventing water from draining into a leaking system. Seismically-actuated isolation valves are recommended for 11 of the District's 26 planned reservoirs for 2064. Each isolation valve will require an electronically actuated valve with control box, flow monitoring, and transmission equipment for SCADA. The District is currently evaluating the Shakealert system being implemented by the USGS. The District anticipates upgrading existing seismic valves to a Shakealert system in the near-term and evaluating other locations for installation in the future.

PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	Storage	Water Rates:	Yes	There will be a minor increase to operating expenses to incorporate and maintain the seismic isolation valves including power and an ethernet connection. Other operating expenses for the shakealert system are covered under the program.
		Service Fees:	No	
Project Manager:	Nick Augustus	SDC Improvemt. Fee Elg.:	0%	
Work Performed By:	Outside Contract			
Total Priority Score:	20	Partner Cost Percentage:	0%	

BUDGET INFORMATION & PROJECTED COSTS

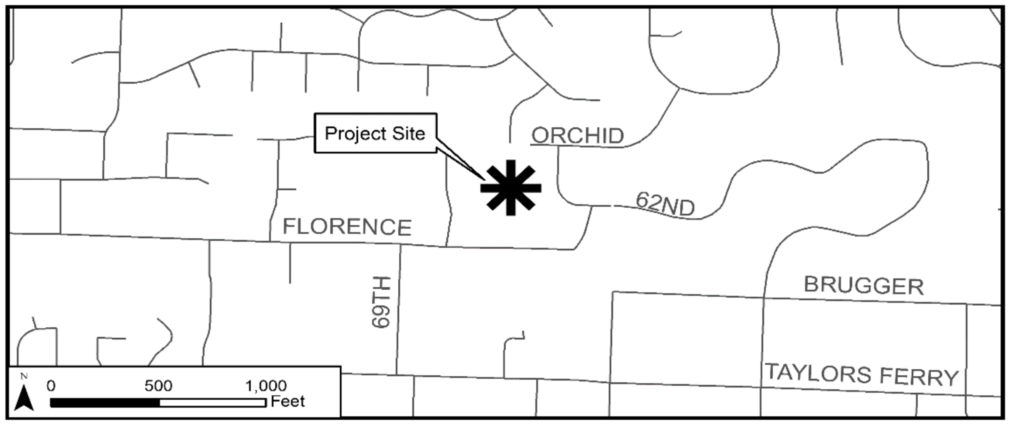
FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
-	-	51,800	-	-	-	-	-	51,800	2,119,200

CIP 2019-21 Proposed

CIP - 10

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE: Florence Lane Reservoir Coatings & Cathodic Improvements



KEY DRIVERS FOR CIP PROJECT		
1.	Project Urgency	This maintenance project should be completed near-term.
2.	Asset Condition	The existing reservoir roof is corroding and in need of repair. This project is anticipated to extend the life of the asset.
3.	Reliability	This project is necessary to maintain reliable service. No seismic improvements are anticipated with this project.

PROJECT DESCRIPTION

The reservoir coatings are in poor condition and are in need of replacement. In addition, gutters and downspouts will reduce algae growth that is common on exterior tank walls, and will extend the life of the new coatings. This project involves sandblasting and recoating areas of coating failures. Containment is required to reduce impact to surrounding properties.

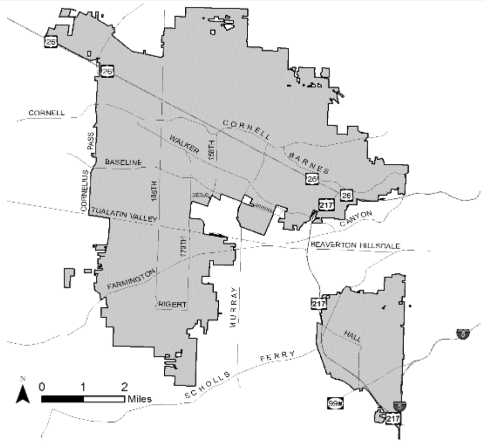
PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	Storage	Water Rates:	Yes	No anticipated impact on District operating costs.
		Service Fees:	No	
Project Manager:	Pete Boone	SDC Improvemt. Fee Elg.:	0%	
Work Performed By:	Outside Contract			
Total Priority Score:	29	Partner Cost Percentage:	0%	

BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
-	-	-	696,500	-	-	-	-	696,500	-

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE: Steel Reservoir Gutters and Downspouts



KEY DRIVERS FOR CIP PROJECT		
1.	Project Urgency	This maintenance project should be completed near-term.
2.	Asset Condition	The existing reservoir roof experiences algae growth and issues associated with that growth, reducing the life expectancy of coatings. This project is anticipated to extend the life of the asset.
3.	Reliability	This project is necessary to maintain reliable service.

PROJECT DESCRIPTION

This project would add gutters and downspouts to steel tanks. This will reduce the algae growth that is common on exterior tank walls which will extend the life of the coatings.

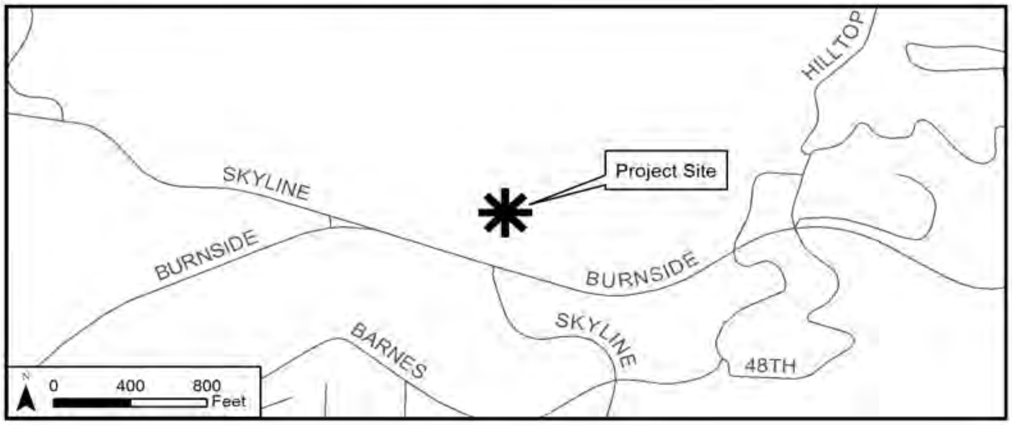
PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	Storage	Water Rates:	Yes	No anticipated impact on District operating costs.
		Service Fees:	No	
Project Manager:	Pete Boone	SDC Improvemt. Fee Elg.:	0%	
Work Performed By:	Outside Contract			
Total Priority Score:	17	Partner Cost Percentage:	0%	

BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
-	-	20,700	21,400	-	-	-	-	42,100	-

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE: **Somerset Reservoir Modifications**



KEY DRIVERS FOR CIP PROJECT		
1.	Project Urgency	This maintenance project should be completed near-term.
2.	Asset Condition	The existing reservoir is showing signs of corrosion and is in need of repair. This project is anticipated to extend the life of the asset.
3.	Safety / Security	The project will reduce risks associated with the outdated entry and access points.

PROJECT DESCRIPTION

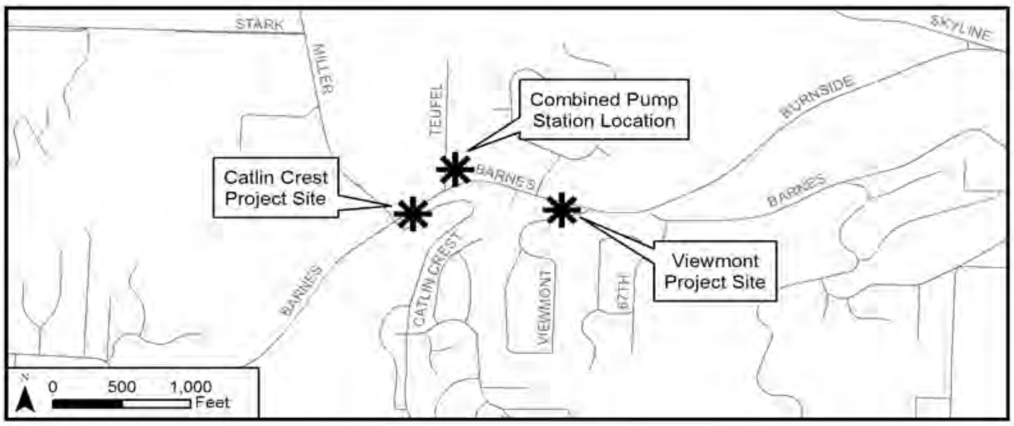
This project will install gutters and downspouts on the tank. It also includes replacing the existing hatch, removing the ladder cage to comply with OSHA standards and fix exterior coatings on the reservoir.

PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	Storage	Water Rates:	Yes	No anticipated impact on District operating costs.
		Service Fees:	No	
Project Manager:	Pete Boone	SDC Improvemt. Fee Elg.:	0%	
Work Performed By:	Outside Contract			
Total Priority Score:	17	Partner Cost Percentage:	0%	

BUDGET INFORMATION & PROJECTED COSTS									
FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
-	-	-	321,500	-	-	-	-	321,500	-

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE: Catlin Crest / Viewmont pump station replacement/relocation



KEY DRIVERS FOR CIP PROJECT		
1.	Safety / Security	This project will help offset fire flow deficiencies in the pressure zones served by the Catlin Crest and Viewmont pump stations, and it will improve safety for operators.
2.	Asset Condition	The Catlin Crest and Viewmont pump stations are nearing the end of their useful lives. Several failures have occurred and maintenance and repair costs have been increasing.
3.	Customers Served	These pump stations pump directly to service in pressure zones without storage or redundant supply, so their reliable operation is critical to providing water service to the areas that they serve.

PROJECT DESCRIPTION

The Catlin Crest and Viewmont pump stations provide water service to a portion of the West Hills. The pump stations are nearing end of life, they require additional fire flow capacity, and are located in vaults with difficult access. The project includes piping improvements, combines the two previously separate pressure zones, and will include backup power connections through the Teufel Pump Station. It also assumes that a "pitless" pump station will be constructed.

PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	Pump Station	Water Rates:	Yes	The new combined pump station will lower the District's maintenance costs due to replacing aging infrastructure.
		Service Fees:	No	
Project Manager:	Ryan Smith	SDC Improvemt. Fee Elg.:	0%	
Work Performed By:	Contract & District Staff			
Total Priority Score:	31	Partner Cost Percentage:	0%	

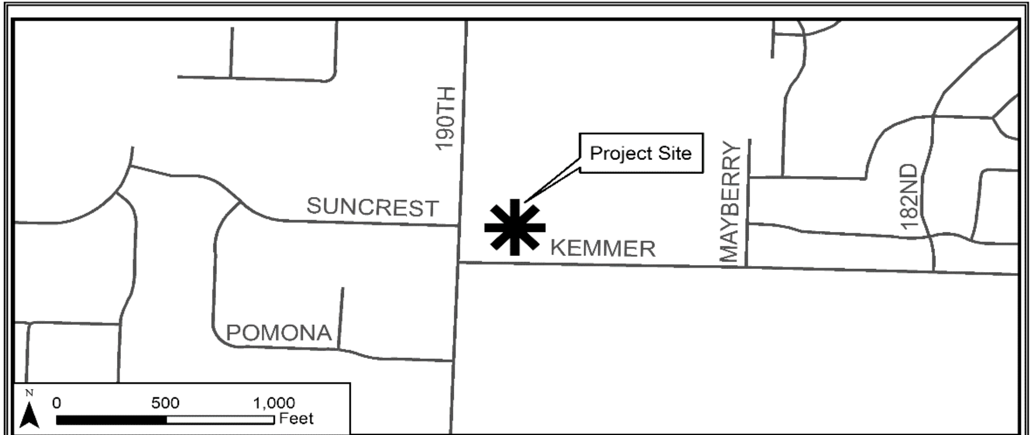
BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
750,000	534,400	207,000	-	-	-	-	-	207,000	-

CIP 2019-21 Proposed CIP - 14

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE:	BP-1 Cooper Mountain Booster Pump Station Expansion



KEY DRIVERS FOR CIP PROJECT		
1.	Safety & Security	This project will help offset fire flow deficiencies in the pressure zones served by the Cooper Mountain Pump Station. The 2015 Master Plan recommended a full replacement of the existing pump station. This project will improve the fire flow capacity in this area until funding is available for pump station replacement or rehabilitation.
2.	Customer Criticality	The Cooper Mountain Pump Station serves a significant portion of the District.
3.	Growth/Future Demands	This project will provide additional capacity to accommodate growth and future demands.

PROJECT DESCRIPTION

The Zone Supply Analysis determined that the existing Cooper Mountain Booster Pump Station (BPS) is deficient under firm and peak supply criteria. It is recommended that the District construct a new pump station or expand the existing Cooper Mountain BPS to provide an additional 0.5 mgd of firm capacity and 4 mgd of peak capacity for the 920 Operating Area. The District anticipates replacing 1 pump in order to delay the construction of a new pump station for two years.

PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	Pump Station	Water Rates:	Yes	This new pump station would replace the existing Cooper Mountain Pump Station resulting in a net no material impact to operating costs. Power costs may decrease slightly due to increased pumping efficiency.
		Service Fees:	No	
Project Manager:	TBD	SDC Improvemt. Fee Elg.:	100%	
Work Performed By:	Contract & District Staff			
Total Priority Score:	25	Partner Cost Percentage:	0%	

BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
-	-	-	-	332,500	2,765,000	-	-	3,097,500	-

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE: BP-4 Farmington Road BPS

KEY DRIVERS FOR CIP PROJECT		
1.	Reliability	This project is necessary to provide a seismically resilient and redundant feed to the 800 pressure zone on Cooper Mountain.
2.	Project Urgency	The urgency of this project is driven by the necessity to maintain and improve the single feed to the top of Cooper Mountain. The Goyak Reservoir and Pump Station requires repairs which cannot be done without a second feed to the upper pressure zones.
3.	Growth / Future Demands	This project will incorporate receiving water from the WWSS and pumping the water up the hill to the 800 pressure zone. It will address growth / future demands in the Cooper Mountain area.

PROJECT DESCRIPTION

It is recommended that the District provide supply redundancy to the Cooper Mtn Area, which currently has one supply source from the 385 Zone via the 189th and Goyak Pump Stations. This project includes constructing a new pump station at Farmington Road to lift water from both the 385 Zone, and the incoming Willamette Supply pressure to the 800 Zone with a firm capacity of 4 mgd and a peak capacity of 7.5 mgd. The site selected is at the District owned property at SW Farmington Road & SW 209th Avenue.

PROJECT INFORMATION	
Project Category:	Pump Station
Project Manager:	Andrew Barrett
Work Performed By:	Contract & District Staff
Total Priority Score:	29

FUNDING SOURCES	
Water Rates:	Yes
Service Fees:	No
SDC Improvemt. Fee Elg.:	77%
Partner Cost Percentage:	0%

FUTURE OPERATING COST IMPACT

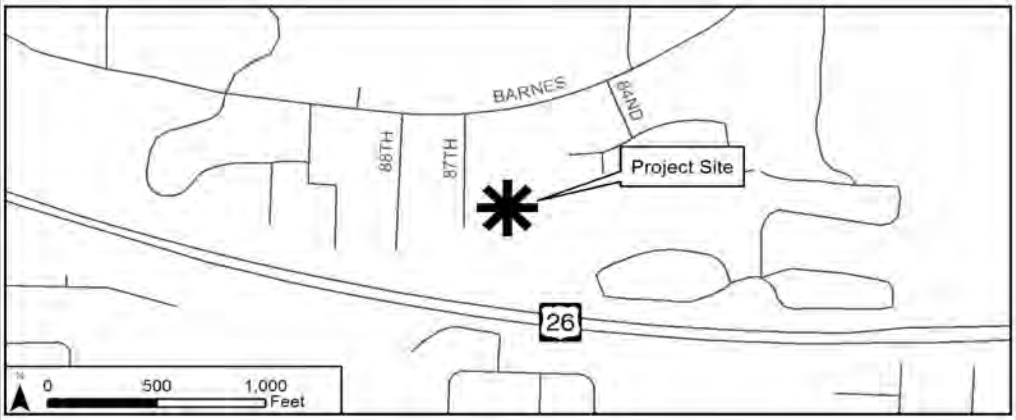
It is assumed that approximately $60,000/yr will be required for pumping from this new pump station, though these costs will be offset by reductions at the other parallel facilities. It will also add costs as a turnout and fluoride facility for the WWSS. This additional facility will require additional operator support to properly maintain. Approximately 1/3 FTE is anticipated.

BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
-	-	621,000	4,745,000	-	-	-	-	5,366,000	-

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE: BP-6 Rosander Booster Pump Station



	KEY DRIVERS FOR CIP PROJECT	
1.	Project Urgency	Adds redundancy to the West Hills pumping system.
2.	Growth/Future Demands	Provides pumping capacity to meet the demands of the projected growth in the West Hills area.
3.	Safety/Security	Pump Station will have secured access and be a seismically resilient facility.

PROJECT DESCRIPTION

Design, and construction of new Rosander Pump Station and 1,400 ft. of 24" discharge line to connect to existing 12" and 16" transmission lines near SW 84th. This project has been postponed until after 2024. It is intended to be constructed at the same time as the 2nd Rosander Reservoir.

PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	Pump Station	Water Rates:	Yes	The new pump station will replace the Sunset Pump Station and lower the District's maintenance costs.
		Service Fees:	No	
Project Manager:	Andrew Barrett	SDC Improvemt. Fee Elg.:	0%	
Work Performed By:	Contract & District Staff			
Total Priority Score:	24	Partner Cost Percentage:	0%	

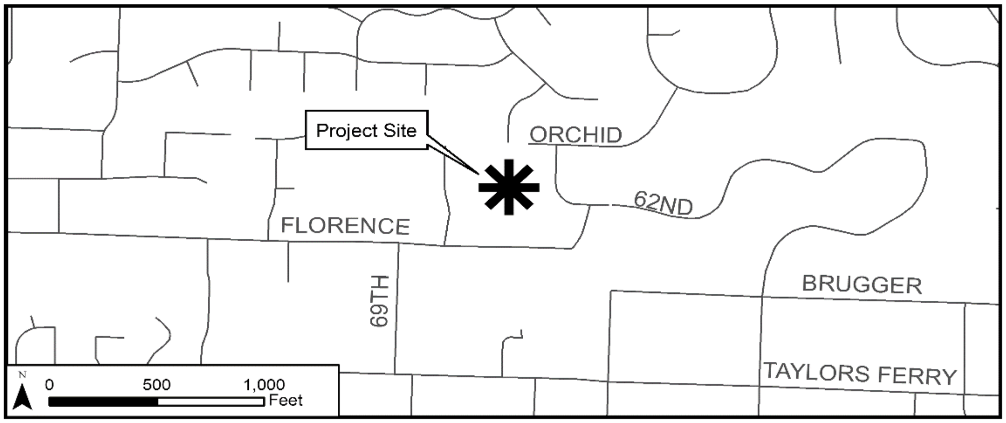
BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
-	-	-	-	-	-	-	-	-	3,115,000

CIP 2019-21 Proposed CIP - 17

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE:	Florence Lane Booster Pump Station Improvements



KEY DRIVERS FOR CIP PROJECT		
1.	Project Urgency	These improvements need to be done prior to 2026 in order to receive water from the WWSS.
2.	Reliability	The improvements will allow for reliable, seismically resilient supply.
3.	Customer Criticality	This project serves a large customer base.

PROJECT DESCRIPTION

This project provides improvements to the existing pump station and is necessary to provide a resilient supply from the WWSS which enters the 426 zone, to the 498 zone. Valving may be required to pump out of the reservoirs to allow for turnover of the reservoirs, thus reducing water age in the reservoir.

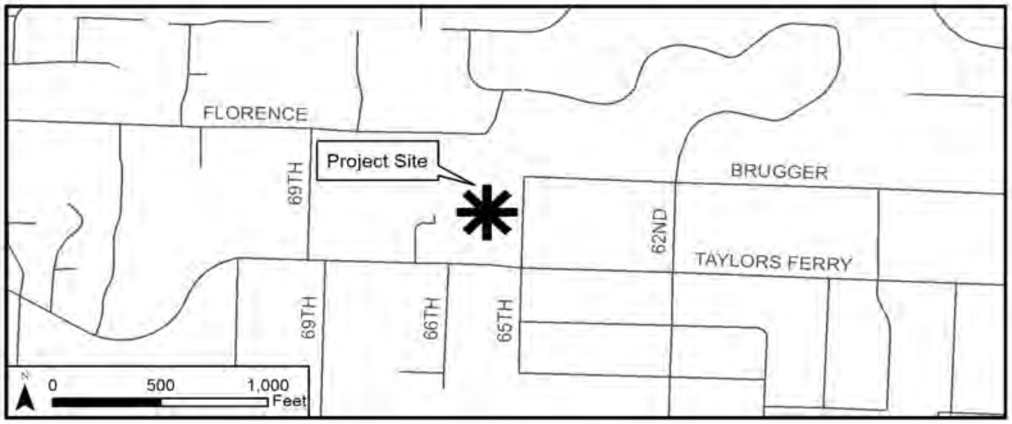
PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	Pump Station	Water Rates:	Yes	No anticipated impact on District operating costs.
		Service Fees:	No	
Project Manager:	Zach Lemberg	SDC Improvemt. Fee Elg.:		
Work Performed By:	Contract & District Staff		0%	
Total Priority Score:	25	Partner Cost Percentage:		
			0%	

BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
-	-	-	-	-	344,500	2,860,000	-	3,204,500	-

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE: Taylors Ferry Booster Pump Station



KEY DRIVERS FOR CIP PROJECT		
1.	Project Urgency	These improvements need to be done prior to 2026 in order to receive water from the WWSS.
2.	Reliability	The improvements will allow for reliable, seismically resilient supply.
3.	Customer Criticality	This project serves a small customer base in the 643 pressure zone.

PROJECT DESCRIPTION

Pump station and improvements on the Taylor's Ferry site to pump from the 498 zone to the 643 zone. This will allow the entire Metzger system to be served from the WWSS in 2026.

PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	Pump Station	Water Rates:	Yes	Operating costs for pumping to the 643 pressure zone will increase.
		Service Fees:	No	
Project Manager:	Andrew Barrett	SDC Improvemt. Fee Elg.:	0%	
Work Performed By:	Contract & District Staff			
Total Priority Score:	21	Partner Cost Percentage:	0%	

BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
-	-	-	75,000	628,500	-	-	-	703,500	-

CIP 2019-21 Proposed CIP - 19

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE: Pump Replacement Program

KEY DRIVERS FOR CIP PROJECT		
1.	Asset Condition	The District has pumps that are in need of replacement due to their deteriorating condition.
2.	Cost Effectiveness / Community Benefit	These replacements will allow the District to maintain the pump stations in proper working order.
3.	Reliability	This will allow for reliable service.

PROJECT DESCRIPTION

This program is intended to replace aging existing pumps as they approach the end of their useful life. The budget assumes replacing 2 pumps per year and an average asset life of 30 years.

PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	Pump Station	Water Rates:	Yes	Potential for a slight decrease in operating costs due to newer, more efficient pumps.
		Service Fees:	No	
Project Manager:	Ryan Smith	SDC Improvemt. Fee Elg.:	0%	
Work Performed By:	Contract & District Staff			
Total Priority Score:	26	Partner Cost Percentage:	0%	

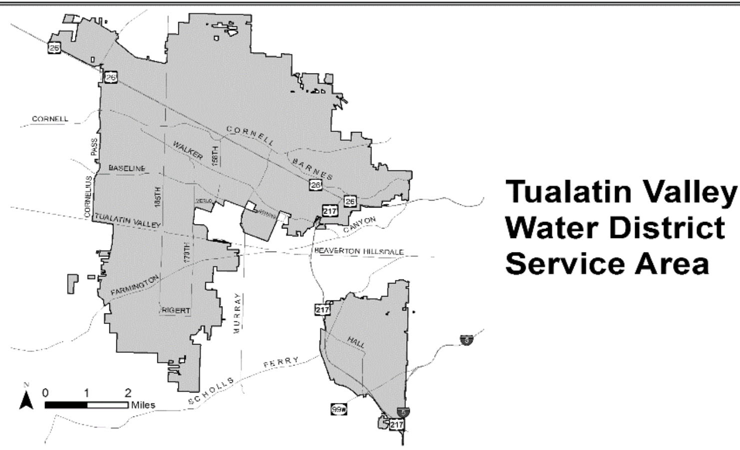
BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
-	-	124,000	128,500	133,000	137,500	142,500	147,500	813,000	5,261,000

CIP 2019-21 Proposed CIP - 20

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE:	P-4 Mains Replacement Program



KEY DRIVERS FOR CIP PROJECT		
1.	Asset Condition	Replacement of aging infrastructure to provide new resilient pipelines capable of providing long-term, reliable service.
2.	Reliability	Improvements required to maintain reliable and seismically resilient facilities.
3.	Safety / Security	Enhances safety by improving level of service for customers and providing safe, reliable drinking water.

PROJECT DESCRIPTION

This work includes projects that are completed as part of the District's Mains Replacement Program. This program is a focused effort to identify, prioritize, design and replace pipelines based on asset management priorities and recommendations to replace existing failing infrastructure. These projects will be water main replacements that are required due to corrosion, or other identified aging condition of the existing water mains. Improvements will result in improved reliability and water quality as well as reduced liability associated with premature pipe failures and leaks.

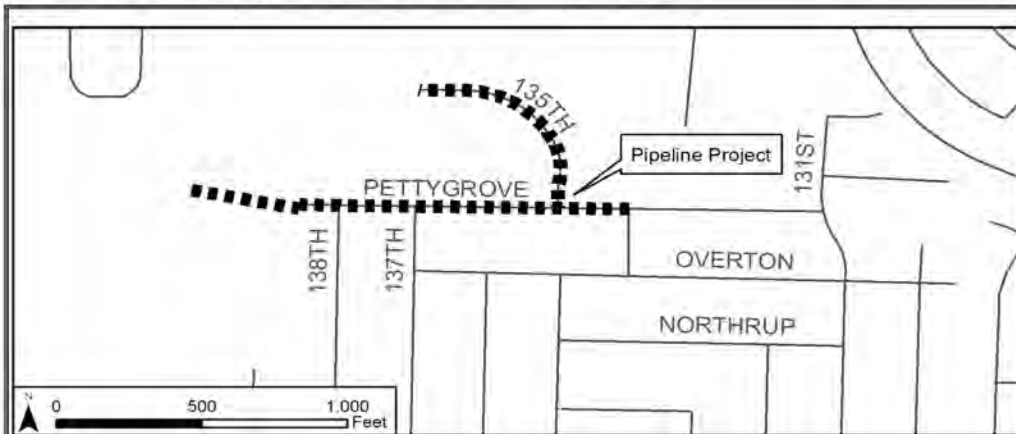
PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	Pipeline	Water Rates:	Yes	There may be a slight reduction in operating costs due to reduced main breaks. New installations are designed for site specific corrosion conditions resulting in longer expected design life of pipeline and reduced leakage for system.
		Service Fees:	No	
Project Manager:	Various	SDC Improvemt. Fee Elg.:	0%	
Work Performed By:	Contract & District Staff			
Total Priority Score:	26	Partner Cost Percentage:	0%	

BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
3,000,000	3,551,776	2,135,000	1,820,000	6,465,000	6,435,000	9,145,000	10,660,000	36,660,000	350,750,000

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE:	Pettygrove & 135th Ave Main Replacement & Fire Flow



KEY DRIVERS FOR CIP PROJECT		
1.	Asset Condition	Replacement of aging infrastructure to provide new resilient pipelines capable of providing long-term, reliable service. This project was identified through leak history and by performing a condition assessment which revealed corrosion.
2.	Reliability	Improvements required to maintain reliable and seismically resilient facilities.
3.	Safety / Security	Enhances safety by improving level of service for customers and providing safe, reliable drinking water. This project also addresses fire flow deficiencies.

PROJECT DESCRIPTION

This project is being done to replace existing piping that is in poor condition as identified as part of the Mains Replacement Program. In addition, the existing main is undersized according to master plan recommendations for fire flow, thus the pipe along Pettygrove is being upgraded from 6-inch to 12-inch to support the proper fire flow. The project consists of approximately 2,100 LF of 12-inch water main, 1,100 LF of 4 and 8-inch water main.

PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	Pipeline	Water Rates:	Yes	No material impact. New installations designed for site specific corrosion conditions resulting in longer expected design life of pipeline and reduced leakage for system.
		Service Fees:	No	
Project Manager:	Zach Lemberg	SDC Improvemt. Fee Elg.:	0%	
Work Performed By:	Contract & District Staff			
Total Priority Score:	25	Partner Cost Percentage:	0%	

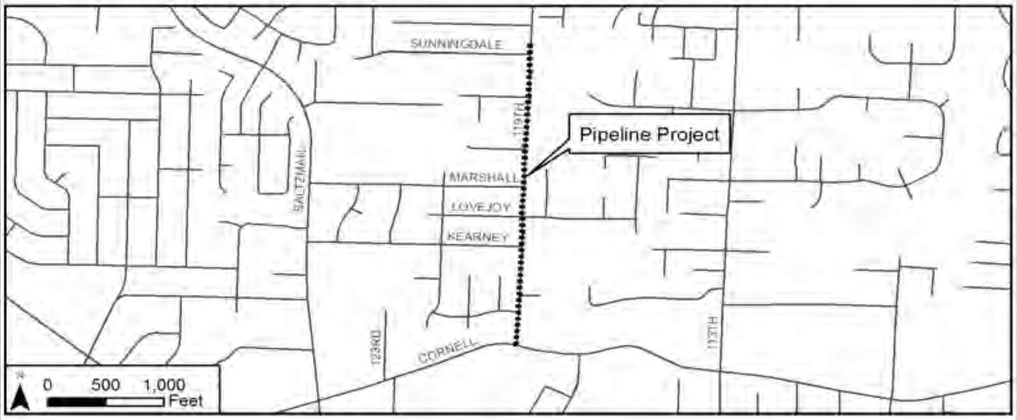
BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
-	-	683,000	-	-	-	-	-	683,000	-

CIP 2019-21 Proposed CIP - 22

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE:	NW 119th Ave Main Replacement



KEY DRIVERS FOR CIP PROJECT		
1.	Asset Condition	Replacement of aging infrastructure to provide new resilient pipelines capable of providing long-term, reliable service. This project was identified through leak history and by performing a condition assessment of the pipeline.
2.	Reliability	Improvements required to maintain reliable and seismically resilient facilities.
3.	Safety / Security	Enhances safety by improving level of service for customers and providing safe, reliable drinking water.

PROJECT DESCRIPTION

This project is being done to replace existing piping that is in poor condition as identified as part of the Mains Replacement Program. The existing main has failed in at least 2 locations and has resulted in large damages due to the size and pressure of this portion of the water main. The project involves replacement of approximately 2,400 LF of existing 12-inch diameter water main including services and other connections.

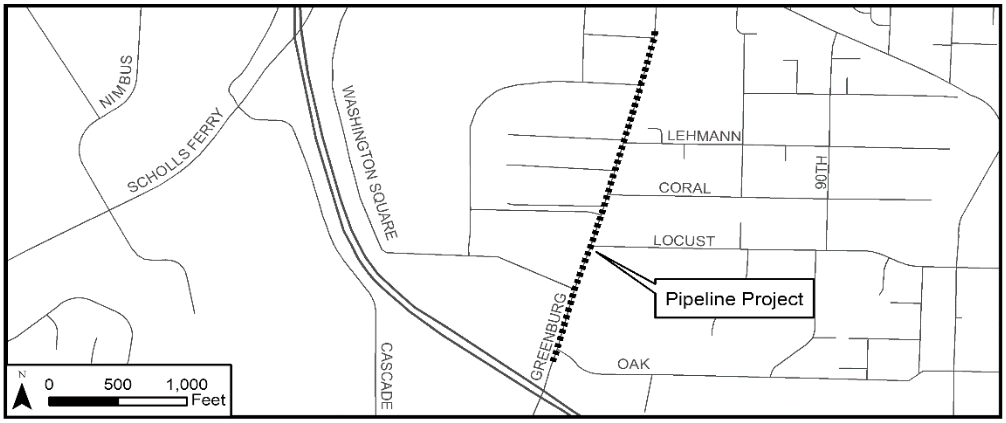
PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	Pipeline	Water Rates:	Yes	No material impact. New installations designed for site specific corrosion conditions resulting in longer expected design life of pipeline and reduced leakage for system.
		Service Fees:	No	
Project Manager:	Andrew Barrett	SDC Improvemt. Fee Elg.:	0%	
Work Performed By:	Contract & District Staff			
Total Priority Score:	23	Partner Cost Percentage:	0%	

BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
-	135,348	931,500	-	-	-	-	-	931,500	-

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE:	SW Greenberg - Oak to Prospect



KEY DRIVERS FOR CIP PROJECT		
1.	Asset Condition	Replacement of aging infrastructure to provide new resilient pipelines capable of providing long-term, reliable service.
2.	Reliability	Improvements required to maintain reliable and seismically resilient facilities.
3.	Safety / Security	Enhances safety by improving level of service for customers and providing safe, reliable drinking water.

PROJECT DESCRIPTION

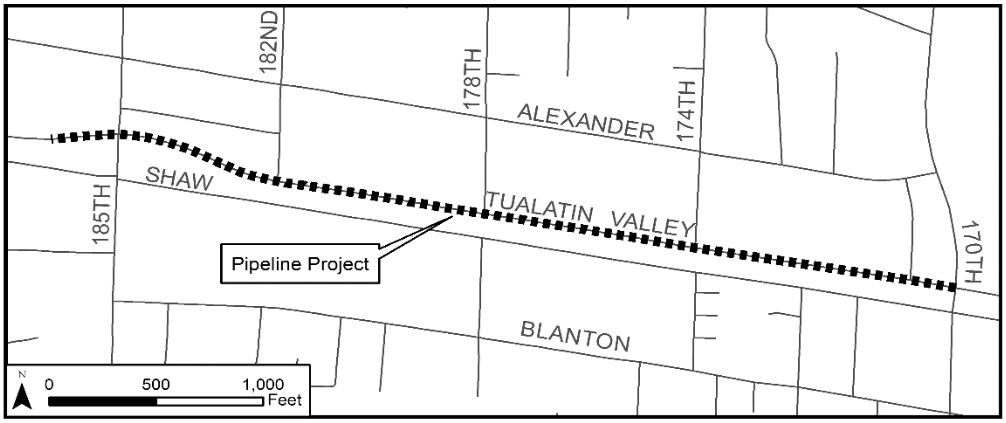
The main is noted as being in poor condition and in need of replacement. This involves replacement of approximately 2,600 LF of existing water main along SW Greenberg Road. Approximately 2,000 LF is being upgraded from 6-inch to 12-inch as well to account for fire flow deficiencies.

PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	Pipeline	Water Rates:	Yes	No material impact. New installations designed for site specific corrosion conditions resulting in longer expected design life of pipeline and reduced leakage for system.
		Service Fees:	No	
Project Manager:	Nick Augustus	SDC Improvemt. Fee Elg.:		
Work Performed By:	Contract & District Staff		31%	
Total Priority Score:	20	Partner Cost Percentage:		
			0%	

BUDGET INFORMATION & PROJECTED COSTS									
FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
-	-	-	1,110,000	-	-	-	-	1,110,000	-

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE: **SW Tualatin Valley Hwy**



KEY DRIVERS FOR CIP PROJECT		
1.	Asset Condition	Replacement of aging infrastructure to provide new resilient pipelines capable of providing long-term, reliable service.
2.	Reliability	Improvements required to maintain reliable and seismically resilient facilities.
3.	Safety / Security	Enhances safety by improving level of service for customers and providing safe, reliable drinking water.

PROJECT DESCRIPTION

There have been leaks in the area, and after installing new services on the main, it has been noted to be in poor condition. The existing pipe was installed in 1955. The project consists of replacement of approximately 3,850 LF of 8-inch pipe.

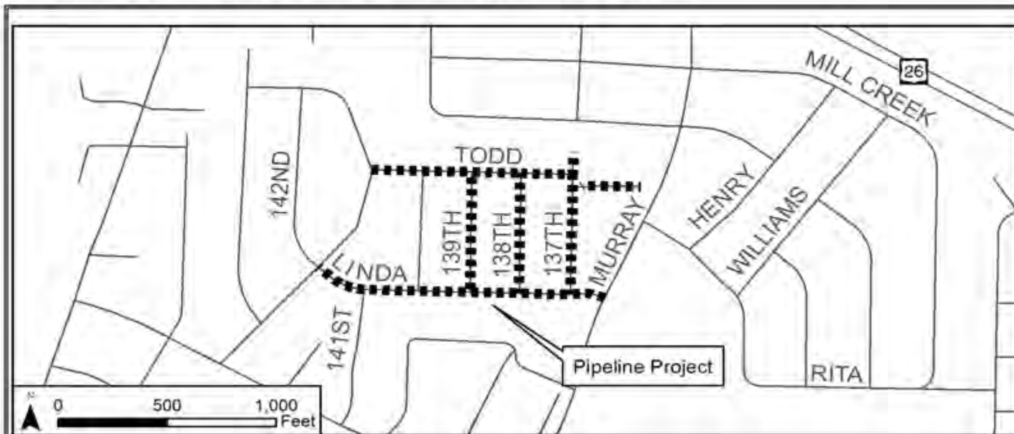
PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	Pipeline	Water Rates:	Yes	No material impact. New installations designed for site specific corrosion conditions resulting in longer expected design life of pipeline and reduced leakage for system.
		Service Fees:	No	
Project Manager:	Nick Augustus	SDC Improvemt. Fee Elg.:	0%	
Work Performed By:	Contract & District Staff			
Total Priority Score:	20	Partner Cost Percentage:	0%	

BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
-	-	-	988,500	-	-	-	-	988,500	-

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE: **Todd St & Linda Ln - Mainline replacement & upgrade**



KEY DRIVERS FOR CIP PROJECT		
1.	Asset Condition	Pipelines in the area have had multiple leaks. Though the majority have been shear breaks, the main is also old, and requires some additional capacity due to fire flow.
2.	Reliability	Lead-joints are not a good restraint for seismic events. They need to be replaced with pipelines which account for the seismic vulnerabilities.
3.	Water Quality	Areas with lead joints have been identified as potential replacement projects. Further research is being done to determine if the lead joints have potential to be a water quality concern.

PROJECT DESCRIPTION

The existing pipe is lead-jointed, has had several breaks, and is deficient for fire flow. This project consists of a total of approximately 4,400 LF of 8-inch main, 1,650 of which is being upgraded from 4-inch, and the remaining 2,750 being upgraded from 6-inch.

PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	Pipeline	Water Rates:	Yes	No material impact. Perhaps a slight decrease in operating expenses due to reduced main breaks.
		Service Fees:	No	
Project Manager:	Nick Augustus	SDC Improvemt. Fee Elg.:		
Work Performed By:	Contract & District Staff		0%	
Total Priority Score:	29	Partner Cost Percentage:	0%	

BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
-	-	-	1,145,000	-	-	-	-	1,145,000	-

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE: **Agency-Driven Pipeline Upgrade & Renewal Projects**

KEY DRIVERS FOR CIP PROJECT		
1.	Project Urgency	Upgrades or renewal work to the District's system that develop in response to new projects by Washington County, developers, or based on other needs.
2.	Asset Condition	Replacement of aging infrastructure to provide new resilient structures capability of providing long-term, reliable service.
3.	Reliability	Improvements required to maintain reliable and seismically resilient facilities.

PROJECT DESCRIPTION

This is a general category that allows for various pipeline upgrades and replacements typically associated with miscellaneous Washington County projects, projects related to development or other needs.

PROJECT INFORMATION	
Project Category:	Pipeline
Project Manager:	Kevin Schmeltzer
Work Performed By:	Contract & District Staff
Total Priority Score:	27

FUNDING SOURCES	
Water Rates:	Yes
Service Fees:	No
SDC Improvemt. Fee Elg.:	0%
Partner Cost Percentage:	0%

FUTURE OPERATING COST IMPACT

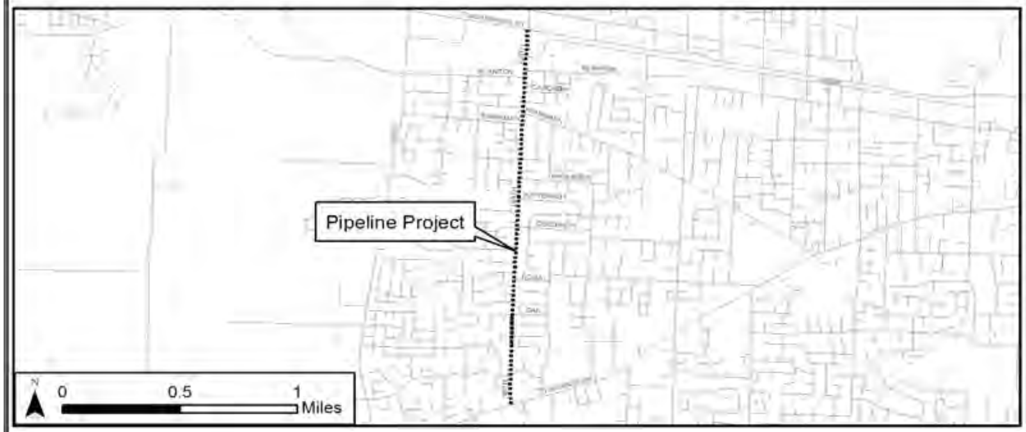
No material impact. New installations designed for site specific corrosion conditions resulting in longer expected design life of pipeline and reduced leakage for system.

BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
1,330,000	657,740	51,800	760,500	1,185,000	1,230,000	1,270,000	1,315,000	5,812,300	46,915,000

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE: **SW 198th- Farmington Rd to TV Hwy Pipeline Relocation**



KEY DRIVERS FOR CIP PROJECT		
1.	Project Urgency	The county is performing road work requiring relocations be done by the District to avoid conflicts with the road design.
2.	Asset Condition	Replacement of aging infrastructure will provide new resilient structures capable of providing long-term, reliable service.
3.	Reliability	Relocations will be designed to maintain reliable and seismically resilient facilities.

PROJECT DESCRIPTION

This project is driven by a road widening project done by Washington County along SW 198th from Farmington Road to TV Hwy. The project will require meter relocations as well as watermain lowering and relocations near bridges. Approximately 500 LF of 16-inch and 8-inch pipe will be relocated near the bridges. The District is partnering with the county to have the relocations around the bridges done by the county's contractor to avoid potential coordination issues.

PROJECT INFORMATION	
Project Category:	Pipeline
Project Manager:	Kevin Schmeltzer
Work Performed By:	Contract & District Staff
Total Priority Score:	27

FUNDING SOURCES	
Water Rates:	Yes
Service Fees:	No
SDC Improvemt. Fee Elg.:	0%
Partner Cost Percentage:	0%

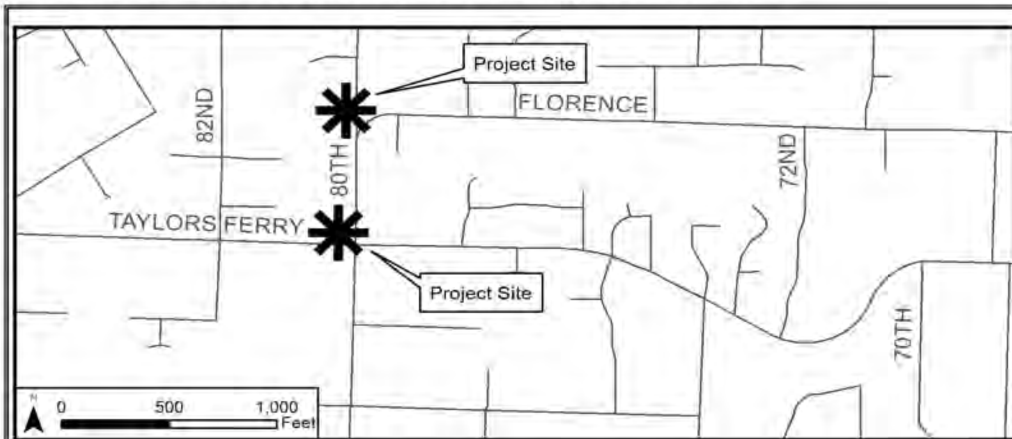
FUTURE OPERATING COST IMPACT
No material impact. New installations designed for site specific corrosion conditions resulting in longer expected design life of pipeline and reduced leakage for system.

BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
-	-	841,500	-	-	-	-	-	841,500	-

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE: 80th Ave at Florence Lane & Taylors Ferry Rd Pipeline Relocation



KEY DRIVERS FOR CIP PROJECT		
1.	Project Urgency	The county is performing road work requiring relocations be done by the District to avoid conflicts with the road design.
2.	Asset Condition	Replacement of aging infrastructure will provide new resilient structures capable of providing long-term, reliable service.
3.	Reliability	Relocations will be designed to maintain reliable and seismically resilient facilities.

PROJECT DESCRIPTION

This project is driven by two culvert replacement projects being done by Washington County. The culverts are located at 80th Ave and Florence Lane and 80th Ave and Taylors Ferry Road. The project will require relocation of a 16-inch waterline at Florence Lane, and an 8-inch and 24-inch waterline relocation at the Taylors Ferry intersection. The county has recently combined these two projects into a single larger project with construction anticipated for summer 2019.

PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	Pipeline	Water Rates:	Yes	No material impact. New installations designed for site specific corrosion conditions resulting in longer expected design life of pipeline and reduced leakage for system.
		Service Fees:	No	
Project Manager:	Kevin Schmeltzer	SDC Improvemt. Fee Elg.:	0%	
Work Performed By:	Outside Contract			
Total Priority Score:	27	Partner Cost Percentage:	0%	

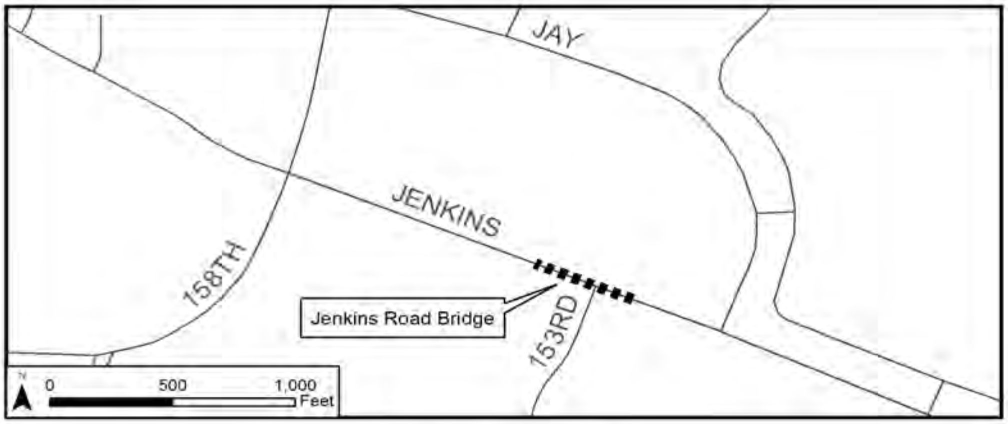
BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
-	-	467,000	-	-	-	-	-	467,000	-

CIP 2019-21 Proposed CIP - 29

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE: Jenkins Road Bridge Pipeline Relocation



KEY DRIVERS FOR CIP PROJECT		
1.	Project Urgency	The county is performing road work requiring relocations be done by the District to avoid conflicts with the road design.
2.	Asset Condition	Replacement of aging infrastructure will provide new resilient structures capable of providing long-term, reliable service.
3.	Reliability	Relocations will be designed to maintain reliable and seismically resilient facilities.

PROJECT DESCRIPTION

This is a Washington County project to widen and improve this stretch of roadway. The waterline relocation is being done as part of the overall road project and consists of relocating a 12-inch watermain across the new bridge.

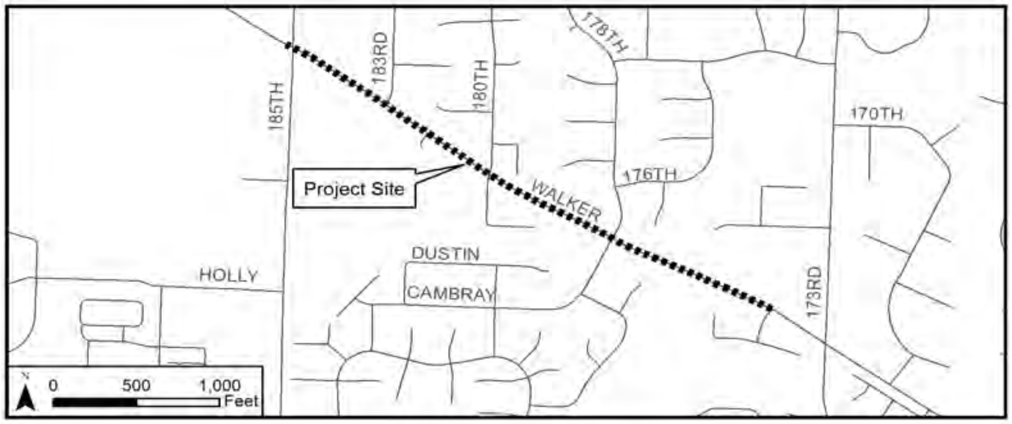
PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	Pipeline	Water Rates:	Yes	No material impact. New installations designed for site specific corrosion conditions resulting in longer expected design life of pipeline and reduced leakage for system.
		Service Fees:	No	
Project Manager:	Kevin Schmeltzer	SDC Improvemt. Fee Elg.:	0%	
Work Performed By:	Outside Contract			
Total Priority Score:	27	Partner Cost Percentage:	0%	

BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
-	-	186,500	-	-	-	-	-	186,500	-

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE: Walker Rd 12" Replacement - 185th to 174th



KEY DRIVERS FOR CIP PROJECT		
1.	Project Urgency	The county is performing road work requiring relocations be done by the District to avoid conflicts with the road design.
2.	Asset Condition	Replacement of aging infrastructure will provide new resilient structures capable of providing long-term, reliable service.
3.	Reliability	Relocations will be designed to maintain reliable and seismically resilient facilities.

PROJECT DESCRIPTION

This is a Washington County project to widen and improve this stretch of roadway. The waterline relocation is being done as part of the overall road project.

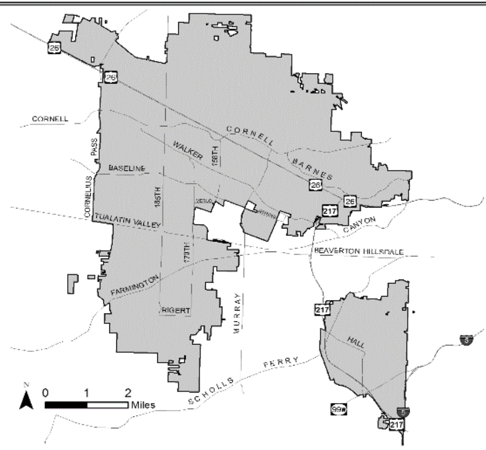
PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	Pipeline	Water Rates:	Yes	No material impact. New installations designed for site specific corrosion conditions resulting in longer expected design life of pipeline and reduced leakage for system.
		Service Fees:	No	
Project Manager:	Kevin Schmeltzer	SDC Improvemt. Fee Elg.:		
Work Performed By:	Outside Contract		0%	
Total Priority Score:	27	Partner Cost Percentage:	0%	

BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
-	-	-	385,500	-	-	-	-	385,500	-

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE:	**Unidentified Development Opportunity & Reimbursement Projects**



KEY DRIVERS FOR CIP PROJECT		
1.	Cost Effectiveness / Community Benefit	The District has benefitted from significant cost savings by partnering with development projects to upgrade, replace, or install new pipelines that have been identified as recommended improvements in the 2018 Master Plan Update.
2.	Reliability	Having funding available to participate in opportunity projects will allow the District to construct resilient backbone pipelines and other recommended improvements.
3.	Asset Condition	Having funding available to participate in opportunity projects will allow the District to replace failing pipelines.

PROJECT DESCRIPTION

This is a general project category to implement the 2018 Water Master Plan Update. Specifically, the project will be used to partner with other agencies and developers to install or replace pipelines and other infrastructure as identified in the 2018 Water Master Plan Update or other planning studies to provide fire flow improvements, replace aging infrastructure, or provide resilient backbone piping. By partnering with other projects, significant cost saving can be realized.

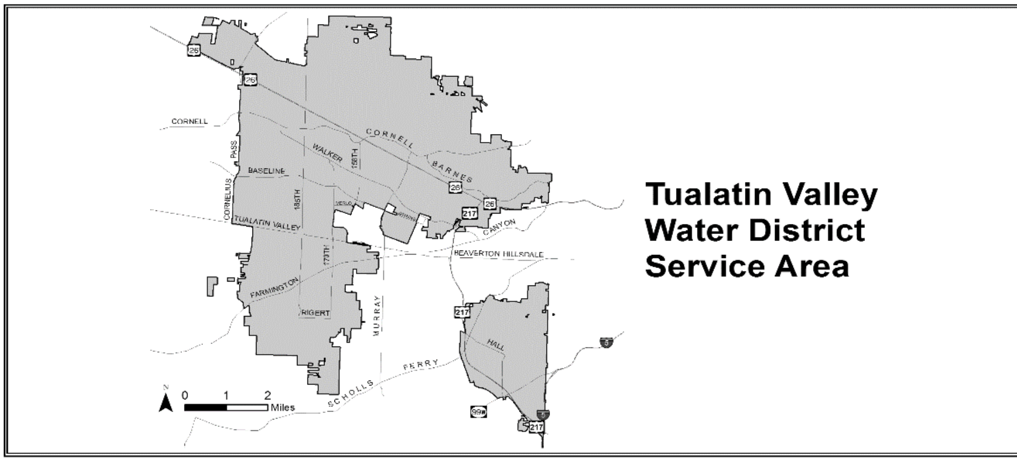
PROJECT INFORMATION		FUNDING SOURCES	FUTURE OPERATING COST IMPACT
Project Category:	Pipeline	Water Rates: Yes Service Fees: No	No anticipated impact on District operating costs.
Project Manager: Work Performed By:	Sarah Alton Outside Contract	SDC Improvemt. Fee Elg.: Various	
Total Priority Score:	31	Partner Cost Percentage: 0%	

BUDGET INFORMATION & PROJECTED COSTS									
FY 17-19 Budget	**FY 17-19 Projected**	**FY 19-20 Budget**	**FY 20-21 Budget**	**FY 21-22 Projected**	**FY 22-23 Projected**	**FY 23-24 Projected**	**FY 24-25 Projected**	**Six-Year (FY2020-25)**	**Future Years (FY2026-48)**
500,000	312,361	259,000	268,000	277,000	287,000	297,000	307,500	1,695,500	10,961,000

CIP 2019-21 Proposed CIP - 32

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE:	Transmission Improvement Program



KEY DRIVERS FOR CIP PROJECT		
1.	Asset Condition	Transmission mains require further condition assessment to determine current conditions. The majority of the improvements are driven by seismic resiliency.
2.	Reliability	Transmission mains are very important to delivering water. These projects will evaluate and provide seismically resilient supply transmission within the TVWD system.
3.	Customer Criticality	Transmission mains impact large customer bases and other critical customers.

PROJECT DESCRIPTION

The Transmission Improvement Program includes currently planned and recommended pipe improvements that increase transmission capacity to accommodate future demands and improve seismic resiliency in the District's backbone piping. For specific backbone piping, cost estimates for this Program reflect the need for higher seismic resilience in transmission piping. The program includes new and replacement of existing transmission piping. Appendix B of the 2018 Master Plan Update provides a detailed list for these projects. The program will begin in the mid-term time horizon to allow for completion of the WWSP. Transmission improvements have been allocated into Tiers 1 to 3 based on criticality. Phases 1 through 3 of Tier 1 are assumed to be constructed in the mid-term. The remaining transmission projects (including Tier 1 Phase 4, Tier 2, and Tier 3 projects) are assumed to be constructed in the long-term planning horizon at an annual cost of approximately $3,140,000.

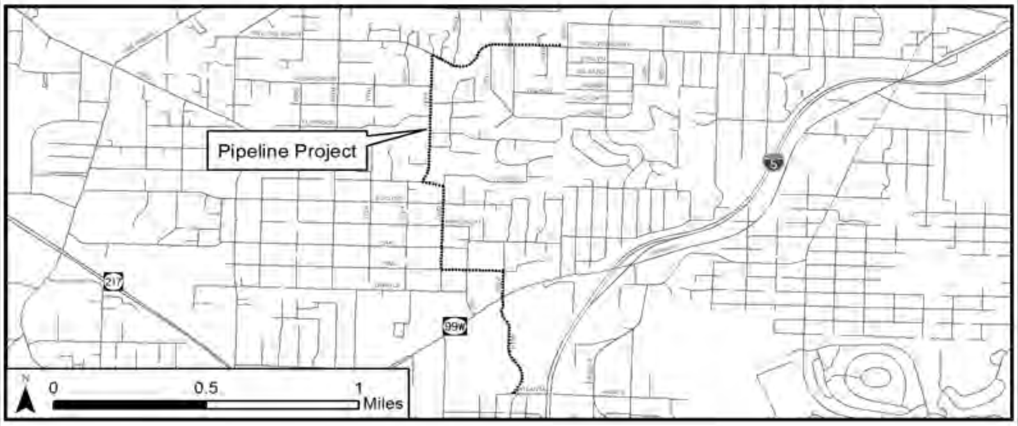
PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	Pipeline	Water Rates:	Yes	No material impact anticipated.
		Service Fees:	No	
Project Manager:	Nick Augustus	SDC Improvemt. Fee Elg.:		
Work Performed By:	Outside Contract		TBD	
Total Priority Score:	22	Partner Cost Percentage:		
			0%	

BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
-	-	-	-	-	-	-	-	-	171,441,000

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE: P-156 - Metzger N-S 498 Zone Improvements



KEY DRIVERS FOR CIP PROJECT		
1.	Safety and Security	These improvements in the Metzger service area address fire flow deficiencies that have been identified through the Master Planning process.
2.	Project Urgency	These were prioritized during the Master Planning process and need to be completed in a timely manner. The project is also being done ahead of the westside light rail project.
3.	Growth / Future Demands	Fire flow projects will address both current and anticipated fire flow demands.

PROJECT DESCRIPTION

This project addresses fire flow deficiencies in the southeast side of the Metzger area. It consists of approximately 10,200 LF of 18-inch diameter piping from the Taylors Ferry Reservoir to Atlanta and 69th Pkwy (south of Pacific Hwy). The project is currently in the design phase, with the bulk of the design and construction expected to occur in FY 2020.

PROJECT INFORMATION		FUNDING SOURCES	
Project Category:	Pipeline	Water Rates:	Yes
		Service Fees:	No
Project Manager:	Andrew Barrett	SDC Improvemt. Fee Elg.:	38%
Work Performed By:	Outside Contract		
Total Priority Score:	26	Partner Cost Percentage:	0%

FUTURE OPERATING COST IMPACT

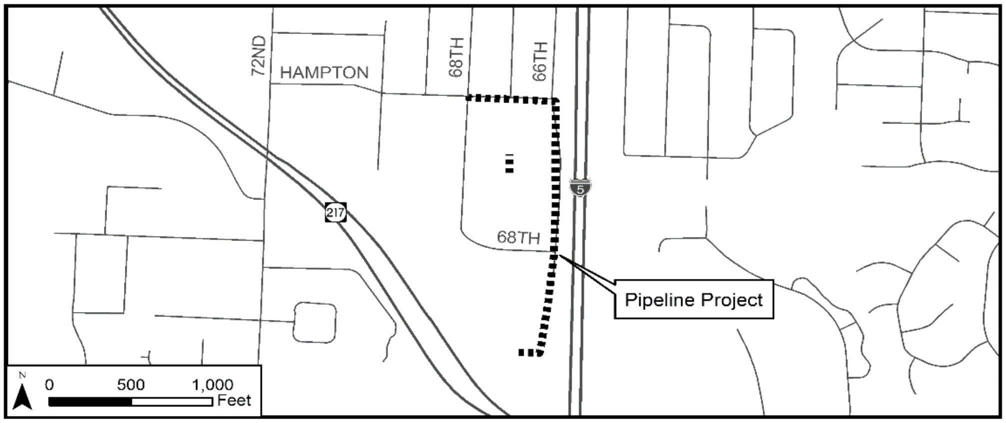
As improvements for deficiencies, operating cost impacts are not anticipated. For new pipes and extensions, the District estimates additional operating costs at approx. 0.06% of total capital cost (i.e., $600 per $1 million in new pipe segments/extensions) for exercising valves and materials for valve maintenance. Marginal costs for mapping and locating new pipes may also be expected.

BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
300,000	300,000	6,925,000	-	-	-	-	-	6,925,000	-

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE:	P-166 - Hampton St from 68th Ave to 66th Ave



KEY DRIVERS FOR CIP PROJECT		
1.	Safety and Security	These improvements in the Metzger service area address fire flow deficiencies that have been identified through the Master Planning process.
2.	Project Urgency	These were prioritized during the Master Planning process and need to be completed in a timely manner.
3.	Growth / Future Demands	Fire flow projects will address both current and anticipated fire flow demands.

PROJECT DESCRIPTION

This project addresses fire flow deficiencies as identified in the master plan in the Metzger area from Hampton St, south along SW 66th Ave to the south end of the District. It consists of approximately 2,400 LF of 12-inch diameter pipe, upgrading both 6-inch and 8-inch existing pipe.

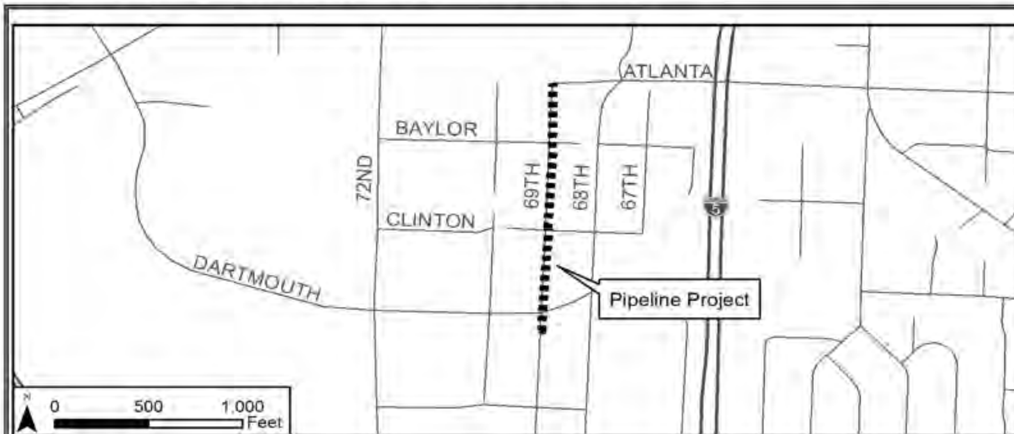
PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	Pipeline	Water Rates:	Yes	As improvements for deficiencies, operating cost impacts are not anticipated. For new pipes and extensions, the District estimates additional operating costs at approx. 0.06% of total capital cost (i.e., $600 per $1 million in new pipe segments/extensions) for exercising valves and materials for valve maintenance. Marginal costs for mapping and locating new pipes may also be expected.
		Service Fees:	No	
Project Manager:	Zach Lemberg	SDC Improvemt. Fee Elg.:	39%	
Work Performed By:	Outside Contract			
Total Priority Score:	26	Partner Cost Percentage:	0%	

BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
-	-	155,500	1,090,000	-	-	-	-	1,245,500	-

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE: P-164 - 69th Ave from Dartmouth St to Atlanta St



KEY DRIVERS FOR CIP PROJECT		
1.	Safety and Security	These improvements in the Metzger service area address fire flow deficiencies that have been identified through the Master Planning process.
2.	Project Urgency	These were prioritized during the Master Planning process and need to be completed in a timely manner.
3.	Growth / Future Demands	Fire flow projects will address both current and anticipated fire flow demands.

PROJECT DESCRIPTION

This project addresses fire flow deficiencies as identified in the master plan in the Metzger area on 69th Ave from Dartmouth St to Atlanta St. It consists of upgrading approximately 1,400 LF of 4-inch to 8-inch pipe.

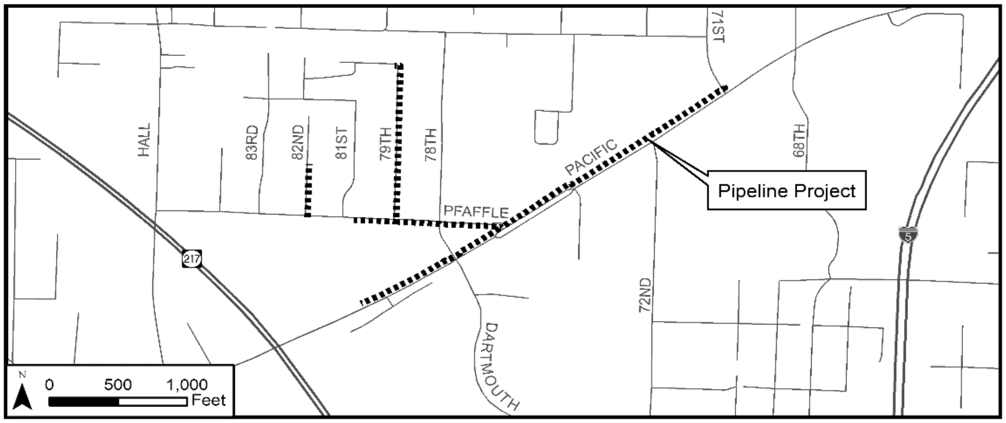
PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	Pipeline	Water Rates:	Yes	As improvements for deficiencies, operating cost impacts are not anticipated. For new pipes and extensions, the District estimates additional operating costs at approx. 0.06% of total capital cost (i.e., $600 per $1 million in new pipe segments/extensions) for exercising valves and materials for valve maintenance. Marginal costs for mapping and locating new pipes may also be expected.
		Service Fees:	No	
Project Manager:	Zach Lemberg	SDC Improvemt. Fee Elg.:	39%	
Work Performed By:	Outside Contract			
Total Priority Score:	26	Partner Cost Percentage:	0%	

BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
-	-	51,800	483,000	-	-	-	-	534,800	-

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE: P-161 - Pacific Hwy from Hwy 217 to 71st Ave



KEY DRIVERS FOR CIP PROJECT		
1.	Safety and Security	These improvements address fire flow deficiencies that have been identified through the Master Planning process.
2.	Project Urgency	These were prioritized during the Master Planning process and need to be completed in a timely manner.
3.	Growth / Future Demands	Fire flow projects will address both current and anticipated fire flow demands.

PROJECT DESCRIPTION

This project addresses fire flow deficiencies as identified in the master plan in the Metzger area mainly along Pacific Hwy from Hwy 217-Pacific Ramp to 71st Ave and including connecting streets on Pfaffle and 79th Ave. The project consists of approximately 7,200 LF of 8-inch and 6-inch piping being upgraded to 12-inch, and 1,300 LF of 4-inch being upgraded to 8-inch.

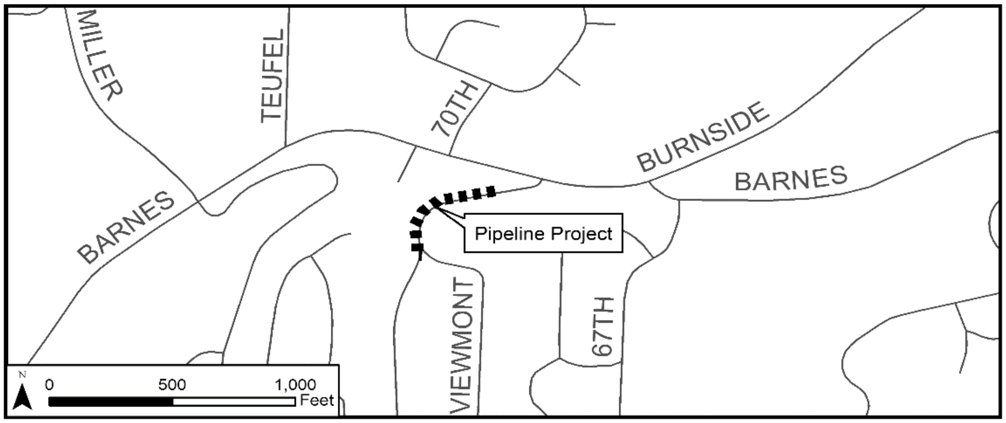
PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	Pipeline	Water Rates:	Yes	As improvements for deficiencies, operating cost impacts are not anticipated. For new pipes and extensions, the District estimates additional operating costs at approx. 0.06% of total capital cost (i.e., $600 per $1 million in new pipe segments/extensions) for exercising valves and materials for valve maintenance. Marginal costs for mapping and locating new pipes may also be expected.
		Service Fees:	No	
Project Manager:	Zach Lemberg	SDC Improvemt. Fee Elg.:	33%	
Work Performed By:	Outside Contract	Partner Cost Percentage:	0%	
Total Priority Score:	25			

BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
-	-	-	-	1,110,000	1,855,000	-	-	2,965,000	-

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE:	P-80 - Viewmont Dr south of Barnes



KEY DRIVERS FOR CIP PROJECT		
1.	Safety and Security	These improvements address fire flow deficiencies that have been identified through the Master Planning process.
2.	Project Urgency	These were prioritized during the Master Planning process and need to be completed in a timely manner.
3.	Growth / Future Demands	Fire flow projects will address both current and anticipated fire flow demands.

PROJECT DESCRIPTION
This project consists of replacing existing pipe at Viewmont Dr just south of Barnes Rd for fire flow only. This includes approximately 530 LF of 6-inch upgraded to 8-inch piping.

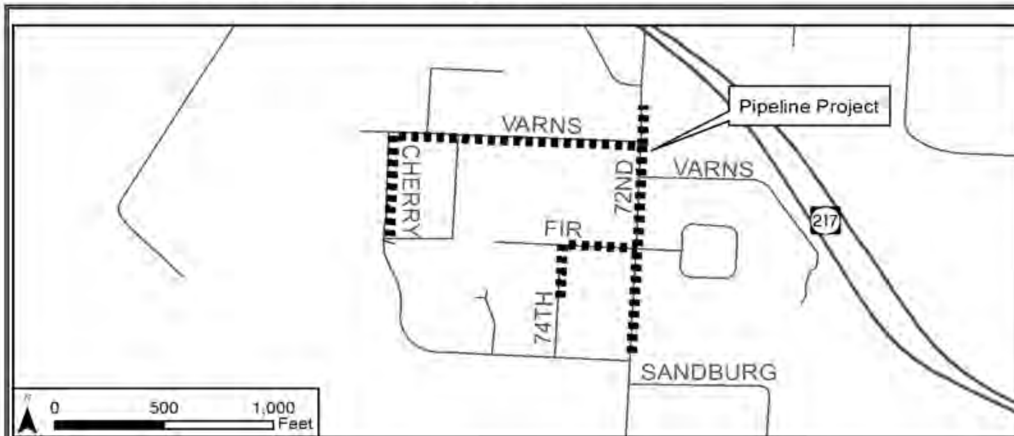
PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	Pipeline	Water Rates:	Yes	As improvements for deficiencies, operating cost impacts are not anticipated. For new pipes and extensions, the District estimates additional operating costs at approx. 0.06% of total capital cost (i.e., $600 per $1 million in new pipe segments/extensions) for exercising valves and materials for valve maintenance. Marginal costs for mapping and locating new pipes may also be expected.
		Service Fees:	No	
Project Manager:	Zach Lemberg	SDC Improvemt. Fee Elg.:	0%	
Work Performed By:	Outside Contract			
Total Priority Score:	25	Partner Cost Percentage:	0%	

BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
-	-	-	-	-	215,500	-	-	215,500	-

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE: P-165 - 72nd Ave from Cherry Dr to Hunziker



KEY DRIVERS FOR CIP PROJECT		
1.	Safety and Security	These improvements address fire flow deficiencies that have been identified through the Master Planning process.
2.	Project Urgency	These were prioritized during the Master Planning process and need to be completed in a timely manner.
3.	Growth / Future Demands	Fire flow projects will address both current and anticipated fire flow demands.

PROJECT DESCRIPTION

This project consists of replacing existing piping on 72nd Ave from Cherry Dr to Hunziker Rd and side streets for fire flow only. This includes approximately 1,260 LF of 12-inch pipe, and 2,300 LF of 8-inch pipe.

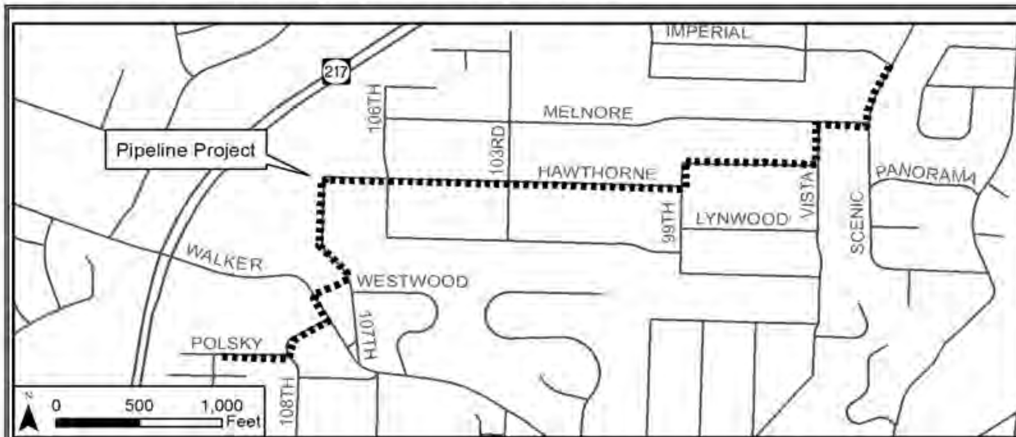
PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	Pipeline	Water Rates:	Yes	As improvements for deficiencies, operating cost impacts are not anticipated. For new pipes and extensions, the District estimates additional operating costs at approx. 0.06% of total capital cost (i.e., $600 per $1 million in new pipe segments/extensions) for exercising valves and materials for valve maintenance. Marginal costs for mapping and locating new pipes may also be expected.
		Service Fees:	No	
Project Manager:	Zach Lemberg	SDC Improvemt. Fee Elg.:	39%	
Work Performed By:	Outside Contract			
Total Priority Score:	25	Partner Cost Percentage:	0%	

BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
-	-	-	-	-	-	297,000	1,405,000	1,702,000	-

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE: P-99 - Polsky Rd / Hawthorne Ln / to Scenic Dr



KEY DRIVERS FOR CIP PROJECT		
1.	Safety and Security	These improvements address fire flow deficiencies that have been identified through the Master Planning process.
2.	Project Urgency	These were prioritized during the Master Planning process and need to be completed in a timely manner. In addition, the existing piping was constructed in 1945 and is at the end of its useful life.
3.	Growth / Future Demands	Fire flow projects will address both current and anticipated fire flow demands.

PROJECT DESCRIPTION

This project addresses fire flow deficiencies as identified in the master plan and consists of replacing existing pipe at Polsky Rd/110th Ave to 107th Ave, north to Hawthorne Ln, east to SW Scenic Dr for fire flow only. This includes approximately 6,100 LF of 8 and 12-inch piping.

PROJECT INFORMATION		FUNDING SOURCES	
Project Category:	Pipeline	Water Rates:	Yes
		Service Fees:	No
Project Manager:	Zach Lemberg	SDC Improvemt. Fee Elg.:	8%
Work Performed By:	Outside Contract		
Total Priority Score:	25	Partner Cost Percentage:	0%

FUTURE OPERATING COST IMPACT

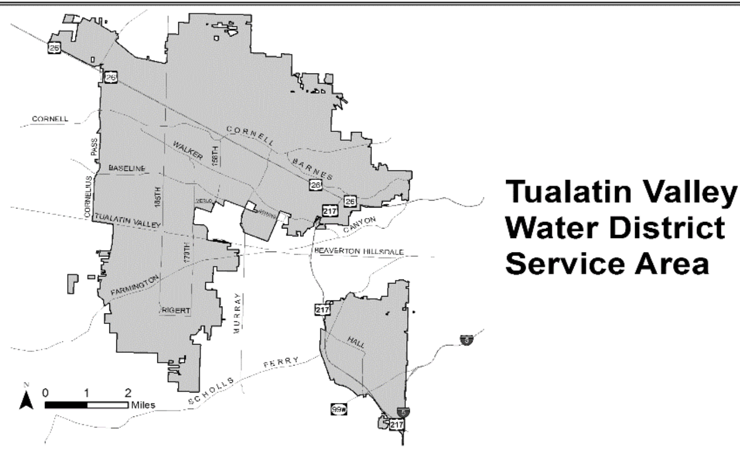
As improvements for deficiencies, operating cost impacts are not anticipated. For new pipes and extensions, the District estimates additional operating costs at approx. 0.06% of total capital cost (i.e., $600 per $1 million in new pipe segments/extensions) for exercising valves and materials for valve maintenance. Marginal costs for mapping and locating new pipes may also be expected.

BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
-	-	-	-	-	-	356,500	2,900,000	3,256,500	-

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE:	Future Fire Flow Improvements



KEY DRIVERS FOR CIP PROJECT		
1.	Safety and Security	These improvements address fire flow deficiencies that have been identified through the Master Planning process.
2.	Project Urgency	These were prioritized during the Master Planning process and need to be completed in a timely manner.
3.	Growth / Future Demands	Fire flow projects will address both current and anticipated fire flow demands.

PROJECT DESCRIPTION

The Fire Flow Improvement Program includes recommended pipe improvements that are recommended to address specific fire flow criteria deficiencies. Appendix M of the District's Master Plan (Carollo 2018) provides a detailed list for these projects. The projects in this item are planned for completion in the mid-term time frame.

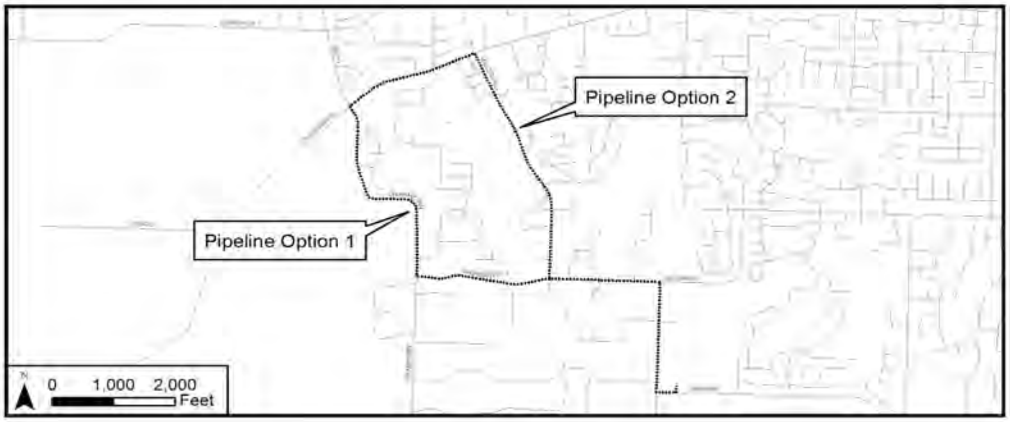
PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	Pipeline	Water Rates:	Yes	As improvements for deficiencies, operating cost impacts are not anticipated. For new pipes and extensions, the District estimates additional operating costs at approx. 0.06% of total capital cost (i.e., $600 per $1 million in new pipe segments/extensions) for exercising valves and materials for valve maintenance. Marginal costs for mapping and locating new pipes may also be expected.
		Service Fees:	No	
Project Manager:	Nick Augustus	SDC Improvemt. Fee Elg.:		
Work Performed By:	Outside Contract		Various	
Total Priority Score:	23	Partner Cost Percentage:	0%	

BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
-	-	-	-	-	-	-	-	-	72,864,100

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE: P-5 Farmington Rd BPS 16-inch Discharge Main



KEY DRIVERS FOR CIP PROJECT		
1.	Reliability	Currently there is no redundant, seismically resilient supply to the Cooper Mountain area. This project addresses those concerns.
2.	Customer Criticality	This project will serve a large customer base.
3.	Project Urgency	This project is required to be done soon to allow for other critical maintenance activities for the Cooper Mountain area.

PROJECT DESCRIPTION

The Farmington Road BPS 16-inch Discharge line is essential to providing a reliable connection to the Cooper Mountain Reservoir from the Farmington Road BPS. This provides a redundant feed to the 800 pressure zone, and will allow the District to remove the 189th and Goyak pump stations from service while necessary repairs are made to the Goyak Reservoir and pump station. This could also replace the 12-inch line in 190th to the reservoir scheduled for long-term horizon- high velocity by 2036 ($1,152,000 add)).

PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	Pipeline	Water Rates:	Yes	There will be added operating costs to maintain and operate the new waterline. The District estimates additional operating costs at approx. 0.06% of total capital cost (i.e., $600 per $1 million of capital). This is for exercising valves & materials for valve maintenance only; marginal costs for mapping and locating may also be expected.
		Service Fees:	No	
Project Manager:	Andrew Barrett	SDC Improvemt. Fee Elg.:	77%	
Work Performed By:	Outside Contract			
Total Priority Score:	28	Partner Cost Percentage:	0%	

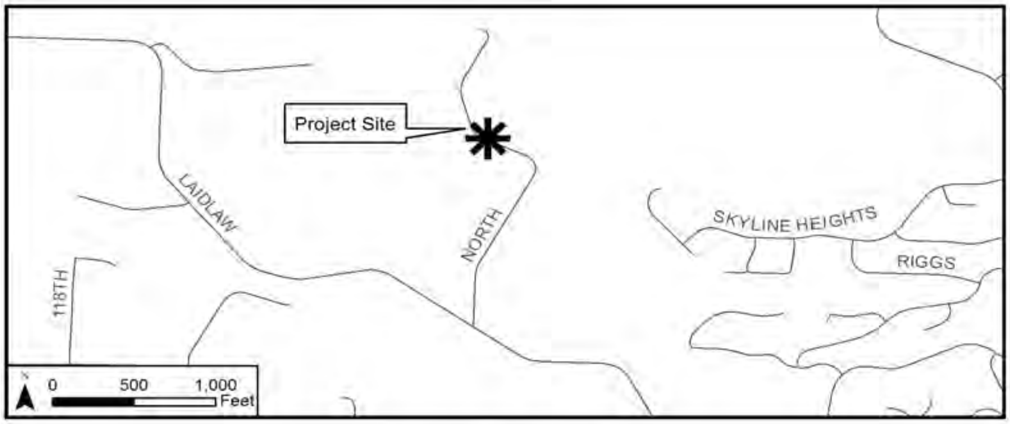
BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
-	-	414,000	4,275,000	-	-	-	-	4,689,000	-

CIP 2019-21 Proposed CIP - 42

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE: **North Road Pipeline Landslide Repair**



KEY DRIVERS FOR CIP PROJECT		
1.	Project Urgency	The project is currently being designed with construction anticipated in the coming months.
2.	Safety and Security	The landslide is immediately adjacent to TVWD's 24-inch waterline which serves the North Road Reservoir. This project is important to protect the waterline and homeowners which could be impacted by a failure of the waterline if the landslide were to continue.
3.	Cost Effectiveness / Community Benefit	This project is being done to avoid potential cost to replace the 24-inch waterline if the slope were to completely fail.

PROJECT DESCRIPTION

The existing slope on North Road has failed resulting in a landslide that is dangerously close to the District's existing large diameter pipeline that connects the North Road 3 MG Reservoir to the 820 pressure zone. This project will add a retaining wall to prevent the road from sliding further and damaging the pipe. Once the wall is constructed, the county will assume maintenance responsibilities for the wall.

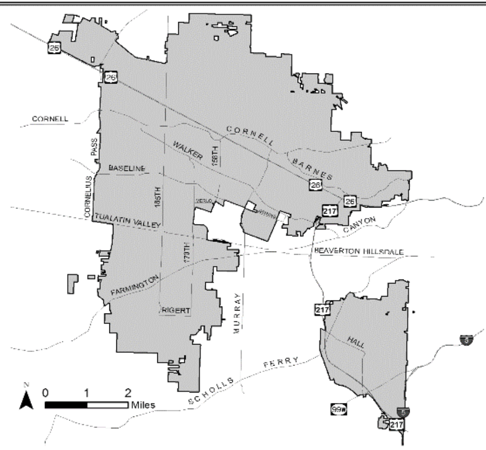
PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	Pipeline	Water Rates:	Yes	No on-going operating cost. The new retaining wall is anticipated to be transferred to Multnomah County for ownership and maintenance.
		Service Fees:	No	
Project Manager:	Andrew Barrett	SDC Improvemt. Fee Elg.:	0%	
Work Performed By:	Outside Contract			
Total Priority Score:	30	Partner Cost Percentage:	0%	

BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
-	-	400,000	-	-	-	-	-	400,000	-

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE: **Minor System Improvements**



KEY DRIVERS FOR CIP PROJECT		
1.	Reliability	These minor projects will increase the reliability of the system.
2.	Asset Condition	As piping and other components of the water system age, they need to be replaced. These improvements will improve the longevity of the system.
3.	Project Urgency	As development or other assessments are done, these projects will need to be done on a short timeline.

PROJECT DESCRIPTION

Minor system improvements are necessary to maintain and improve the operations of the system as development and other projects occur. The projects in this line item could include installing new connections (jumpers), cutting in new valves, or other realignments of pipelines. This work has historically been done as part of General System Maintenance, however, where new infrastructure is being added, it will be tracked as a capital project.

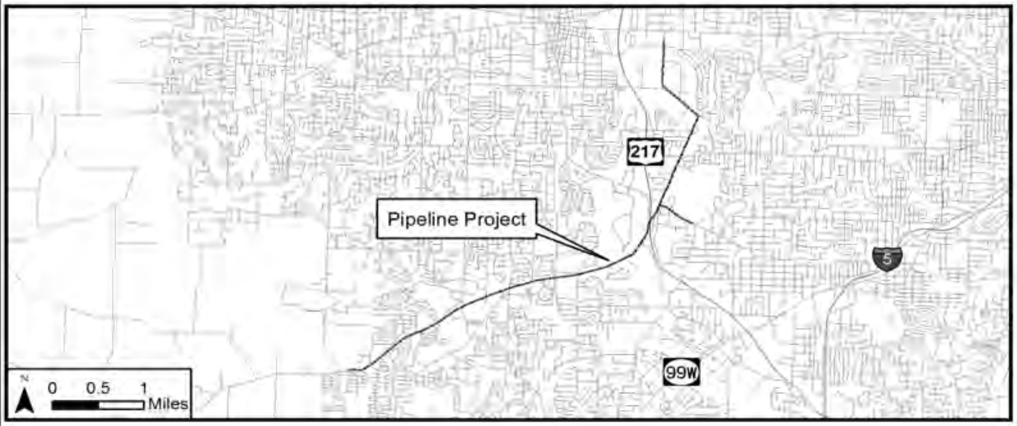
PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	Pipeline	Water Rates:	Yes	Operational costs are negligible with this line item, though there may be some slight decrease as aging components are replaced.
		Service Fees:	No	
Project Manager:	Pete Boone	SDC Improvemt. Fee Elg.:	0%	
Work Performed By:	Outside Contract			
Total Priority Score:	27	Partner Cost Percentage:	0%	

BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
-	-	103,500	107,000	111,000	115,000	119,000	123,000	678,500	-

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE:	**Metzger Pipeline East**



KEY DRIVERS FOR CIP PROJECT		
1.	Customer Criticality	This pipeline will deliver water to the entire District, and will serve as the main source of supply for both the Metzger and Wolf Creek areas.
2.	Project Urgency	The project must be complete prior to the WWSS coming online in 2026.
3.	Reliability	The new pipeline will be a reliable, seismically resilient source of supply.

PROJECT DESCRIPTION

This project referred to as MPE_1 consists of approximately 35,600 LF of 48-inch diameter welded steel pipeline and 2,400 LF of 24-inch diameter pipe to deliver water from the WWSS turnout at Roy Rogers Road and Scholls Ferry Road to both the Metzger and Wolf Creek areas of TVWD. This project is expected to be complete prior to the WWSS coming online.

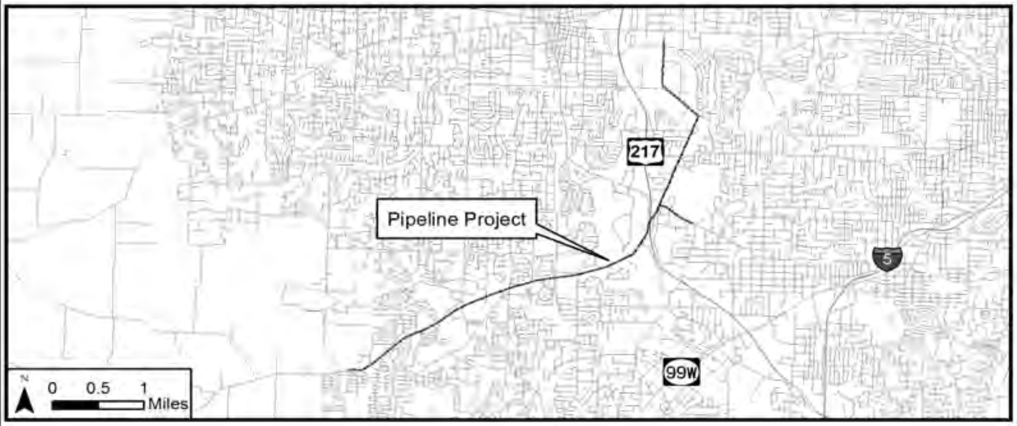
PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	Pipeline	Water Rates:	Yes	There will be added operating costs to maintain and operate the new waterline. These costs include mapping, locating, and operating valves associated with the new pipeline. As part of a WWSS operations cost forecast completed in 2018, District staff estimated that the annual cost of exercising valves plus materials for valve maintenance would be approximately $45,000 in today's dollars.
		Service Fees:	No	
Project Manager:	WWSP	SDC Improvemt. Fee Elg.:	61%	
Work Performed By:	Outside Contract			
Total Priority Score:	24	Partner Cost Percentage:	0%	

BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
-	2,892,514	4,591,157	5,592,846	28,801,425	46,651,365	15,030,323	1,440,443	102,107,561	-

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE: Metzger Pipeline East Real Estate



KEY DRIVERS FOR CIP PROJECT		
1.	Customer Criticality	This pipeline will deliver water to the entire District, and will serve as the main source of supply for both the Metzger and Wolf Creek areas.
2.	Project Urgency	The project must be complete prior to the WWSS coming online in 2026.
3.	Reliability	The new pipeline will be a reliable, seismically resilient source of supply.

PROJECT DESCRIPTION

The costs shown below represent the current projections for real estate related to Metzger Pipeline East.

PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	Pipeline	Water Rates:	Yes	There is no anticipated change in operating costs associated with the land for the pipeline.
		Service Fees:	No	
Project Manager:	WWSP	SDC Improvemt. Fee Elg.:	61%	
Work Performed By:	Outside Contract			
Total Priority Score:	24	Partner Cost Percentage:	0%	

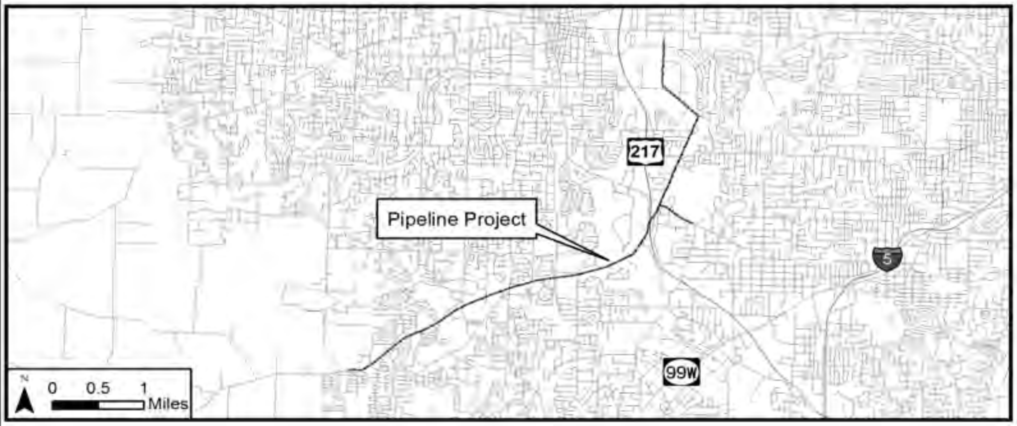
BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
-	-	623,140	429,970	-	-	-	-	1,053,110	-

CIP 2019-21 Proposed CIP - 46

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE: Metzger Pipeline East System-wide Costs



KEY DRIVERS FOR CIP PROJECT		
1.	Customer Criticality	This pipeline will deliver water to the entire District, and will serve as the main source of supply for both the Metzger and Wolf Creek areas.
2.	Project Urgency	The project must be complete prior to the WWSS coming online in 2026.
3.	Reliability	The new pipeline will be a reliable, seismically resilient source of supply.

PROJECT DESCRIPTION

The costs shown below represent the current projections for WWSP system-wide costs related to Metzger Pipeline East.

PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	Pipeline	Water Rates:	Yes	There is no anticipated change in operating costs associated with the system-wide costs required for the pipeline.
		Service Fees:	No	
Project Manager:	WWSP	SDC Improvemt. Fee Elg.:	61%	
Work Performed By:	Outside Contract			
Total Priority Score:	24	Partner Cost Percentage:	0%	

BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
-	-	1,460,136	1,478,384	1,441,661	1,417,245	1,506,140	1,534,404	8,837,971	-

CIP 2019-21 Proposed

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE: PRV / Vault Replacements & Upgrades: Unidentified Projects

KEY DRIVERS FOR CIP PROJECT		
1.	Asset Condition	Several of the District's Pressure Regulating Valves and associated vaults are at the end of their useful life and have experienced failures.
2.	Safety & Security	Operator safety will be improved by replacing or upgrading vaults and improving access.
3.	Customer Criticality	These facilities provide water to significant portions of the District's service area.

PROJECT DESCRIPTION

This line item will include replacements, upgrades, and safety improvements of pressure regulating valve vaults. Included in this line item is the 175th Ave. vault, which needs the piping replaced due to corrosion and the valves resized to fit the pressure zone's needs. Other representative projects include the Siler ridge and Oak street vaults, which also need new piping due to corrosion, and a way to keep the vaults dry so the District can get a longer life out of its valves.

PROJECT INFORMATION	
Project Category:	Pipeline
Project Manager:	TBD
Work Performed By:	District Staff
Total Priority Score:	28

FUNDING SOURCES	
Water Rates:	Yes
Service Fees:	No
SDC Improvemt. Fee Elg.:	0%
Partner Cost Percentage:	0%

FUTURE OPERATING COST IMPACT

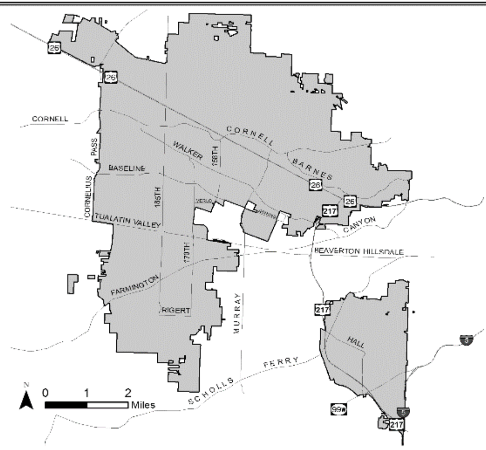
The addition of a PRV station will increase operating and maintenance costs nominally, but will also allow greater operational flexibility of the Miller Hill ASR.

BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
400,000	113,875	221,500	229,000	237,500	245,500	254,000	263,000	1,450,500	9,382,500

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE:	Transmission Mains CARV Rehabilitation



KEY DRIVERS FOR CIP PROJECT		
1.	Asset Condition	The district needs to maintain the existing CARVs and bring them up to current standards.
2.	Water Quality	These minor rehabilitation projects will address water quality concerns associated with the old CARVs.
3.	Safety and Security	There is a risk if the CARVs are not maintained, for there to be issues with the transmission pipelines along with potential water quality concerns.

PROJECT DESCRIPTION

This line item will include replacements, upgrades, and safety improvements of CARV valves and vaults. Rehabilitation and proper operation of the CARVs in the system is essential to maintaining pipelines, and avoiding damage to the pipelines.

PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	Pipeline	Water Rates:	Yes	No material impact to operating expenses.
		Service Fees:	No	
Project Manager:	Pete Boone	SDC Improvemt. Fee Elg.:		
Work Performed By:	District Staff		0%	
Total Priority Score:	30	Partner Cost Percentage:		
			0%	

BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
-	-	103,500	107,000	111,000	115,000	119,000	123,000	678,500	-

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE:	Seismic Upgrades District Headquarters

KEY DRIVERS FOR CIP PROJECT		
1.	Reliability	Upgrades facility to be more likely to withstand a seismic/security event.
2.	Asset Condition	Structural improvements to make the facility capable of providing long-term, reliable service. Opportunity projects such as painting, and carpet replacement will be done at the same time to capitalize on the project.
3.	Safety/Security	Structural improvements will improve safety/life safety/security for District Staff.

PROJECT DESCRIPTION

Planning, design, permitting, and construction of seismic, security, and work process improvements of multiple interior and/or exterior areas at the TVWD Headquarters. The improvements will increase life safety, security, and resilience. FY 2022 project will focus improvements for building seismic upgrade.

PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	Facilities	Water Rates:	Yes	No material impact. No expansion is planned and is already part of the routine maintenance performed by the Facility staff. No long term operating cost impact.
		Service Fees:	No	
Project Manager:	Matt Oglesby	SDC Improvemt. Fee Elg.:		
Work Performed By:	Contract & District Staff		0%	
Total Priority Score:	18	Partner Cost Percentage:	0%	

BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
-	-	-	-	1,185,000	-	-	-	1,185,000	-

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE: Engineering/Operations Space Reorganization

KEY DRIVERS FOR CIP PROJECT		
1.	Growth/Future Demands	Efficiently repurpose underutilized space to meet the growing demands.
2.	Cost Effectiveness / Community Benefit	By repurposing space this will postpone building expansions.
3.	Asset Condition	Opportunity projects such as painting, and carpet replacement will be done at the same time to capitalize on the project.

PROJECT DESCRIPTION

Planning, design, purchasing and construction/remodel of multiple interior areas at the District Headquarters. Example areas: Engineering, Customer Service, and Operations. These areas need to be rearranged to increase productivity by consolidating work groups and maximize existing space to accommodate future needs. Included in the scope are opportunity projects like lighting, painting, carpet replacement, and workspace furnishing to be done at the same time. Work anticipated in FY 2021 includes space modifications necessary to finalize Engineering and Operations Dept re-organization.

PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	Facilities	Water Rates:	Yes	No material impact. No expansion is planned and is already part of the routine maintenance performed by the Facility staff. No long term operating cost impact.
		Service Fees:	No	
Project Manager:	Collin Fleming	SDC Improvemt. Fee Elg.:	0%	
Work Performed By:	Contract & District Staff			
Total Priority Score:	17	Partner Cost Percentage:	0%	

BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
-	-	165,500	139,500	-	-	-	-	305,000	-

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE:	Headquarters Lobby Improvements

KEY DRIVERS FOR CIP PROJECT		
1.	Safety and Security	Lobby safety and security are essential to the customer service operations at TVWD.
2.	Project Urgency	The District is utilizing a consultant for the planning and design work for this project. The consultant will provide improvement recommendations to District staff.
3.	Asset Condition	The front lobby needs to be upgraded to meet the safety and security needs of the Customer Service Department. The flag poles will need to be replaced in order to comply with state law requirements.

PROJECT DESCRIPTION

The District has identified the customer lobby as an area that needs to be retrofitted with improvements in order to increase safety and security. This project includes planning, design, permitting, and construction/remodel to meet District objectives. This project will also include the addition of flag poles to meet state law; the passage of HB2892 in 2015 requires that the National League of Families' POW/MIA flag be flown along with the United States flag and the Oregon State flag upon or near public buildings that have existing flagpoles, which accommodate the proper display of three flags simultaneously.

PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	Facilities	Water Rates:	Yes	No material impact. No expansion is planned and is already part of the routine maintenance performed by the Facility staff. No long term operating cost impact.
		Service Fees:	No	
Project Manager:	Collin Fleming	SDC Improvemt. Fee Elg.:		
Work Performed By:	Contract & District Staff		0%	
Total Priority Score:	17	Partner Cost Percentage:	0%	

BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
-	-	155,500	-	-	-	-	-	155,500	-

CIP 2019-21 Proposed

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE: Headquarters Yard Modifications

KEY DRIVERS FOR CIP PROJECT		
1.	Growth/Future Demands	Expanding covered storage area to increase the life of multiple assets such as fleet, inventory, and tools/equipment.
2.	Safety & Security	Increase the safety of pedestrians and vehicle traffic by making dedicated walking and driving paths. Possibly add an additional entry/exit for employees in the south parking lot.
3.	Reliability	Creating more storage by adding racking and additional covered areas will increase the amount of inventory we can store to be able to respond quicker to emergency situations.

PROJECT DESCRIPTION

Planning, design, permitting, and construction of multiple improvement projects to increase pedestrian/vehicle flow, storage, and covered parking for TVWD fleet. Evaluate and study an additional entry/exit from south parking lot to Merlo Rd.

PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	Facilities	Water Rates:	Yes	Small maintenance impact due to expanded building footprint. Some impact of utilities due to increase in enclosed and heated building. Building will have a low maintenance requirement on the Facility staff due to space being unoccupied.
		Service Fees:	No	
Project Manager:	Matt Oglesby	SDC Improvemt. Fee Elg.:	0%	
Work Performed By:	Contract & District Staff			
Total Priority Score:	15	Partner Cost Percentage:	0%	

BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
-	-	-	289,000	-	-	-	-	289,000	-

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE: Safety and Security Improvements

KEY DRIVERS FOR CIP PROJECT		
1.	Asset Condition	Many of the safety and security hardware is at or near its end of life and is counted on to work daily. Replacing/upgrading the systems will make TVWD better equipped to be able to expand in the future.
2.	Safety & Security	Facility safety and security are essential to the operations at TVWD and these systems are critical for that to happen. The safety railing is needed to meet OSHA codes.
3.	Cost Effectiveness	These systems are more cost effective if replaced before the end of life. Many systems would need to be replaced ASAP if they failed which would be done at a premium cost.

PROJECT DESCRIPTION

Planning, design, purchasing, and installation of critical safety and security hardware. Safety railing needs to be added to many areas on the roof to protect staff from fall hazards per OHSA. The electronic security equipment is in need of replacement due to equipment being at the end of its life. The new equipment and software may be easily expanded in the future. Examples: Alarm Panel Replacement, CyberLock Phase 2, modernization of the Access Control System, Fire Panel, Security Cameras.

PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	Facilities	Water Rates:	Yes	Operating cost should decrease due to the new hardware taking less maintenance and time for reprogramming. Less vendor involvement is anticipated. Safety Improvement: Staff will not have to tie off when on the roof to do maintenance activities which will save them time.
		Service Fees:	No	
Project Manager:	Collin Fleming	SDC Improvemt. Fee Elg.:	0%	
Work Performed By:	Outside Contract			
Total Priority Score:	17	Partner Cost Percentage:	0%	

BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
-	-	207,000	214,000	55,400	-	-	-	476,400	-

CIP 2019-21 Proposed

CIP - 54

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE:	Board Room Audio Visual Improvements

KEY DRIVERS FOR CIP PROJECT		
1.	Asset Condition	The AV equipment continues to have hardware and software issues that cannot be remedied.
2.	Cost Effectiveness / Community Benefit	Time would be saved with each meeting setup due to the multiple issues that arise with each setup. As the meeting frequency increases the cost savings are amplified.
3.	Reliability	The new equipment would be more reliable and easily scalable to meet the ever growing needs of the Board Room.

PROJECT DESCRIPTION

Replacement of existing audio and visual equipment in the Board Room is necessary due to issues that cannot be fixed. Project includes planning, design, purchase and installation of audio and visual equipment with the option to live stream/record meetings. The existing equipment is beyond its useful life and is increasingly costlier to maintain and set up for various meeting configurations (e.g., TVWD Board, WIF, WWSS, Joint agency boards). The new system would streamline the setup and save time. This project will be closely coordinated with potential building seismic upgrades.

PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	Facilities	Water Rates:	Yes	Operating cost would decrease due to less maintenance need by the vendor (which has increased the last couple years) as well as less labor used to setup and troubleshoot issues.
		Service Fees:	No	
Project Manager:	Collin Fleming	SDC Improvemt. Fee Elg.:	0%	
Work Performed By:	Contract & District Staff			
Total Priority Score:	13	Partner Cost Percentage:	0%	

BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
-	-	186,500	-	-	-	-	-	186,500	-

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE: HVAC Replacements

KEY DRIVERS FOR CIP PROJECT		
1.	Reliability	The server room backup HVAC unit is needed due to the criticality of that room and a redundant system relieves some of the risk of overheating.
2.	Aging Infrastructure	Proactively prioritizing an HVAC replacement program. Many of the HVAC units are approaching the end of their lives. One unit dates to the original building, making it hard to find repair parts.
3.	Cost Effectiveness / Community Benefit	Systematically replacing the units will be more cost effective than replacing them when they stop working. Some units will need to have duct work replaced which cannot be done in an emergency.

PROJECT DESCRIPTION

Many of the HVAC units are in need of replacing due to the units reaching their life expectancy. This project would include the addition of a backup HVAC unit for the server room and a systematic replacement of the rest of the units. Replacement of HVAC units will be coordinated with any building improvements for seismic resiliency.

PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	Facilities	Water Rates:	Yes	Operating cost should decrease due to more efficient units which will decrease energy consumption. Less labor will be needed by staff in managing the repairs by vendors.
		Service Fees:	No	
Project Manager:	Collin Fleming	SDC Improvemt. Fee Elg.:	0%	
Work Performed By:	Contract & District Staff			
Total Priority Score:	14	Partner Cost Percentage:	0%	

BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
-	-	31,100	160,500	83,200	-	-	-	274,800	-

CIP 2019-21 Proposed CIP - 56

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE: Headquarters Lighting Improvements

KEY DRIVERS FOR CIP PROJECT		
1.	Cost Effectiveness / Community Benefit	Partnering with the Energy Trust of Oregon, the new fixtures would decrease energy usage as well as maintenance by the Facilities staff. Re-lamping frequency would decrease due to the LED lights lasting 15-20 years instead of 4-5 years.
2.	Asset Condition	The light panel is outdated and needs to be replaced due to unreliability issues.
3.	Safety and Security	The outdoor lighting is inadequate for security light. The existing lighting is not instant on which is needed for a high security campus. Also, the light panel does not work properly with the motion sensors for the safety of our personnel.

PROJECT DESCRIPTION

Multiple interior and exterior lights have been found to have inadequate light for safety and security. This project would lay out a plan to replace light fixtures instead of re-lamping, which happens on a four-year rotation for proper illumination and maintenance issues. The light panels that are connected to the security system have become unreliable and need to be replaced. Facilities would work with the Energy Trust of Oregon to increase efficiency, improve light quality, increase security, and maximize rebates that are offered.

PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	Facilities	Water Rates:	Yes	Operating cost would decrease from more energy efficient system. Decreased replacement frequency results in lowered labor cost.
		Service Fees:	No	
Project Manager:	Matt Oglesby	SDC Improvemt. Fee Elg.:	0%	
Work Performed By:	Contract & District Staff			
Total Priority Score:	16	Partner Cost Percentage:	0%	

BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
-	-	20,700	32,100	33,300	-	-	-	86,100	-

CIP 2019-21 Proposed CIP - 57

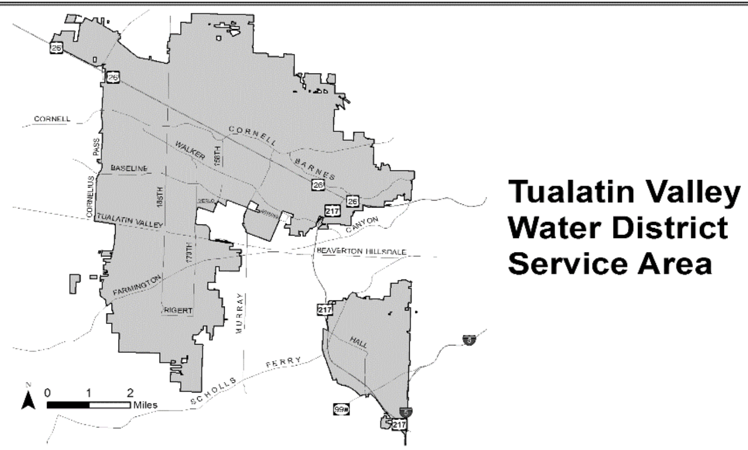
Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
FLEET REPLACEMENT SCHEDULE

				GL 11-40-01-8831		
				FY 19-20	FY 20-21	Total
			2019-2021 Fleet Costs	$ 651,000	$ 595,000	$ 1,246,000

DIVISION OR PROGRAM	ITEM	QTY	DESCRIPTIONS AND RATIONALE	TOTAL AMT	EST. MONTH NEEDED	EST. YEAR NEEDED
ENG-Engineering	Compact PU Unit 6	1	Age Replacement	$ 36,000	2	2021
FCS- Meter Reader	Upgrade Meter Reading Vehicle Fleet	2	Age Replacement	$ 74,000	12	2020
System Ops-Locators	Locating Cargo Minivan Unit 76	1	Age Replacement	$ 35,000	7	2020
Water Ops-Const/Maint	Dump Truck, Unit 45	1	Age Replacement	$ 220,000	6	2020
Water Ops-Const/Maint Carry over for 17-19	Dump Truck, Unit 43	1	Age Replacement	$ 196,000	10	2019
DISTRICT - Shared	Potable Hose Trailer	2	New Trailer	$ 25,000	10	2020
Water Ops-Const/Maint	Back Hoe and Compactor Unit 119	1	Age Replacement	$ 160,000	9	2020
Water Ops-Const/Maint	Track Hoe Unit 150	1	Age Replacement	$ 135,000	2	2021
System Ops	One Ton Service truck, Unit 80	1	Age Replacement	$ 85,000	5	2021
DISTRICT - Shared	Passenger Vehicle, Unit 19	1	Age Replacement	$ 35,000	5	2020
Water Ops-Const/Maint	Full Size Pickup Unit 148	1	Age Replacement	$ 45,000	3	2021
DISTRICT - Shared	Passenger Vehicle, Unit 71	1	Age Replacement	$ 40,000	10	2019
Water Ops-Const/Maint	Heavy Trailer Unit 220 and 224	2	Age Replacement	$ 30,000	9	2019
System Ops	1 1/2 Ton Service truck, Unit 82	1	Age Replacement	$ 130,000	7	2019

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE:	**Customer Information System**



KEY DRIVERS FOR CIP PROJECT		
1.	Project Urgency	The District's legacy utility billing system is outdated, requires significant internal support and lacks functionality necessary to meet District objectives such as improving the customer experience.
2.	Customer Criticality	The Customer Information System (CIS) impacts District customers as well as billing partners. Newer CIS technologies are expected to address customer satisfaction by expanding secure customer self-service options.
3.	Reliability	The CIS is a mission-critical system that must be reliable and flexible in order to meet current and future District needs, including potential affordability measures. The new CIS is expected to provide improved system reliability as compared to the legacy utility billing system.

PROJECT DESCRIPTION

This project, a joint venture with billing partner Clean Water Services, focuses on selecting and implementing a commercial Customer Information System (CIS) to replace the District's legacy utility billing system. The District and Clean Water Services will share costs for the project. CIS project phases will be: selection; implementation; and beginning ongoing operations under the new system. The CIS project timeline through cutover and new system stabilization is anticipated to take approximately three years. The District will continue to refine project cost estimates and staffing requirements throughout the project cycles and provide ongoing reporting to the Board of Commissioners and management. The project will involve extensive customer communications prior to cutover.

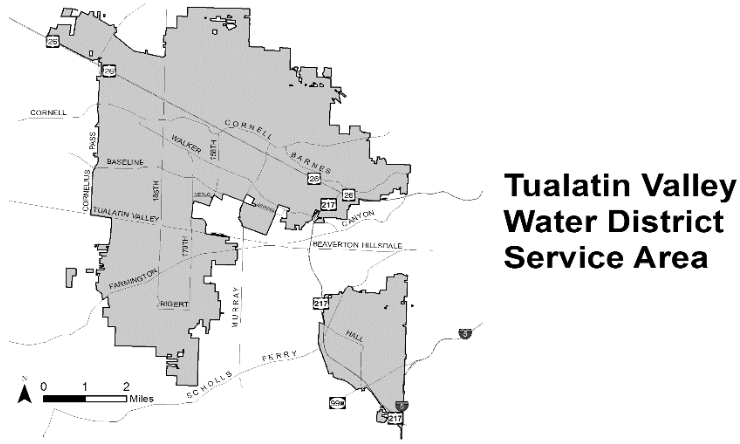
PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	Information Technology	Water Rates:	Yes	It is anticipated that internal IT support will be reduced. Annual software licensing and maintenance costs will be incurred. Expanded on-line and mobile payment options may reduce costs for bill printing/presentment, but increase merchant and bank transactions fees. $105,000 will be incurred for one-time training and software needs in FY2021 and FY2022, with $50,000 in FY2022 (2021-2023 biennium).
		Service Fees:	No	
Project Manager:	Andrew Carlstrom	SDC Improvemt. Fee Elg.:	0%	
Work Performed By:	Contract & District Staff			
Total Priority Score:	26	Partner Cost Percentage:	50%	

BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
3,574,700	10,000	3,110,000	5,070,000	1,225,000	-	-	-	9,405,000	-

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE:	Service Installations



KEY DRIVERS FOR CIP PROJECT		
1.	Growth/Future Demands	Serves new customers as they are added to the District's service area, and replaces aging meters and services as-needed to provide reliable service.
2.	Reliability	Improvements required to maintain reliable water service to customers.
3.	Customer Criticality	Enhances safety by improving level of service for customers and providing safe, reliable drinking water.

PROJECT DESCRIPTION

This category of work involves the various ongoing installation and replacement of service installations and large meters by District crews in support of new development and customer base growth, and to replace aging infrastructure on an as-needed basis. The service and large meter installation work is completed by TVWD Field Operations. Costs for new service installations are paid by separate development fees.

PROJECT INFORMATION		FUNDING SOURCES	FUTURE OPERATING COST IMPACT
Project Category:	Meters & Services	Water Rates: Yes Service Fees: Yes	Meter and service maintenance is an ongoing and routine District activity. Meters and services for new customers are recovered through separate fees.
Project Manager: Work Performed By:	Field Operations District Staff	SDC Improvemt. Fee Elg.: 0%	
Total Priority Score:	21	Partner Cost Percentage: 0%	

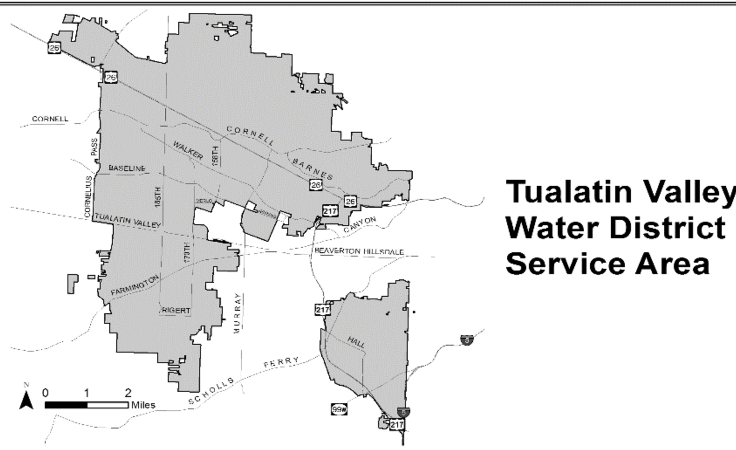
BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
2,455,700	2,455,700	1,335,000	1,490,000	1,540,000	1,595,000	1,650,000	1,710,000	9,320,000	56,560,000

CIP 2019-21 Proposed CIP - 60

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE:	Customer Service: Meter Installations



KEY DRIVERS FOR CIP PROJECT		
1.	Growth/Future Demands	Serves new customers as they are added to the District's service area, and replacement of aging meters and services as needed to provide reliable service.
2.	Reliability	Improvements required to maintain reliable water service to customers.
3.	Customer Criticality	Enhances safety by improving level of service for customers and providing safe, reliable drinking water.

PROJECT DESCRIPTION

This category of work involves the various ongoing installation and replacement primarily residential meters and services by District crews in support of new development and customer base growth, and to replace aging infrastructure on an as needed basis. The meter installation work is completed by TVWD Field Customer Service. Costs for new meters installations are paid by separate development fees.

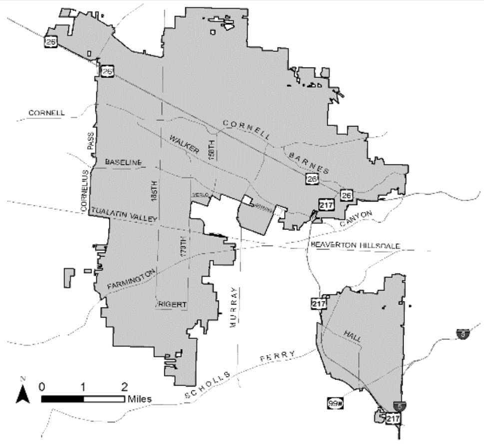
PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	Meters & Services	Water Rates:	Yes	Meter and service maintenance is an ongoing and routine District activity. Meters and services for new customers are recovered through separate fees.
		Service Fees:	Yes	
Project Manager:	Field Customer Service	SDC Improvemt. Fee Elg.:		
Work Performed By:	District Staff		0%	
Total Priority Score:	21	Partner Cost Percentage:	0%	

BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
487,366	336,062	238,500	270,500	-	-	-	-	509,000	-

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE:	Automated Meter Reading Program (AMR)



KEY DRIVERS FOR CIP PROJECT		
1.	Asset Condition	Replacement of aging infrastructure to provide new resilient appurtenances capable of providing long-term, reliable service.
2.	Reliability	Improvements required to maintain reliable and resilient facilities.
3.	Cost Effectiveness / Community Benefit	Provides new AMR meters to improve cost-effectiveness of long term operations to the District's customers.

PROJECT DESCRIPTION

This program is being postponed until the District considers and develops a plan based on the results of the upcoming AMR business case analysis.

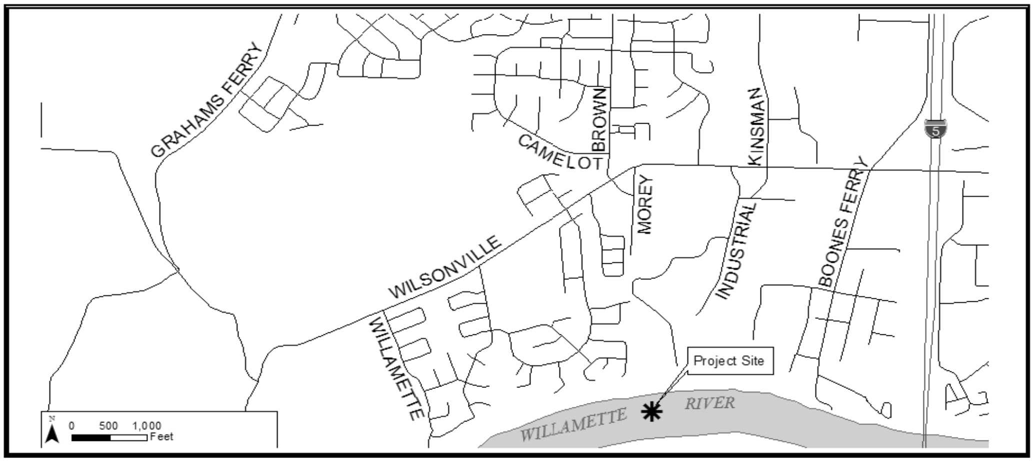
PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	Meters & Services	Water Rates:	Yes	AMR meters result in decreased labor costs over time. Each AMR battery will need to be replaced about every twelve years. The District will budget for these replacements in the future as needed.
		Service Fees:	No	
Project Manager:	Field Customer Service	SDC Improvemt. Fee Elg.:	0%	
Work Performed By:	District Staff			
Total Priority Score:	TBD	Partner Cost Percentage:	0%	

BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
-	415,000	-	-	-	-	-	-	-	-

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE:	**Joint Venture: WIF**



KEY DRIVERS FOR CIP PROJECT		
1.	Project Criticality	First piece of the Willamette Water Supply System (WWSS), which will provide reliable and safe drinking water to the District's customers.
2.	Growth/Future Demands	Project is a key element of the District's new long-term supply source that will meet current and future demands.
3.	Reliability	WWSS will increase overall reliability by providing a new, seismically hardened source for the District.

PROJECT DESCRIPTION

Program level costs associated with the Willamette Intake Facilities (WIF) Commission, including new fish screens, air burst system improvements, and seismic improvements to the expanded intake within the raw water facility at the Willamette River Water Treatment Plant (WRWTP). For more details on the WWSS raw water facility project (RWF 1.0), please see page F-2 in your budget workbook.

Costs shown below are TVWD's share of projected total project costs. Therefore, under Funding Sources, the partner cost percentage (of the costs shown) is zero (0%).

PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	Joint Venture	Water Rates:	Yes	The water intake improvements are either replacements or static in nature, and should not drive material net impacts on future operating costs.
		Service Fees:	No	
Project Manager:	David Kraska	SDC Improvemt. Fee Elg.:		
Work Performed By:	Outside Contract		61%	For details on the estimated cost impact of the future raw water facility (RWF 1.0), please see page F-2 in your budget workbook.
Total Priority Score:	28	Partner Cost Percentage:	0%	

BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
-	-	350,765	3,271,701	2,128,537	-	-	-	5,751,002	-

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE:	Joint Venture: WWSS

KEY DRIVERS FOR CIP PROJECT		
1.	Project Criticality	Willamette Water Supply System (WWSS) will provide reliable and safe drinking water to the District's customers.
2.	Growth/Future Demands	WWSS will be a new long-term supply source to meet current and future demands.
3.	Reliability	WWSS will increase overall reliability by providing a new, seismically hardened source for the District.

PROJECT DESCRIPTION

Program level costs associated with supporting the development and implementation of the Willamette Water Supply System (WWSS), including design and construction of the WWSS projects, costs for real estate and easements, permitting and mitigation, legal expenses, program management services, and management reserves. For more details on individual WWSS projects, please see pages F-1 through F-12 in your budget workbook.

Costs shown below are TVWD's share of projected total project costs. Therefore, under Funding Sources, the partner cost percentage (of the costs shown) is zero (0%).

PROJECT INFORMATION	
Project Category:	Joint Venture
Project Manager:	David Kraska
Work Performed By:	Outside Contract
Total Priority Score:	28

FUNDING SOURCES	
Water Rates:	Yes
Service Fees:	No
SDC Improvemt. Fee Elg.:	61%
Partner Cost Percentage:	0%

FUTURE OPERATING COST IMPACT

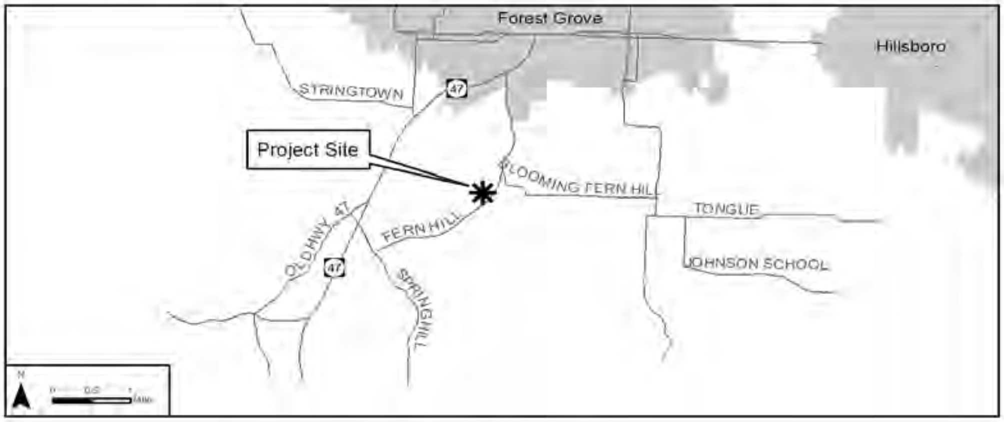
Overall, the WWSS will result in significant savings by eliminating purchased water costs from Portland.
The District is projecting net savings of approximately $5 million in FY2027 (i.e., a 36% decrease from FY2026), after shifting from 100% purchased water costs to a new balance of JWC water purchases plus the costs of WWSS treatment and pumping power.

BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future (FY 26 & FY 27)
-	-	47,348,659	62,432,264	79,896,470	148,166,181	117,680,516	48,006,928	503,531,018	36,982,798

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE: JWC WTP improvements to existing 75 MGD



KEY DRIVERS FOR CIP PROJECT		
1.	Project Urgency	This project is on-going and nearing completion. The budget accounts for items associated with final completion of the project.
2.	Growth/Future Demands	Plant improvements increase production to meet growing demands cost effectively.
3.	Reliability	Improvements required to maintain reliable supply.

PROJECT DESCRIPTION

This project will return the Joint Water Commission (JWC) Water Treatment Plant to its rated capacity of 75 MGD. Each JWC partner will have a capacity share responsibility for this. Also included are design life safety improvements as recommended in the 2008 seismic study and further prioritized by Carollo in the Seismic CIP program, and a facility plan for the proposed WTP build-out based on the Willamette Supply decision.

Costs shown below are TVWD's share of projected total project costs. Therefore, under Funding Sources, the partner cost percentage (of the costs shown) is zero (0%)

PROJECT INFORMATION	
Project Category:	JWC
Project Manager:	Pete Boone
Work Performed By:	Outside Contract
Total Priority Score:	This is a partnership project, agreed to by the JWC.

FUNDING SOURCES	
Water Rates:	Yes
Service Fees:	No
SDC Improvemt. Fee Elg.:	0%
Partner Cost Percentage:	0%

FUTURE OPERATING COST IMPACT

No material impact anticipated with the exception of routine operational and maintenance costs. Efficiencies gained in plant operations and seismic safety may mitigate future capital replacement and maintenance costs.

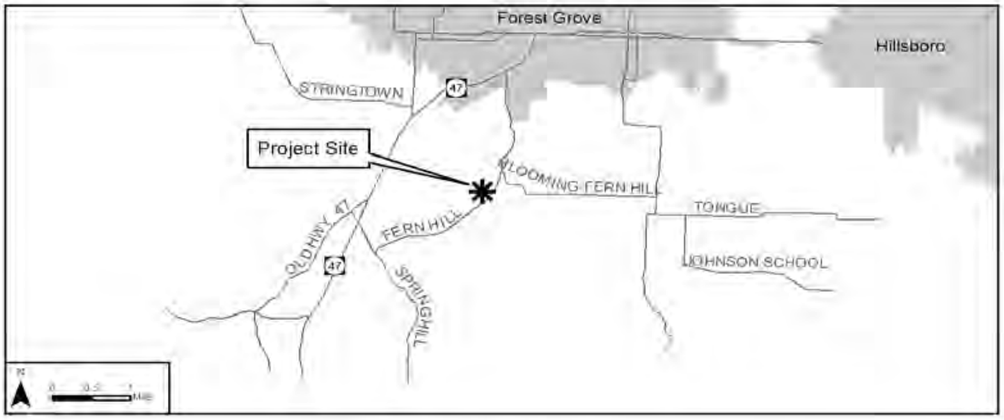
BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
1,965,751	1,965,751	303,500	-	-	-	-	-	303,500	-

CIP 2019-21 Proposed CIP - 65

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE: JWC WTP improvements to increase to 85 MGD



KEY DRIVERS FOR CIP PROJECT		
1.	Project Urgency	This project is on-going and nearing completion. The budget accounts for items associated with final completion of the project.
2.	Growth/Future Demands	Plant expansion increases production to meet growing demands cost effectively.
3.	Reliability	Improvements required to maintain reliable supply.

PROJECT DESCRIPTION

This is a continuation from current fiscal year. The key component of this project is to expand the capacity from 75 to 85 MGD. Hillsboro will take 8 MGD of this expansion and TVWD will take 2 MGD. The treatment plant expansion design was awarded to CH2M and started in the second half of FY 15-16. Slayden Construction was selected as the CM/GC contractor for the project. Package I WTP improvement started in February 2017. Package II construction started in November of 2017. The Expansion is expected to be complete in fall 2019.

Costs shown below are TVWD's share of projected total project costs. Therefore, under Funding Sources, the partner cost percentage (of the costs shown) is zero (0%).

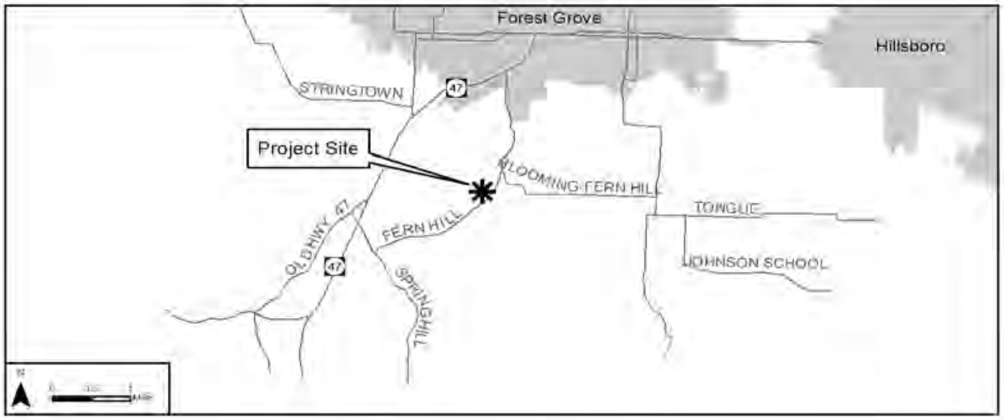
PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	JWC	Water Rates:	Yes	A slight decrease in operating cost is anticipated since the District will no longer need to lease capacity.
		Service Fees:	No	
Project Manager:	Pete Boone	SDC Improvemt. Fee Elg.:	100%	
Work Performed By:	Outside Contract			
Total Priority Score:	This is a partnership project, agreed to by the JWC.	Partner Cost Percentage:	0%	

BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
3,001,638	3,001,638	427,500	-	-	-	-	-	427,500	-

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE: JWC Fern Hill Reservoir 1 Repair



KEY DRIVERS FOR CIP PROJECT		
1.	Asset Condition	The reservoir has concrete spalling around the interior perimeter of the tank and the roof has concrete cracking, exposed rebar, and poor drainage.
2.	Project Urgency	The reservoir is in need of repairs to address spalling around the interior perimeter of the tank and to prevent further cracking on the roof, protect exposed rebar, and fix poor drainage.
3.	Reliability	Improvements required to maintain reliable supply.

PROJECT DESCRIPTION

In June 2017, routine diving inspection of Fern Hill Reservoir #1 revealed concrete spalling around the interior perimeter of the tank. JWC contracted with OBEC Consulting Engineers to perform a full reservoir internal inspection ("boat float") and external inspection. Their report dated December 15, 2017 indicated that cosmetic repairs were required on the interior of the tank to address the spalling. In addition, OBEC identified that the exterior roof needs repairs to seal and prevent further existing concrete cracking, protect exposed rebar, and fix poor drainage. Estimates for the repairs (including engineering services and contingency) were provided by OBEC in a total of $525,000. Design work will be performed in FY 18/19. Construction work will be performed in FY 19/20.

Costs shown below are TVWD's share of projected total project costs. Therefore, under Funding Sources, the partner cost percentage (of the costs shown) is zero (0%).

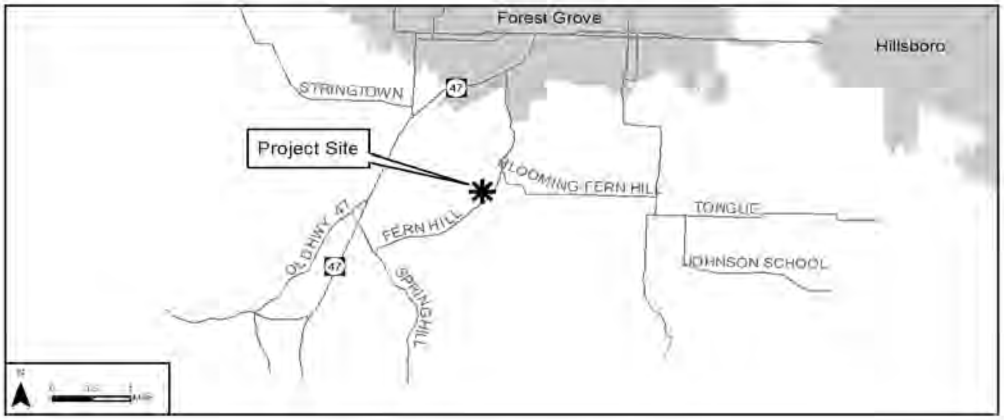
PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	JWC	Water Rates:	Yes	No material impact anticipated.
		Service Fees:	No	
Project Manager:	TBD	SDC Improvemt. Fee Elg.:		
Work Performed By:	Outside Contract		0%	
Total Priority Score:	This is a partnership project, agreed to by the JWC.	Partner Cost Percentage:	0%	

BUDGET INFORMATION & PROJECTED COSTS									
FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
-	-	100,000	-	-	-	-	-	100,000	-

CIP 2019-21 Proposed CIP - 67

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE: JWC Misc. Capital Projects, Repairs, & Replacements



KEY DRIVERS FOR CIP PROJECT		
1.	Asset Condition	Some pumps are from the 1970's, so they are unreliable, energy inefficient, and there are no spare parts available.
2.	Cost Effectiveness	In order to maximize savings in engineering and installation, the future replacement of two pumps was accelerated to be concurrent with the end-of-life replacement of two other pumps.
3.	Safety / Security	Some of these projects will repair facility roofs, while another will replace chemical storage buildings.

PROJECT DESCRIPTION

This collection of projects consists of minor capital repairs, replacements, updates, and unplanned miscellaneous expenses. Included are replacements of finished water and backwash pumps and motors, electrical assessments and improvements, a new FW 10 pump with a variable frequency drive, concrete in sedimentation basins (basins A, B, and C), roof repairs, replacement of the operations and chemical storage buildings, future annual capital repairs, and a master plan update in 2021. The JWC master plan was most recently amended in 2015.

Costs shown below are TVWD's share of projected total project costs. Therefore, under Funding Sources, the partner cost percentage (of the costs shown) is zero (0%).

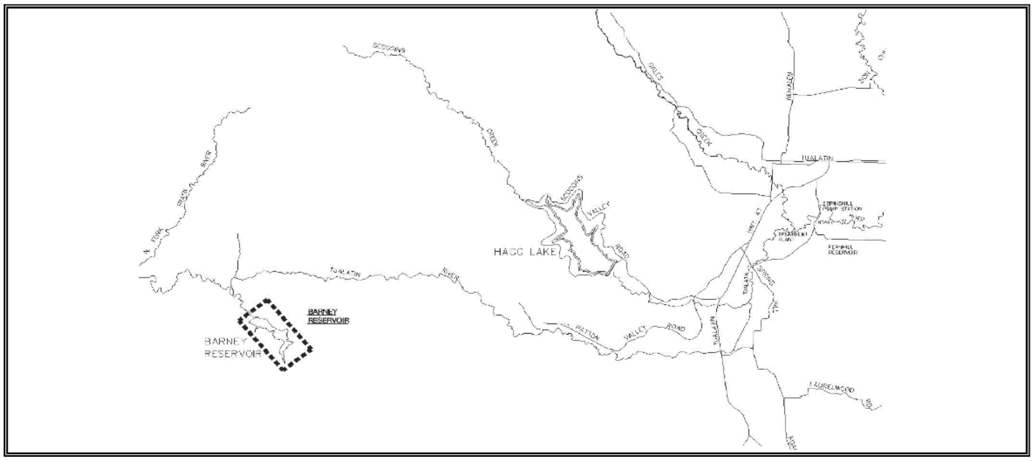
PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	JWC	Water Rates:	Yes	Costs for JWC operations are passed through to JWC partners based on ownership shares and water purchases. Most of these capital projects are minor equipment upgrades and replacements, which will not have a significant operating cost impact.
		Service Fees:	No	
Project Manager:	TBD	SDC Improvemt. Fee Elg.:		
Work Performed By:	Outside Contract		0%	
Total Priority Score:	This is a partnership project, agreed to by the JWC.	Partner Cost Percentage:	0%	

BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
-	-	213,000	310,500	312,000	176,000	243,000	251,500	1,506,000	10,513,500

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE:	**BRJOC Capital Repair/Replacement**



KEY DRIVERS FOR CIP PROJECT		
1.	Project Urgency	Maintains supply for multiple water supply partners.
2.	Customer Criticality	Reserves funds to ensure continuity of service in the event of unanticipated maintenance or equipment repair needs.
3.	Reliability	Improvements required to maintain reliable supply.

PROJECT DESCRIPTION

This project funds a reserve for unanticipated capital expenses for the Barney Reservoir Joint Ownership Commission (BRJOC) partners. Reserve funds are allocated based on ownership shares of the reservoir facilities, of which the District is a 35% owner. Establishment of the reserve provides resources to the BRJOC in the event of unplanned capital expenditure needs. Use of the reserve requires approval by all BRJOC partners including the District.

Costs shown below are TVWD's share of projected total project costs. Therefore, under Funding Sources, the partner cost percentage (of the costs shown) is zero (0%). The FY 19-20 amount includes the District's share of the flume fence project, budgeted at approximately $175,000. The FY 19-20 budget also includes about 25% of a new server and software for water sampling (remainder covered by JWC and Hillsboro), and budget to cover about 30% of a new vehicle for water sampling.

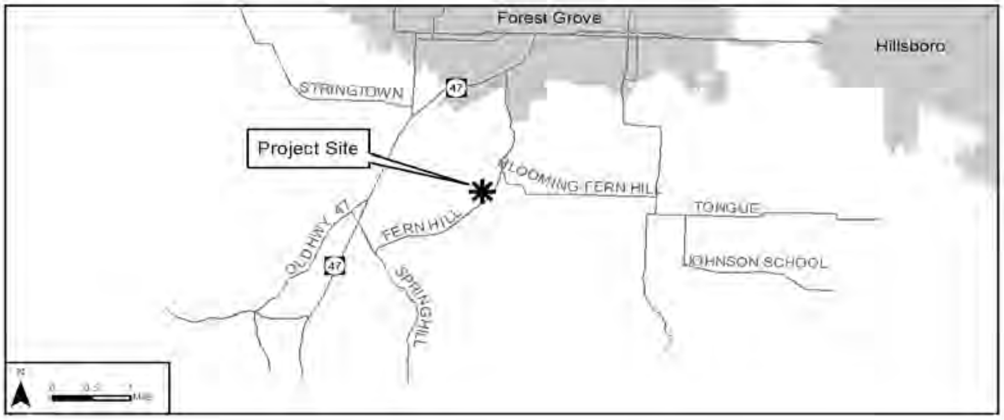
PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	JWC	Water Rates:	Yes	No material impact anticipated.
		Service Fees:	No	
Project Manager:	TBD	SDC Improvemt. Fee Elg.:		
Work Performed By:	Outside Contract		0%	
Total Priority Score:	This is a partnership project, agreed to by the JWC.	Partner Cost Percentage:	0%	

BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
-	-	81,300	46,900	48,500	50,200	52,000	53,800	332,700	1,918,300

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE: JWC Water Line Cathodic Protection



KEY DRIVERS FOR CIP PROJECT		
1.	Asset Condition	Project will reduce corrosion in water transmission lines.
2.	Cost Effectiveness	Project will increase the useful lives of water transmission lines.
3.	Reliability	Cathodic protection reduces the risk of service interruption due to leaks caused by corrosion.

PROJECT DESCRIPTION

Multiyear project to install cathodic protection devices to water transmission lines. FY 19-20 budget is for a study to identify optimal placement. Inspection will assess soil conditions and other factors to identify specific locations to install anodes. Thereafter, the budget is for installation of cathodic protection devices on identified sections of pipelines until project completion. Will increase the useful life of assets by reducing corrosion.

Costs shown below are TVWD's share of projected total project costs. Therefore, under Funding Sources, the partner cost percentage (of the costs shown) is zero (0%).

PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	JWC	Water Rates:	Yes	Cathodic protection is anticipated to mitigate premature transmission line failure due to corrosive soils, thereby reducing future maintenance and repair costs.
		Service Fees:	No	
Project Manager:	TBD	SDC Improvemt. Fee Elg.:	0%	
Work Performed By:	Outside Contract			
Total Priority Score:	This is a partnership project, agreed to by the JWC.	Partner Cost Percentage:	0%	

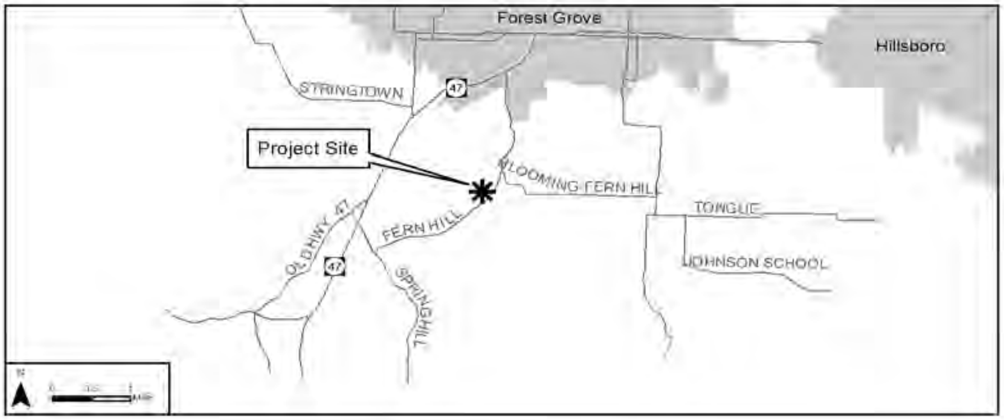
BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
-	-	21,200	45,700	47,300	48,900	50,700	52,400	266,200	228,800

CIP 2019-21 Proposed CIP - 70

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE:	JWC Powder Activated Carbon Injection System Expansion



KEY DRIVERS FOR CIP PROJECT		
1.	Project Urgency	Expansion will increase capacity to treat water at the WTP.
2.	Safety / Security	Adding a second injector will provide the necessary capacity needed to treat water during a cyanotoxin event.
3.	Reliability	Improvements required to maintain reliable supply.

PROJECT DESCRIPTION

This project will expand the limited capacity to inject powder activated carbon (PAC) into the water treatment system. Current system is a single injector, but two injectors would be needed to treat the water in the event of a cyanotoxin event. The project includes a second PAC injector system, telemetry systems and controls, and a new PAC climate controlled storage building to store carbon. PAC will be integrated in the WTP as a "WTP process".

Costs shown below are TVWD's share of projected total project costs. Therefore, under Funding Sources, the partner cost percentage (of the costs shown) is zero (0%).

PROJECT INFORMATION	
Project Category:	JWC
Project Manager:	TBD
Work Performed By:	Outside Contract
Total Priority Score:	This is a partnership project, agreed to by the JWC.

FUNDING SOURCES	
Water Rates:	Yes
Service Fees:	No
SDC Improvemt. Fee Elg.:	0%
Partner Cost Percentage:	0%

FUTURE OPERATING COST IMPACT

This second PAC injector system and storage building will require a small increase in operating costs for maintenance and power. However, the availability of this backup system will help avoid potential higher costs and service disruptions during an emergency water quality event.

BUDGET INFORMATION & PROJECTED COSTS

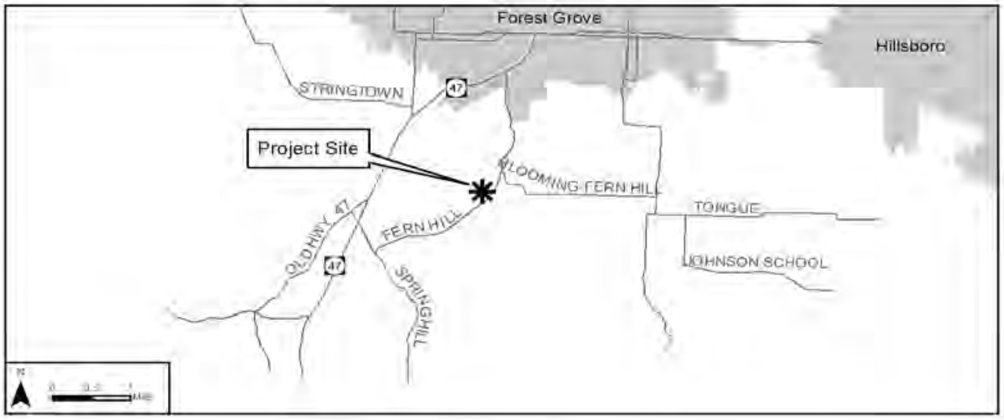
FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
-	-	26,500	128,000	-	-	-	-	154,500	-

CIP 2019-21 Proposed

CIP - 71

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE: JWC Spring Hill Pumping Plant Mitigation Project



KEY DRIVERS FOR CIP PROJECT		
1.	Project Urgency	Existing fish screen does not meet criteria set by National Marine Fisheries Service (NMFS) and the Oregon Department of Fish and Wildlife (ODFW).
2.	Cost Effectiveness	Mitigation, potentially in the form of a small culvert replacement, aims to avoid costs associated with the entire Spring Hill Pump Plant.
3.	Environment	Culvert replacement satisfies NMFS and ODFW criteria for providing safer fish passage.

PROJECT DESCRIPTION

The fish screen at the Spring Hill Pump Plant (SHPP) does not meet criteria set by NMFS and ODFW. When JWC submitted a new supplemental water right application on the Tualatin River for non-peak season flows, ODFW let us know that they will not approve the water right without a fish screen that meets their criteria (including approach velocities, sweeping velocities, and slot size). NMFS has signed off on the fish screen due to the small number of endangered and threatened fish that are present, so the Bureau of Reclamation and Tualatin Valley Irrigation District do not have any motivation or requirement to update the fish screen of the facility. In order to avoid paying costs associated with the entire SHPP, JWC proposed mitigation in lieu of fish screen or intake replacement. JWC completed a fish passage and impingement study over the last year that indicates that a mitigation project will be required for the JWC portion of the intake. JWC is investigating a small culvert replacement for the mitigation project.

Costs shown below are TVWD's share of projected total project costs. Therefore, under Funding Sources, the partner cost percentage (of the costs shown) is zero (0%).

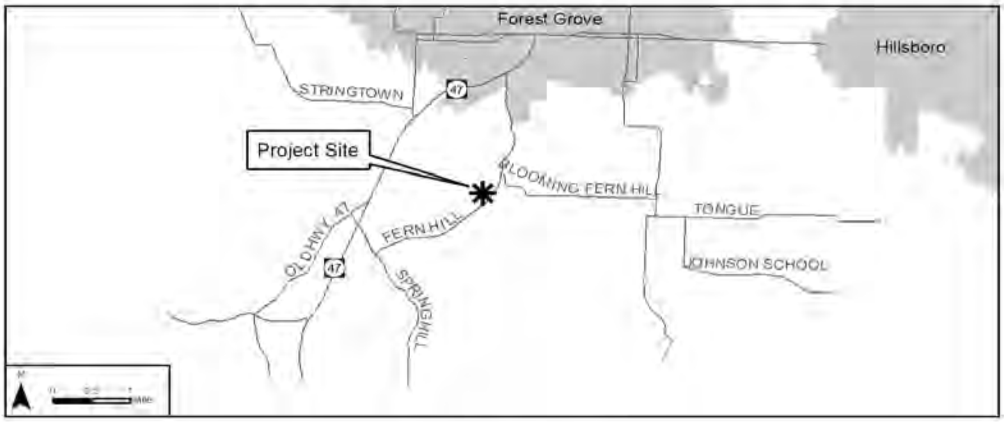
PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	JWC	Water Rates:	Yes	No material impact anticipated. Avoids capital cost of replacing fish screen at the Spring Hill Pump Plant.
		Service Fees:	No	
Project Manager:	TBD	SDC Improvemt. Fee Elg.:	0%	
Work Performed By:	Outside Contract			
Total Priority Score:	This is a partnership project, agreed to by the JWC.	Partner Cost Percentage:	0%	

BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
-	-	39,700	100,500	-	-	-	-	140,200	-

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE: JWC Disinfection Facility (chlorine replacement)



KEY DRIVERS FOR CIP PROJECT		
1.	Reliability	Improvements required to maintain reliable supply.
2.	Safety / Security	Producing chlorine on an as-needed basis will reduce chemical storage requirements.
3.	Asset Condition	This project will modernize operations at the JWC treatment facility.

PROJECT DESCRIPTION

The disinfection facility is a replacement to the existing chlorine gas system. Generating chlorine on-site will reduce the need to store large amounts of chlorine gas.

Costs shown below are TVWD's share of projected total project costs. Therefore, under Funding Sources, the partner cost percentage (of the costs shown) is zero (0%).

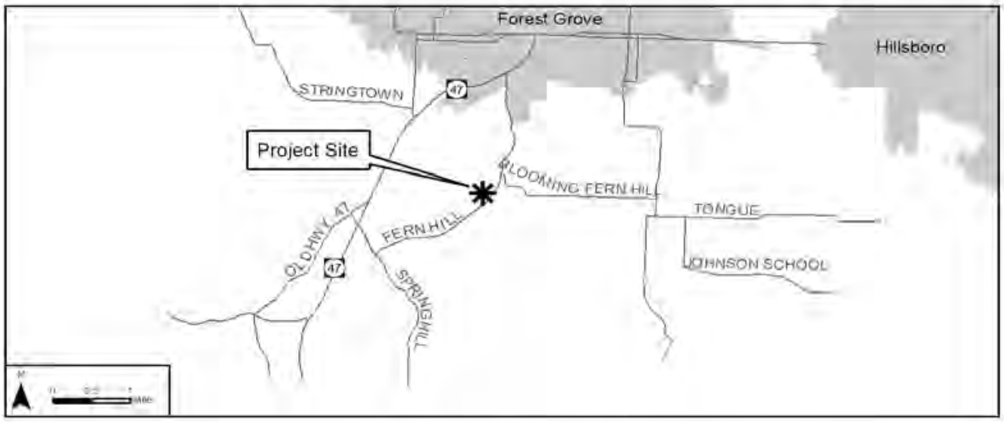
PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	JWC	Water Rates:	Yes	No material net impact is anticipated. There will be new operating costs associated with the facility, however, these costs will be offset by the reduction in costs from safely transporting and storing chlorine gas.
		Service Fees:	No	
Project Manager:	TBD	SDC Improvemt. Fee Elg.:		
Work Performed By:	Outside Contract		0%	
Total Priority Score:	This is a partnership project, agreed to by the JWC.	Partner Cost Percentage:	0%	

BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
-	-	-	18,300	428,500	222,000	-	-	668,800	-

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE: JWC Intake Facility Expansion Site



KEY DRIVERS FOR CIP PROJECT		
1.	Customer Criticality	The future larger intake will provide additional capacity for the JWC partners and their customers.
2.	Growth/Future Demands	Additional site space is required to expand the intake facility to meet growing demands cost effectively.
3.	Reliability	Improvements required to maintain reliable supply.

PROJECT DESCRIPTION

Purchase land to site a new intake facility in the future. This will replace the existing intake facility with a larger intake.

Cost shown below is TVWD's share of projected total cost. Therefore, under Funding Sources, the partner cost percentage (of the cost shown) is zero (0%).

PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	JWC	Water Rates:	Yes	There is no anticipated change in operating costs associated with the land for the expansion site.
		Service Fees:	No	
Project Manager:	TBD	SDC Improvemt. Fee Elg.:	TBD	
Work Performed By:	Outside Contract			
Total Priority Score:	This is a partnership project, agreed to by the JWC.	Partner Cost Percentage:	0%	

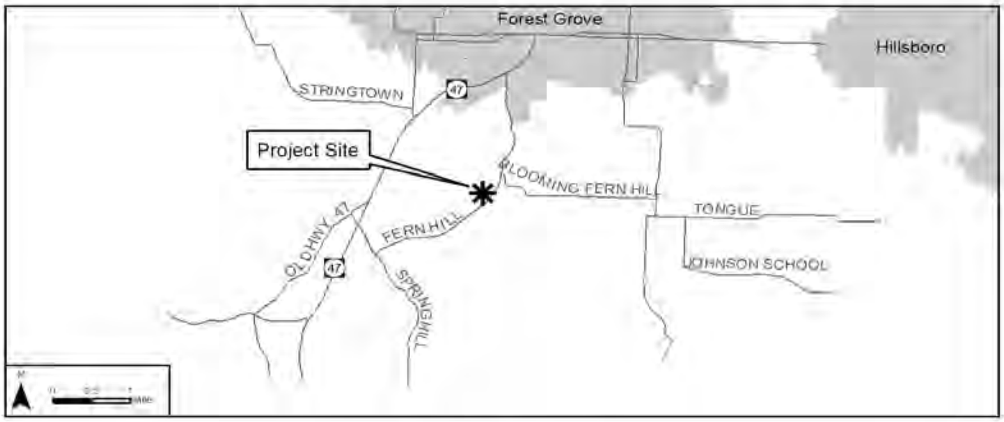
BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
-	-	106,000	-	-	-	-	-	106,000	-

CIP 2019-21 Proposed CIP - 74

Tualatin Valley Water District
Requested Capital Improvement Plan
2019-21
(Six-Year Projection)

PROJECT TITLE: JWC Equipment Replacement



KEY DRIVERS FOR CIP PROJECT		
1.	Project Urgency	Maintains supply for multiple water supply partners.
2.	Customer Criticality	Reserves funds to ensure continuity of service in the event of unanticipated maintenance or equipment repair needs.
3.	Reliability	Improvements required to maintain reliable supply.

PROJECT DESCRIPTION

This project funds a reserve for unanticipated capital expenses for the Joint Water Commission partners. Reserve funds are allocated based on ownership shares of Joint Water Commission facilities, of which the District is a 16.67% owner. Establishment of the reserve provides resources to the JWC in the event of unplanned capital expenditure needs. Use of the reserve requires approval by all JWC partners including the District.

Costs shown below are TVWD's share of projected total project costs. Therefore, under Funding Sources, the partner cost percentage (of the costs shown) is zero (0%).

PROJECT INFORMATION		FUNDING SOURCES		FUTURE OPERATING COST IMPACT
Project Category:	JWC	Water Rates:	Yes	No material impact anticipated.
		Service Fees:	No	
Project Manager:	Pete Boone	SDC Improvemt. Fee Elg.:		
Work Performed By:	Outside Contract		0%	
Total Priority Score:	NA	Partner Cost Percentage:	0%	

BUDGET INFORMATION & PROJECTED COSTS

FY 17-19 Budget	FY 17-19 Projected	FY 19-20 Budget	FY 20-21 Budget	FY 21-22 Projected	FY 22-23 Projected	FY 23-24 Projected	FY 24-25 Projected	Six-Year (FY2020-25)	Future Years (FY2026-48)
333,400	333,400	341,200	-	341,200	-	341,200	-	1,023,600	4,094,400

C. Ordinance 01-19 – Authorizing the Issuance of Debt

Tualatin Valley Water District

Delivering the Best Water · Service · Value

ORDINANCE NO. 01-19

AN ORDINANCE OF THE TUALATIN VALLEY WATER DISTRICT, OREGON, AUTHORIZING THE ISSUANCE OF WATER REVENUE BONDS.

WHEREAS, the District is authorized to issue revenue bonds for a public purpose under ORS 287A.150 and related statutes (the "Act"). Revenue bonds issued under the Act may be payable from all or any portion of the water system revenues of the District; and

WHEREAS, the District may authorize revenue bonds under the Act by nonemergency ordinance. The District may not sell the revenue bonds under the Act until the period for referral of the nonemergency ordinance authorizing the revenue bonds has expired. If a nonemergency ordinance authorizing the revenue bonds is referred, the District may not sell the revenue bonds unless the voters approve the revenue bonds; and

WHEREAS, the District now finds it financially feasible and in the best interests of the District to authorize the issuance of revenue bonds under the Act in order to finance capital assets of the water system, including but not limited to the District's portion of the Willamette Water Supply System including pumps, pipelines, the water treatment plant and the reservoir (collectively, the "System Improvements"); and

WHEREAS, it may be desirable to issue revenue bonds to finance the System Improvements under one or more financing structures, including as water revenue bonds with a senior lien on net revenues of the District's water system, as water revenue bonds with a subordinate lien on net revenues of the District's water system, as short term water revenue bonds or refunding bonds; and

WHEREAS, prior to the issuance of the water revenue bonds, the District desires to incur certain capital expenditures with respect to the System Improvements from available moneys of the District and wishes to declare its official intent to reimburse itself for any such expenditures from the proceeds of borrowings authorized by this ordinance.

NOW THEREFORE, IT IS HEREBY ORDAINED BY THE BOARD OF COMMISSIONERS OF THE TUALATIN VALLEY WATER DISTRICT:

Section 1. Issuance of Bonds for System Improvements.

a. The District hereby authorizes the issuance of revenue bonds pursuant to ORS 287A.150 in an amount that is sufficient to provide net proceeds of up to $600 million to pay for costs of System Improvements, plus additional amounts that are required to pay capitalized interest, fund bond reserves for bonds authorized by Section 1.a and Section 2 of this ordinance and to pay costs related to the financings. The District estimates that the total principal amount of revenue bonds required for this purpose will not exceed $680 million. The bonds shall be issued and sold in accordance with the Act.

b. The bonds authorized by this ordinance shall be special obligations of the District that are payable solely from water system revenues and related amounts that the District pledges to pay the bonds. The District may issue the bonds authorized by this ordinance with a first lien on net revenues of the water system or with a subordinate lien on the net revenues of the water system.

c. No bonds authorized by Section 1.a of this ordinance may be sold and no purchase agreement for any of those bonds may be executed until the period for referral of this nonemergency ordinance has expired. If this ordinance is referred, the District may not sell the bonds authorized by Section 1.a of this ordinance unless the voters approve those bonds.

Section 2. Issuance of Refunding Bonds. The District hereby authorizes the issuance of refunding bonds pursuant to applicable Oregon statutes to refinance any water revenue bonds that are issued pursuant to Section 1.a of this ordinance to provide interim financing. The refunding bonds authorized by this Section 2 may be issued in an aggregate principal amount sufficient to refund any water revenue bonds selected by the District Official pursuant to Section 3.k of this ordinance, plus amounts required to pay costs related to the refunding bonds.

Section 3. Delegation. When and if this ordinance takes effect, the Chief Financial Officer, the Chief Executive Officer or the employees of the District designated by the District's Chief Executive Officer or Board of Commissioners to act on behalf of the District under this ordinance (each of whom is referred to herein as a "District Official") are each hereby authorized, on behalf of the District and without further action by the Board of Commissioners, to:

a. Issue the revenue bonds authorized by this ordinance (the "Water Bonds") in one or more series, which may be sold at different times, and issue any series of Water Bonds as First Lien Bonds, as defined below, or with a subordinate lien on water system revenues.

b. Issue the Water Bonds as short or intermediate term bonds to provide interim financing for System Improvements and enter into lines of credit or similar documents which permit the District to draw Water Bond proceeds over time.

c. Participate in the preparation of, authorize the distribution of and deem final the preliminary and final official statements and any other disclosure documents for each series of the Water Bonds, as applicable.

d. Subject to the limits of this ordinance, establish the final principal amounts, lien status, maturity schedules, interest rates, redemption terms and other terms for each series of Water Bonds.

e. Either publish a notice of sale, receive bids and award the sale of that series to the bidder complying with the notice and offering the most favorable terms to the District or select one or more underwriters or lenders and negotiate the sale of that series with those underwriters or lenders and execute and deliver a bond purchase agreement or other document in connection with such sale.

f. Prepare, execute and deliver one or more documents that will specify the terms under which the Water Bonds are issued and the administrative provisions that apply to the Water Bonds.

g. Enter into covenants with owners or credit enhancement providers that are designed to obtain more favorable terms for the District, including covenants required by the Water Infrastructure Finance and Innovation Act, if the District borrows under that program, or by the State, if the District borrows under State lending programs.

h. Prepare and finalize the terms of a master water system declaration which pledges the revenues of the District's water system to the Water Bonds issued with a first lien on the water system revenues ("First Lien Bonds"), contains covenants regarding the levels of fees and charges that the District must impose and describes the terms under which the District may issue obligations in the future that are secured by the revenues of the District's water system.

i. If all or any portion of the Water Bonds is secured by a subordinate lien on water system revenues, establish a master second lien water revenue bond declaration or similar document to memorialize the terms under which that series and future series of subordinate lien bonds may be issued.

j. Make contributions to bond reserve accounts that the District Official determines are desirable and determine the reserve requirement, if any, for each series of the Water Bonds.

k. Select water revenue bonds to be refunded, refund any Water Bonds that are issued to provide interim financing with other short, intermediate or long-term term bonds.

l. Undertake to provide continuing disclosure for any series of Water Bonds in accordance with Rule 15c2-12 of the United States Securities and Exchange Commission or lender requirements, as applicable.

m. Apply for and purchase municipal bond insurance, reserve sureties or other forms of credit enhancements for any series of Water Bonds and enter into related agreements.

n. Appoint and enter into agreements with paying agents and other professionals and service providers for the Water Bonds.

o. Issue any qualifying series of Water Bonds as "tax-exempt bonds" bearing interest that is excludable from gross income under the Internal Revenue Code of 1986, as amended, (the "Code") and enter into covenants for the benefit of the owners of those series to maintain the excludability of interest on those series from gross income under the Code.

p. If the federal government approves subsidy payments or tax credits for municipal bonds and those subsidies or tax credits are estimated to reduce the net debt service payments for the Water Bonds, issue any series of Water Bonds as eligible for those federal subsidies or tax credits, and enter into related covenants to maintain the eligibility of such series of Water Bonds for those subsidies or tax credits.

q. Issue any series of Water Bonds as "taxable bonds" bearing interest that is includable in gross income under the Code.

r. Designate any series of Water Bonds as "green bonds" if applicable.

s. Execute any documents and take any other action in connection with the Water Bonds which the District Official finds will be advantageous to the District.

<u>Section 4.</u> Unless referred, this ordinance shall take effect on the 30th day after it is enacted.

<u>Section 5.</u> Declaration of Intent to Reimburse. The District hereby declares its official intent to reimburse itself with the proceeds of the Water Bonds for any expenditures on the System Improvements paid prior to the issuance of the Water Bonds. This declaration is adopted as an official action of the District in order to comply with United States Treasury Regulation 1.150-2.

Section 6. Pursuant to Oregon Revised Statute Chapter 198, the ordinance was read at two regular meetings of the District Board of Commissioners on two different days, at least six days apart, prior to the adoption thereof, to wit: the 20th day of March 2019, and the 17th day of April 2019.

Section 7. This ordinance was adopted following a second reading by the affirmative vote of at least a majority of the members of the District Board of Commissioners at its regular meeting on the 17th day of April 2019, and was signed by the presiding officer and attested to by the secretary.

Bernice Bagnall, President

Todd Sanders, Secretary

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D. Draft Master Revenue Bond Declaration

Form of

MASTER WATER SYSTEM REVENUE BOND DECLARATION

Tualatin Valley Water District, Oregon

Water Revenue Bonds

Series [2019]

Executed by the District Official of the Tualatin Valley Water District, Oregon

As of the __ day of ______, ___

3193363.5 041297 RSIND

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3193363.5 041297 RSIND

MASTER WATER SYSTEM REVENUE BOND DECLARATION

THIS MASTER WATER SYSTEM REVENUE BOND DECLARATION is executed as of [Insert Date of Master], by an authorized District Official of the Tualatin Valley Water District, Oregon pursuant to the authority granted to the District Official by Ordinance No. ____ adopted by the District Board of Commissioners on __________, ___, to establish the terms under which the District's Water Revenue Bonds, Series [2019] and future Parity Bonds may be issued.

Section 1. Findings.

The District finds that it adopted the Ordinance on __________, ___. That ordinance authorizes the District to issue up to $_________ of water revenue bonds under Oregon Revised Statutes Section 287A.150 and related provisions of ORS Chapter 287A, and to enter into this Master Declaration. This Master Declaration establishes the terms under which the District's Water Revenue Bonds, Series [2019] are issued and the terms under which future obligations may be issued on a parity with the Series [2019] Bonds.

Section 2. Definitions.

Unless the context clearly requires otherwise, capitalized terms that are used in this Master Declaration shall have the meanings defined for those terms in this Section 2.

"Adjusted Coverage Revenues" means the Coverage Revenues, adjusted for purposes of Section 7.1.C(ii) as provided in Section 7.3.

"Adjusted Net Revenues" means the Net Revenues, adjusted for purposes of Section 7.1.C(ii) as provided in Section 7.3.

"Annual Bond Debt Service" means in any Fiscal Year the amount of principal and interest required to be paid in that Fiscal Year on all Outstanding Bonds, adjusted as follows:

(a) Interest which is to be paid from Bond Proceeds shall be subtracted;

(b) Bonds which are subject to scheduled, noncontingent redemption/prepayment or tender shall be deemed to mature on the dates and in the amounts which are subject to mandatory redemption/prepayment or tender, and only the amount scheduled to be Outstanding on the final maturity date shall be treated as maturing on that date;

(c) Interest subsidies shall be subtracted from the interest due on Interest Subsidy Bonds as provided in Section 6.5;

(d) Bonds which are subject to contingent redemption/prepayment or tender shall be treated as maturing on their stated maturity dates; and,

(e) Each Balloon Payment shall be assumed to be paid according to its Balloon Debt Service Requirement.

"Auditor" means a person authorized by the State Board of Accountancy to conduct municipal audits pursuant to ORS 297.670.

"Balloon Debt Service Requirement" means the Committed Debt Service Requirement for a Balloon Payment or, if the District has not entered into a firm commitment to sell Bonds or other obligations to refund that Balloon Payment, the Estimated Debt Service Requirement for that Balloon Payment.

"Balloon Payment" means any principal payment for a Series of Bonds which comprises more than twenty-five percent of the original principal amount of that Series, but only if that principal payment is designated as a Balloon Payment in the closing documents for the Series.

"Base Period" means the alternative selected by the District from the following two options: (a) any twelve consecutive months selected by the District or Qualified Consultant out of the most recent eighteen months preceding the delivery of a Series of Parity Bonds; or (b) the most recently completed fiscal year for which audited financial statements are available.

"BEO" means "book-entry-only" and refers to a system for clearance and settlement of securities transactions through electronic book-entry changes, which eliminates the need for physical movement of securities.

"Bond" or "Bonds" means the Series [2019] Bonds and any Parity Bonds.

"Bond Counsel" means a law firm selected by the District and having knowledge and expertise in the field of municipal law and whose opinions are generally accepted by purchasers of municipal bonds.

"Bond Reserve Account" means the Bond Reserve Account in the Water Fund described in Section 5.3 of this Master Declaration.

"Business Day" means any day except a Saturday, a Sunday, a legal holiday, a day on which the offices of banks in Oregon or New York are authorized or required by law or executive order to remain closed, or a day on which the New York Stock Exchange is closed.

"Closing" means the date on which a Series of Bonds is delivered in exchange for payment.

"Code" means the Internal Revenue Code of 1986, as amended, including the rules and regulations promulgated thereunder.

"Committed Debt Service Requirement" means the schedule of principal and interest payments for a Series of Bonds or other obligations which refund a Balloon Payment, as shown in the documents evidencing the District's firm commitment to sell that Series. A "firm commitment to sell" means a bond purchase agreement or similar document which obligates the District to sell, and obligates a purchaser to purchase, the Series of refunding Bonds or other obligations, subject only to the conditions which customarily are included in such documents.

"Coverage Revenues" means the Net Revenues less system development charges.

"Credit Facility" means a letter of credit, a municipal bond insurance policy, standby bond purchase agreement or other credit enhancement device which is obtained by the District to secure payment in full of Bonds, and which is issued or provided by a Credit Provider.

"Credit Provider" means the person or entity that is: (i) obligated to make or guarantee payments under a Credit Facility or Reserve Credit Facility; and (ii) whose long-term debt obligations or claims-paying ability (as appropriate) are rated, at the time the Credit Facility or Reserve Credit Facility is issued, in one of the two highest rating categories by a Rating Agency that has issued a rating on Outstanding Bonds. Under rating systems in effect on the date of this Master Declaration, a rating in one of the two highest rating categories by a Rating Agency would be a rating of "AA-/Aa3" or better.

"Debt Service Account" means the Debt Service Account described in Section 5.2 of this Master Declaration.

"District" means the Tualatin Valley Water District in Washington County, Oregon, a municipal corporation of the State of Oregon.

"District Board" means the Board of Commissioners of the District.

"District Official" means the Chief Financial Official of the District, or then-comparable position at the District, or the employees of the District designated by the District's Executive Officer or Board of Directors to act on behalf of the District under this Master Declaration.

"DTC" means The Depository Trust Company or any other qualified securities depository designated by the District as its successor.

"Estimated Debt Service Requirement" means the schedule of principal and interest payments for a hypothetical Series of Bonds that refunds a Balloon Payment, that is prepared by the District Official and that meets the requirements of Section 6.4.

"Event of Default" means any event specified in 11.2 of this Master Declaration.

"Fiscal Year" means the period beginning on July 1 of each year and ending on the next succeeding June 30, or as otherwise defined by State law.

"Fitch" means Fitch Investors Service, Inc., its successors and assigns.

"Fund" or "Account" refers to any fund, account, or other accounting concept that permits the District to account accurately for amounts that are credited to it under this Master Declaration. A "Fund" in this Master Declaration does not need to appear as a "fund" in the District's budget and an "Account" in this Master Declaration does not need to appear as an "account" in the District's budget.

"Government Obligations" means (a) direct, noncallable obligations of the United States of America (including obligations issued or held in book-entry form on the books of the Department of the Treasury and principal-only and interest-only strips that are issued by the U.S. Treasury); or (b) noncallable obligations the principal of and interest on which are secured by the full faith and credit of the United States of America or are unconditionally guaranteed by the United States of America.

"Gross Revenues" means all fees and charges and other revenues that are properly accrued under generally accepted accounting principles as revenues of the Water System, including system development charges but only to the extent Oregon law allows those system development charges to be used to pay Bonds, revenues from product sales, and interest earnings on Gross Revenues in the Water Fund. Gross Revenues shall be increased by any withdrawals from the Rate Stabilization Account as provided in Section 5.5.B, and shall be reduced by any deposits to the Rate Stabilization Account as provided in Section 5.5.A. However, the term "Gross Revenues" shall not include:

(a) The interest income or other earnings derived from the investment of any escrow fund established for the defeasance or refunding of outstanding indebtedness of the District;

(b) Any gifts, grants, donations or other amounts received by the District from any State or Federal Agency or other person if such amounts are restricted by law or the grantor to uses inconsistent with the payment of Bonds;

(c) The proceeds of any borrowing;

(d) The proceeds of any liability or other insurance (excluding business interruption insurance or other insurance of like nature insuring against the loss of revenues);

(e) The proceeds of any casualty insurance which the District intends to utilize for repair or replacement of the Water System;

(f) The proceeds derived from the sales of assets pursuant to Section 10.9 of this Master Declaration;

(g) Any ad valorem or other taxes imposed by the District (except charges or payments for Water System services which become "taxes" within the meaning of Article XI, Section 11b of the Oregon Constitution only because they are imposed on property or property owners);

(h) Any income, fees, charges, receipts, profits or other amounts derived by the District from its ownership or operation of any Separate Utility System;

(i) Installment payments of District line and branch charges, connection fees, or local improvement district assessments that have been pledged as security for a borrowing other than a Bond;

(j) The proceeds of any fees or charges the District collects on behalf of a third party, including the fees currently collected by the District on behalf of the cities of Beaverton, Tigard and Hillsboro; or

(k) Any federal interest subsidies the District receives for Interest Subsidy Bonds.

"Interest Payment Date" means any date on which Bond interest is scheduled to be paid, and any date on which Bonds are called for redemption/prepayment.

"Interest Subsidy Bonds" means Bonds for which the District is eligible to receive federal interest rate subsidies that are similar to the interest subsidies that were available for Build America Bonds.

"Master Declaration" means this Master Water System Revenue Bond Declaration, including any amendments made pursuant to Section 12.

"Maximum Annual Bond Debt Service" means the greatest amount of Annual Bond Debt Service that is due in any Fiscal Year, beginning with the Fiscal Year for which the calculation is made, and ending with the last Fiscal Year in which Outstanding Bonds are scheduled to be paid.

"Moody's" means Moody's Investors Service, a corporation organized and existing under the laws of the State of Delaware, its successors and their assigns.

"Net Revenues" means the Gross Revenues less the Operating Expenses.

"Operating Expenses" means all costs which are properly treated as expenses of operating and maintaining the Water System under generally accepted accounting principles. However, Operating Expenses do not include:

(a) Any rebates or penalties paid from Gross Revenues under Section 148 of the Code;

(b) Payments of judgments against the District and payments for the settlement of litigation;

(c) Depreciation and amortization of property values or losses, and other non-cash expenses, including non-cash expenses related to pensions and postemployment benefits,;

(d) All amounts eligible to be treated for accounting purposes as payments for capital expenditures;

(e) Interest and other debt service payments, paying agent fees, broker-dealer fees and similar charges for the maintenance of borrowings;

(f) The expenses of owning, operating or maintaining any Separate Utility System;

(g) Expenditures made from any liability insurance proceeds;

(h) Expenditures made from any casualty insurance proceeds used to pay for costs of repairing or replacing portions of the Water System;

(i) Expenditures made from grant funds, regardless of whether such grant funds are dedicated to a specific purpose or available for the general operation, maintenance and repair or replacement of the Water System;

(j) Extraordinary, non-recurring expenses of the Water System;

(k) Payments to third parties from the proceeds of any fees or charges the District collects on behalf of such third parties, including the fees currently collected by the District on behalf of the cities of Beaverton, Tigard and Hillsboro; or

(l) Expenditures allocable to any other funding source which does not constitute Gross Revenues of the Water System.

"Ordinance" means Ordinance ____ adopted by the District Board on __________, ____.

"ORS" means the Oregon Revised Statutes.

"Outstanding" refers to all Bonds except Bonds that have been defeased pursuant to Section 13 of this Master Declaration, and Bonds which have matured and not been presented for payment (provided sufficient funds to pay those Bonds have been transferred to the Paying Agent).

"Owner" means a registered owner of a Bond.

"Parity Bond" means any obligation that is secured by the Net Revenues on an equal basis with the Bonds and is issued in accordance with Section 7.

"Paying Agent" means the paying agent for the Bonds, which is [Insert Name of Paying Agent] on the date of this Master Declaration.

"Payment Date" means a Principal Payment Date or an Interest Payment Date.

"Permitted Investments" means any investments which the District is permitted to make under the laws of the State.

"Principal Payment Date" means any date on which any Bonds are scheduled to be retired, whether by virtue of their maturity or by mandatory sinking fund redemption/prepayment prior to maturity, and the redemption/prepayment date of any Bonds which have been called for redemption/prepayment.

"Qualified Consultant" means an independent engineer, an independent auditor, an independent financial advisor, or similar independent professional consultant of recognized standing and having experience and expertise in the area for which such person or firm is retained by the District for purposes of performing activities specified in this Master Declaration or any Supplemental Declaration.

"Rate Stabilization Account" means the Rate Stabilization Account established in the Water Fund pursuant to Section 5.5.

"Rating Agency" means Fitch, Moody's, S&P, or any other nationally recognized financial rating Agency which has rated Outstanding Bonds or a Credit Facility at the request of the District.

"Record Date" for the Bonds means the ________ day of the month preceding the month in which each Interest Payment Date occurs, whether or not a Business Day.

"Reserve Credit Facility" means any arrangement in which the District pays a fee in exchange for an agreement of a Credit Provider to advance money to the District in the future that the District will use in lieu of using cash or Permitted Investments credited to a subaccount in the Bond Reserve Account. "Reserve Credit Facility" does not include guaranteed investment contracts, master repurchase agreements and similar Permitted Investments.

"Reserve Credit Facility Rating" means a long-term debt, financial strength or claims-paying ability rating assigned by a Rating Agency to: (a) a provider of a Reserve Credit Facility, or (b) to any reinsurer of the obligations of a provider of a Reserve Credit Facility.

"Reserve Requirement" means a set of rules for funding a subaccount in the Bond Reserve Account. Each Reserve Requirement shall indicate the amount that is required to be credited to the subaccount, the dates by which that amount must be credited to the subaccount, and the requirements for restoring amounts to the subaccount if amounts are withdrawn to pay Bonds that are secured by the subaccount. [The Series [2019] Bonds are not secured by the Bond Reserve Account or any subaccount therein.]

"S&P" means S&P Global Ratings, a corporation organized and existing under the laws of the State of New York, its successors and their assigns.

"Separate Utility System" means any utility property which is declared by the District to constitute a system which is distinct from the Water System in accordance with Section 9.

"Series" refers to all Bonds authorized by a single ordinance or declaration and delivered in exchange for payment on the same date, regardless of variations in maturity, interest rate or other provisions, unless the closing documents for the Series provide otherwise.

"Series [2019] Bonds" means the District's Water Revenue Bonds, Series [2019] issued pursuant to Section 17 of this Master Declaration.

"State" means the State of Oregon.

"Subordinate Obligations" means obligations having a lien on the Net Revenues which is subordinate to the lien of the Bonds. Restrictions on Subordinate Obligations are described in Section 8. On the date of this Master Declaration, the District has no borrowings outstanding with a subordinate lien on the Net Revenues.

"Subordinate Obligations Account" means the Subordinate Obligations Account of the Water Fund which is described in Section 5.5.

"Supplemental Declaration" means any declaration, resolution or other document which supplements or amends this Master Declaration, entered into by the District in compliance with Section 12.

"Tax Maximum" means, for any Series of Bonds, the least of: the greatest amount of principal, interest and premium, if any, required to be paid in any Fiscal Year on such Series; 125% of average amount of principal, interest and premium, if any, required to be paid on such Series during all Fiscal Years in which such Series will be Outstanding, calculated as of the date of issuance of such Series; or, ten percent of the proceeds of such Series, as "proceeds" is defined for purposes of Section 148(d) of the Code.

"Valuation Date" means the date or dates on which a subaccount of the Bond Reserve Account shall be valued as prescribed in the Supplemental Declaration authorizing the establishment of such subaccount.

"Water Fund" means the collection of funds and accounts used by the District to hold the Gross Revenues and the proceeds of Bonds.

"Water System" means all [utility property now or hereafter owned by the District to supply water within or without the corporate limits of the District, including the District's share of joint ventures]. However, the Water System does not include any Separate Utility System.

Section 3. Rules of Construction.

In determining the meaning of the provisions of this Master Declaration, the following rules shall apply unless the context clearly requires application of a different meaning:

A. References to section numbers shall be construed as references to sections of this Master Declaration.

B. References to one gender shall include all genders.

C. References to the singular include the plural, and references to the plural include the singular.

Section 4. Deposit, Pledge and Use of Gross Revenues.

4.1. All Gross Revenues shall be deposited to and maintained in the Water Fund, and shall be used only as described in this Section as long as any Bonds remain Outstanding. The District shall apply Gross Revenues in the Water Fund on or before the following dates for the following purposes in the following order of priority:

A. At any time to pay Operating Expenses which are then due;

B. At least one Business Day prior to each Payment Date, to transfer Net Revenues to the Debt Service Account in an amount sufficient (with amounts available in the Debt Service Account) to pay in full all Bond principal, interest and premium, if any, which is due to be paid on that Payment Date;

C. On the Closing date for a Series of Bonds and on the first day of the month following a Valuation Date for any subaccount in the Bond Reserve Account, if the balance in any subaccount of the Bond Reserve Account is determined to be less than the applicable Reserve Requirement, to transfer Net Revenues to the Bond Reserve Account in the amounts required by the provisions creating the subaccounts in the Bond Reserve Account until the balances in all subaccounts of the Bond Reserve Account are equal to their Reserve Requirement;

D. On the day on which any rebates or penalties for Bonds are due to be paid to the United States pursuant to Section 148 of the Code, an amount of Net Revenues that is sufficient, with other available funds, to pay the amounts due to the United States;

E. On the dates specified in any proceedings authorizing Subordinate Obligations, the District shall transfer to the Subordinate Obligations Account the Net Revenues required by those proceedings; and,

F. On any date, the District may transfer Net Revenues to the Rate Stabilization Account or spend Net Revenues for any other lawful purpose relating to the Water System, but only if all deposits and payments that are required to be made on or before that date and that have a higher priority under this Section have been made.

4.2. The District hereby pledges the Net Revenues and federal interest subsidies the District receives for Interest Subsidy Bonds to the payment of principal of, premium, if any, and interest on all Bonds. Pursuant to ORS 287A.310, this pledge made by the District shall be valid and binding from the Closing of the Series [2019] Bonds. The Net Revenues and federal interest subsidies so pledged and hereafter received by the District shall immediately be subject to the lien of such pledge without any physical delivery or further act. The lien of these pledges shall be superior to all other claims and liens except liens and claims for the payment of Operating Expenses. The District covenants and agrees to take such action as is necessary from time to time to perfect or otherwise preserve the priority of the pledge.

4.3. If a Reserve Credit Facility is permitted to fund a subaccount in the Bond Reserve Account, the District may pledge the Net Revenues available for transfer to that subaccount of the Bond Reserve Account to pay amounts due under any Reserve Credit Facility securing that subaccount.

Section 5. Bond Funds and Accounts.

5.1. So long as Bonds are Outstanding, the District shall maintain the Debt Service Account as a discrete account in the Water Fund.

5.2. **Debt Service Account.** The District shall hold the Debt Service Account. Until all Bonds are paid or defeased, amounts in the Debt Service Account shall be used only to pay Bonds.

A. After the transfer described in Section 4.1.B, if the balance in the Debt Service Account is less than the amount of Bond principal, premium, if any, and interest that is due on that Payment Date, the District shall credit to the Debt Service Account an amount equal to the deficiency from any Net Revenues in the Subordinate Obligations Account.

B. If, after the credit described in Section 5.2.A, the amounts available to pay Debt Service Account is not sufficient to pay all amounts due on the Payment Date, the District shall allocate the available amounts:

(i) First, to pay Bond interest, and pro rata based on the amount due on Bonds if the available amount is not sufficient to pay all Bond interest that is due on that Payment Date; and,

(ii) Second, to pay Bond principal and premium that is due on that Payment Date, and pro rata based on the amount of principal and premium due on each Bond if the available amount is not sufficient to pay all Bond principal and premium that is due on that Payment Date.

C. If, after the allocation described in Section 5.2.B, there is not enough to pay all principal, interest and premium allocated to pay Bonds that are secured by a subaccount in the Bond Reserve Account, the District shall apply any amounts available in the subaccounts in the Bond Reserve Account, but only to pay the principal, interest and premium on the Bonds that are secured by those subaccounts.

D. The District shall transfer sufficient amounts from the Debt Service Account in time to permit payment of all Bond principal, interest and premium, if any, when due in accordance with the Bonds.

E. Amounts in the Debt Service Account shall be invested only in Permitted Investments. Earnings on the Debt Service Account shall be credited to the Water Fund.

5.3. **Bond Reserve Account.**

A. If the District determines to secure Bonds with the Bond Reserve Account and so long as those Bonds are Outstanding, the District shall maintain the Bond Reserve Account as a discrete account in the Water Fund held by the District. The District may create one or more subaccounts in the Bond Reserve Account to secure Series of Bonds and covenant to make deposits into any subaccounts it creates; however, the District is not obligated to create any subaccounts in the Bond Reserve Account, and is not obligated to secure any Series of Bonds with a subaccount in the Bond Reserve Account.

B. When a subaccount in the Bond Reserve Account is created, the District shall determine whether the subaccount will secure one or more Series of Bonds. If the District creates a subaccount in the Bond Reserve Account, the District shall, when it issues the first Series of Bonds that is secured by that subaccount: a) establish the Reserve Requirement for that subaccount; b) pledge amounts credited to that subaccount to pay the Bonds that are secured by that subaccount; and c) determine if the Reserve Requirement for that subaccount may be funded with Reserve Credit Facilities and the requirements for those Reserve Credit Facilities, and the valuation and replenishment provisions that apply to that subaccount.

C. The District shall not create any subaccounts in the Bond Reserve Account for any purpose except securing Bonds in accordance with this Master Declaration.

D. [The Series [2019] Bonds are not secured by the Bond Reserve Account or any subaccount therein.]

5.4. **Subordinate Obligations Account.** The District shall create and maintain the Subordinate Obligations Account in the Water Fund as long as Subordinate Obligations are Outstanding. The Subordinate Obligations Account may be divided into subaccounts, and the District may establish priorities for funding the subaccounts in the Subordinate Obligations Subaccount. Net Revenues shall be deposited into the Subordinate Obligations Account only as permitted by Section 4.1.E. Earnings on the Subordinate Obligations Account shall be credited as provided in the proceedings authorizing the Subordinate Obligations.

5.5. **Rate Stabilization Account.** The District may create a Rate Stabilization Account in the Water Fund and if created will maintain that account as long as Bonds are Outstanding. Net Revenues may be transferred to the Rate Stabilization Account at the option of the District as permitted by Section 4.1.F. Money in the Rate Stabilization Account may be withdrawn at any time and used for any purpose for which the Gross Revenues may be used.

A. Deposits to the Rate Stabilization Account decrease Gross Revenues in the Fiscal Year for which the deposit is made.

B. Withdrawals from the Rate Stabilization Account increase Gross Revenues in the Fiscal Year for which the withdrawal is made.

C. The District may adjust deposits to and withdrawals from the Rate Stabilization Account for a Fiscal Year up until 180 days after the end of that Fiscal Year.

D. Earnings on the Rate Stabilization Account shall be credited to the Water Fund.

Section 6. Rate Covenant; Calculations Relating to Balloon Payments and Interest Subsidy Bonds.

6.1. The District covenants for the benefit of the Owners that it will establish and maintain rates and charges in connection with the operation of the Water System which are sufficient to permit the District to pay all Operating Expenses and all lawful charges against the Net Revenues, and to make all transfers required by this Master Declaration to the Debt Service Account, the Bond Reserve Account and the Subordinate Obligations Account.

6.2. The District covenants for the benefit of the Owners of all Bonds that it shall charge rates and fees in connection with the operation of the Water System which, when combined with other Gross Revenues are adequate to generate:

A. Coverage Revenues each Fiscal Year at least equal to one hundred fifteen percent (115%) of Annual Bond Debt Service due in that Fiscal Year; and,

B. Net Revenues each Fiscal Year at least equal to one hundred twenty-five percent (125%) of Annual Bond Debt Service due in that Fiscal Year.

6.3. Not later than six months after the end of each Fiscal Year, the District shall prepare a report that demonstrates whether the District has complied with Section 6.2 during that Fiscal Year and shall file that report in the District records. If the report demonstrates that the District has not complied with Section 6.2 during that Fiscal Year, it shall not constitute a default under this Master Declaration if, within thirty (30) days after the report is filed, the District files a certificate of a District Official that specifies the actions that the District has taken and will take within the next ninety (90) days to permit the District to comply with Section 6.2 for the remainder of the Fiscal Year in which the report is filed, and for the succeeding Fiscal Year, and the District takes the actions specified by the District Official, or actions having a comparable effect.

6.4. The Estimated Debt Service Requirement for Balloon Payments shall be calculated in accordance with this Section 6.4.

A. For the Rate Covenants: For each Balloon Payment that is Outstanding on May 1 of any Fiscal Year, the District Official shall prepare a schedule of principal and interest payments for a hypothetical Series of Bonds that refunds that Balloon Payment in accordance with Section 6.4.D. The District Official shall prepare that schedule as of that first day of May, and that schedule shall be used to determine compliance with the rate covenant in Section 6.2 for the following Fiscal Year.

B. For Parity Bonds: Whenever a Balloon Payment will be Outstanding on the date a Series of Parity Bonds is issued, the District Official shall prepare a schedule of principal and interest payments for a hypothetical Series of Bonds that refunds each Outstanding Balloon Payment in accordance with Section 6.4.D. The District Official shall prepare that schedule as of the date the Parity Bonds are sold, and that schedule shall be used to determine compliance with the tests for Parity Bonds in Section 7.1.

C. For the Reserve Requirement: Whenever a Series of Bonds that contains a Balloon Payment is issued, the District Official shall prepare a schedule of principal and interest payments for a hypothetical Series of Bonds that refunds each Balloon Payment in that Series in accordance with Section 6.4.D. The District Official shall prepare that schedule as of the date the Series is sold, and that schedule shall be combined with the schedule for payment of any debt service on Bonds that are secured by the same subaccount, and that combined schedule shall be used to determine the Reserve Requirement as long as that Series is Outstanding.

D. Each hypothetical Series of refunding Bonds shall be assumed to be paid in equal annual installments of principal and interest that are sufficient to amortize the principal amount of the Balloon Payment over the term selected by the District Official; however, the District Official shall not select a term that exceeds the lesser of: 30 years from the date the Balloon Payment is originally scheduled to be paid; or, the District's estimate of the remaining weighted average useful life (expressed in years and rounded to the next highest integer) of the assets which are financed with the Balloon Payment. The annual installments shall be assumed to be due on the anniversaries of the date the Balloon Payment is originally scheduled to be paid, with the first installment due on the first anniversary of the date the Balloon Payment is scheduled to be paid. Each installment shall be assumed to bear interest at a rate that is estimated by the District from the Bond Buyer Revenue Bond Index (or if the Bond Buyer Revenue Bond Index is not available, a reasonably comparable index selected by the District) for a revenue bond with a term that is equal to the term of the installment. When the District prepares a schedule described in Section 6.4.A, Section 6.4.B or Section 6.4.C, the District shall use the index that is available to the District on the date the District is required to prepare that schedule.

6.5. Interest Subsidy Bonds. The amounts assumed to be paid on Interest Subsidy Bonds shall be calculated as follows:

A. When calculating Annual Bond Debt Service for the rate covenant in Section 6.2, the District shall subtract from interest to be paid on Interest Subsidy Bonds the federal interest subsidies on Interest Subsidy Bonds that the District reasonably expects, at the beginning of the Fiscal Year, to receive during that Fiscal Year.

B. When calculating Annual Bond Debt Service and Maximum Annual Bond Debt Service for the tests for issuing Parity Bonds in Section 7, the District shall subtract from the scheduled payments of interest on Interest Subsidy Bonds the amount of federal interest subsidies that the District reasonably expects, at the time the Parity Bonds are issued, to receive.

C. When calculating the greatest amount of principal, interest and premium, if any, required to be paid in any Fiscal Year on a Series of Interest Subsidy Bonds to determine the Tax Maximum for Interest Subsidy Bonds that are secured by a subaccount in the Bond Reserve Account, the District shall subtract from the scheduled payments of interest on

Interest Subsidy Bonds the federal interest subsidies that the District reasonably expects, at the time the Series of Interest Subsidy Bonds is issued, to be paid to the District for the Series of Interest Subsidy Bonds. The District shall not be required to increase the amount the District is required to hold in a subaccount in the Bond Reserve Account if federal interest subsidies are not paid when or in the amounts expected. However, if the District reduces the amount it holds in a subaccount of the Bond Reserve Account because Bonds secured by that subaccount have been paid, the District must take into account its reasonable expectations at the time of reduction in determining the amount that the District must retain in a subaccount of the Bond Reserve Account.

Section 7. Parity Bonds.

7.1. The District may issue Parity Bonds to provide funds for any purpose relating to the Water System, but only if:

A. No Event of Default under this Master Declaration or any Supplemental Declaration has occurred and is continuing;

B. At the time of the issuance of the Parity Bonds there is no deficiency in the Debt Service Account and all required deposits to all subaccounts in the Bond Reserve Account have been made;

C. There shall have been filed with the District either:

(i) A certificate of the District Official stating that both:

(a) Coverage Revenues (adjusted as provided in Section 7.2) for the Base Period were not less than one hundred fifteen percent (115%) of Maximum Annual Bond Debt Service on all then Outstanding Bonds, calculated as of the date the Parity Bonds are issued and with the proposed Parity Bonds treated as Outstanding; and

(b) Net Revenues (adjusted as provided in Section 7.2) for the Base Period were not less than one hundred twenty five percent (125%) of Maximum Annual Bond Debt Service on all then Outstanding Bonds, calculated as of the date the Parity Bonds are issued and with the proposed Parity Bonds treated as Outstanding; or

(ii) A certificate or opinion of a Qualified Consultant:

(a) Stating the amount of the Adjusted Coverage Revenues and the Adjusted Net Revenues for each of the five Fiscal Years after the last Fiscal Year for which interest on the Parity Bonds is, or is expected to be, capitalized, or, if interest will not be capitalized, for each of the five Fiscal Years after the proposed Parity Bonds are issued; and

(b) Concluding that the respective amounts of Adjusted Coverage Revenues in each of the first four Fiscal Years described in Section 7.1.C(ii)(a) are at least equal to one hundred fifteen percent (115%) of the Annual Bond Debt Service for each of those respective Fiscal Years on all Outstanding Bonds, with the proposed Parity Bonds treated as Outstanding; and,

(c) Concluding that the respective amounts of Adjusted Net Revenues in each of the first four Fiscal Years described in Section 7.1.C(ii)(a) are at least equal to one hundred twenty-five percent(125%) of the Annual Bond Debt Service for each of those respective Fiscal Years on all Outstanding Bonds, with the proposed Parity Bonds treated as Outstanding; and,

(d) Concluding that the amount of Adjusted Coverage Revenues in the fifth Fiscal Year described in Section 7.1.C(ii)(a) is at least equal to one hundred fifteen percent (115%) of the Maximum Annual Bond Debt Service, calculated for the period beginning with that fifth Fiscal Year on all then Outstanding Bonds, with the proposed Parity Bonds treated as Outstanding; and,

(e) Concluding that the amount of Adjusted Net Revenues in the fifth Fiscal Year described in Section 7.1.C(ii)(a) is at least equal to one hundred twenty-five percent (125%) of the Maximum Annual Bond Debt Service, calculated for the period beginning with that fifth Fiscal Year on all then Outstanding Bonds, with the proposed Parity Bonds treated as Outstanding.

7.2. The District may adjust Coverage Revenues and Net Revenues for purposes of Section 7.1.C(i) by adding any Coverage Revenues or Net Revenues the District Official calculates the District would have had during the Base Period because of increases in Water System rates, fees and charges which have been adopted by the District and are in effect on or before the date the Parity Bonds are issued. The District shall adjust Coverage Revenues and Net Revenues for the Base Period by eliminating the effect of any withdrawals from or deposits to the Rate Stabilization Account.

7.3. The Qualified Consultant shall calculate Adjusted Coverage Revenues for purposes of Section 7.1.C(ii) as provided in this Section 7.3:

A. The District shall provide the Qualified Consultant with the following information:

(i) The Base Period, the Coverage Revenues and Net Revenues for the Base Period and the amounts of any withdrawals from or deposits to the Rate Stabilization Account for Fiscal Years that are included in the Base Period;

(ii) Information regarding any Water System utility properties that are being acquired with Parity Bonds and that have an earnings record;

(iii) Any changes in rates and charges which have been adopted by the District since the beginning of the Base Period and the dates on which they are scheduled to take effect;

(iv) Any changes in customers since the beginning of the Base Period; and,

(v) A description of any extensions or additions to the Water System that were in the process of construction at the beginning of the Base Period or commenced construction after the beginning of the Base Period, the expected date of completion of those extensions or additions, the estimated operating and capital costs of those extensions or additions, and any other changes to the Gross Revenues or Operating Expenses that the District reasonably expects to result from the completion and operation of those extensions or additions.

B. Using the information provided by the District pursuant to Section 7.3.A and any additional information the Qualified Consultant determines is necessary, the Qualified Consultant shall adjust the Coverage Revenues and Net Revenues for the Base Period to eliminate the effect of any withdrawals from or deposits to the Rate Stabilization Account in the manner described in Section 7.2 and may adjust the Coverage Revenues and Net Revenues for the Base Period:

(i) To reflect any changes that the Qualified Consultant projects will result from the acquisition of Water System utility properties that are being financed with the Parity Bonds and that have an earnings record;

(ii) To reflect any changes in rates and charges which have been adopted by the District and which are scheduled to take effect during the period described in Section 7.1.C(ii)(a), or which increase rates and charges for inflation at a level which the Qualified Consultant determines is reasonable;

(iii) To reflect any changes in customers of the Water System that occurred after the beginning of the Base Period and prior to the date of the Qualified Consultant's certificate; and

(iv) To reflect any changes to Coverage Revenues or Net Revenues not included in the preceding paragraphs that are projected to result from the completion and operation of additions and extensions to the Water System that were under construction at the beginning of the Base Period, or commenced construction after the beginning of the Base Period.

7.4. The District may issue Parity Bonds to refund Outstanding Bonds without complying with Section 7.1 if the refunded Bonds are legally or economically defeased on the date of delivery of the refunding Parity Bonds and if the Annual Bond Debt Service on the refunding Parity Bonds does not exceed the Annual Bond Debt Service on the refunded Bonds in any Fiscal Year by more than $5,000.

7.5. Bonds shall be treated as "legally defeased" for purposes of Section 7.4 if they are defeased as provided in Section 13. Bonds shall be treated as "economically defeased" for purposes of Section 7.4 if they have been irrevocably called for redemption/prepayment within one year after the date on which the refunding Bonds are issued, and the District has irrevocably deposited money or Government Obligations with the paying agent or Owner for the refunded Bonds, as applicable, or in escrow with an independent trustee or escrow agent, and the money and any amounts to be received from the Government Obligations have been calculated to be sufficient, without reinvestment, to pay the Bonds that are economically defeased.

7.6. All Parity Bonds issued in accordance with this Section 7 shall have a lien on the Net Revenues which is equal to the lien of all other Outstanding Bonds.

Section 8. Subordinate Obligations.

The District may issue Subordinate Obligations only if:

8.1. The Subordinate Obligations are payable solely from amounts permitted to be deposited in the Subordinate Obligations Account pursuant to Section 4.1.E;

8.2. The Subordinate Obligations state clearly that they are secured by a lien on or pledge of the Net Revenues which is subordinate to the lien on, and pledge of, the Net Revenues for the Bonds.

Section 9. Separate Utility System.

The District may declare property which the District owns and is part of the Water System (but has a value of less than five percent of the Water System at the time of the declaration), and property which the District has not yet acquired but would otherwise become part of the Water System, to be part of a Separate Utility System. The District may pay costs of acquiring, operating and maintaining Separate Utility Systems from Net Revenues, but only if there is no deficit in the Debt Service Account or the Bond Reserve Account. The District may issue obligations which are secured by the revenues produced by the Separate Utility System, and may pledge the Separate Utility System revenues to pay those obligations. In addition, the District may issue Subordinate Obligations to pay for costs of a Separate Utility System, and may pledge the revenues of the Separate Utility System to pay the Subordinate Obligations.

Section 10. General Covenants.

The District hereby covenants and agrees with the Owners of all Outstanding Bonds as follows:

10.1. The District shall promptly cause the principal, premium, if any, and interest on the Bonds to be paid as they become due in accordance with the provisions of this Master Declaration and any Supplemental Declaration.

10.2. The District shall maintain complete books and records relating to the operation of the Water System and all District funds and accounts in accordance with generally accepted accounting principles, shall cause such books and records to be audited annually at the end of each Fiscal Year, and shall have an audit report prepared by the Auditor and made available for the inspection of Owners.

10.3. The District shall not issue obligations which have a lien on the Net Revenues that is superior to the lien of the Bonds except for obligations to pay Operating Expenses.

10.4. The District shall promptly deposit the Gross Revenues and other amounts described in this Master Declaration into the funds and accounts specified in this Master Declaration.

10.5. The District shall work in good faith to cause the Water System to be operated at all times in a safe, sound, efficient and economic manner in compliance with all health, safety and environmental laws, regulatory body rules, regulatory body orders and court orders applicable to the District's operation and ownership of the Water System.

10.6. The District shall maintain the Water System in good repair, working order and condition.

10.7. The District shall not enter into any new agreements or arrangements or make any new offers to provide Water System products or services at a discount from published rate schedules or provide free Water System products or services except: a) for District-owned facilities, b) in case of emergencies, c) where the District exchanges services with other Water systems, or d) where in the reasonable judgment of the District such action does not materially reduce the Gross Revenues received by the District.

10.8. The District shall at all times maintain with responsible insurers all such insurance on the Water System as is customarily maintained with respect to works and properties of like character against accident to, loss of or damage to such works or properties.

A. The net proceeds of insurance against material accident to or material destruction of the Water System shall be used to repair or rebuild the damaged or destroyed Water System, and to the extent not so applied, will be applied to the payment or redemption/prepayment of the Bonds.

B. The insurance described in Section 10.8 shall be in the form of policies or contracts for insurance with insurers of good standing and shall be payable to the District, or in the form of self-insurance by the District. The District shall establish such fund or funds or reserves which it deems are necessary to provide for its share of any such self-insurance.

10.9. The District shall not voluntarily, nor shall it permit others to, sell, mortgage or otherwise permanently dispose of all or any portion of the Water System except:

A. The District may dispose of all or substantially all of the Water System, only if the District pays all Bonds or defeases them pursuant to Section 13.

B. Except as provided in Section 10.9.C or 10.9.D, the District will not voluntarily dispose of any part of the Water System in excess of 10% of the value of the Water System in service unless prior to such disposition either:

(i) There has been filed with the District a certificate of a Qualified Consultant or District Official stating that such disposition will not impair the ability of the District to comply with the rate covenants contained in Sections 6.1 and 6.2 of this Master Declaration; or

(ii) Provision is made for the payment, redemption/prepayment or other defeasance of a principal amount of Bonds equal to the greater of the following amounts:

(a) An amount which will be in the same proportion to the net principal amount of Bonds then Outstanding (defined as the total principal amount of Bonds then Outstanding less the amount of cash and investments in the Debt Service Account, the Bond Reserve Account, and the Subordinate Obligations Account) that the Gross Revenues attributable to the part of the Water System sold or disposed of for the 12 preceding months bears to the total Gross Revenues for such period; or

(b) An amount which will be in the same proportion to the net principal amount of Bonds then Outstanding that the book value of the part of the Water System sold or disposed of bears to the book value of the Water System immediately prior to such sale or disposition.

C. The District may dispose of any portion of the Water System that has become unserviceable, inadequate, obsolete, or unfit to be used or no longer necessary for use in the operation of the Water System.

D. If the ownership of all or part of the Water System is transferred from the District through the operation of law, the District shall to the extent authorized by law, reconstruct or replace such transferred portion using any proceeds of the transfer unless the District reasonably determines that such reconstruction or replacement is not in the best interest of the District and the Owners, in which case any proceeds shall be used for the payment, redemption/prepayment or defeasance of the Bonds.

Section 11. Events of Default and Remedies.

11.1. **Continuous Operation Essential.** District Official hereby finds and determines that the continuous operation of the Water System and the collection, deposit and disbursement of the Net Revenues in the manner provided in this Master Declaration and in any Supplemental Declaration are essential to the payment and security of the Bonds, and the failure or refusal of the District to perform the covenants and obligations contained in this Master Declaration or any such Supplemental Declaration will endanger the necessary continuous operation of the Water System and the application of the Net Revenues to the operation of the Water System and the payment of the Bonds.

11.2. **Events of Default.** The following shall constitute "Events of Default" so long as they are occurring and have not been cured:

A. If the District shall fail to pay any Bond principal or interest when due.

B. Except as provided in Section 11.3, if the District shall default in the observance and performance of any other of its covenants, conditions and agreements in this Master Declaration and the default continues for ninety (90) days after the District receives a written notice, specifying the Event of Default and demanding the cure of such default, from a Credit Provider or from the Owners of not less than 25% in aggregate principal amount of the Bonds Outstanding.

C. If the District shall sell, mortgage or otherwise permanently dispose of all or any portion of the Water System in violation of Section 10.9.

D. If an order, judgment or decree shall be entered by any court of competent jurisdiction:

(i) Appointing a receiver, trustee or liquidator for the District or the whole or any part of the Water System;

(ii) Approving a petition filed against the District seeking the bankruptcy, arrangement or reorganization of the District under any applicable law of the United States or the State; or

(iii) Assuming custody or control of the District or of the whole or any part of the Water System under the provisions of any other law for the relief or aid of debtors and such order, judgment or decree shall not be vacated or set aside or stayed (or, in case custody or control is assumed by said order, such custody or control shall not be otherwise terminated) within sixty (60) days from the date of the entry of such order, judgment or decree.

E. If the District shall:

(i) Admit in writing its inability to pay its debts generally as they become due;

(ii) File a petition in bankruptcy or seeking a composition of indebtedness under any state or federal bankruptcy or insolvency law;

(iii) Consent to the appointment of a receiver of the whole or any part of the Water System; or

(iv) Consent to the assumption by any court of competent jurisdiction under the provisions of any other law for the relief or aid of debtors of custody or control of the District or of the whole or any part of the Water System.

11.3. **Exception.** It shall not constitute an Event of Default under 11.2.B if the default cannot practicably be remedied within ninety (90) days after the District receives notice of the default, so long as the District promptly commences reasonable action to remedy the default after the notice is received, and continues reasonable action to remedy the default until the default is remedied.

11.4. **Remedies.** If an Event of Default occurs, any Owner may exercise any remedy available at law or in equity including mandamus where applicable. However, the Bonds shall not be subject to acceleration.

A. Books of District Open to Inspection.

(i) The District covenants that if an Event of Default shall have happened and shall not have been remedied, the books of record and account of the District and all other records relating to the Water System shall at all reasonable times be subject to the inspection and use of any persons holding at least twenty percent (20%) of the principal amount of Outstanding Bonds and their respective agents and attorneys.

(ii) The District covenants that if the Event of Default shall happen and shall not have been remedied, the District will continue to account, as a trustee of an express trust, for all Net Revenues and other amounts, securities and funds pledged under this Master Declaration.

B. Appointment of Trustee. Whenever any Event of Default exists, Owners representing 51 percent or more of the Outstanding Bonds may appoint a commercial bank or other financial institution with a reported capital and surplus in excess of $50 million as trustee (the "Trustee") to represent the interests of the Owners.

11.5. Trustee Duties Upon Default.

A. Upon the occurrence of an Event of Default the Trustee may pursue any other available remedy at law or in equity to enforce the payment of the principal of, premium, if any, and interest on the outstanding Bonds, and to enforce any rights of the Trustee under or with respect to the Master Declaration.

B. In addition, upon the occurrence of an Event of Default, and upon the filing of a suit or other commencement of judicial proceedings to enforce the rights of the Trustee and of the Owners under the Master Declaration, the Trustee will be entitled, as a matter of right to the fullest extent permitted by Oregon law, to the appointment of a receiver or receivers of the Net Revenues and other amounts pledged under the Master Declaration, pending such proceedings, with such powers as the court making such appointment may confer.

C. If an Event of Default has occurred and is continuing and if requested so to do by the Owners of at least 25% in aggregate principal amount of Outstanding Bonds and indemnified as provided in the Master Declaration, the Trustee will be obligated to exercise any of the rights and powers conferred by this Master Declaration, as the Trustee, being advised by counsel, deems most expedient in the interest of the Owners.

D. If a Trustee has been appointed pursuant to 11.4.B, no Owner of any Bond shall have the right to institute any suit, action or proceeding at law or in equity, for any remedy under the Master Declaration, unless:

(i) such Owner has previously given to the Trustee written notice of the occurrence of an Event of Default;

(ii) the Owners of a majority in aggregate principal amount of all the Bonds then Outstanding have requested the Trustee in writing to exercise its powers under the Master Declaration;

(iii) said Owners have tendered to the Trustee indemnity reasonably acceptable to the Trustee against the costs, expenses and liabilities to be incurred in compliance with such request; and

(iv) the Trustee has refused or failed to comply with such request for a period of 60 days after such written request has been received by the Trustee and said tender of indemnity is made to the Trustee.

E. If the Trustee takes any judicial or other action in an Event of Default the Trustee has full power in its direction with respect to any continuance, discontinuance, withdrawal, compromise, settlement or other disposition of such action, unless opposed by the written request of the Owners of a majority in aggregate principal amount of the Outstanding Bonds. The Trustee is appointed attorney-in-fact of the Owners for the purpose of bringing any suit action or proceedings in an Event of Default.

F. Waivers of Event of Default.

(i) No delay or omission of any Owner or of the Trustee to exercise any right or power arising upon the happening of an Event of Default shall impair any right or power or shall be construed to be a waiver of any such Event of Default or to be an acquiescence therein; and every power and remedy given by this Section 11 to the Owners and to the Trustee may be exercised from time to time and as often as may be deemed expedient by the Owners and/or the Trustee as applicable.

(ii) The owners of not less than fifty percent (50%) in principal amount of the affected Bonds that are at the time Outstanding, or their attorneys-in-fact duly authorized, or the Trustee may, on behalf of the Owners of all of affected Bonds, waive any past default under this Master Declaration with respect to such Bonds and its consequences, except a default in the payment of the principal of, premium, if any, or interest on any of the Bonds. No such waiver shall extend to any subsequent or other default or impair any right consequent thereon.

(iii) If a default occurs under Section 6 and that default has not become an Event of Default, that default shall be deemed waived at the end of the first Fiscal Year following that default in which the District has complied with Section 6.

11.6. Remedies Granted in Master Declaration Not Exclusive.

No remedy by the terms of this Master Declaration conferred upon or reserved to the Owners is intended to be exclusive of any other remedy, but each and every such remedy shall be cumulative and shall be in addition to every other remedy given under this Master Declaration or existing at law or in equity or by statute on or after the date of adoption of this Master Declaration. However, the Bonds shall not be subject to acceleration.

Section 12. Amendment of Master Declaration.

12.1. This Master Declaration may be amended by Supplemental Declaration without the consent of any Owners for any one or more of the following purposes:

A. To cure any ambiguity or formal defect or omission in this Master Declaration;

B. To add to the covenants and agreements of the District in this Master Declaration, other covenants and agreements to be observed by the District which are not contrary to or inconsistent with this Master Declaration as theretofore in effect;

C. To authorize issuance of Bonds or Subordinate Obligations as permitted by this Master Declaration;

D. To modify, amend or supplement this Master Declaration or any Supplemental Declaration to qualify this Master Declaration under the Trust Indenture Act of 1939, as amended, or any similar federal statute hereafter in effect or to permit the qualification of any Bonds for sale under the securities laws of any of the states of the United States of America;

E. To confirm, as further assurance, any security interest or pledge created under this Master Declaration or any Supplemental Declaration;

F. To make any change which, in the reasonable judgment of the District, does not materially and adversely affect the rights of the owners of any Outstanding Bonds;

G. So long as a Credit Facility (other than a Reserve Credit Facility) is in full force and effect with respect to the Bonds affected by such Supplemental Declaration, to make any other change which is consented to in writing by the issuer of such Credit Facility other than any change which:

(i) Would result in a downgrading or withdrawal of the rating then assigned to the affected Bonds by the Rating Agencies;

(ii) Changes the maturity (except as permitted herein), the Interest Payment Dates, interest rates, redemption/prepayment and purchase provisions, and provisions regarding notices of redemption/prepayment and purchase applicable to the affected Bonds or diminishes the security afforded by such Credit Facility;

(iii) Materially and adversely affects the rights and security afforded to the Owners of any Outstanding Bonds not secured by such Credit Facility; or

H. To modify any of the provisions of this Master Declaration or any Supplemental Declaration in any other respect whatever, as long as the modification shall take effect only after all affected Outstanding Bonds cease to be Outstanding.

12.2. This Master Declaration may be amended for any other purpose only upon consent of Owners of not less than fifty-one percent (51%) in aggregate principal amount of the

Bonds Outstanding; provided, however, that no amendment shall be valid without the consent of Owners of 100 percent (100%) of the aggregate principal amount of the Bonds Outstanding which:

A. Extends the maturity of any Bond, reduces the rate of interest upon any Bond, extends the time of payment of interest on any Bond, reduces the amount of principal payable on any Bond, or reduces any premium payable on any Bond, without the consent of the affected Owner; or

B. Reduces the percent of Owners required to approve Supplemental Declarations.

12.3. For purposes of Section 12.2, and subject to Section 12.4, the initial purchaser of a series of Bonds may be treated as the Owner of that Series at the time that series of Bonds is delivered in exchange for payment.

12.4. Except as otherwise expressly provided in Section 12.5, Section 12.6 or a Supplemental Declaration, as long as a Credit Facility securing all or a portion of any Outstanding Bonds is in effect, the issuer of such Credit Facility shall be deemed to be the Owner of the Bonds secured by such Credit Facility for the purpose of the execution and delivery of a Supplemental Declaration of any amendment, change or modification of this Master Declaration or the initiation by Owners of any action which under this Master Declaration requires the written approval or consent of or can be initiated by the Owners of at least a majority in principal amount of the affected Bonds at the time Outstanding, or following an Event of Default for all other purposes.

12.5. The issuer of a Credit Facility shall not be deemed to be an Owner for purposes of any amendment, change or modification of this Master Declaration which:

A. Would result in a downgrading or withdrawal of the rating then assigned to the affected Bonds by the Rating Agencies; or

B. Changes the maturity (except as expressly permitted herein), the Interest Payment Dates, interest rates, redemption/prepayment and purchase provisions, and provisions regarding notices of redemption/prepayment and purchase applicable to the affected Bonds or diminishes the security afforded by such Credit Facility; or

C. Reduces the percentage or otherwise affects the classes of affected Bonds, the consent of the Owners of which is required to effect any such modification or amendment.

12.6. No issuer of a Credit Facility shall be entitled to act as an Owner during any period in which:

A. The issuer's Credit Facility is not in full force and effect;

B. The issuer of a Credit Facility shall have filed a petition or otherwise sought relief under any federal or state bankruptcy or similar law;

C. The issuer of the Credit Facility shall, for any reason, have failed or refused to honor a proper demand for payment under such Credit Facility; or

D. An order or decree shall have been entered, with the consent or acquiescence of the issuer of a Credit Facility, appointing a receiver or receivers or the assets of the issuer of a Credit Facility, or if such order or decree having been entered without the consent or acquiescence of the issuer of a Credit Facility, shall not have been vacated or discharged or stayed within ninety (90) days after the entry thereof.

12.7. For purposes of determining the percentage of Owners consenting to, waiving or otherwise acting with respect to any matter that may arise under this Master Declaration, the Owners of Bonds which pay interest only at maturity, and mature more than one year after they are issued shall be treated as Owners of Bonds in an aggregate principal amount equal to the accreted value of such Bonds as of the date the notice is sent requesting consent, waiver or other action as provided herein.

Section 13. Defeasance.

13.1. The District shall be obligated to pay Bonds which are defeased pursuant to this Section solely from the money and Government Obligations deposited with the escrow agent or trustee, and the District shall have no further obligation to pay the defeased Bonds from any source except the amounts deposited in the escrow. Bonds shall be deemed defeased if the District:

A. Irrevocably deposits money or Government Obligations in escrow with an independent trustee or escrow agent which are calculated to be sufficient without reinvestment for the payment of Bonds which are to be defeased;

B. Files with the escrow agent or trustee a certificate from an independent, certified public accountant to the effect that the money and the principal and interest to be received from the Government Obligations are calculated to be sufficient, without further reinvestment, to pay the defeased Bonds when due; and

C. Files with the escrow agent or trustee an opinion of nationally recognized bond counsel that the proposed defeasance will not cause interest on the defeased Bonds to be includable in gross income under the Code.

Section 14. BEO System.

14.1. Unless otherwise provided by a Supplemental Declaration, all Bonds shall be subject to the BEO System pursuant to the provisions of this Section 14.1.

14.2. The Bonds shall be initially issued as a BEO security issue with no Bonds being made available to the Owners upon the execution and delivery of the letter of representations among the Paying Agent, DTC and the District. Ownership of the Bonds shall be recorded through entries on the books of banks and broker-dealer participants and correspondents that are related to entries on the DTC BEO system. The Bonds shall be initially issued in the form of separate single fully registered typewritten Bonds for each maturity of the Bonds (the "Global Bonds") in substantially the form attached hereto as Appendix A with such changes as the District Official may approve. Each Global Bond shall be registered in the name of CEDE & CO. as nominee (the "Nominee") of DTC (DTC and any other qualified securities depository designated by the District as a successor to DTC, collectively the "Depository") as the "Registered Owner", and such Global Bonds shall be lodged with the Depository until early redemption or maturity of the Bond issue. The Paying Agent shall remit payment for the maturing principal and interest on the Bonds to the Owner for distribution by the Nominee for the benefit of the owners (the "Beneficial Owner" or "Record Owner") by recorded entry on the books of the Depository participants and correspondents. While the Bonds are in BEO form, the Bonds will be available in denominations of $5,000 or any integral multiple thereof within a maturity.

14.3. In the event the Depository determines not to continue to act as securities depository for the Bonds, or the District determines that the Depository shall no longer so act, then the District will discontinue the BEO system with the Depository. If the District fails to designate another qualified securities depository to replace the Depository or elects to discontinue use of a BEO system, the Bonds shall no longer be a BEO issue but shall be registered in the registration books maintained by the Paying Agent in the name of the Owner as appearing on the Bond register and thereafter in the name or names of the Owners of the Bonds transferring or exchanging Bonds.

14.4. While the Bonds are in BEO form, the District and the Paying Agent shall have no responsibility or obligation to any participant or correspondent of the Depository or to any Registered Owner on behalf of which such participants or correspondents act as agent for the Owner with respect to:

A. The accuracy of the records of the Depository, the Nominee or any participant or correspondent with respect to any ownership interest in the Bonds;

B. The delivery to any participant or correspondent or any other person, other than an Owner as shown in the registration books maintained by the Paying Agent, of any notice with respect to the Bonds, including any notice of redemption/prepayment;

C. The selection by the Depository of the beneficial interest in Bonds to be redeemed prior to maturity; or

D. The payment to any participant, correspondent, or any other person other than the owner of the Bonds as shown in the registration books maintained by the Paying Agent, of any amount with respect to principal of or interest on the Bonds.

14.5. Notwithstanding the BEO system, the District may treat and consider the Owner in whose name each Bond is registered in the registration books maintained by the Paying Agent as the Owner and absolute owner of such Bond for the purpose of payment of principal and interest with respect to such Bond, or for the purpose of giving notices of redemption and other matters with respect to such Bond, or for the purpose of registering transfers with respect to such Bond, or for all other purposes whatsoever. The District shall pay or cause to be paid all principal and interest on the Bonds only to or upon the order of the Registered Owner, as shown in the registration books maintained by the Paying Agent, or their respective attorneys duly authorized in writing, and all such payments shall be valid and effective to fully satisfy and discharge the District's obligation with respect to payment thereof to the extent of the sum or sums so paid.

14.6. Upon delivery by the Depository to the District and to the Owner of written notice to the effect that the Depository has determined to substitute a new nominee in place of the Nominee, then the word "Nominee" in this Master Declaration shall refer to such new nominee of the Depository, and upon receipt of such notice, the District shall promptly deliver a copy thereof to the Paying Agent. The Depository shall tender the Bonds it holds to the Paying Agent for re-registration.

Section 15. Redemption of Bonds.

15.1. Unless otherwise provided by a Supplemental Declaration, all Bonds shall be subject to the redemption terms of this Section 15.

15.2. The District reserves the right to purchase Bonds in the open market.

15.3. If Bonds are subject to mandatory redemption the Paying Agent shall, without further action by the District, select the particular Bonds to be redeemed in accordance with the mandatory redemption schedule, by lot within each maturity, call the selected Bonds, and give notice of their redemption in accordance with this Section 15.

15.4. If certain maturities of Bonds are subject to both optional and mandatory redemption, the District may elect to apply the Bonds which it has previously optionally redeemed to any mandatory redemption maturity. In addition, if the District purchases Bonds which are subject to mandatory redemption, the District may elect to apply against the mandatory redemption requirement any such Bonds which it has previously purchased. If the District makes such an election, it shall notify the Paying Agent not less than sixty days prior to the mandatory redemption date to which the election applies.

15.5. So long as the BEO System remains in effect with respect to the Bonds, and unless DTC consents to a shorter period, the Paying Agent shall provide not less than 20 days nor more than 60 days' notice of redemption, and shall provide such information in connection therewith as required by the letter of representations submitted to DTC in connection with the issuance of the Bonds.

15.6. During any period in which the BEO System is not in effect with respect to the Bonds, unless waived by any Owner of the Bonds to be redeemed, official notice of any redemption of Bonds shall be given by the Paying Agent on behalf of the District by mailing a copy of an official redemption notice by first class mail postage prepaid at least 20 days and not more than 60 days prior to the date fixed for redemption to the Owner of the Bonds to be redeemed, at the address shown on the Bond Register or at such other address as is furnished in writing by such owner to the Paying Agent. All such official notices of redemption shall be dated and shall state:

A. The redemption date;

B. The redemption price;

C. If less than all Outstanding Bonds are to be redeemed, the identification (and, in the case of partial redemption, the respective principal amounts) of the Bonds to be redeemed;

D. That on the redemption date the redemption price will become due and payable upon each such Bond or portion thereof called for redemption, and that interest thereon shall cease to accrue from and after said date; and

E. The place where such Bonds are to be surrendered for payment of the redemption price, which place of payment shall be the principal office of the Paying Agent.

15.7. The District shall deposit with the Paying Agent, on or before the redemption date, an amount of money sufficient to pay the redemption price of all the Bonds or portions of Bonds which are to be redeemed on that date.

15.8. Official notice of redemption having been given as aforesaid, the Bonds or portions of Bonds to be redeemed shall, on the redemption date, become due and payable at the Redemption Price therein specified, and from and after such date (unless the District shall default in the payment of the redemption price or unless the notice was conditional as described in Section 15.9) such Bonds or portions of Bonds shall cease to bear interest. Upon surrender of such Bonds for redemption in accordance with said notice, such Bonds shall be paid by the Paying Agent at the Redemption Price. Installments of interest due on or prior to the redemption date shall be payable as herein provided for payment of interest. Upon surrender for any partial redemption of any Bond, there shall be prepared for the registered owner a new Bond of the same maturity in the amount of the unpaid principal. All Bonds which have been redeemed shall be canceled and destroyed by the Paying Agent and shall not be reissued. Notwithstanding that any Bonds called for redemption shall not have been surrendered, no further interest shall accrue on any such Bonds. From and after such notice having been given and such deposit having been made, the Bonds to be redeemed shall not be deemed to be Outstanding hereunder, and the District shall be under no further liability in respect thereof.

15.9. Any notice of optional redemption given for the Bonds pursuant to this Section 15 may state that the optional redemption is conditional upon receipt by the Paying Agent of amounts sufficient to pay the redemption price of such Bonds or upon the satisfaction of any other condition, and/or that such notice may be rescinded upon the occurrence of any other event, and any conditional notice so given may be rescinded at any time before payment of such redemption price if any such condition so specified is not satisfied or if any such other event occurs. Notice of such rescission or of the failure of any such condition shall be given by the Paying Agent to affected owners of the Bonds as promptly as practicable.

Section 16. Authentication, Registration and Transfer.

16.1. The provisions of this Section 16 apply only if the Bonds cease to be a BEO issue, and unless otherwise specified in a Supplemental Declaration.

16.2. No Bond shall be entitled to any right or benefit under this Master Declaration unless it shall have been authenticated by an authorized officer of the Paying Agent. The Paying Agent shall authenticate all Bonds to be delivered at Closing, and shall additionally authenticate all Bonds properly surrendered for exchange or transfer pursuant to this Master Declaration.

16.3. All Bonds shall be in registered form. [Insert Name of Paying Agent] is hereby appointed to serve as Paying Agent for the Bonds. A successor Paying Agent may be appointed for the Bonds by ordinance or resolution of the District. The Paying Agent shall provide notice to Owners of any change in the Paying Agent not later than the Bond payment date following the change in Paying Agent.

16.4. The ownership of all Bonds shall be entered in the Bond register maintained by the Paying Agent and the District and Paying Agent may treat the person listed as owner in the Bond register as the owner of the Bond for all purposes.

16.5. The Paying Agent shall mail each interest payment on the Interest Payment Date (or the next Business Day if the Interest Payment Date is not a Business Day) to the name and address of the Owner, as that name and address appear on the Bond register as of the Record Date. If payment is so mailed, neither the District nor the Paying Agent shall have any further liability to any party for such payment.

16.6. Bonds may be exchanged for an equal principal amount of Bonds of the same Series and maturity which are in different authorized denominations, and Bonds may be transferred to other owners if the Owner submits the following to the Paying Agent:

A. Written instructions for exchange or transfer satisfactory to the Paying Agent, signed by the Owner or his attorney in fact and guaranteed or witnessed in a manner satisfactory to the Paying Agent; and

B. The Bonds to be exchanged or transferred.

16.7. The Paying Agent shall not be required to exchange or transfer any Bonds submitted to it during any period beginning with a Record Date and ending on the next following payment date; however, such Bonds shall be exchanged or transferred promptly following the payment date.

16.8. The Paying Agent shall not be required to exchange or transfer any Bonds which have been designated for redemption if such Bonds are submitted to it during the fifteen-day period preceding the designated redemption date.

16.9. For purposes of this Section, Bonds shall be considered submitted to the Paying Agent on the date the Paying Agent actually receives the materials described in Section 16.6.

16.10. The District may alter these provisions regarding registration and transfer by mailing notification of the altered provisions to all Owners. The altered provisions shall take effect on the date stated in the notice, which shall not be earlier than 45 days after notice is mailed.

Section 17. The Series [2019] Bonds. [To be completed/adjusted]

17.1. Pursuant to the authority of the Ordinance and this Master Declaration, the District has issued its Water Revenue Bonds, Series [2019], in the aggregate principal amount of $[[Principal Amount]]. The Series [2019] Bonds shall be Bonds as defined in this Master Declaration. The Series [2019] Bonds shall bear interest payable on ______ and ______ of each year at the following rates, commencing ______, ____, and shall mature in the following years in the following principal amounts:

Maturity Date (______)	Principal Amount ($)	Interest Rate (%)	CUSIP No. (Base______)

17.2. The Series [2019] Bonds are subject to redemption at the option of the District prior to their stated maturity dates at any time on or after ______, 20__, as a whole or in part, and if in part, with maturities to be selected by the District at a price of par, plus accrued interest, if any, to the date of redemption. For as long as the Series [2019] Bonds are in book-entry only form, if fewer than all of the Series [2019] Bonds of a maturity are called for redemption, the selection of Series [2019] Bonds within a maturity to be redeemed shall be made by DTC in accordance with its operational procedures then in effect. If the Series [2019] Bonds are no longer held in book-entry only form, then the Paying Agent would select Series [2019] Bonds for redemption by lot.

17.3. The Series [2019] Bonds shall be special obligations of the District, and shall be payable solely from the Net Revenues and amounts required to be deposited in the Debt Service Account as required and as provided by this Master Declaration. The Series [2019] Bonds are not general obligations of the District and are payable solely from the amounts described in the previous sentence. [The Series [2019] Bonds are not secured by the Bond Reserve Account or any subaccount therein.]

17.4. The Series [2019] Bonds shall be in substantially the form attached as Appendix A and shall be signed with the facsimile or manual signature of an authorized District Official.

A. The Series [2019] Bond proceeds shall be used to finance the projects described in the Ordinance and to pay costs incurred in connection with the issuance of the Series [2019] Bonds.

EXECUTED ON BEHALF OF THE TUALATIN VALLEY WATER DISTRICT BY AN AUTHORIZED DISTRICT OFFICIAL AS OF THE __ day of ______, ___.

Tualatin Valley Water District, Oregon

By: ________________________________

Authorized Officer

DRAFT

Page 30 – Master Water System Revenue Bond Declaration

3193363.5 041297 RSIND

Appendix A

Form of Series [2019] Bond – To be revised and modified based on how the first series is structured

No. R-«BondNumber» $«PrincipalAmtNumber»

United States of America
State of Oregon
County of Washington
Tualatin Valley Water District
Water Revenue Bond
Series [2019]

Dated Date: ___________
Interest Rate Per Annum: «CouponRate»%
Maturity Date: ______, «MaturityYear»
CUSIP Number: _________«CUSIPNumbr»
Registered Owner: -----Cede & Co.-----
Principal Amount: -----«PrincipalAmtSpelled» Dollars-----

TUALATIN VALLEY WATER DISTRICT, in Washington County, State of Oregon (the "District"), for value received, acknowledges itself indebted and hereby promises to pay to the Registered Owner hereof, or registered assigns, but solely from the sources indicated below, the Principal Amount on the Maturity Date together with interest thereon from the date hereof at the Interest Rate Per Annum indicated above. Interest is payable semiannually on the first days of ______ and ______ in each year until maturity or prior redemption, commencing ______, ____. Payment of each installment of interest shall be made on the payment date to the Registered Owner hereof whose name appears on the registration books of the District maintained by the District's paying agent and registrar, which is currently [Insert Name of Paying Agent] (the "Paying Agent"), as the Registered Owners appear on the registration books as of the ___ day of the month immediately preceding the applicable interest payment date. For so long as this Series [2019] Bond is subject to a book-entry-only system, principal and interest payments shall be paid on each payment date to the nominee of the securities depository for this Series [2019] Bond. On the date of issuance of this Series [2019] Bond, the securities depository for this Series [2019] Bond is The Depository Trust Company, New York, New York, and Cede & Co. is the nominee of The Depository Trust Company. Such payments shall be made payable to the order of "Cede & Co." Capitalized terms used in this Bond have the meanings defined for such terms in the Master Water System Revenue Bond Declaration dated [Insert Date of Master] (the "Master Declaration").

This Series [2019] Bond is one of a series of $[[Principal Amount]] aggregate principal amount of Water Revenue Bonds, Series [2019] of the District (the "Series [2019] Bonds"), and is issued by the District for the purpose of financing capital costs of the District's Water System and paying costs of issuance of the Series [2019] Bonds in full and strict accordance and compliance with all of the provisions of the Constitution and statutes of the State of Oregon.

This Series [2019] Bond is not a general obligation or liability of the District, is issued as a "Bond" under the Maser Declaration, and is payable solely from the Net Revenues of the Water System and other funds as provided in the Master Declaration. The District covenants and agrees with the owner of this Series [2019] Bond that it will keep and perform all of the covenants in this Series [2019] Bond and in the Master Declaration. The District has pledged the Net Revenues of the Water System to the payment of principal and interest on this Series [2019] Bond. The District has reserved the right to issue Parity Bonds with an equal lien on the Net Revenues. [This Series [2019] Bond is not secured by the Bond Reserve Account or any subaccount therein.]

The Series [2019] Bonds are initially issued as a book-entry-only security issue with no certificates provided to the owners of the Series [2019] Bonds. Records of Series [2019] Bond ownership will be maintained by the Paying Agent and The Depository Trust Company and its participants. Should the book-entry-only security system be discontinued, the District shall cause the Paying Agent to authenticate and deliver replacement Series [2019] Bonds in fully registered form in authorized denominations in the names of the beneficial owners or their nominees, as provided in the Master Declaration.

The Series [2019] Bonds are subject to redemption as described in the Master Declaration and the Official Statement for the Series [2019] Bonds.

Unless the book-entry-only system is discontinued, notice of any call for redemption shall be given as required by the Blanket Letter of Representations to The Depository Trust Company, as referenced in the Master Declaration. Interest on any Series [2019] Bond so called for Rule 15c2-12 of the Securities and Exchange Commission, adopted under the Securities Exchange Act of 1934 shall cease on the redemption date designated in the notice unless the notice is conditional, as permitted by the Master Declaration. The Paying Agent will notify The Depository Trust Company of any Series [2019] Bonds called for redemption not less than 20 days prior to the date fixed for redemption unless DTC consents to a shorter period. If the book-entry-only system is discontinued, notice of redemption shall be given by first-class mail, postage prepaid at least 20 days and not more than 60 days prior to the date fixed for redemption to the registered owner of each Series [2019] Bond to be redeemed at the address shown on the Series [2019] Bond register.

Any exchange or transfer of this Series [2019] Bond must be registered, as provided in the Master Declaration, upon the Series [2019] Bond register kept for that purpose by the Paying Agent. The exchange or transfer this Series [2019] Bond may be registered only by surrendering it, together with a written instrument of exchange or transfer which is satisfactory to the Paying Agent and which is executed by the registered owner or their duly authorized attorney. Upon registration, a new registered Series [2019] Bond or Series [2019] Bonds, of the same series and maturity and in the same aggregate principal amount, shall be issued to the transferee as provided in the Master Declaration. The Paying Agent and the District may treat the person in whose name this Series [2019] Bond is registered as its absolute owner for all purposes, as provided in the Master Declaration.

Unless this Series [2019] Bond is presented by an authorized representative of The Depository Trust Company to the issuer or its agent for registration of transfer, exchange or payment, and any Series [2019] Bond issued is registered in the name of Cede & Co. or such other name as requested by an authorized representative of The Depository Trust Company and any payment is made to Cede & Co., ANY TRANSFER, PLEDGE OR OTHER USE HEREOF FOR VALUE OR OTHERWISE BY OR TO ANY PERSON IS WRONGFUL since the registered owner hereof, Cede & Co., has an interest herein.

This Series [2019] Bond shall remain in the Paying Agent's custody subject to the provisions of the FAST Balance Certificate Agreement currently in effect between the Paying Agent and The Depository Trust Company.

IT IS HEREBY CERTIFIED, RECITED, AND DECLARED that all conditions, acts, and things required to exist, to happen, and to be performed precedent to and in the issuance of this Series [2019] Bond have existed, have happened, and have been performed in due time, form, and manner as required by the Constitution and Statutes of the State of Oregon; that the issue of which this Series [2019] Bond is a part, and all other obligations of such District, are within every debt limitation and other limits prescribed by such Constitution and Statutes.

IN WITNESS WHEREOF, the Board of Commissioners of the Tualatin Valley Water District, Oregon, has caused this Series [2019] Bond to be signed by facsimile signature of an authorized District Official as of the date indicated above.

Tualatin Valley Water District, Oregon

____

Authorized Officer

THIS SERIES [2019] BOND SHALL NOT BE VALID UNLESS PROPERLY AUTHENTICATED BY THE PAYING AGENT IN THE SPACE INDICATED BELOW.

CERTIFICATE OF AUTHENTICATION

This Series [2019] Bond is one of a series of $[[Principal Amount]] aggregate principal amount of Water Revenue Bonds, Series [2019], of the District, issued pursuant to the Master Declaration described herein.

Date of authentication: [Insert Date of Master].

[Insert Name of Paying Agent], as Paying Agent

____
Authorized Officer

ASSIGNMENT

FOR VALUE RECEIVED, the undersigned sells, assigns and transfers unto: ________________

(Please insert social security or other identifying number of assignee)

this Series [2019] Bond and does hereby irrevocably constitute and appoint ______________________ as attorney to transfer this Series [2019] Bond on the books kept for registration thereof with the full power of substitution in the premises.

Dated: ______________________

NOTICE: The signature to this assignment must correspond with the name of the registered owner as it appears upon the face of this Series [2019] Bond in every particular, without alteration or enlargement or any change whatever.

NOTICE: Signature(s) must be guaranteed by a member of the New York Stock Exchange or a commercial bank or trust company

Signature Guaranteed

____
(Bank, Trust Company or Brokerage Firm)

____
Authorized Officer

The following abbreviations, when used in the inscription on the face of this Series [2019] Bond, shall be construed as though they were written out in full according to applicable laws or regulations.

TEN COM -- tenants in common
TEN ENT -- as tenants by the entireties
JT TEN -- as joint tenants with right of survivorship and not as tenants in common
OREGON CUSTODIANS use the following:
__________ CUST UL OREG ________________ MIN
as custodian for (name of minor)
OR UNIF TRANS MIN ACT
under the Oregon Uniform Transfer to Minors Act

Additional abbreviations may also be used though not in the list above.

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E. Forecast Model Summary Results

TVWD Forecast Model Summary

Table 1
Tualatin Valley Water District
Water Financial Plan
4S-year Categorical CIP Summary (Escalated)

Category	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY2027
WWSP	$25,215,866	$47,066,861	$65,134,373	$81,726,816	$148,131,534	$117,939,034	$48,508,673	$33,845,502	$4,313,825
JWC	3,255,750	1,318,700	649,900	836,300	497,100	345,700	357,700	359,500	776,700
TVWD Source	353,500	103,500	0	1,110,000	689,000	119,000	0	0	0
Storage	12,577,000	435,000	2,069,400	7,366,000	430,500	2,970,000	3,075,000	1,370,000	4,758,500
Pumping	534,400	952,000	4,948,500	1,094,000	3,247,000	3,002,500	147,500	1,372,500	2,843,100
Pipelines	3,900,500	20,331,283	19,987,261	39,446,526	58,263,490	28,080,343	19,746,807	18,287,210	27,781,840
PRVs/Vaults	97,600	325,000	336,000	348,500	360,500	373,000	386,000	272,500	282,000
Facilities	142,000	766,300	835,100	1,356,900	0	0	0	0	329,200
Fleet	201,870	674,000	637,500	499,000	516,500	534,500	553,000	572,500	592,500
IT	100,000	1,555,000	2,535,000	612,500	0	0	0	0	0
Meters/Svcs	1,736,950	1,573,500	1,760,500	1,540,000	1,595,000	1,650,000	1,710,000	1,640,000	1,700,000
Other/Undefined	0	1,035,000	1,071,000	1,663,000	1,721,500	1,781,500	1,844,000	1,908,500	9,876,000
Capital Outlays from O&M	427,800	500,000	522,500	546,013	570,583	596,259	623,091	651,130	680,431
Totals	$48,543,236	$76,636,144	$100,487,033	$138,145,555	$216,022,707	$157,391,836	$76,951,771	$60,279,342	$53,934,096
Depreciation and Amortization Expense	*$7,994,046*	*$7,973,956*	*$7,952,454*	*$7,929,570*	*$7,905,329*	*$7,879,753*	*$7,852,862*	*$7,824,668*	*$7,795,185*

5/1/2019

TVWD Forecast Model Summary

Table 1
Tualatin Valley Water District
Water Financial Plan
45-year Categorical CIP Summary (Escalated)

Category	FY2028	FY2029	FY2030	FY2031	FY2032	FY2033	FY2034	FY2035	FY2036
WWSP	$0	$0	$5,733	$0	$4,941	$0	$3,384,000	$12,287,416	$18,126,500
JWC	804,200	1,121,100	1,097,900	1,200,950	1,176,300	1,217,350	1,259,650	1,303,800	1,426,150
TVWD Source	0	0	0	0	0	0	0	0	0
Storage	2,801,000	2,898,600	3,000,300	3,105,100	3,214,000	3,326,500	3,442,600	3,563,400	3,688,200
Pumping	981,250	1,015,850	1,051,000	1,088,150	1,125,850	1,165,200	1,206,000	1,248,500	1,292,500
Pipelines	16,098,640	29,268,030	15,993,000	17,849,550	29,066,200	30,840,430	22,060,270	38,851,200	32,878,230
PRVs/Vaults	291,500	302,000	312,500	323,500	334,500	346,500	358,500	371,000	384,000
Facilities	340,700	352,650	365,000	377,750	391,000	404,650	418,850	433,500	448,650
Fleet	613,500	635,000	657,000	680,000	704,000	728,500	754,000	780,500	807,500
IT	0	0	0	0	0	0	0	0	0
Meters/Svcs	1,760,000	1,820,000	1,885,000	1,950,000	2,020,000	2,090,000	2,160,000	2,235,000	2,315,000
Other/Undefined	10,221,500	10,579,500	10,950,000	11,333,000	11,729,500	12,140,000	12,565,000	13,005,000	13,460,000
Capital Outlays from O&M	711,050	743,048	776,485	811,427	847,941	886,098	925,972	967,641	1,011,185
Totals	$34,623,340	$48,735,778	$36,093,918	$38,719,427	$50,614,232	$53,145,228	$48,534,842	$75,046,957	$75,837,915
Depreciation and Amortization Expense	*$17,753,473*	*$17,721,434*	*$17,688,123*	*$17,653,540*	*$17,617,683*	*$17,580,548*	*$17,542,129*	*$17,502,415*	*$17,461,396*

5/1/2019

TVWD Forecast Model Summary

Table 1
Tualatin Valley Water District
Water Financial Plan
45-year Categorical CIP Summary (Escalated)

Category	FY2037	FY2038	FY2039	FY2040	FY2041	FY2042	FY2043	FY2044	FY2045
WWSP	$1,913,755	$0	$29,311	$126,355	$7,304,773	$6,970	$47,664	$79,945	$7,884,862
JWC	1,396,900	1,446,000	1,089,050	1,126,900	1,257,350	1,207,150	1,249,550	1,293,650	1,338,600
TVWD Source	0	0	0	0	0	0	0	0	0
Storage	3,817,000	3,950,500	4,089,000	4,232,500	4,380,000	4,533,500	4,692,000	4,856,500	5,026,500
Pumping	1,337,500	1,384,000	1,433,000	1,482,500	1,535,000	1,588,000	1,644,000	1,701,500	1,761,000
Pipelines	32,187,370	23,821,630	42,831,990	49,465,000	26,133,500	24,291,500	40,570,000	25,816,000	31,942,500
PRVs/Vaults	397,500	411,500	426,000	440,500	456,000	472,000	488,500	505,500	523,500
Facilities	464,350	480,650	497,450	514,850	532,900	551,550	570,850	590,800	611,500
Fleet	836,000	865,000	895,500	926,500	959,000	993,000	1,025,000	1,065,000	1,100,000
IT	0	0	0	0	0	0	0	0	0
Meters/Svcs	2,395,000	2,480,000	2,565,000	2,655,000	2,750,000	2,845,000	2,945,000	3,050,000	3,155,000
Other/Undefined	13,931,000	14,419,000	14,923,500	15,445,500	15,986,500	16,546,000	17,125,000	17,724,500	18,344,500
Capital Outlays from O&M	1,056,688	1,104,239	1,153,930	1,205,857	1,260,121	1,316,826	1,376,083	1,438,007	1,502,717
Totals	$59,733,064	$50,362,519	$69,933,731	$77,621,462	$62,555,143	$54,351,496	$71,733,647	$58,121,402	$73,190,679
Depreciation and Amortization Expense	*$17,419,057*	*$17,375,384*	*$17,330,358*	*$17,407,603*	*$17,482,360*	*$17,554,709*	*$17,624,727*	*$17,692,491*	*$17,758,072*

5/1/2019

TVWD Forecast Model Summary

Table 1
Tualatin Valley Water District
Water Financial Plan
45-year Categorical CIP Summary (Escalated)

Category	FY2046	FY2047	FY2048	FY2049	FY2050	FY2051	FY2052	FY2053	FY2054
WWSP	$50,944,503	$40,518,913	$4,188,000	$0	$5,367,407	$0	$1,547,502	$0	$0
JWC	1,493,550	1,434,050	7,654,150	7,915,750	8,193,050	8,608,200	8,776,000	1,757,350	1,818,850
TVWD Source	0	0	0	0	0	0	0	0	0
Storage	5,202,000	5,384,500	5,424,000	5,613,500	5,810,000	6,013,500	6,224,000	6,441,500	6,667,000
Pumping	1,823,000	1,886,500	1,952,500	2,020,800	2,091,600	2,164,800	2,240,450	2,319,000	2,400,050
Pipelines	26,102,000	30,461,500	25,273,000	26,159,700	27,075,250	28,022,200	29,003,500	30,018,700	31,068,900
PRVs/Vaults	542,000	560,500	580,500	600,650	621,700	643,450	665,950	689,250	713,400
Facilities	632,900	655,050	677,950	701,700	726,250	751,700	778,000	805,200	833,400
Fleet	1,140,000	1,180,000	1,220,000	1,263,000	1,307,500	1,353,000	1,400,500	1,449,500	1,500,000
IT	0	0	0	0	0	0	0	0	0
Meters/Svcs	3,265,000	3,380,000	3,500,000	3,621,000	3,747,500	3,878,500	4,014,500	4,155,000	4,300,500
Other/Undefined	18,987,000	19,651,500	20,339,000	21,051,000	21,787,500	22,550,500	23,339,500	24,156,500	25,002,000
Capital Outlays from O&M	1,570,340	1,641,005	1,714,850	1,792,018	1,872,659	1,956,929	2,044,991	2,137,015	2,233,181
Totals	$111,702,293	$106,753,518	$72,523,950	$70,739,118	$78,600,416	$75,942,779	$80,034,893	$73,929,015	$76,537,281
Depreciation and Amortization Expense	*$17,821,540*	*$17,882,965*	*$17,942,411*	*$17,999,942*	*$18,055,621*	*$18,109,506*	*$18,161,655*	*$18,212,125*	*$18,260,970*

5/1/2019

TVWD Forecast Model Summary

Table 1
Tualatin Valley Water District
Water Financial Plan
45-year Categorical CIP Summary (Escalated)

Category	FY2055	FY2056	FY2057	FY2058	FY2059	FY2060	FY2061	FY2062	FY2063
WWSP	$253,687	$21,385,415	$20,982,109	$19,941,500	$2,122,323	$16,091	$86,208	$0	$1,645,214
JWC	1,882,150	2,100,600	2,016,250	2,087,000	2,159,700	2,235,300	2,494,750	2,394,850	2,478,400
TVWD Source	0	0	0	0	0	0	0	0	0
Storage	6,900,500	7,142,000	7,392,000	7,650,500	7,918,500	8,195,500	8,482,500	8,779,500	9,086,500
Pumping	2,484,050	2,571,000	2,661,000	2,754,050	2,850,600	2,950,250	3,053,950	3,160,750	3,271,200
Pipelines	32,156,550	33,281,750	34,446,500	35,652,350	36,900,300	38,191,500	39,528,500	40,912,000	42,344,000
PRVs/Vaults	738,350	764,200	790,950	818,650	847,300	876,950	907,650	939,400	972,300
Facilities	862,550	892,750	924,000	956,350	989,800	1,024,500	1,060,500	1,097,500	1,136,000
Fleet	1,552,500	1,607,000	1,663,000	1,721,500	1,781,500	1,844,000	1,908,500	1,975,500	2,044,500
IT	0	0	0	0	0	0	0	0	0
Meters/Svcs	4,451,000	4,606,500	4,768,000	4,934,500	5,107,500	5,286,000	5,471,000	5,662,500	5,861,000
Other/Undefined	25,877,000	26,782,500	27,720,000	28,690,500	29,694,500	30,734,000	31,809,500	32,923,000	34,075,000
Capital Outlays from O&M	2,333,674	2,438,689	2,548,430	2,663,110	2,782,950	2,908,182	3,039,050	3,175,808	3,318,719
Totals	$79,492,011	$103,572,404	$105,912,239	$107,870,010	$93,154,973	$94,262,273	$97,842,108	$101,020,808	$106,232,833
Depreciation and Amortization Expense	*$18,308,241*	*$18,353,989*	*$18,398,265*	*$18,441,114*	*$18,482,583*	*$18,522,716*	*$18,561,557*	*$18,599,147*	*$18,635,526*

5/1/2019

TVWD Forecast Model Summary

Table 2
Tualatin Valley Water District
Water Financial Plan
Funding Sources for Improvements

Description	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY2027	FY2028
Funding Summary (after Calibration)										
Capital Projects & Outlays from Cash/Reserves	$43,024,736	$66,424,497	$74,772,530	$32,434,993	$42,546,236	$35,207,609	$41,298,733	$29,162,484	$48,362,874	$29,107,831
Projects funded from Debt Proceeds (incl fund Int.)	0	4,500,000	20,000,000	100,000,000	167,777,126	116,503,880	30,000,000	25,500,000	0	0
SDC-Funded Capital Projects	5,518,500	5,711,648	5,714,503	5,710,562	5,699,345	5,680,347	5,653,038	5,616,858	5,571,222	5,515,509
Totals	$48,543,236	$76,636,144	$100,487,033	$138,145,555	$216,022,707	$157,391,836	$76,951,771	$60,279,342	$53,934,096	$34,623,340
Funding Split (after Calibration)										
Capital Projects & Outlays from Cash/Reserves	88.6%	86.7%	74.4%	23.5%	19.7%	22.4%	53.7%	48.4%	89.7%	84.1%
Projects funded from Debt Proceeds (incl fund Int.)	0.0%	5.9%	19.9%	72.4%	77.7%	74.0%	39.0%	42.3%	0.0%	0.0%
SDC-Funded Capital Projects	11.4%	7.5%	5.7%	4.1%	2.6%	3.6%	7.3%	9.3%	10.3%	15.9%
Totals	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Check	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

5/1/2019

TVWD Forecast Model Summary

Table 2
Tualatin Valley Water District
Water Financial Plan
Funding Sources for Improvements

Description	FY2029	FY2030	FY2031	FY2032	FY2033	FY2034	FY2035	FY2036	FY2037	FY2038
Funding Summary (after Calibration)										
Capital Projects & Outlays from Cash/Reserves	$17,541,637	$30,722,689	$33,438,166	$33,195,457	$19,177,388	$43,603,956	$38,007,825	$36,551,864	$28,927,657	$46,118,790
Projects funded from Debt Proceeds (incl fund Int.)	25,745,069	0	0	12,240,360	28,905,940	0	32,254,631	34,664,223	26,363,500	0
SDC-Funded Capital Projects	5,449,072	5,371,229	5,281,261	5,178,415	5,061,901	4,930,887	4,784,501	4,621,828	4,441,907	4,243,729
Totals	$48,735,778	$36,093,918	$38,719,427	$50,614,232	$53,145,228	$48,534,842	$75,046,957	$75,837,915	$59,733,064	$50,362,519
Funding Split (after Calibration)										
Capital Projects & Outlays from Cash/Reserves	36.0%	85.1%	86.4%	65.6%	36.1%	89.8%	50.6%	48.2%	48.4%	91.6%
Projects funded from Debt Proceeds (incl fund Int.)	52.8%	0.0%	0.0%	24.2%	54.4%	0.0%	43.0%	45.7%	44.1%	0.0%
SDC-Funded Capital Projects	11.2%	14.9%	13.6%	10.2%	9.5%	10.2%	6.4%	6.1%	7.4%	8.4%
Totals	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Check	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

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TVWD Forecast Model Summary

Table 2
Tualatin Valley Water District
Water Financial Plan
Funding Sources for Improvements

Description	FY2039	FY2040	FY2041	FY2042	FY2043	FY2044	FY2045	FY2046	FY2047	FY2048
Funding Summary (after Calibration)										
Capital Projects & Outlays from Cash/Reserves	$42,420,844	$18,398,783	$59,026,319	$51,104,978	$43,589,005	$55,513,089	$55,269,500	$62,142,474	$27,921,198	$71,526,250
Projects funded from Debt Proceeds (incl fund Int.)	23,486,649	55,434,355	0	0	25,204,514	0	15,671,509	47,697,091	77,386,378	0
SDC-Funded Capital Projects	4,026,238	3,788,324	3,528,824	3,246,518	2,940,128	2,608,313	2,249,670	1,862,727	1,445,942	997,700
Totals	$69,933,731	$77,621,462	$62,555,143	$54,351,496	$71,733,647	$58,121,402	$73,190,679	$111,702,293	$106,753,518	$72,523,950
Funding Split (after Calibration)										
Capital Projects & Outlays from Cash/Reserves	60.7%	23.7%	94.4%	94.0%	60.8%	95.5%	75.5%	55.6%	26.2%	98.6%
Projects funded from Debt Proceeds (incl fund Int.)	33.6%	71.4%	0.0%	0.0%	35.1%	0.0%	21.4%	42.7%	72.5%	0.0%
SDC-Funded Capital Projects	5.8%	4.9%	5.6%	6.0%	4.1%	4.5%	3.1%	1.7%	1.4%	1.4%
Totals	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Check	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

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TVWD Forecast Model Summary

Table 3
Tualatin Valley Water District
Water Financial Plan
Projected LTD Sizing & Debt Service Assumptions

	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY2027	FY2028
PROJECTED DEBT ISSUE SIZING										
Total Cost of Debt-Eligible Projects	$48,115,436	$76,136,144	$99,964,533	$137,599,542	$215,452,124	$156,795,577	$76,328,680	$59,628,212	$53,253,665	$33,912,290
Total Debt-Eligible Capital Project Costs (after other funding	42,596,936	70,424,497	94,250,030	9,425,387	42,777,383	51,550,038	11,139,272	12,271,605	47,682,443	5,505,985
Issue Proceeds, Costs, & Reserves Estimates										
Bond Proceeds Requested	$0	$0	$0	$0	$42,777,383	$51,504,967	$0	$0	$0	$0
Issuance Costs	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%
Reserve Req. Selected: Minimum of 3-Prong Test	0.00%	0.00%	0.00%	0.00%	6.88%	6.88%	0.00%	0.00%	0.00%	0.00%
Issue Sizing										
Rev. Bonds Issue Sizing Formulas	$0	$0	$0	$0	$46,690,280	$56,216,187	$0	$0	$0	$0
Rev. Bonds Issue Size used in model	$0	$0	$0	$0	$46,690,000	$56,215,000	$0	$0	$0	$0
Summary of Costs and Reserves by Issue										
Issuance Costs	$0	$0	$0	$0	$700,350	$843,225	$0	$0	$0	$0
Reserve Requirement	0	0	0	0	3,212,524	3,867,895	0	0	0	0
Proceeds Used in model forecast	$0	$0	$0	$0	$42,777,126	$51,503,880	$0	$0	$0	$0
LTD Proceeds Used in model forecast	$0	$0	$0	$0	$42,777,126	$51,503,880	$0	$0	$0	$0
Difference recouped from (or added to) Rates/Reserves	0	0	0	0	256	1,087	0	0	0	0
DEBT SERVICE FORECASTING										
Debt Service Requirements										
Term (Years)	30	30	30	30	30	30	30	30	30	30
Interest Rate	5.00%	5.00%	5.00%	5.50%	5.50%	5.50%	5.50%	5.50%	5.50%	5.50%
New Debt Service										
Annual Debt Service Costs	$0	$0	$0	$0	$3,212,524	$3,867,895	$0	$0	$0	$0
Accumulated Debt Service	0	0	0	0	1,606,262	5,146,471	7,080,419	7,080,419	7,080,419	7,080,419
Check Proceeds	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

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TVWD Forecast Model Summary

Table 3
Tualatin Valley Water District
Water Financial Plan
Projected LTD Sizing & Debt Service Assumptions

	FY2029	FY2030	FY2031	FY2032	FY2033	FY2034	FY2035	FY2036	FY2037	FY2038
PROJECTED DEBT ISSUE SIZING										
Total Cost of Debt-Eligible Projects	$47,992,730	$35,317,433	$37,908,000	$49,766,291	$52,259,130	$47,608,870	$74,079,316	$74,826,730	$58,676,375	$49,258,280
Total Debt-Eligible Capital Project Costs (after other fundin	25,746,202	29,946,204	32,626,739	12,239,787	28,906,534	11,732,218	32,255,157	34,662,205	26,363,190	45,014,551
Issue Proceeds, Costs, & Reserves Estimates										
Bond Proceeds Requested	$25,746,202	$0	$0	$12,239,787	$28,906,534	$0	$32,255,157	$34,662,205	$26,363,190	$0
Issuance Costs	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%
Reserve Req. Selected: Minimum of 3-Prong Test	6.88%	0.00%	0.00%	6.88%	6.88%	0.00%	6.88%	6.88%	6.88%	0.00%
Issue Sizing										
Rev. Bonds Issue Sizing Formulas	$28,101,237	$0	$0	$13,359,375	$31,550,648	$0	$35,205,574	$37,832,798	$28,774,662	$0
Rev. Bonds Issue Size used in model	$28,100,000	$0	$0	$13,360,000	$31,550,000	$0	$35,205,000	$37,835,000	$28,775,000	$0
Summary of Costs and Reserves by Issue										
Issuance Costs	$421,500	$0	$0	$200,400	$473,250	$0	$528,075	$567,525	$431,625	$0
Reserve Requirement	1,933,431	0	0	919,240	2,170,810	0	2,422,294	2,603,252	1,979,875	0
Proceeds Used in model forecast	$25,745,069	$0	$0	$12,240,360	$28,905,940	$0	$32,254,631	$34,664,223	$26,363,500	$0
LTD Proceeds Used in model forecast	$25,745,069	$0	$0	$12,240,360	$28,905,940	$0	$32,254,631	$34,664,223	$26,363,500	$0
Difference recouped from (or added to) Rates/Reserves	1,133	0	0	(573)	594	0	526	(2,018)	(310)	0
DEBT SERVICE FORECASTING										
Debt Service Requirements										
Term (Years)	30	30	30	30	30	30	30	30	30	30
Interest Rate	5.50%	5.50%	5.50%	5.50%	5.50%	5.50%	5.50%	5.50%	5.50%	5.50%
New Debt Service										
Annual Debt Service Costs	$1,933,431	$0	$0	$919,240	$2,170,810	$0	$2,422,294	$2,603,252	$1,979,875	$0
Accumulated Debt Service	8,047,134	9,013,850	9,013,850	9,473,470	11,018,495	12,103,900	13,315,047	15,827,820	18,119,383	19,109,321
Check Proceeds	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

5/1/2019

TVWD Forecast Model Summary

Table 3
Tualatin Valley Water District
Water Financial Plan
Projected LTD Sizing & Debt Service Assumptions

	FY2039	FY2040	FY2041	FY2042	FY2043	FY2044	FY2045	FY2046	FY2047	FY2048
PROJECTED DEBT ISSUE SIZING										
Total Cost of Debt-Eligible Projects	$68,779,801	$76,415,605	$60,183,023	$53,034,670	$70,357,564	$56,683,395	$71,687,962	$110,131,953	$105,112,513	$70,809,100
Total Debt-Eligible Capital Project Costs (after other funding	23,485,682	55,433,769	56,654,199	49,788,152	25,202,898	11,562,535	15,672,320	47,696,652	77,388,443	69,811,400
Issue Proceeds, Costs, & Reserves Estimates										
Bond Proceeds Requested	$23,485,682	$55,433,769	$0	$0	$25,202,898	$0	$15,672,320	$47,696,652	$77,388,443	$0
Issuance Costs	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%
Reserve Req. Selected: Minimum of 3-Prong Test	6.88%	6.88%	0.00%	0.00%	6.88%	0.00%	6.88%	6.88%	6.88%	0.00%
Issue Sizing										
Rev. Bonds Issue Sizing Formulas	$25,633,945	$60,504,361	$0	$0	$27,508,236	$0	$17,105,886	$52,059,520	$84,467,254	$0
Rev. Bonds Issue Size used in model	$25,635,000	$60,505,000	$0	$0	$27,510,000	$0	$17,105,000	$52,060,000	$84,465,000	$0
Summary of Costs and Reserves by Issue										
Issuance Costs	$384,525	$907,575	$0	$0	$412,650	$0	$256,575	$780,900	$1,266,975	$0
Reserve Requirement	1,763,826	4,163,070	0	0	1,892,836	0	1,176,916	3,582,009	5,811,647	0
Proceeds Used in model forecast	$23,486,649	$55,434,355	$0	$0	$25,204,514	$0	$15,671,509	$47,697,091	$77,386,378	$0
LTD Proceeds Used in model forecast	$23,486,649	$55,434,355	$0	$0	$25,204,514	$0	$15,671,509	$47,697,091	$77,386,378	$0
Difference recouped from (or added to) Rates/Reserves	(967)	(585)	0	0	(1,616)	0	811	(439)	2,065	0
DEBT SERVICE FORECASTING										
Debt Service Requirements										
Term (Years)	30	30	30	30	30	30	30	30	30	30
Interest Rate	5.50%	5.50%	5.50%	5.50%	5.50%	5.50%	5.50%	5.50%	5.50%	5.50%
New Debt Service										
Annual Debt Service Costs	$1,763,826	$4,163,070	$0	$0	$1,892,836	$0	$1,176,916	$3,582,009	$5,811,647	$0
Accumulated Debt Service	19,991,234	22,954,682	25,036,217	25,036,217	25,982,635	26,929,053	27,517,512	29,896,974	36,046,714	37,499,625
Check Proceeds	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

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TVWD Forecast Model Summary

Table 4
Tualatin Valley Water District
Water Financial Plan
WWSP WIFIA Summary

Description	Total Baseline 3.1	TVWD	COH	Other
1. Construction	$864,737,698	$527,639,190	$336,906,960	$191,548
2. Design	87,703,471	53,716,203	33,768,651	218,618
3. Planning	21,075,000	12,442,701	8,582,445	49,854
4. Land Acquisition	63,325,614	30,807,627	32,517,988	0
5. Other Capital Costs	105,048,940	63,449,560	40,653,940	945,440
6. Contingency	56,993,220	34,423,905	22,569,315	0
9. Ineligible Costs	46,368,969	27,097,516	14,706,635	4,564,819
8. Other	1,000,000	500,000	500,000	0
Totals	$1,246,252,912	$750,076,701	$490,205,932	$5,970,279
9. Ineligible Costs				
PLM_2.0	$6,080,742	$3,703,172	$2,377,570	$0
PLM_3.0	14,825,480	9,028,717	5,796,762	0
PLW_1.1	5,790,013	3,138,187	2,651,826	0
RWF_1.0 - WIF	15,267,000	8,564,787	2,174,185	4,528,028
Non-Capital Expenditures	4,087,886	2,469,083	1,582,012	36,791
WWSP Predesign - Prior to 4/1/14	317,849	193,570	124,279	0
Totals	$46,368,969	$27,097,516	$14,706,635	$4,564,819
Check	OK	OK	OK	OK

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TVWD Forecast Model Summary

Table 5
Tualatin Valley Water District
Water Financial Plan
WIFIA Loan Sizing & Debt Service Assumptions

		Totals	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY2027
WIFIA Proceeds and Ratio based on TVWD Cost Shares										
WWSP Project Costs		$749,576,701								
EPA WIFIA Issuance Costs		500,000								
Total WWSP/WIFIA Costs		$750,076,701								
Less: Ineligible Costs		27,097,516								
Total Eligible WWSP/WIFIA Costs		$722,979,185								
WIFIA Proceeds Requests		$370,500,000	$5,000,000	$20,000,000	$100,000,000	$125,000,000	$65,000,000	$30,000,000	$25,500,000	NA
WIFIA %		51.25%								
WIFIA Loan Sizing										
WIFIA Proceeds *(FY2027 DSR amt. based on MADS)*		$370,500,000	$5,000,000	$20,000,000	$100,000,000	$125,000,000	$65,000,000	$30,000,000	$25,500,000	$0
Capitalized Interest on Proceeds	TRUE	53,251,420	1,361,396	4,585,107	18,768,631	18,440,375	7,066,662	2,136,750	892,500	NA
WIFIA Debt		$423,751,420	$6,361,396	$24,585,107	$118,768,631	$143,440,375	$72,066,662	$32,136,750	$26,392,500	$0
Debt Service Requirements										
Term (Years)	35									
Interest Rate	3.50%									
Annual Repayment (beginning FY2027)		**$21,186,871**								
Interest-only Payments *(if not capitalized)*	FALSE	0	$0	$0	$0	$0	$0	$0	$0	$0
Summary of WIFIA Proceeds and Requirements										
Issuance Costs		$500,000	$500,000	$0	$0	$0	$0	$0	$0	$0
Reserve Requirement		0	NA	NA	NA	NA	NA	NA	NA	NA
WIFIA Proceeds for WWSP Projects		$370,000,000	$4,500,000	$20,000,000	$100,000,000	$125,000,000	$65,000,000	$30,000,000	$25,500,000	$0

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TVWD Forecast Model Summary

Table 6
Tualatin Valley Water District
Water Financial Plan
Total Annual Debt Service and Balance Summary

Description	Subject to Req?	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY2027	FY2028
Existing Debt Service											
None	TRUE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
BANs Interest (if applicable)	FALSE	0	0	0	0	0	0	0	0	0	0
Totals		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Amount Subject to Coverage		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Debt Service on Proposed Debt											
Future Revenue Bonds	TRUE	$0	$0	$0	$0	$1,606,262	$5,146,471	$7,080,419	$7,080,419	$7,080,419	$7,080,419
WIFIA Interest-only	TRUE	0	0	0	0	0	0	0	0	0	0
WIFIA Loan	TRUE	0	0	0	0	0	0	0	0	10,593,435	21,186,871
Total Debt Service Subject to Coverage		$0	$0	$0	$0	$1,606,262	$5,146,471	$7,080,419	$7,080,419	$17,673,854	$28,267,289
Total Interest Expense		$0	$0	$0	$0	$1,606,262	$4,501,897	$5,624,323	$5,544,238	$16,053,184	$20,201,911
Ending Debt Balances											
Future Revenue Bonds		$0	$0	$0	$0	$46,690,000	$102,260,426	$100,804,331	$99,268,151	$97,647,480	$95,937,673
WIFIA Loan		0	0	0	0	0	0	0	0	423,751,420	417,395,849
Total Debt Balance		$0	$0	$0	$0	$46,690,000	$102,260,426	$100,804,331	$99,268,151	$521,398,901	$513,333,523

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TVWD Forecast Model Summary

Table 6
Tualatin Valley Water District
Water Financial Plan
Total Annual Debt Service and Balance Summary

Description	Subject to Req?	FY2029	FY2030	FY2031	FY2032	FY2033	FY2034	FY2035	FY2036	FY2037	FY2038
Existing Debt Service											
None	TRUE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
BANs Interest (if applicable)	FALSE	0	0	0	0	0	0	0	0	0	0
Totals		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Amount Subject to Coverage		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Debt Service on Proposed Debt											
Future Revenue Bonds	TRUE	$8,047,134	$9,013,850	$9,013,850	$9,473,470	$11,018,495	$12,103,900	$13,315,047	$15,827,820	$18,119,383	$19,109,321
WIFIA Interest-only	TRUE	0	0	0	0	0	0	0	0	0	0
WIFIA Loan	TRUE	21,186,871	21,186,871	21,186,871	21,186,871	21,186,871	21,186,871	21,186,871	21,186,871	21,186,871	21,186,871
Total Debt Service Subject to Coverage		$29,234,005	$30,200,721	$30,200,721	$30,660,341	$32,205,366	$33,290,771	$34,501,918	$37,014,691	$39,306,254	$40,296,192
Total Interest Expense		$20,852,142	$21,101,485	$20,737,192	$20,817,248	$21,782,326	$22,009,873	$22,756,823	$24,299,318	$25,536,590	$25,545,186
Ending Debt Balances											
Future Revenue Bonds		$122,233,827	$119,942,837	$117,525,843	$128,335,914	$157,011,299	$153,543,021	$185,088,987	$218,577,687	$242,245,014	$236,459,169
WIFIA Loan		410,817,833	404,009,587	396,963,052	389,669,888	382,121,463	374,308,844	366,222,783	357,853,709	349,191,718	340,226,558
Total Debt Balance		$533,051,660	$523,952,424	$514,488,895	$518,005,802	$539,132,763	$527,851,865	$551,311,769	$576,431,397	$591,436,733	$576,685,727

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TVWD Forecast Model Summary

Table 6
Tualatin Valley Water District
Water Financial Plan
Total Annual Debt Service and Balance Summary

Description	Subject to Req?	FY2039	FY2040	FY2041	FY2042	FY2043	FY2044	FY2045	FY2046	FY2047	FY2048
Existing Debt Service											
None	TRUE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
BANs Interest (if applicable)	FALSE	0	0	0	0	0	0	0	0	0	0
Totals		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Amount Subject to Coverage		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Debt Service on Proposed Debt											
Future Revenue Bonds	TRUE	$19,991,234	$22,954,682	$25,036,217	$25,036,217	$25,982,635	$26,929,053	$27,517,512	$29,896,974	$36,046,714	$37,499,625
WIFIA Interest-only	TRUE	0	0	0	0	0	0	0	0	0	0
WIFIA Loan	TRUE	21,186,871	21,186,871	21,186,871	21,186,871	21,186,871	21,186,871	21,186,871	21,186,871	21,186,871	21,186,871
Total Debt Service Subject to Coverage		$41,178,105	$44,141,553	$46,223,088	$46,223,088	$47,169,506	$48,115,924	$48,704,382	$51,083,845	$57,233,584	$58,686,496
Total Interest Expense		$25,795,097	$27,744,157	$28,280,615	$27,492,575	$27,614,570	$27,318,636	$26,983,653	$28,160,458	$32,566,810	$31,741,349
Ending Debt Balances											
Future Revenue Bonds		$255,990,103	$309,701,411	$301,698,772	$293,255,987	$311,858,849	$302,082,032	$308,872,491	$349,814,508	$421,831,328	$407,532,426
WIFIA Loan		330,947,617	321,343,913	311,404,079	301,116,351	290,468,553	279,448,081	268,041,893	256,236,489	244,017,895	231,371,651
Total Debt Balance		$586,937,719	$631,045,324	$613,102,851	$594,372,338	$602,327,402	$581,530,114	$576,914,384	$606,050,997	$665,849,223	$638,904,077

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TVWD Forecast Model Summary

Table 7
Tualatin Valley Water District
Water Financial Plan
Summary O&M Forecast

	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY2027	FY2028	FY2029	FY2030
Water Costs												
Portland	$7,919,415	$9,048,600	$9,064,700	$9,158,932	$10,137,410	$10,088,530	$11,041,541	$11,346,082	$66,074	$69,048	$72,155	$75,402
JWC	2,252,361	2,613,596	2,699,420	2,202,179	2,323,210	2,450,754	2,585,155	2,726,776	5,251,658	5,487,982	5,734,941	5,993,014
WWSS Water	0	0	0	0	0	0	0	0	2,970,104	3,136,908	3,312,829	3,493,726
Water Costs Subtotal	$10,171,776	$11,662,196	$11,764,120	$11,361,111	$12,460,620	$12,539,284	$13,626,696	$14,072,858	$8,287,836	$8,693,938	$9,119,926	$9,562,142
% Change		*14.7%*	*0.9%*	*(3.4%)*	*9.7%*	*0.6%*	*8.7%*	*3.3%*	*(41.1%)*	*4.9%*	*4.9%*	*4.8%*
Pumping Power												
In-District Pumping	$438,364	$458,090	$494,300	$516,544	$539,788	$564,078	$589,462	$615,988	$643,707	$672,674	$702,944	$734,577
WWSS Pumping	0	0	0	0	0	0	0	0	1,004,654	1,061,077	1,120,583	1,181,773
Pumping Power Subtotal	$438,364	$458,090	$494,300	$516,544	$539,788	$564,078	$589,462	$615,988	$1,648,362	$1,733,751	$1,823,527	$1,916,349
% Change		*4.5%*	*7.9%*	*4.5%*	*4.5%*	*4.5%*	*4.5%*	*4.5%*	*167.6%*	*5.2%*	*5.2%*	*5.1%*
WWSS (excluding treatment & pump power)												
WWSS O&M (non-WTP)	0	0	0	0	0	0	0	0	541,043	563,839	587,607	612,389
WIF-related	35,050	36,627	38,275	39,998	41,798	43,679	45,644	47,698	79,545	83,124	86,865	90,774
WIFIA Issuance and Servicing	200,000	13,500	14,108	14,742	15,406	16,099	16,823	17,581	18,372	19,198	20,062	20,965
WWSS Subtotal	$235,050	$50,127	$52,383	$54,740	$57,204	$59,778	$62,468	$65,279	$638,959	$666,162	$694,534	$724,127
% Change		*(78.7%)*	*4.5%*	*4.5%*	*4.5%*	*4.5%*	*4.5%*	*4.5%*	*878.8%*	*4.3%*	*4.3%*	*4.3%*
Operational Expenses												
Administrative Services	$2,708,249	$3,931,619	$3,342,524	$3,447,307	$3,602,435	$3,764,545	$3,933,950	$4,110,977	$3,754,928	$3,925,451	$4,103,701	$4,290,028
Customer Service	5,500,568	5,669,963	5,909,346	6,091,652	6,365,777	6,652,236	6,951,587	7,264,409	7,591,307	7,932,916	8,289,897	8,662,942
Engineering/Operations	11,598,486	12,413,743	12,583,117	12,941,843	13,524,226	14,132,816	14,768,793	15,433,389	16,127,891	16,853,646	17,612,060	18,404,603
Other Operational Expenses	0	100,000	104,500	150,000	156,750	163,804	171,175	178,878	186,927	195,339	204,129	213,315
Finance	3,248,426	3,733,264	3,378,590	3,553,322	3,713,222	3,880,317	4,054,931	4,237,403	4,405,297	4,603,535	4,810,694	5,027,175
Water Supply Program	2,256,526	2,342,143	2,528,758	2,539,334	2,653,604	2,773,016	2,897,801	3,028,202	3,164,472	3,306,873	3,455,682	3,611,188
IT Services	2,601,895	2,793,610	2,659,152	2,761,306	2,885,565	3,015,415	3,151,109	3,292,909	3,441,090	3,595,939	3,757,756	3,926,855
Pensions & OPEB	40,000	10,055,900	10,072,754	11,266,240	1,337,405	1,443,624	1,523,356	1,487,600	1,693,992	1,700,088	1,776,591	2,407,285
Operational Expenses Subtotal	$27,954,150	$41,040,243	$40,578,741	$42,751,004	$34,238,983	$35,825,773	$37,452,702	$39,033,767	$40,365,904	$42,113,786	$44,010,511	$46,543,392
% Change		*46.8%*	*(1.1%)*	*5.4%*	*(19.9%)*	*4.6%*	*4.5%*	*4.2%*	*3.4%*	*4.3%*	*4.5%*	*5.8%*
Other												
Expenses from Master Plan CIP	$0	$84,000	$88,000	$92,000	$96,000	$574,900	$105,000	$122,700	$128,200	$125,500	$130,600	$136,800
Capital Outlays	427,800	500,000	522,500	546,013	570,583	596,259	623,091	651,130	680,431	711,050	743,048	776,485
Other Subtotal	$427,800	$584,000	$610,500	$638,013	$666,583	$1,171,159	$728,091	$773,830	$808,631	$836,550	$873,648	$913,285
% Change		*36.5%*	*4.5%*	*4.5%*	*4.5%*	*75.7%*	*(37.8%)*	*6.3%*	*4.5%*	*3.5%*	*4.4%*	*4.5%*
Grand Total O&M	**$39,227,140**	**$53,794,657**	**$53,500,044**	**$55,321,411**	**$47,963,178**	**$50,160,073**	**$52,459,419**	**$54,561,721**	**$51,749,692**	**$54,044,187**	**$56,522,146**	**$59,659,295**
% Change		*37.1%*	*(0.5%)*	*3.4%*	*(13.3%)*	*4.6%*	*4.6%*	*4.0%*	*(5.2%)*	*4.4%*	*4.6%*	*5.6%*
Less Capitalized OH & Capital Outlays	$3,162,670	$3,357,939	$3,509,047	$3,666,954	$3,831,967	$4,004,405	$4,184,603	$4,372,910	$2,716,381	$2,838,618	$2,966,356	$3,099,842
Net O&M	**$36,064,470**	**$50,436,717**	**$49,990,998**	**$51,654,457**	**$44,131,212**	**$46,155,668**	**$48,274,816**	**$50,188,811**	**$49,033,311**	**$51,205,569**	**$53,555,790**	**$56,559,453**
% Change		*39.9%*	*(0.9%)*	*3.3%*	*(14.6%)*	*4.6%*	*4.6%*	*4.0%*	*(2.3%)*	*4.4%*	*4.6%*	*5.6%*
Check	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

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TVWD Forecast Model Summary

Table 7
Tualatin Valley Water District
Water Financial Plan
Summary O&M Forecast

	FY2031	FY2032	FY2033	FY2034	FY2035	FY2036	FY2037	FY2038	FY2039	FY2040	FY2041	FY2042
Water Costs												
Portland	$78,795	$82,341	$86,046	$89,918	$93,964	$98,193	$102,611	$107,229	$112,054	$117,097	$122,366	$127,873
JWC	6,262,699	6,544,521	6,839,024	7,146,780	7,468,385	7,804,463	8,155,664	8,522,668	8,906,189	9,306,967	9,725,781	10,163,441
WWSS Water	3,678,737	3,867,573	4,059,906	4,255,364	4,453,531	4,653,939	4,863,367	5,082,218	5,310,918	5,549,909	5,799,655	6,060,640
Water Costs Subtotal	$10,020,231	$10,494,434	$10,984,976	$11,492,062	$12,015,880	$12,556,595	$13,121,642	$13,712,116	$14,329,161	$14,973,973	$15,647,802	$16,351,953
% Change	*4.8%*	*4.7%*	*4.7%*	*4.6%*	*4.6%*	*4.5%*	*4.5%*	*4.5%*	*4.5%*	*4.5%*	*4.5%*	*4.5%*
Pumping Power												
In-District Pumping	$767,633	$802,176	$838,274	$875,997	$915,416	$956,610	$999,658	$1,044,642	$1,091,651	$1,140,775	$1,192,110	$1,245,755
WWSS Pumping	1,244,353	1,308,228	1,373,286	1,439,401	1,506,432	1,574,221	1,645,061	1,719,089	1,796,448	1,877,288	1,961,766	2,050,045
Pumping Power Subtotal	$2,011,986	$2,110,404	$2,211,560	$2,315,397	$2,421,848	$2,530,831	$2,644,719	$2,763,731	$2,888,099	$3,018,063	$3,153,876	$3,295,801
% Change	*5.0%*	*4.9%*	*4.8%*	*4.7%*	*4.6%*	*4.5%*	*4.5%*	*4.5%*	*4.5%*	*4.5%*	*4.5%*	*4.5%*
WWSS (excluding treatment & pump power)												
WWSS O&M (non-WTP)	638,227	665,168	693,259	722,549	753,091	784,939	818,147	852,777	888,888	926,545	965,814	1,006,766
WIF-related	94,858	99,127	103,588	108,249	113,120	118,211	123,530	129,089	134,898	140,969	147,312	153,941
WIFIA Issuance and Servicing	21,909	22,894	23,925	25,001	26,126	27,302	28,531	29,814	31,156	32,558	34,023	35,554
WWSS Subtotal	$754,994	$787,189	$820,771	$855,800	$892,338	$930,451	$970,208	$1,011,681	$1,054,942	$1,100,072	$1,147,150	$1,196,262
% Change	*4.3%*	*4.3%*	*4.3%*	*4.3%*	*4.3%*	*4.3%*	*4.3%*	*4.3%*	*4.3%*	*4.3%*	*4.3%*	*4.3%*
Operational Expenses												
Administrative Services	$4,484,799	$4,688,394	$4,901,213	$5,123,674	$5,356,212	$5,599,284	$5,853,365	$6,118,953	$6,396,570	$6,686,759	$6,990,088	$7,307,152
Customer Service	9,052,775	9,460,150	9,885,856	10,330,720	10,795,602	11,281,404	11,789,068	12,319,576	12,873,956	13,453,285	14,058,682	14,691,323
Engineering/Operations	19,232,810	20,098,287	21,002,710	21,947,832	22,935,484	23,967,581	25,046,122	26,173,198	27,350,991	28,581,786	29,867,966	31,212,025
Other Operational Expenses	222,914	232,945	243,428	254,382	265,829	277,792	290,292	303,356	317,007	331,272	346,179	361,757
Finance	5,253,398	5,489,801	5,736,842	5,995,000	6,264,775	6,546,690	6,841,291	7,149,149	7,470,861	7,807,049	8,158,367	8,525,493
Water Supply Program	3,773,691	3,943,507	4,120,965	4,306,409	4,500,197	4,702,706	4,914,328	5,135,472	5,366,569	5,608,064	5,860,427	6,124,146
IT Services	4,103,563	4,288,224	4,481,194	4,682,847	4,893,576	5,113,787	5,343,907	5,584,383	5,835,680	6,098,286	6,372,708	6,659,480
Pensions & OPEB	2,520,297	2,429,171	2,535,914	2,400,426	2,505,666	2,444,346	2,557,348	2,467,051	2,571,534	2,934,182	3,059,220	2,963,666
Operational Expenses Subtotal	$48,644,248	$50,630,479	$52,908,123	$55,041,290	$57,517,341	$59,933,589	$62,635,720	$65,251,137	$68,183,168	$71,500,682	$74,713,638	$77,845,042
% Change	*4.5%*	*4.1%*	*4.5%*	*4.0%*	*4.5%*	*4.2%*	*4.5%*	*4.2%*	*4.5%*	*4.9%*	*4.5%*	*4.2%*
Other												
Expenses from Master Plan CIP	$143,000	$149,300	$155,500	$749,200	$169,900	$177,200	$185,400	$193,700	$202,000	$211,200	$220,500	$230,800
Capital Outlays	811,427	847,941	886,098	925,972	967,641	1,011,185	1,056,688	1,104,239	1,153,930	1,205,857	1,260,121	1,316,826
Other Subtotal	$954,427	$997,241	$1,041,598	$1,675,172	$1,137,541	$1,188,385	$1,242,088	$1,297,939	$1,355,930	$1,417,057	$1,480,621	$1,547,626
% Change	*4.5%*	*4.5%*	*4.4%*	*60.8%*	*(32.1%)*	*4.5%*	*4.5%*	*4.5%*	*4.5%*	*4.5%*	*4.5%*	*4.5%*
Grand Total O&M	**$62,385,885**	**$65,019,748**	**$67,967,028**	**$71,379,722**	**$73,984,949**	**$77,139,851**	**$80,614,377**	**$84,036,604**	**$87,811,300**	**$92,009,847**	**$96,143,086**	**$100,236,683**
% Change	*4.6%*	*4.2%*	*4.5%*	*5.0%*	*3.6%*	*4.3%*	*4.5%*	*4.2%*	*4.5%*	*4.8%*	*4.5%*	*4.3%*
Less Capitalized OH & Capital Outlays	$3,239,335	$3,385,105	$3,537,435	$3,696,620	$3,862,967	$4,036,801	$4,218,457	$4,408,288	$4,606,661	$4,813,960	$5,030,588	$5,256,965
Net O&M	**$59,146,550**	**$61,634,643**	**$64,429,593**	**$67,683,102**	**$70,121,981**	**$73,103,050**	**$76,395,920**	**$79,628,316**	**$83,204,639**	**$87,195,887**	**$91,112,498**	**$94,979,718**
% Change	*4.6%*	*4.2%*	*4.5%*	*5.0%*	*3.6%*	*4.3%*	*4.5%*	*4.2%*	*4.5%*	*4.8%*	*4.5%*	*4.2%*
Check	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

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TVWD Forecast Model Summary

Table 7
Tualatin Valley Water District
Water Financial Plan
Summary O&M Forecast

	FY2043	FY2044	FY2045	FY2046	FY2047	FY2048
Water Costs						
Portland	$133,627	$139,640	$145,924	$152,490	$159,352	$166,523
JWC	10,620,796	11,098,731	11,598,174	12,120,092	12,665,496	13,235,444
WWSS Water	6,333,369	6,618,370	6,916,197	7,227,426	7,552,660	7,892,529
Water Costs Subtotal	$17,087,791	$17,856,741	$18,660,295	$19,500,008	$20,377,508	$21,294,496
% Change	*4.5%*	*4.5%*	*4.5%*	*4.5%*	*4.5%*	*4.5%*
Pumping Power						
In-District Pumping	$1,301,814	$1,360,396	$1,421,614	$1,485,586	$1,552,438	$1,622,297
WWSS Pumping	2,142,297	2,238,701	2,339,442	2,444,717	2,554,730	2,669,692
Pumping Power Subtotal	$3,444,112	$3,599,097	$3,761,056	$3,930,303	$4,107,167	$4,291,990
% Change	*4.5%*	*4.5%*	*4.5%*	*4.5%*	*4.5%*	*4.5%*
WWSS (excluding treatment & pump power)						
WWSS O&M (non-WTP)	1,049,473	1,094,011	1,140,458	1,188,899	1,239,418	1,292,107
WIF-related	160,869	168,108	175,673	183,578	191,839	200,472
WIFIA Issuance and Servicing	37,154	38,826	40,573	42,399	44,307	46,301
WWSS Subtotal	$1,247,496	$1,300,944	$1,356,704	$1,414,876	$1,475,564	$1,538,879
% Change	*4.3%*	*4.3%*	*4.3%*	*4.3%*	*4.3%*	*4.3%*
Operational Expenses						
Administrative Services	$7,638,571	$7,984,996	$8,347,103	$8,725,603	$9,121,236	$9,534,777
Customer Service	15,352,433	16,043,292	16,765,240	17,519,676	18,308,061	19,131,924
Engineering/Operations	32,616,566	34,084,311	35,618,105	37,220,920	38,895,862	40,646,175
Other Operational Expenses	378,036	395,048	412,825	431,402	450,815	471,102
Finance	8,909,140	9,310,052	9,729,004	10,166,809	10,624,316	11,102,410
Water Supply Program	6,399,733	6,687,721	6,988,668	7,303,158	7,631,800	7,975,231
IT Services	6,959,157	7,272,319	7,599,573	7,941,554	8,298,924	8,672,376
Pensions & OPEB	3,097,031	2,973,047	3,094,727	3,015,092	3,137,927	3,027,340
Operational Expenses Subtotal	$81,350,667	$84,750,785	$88,555,247	$92,324,214	$96,468,941	$100,561,335
% Change	*4.5%*	*4.2%*	*4.5%*	*4.3%*	*4.5%*	*4.2%*
Other						
Expenses from Master Plan CIP	$241,100	$1,078,500	$262,800	$274,100	$286,500	$298,800
Capital Outlays	1,376,083	1,438,007	1,502,717	1,570,340	1,641,005	1,714,850
Other Subtotal	$1,617,183	$2,516,507	$1,765,517	$1,844,440	$1,927,505	$2,013,650
% Change	*4.5%*	*55.6%*	*(29.8%)*	*4.5%*	*4.5%*	*4.5%*
Grand Total O&M	**$104,747,248**	**$110,024,074**	**$114,098,819**	**$119,013,841**	**$124,356,686**	**$129,700,350**
% Change	*4.5%*	*5.0%*	*3.7%*	*4.3%*	*4.5%*	*4.3%*
Less Capitalized OH & Capital Outlays	$5,493,528	$5,740,737	$5,999,070	$6,269,028	$6,551,135	$6,845,936
Net O&M	**$99,253,720**	**$104,283,337**	**$108,099,748**	**$112,744,813**	**$117,805,551**	**$122,854,414**
% Change	*4.5%*	*5.1%*	*3.7%*	*4.3%*	*4.5%*	*4.3%*
Check	OK	OK	OK	OK	OK	OK

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TVWD Forecast Model Summary

Table 8
Tualatin Valley Water District
Water Financial Plan
Rate Revenue Assumptions

	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY2027	FY2028
GENERAL Assumptions										
Overall Rate Revenue Increases	**13.50%**	**3.90%**	**3.90%**	**3.90%**	**3.90%**	**3.90%**	**3.90%**	**3.90%**	**3.90%**	**3.90%**
Month of Rate Increase Impact	Dec.	Dec.	Dec.	Dec.	Dec.	Dec.	Dec.	Dec.	Dec.	Dec.
Prorated Percent Impact of Increase	48.46%	48.46%	48.46%	48.46%	48.46%	48.46%	48.46%	48.46%	48.46%	48.46%
RETAIL RATE Assumptions										
Rate Revenue Increase Overrides										
Class Customer/System Growth Rate	(1.78%)	(3.99%)	0.75%	0.70%	0.65%	0.60%	0.55%	0.50%	0.45%	0.40%
Sales Growth / Conservation Adj.	(2.52%)	(6.33%)	0.34%	0.34%	0.34%	0.34%	0.34%	0.34%	0.34%	0.34%
Ratio - Volumetric Revenue	*79.49%*	*79.49%*	*79.49%*	*79.49%*	*79.49%*	*79.49%*	*79.49%*	*79.49%*	*79.49%*	*79.49%*
Internal Revenue Growth	**(2.36%)**	**(5.81%)**	**0.43%**	**0.42%**	**0.41%**	**0.40%**	**0.39%**	**0.38%**	**0.37%**	**0.36%**

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TVWD Forecast Model Summary

Table 8
Tualatin Valley Water District
Water Financial Plan
Rate Revenue Assumptions

	FY2029	FY2030	FY2031	FY2032	FY2033	FY2034	FY2035	FY2036	FY2037	FY2038
GENERAL Assumptions										
Overall Rate Revenue Increases	**3.90%**	**3.90%**	**3.90%**	**4.25%**	**4.25%**	**4.25%**	**4.25%**	**4.25%**	**4.25%**	**4.25%**
Month of Rate Increase Impact	Dec.	Dec.	Dec.	Dec.	Dec.	Dec.	Dec.	Dec.	Dec.	Dec.
Prorated Percent Impact of Increase	48.46%	48.46%	48.46%	48.46%	48.46%	48.46%	48.46%	48.46%	48.46%	48.46%
RETAIL RATE Assumptions										
Rate Revenue Increase Overrides										
Class Customer/System Growth Rate	0.35%	0.30%	0.25%	0.20%	0.15%	0.10%	0.05%	0.00%	0.00%	0.00%
Sales Growth / Conservation Adj.	0.34%	0.30%	0.25%	0.20%	0.15%	0.10%	0.05%	0.00%	0.00%	0.00%
Ratio - Volumetric Revenue	*79.49%*	*79.49%*	*79.49%*	*79.49%*	*79.49%*	*79.49%*	*79.49%*	*79.49%*	*79.49%*	*79.49%*
Internal Revenue Growth	**0.35%**	**0.30%**	**0.25%**	**0.20%**	**0.15%**	**0.10%**	**0.05%**	**0.00%**	**0.00%**	**0.00%**

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TVWD Forecast Model Summary

Table 8
Tualatin Valley Water District
Water Financial Plan
Rate Revenue Assumptions

	FY2039	FY2040	FY2041	FY2042	FY2043	FY2044	FY2045	FY2046	FY2047	FY2048
GENERAL Assumptions										
Overall Rate Revenue Increases	**4.25%**	**4.25%**	**4.25%**	**4.25%**	**4.25%**	**4.50%**	**4.50%**	**4.50%**	**4.50%**	**4.50%**
Month of Rate Increase Impact	Dec.	Dec.	Dec.	Dec.	Dec.	Dec.	Dec.	Dec.	Dec.	Dec.
Prorated Percent Impact of Increase	48.46%	48.46%	48.46%	48.46%	48.46%	48.46%	48.46%	48.46%	48.46%	48.46%
RETAIL RATE Assumptions										
Rate Revenue Increase Overrides										
Class Customer/System Growth Rate	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Sales Growth / Conservation Adj.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Ratio - Volumetric Revenue	*79.49%*	*79.49%*	*79.49%*	*79.49%*	*79.49%*	*79.49%*	*79.49%*	*79.49%*	*79.49%*	*79.49%*
Internal Revenue Growth	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**

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TVWD Forecast Model Summary

Table 9
Tualatin Valley Water District
Water Financial Plan
Revenue Forecast

	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY2027	FY2028
Retail										
Retail Revenue Before Increase	$65,701,514	$70,240,157	$73,291,456	$76,467,475	$79,772,952	$83,212,791	$86,792,066	$90,516,024	$94,390,092	$98,419,883
Retail Revenue from Increase	4,298,486	1,327,567	1,385,238	1,445,266	1,507,741	1,572,755	1,640,405	1,710,789	1,784,011	1,860,175
Total Retail Revenue	$70,000,000	$71,567,724	$74,676,694	$77,912,740	$81,280,693	$84,785,546	$88,432,471	$92,226,813	$96,174,102	$100,280,058
Total User Charges	$70,000,000	$71,567,724	$74,676,694	$77,912,740	$81,280,693	$84,785,546	$88,432,471	$92,226,813	$96,174,102	$100,280,058
Manual Overrides										
Non-Rate Revenues*										
Meter & Svc Revenue	$1,133,000	$1,166,990	$1,202,000	$1,238,060	$1,275,201	$1,313,458	$1,352,861	$1,393,447	$1,435,251	$1,478,308
Special Service & Turn On Fees	3,100	3,193	3,289	3,387	3,489	3,594	3,702	3,813	3,927	4,045
Penalty Fees	10,400	10,712	11,033	11,364	11,705	12,056	12,418	12,791	13,174	13,570
Dispatch Fees	308,300	317,549	327,075	336,888	346,994	357,404	368,126	379,170	390,545	402,262
Miscellaneous Income	223,500	230,205	237,111	244,224	251,551	259,098	266,871	274,877	283,123	291,617
Plan Review	18,500	19,055	19,627	20,215	20,822	21,447	22,090	22,753	23,435	24,138
Contract Reimbursements	1,400,700	1,442,721	1,486,003	1,530,583	1,576,500	1,623,795	1,672,509	1,722,684	1,774,365	1,827,596
Backflow Program Reimbursement	273,900	282,117	290,581	299,298	308,277	317,525	327,051	336,862	346,968	357,377
Power Generation Station	9,600	9,888	10,185	10,490	10,805	11,129	11,463	11,807	12,161	12,526
Payments for Fund 15 Expenses	964,430	1,007,829	1,053,182	1,100,575	1,150,101	1,201,855	1,255,939	1,312,456	0	0
COB Wheeling Revenue	547,320	1,700,658	1,303,410	1,081,583	931,549	770,234	597,050	411,384	212,591	218,968
Interest Earnings - Cash & Investments	2,667,589	2,550,801	1,648,525	1,108,498	1,210,554	1,312,237	1,399,308	1,624,448	1,642,638	1,388,114
Total Non-Rate Revenues	$7,560,339	$8,741,718	$7,592,019	$6,985,166	$7,097,548	$7,203,832	$7,289,388	$7,506,490	$6,138,178	$6,018,520
Total Revenues	$77,560,339	$80,309,442	$82,268,713	$84,897,906	$88,378,241	$91,989,379	$95,721,859	$99,733,303	$102,312,281	$106,298,578

* Note: Non-Rate Revenues are net of related expenses.

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TVWD Forecast Model Summary

Table 9
Tualatin Valley Water District
Water Financial Plan
Revenue Forecast

	FY2029	FY2030	FY2031	FY2032	FY2033	FY2034	FY2035	FY2036	FY2037	FY2038
Retail										
Retail Revenue Before Increase	$102,611,200	$106,933,033	$111,381,293	$115,956,689	$121,066,220	$126,337,766	$131,772,980	$137,373,332	$143,211,699	$149,298,196
Retail Revenue from Increase	1,939,393	2,021,077	2,105,151	2,388,312	2,493,551	2,602,127	2,714,074	2,829,422	2,949,673	3,075,034
Total Retail Revenue	$104,550,593	$108,954,110	$113,486,444	$118,345,002	$123,559,771	$128,939,894	$134,487,055	$140,202,754	$146,161,372	$152,373,230
Total User Charges	$104,550,593	$108,954,110	$113,486,444	$118,345,002	$123,559,771	$128,939,894	$134,487,055	$140,202,754	$146,161,372	$152,373,230
Manual Overrides										
Non-Rate Revenues*										
Meter & Svc Revenue	$1,522,657	$1,568,337	$1,615,387	$1,663,849	$1,713,764	$1,765,177	$1,818,132	$1,872,676	$1,928,857	$1,986,722
Special Service & Turn On Fees	4,166	4,291	4,420	4,552	4,689	4,830	4,975	5,124	5,278	5,436
Penalty Fees	13,977	14,396	14,828	15,273	15,731	16,203	16,689	17,190	17,705	18,236
Dispatch Fees	414,329	426,759	439,562	452,749	466,331	480,321	494,731	509,573	524,860	540,606
Miscellaneous Income	300,365	309,376	318,658	328,217	338,064	348,206	358,652	369,411	380,494	391,909
Plan Review	24,862	25,608	26,377	27,168	27,983	28,822	29,687	30,578	31,495	32,440
Contract Reimbursements	1,882,424	1,938,896	1,997,063	2,056,975	2,118,684	2,182,245	2,247,712	2,315,144	2,384,598	2,456,136
Backflow Program Reimbursement	368,099	379,142	390,516	402,231	414,298	426,727	439,529	452,715	466,296	480,285
Power Generation Station	12,902	13,289	13,687	14,098	14,521	14,956	15,405	15,867	16,343	16,834
Payments for Fund 15 Expenses	0	0	0	0	0	0	0	0	0	0
COB Wheeling Revenue	225,537	232,303	239,273	246,451	253,844	261,460	269,303	277,382	285,704	294,275
Interest Earnings - Cash & Investments	1,541,721	1,702,965	1,634,948	1,594,762	1,863,509	1,997,856	1,861,179	1,891,304	2,104,025	2,204,430
Total Non-Rate Revenues	$6,311,040	$6,615,363	$6,694,718	$6,806,325	$7,231,419	$7,526,804	$7,555,995	$7,756,964	$8,145,655	$8,427,309
Total Revenues	$110,861,633	$115,569,473	$120,181,162	$125,151,327	$130,791,190	$136,466,697	$142,043,049	$147,959,719	$154,307,026	$160,800,539

* Note: Non-Rate Revenues are net of related expe

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TVWD Forecast Model Summary

Table 9
Tualatin Valley Water District
Water Financial Plan
Revenue Forecast

	FY2039	FY2040	FY2041	FY2042	FY2043	FY2044	FY2045	FY2046	FY2047	FY2048
Retail										
Retail Revenue Before Increase	$155,643,369	$162,258,212	$169,154,186	$176,343,239	$183,837,827	$191,650,935	$200,275,227	$209,287,612	$218,705,555	$228,547,304
Retail Revenue from Increase	3,205,723	3,341,966	3,484,000	3,632,070	3,786,433	4,179,553	4,367,633	4,564,177	4,769,565	4,984,195
Total Retail Revenue	$158,849,092	$165,600,178	$172,638,186	$179,975,309	$187,624,260	$195,830,488	$204,642,860	$213,851,789	$223,475,119	$233,531,500
Total User Charges	$158,849,092	$165,600,178	$172,638,186	$179,975,309	$187,624,260	$195,830,488	$204,642,860	$213,851,789	$223,475,119	$233,531,500
Manual Overrides										
Non-Rate Revenues*										
Meter & Svc Revenue	$2,046,324	$2,107,714	$2,170,945	$2,236,074	$2,303,156	$2,372,250	$2,443,418	$2,516,720	$2,592,222	$2,669,989
Special Service & Turn On Fees	5,599	5,767	5,940	6,118	6,302	6,491	6,685	6,886	7,093	7,305
Penalty Fees	18,784	19,347	19,927	20,525	21,141	21,775	22,429	23,101	23,794	24,508
Dispatch Fees	556,824	573,529	590,735	608,457	626,710	645,512	664,877	684,823	705,368	726,529
Miscellaneous Income	403,666	415,776	428,249	441,097	454,329	467,959	481,998	496,458	511,352	526,692
Plan Review	33,413	34,415	35,448	36,511	37,607	38,735	39,897	41,094	42,327	43,596
Contract Reimbursements	2,529,820	2,605,715	2,683,886	2,764,403	2,847,335	2,932,755	3,020,737	3,111,360	3,204,700	3,300,841
Backflow Program Reimbursement	494,694	509,535	524,821	540,565	556,782	573,486	590,690	608,411	626,663	645,463
Power Generation Station	17,339	17,859	18,395	18,946	19,515	20,100	20,703	21,324	21,964	22,623
Payments for Fund 15 Expenses	0	0	0	0	0	0	0	0	0	0
COB Wheeling Revenue	303,103	312,196	321,562	331,209	341,145	351,380	361,921	372,779	383,962	395,481
Interest Earnings - Cash & Investments	2,147,170	2,623,069	2,845,142	2,581,358	2,696,170	2,828,313	2,884,124	2,951,167	3,531,069	4,012,822
Total Non-Rate Revenues	$8,556,735	$9,224,921	$9,645,050	$9,585,263	$9,910,192	$10,258,756	$10,537,481	$10,834,124	$11,650,515	$12,375,851
Total Revenues	$167,405,827	$174,825,099	$182,283,236	$189,560,572	$197,534,452	$206,089,244	$215,180,341	$224,685,913	$235,125,634	$245,907,351

* Note: Non-Rate Revenues are net of related expe

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TVWD Forecast Model Summary

Table 10
Tualatin Valley Water District
Water Financial Plan
SDC Revenue Forecast

	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY2027	FY2028
SDC Fee Escalation		3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%
Annual Fee per EDU										
Improvement Fee	$6,048	$6,260	$6,479	$6,706	$6,941	$7,183	$7,435	$7,695	$7,964	$0
Reimbursement Fee	1,310	1,356	1,403	1,452	1,503	1,556	1,610	1,666	1,725	10,028
New Equivalent Dwelling Units	750	750	725	700	675	650	625	600	575	550
SDC Forecast Revenue										
Improvement Fee	$4,536,192	$4,694,959	$4,697,306	$4,694,067	$4,684,846	$4,669,230	$4,646,782	$4,617,043	$4,579,529	$0
Reimbursement Fee	982,308	1,016,689	1,017,197	1,016,495	1,014,499	1,011,117	1,006,256	999,816	991,692	5,515,509
Totals	$5,518,500	$5,711,648	$5,714,503	$5,710,562	$5,699,345	$5,680,347	$5,653,038	$5,616,858	$5,571,222	$5,515,509

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TVWD Forecast Model Summary

Table 10
Tualatin Valley Water District
Water Financial Plan
SDC Revenue Forecast

	FY2029	FY2030	FY2031	FY2032	FY2033	FY2034	FY2035	FY2036	FY2037	FY2038
SDC Fee Escalation	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%
Annual Fee per EDU										
Improvement Fee	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Reimbursement Fee	10,379	10,742	11,118	11,508	11,910	12,327	12,759	13,205	13,667	14,146
New Equivalent Dwelling Units	525	500	475	450	425	400	375	350	325	300
SDC Forecast Revenue										
Improvement Fee	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Reimbursement Fee	5,449,072	5,371,229	5,281,261	5,178,415	5,061,901	4,930,887	4,784,501	4,621,828	4,441,907	4,243,729
Totals	$5,449,072	$5,371,229	$5,281,261	$5,178,415	$5,061,901	$4,930,887	$4,784,501	$4,621,828	$4,441,907	$4,243,729

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TVWD Forecast Model Summary

Table 10
Tualatin Valley Water District
Water Financial Plan
SDC Revenue Forecast

	FY2039	FY2040	FY2041	FY2042	FY2043	FY2044	FY2045	FY2046	FY2047	FY2048
SDC Fee Escalation	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%
Annual Fee per EDU										
Improvement Fee	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Reimbursement Fee	14,641	15,153	15,684	16,233	16,801	17,389	17,997	18,627	19,279	19,954
New Equivalent Dwelling Units	275	250	225	200	175	150	125	100	75	50
SDC Forecast Revenue										
Improvement Fee	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Reimbursement Fee	4,026,238	3,788,324	3,528,824	3,246,518	2,940,128	2,608,313	2,249,670	1,862,727	1,445,942	997,700
Totals	$4,026,238	$3,788,324	$3,528,824	$3,246,518	$2,940,128	$2,608,313	$2,249,670	$1,862,727	$1,445,942	$997,700

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TVWD Forecast Model Summary

Table 11
Tualatin Valley Water District
Water Financial Plan
Debt Service Coverage Calculations
— Net Revenues incl. SDCs

	Growth-related Revenue	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY2027	FY2028	FY2029	FY2030
Estimated Gross Revenues													
Total User Charges		$70,000,000	$71,567,724	$74,676,694	$77,912,740	$81,280,693	$84,785,546	$88,432,471	$92,226,813	$96,174,102	$100,280,058	$104,550,593	$108,954,110
Non-Rate Revenue													
Meter & Svc Revenue	TRUE	1,133,000	1,166,990	1,202,000	1,238,060	1,275,201	1,313,458	1,352,861	1,393,447	1,435,251	1,478,308	1,522,657	1,568,337
Special Service & Turn On Fees		3,100	3,193	3,289	3,387	3,489	3,594	3,702	3,813	3,927	4,045	4,166	4,291
Penalty Fees		10,400	10,712	11,033	11,364	11,705	12,056	12,418	12,791	13,174	13,570	13,977	14,396
Dispatch Fees		308,300	317,549	327,075	336,888	346,994	357,404	368,126	379,170	390,545	402,262	414,329	426,759
Miscellaneous Income		223,500	230,205	237,111	244,224	251,551	259,098	266,871	274,877	283,123	291,617	300,365	309,376
Plan Review		18,500	19,055	19,627	20,215	20,822	21,447	22,090	22,753	23,435	24,138	24,862	25,608
Contract Reimbursements		1,400,700	1,442,721	1,486,003	1,530,583	1,576,500	1,623,795	1,672,509	1,722,684	1,774,365	1,827,596	1,882,424	1,938,896
Backflow Program Reimbursement		273,900	282,117	290,581	299,298	308,277	317,525	327,051	336,862	346,968	357,377	368,099	379,142
Power Generation Station		9,600	9,888	10,185	10,490	10,805	11,129	11,463	11,807	12,161	12,526	12,902	13,289
Payments for Fund 15 Expenses		964,430	1,007,829	1,053,182	1,100,575	1,150,101	1,201,855	1,255,939	1,312,456	0	0	0	0
COB Wheeling Revenue		547,320	1,700,658	1,303,410	1,081,583	931,549	770,234	597,050	411,384	212,591	218,968	225,537	232,303
Interest Earnings on Reserves													
Cash & Investments		2,667,589	2,550,801	1,648,525	1,108,498	1,210,554	1,312,237	1,399,308	1,624,448	1,642,638	1,388,114	1,541,721	1,702,965
Rev. Bond Debt Service		0	0	0	0	56,219	180,126	247,815	247,815	247,815	247,815	281,650	315,485
Construction Clearing Account		0	0	0	0	0	0	0	0	0	0	0	0
Improvement Fee	TRUE	4,536,192	4,694,959	4,697,306	4,694,067	4,684,846	4,669,230	4,646,782	4,617,043	4,579,529	0	0	0
Reimbursement Fee	TRUE	982,308	1,016,689	1,017,197	1,016,495	1,014,499	1,011,117	1,006,256	999,816	991,692	5,515,509	5,449,072	5,371,229
Gross Revenue (including Growth-related Revenue)		$83,078,839	$86,021,090	$87,983,216	$90,608,468	$94,133,805	$97,849,852	$101,622,711	$105,597,976	$108,131,317	$112,061,902	$116,592,355	$121,256,187
Gross Revenue (excluding Growth-related Revenue)		76,427,339	79,142,452	81,066,713	83,659,846	87,159,258	90,856,048	94,616,812	98,587,671	101,124,845	105,068,085	109,620,625	114,316,621
Operating Expenses (excluding depreciation)													
Total O&M Costs		$39,227,140	$53,794,657	$53,500,044	$55,321,411	$47,963,178	$50,160,073	$52,459,419	$54,561,721	$51,749,692	$54,044,187	$56,522,146	$59,659,295
Less Capitalized OH & Capital Outlays		(3,162,670)	(3,357,939)	(3,509,047)	(3,666,954)	(3,831,967)	(4,004,405)	(4,184,603)	(4,372,910)	(2,716,381)	(2,838,618)	(2,966,356)	(3,099,842)
Net O&M (less Capital Outlays)		$36,064,470	$50,436,717	$49,990,998	$51,654,457	$44,131,212	$46,155,668	$48,274,816	$50,188,811	$49,033,311	$51,205,569	$53,555,790	$56,559,453
Net Revenue (including Growth-related Revenue)		$47,014,369	$35,584,372	$37,992,219	$38,954,011	$50,002,593	$51,694,185	$53,347,896	$55,409,166	$59,098,006	$60,856,334	$63,036,565	$64,696,734
Net Revenue (excluding Growth-related Revenue)		40,362,869	28,705,735	31,075,716	32,005,389	43,028,046	44,700,380	46,341,996	48,398,860	52,091,534	53,862,516	56,064,836	57,757,169
Annual DS Subject to Coverage		$0	$0	$0	$0	$1,606,262	$5,146,471	$7,080,419	$7,080,419	$17,673,854	$28,267,289	$29,234,005	$30,200,721
DSC Test 1 (including Growth-related Revenue)													
Estimated Coverage		0.00	0.00	0.00	0.00	31.13	10.04	7.53	7.83	3.34	2.15	2.16	2.14
Target Coverage		2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Additional Revenues Required - Test 1		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
DSC Test 2 (excluding Growth-related Revenue)													
Estimated Coverage		0.00	0.00	0.00	0.00	26.79	8.69	6.55	6.84	2.95	1.91	1.92	1.91
Target Coverage		1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Additional Revenues Required - Test 2		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
DSC Target Coverage Check 1		OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
DSC Target Coverage Check 2		OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

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TVWD Forecast Model Summary

Table 11
Tualatin Valley Water District
Water Financial Plan
Debt Service Coverage Calculations
— Net Revenues incl. SDCs

	Growth-related Revenue	FY2031	FY2032	FY2033	FY2034	FY2035	FY2036	FY2037	FY2038	FY2039	FY2040	FY2041	FY2042
Estimated Gross Revenues													
Total User Charges		$113,486,444	$118,345,002	$123,559,771	$128,939,894	$134,487,055	$140,202,754	$146,161,372	$152,373,230	$158,849,092	$165,600,178	$172,638,186	$179,975,309
Non-Rate Revenue													
Meter & Svc Revenue	TRUE	1,615,387	1,663,849	1,713,764	1,765,177	1,818,132	1,872,676	1,928,857	1,986,722	2,046,324	2,107,714	2,170,945	2,236,074
Special Service & Turn On Fees		4,420	4,552	4,689	4,830	4,975	5,124	5,278	5,436	5,599	5,767	5,940	6,118
Penalty Fees		14,828	15,273	15,731	16,203	16,689	17,190	17,705	18,236	18,784	19,347	19,927	20,525
Dispatch Fees		439,562	452,749	466,331	480,321	494,731	509,573	524,860	540,606	556,824	573,529	590,735	608,457
Miscellaneous Income		318,658	328,217	338,064	348,206	358,652	369,411	380,494	391,909	403,666	415,776	428,249	441,097
Plan Review		26,377	27,168	27,983	28,822	29,687	30,578	31,495	32,440	33,413	34,415	35,448	36,511
Contract Reimbursements		1,997,063	2,056,975	2,118,684	2,182,245	2,247,712	2,315,144	2,384,598	2,456,136	2,529,820	2,605,715	2,683,886	2,764,403
Backflow Program Reimbursement		390,516	402,231	414,298	426,727	439,529	452,715	466,296	480,285	494,694	509,535	524,821	540,565
Power Generation Station		13,687	14,098	14,521	14,956	15,405	15,867	16,343	16,834	17,339	17,859	18,395	18,946
Payments for Fund 15 Expenses		0	0	0	0	0	0	0	0	0	0	0	0
COB Wheeling Revenue		239,273	246,451	253,844	261,460	269,303	277,382	285,704	294,275	303,103	312,196	321,562	331,209
Interest Earnings on Reserves													
Cash & Investments		1,634,948	1,594,762	1,863,509	1,997,856	1,861,179	1,891,304	2,104,025	2,204,430	2,147,170	2,623,069	2,845,142	2,581,358
Rev. Bond Debt Service		315,485	331,571	385,647	423,636	466,027	553,974	634,178	668,826	699,693	803,414	876,268	876,268
Construction Clearing Account		0	0	0	0	0	0	0	0	0	0	0	0
Improvement Fee	TRUE	0	0	0	0	0	0	0	0	0	0	0	0
Reimbursement Fee	TRUE	5,281,261	5,178,415	5,061,901	4,930,887	4,784,501	4,621,828	4,441,907	4,243,729	4,026,238	3,788,324	3,528,824	3,246,518
Gross Revenue (including Growth-related Revenue)		$125,777,907	$130,661,313	$136,238,738	$141,821,221	$147,293,577	$153,135,520	$159,383,111	$165,713,094	$172,131,759	$179,416,838	$186,688,327	$193,683,358
Gross Revenue (excluding Growth-related Revenue)		118,881,260	123,819,050	129,463,074	135,125,157	140,690,943	146,641,016	153,012,348	159,482,642	166,059,196	173,520,800	180,988,558	188,200,766
Operating Expenses (excluding depreciation)													
Total O&M Costs		$62,385,885	$65,019,748	$67,967,028	$71,379,722	$73,984,949	$77,139,851	$80,614,377	$84,036,604	$87,811,300	$92,009,847	$96,143,086	$100,236,683
Less Capitalized OH & Capital Outlays		(3,239,335)	(3,385,105)	(3,537,435)	(3,696,620)	(3,862,967)	(4,036,801)	(4,218,457)	(4,408,288)	(4,606,661)	(4,813,960)	(5,030,588)	(5,256,965)
Net O&M (less Capital Outlays)		$59,146,550	$61,634,643	$64,429,593	$67,683,102	$70,121,981	$73,103,050	$76,395,920	$79,628,316	$83,204,639	$87,195,887	$91,112,498	$94,979,718
Net Revenue (including Growth-related Revenue)		$66,631,357	$69,026,671	$71,809,146	$74,138,118	$77,171,595	$80,032,470	$82,987,191	$86,084,778	$88,927,119	$92,220,951	$95,575,830	$98,703,640
Net Revenue (excluding Growth-related Revenue)		59,734,710	62,184,407	65,033,481	67,442,055	70,568,962	73,537,966	76,616,428	79,854,326	82,854,557	86,324,913	89,876,060	93,221,048
Annual DS Subject to Coverage		$30,200,721	$30,660,341	$32,205,366	$33,290,771	$34,501,918	$37,014,691	$39,306,254	$40,296,192	$41,178,105	$44,141,553	$46,223,088	$46,223,088
DSC Test 1 (including Growth-related Revenue)													
Estimated Coverage		2.21	2.25	2.23	2.23	2.24	2.16	2.11	2.14	2.16	2.09	2.07	2.14
Target Coverage		2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Additional Revenues Required - Test 1		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
DSC Test 2 (excluding Growth-related Revenue)													
Estimated Coverage		1.98	2.03	2.02	2.03	2.05	1.99	1.95	1.98	2.01	1.96	1.94	2.02
Target Coverage		1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Additional Revenues Required - Test 2		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
DSC Target Coverage Check 1		OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
DSC Target Coverage Check 2		OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

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TVWD Forecast Model Summary

Table 11
Tualatin Valley Water District
Water Financial Plan
Debt Service Coverage Calculations
— Net Revenues incl. SDCs

	Growth-related Revenue	FY2043	FY2044	FY2045	FY2046	FY2047	FY2048
Estimated Gross Revenues							
Total User Charges		$187,624,260	$195,830,488	$204,642,860	$213,851,789	$223,475,119	$233,531,500
Non-Rate Revenue							
Meter & Svc Revenue	TRUE	2,303,156	2,372,250	2,443,418	2,516,720	2,592,222	2,669,989
Special Service & Turn On Fees		6,302	6,491	6,685	6,886	7,093	7,305
Penalty Fees		21,141	21,775	22,429	23,101	23,794	24,508
Dispatch Fees		626,710	645,512	664,877	684,823	705,368	726,529
Miscellaneous Income		454,329	467,959	481,998	496,458	511,352	526,692
Plan Review		37,607	38,735	39,897	41,094	42,327	43,596
Contract Reimbursements		2,847,335	2,932,755	3,020,737	3,111,360	3,204,700	3,300,841
Backflow Program Reimbursement		556,782	573,486	590,690	608,411	626,663	645,463
Power Generation Station		19,515	20,100	20,703	21,324	21,964	22,623
Payments for Fund 15 Expenses		0	0	0	0	0	0
COB Wheeling Revenue		341,145	351,380	361,921	372,779	383,962	395,481
Interest Earnings on Reserves							
Cash & Investments		2,696,170	2,828,313	2,884,124	2,951,167	3,531,069	4,012,822
Rev. Bond Debt Service		909,392	942,517	963,113	1,046,394	1,210,783	1,312,487
Construction Clearing Account		0	0	0	0	0	0
Improvement Fee	TRUE	0	0	0	0	0	0
Reimbursement Fee	TRUE	2,940,128	2,608,313	2,249,670	1,862,727	1,445,942	997,700
Gross Revenue (including Growth-related Revenue)		**$201,383,972**	**$209,640,074**	**$218,393,124**	**$227,595,034**	**$237,782,359**	**$248,217,538**
Gross Revenue (excluding Growth-related Revenue)		**196,140,688**	**204,659,510**	**213,700,036**	**223,215,586**	**233,744,195**	**244,549,849**
Operating Expenses (excluding depreciation)							
Total O&M Costs		$104,747,248	$110,024,074	$114,098,819	$119,013,841	$124,356,686	$129,700,350
Less Capitalized OH & Capital Outlays		(5,493,528)	(5,740,737)	(5,999,070)	(6,269,028)	(6,551,135)	(6,845,936)
Net O&M (less Capital Outlays)		$99,253,720	$104,283,337	$108,099,748	$112,744,813	$117,805,551	$122,854,414
Net Revenue (including Growth-related Revenue)		**$102,130,252**	**$105,356,737**	**$110,293,376**	**$114,850,221**	**$119,976,808**	**$125,363,123**
Net Revenue (excluding Growth-related Revenue)		**96,886,969**	**100,376,173**	**105,600,287**	**110,470,773**	**115,938,644**	**121,695,435**
Annual DS Subject to Coverage		**$47,169,506**	**$48,115,924**	**$48,704,382**	**$51,083,845**	**$57,233,584**	**$58,686,496**
DSC Test 1 (including Growth-related Revenue)							
Estimated Coverage		2.17	2.19	2.26	2.25	2.10	2.14
Target Coverage		2.00	2.00	2.00	2.00	2.00	2.00
Additional Revenues Required - Test 1		$0	$0	$0	$0	$0	$0
DSC Test 2 (excluding Growth-related Revenue)							
Estimated Coverage		2.05	2.09	2.17	2.16	2.03	2.07
Target Coverage		1.50	1.50	1.50	1.50	1.50	1.50
Additional Revenues Required - Test 2		$0	$0	$0	$0	$0	$0
DSC Target Coverage Check 1		OK	OK	OK	OK	OK	OK
DSC Target Coverage Check 2		OK	OK	OK	OK	OK	OK

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TVWD Forecast Model Summary

Table 12
Tualatin Valley Water District
Water Financial Plan
Reserves Balance Summary

	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY2027	FY2028
RESERVES BALANCE SUMMARY										
Beginning Reserve Balances										
Cash & Investments	$114,278,867	$112,750,000	$76,198,228	$33,703,414	$34,511,870	$34,662,620	$40,322,378	$39,638,084	$53,187,488	$40,677,545
Bond Proceeds	0	0	0	0	0	0	0	0	0	0
Rev. Bond Debt Service	0	0	0	0	0	3,212,524	7,080,419	7,080,418	7,080,418	7,080,418
Construction Clearing Account	0	0	0	0	0	0	0	0	0	0
Reimbursement SDC Account	0	0	0	0	0	0	0	0	0	0
Improvement SDC Account	0	0	0	0	0	0	0	0	0	0
WIFIA Reserve	0	0	0	0	0	0	0	0	0	0
Totals	$114,278,867	$112,750,000	$76,198,228	$33,703,414	$34,511,870	$37,875,144	$47,402,796	$46,718,502	$60,267,907	$47,757,963
Ending Reserve Balances										
Cash & Investments	$112,750,000	$76,198,228	$33,703,414	$34,511,870	$34,662,620	$40,322,378	$39,638,084	$53,187,488	$40,677,545	$38,643,249
Bond Proceeds	0	0	0	0	0	0	0	0	0	0
Rev. Bond Debt Service	0	0	0	0	3,212,524	7,080,419	7,080,418	7,080,418	7,080,418	7,080,418
Construction Clearing Account	0	0	0	0	0	0	0	0	0	0
Reimbursement SDC Account	0	0	0	0	0	0	0	0	0	0
Improvement SDC Account	0	0	0	0	0	0	0	0	0	0
WIFIA Reserve	0	0	0	0	0	0	0	0	0	0
Totals	$112,750,000	$76,198,228	$33,703,414	$34,511,870	$37,875,144	$47,402,796	$46,718,502	$60,267,907	$47,757,963	$45,723,667
YEAR-END MIN. BALANCE ASSUMPTIONS										
Cash & Investments										
Operating Reserve										
Days of O&M in Fund Balance	250	250	250	250	250	250	250	250	250	250
Cash & Investments Minimum Ending Balance	$26,867,904	$29,996,340	$29,794,551	$31,042,062	$32,851,492	$34,356,214	$35,931,109	$37,371,042	$35,444,994	$37,016,566
Minimum Cash & Investments Overrides										
Rev. Bond Debt Service	$0	$0	$0	$0	$3,212,524	$7,080,419	$7,080,419	$7,080,419	$7,080,419	$7,080,419
WIFIA Reserve	0	0	0	0	0	0	0	0	0	0
Check Beginning Reserve Balances	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
Check Ending Reserve Balances	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

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TVWD Forecast Model Summary

Table 12
Tualatin Valley Water District
Water Financial Plan
Reserves Balance Summary

	FY2029	FY2030	FY2031	FY2032	FY2033	FY2034	FY2035	FY2036	FY2037	FY2038
RESERVES BALANCE SUMMARY										
Beginning Reserve Balances										
Cash & Investments	$38,643,249	$49,455,100	$47,857,196	$45,568,406	$45,560,865	$60,925,356	$53,237,861	$53,115,213	$54,959,300	$65,270,673
Bond Proceeds	0	0	0	0	0	0	0	0	0	0
Rev. Bond Debt Service	7,080,418	9,013,849	9,013,850	9,013,850	9,933,090	12,103,899	12,103,899	14,526,193	17,129,446	19,109,321
Construction Clearing Account	0	0	0	0	0	0	0	0	0	0
Reimbursement SDC Account	0	0	0	0	0	0	0	0	0	0
Improvement SDC Account	0	0	0	0	0	0	0	0	0	0
WIFIA Reserve	0	0	0	0	0	0	0	0	0	0
Totals	$45,723,667	$58,468,950	$56,871,046	$54,582,256	$55,493,954	$73,029,256	$65,341,761	$67,641,406	$72,088,746	$84,379,994
Ending Reserve Balances										
Cash & Investments	$49,455,100	$47,857,196	$45,568,406	$45,560,865	$60,925,356	$53,237,861	$53,115,213	$54,959,300	$65,270,673	$60,696,740
Bond Proceeds	0	0	0	0	0	0	0	0	0	0
Rev. Bond Debt Service	9,013,849	9,013,850	9,013,850	9,933,090	12,103,899	12,103,899	14,526,193	17,129,446	19,109,321	19,109,321
Construction Clearing Account	0	0	0	0	0	0	0	0	0	0
Reimbursement SDC Account	0	0	0	0	0	0	0	0	0	0
Improvement SDC Account	0	0	0	0	0	0	0	0	0	0
WIFIA Reserve	0	0	0	0	0	0	0	0	0	0
Totals	$58,468,950	$56,871,046	$54,582,256	$55,493,954	$73,029,256	$65,341,761	$67,641,406	$72,088,746	$84,379,994	$79,806,062
YEAR-END MIN. BALANCE ASSUMPTIONS										
Cash & Investments										
Operating Reserve										
Days of O&M in Fund Balance	250	250	250	250	250	250	250	250	250	250
Cash & Investments Minimum Ending Balance	$38,713,799	$40,862,531	$42,730,058	$44,534,074	$46,552,759	$48,890,220	$50,674,623	$52,835,515	$55,215,327	$57,559,318
Minimum Cash & Investments Overrides										
Rev. Bond Debt Service	$9,013,850	$9,013,850	$9,013,850	$9,933,090	$12,103,900	$12,103,900	$14,526,194	$17,129,446	$19,109,321	$19,109,321
WIFIA Reserve	0	0	0	0	0	0	0	0	0	0
Check Beginning Reserve Balances	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
Check Ending Reserve Balances	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

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TVWD Forecast Model Summary

Table 12
Tualatin Valley Water District
Water Financial Plan
Reserves Balance Summary

	FY2039	FY2040	FY2041	FY2042	FY2043	FY2044	FY2045	FY2046	FY2047	FY2048
RESERVES BALANCE SUMMARY										
Beginning Reserve Balances										
Cash & Investments	$60,696,740	$61,998,672	$87,890,964	$74,688,562	$72,817,618	$81,249,231	$80,368,642	$84,438,465	$84,199,640	$117,575,723
Bond Proceeds	0	0	0	0	0	0	0	0	0	0
Rev. Bond Debt Service	19,109,321	20,873,147	25,036,218	25,036,218	25,036,218	26,929,054	26,929,054	28,105,970	31,687,979	37,499,626
Construction Clearing Account	0	0	0	0	0	0	0	0	0	0
Reimbursement SDC Account	0	0	0	0	0	0	0	0	0	0
Improvement SDC Account	0	0	0	0	0	0	0	0	0	0
WIFIA Reserve	0	0	0	0	0	0	0	0	0	0
Totals	$79,806,062	$82,871,820	$112,927,181	$99,724,780	$97,853,835	$108,178,285	$107,297,696	$112,544,435	$115,887,618	$155,075,349
Ending Reserve Balances										
Cash & Investments	$61,998,672	$87,890,964	$74,688,562	$72,817,618	$81,249,231	$80,368,642	$84,438,465	$84,199,640	$117,575,723	$111,728,400
Bond Proceeds	0	0	0	0	0	0	0	0	0	0
Rev. Bond Debt Service	20,873,147	25,036,218	25,036,218	25,036,218	26,929,054	26,929,054	28,105,970	31,687,979	37,499,626	37,499,626
Construction Clearing Account	0	0	0	0	0	0	0	0	0	0
Reimbursement SDC Account	0	0	0	0	0	0	0	0	0	0
Improvement SDC Account	0	0	0	0	0	0	0	0	0	0
WIFIA Reserve	0	0	0	0	0	0	0	0	0	0
Totals	$82,871,820	$112,927,181	$99,724,780	$97,853,835	$108,178,285	$107,297,696	$112,544,435	$115,887,618	$155,075,349	$149,228,026
YEAR-END MIN. BALANCE ASSUMPTIONS										
Cash & Investments										
Operating Reserve										
Days of O&M in Fund Balance	250	250	250	250	250	250	250	250	250	250
Cash & Investments Minimum Ending Balance	$60,144,726	$63,020,443	$65,851,429	$68,655,262	$71,744,690	$75,358,955	$78,149,876	$81,516,330	$85,175,812	$88,835,856
Minimum Cash & Investments Overrides										
Rev. Bond Debt Service	$20,873,147	$25,036,217	$25,036,217	$25,036,217	$26,929,053	$26,929,053	$28,105,970	$31,687,978	$37,499,625	$37,499,625
WIFIA Reserve	0	0	0	0	0	0	0	0	0	0
Check Beginning Reserve Balances	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
Check Ending Reserve Balances	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

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TVWD Forecast Model Summary

Table 13
Tualatin Valley Water District
Water Financial Plan
Reserve Summary – Cash & Investments

Description	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY2027	FY2028
Interest Rate on Fund Balance	2.35%	2.70%	3.00%	3.25%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%
Sources of Funds										
Beginning Cash & Investments Balance	$114,278,867	$112,750,000	$76,198,228	$33,703,414	$34,511,870	$34,662,620	$40,322,378	$39,638,084	$53,187,488	$40,677,545
Total User Charges	70,000,000	71,567,724	74,676,694	77,912,740	81,280,693	84,785,546	88,432,471	92,226,813	96,174,102	100,280,058
Non-Rate Revenues										
Meter & Svc Revenue	1,133,000	1,166,990	1,202,000	1,238,060	1,275,201	1,313,458	1,352,861	1,393,447	1,435,251	1,478,308
Special Service & Turn On Fees	3,100	3,193	3,289	3,387	3,489	3,594	3,702	3,813	3,927	4,045
Penalty Fees	10,400	10,712	11,033	11,364	11,705	12,056	12,418	12,791	13,174	13,570
Dispatch Fees	308,300	317,549	327,075	336,888	346,994	357,404	368,126	379,170	390,545	402,262
Miscellaneous Income	223,500	230,205	237,111	244,224	251,551	259,098	266,871	274,877	283,123	291,617
Plan Review	18,500	19,055	19,627	20,215	20,822	21,447	22,090	22,753	23,435	24,138
Contract Reimbursements	1,400,700	1,442,721	1,486,003	1,530,583	1,576,500	1,623,795	1,672,509	1,722,684	1,774,365	1,827,596
Backflow Program Reimbursement	273,900	282,117	290,581	299,298	308,277	317,525	327,051	336,862	346,968	357,377
Power Generation Station	9,600	9,888	10,185	10,490	10,805	11,129	11,463	11,807	12,161	12,526
Payments for Fund 15 Expenses	964,430	1,007,829	1,053,182	1,100,575	1,150,101	1,201,855	1,255,939	1,312,456	0	0
COB Wheeling Revenue	547,320	1,700,658	1,303,410	1,081,583	931,549	770,234	597,050	411,384	212,591	218,968
Interest Earnings - Cash & Investments	2,667,589	2,550,801	1,648,525	1,108,498	1,210,554	1,312,237	1,399,308	1,624,448	1,642,638	1,388,114
Total Sources of Funds	$191,839,207	$193,059,442	$158,466,941	$118,601,320	$122,890,111	$126,651,999	$136,044,237	$139,371,387	$155,499,769	$146,976,123
Uses of Funds										
Net O&M Expenditures *(including OPERS Side Account deposits)*	$36,064,470	$50,436,717	$49,990,998	$51,654,457	$44,131,212	$46,155,668	$48,274,816	$50,188,811	$49,033,311	$51,205,569
Capital Outlays from Budget	427,800	500,000	522,500	546,013	570,583	596,259	623,091	651,130	680,431	711,050
Transfers Out										
Cash & Investments to Construction Clearing Account	$42,596,936	$65,924,497	$74,250,030	$31,888,980	$41,975,652	$34,611,350	$40,675,642	$28,511,354	$47,682,443	$28,396,781
Cash & Investments to Rev. Bond Debt Service	0	0	0	0	1,550,043	4,966,344	6,832,604	6,832,604	6,832,604	6,832,604
Cash & Investments to WIFIA Reserve	0	0	0	0	0	0	0	0	10,593,435	21,186,871
Transfers Out for Reserves										
Ending Cash & Investments Balance	112,750,000	76,198,228	33,703,414	34,511,870	34,662,620	40,322,378	39,638,084	53,187,488	40,677,545	38,643,249
Total Uses of Funds	$191,839,207	$193,059,442	$158,466,941	$118,601,320	$122,890,111	$126,651,999	$136,044,237	$139,371,387	$155,499,769	$146,976,123
Minimum Fund Balance Assumptions	$26,867,904	$29,996,340	$29,794,551	$31,042,062	$32,851,492	$34,356,214	$35,931,109	$37,371,042	$35,444,994	$37,016,566
Check Sources/Uses	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
Check Ending Reserve Balance	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

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TVWD Forecast Model Summary

Table 13
Tualatin Valley Water District
Water Financial Plan
Reserve Summary – Cash & Investments

Description	FY2029	FY2030	FY2031	FY2032	FY2033	FY2034	FY2035	FY2036	FY2037	FY2038
Interest Rate on Fund Balance	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%
Sources of Funds										
Beginning Cash & Investments Balance	$38,643,249	$49,455,100	$47,857,196	$45,568,406	$45,560,865	$60,925,356	$53,237,861	$53,115,213	$54,959,300	$65,270,673
Total User Charges	104,550,593	108,954,110	113,486,444	118,345,002	123,559,771	128,939,894	134,487,055	140,202,754	146,161,372	152,373,230
Non-Rate Revenues										
Meter & Svc Revenue	1,522,657	1,568,337	1,615,387	1,663,849	1,713,764	1,765,177	1,818,132	1,872,676	1,928,857	1,986,722
Special Service & Turn On Fees	4,166	4,291	4,420	4,552	4,689	4,830	4,975	5,124	5,278	5,436
Penalty Fees	13,977	14,396	14,828	15,273	15,731	16,203	16,689	17,190	17,705	18,236
Dispatch Fees	414,329	426,759	439,562	452,749	466,331	480,321	494,731	509,573	524,860	540,606
Miscellaneous Income	300,365	309,376	318,658	328,217	338,064	348,206	358,652	369,411	380,494	391,909
Plan Review	24,862	25,608	26,377	27,168	27,983	28,822	29,687	30,578	31,495	32,440
Contract Reimbursements	1,882,424	1,938,896	1,997,063	2,056,975	2,118,684	2,182,245	2,247,712	2,315,144	2,384,598	2,456,136
Backflow Program Reimbursement	368,099	379,142	390,516	402,231	414,298	426,727	439,529	452,715	466,296	480,285
Power Generation Station	12,902	13,289	13,687	14,098	14,521	14,956	15,405	15,867	16,343	16,834
Payments for Fund 15 Expenses	0	0	0	0	0	0	0	0	0	0
COB Wheeling Revenue	225,537	232,303	239,273	246,451	253,844	261,460	269,303	277,382	285,704	294,275
Interest Earnings - Cash & Investments	1,541,721	1,702,965	1,634,948	1,594,762	1,863,509	1,997,856	1,861,179	1,891,304	2,104,025	2,204,430
Total Sources of Funds	$149,504,882	$165,024,574	$168,038,358	$170,719,733	$176,352,055	$197,392,054	$195,280,911	$201,074,932	$209,266,326	$226,071,212
Uses of Funds										
Net O&M Expenditures *(including OPERS Side Account deposits)*	$53,555,790	$56,559,453	$59,146,550	$61,634,643	$64,429,593	$67,683,102	$70,121,981	$73,103,050	$76,395,920	$79,628,316
Capital Outlays from Budget	743,048	776,485	811,427	847,941	886,098	925,972	967,641	1,011,185	1,056,688	1,104,239
Transfers Out										
Cash & Investments to Construction Clearing Account	$16,798,589	$29,946,204	$32,626,739	$32,347,516	$18,291,289	$42,677,983	$37,040,184	$35,540,679	$27,870,969	$45,014,551
Cash & Investments to Rev. Bond Debt Service	7,765,484	8,698,365	8,698,365	9,141,899	10,632,848	11,680,264	12,849,020	15,273,847	17,485,205	18,440,495
Cash & Investments to WIFIA Reserve	21,186,871	21,186,871	21,186,871	21,186,871	21,186,871	21,186,871	21,186,871	21,186,871	21,186,871	21,186,871
Transfers Out for Reserves										
Ending Cash & Investments Balance	49,455,100	47,857,196	45,568,406	45,560,865	60,925,356	53,237,861	53,115,213	54,959,300	65,270,673	60,696,740
Total Uses of Funds	$149,504,882	$165,024,574	$168,038,358	$170,719,733	$176,352,055	$197,392,054	$195,280,911	$201,074,932	$209,266,326	$226,071,212
Minimum Fund Balance Assumptions	$38,713,799	$40,862,531	$42,730,058	$44,534,074	$46,552,759	$48,890,220	$50,674,623	$52,835,515	$55,215,327	$57,559,318
Check Sources/Uses	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
Check Ending Reserve Balance	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

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TVWD Forecast Model Summary

Table 13
Tualatin Valley Water District
Water Financial Plan
Reserve Summary – Cash & Investments

Description	FY2039	FY2040	FY2041	FY2042	FY2043	FY2044	FY2045	FY2046	FY2047	FY2048
Interest Rate on Fund Balance	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%
Sources of Funds										
Beginning Cash & Investments Balance	$60,696,740	$61,998,672	$87,890,964	$74,688,562	$72,817,618	$81,249,231	$80,368,642	$84,438,465	$84,199,640	$117,575,723
Total User Charges	158,849,092	165,600,178	172,638,186	179,975,309	187,624,260	195,830,488	204,642,860	213,851,789	223,475,119	233,531,500
Non-Rate Revenues										
Meter & Svc Revenue	2,046,324	2,107,714	2,170,945	2,236,074	2,303,156	2,372,250	2,443,418	2,516,720	2,592,222	2,669,989
Special Service & Turn On Fees	5,599	5,767	5,940	6,118	6,302	6,491	6,685	6,886	7,093	7,305
Penalty Fees	18,784	19,347	19,927	20,525	21,141	21,775	22,429	23,101	23,794	24,508
Dispatch Fees	556,824	573,529	590,735	608,457	626,710	645,512	664,877	684,823	705,368	726,529
Miscellaneous Income	403,666	415,776	428,249	441,097	454,329	467,959	481,998	496,458	511,352	526,692
Plan Review	33,413	34,415	35,448	36,511	37,607	38,735	39,897	41,094	42,327	43,596
Contract Reimbursements	2,529,820	2,605,715	2,683,886	2,764,403	2,847,335	2,932,755	3,020,737	3,111,360	3,204,700	3,300,841
Backflow Program Reimbursement	494,694	509,535	524,821	540,565	556,782	573,486	590,690	608,411	626,663	645,463
Power Generation Station	17,339	17,859	18,395	18,946	19,515	20,100	20,703	21,324	21,964	22,623
Payments for Fund 15 Expenses	0	0	0	0	0	0	0	0	0	0
COB Wheeling Revenue	303,103	312,196	321,562	331,209	341,145	351,380	361,921	372,779	383,962	395,481
Interest Earnings - Cash & Investments	2,147,170	2,623,069	2,845,142	2,581,358	2,696,170	2,828,313	2,884,124	2,951,167	3,531,069	4,012,822
Total Sources of Funds	$228,102,567	$236,823,772	$270,174,199	$264,249,134	$270,352,070	$287,338,475	$295,548,983	$309,124,377	$319,325,273	$363,483,073
Uses of Funds										
Net O&M Expenditures *(including OPERS Side Account deposits)*	$83,204,639	$87,195,887	$91,112,498	$94,979,718	$99,253,720	$104,283,337	$108,099,748	$112,744,813	$117,805,551	$122,854,414
Capital Outlays from Budget	1,153,930	1,205,857	1,260,121	1,316,826	1,376,083	1,438,007	1,502,717	1,570,340	1,641,005	1,714,850
Transfers Out										
Cash & Investments to Construction Clearing Account	$41,266,914	$17,192,926	$57,766,199	$49,788,152	$42,212,922	$54,075,082	$53,766,783	$60,572,135	$26,280,194	$69,811,400
Cash & Investments to Rev. Bond Debt Service	19,291,541	22,151,268	24,159,950	24,159,950	25,073,243	25,986,537	26,554,399	28,850,580	34,835,931	36,187,139
Cash & Investments to WIFIA Reserve	21,186,871	21,186,871	21,186,871	21,186,871	21,186,871	21,186,871	21,186,871	21,186,871	21,186,871	21,186,871
Transfers Out for Reserves										
Ending Cash & Investments Balance	61,998,672	87,890,964	74,688,562	72,817,618	81,249,231	80,368,642	84,438,465	84,199,640	117,575,723	111,728,400
Total Uses of Funds	$228,102,567	$236,823,772	$270,174,199	$264,249,134	$270,352,070	$287,338,475	$295,548,983	$309,124,377	$319,325,273	$363,483,073
Minimum Fund Balance Assumptions	$60,144,726	$63,020,443	$65,851,429	$68,655,262	$71,744,690	$75,358,955	$78,149,876	$81,516,330	$85,175,812	$88,835,856
Check Sources/Uses	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
Check Ending Reserve Balance	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

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TVWD Forecast Model Summary

Table 14
Tualatin Valley Water District
Water Financial Plan
Reserve Summary – Bond Proceeds

Description	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY2027	FY2028
Interest Rate on Fund Balance	2.35%	2.70%	3.00%	3.25%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%
Sources of Funds										
Beginning Bond Proceeds Balance	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Bond Proceeds	0	0	0	0	46,690,000	56,215,000	0	0	0	0
Interest Earnings	0	0	0	0	0	0	0	0	0	0
Total Sources of Funds	$0	$0	$0	$0	$46,690,000	$56,215,000	$0	$0	$0	$0
Uses of Funds										
Issuance Costs	$0	$0	$0	$0	$700,350	$843,225	$0	$0	$0	$0
STD Retirement	0	0	0	0	0	0	0	0	0	0
Transfers Out										
Bond Proceeds to Rev. Bond Debt Service	$0	$0	$0	$0	$3,212,524	$3,867,895	$0	$0	$0	$0
Bond Proceeds to Construction Clearing Account	0	0	0	0	42,777,126	51,503,880	0	0	0	0
Use of Prior Bond Proceeds for CIP					0	0	0	0	0	0
Ending Bond Proceeds Balance	0	0	0	0	0	0	0	0	0	0
Total Uses of Funds	$0	$0	$0	$0	$46,690,000	$56,215,000	$0	$0	$0	$0
Minimum Fund Balance Assumptions	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Check Sources/Uses	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
Check Ending Reserve Balance	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

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TVWD Forecast Model Summary

Table 14
Tualatin Valley Water District
Water Financial Plan
Reserve Summary – Bond Proceeds

Description	FY2029	FY2030	FY2031	FY2032	FY2033	FY2034	FY2035	FY2036	FY2037	FY2038
Interest Rate on Fund Balance	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%
Sources of Funds										
Beginning Bond Proceeds Balance	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Bond Proceeds	28,100,000	0	0	13,360,000	31,550,000	0	35,205,000	37,835,000	28,775,000	0
Interest Earnings	0	0	0	0	0	0	0	0	0	0
Total Sources of Funds	$28,100,000	$0	$0	$13,360,000	$31,550,000	$0	$35,205,000	$37,835,000	$28,775,000	$0
Uses of Funds										
Issuance Costs	$421,500	$0	$0	$200,400	$473,250	$0	$528,075	$567,525	$431,625	$0
STD Retirement	0	0	0	0	0	0	0	0	0	0
Transfers Out										
Bond Proceeds to Rev. Bond Debt Service	$1,933,431	$0	$0	$919,240	$2,170,810	$0	$2,422,294	$2,603,252	$1,979,875	$0
Bond Proceeds to Construction Clearing Account	25,745,069	0	0	12,240,360	28,905,940	0	32,254,631	34,664,223	26,363,500	0
Use of Prior Bond Proceeds for CIP	0	0	0	0	0	0	0	0	0	0
Ending Bond Proceeds Balance	0	0	0	0	0	0	0	0	0	0
Total Uses of Funds	$28,100,000	$0	$0	$13,360,000	$31,550,000	$0	$35,205,000	$37,835,000	$28,775,000	$0
Minimum Fund Balance Assumptions	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Check Sources/Uses	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
Check Ending Reserve Balance	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

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TVWD Forecast Model Summary

Table 14
Tualatin Valley Water District
Water Financial Plan
Reserve Summary – Bond Proceeds

Description	FY2039	FY2040	FY2041	FY2042	FY2043	FY2044	FY2045	FY2046	FY2047	FY2048
Interest Rate on Fund Balance	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%
Sources of Funds										
Beginning Bond Proceeds Balance	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Bond Proceeds	25,635,000	60,505,000	0	0	27,510,000	0	17,105,000	52,060,000	84,465,000	0
Interest Earnings	0	0	0	0	0	0	0	0	0	0
Total Sources of Funds	$25,635,000	$60,505,000	$0	$0	$27,510,000	$0	$17,105,000	$52,060,000	$84,465,000	$0
Uses of Funds										
Issuance Costs	$384,525	$907,575	$0	$0	$412,650	$0	$256,575	$780,900	$1,266,975	$0
STD Retirement	0	0	0	0	0	0	0	0	0	0
Transfers Out										
Bond Proceeds to Rev. Bond Debt Service	$1,763,826	$4,163,070	$0	$0	$1,892,836	$0	$1,176,916	$3,582,009	$5,811,647	$0
Bond Proceeds to Construction Clearing Account	23,486,649	55,434,355	0	0	25,204,514	0	15,671,509	47,697,091	77,386,378	0
Use of Prior Bond Proceeds for CIP	0	0	0	0	0	0	0	0	0	0
Ending Bond Proceeds Balance	0	0	0	0	0	0	0	0	0	0
Total Uses of Funds	$25,635,000	$60,505,000	$0	$0	$27,510,000	$0	$17,105,000	$52,060,000	$84,465,000	$0
Minimum Fund Balance Assumptions	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Check Sources/Uses	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
Check Ending Reserve Balance	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

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TVWD Forecast Model Summary

Table 15
Tualatin Valley Water District
Water Financial Plan
Reserve Summary – Rev. Bond Debt Service

Description	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY2027	FY2028
Interest Rate on Fund Balance	2.35%	2.70%	3.00%	3.25%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%
Sources of Funds										
Beginning Rev. Bond Debt Service Balance	$0	$0	$0	$0	$0	$3,212,524	$7,080,419	$7,080,418	$7,080,418	$7,080,418
Transfers In										
Cash & Investments to Rev. Bond Debt Service	$0	$0	$0	$0	$1,550,043	$4,966,344	$6,832,604	$6,832,604	$6,832,604	$6,832,604
Bond Proceeds to Rev. Bond Debt Service	0	0	0	0	3,212,524	3,867,895	0	0	0	0
Interest Earnings	0	0	0	0	56,219	180,126	247,815	247,815	247,815	247,815
Total Sources of Funds	$0	$0	$0	$0	$4,818,786	$12,226,890	$14,160,837	$14,160,837	$14,160,837	$14,160,837
Uses of Funds										
Total Debt Service	$0	$0	$0	$0	$1,606,262	$5,146,471	$7,080,419	$7,080,419	$7,080,419	$7,080,419
Ending Rev. Bond Debt Service Balance	0	0	0	0	3,212,524	7,080,419	7,080,418	7,080,418	7,080,418	7,080,418
Total Uses of Funds	$0	$0	$0	$0	$4,818,786	$12,226,890	$14,160,837	$14,160,837	$14,160,837	$14,160,837
Minimum Fund Balance Assumptions	$0	$0	$0	$0	$3,212,524	$7,080,419	$7,080,419	$7,080,419	$7,080,419	$7,080,419
Check Sources/Uses	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
Check Ending Reserve Balance	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

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TVWD Forecast Model Summary

Table 15
Tualatin Valley Water District
Water Financial Plan
Reserve Summary – Rev. Bond Debt Service

Description	FY2029	FY2030	FY2031	FY2032	FY2033	FY2034	FY2035	FY2036	FY2037	FY2038
Interest Rate on Fund Balance	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%
Sources of Funds										
Beginning Rev. Bond Debt Service Balance	$7,080,418	$9,013,849	$9,013,850	$9,013,850	$9,933,090	$12,103,899	$12,103,899	$14,526,193	$17,129,446	$19,109,321
Transfers In										
Cash & Investments to Rev. Bond Debt Service	$7,765,484	$8,698,365	$8,698,365	$9,141,899	$10,632,848	$11,680,264	$12,849,020	$15,273,847	$17,485,205	$18,440,495
Bond Proceeds to Rev. Bond Debt Service	1,933,431	0	0	919,240	2,170,810	0	2,422,294	2,603,252	1,979,875	0
Interest Earnings	281,650	315,485	315,485	331,571	385,647	423,636	466,027	553,974	634,178	668,826
Total Sources of Funds	$17,060,984	$18,027,700	$18,027,700	$19,406,560	$23,122,395	$24,207,799	$27,841,240	$32,957,266	$37,228,705	$38,218,642
Uses of Funds										
Total Debt Service	$8,047,134	$9,013,850	$9,013,850	$9,473,470	$11,018,495	$12,103,900	$13,315,047	$15,827,820	$18,119,383	$19,109,321
Ending Rev. Bond Debt Service Balance	9,013,849	9,013,850	9,013,850	9,933,090	12,103,899	12,103,899	14,526,193	17,129,446	19,109,321	19,109,321
Total Uses of Funds	$17,060,984	$18,027,700	$18,027,700	$19,406,560	$23,122,395	$24,207,799	$27,841,240	$32,957,266	$37,228,705	$38,218,642
Minimum Fund Balance Assumptions	$9,013,850	$9,013,850	$9,013,850	$9,933,090	$12,103,900	$12,103,900	$14,526,194	$17,129,446	$19,109,321	$19,109,321
Check Sources/Uses	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
Check Ending Reserve Balance	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

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Table 15
Tualatin Valley Water District
Water Financial Plan
Reserve Summary – Rev. Bond Debt Service

Description	FY2039	FY2040	FY2041	FY2042	FY2043	FY2044	FY2045	FY2046	FY2047	FY2048
Interest Rate on Fund Balance	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%
Sources of Funds										
Beginning Rev. Bond Debt Service Balance	$19,109,321	$20,873,147	$25,036,218	$25,036,218	$25,036,218	$26,929,054	$26,929,054	$28,105,970	$31,687,979	$37,499,626
Transfers In										
Cash & Investments to Rev. Bond Debt Service	$19,291,541	$22,151,268	$24,159,950	$24,159,950	$25,073,243	$25,986,537	$26,554,399	$28,850,580	$34,835,931	$36,187,139
Bond Proceeds to Rev. Bond Debt Service	1,763,826	4,163,070	0	0	1,892,836	0	1,176,916	3,582,009	5,811,647	0
Interest Earnings	699,693	803,414	876,268	876,268	909,392	942,517	963,113	1,046,394	1,210,783	1,312,487
Total Sources of Funds	$40,864,381	$47,990,900	$50,072,435	$50,072,435	$52,911,689	$53,858,107	$55,623,482	$61,584,953	$73,546,339	$74,999,251
Uses of Funds										
Total Debt Service	$19,991,234	$22,954,682	$25,036,217	$25,036,217	$25,982,635	$26,929,053	$27,517,512	$29,896,974	$36,046,714	$37,499,625
Ending Rev. Bond Debt Service Balance	20,873,147	25,036,218	25,036,218	25,036,218	26,929,054	26,929,054	28,105,970	31,687,979	37,499,626	37,499,626
Total Uses of Funds	$40,864,381	$47,990,900	$50,072,435	$50,072,435	$52,911,689	$53,858,107	$55,623,482	$61,584,953	$73,546,339	$74,999,251
Minimum Fund Balance Assumptions	$20,873,147	$25,036,217	$25,036,217	$25,036,217	$26,929,053	$26,929,053	$28,105,970	$31,687,978	$37,499,625	$37,499,625
Check Sources/Uses	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
Check Ending Reserve Balance	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

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TVWD Forecast Model Summary

Table 16
Tualatin Valley Water District
Water Financial Plan
Reserve Summary – Construction Clearing Account

Description	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY2027	FY2028
Interest Rate on Fund Balance	2.35%	2.70%	3.00%	3.25%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%
Sources of Funds										
Beginning Construction Clearing Account Balance	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Transfers In										
Cash & Investments to Construction Clearing Account	$42,596,936	$65,924,497	$74,250,030	$31,888,980	$41,975,652	$34,611,350	$40,675,642	$28,511,354	$47,682,443	$28,396,781
Bond Proceeds to Construction Clearing Account	0	0	0	0	42,777,126	51,503,880	0	0	0	0
Reimbursement SDC Account to Construction Clearing Account	982,308	1,016,689	1,017,197	1,016,495	1,014,499	1,011,117	1,006,256	999,816	991,692	5,515,509
Improvement SDC Account to Construction Clearing Account	4,536,192	4,694,959	4,697,306	4,694,067	4,684,846	4,669,230	4,646,782	4,617,043	4,579,529	0
WIFIA Reserve to Construction Clearing Account	0	4,500,000	20,000,000	100,000,000	125,000,000	65,000,000	30,000,000	25,500,000	0	0
Short-Term Debt	0	0	0	0	0	0	0	0	0	0
Interest Earnings	0	0	0	0	0	0	0	0	0	0
Total Sources of Funds	$48,115,436	$76,136,144	$99,964,533	$137,599,542	$215,452,124	$156,795,577	$76,328,680	$59,628,212	$53,253,665	$33,912,290
Uses of Funds										
Capital Projects funded from Cash/Reserves	$42,596,936	$65,924,497	$74,250,030	$31,888,980	$41,975,652	$34,611,350	$40,675,642	$28,511,354	$47,682,443	$28,396,781
Projects funded from Debt Proceeds (incl fund Int.)	0	4,500,000	20,000,000	100,000,000	167,777,126	116,503,880	30,000,000	25,500,000	0	0
SDC-Funded Capital Projects	5,518,500	5,711,648	5,714,503	5,710,562	5,699,345	5,680,347	5,653,038	5,616,858	5,571,222	5,515,509
Ending Construction Clearing Account Balance	0	0	0	0	0	0	0	0	0	0
Total Uses of Funds	$48,115,436	$76,136,144	$99,964,533	$137,599,542	$215,452,124	$156,795,577	$76,328,680	$59,628,212	$53,253,665	$33,912,290
Minimum Fund Balance Assumptions	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Check Sources/Uses	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
Check Total Capital Projects & Outlays	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
Check Ending Reserve Balance	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

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TVWD Forecast Model Summary

Table 16
Tualatin Valley Water District
Water Financial Plan
Reserve Summary – Construction Clearing Account

Description	FY2029	FY2030	FY2031	FY2032	FY2033	FY2034	FY2035	FY2036	FY2037	FY2038
Interest Rate on Fund Balance	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%
Sources of Funds										
Beginning Construction Clearing Account Balance	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Transfers In										
Cash & Investments to Construction Clearing Account	$16,798,589	$29,946,204	$32,626,739	$32,347,516	$18,291,289	$42,677,983	$37,040,184	$35,540,679	$27,870,969	$45,014,551
Bond Proceeds to Construction Clearing Account	25,745,069	0	0	12,240,360	28,905,940	0	32,254,631	34,664,223	26,363,500	0
Reimbursement SDC Account to Construction Clearing Account	5,449,072	5,371,229	5,281,261	5,178,415	5,061,901	4,930,887	4,784,501	4,621,828	4,441,907	4,243,729
Improvement SDC Account to Construction Clearing Account	0	0	0	0	0	0	0	0	0	0
WIFIA Reserve to Construction Clearing Account	0	0	0	0	0	0	0	0	0	0
Short-Term Debt	0	0	0	0	0	0	0	0	0	0
Interest Earnings	0	0	0	0	0	0	0	0	0	0
Total Sources of Funds	$47,992,730	$35,317,433	$37,908,000	$49,766,291	$52,259,130	$47,608,870	$74,079,316	$74,826,730	$58,676,375	$49,258,280
Uses of Funds										
Capital Projects funded from Cash/Reserves	$16,798,589	$29,946,204	$32,626,739	$32,347,516	$18,291,289	$42,677,983	$37,040,184	$35,540,679	$27,870,969	$45,014,551
Projects funded from Debt Proceeds (incl fund Int.)	25,745,069	0	0	12,240,360	28,905,940	0	32,254,631	34,664,223	26,363,500	0
SDC-Funded Capital Projects	5,449,072	5,371,229	5,281,261	5,178,415	5,061,901	4,930,887	4,784,501	4,621,828	4,441,907	4,243,729
Ending Construction Clearing Account Balance	0	0	0	0	0	0	0	0	0	0
Total Uses of Funds	$47,992,730	$35,317,433	$37,908,000	$49,766,291	$52,259,130	$47,608,870	$74,079,316	$74,826,730	$58,676,375	$49,258,280
Minimum Fund Balance Assumptions	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Check Sources/Uses	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
Check Total Capital Projects & Outlays	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
Check Ending Reserve Balance	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

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Table 16
Tualatin Valley Water District
Water Financial Plan
Reserve Summary – Construction Clearing Account

Description	FY2039	FY2040	FY2041	FY2042	FY2043	FY2044	FY2045	FY2046	FY2047	FY2048
Interest Rate on Fund Balance	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%
Sources of Funds										
Beginning Construction Clearing Account Balance	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Transfers In										
Cash & Investments to Construction Clearing Account	$41,266,914	$17,192,926	$57,766,199	$49,788,152	$42,212,922	$54,075,082	$53,766,783	$60,572,135	$26,280,194	$69,811,400
Bond Proceeds to Construction Clearing Account	23,486,649	55,434,355	0	0	25,204,514	0	15,671,509	47,697,091	77,386,378	0
Reimbursement SDC Account to Construction Clearing Account	4,026,238	3,788,324	3,528,824	3,246,518	2,940,128	2,608,313	2,249,670	1,862,727	1,445,942	997,700
Improvement SDC Account to Construction Clearing Account	0	0	0	0	0	0	0	0	0	0
WIFIA Reserve to Construction Clearing Account	0	0	0	0	0	0	0	0	0	0
Short-Term Debt	0	0	0	0	0	0	0	0	0	0
Interest Earnings	0	0	0	0	0	0	0	0	0	0
Total Sources of Funds	$68,779,801	$76,415,605	$61,295,023	$53,034,670	$70,357,564	$56,683,395	$71,687,962	$110,131,953	$105,112,513	$70,809,100
Uses of Funds										
Capital Projects funded from Cash/Reserves	$41,266,914	$17,192,926	$57,766,199	$49,788,152	$42,212,922	$54,075,082	$53,766,783	$60,572,135	$26,280,194	$69,811,400
Projects funded from Debt Proceeds (incl fund Int.)	23,486,649	55,434,355	0	0	25,204,514	0	15,671,509	47,697,091	77,386,378	0
SDC-Funded Capital Projects	4,026,238	3,788,324	3,528,824	3,246,518	2,940,128	2,608,313	2,249,670	1,862,727	1,445,942	997,700
Ending Construction Clearing Account Balance	0	0	0	0	0	0	0	0	0	0
Total Uses of Funds	$68,779,801	$76,415,605	$61,295,023	$53,034,670	$70,357,564	$56,683,395	$71,687,962	$110,131,953	$105,112,513	$70,809,100
Minimum Fund Balance Assumptions	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Check Sources/Uses	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
Check Total Capital Projects & Outlays	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
Check Ending Reserve Balance	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

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Table 17
Tualatin Valley Water District
Water Financial Plan
Reserve Summary – Reimbursement SDC Account

Description	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY2027	FY2028
Interest Rate on Account Balance	2.35%	2.70%	3.00%	3.25%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%
Sources of Funds										
Beginning Reimbursement SDC Account Balance	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Reimbursement Fee Receipts	982,308	1,016,689	1,017,197	1,016,495	1,014,499	1,011,117	1,006,256	999,816	991,692	5,515,509
Interest Earnings	0	0	0	0	0	0	0	0	0	0
Total Sources of Funds	$982,308	$1,016,689	$1,017,197	$1,016,495	$1,014,499	$1,011,117	$1,006,256	$999,816	$991,692	$5,515,509
Uses of Funds										
Transfers Out										
Reimbursement SDC Account to Construction Clearing Account	$982,308	$1,016,689	$1,017,197	$1,016,495	$1,014,499	$1,011,117	$1,006,256	$999,816	$991,692	$5,515,509
Ending Reimbursement SDC Account Balance	0	0	0	0	0	0	0	0	0	0
Total Uses of Funds	$982,308	$1,016,689	$1,017,197	$1,016,495	$1,014,499	$1,011,117	$1,006,256	$999,816	$991,692	$5,515,509
Minimum Fund Balance Assumptions	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Check Sources/Uses	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
Check Ending Reserve Balance	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

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Table 17
Tualatin Valley Water District
Water Financial Plan
Reserve Summary – Reimbursement SDC Account

Description	FY2029	FY2030	FY2031	FY2032	FY2033	FY2034	FY2035	FY2036	FY2037	FY2038
Interest Rate on Account Balance	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%
Sources of Funds										
Beginning Reimbursement SDC Account Balance	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Reimbursement Fee Receipts	5,449,072	5,371,229	5,281,261	5,178,415	5,061,901	4,930,887	4,784,501	4,621,828	4,441,907	4,243,729
Interest Earnings	0	0	0	0	0	0	0	0	0	0
Total Sources of Funds	$5,449,072	$5,371,229	$5,281,261	$5,178,415	$5,061,901	$4,930,887	$4,784,501	$4,621,828	$4,441,907	$4,243,729
Uses of Funds										
Transfers Out										
Reimbursement SDC Account to Construction Clearing Account	$5,449,072	$5,371,229	$5,281,261	$5,178,415	$5,061,901	$4,930,887	$4,784,501	$4,621,828	$4,441,907	$4,243,729
Ending Reimbursement SDC Account Balance	0	0	0	0	0	0	0	0	0	0
Total Uses of Funds	$5,449,072	$5,371,229	$5,281,261	$5,178,415	$5,061,901	$4,930,887	$4,784,501	$4,621,828	$4,441,907	$4,243,729
Minimum Fund Balance Assumptions	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Check Sources/Uses	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
Check Ending Reserve Balance	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

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TVWD Forecast Model Summary

Table 17
Tualatin Valley Water District
Water Financial Plan
Reserve Summary – Reimbursement SDC Account

Description	FY2039	FY2040	FY2041	FY2042	FY2043	FY2044	FY2045	FY2046	FY2047	FY2048
Interest Rate on Account Balance	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%
Sources of Funds										
Beginning Reimbursement SDC Account Balance	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Reimbursement Fee Receipts	4,026,238	3,788,324	3,528,824	3,246,518	2,940,128	2,608,313	2,249,670	1,862,727	1,445,942	997,700
Interest Earnings	0	0	0	0	0	0	0	0	0	0
Total Sources of Funds	$4,026,238	$3,788,324	$3,528,824	$3,246,518	$2,940,128	$2,608,313	$2,249,670	$1,862,727	$1,445,942	$997,700
Uses of Funds										
Transfers Out										
Reimbursement SDC Account to Construction Clearing Account	$4,026,238	$3,788,324	$3,528,824	$3,246,518	$2,940,128	$2,608,313	$2,249,670	$1,862,727	$1,445,942	$997,700
Ending Reimbursement SDC Account Balance	0	0	0	0	0	0	0	0	0	0
Total Uses of Funds	$4,026,238	$3,788,324	$3,528,824	$3,246,518	$2,940,128	$2,608,313	$2,249,670	$1,862,727	$1,445,942	$997,700
Minimum Fund Balance Assumptions	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Check Sources/Uses	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
Check Ending Reserve Balance	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

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Table 18
Tualatin Valley Water District
Water Financial Plan
Reserve Summary – Improvement SDC Account

Description	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY2027	FY2028
Interest Rate on Fund Balance	2.35%	2.70%	3.00%	3.25%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%
Sources of Funds										
Beginning Improvement SDC Account Balance	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Improvement Fee Receipts	4,536,192	4,694,959	4,697,306	4,694,067	4,684,846	4,669,230	4,646,782	4,617,043	4,579,529	0
Interest Earnings	0	0	0	0	0	0	0	0	0	0
Total Sources of Funds	$4,536,192	$4,694,959	$4,697,306	$4,694,067	$4,684,846	$4,669,230	$4,646,782	$4,617,043	$4,579,529	$0
Uses of Funds										
Transfers Out										
Improvement SDC Account to Construction Clearing Account	$4,536,192	$4,694,959	$4,697,306	$4,694,067	$4,684,846	$4,669,230	$4,646,782	$4,617,043	$4,579,529	$0
Ending Improvement SDC Account Balance	0	0	0	0	0	0	0	0	0	0
Total Uses of Funds	$4,536,192	$4,694,959	$4,697,306	$4,694,067	$4,684,846	$4,669,230	$4,646,782	$4,617,043	$4,579,529	$0
Minimum Fund Balance Assumptions	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Check Sources/Uses	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
Check Ending Reserve Balance	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

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TVWD Forecast Model Summary

Table 18
Tualatin Valley Water District
Water Financial Plan
Reserve Summary – Improvement SDC Account

Description	FY2029	FY2030	FY2031	FY2032	FY2033	FY2034	FY2035	FY2036	FY2037	FY2038
Interest Rate on Fund Balance	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%
Sources of Funds										
Beginning Improvement SDC Account Balance	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Improvement Fee Receipts	0	0	0	0	0	0	0	0	0	0
Interest Earnings	0	0	0	0	0	0	0	0	0	0
Total Sources of Funds	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Uses of Funds										
Transfers Out										
Improvement SDC Account to Construction Clearing Account	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Ending Improvement SDC Account Balance	0	0	0	0	0	0	0	0	0	0
Total Uses of Funds	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Minimum Fund Balance Assumptions	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Check Sources/Uses	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
Check Ending Reserve Balance	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

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Table 18
Tualatin Valley Water District
Water Financial Plan
Reserve Summary – Improvement SDC Account

Description	FY2039	FY2040	FY2041	FY2042	FY2043	FY2044	FY2045	FY2046	FY2047	FY2048
Interest Rate on Fund Balance	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%
Sources of Funds										
Beginning Improvement SDC Account Balance	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Improvement Fee Receipts	0	0	0	0	0	0	0	0	0	0
Interest Earnings	0	0	0	0	0	0	0	0	0	0
Total Sources of Funds	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Uses of Funds										
Transfers Out										
Improvement SDC Account to Construction Clearing Account	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Ending Improvement SDC Account Balance	0	0	0	0	0	0	0	0	0	0
Total Uses of Funds	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Minimum Fund Balance Assumptions	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Check Sources/Uses	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
Check Ending Reserve Balance	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

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Table 19
Tualatin Valley Water District
Water Financial Plan
Reserve Summary – WIFIA Reserve

Description	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY2027	FY2028
Interest Rate on Fund Balance	2.35%	2.70%	3.00%	3.25%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%
Sources of Funds										
Beginning WIFIA Reserve Balance	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
WIFIA Proceeds	0	5,000,000	20,000,000	100,000,000	125,000,000	65,000,000	30,000,000	25,500,000	0	0
Transfers In										
Cash & Investments to WIFIA Reserve	$0	$0	$0	$0	$0	$0	$0	$0	$10,593,435	$21,186,871
Interest Earnings	0	0	0	0	0	0	0	0	0	0
Total Sources of Funds	$0	$5,000,000	$20,000,000	$100,000,000	$125,000,000	$65,000,000	$30,000,000	$25,500,000	$10,593,435	$21,186,871
Uses of Funds										
WIFIA Issuance Costs	$0	$500,000	$0	$0	$0	$0	$0	$0	$0	$0
WIFIA Interest-only Payments	0	0	0	0	0	0	0	0	0	0
WIFIA Loan Repayments	0	0	0	0	0	0	0	0	10,593,435	21,186,871
Transfers Out										
WIFIA Reserve to Construction Clearing Account	0	4,500,000	20,000,000	100,000,000	125,000,000	65,000,000	30,000,000	25,500,000	0	0
Ending WIFIA Reserve Balance	0	0	0	0	0	0	0	0	0	0
Total Uses of Funds	$0	$5,000,000	$20,000,000	$100,000,000	$125,000,000	$65,000,000	$30,000,000	$25,500,000	$10,593,435	$21,186,871
Minimum Fund Balance Assumptions	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Ending Fund Balance Factor										
Check Sources/Uses	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
Check Ending Reserve Balance	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

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TVWD Forecast Model Summary

Table 19
Tualatin Valley Water District
Water Financial Plan
Reserve Summary – WIFIA Reserve

Description	FY2029	FY2030	FY2031	FY2032	FY2033	FY2034	FY2035	FY2036	FY2037	FY2038
Interest Rate on Fund Balance	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%
Sources of Funds										
Beginning WIFIA Reserve Balance	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
WIFIA Proceeds	0	0	0	0	0	0	0	0	0	0
Transfers In										
Cash & Investments to WIFIA Reserve	$21,186,871	$21,186,871	$21,186,871	$21,186,871	$21,186,871	$21,186,871	$21,186,871	$21,186,871	$21,186,871	$21,186,871
Interest Earnings	0	0	0	0	0	0	0	0	0	0
Total Sources of Funds	$21,186,871	$21,186,871	$21,186,871	$21,186,871	$21,186,871	$21,186,871	$21,186,871	$21,186,871	$21,186,871	$21,186,871
Uses of Funds										
WIFIA Issuance Costs	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
WIFIA Interest-only Payments	0	0	0	0	0	0	0	0	0	0
WIFIA Loan Repayments	21,186,871	21,186,871	21,186,871	21,186,871	21,186,871	21,186,871	21,186,871	21,186,871	21,186,871	21,186,871
Transfers Out										
WIFIA Reserve to Construction Clearing Account	0	0	0	0	0	0	0	0	0	0
Ending WIFIA Reserve Balance	0	0	0	0	0	0	0	0	0	0
Total Uses of Funds	$21,186,871	$21,186,871	$21,186,871	$21,186,871	$21,186,871	$21,186,871	$21,186,871	$21,186,871	$21,186,871	$21,186,871
Minimum Fund Balance Assumptions	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Ending Fund Balance Factor										
Check Sources/Uses	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
Check Ending Reserve Balance	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

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TVWD Forecast Model Summary

Table 19
Tualatin Valley Water District
Water Financial Plan
Reserve Summary – WIFIA Reserve

Description	FY2039	FY2040	FY2041	FY2042	FY2043	FY2044	FY2045	FY2046	FY2047	FY2048
Interest Rate on Fund Balance	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%
Sources of Funds										
Beginning WIFIA Reserve Balance	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
WIFIA Proceeds	0	0	0	0	0	0	0	0	0	0
Transfers In										
Cash & Investments to WIFIA Reserve	$21,186,871	$21,186,871	$21,186,871	$21,186,871	$21,186,871	$21,186,871	$21,186,871	$21,186,871	$21,186,871	$21,186,871
Interest Earnings	0	0	0	0	0	0	0	0	0	0
Total Sources of Funds	$21,186,871	$21,186,871	$21,186,871	$21,186,871	$21,186,871	$21,186,871	$21,186,871	$21,186,871	$21,186,871	$21,186,871
Uses of Funds										
WIFIA Issuance Costs	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
WIFIA Interest-only Payments	0	0	0	0	0	0	0	0	0	0
WIFIA Loan Repayments	21,186,871	21,186,871	21,186,871	21,186,871	21,186,871	21,186,871	21,186,871	21,186,871	21,186,871	21,186,871
Transfers Out										
WIFIA Reserve to Construction Clearing Account	0	0	0	0	0	0	0	0	0	0
Ending WIFIA Reserve Balance	0	0	0	0	0	0	0	0	0	0
Total Uses of Funds	$21,186,871	$21,186,871	$21,186,871	$21,186,871	$21,186,871	$21,186,871	$21,186,871	$21,186,871	$21,186,871	$21,186,871
Minimum Fund Balance Assumptions	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Ending Fund Balance Factor										
Check Sources/Uses	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
Check Ending Reserve Balance	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

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TVWD Forecast Model Summary

Table 20
Tualatin Valley Water District
Water Financial Plan
Sources and Uses Summary with Changes in Reserves by Fund

	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY2027	FY2028
Sources of Funds										
Water Sales	$70,000,000	$71,567,724	$74,676,694	$77,912,740	$81,280,693	$84,785,546	$88,432,471	$92,226,813	$96,174,102	$100,280,058
SDCs	5,518,500	5,711,648	5,714,503	5,710,562	5,699,345	5,680,347	5,653,038	5,616,858	5,571,222	5,515,509
Other Revenue	7,560,339	8,741,718	7,592,019	6,985,166	7,153,767	7,383,959	7,537,203	7,754,305	6,385,993	6,266,335
WIFIA Proceeds	0	5,000,000	20,000,000	100,000,000	125,000,000	65,000,000	30,000,000	25,500,000	0	0
Debt Proceeds	0	0	0	0	46,690,000	56,215,000	0	0	0	0
Reserves										
Cash & Investments	1,528,867	36,551,772	42,494,815	0	0	0	684,294	0	12,509,943	2,034,296
Rev. Bond Debt Service	0	0	0	0	0	0	0	0	0	0
Improvement SDC Account	0	0	0	0	0	0	0	0	0	0
Total Sources of Funds	$84,607,707	$127,572,861	$150,478,031	$190,608,468	$265,823,805	$219,064,852	$132,307,006	$131,097,976	$120,641,260	$114,096,198
Uses of Funds										
Operating Exp.	$25,454,330	$38,816,431	$37,732,577	$39,776,803	$31,831,154	$33,895,530	$34,058,658	$35,499,965	$39,097,113	$40,777,879
Purchased Water & Pumping Power	10,610,140	12,120,287	12,258,420	11,877,654	13,000,408	13,103,363	14,216,158	14,688,846	9,936,198	10,427,689
Capital Outlay	48,543,236	76,636,144	100,487,033	138,145,555	216,022,707	157,391,836	76,951,771	60,279,342	53,934,096	34,623,340
Debt Service	0	0	0	0	1,606,262	5,146,471	7,080,419	7,080,419	17,673,854	28,267,289
Building Reserves										
Cash & Investments	0	0	0	808,456	150,750	5,659,757	0	13,549,405	0	0
Rev. Bond Debt Service	0	0	0	0	3,212,524	3,867,895	0	0	0	0
Improvement SDC Account	0	0	0	0	0	0	0	0	0	0
Total Uses of Funds	$84,607,707	$127,572,861	$150,478,031	$190,608,468	$265,823,805	$219,064,852	$132,307,006	$131,097,976	$120,641,260	$114,096,198
Check Sources/Uses	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

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TVWD Forecast Model Summary

Table 20
Tualatin Valley Water District
Water Financial Plan
Sources and Uses Summary with Changes in Reserves by Fund

	FY2029	FY2030	FY2031	FY2032	FY2033	FY2034	FY2035	FY2036	FY2037	FY2038
Sources of Funds										
Water Sales	$104,550,593	$108,954,110	$113,486,444	$118,345,002	$123,559,771	$128,939,894	$134,487,055	$140,202,754	$146,161,372	$152,373,230
SDCs	5,449,072	5,371,229	5,281,261	5,178,415	5,061,901	4,930,887	4,784,501	4,621,828	4,441,907	4,243,729
Other Revenue	6,592,689	6,930,848	7,010,203	7,137,897	7,617,066	7,950,440	8,022,021	8,310,938	8,779,833	9,096,135
WIFIA Proceeds	0	0	0	0	0	0	0	0	0	0
Debt Proceeds	28,100,000	0	0	13,360,000	31,550,000	0	35,205,000	37,835,000	28,775,000	0
Reserves										
Cash & Investments	0	1,597,904	2,288,790	7,542	0	7,687,495	122,648	0	0	4,573,933
Rev. Bond Debt Service	0	0	0	0	0	0	0	0	0	0
Improvement SDC Account	0	0	0	0	0	0	0	0	0	0
Total Sources of Funds	$144,692,355	$122,854,091	$128,066,697	$144,028,855	$167,788,738	$149,508,716	$182,621,225	$190,970,520	$188,158,111	$170,287,027
Uses of Funds										
Operating Exp.	$43,033,837	$45,080,961	$47,114,333	$49,230,204	$51,706,307	$53,875,643	$56,212,328	$58,583,149	$61,061,185	$63,152,469
Purchased Water & Pumping Power	10,943,453	11,478,491	12,032,217	12,604,838	13,196,536	13,807,460	14,437,728	15,087,426	15,766,360	16,475,847
Capital Outlay	48,735,778	36,093,918	38,719,427	50,614,232	53,145,228	48,534,842	75,046,957	75,837,915	59,733,064	50,362,519
Debt Service	29,234,005	30,200,721	30,200,721	30,660,341	32,205,366	33,290,771	34,501,918	37,014,691	39,306,254	40,296,192
Building Reserves										
Cash & Investments	10,811,852	0	0	0	15,364,492	0	0	1,844,086	10,311,373	0
Rev. Bond Debt Service	1,933,431	0	0	919,240	2,170,810	0	2,422,294	2,603,253	1,979,875	0
Improvement SDC Account	0	0	0	0	0	0	0	0	0	0
Total Uses of Funds	$144,692,355	$122,854,091	$128,066,697	$144,028,855	$167,788,738	$149,508,716	$182,621,225	$190,970,520	$188,158,111	$170,287,027
Check Sources/Uses	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

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TVWD Forecast Model Summary

Table 20
Tualatin Valley Water District
Water Financial Plan
Sources and Uses Summary with Changes in Reserves by Fund

	FY2039	FY2040	FY2041	FY2042	FY2043	FY2044	FY2045	FY2046	FY2047	FY2048
Sources of Funds										
Water Sales	$158,849,092	$165,600,178	$172,638,186	$179,975,309	$187,624,260	$195,830,488	$204,642,860	$213,851,789	$223,475,119	$233,531,500
SDCs	4,026,238	3,788,324	3,528,824	3,246,518	2,940,128	2,608,313	2,249,670	1,862,727	1,445,942	997,700
Other Revenue	9,256,428	10,028,335	10,521,317	10,461,531	10,819,584	11,201,273	11,500,594	11,880,518	12,861,298	13,688,338
WIFIA Proceeds	0	0	0	0	0	0	0	0	0	0
Debt Proceeds	25,635,000	60,505,000	0	0	27,510,000	0	17,105,000	52,060,000	84,465,000	0
Reserves										
Cash & Investments	0	0	13,202,402	1,870,944	0	880,589	0	238,825	0	5,847,323
Rev. Bond Debt Service	0	0	0	0	0	0	0	0	0	0
Improvement SDC Account	0	0	0	0	0	0	0	0	0	0
Total Sources of Funds	$197,766,759	$239,921,838	$199,890,729	$195,554,302	$228,893,972	$210,520,663	$235,498,124	$279,893,859	$322,247,359	$254,064,860
Uses of Funds										
Operating Exp.	$66,371,905	$70,111,425	$72,310,820	$75,331,965	$79,134,467	$82,827,499	$85,934,973	$90,095,401	$94,587,850	$97,267,928
Purchased Water & Pumping Power	17,217,260	17,992,036	18,801,678	19,647,754	20,531,902	21,455,838	22,421,351	23,430,312	24,484,676	25,586,486
Capital Outlay	69,933,731	77,621,462	62,555,143	54,351,496	71,733,647	58,121,402	73,190,679	111,702,293	106,753,518	72,523,950
Debt Service	41,178,105	44,141,553	46,223,088	46,223,088	47,169,506	48,115,924	48,704,382	51,083,845	57,233,584	58,686,496
Building Reserves										
Cash & Investments	1,301,932	25,892,291	0	0	8,431,613	0	4,069,823	0	33,376,083	0
Rev. Bond Debt Service	1,763,826	4,163,070	0	0	1,892,836	0	1,176,916	3,582,009	5,811,647	0
Improvement SDC Account	0	0	0	0	0	0	0	0	0	0
Total Uses of Funds	$197,766,759	$239,921,838	$199,890,729	$195,554,302	$228,893,972	$210,520,663	$235,498,124	$279,893,859	$322,247,359	$254,064,860
Check Sources/Uses	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

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TVWD Forecast Model Summary

Table 21
Tualatin Valley Water District
Water Financial Plan
45-year Revenue Requirements Forecast

		FY2019	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY2027
O&M Summary										
Fixed Expenses		$36,496,415	$50,667,070	$50,233,570	$51,336,449	$43,762,775	$45,701,616	$47,761,446	$49,731,357	$43,155,680
Variable Costs										
JWC		2,252,361	2,613,596	2,699,420	2,202,179	2,323,210	2,450,754	2,585,155	2,726,776	5,251,658
Pumping Power		438,364	458,090	494,300	516,544	539,788	564,078	589,462	615,988	1,648,362
Pension Expense [1][2]		0	0	0	1,160,621	1,212,849	1,298,994	1,357,449	1,304,777	1,363,492
OPEB Funded by Operations		40,000	55,900	72,754	105,619	124,556	144,630	165,908	182,823	330,500
Total O&M		$39,227,140	$53,794,657	$53,500,044	$55,321,411	$47,963,178	$50,160,073	$52,459,419	$54,561,721	$51,749,692
Less Capitalized OH & Outlays from O&M		$3,162,670	$3,357,939	$3,509,047	$3,666,954	$3,831,967	$4,004,405	$4,184,603	$4,372,910	$2,716,381
Net O&M	[A]	$36,064,470	$50,436,717	$49,990,998	$51,654,457	$44,131,212	$46,155,668	$48,274,816	$50,188,811	$49,033,311
Debt Service from Rates *(net of Debt Reserve Retirements)*										
Future Revenue Bonds		$0	$0	$0	$0	$1,606,262	$5,146,471	$7,080,419	$7,080,419	$7,080,419
WIFIA		0	0	0	0	0	0	0	0	10,593,435
Total Debt Service	[B]	$0	$0	$0	$0	$1,606,262	$5,146,471	$7,080,419	$7,080,419	$17,673,854
Cash-Funded Capital Expenditures										
Capital Projects & Outlays from O&M		$48,543,236	$76,636,144	$100,487,033	$138,145,555	$216,022,707	$157,391,836	$76,951,771	$60,279,342	$53,934,096
Less Debt Funding		0	(4,500,000)	(20,000,000)	(100,000,000)	(167,777,126)	(116,503,880)	(30,000,000)	(25,500,000)	0
CIP & Outlays from Cash/Reserves	[C]	$48,543,236	$72,136,144	$80,487,033	$38,145,555	$48,245,581	$40,887,956	$46,951,771	$34,779,342	$53,934,096
Total Requirements [A]+[B]+[C]	[D]	$84,607,707	$122,572,861	$130,478,031	$89,800,012	$93,983,054	$92,190,095	$102,307,006	$92,048,572	$120,641,260
***Less* Non-Rate Revenues and Reserves**										
Meter & Svc Revenue		$1,133,000	$1,166,990	$1,202,000	$1,238,060	$1,275,201	$1,313,458	$1,352,861	$1,393,447	$1,435,251
Non-Rate Revenue *(net of related expenses)*		3,759,750	5,023,927	4,741,495	4,638,608	4,611,793	4,578,137	4,537,219	4,488,596	3,060,290
SDC Funding for Capital		5,518,500	5,711,648	5,714,503	5,710,562	5,699,345	5,680,347	5,653,038	5,616,858	5,571,222
Funding from Reserves *(incl. interest earnings)*		4,196,456	39,102,573	44,143,339	1,108,498	1,266,773	1,492,364	2,331,417	1,872,262	14,400,396
Totals	[E]	$14,607,707	$51,005,137	$55,801,337	$12,695,728	$12,853,112	$13,064,306	$13,874,535	$13,371,164	$24,467,158
Net Revenue Requirements [D]-[E]		**$70,000,000**	**$71,567,724**	**$74,676,694**	**$77,104,284**	**$81,129,942**	**$79,125,789**	**$88,432,471**	**$78,677,408**	**$96,174,102**

[1] Pension costs included in *Fixed Expenses* to FY2021.
[2] Pension costs aggregated separately beginning FY2022.

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TVWD Forecast Model Summary

Table 21
Tualatin Valley Water District
Water Financial Plan
45-year Revenue Requirements Forecast

		FY2028	FY2029	FY2030	FY2031	FY2032	FY2033	FY2034	FY2035	FY2036
O&M Summary										
Fixed Expenses		$45,122,366	$47,187,086	$49,342,647	$51,590,903	$53,935,651	$56,380,529	$59,517,118	$61,589,050	$64,360,211
Variable Costs										
JWC		5,487,982	5,734,941	5,993,014	6,262,699	6,544,521	6,839,024	7,146,780	7,468,385	7,804,463
Pumping Power		1,733,751	1,823,527	1,916,349	2,011,986	2,110,404	2,211,560	2,315,397	2,421,848	2,530,831
Pension Expense [1][2]		1,271,115	1,328,315	1,938,836	2,026,083	1,915,189	2,001,372	1,844,503	1,927,505	1,843,059
OPEB Funded by Operations		428,973	448,277	468,449	494,214	513,982	534,542	555,923	578,160	601,287
Total O&M		$54,044,187	$56,522,146	$59,659,295	$62,385,885	$65,019,748	$67,967,028	$71,379,722	$73,984,949	$77,139,851
Less Capitalized OH & Outlays from O&M		$2,838,618	$2,966,356	$3,099,842	$3,239,335	$3,385,105	$3,537,435	$3,696,620	$3,862,967	$4,036,801
Net O&M	[A]	$51,205,569	$53,555,790	$56,559,453	$59,146,550	$61,634,643	$64,429,593	$67,683,102	$70,121,981	$73,103,050
Debt Service from Rates *(net of Debt Reserve Retirements)*										
Future Revenue Bonds		$7,080,419	$8,047,134	$9,013,850	$9,013,850	$9,473,470	$11,018,495	$12,103,900	$13,315,047	$15,827,820
WIFIA		21,186,871	21,186,871	21,186,871	21,186,871	21,186,871	21,186,871	21,186,871	21,186,871	21,186,871
Total Debt Service	[B]	$28,267,289	$29,234,005	$30,200,721	$30,200,721	$30,660,341	$32,205,366	$33,290,771	$34,501,918	$37,014,691
Cash-Funded Capital Expenditures										
Capital Projects & Outlays from O&M		$34,623,340	$48,735,778	$36,093,918	$38,719,427	$50,614,232	$53,145,228	$48,534,842	$75,046,957	$75,837,915
Less Debt Funding		0	(25,745,069)	0	0	(12,240,360)	(28,905,940)	0	(32,254,631)	(34,664,223)
CIP & Outlays from Cash/Reserves	[C]	$34,623,340	$22,990,709	$36,093,918	$38,719,427	$38,373,872	$24,239,288	$48,534,842	$42,792,326	$41,173,692
Total Requirements [A]+[B]+[C]	[D]	$114,096,198	$105,780,504	$122,854,091	$128,066,697	$130,668,855	$120,874,247	$149,508,716	$147,416,225	$151,291,433
Less **Non-Rate Revenues and Reserves**										
Meter & Svc Revenue		$1,478,308	$1,522,657	$1,568,337	$1,615,387	$1,663,849	$1,713,764	$1,765,177	$1,818,132	$1,872,676
Non-Rate Revenue *(net of related expenses)*		3,152,098	3,246,661	3,344,061	3,444,383	3,547,715	3,654,146	3,763,770	3,876,683	3,992,984
SDC Funding for Capital		5,515,509	5,449,072	5,371,229	5,281,261	5,178,415	5,061,901	4,930,887	4,784,501	4,621,828
Funding from Reserves *(incl. interest earnings)*		3,670,225	1,823,371	3,616,354	4,239,223	1,933,875	2,249,156	10,108,988	2,449,854	2,445,278
Totals	[E]	$13,816,140	$12,041,762	$13,899,981	$14,580,253	$12,323,853	$12,678,967	$20,568,822	$12,929,170	$12,932,766
Net Revenue Requirements [D]-[E]		**$100,280,058**	**$93,738,742**	**$108,954,110**	**$113,486,444**	**$118,345,002**	**$108,195,280**	**$128,939,894**	**$134,487,055**	**$138,358,667**

[1] Pension costs included in *Fixed Expenses* to FY2021.
[2] Pension costs aggregated separately beginning FY2022.

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TVWD Forecast Model Summary

Table 21
Tualatin Valley Water District
Water Financial Plan
45-year Revenue Requirements Forecast

		FY2037	FY2038	FY2039	FY2040	FY2041	FY2042	FY2043	FY2044	FY2045
O&M Summary										
Fixed Expenses		$67,256,647	$70,283,153	$73,445,478	$76,750,635	$80,204,209	$83,813,776	$87,585,310	$92,353,200	$95,644,861
Variable Costs										
JWC		8,155,664	8,522,668	8,906,189	9,306,967	9,725,781	10,163,441	10,620,796	11,098,731	11,598,174
Pumping Power		2,644,719	2,763,731	2,888,099	3,018,063	3,153,876	3,295,801	3,444,112	3,599,097	3,761,056
Pension Expense [1][2]		1,925,997	1,813,603	1,895,215	2,234,191	2,334,730	2,213,818	2,313,440	2,165,949	2,263,416
OPEB Funded by Operations		631,351	653,448	676,319	699,990	724,490	749,847	783,590	807,098	831,311
Total O&M		$80,614,377	$84,036,604	$87,811,300	$92,009,847	$96,143,086	$100,236,683	$104,747,248	$110,024,074	$114,098,819
Less Capitalized OH & Outlays from O&M		$4,218,457	$4,408,288	$4,606,661	$4,813,960	$5,030,588	$5,256,965	$5,493,528	$5,740,737	$5,999,070
Net O&M	[A]	$76,395,920	$79,628,316	$83,204,639	$87,195,887	$91,112,498	$94,979,718	$99,253,720	$104,283,337	$108,099,748
Debt Service from Rates *(net of Debt Reserve Retirements)*										
Future Revenue Bonds		$18,119,383	$19,109,321	$19,991,234	$22,954,682	$25,036,217	$25,036,217	$25,982,635	$26,929,053	$27,517,512
WIFIA		21,186,871	21,186,871	21,186,871	21,186,871	21,186,871	21,186,871	21,186,871	21,186,871	21,186,871
Total Debt Service	[B]	$39,306,254	$40,296,192	$41,178,105	$44,141,553	$46,223,088	$46,223,088	$47,169,506	$48,115,924	$48,704,382
Cash-Funded Capital Expenditures										
Capital Projects & Outlays from O&M		$59,733,064	$50,362,519	$69,933,731	$77,621,462	$62,555,143	$54,351,496	$71,733,647	$58,121,402	$73,190,679
Less Debt Funding		(26,363,500)	0	(23,486,649)	(55,434,355)	0	0	(25,204,514)	0	(15,671,509)
CIP & Outlays from Cash/Reserves	[C]	$33,369,564	$50,362,519	$46,447,083	$22,187,107	$62,555,143	$54,351,496	$46,529,133	$58,121,402	$57,519,171
Total Requirements [A]+[B]+[C]	[D]	$149,071,738	$170,287,027	$170,829,826	$153,524,546	$199,890,729	$195,554,302	$192,952,359	$210,520,663	$214,323,301
***Less* Non-Rate Revenues and Reserves**										
Meter & Svc Revenue		$1,928,857	$1,986,722	$2,046,324	$2,107,714	$2,170,945	$2,236,074	$2,303,156	$2,372,250	$2,443,418
Non-Rate Revenue *(net of related expenses)*		4,112,773	4,236,157	4,363,241	4,494,139	4,628,963	4,767,832	4,910,867	5,058,193	5,209,938
SDC Funding for Capital		4,441,907	4,243,729	4,026,238	3,788,324	3,528,824	3,246,518	2,940,128	2,608,313	2,249,670
Funding from Reserves *(incl. interest earnings)*		2,738,203	7,447,189	2,846,863	3,426,483	16,923,811	5,328,570	3,605,562	4,651,419	3,847,237
Totals	[E]	$13,221,740	$17,913,797	$13,282,667	$13,816,659	$27,252,543	$15,578,993	$13,759,712	$14,690,175	$13,750,264
Net Revenue Requirements [D]-[E]		**$135,849,998**	**$152,373,230**	**$157,547,160**	**$139,707,887**	**$172,638,186**	**$179,975,309**	**$179,192,646**	**$195,830,488**	**$200,573,037**

[1] Pension costs included in *Fixed Expenses* to FY2021.
[2] Pension costs aggregated separately beginning FY2022.

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TVWD Forecast Model Summary

Table 21
Tualatin Valley Water District
Water Financial Plan
45-year Revenue Requirements Forecast

		FY2046	FY2047	FY2048	FY2049	FY2050	FY2051	FY2052	FY2053	FY2054
O&M Summary										
Fixed Expenses		$99,948,354	$104,446,095	$109,145,577	$113,798,438	$118,372,611	$123,432,405	$128,978,064	$134,490,947	$140,538,087
Variable Costs										
JWC		12,120,092	12,665,496	13,235,444	13,831,039	14,453,435	15,103,840	15,783,513	16,493,771	17,235,990
Pumping Power		3,930,303	4,107,167	4,291,990	4,485,129	4,686,960	4,897,873	5,118,278	5,348,600	5,589,287
Pension Expense [1][2]		2,158,841	2,255,989	2,118,944	2,214,296	2,605,049	2,722,276	2,574,785	2,690,650	2,512,676
OPEB Funded by Operations		856,250	881,938	908,396	944,732	968,350	992,559	1,017,373	1,042,807	1,068,877
Total O&M		$119,013,841	$124,356,686	$129,700,350	$135,273,634	$141,086,405	$147,148,953	$153,472,011	$160,066,774	$166,944,918
Less Capitalized OH & Outlays from O&M		$6,269,028	$6,551,135	$6,845,936	$7,154,003	$7,475,933	$7,812,350	$8,163,906	$8,531,282	$8,915,189
Net O&M	[A]	$112,744,813	$117,805,551	$122,854,414	$128,119,631	$133,610,471	$139,336,603	$145,308,105	$151,535,493	$158,029,728
Debt Service from Rates *(net of Debt Reserve Retirements)*										
Future Revenue Bonds		$29,896,974	$36,046,714	$37,499,625	$37,499,625	$37,499,625	$37,499,625	$37,499,625	$37,499,625	$34,287,102
WIFIA		21,186,871	21,186,871	21,186,871	21,186,871	21,186,871	21,186,871	21,186,871	21,186,871	21,186,871
Total Debt Service	[B]	$51,083,845	$57,233,584	$58,686,496	$58,686,496	$58,686,496	$58,686,496	$58,686,496	$58,686,496	$55,473,972
Cash-Funded Capital Expenditures										
Capital Projects & Outlays from O&M		$111,702,293	$106,753,518	$72,523,950	$70,739,118	$78,600,416	$75,942,779	$80,034,893	$73,929,015	$76,537,281
Less Debt Funding		(47,697,091)	(77,386,378)	0	0	0	0	0	0	0
CIP & Outlays from Cash/Reserves	[C]	$64,005,202	$29,367,140	$72,523,950	$70,739,118	$78,600,416	$75,942,779	$80,034,893	$73,929,015	$76,537,281
Total Requirements [A]+[B]+[C]	[D]	$227,833,859	$204,406,276	$254,064,860	$257,545,245	$270,897,384	$273,965,877	$284,029,494	$284,151,004	$290,040,982
***Less* Non-Rate Revenues and Reserves**										
Meter & Svc Revenue		$2,516,720	$2,592,222	$2,669,989	$2,750,088	$2,832,591	$2,917,569	$3,005,096	$3,095,249	$3,188,106
Non-Rate Revenue *(net of related expenses)*		5,366,237	5,527,224	5,693,040	5,863,832	6,039,747	6,220,939	6,407,567	6,599,794	6,797,788
SDC Funding for Capital		1,862,727	1,445,942	997,700	516,310	534,381	553,084	572,442	592,477	613,214
Funding from Reserves *(incl. interest earnings)*		4,236,386	4,741,852	11,172,632	4,270,154	7,872,759	3,500,252	3,673,989	6,862,416	7,887,823
Totals	[E]	$13,982,070	$14,307,240	$20,533,361	$13,400,384	$17,279,477	$13,191,844	$13,659,094	$17,149,936	$18,486,932
Net Revenue Requirements [D]-[E]		**$213,851,789**	**$190,099,036**	**$233,531,500**	**$244,144,862**	**$253,617,907**	**$260,774,034**	**$270,370,400**	**$267,001,068**	**$271,554,050**

[1] Pension costs included in *Fixed Expenses* to FY2021.
[2] Pension costs aggregated separately beginning FY2022.

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TVWD Forecast Model Summary

Table 21
Tualatin Valley Water District
Water Financial Plan
45-year Revenue Requirements Forecast

		FY2055	FY2056	FY2057	FY2058	FY2059	FY2060	FY2061	FY2062	FY2063
O&M Summary										
Fixed Expenses		$146,534,169	$153,048,236	$159,595,052	$166,703,504	$173,833,591	$180,937,997	$188,662,411	$197,053,604	$205,484,923
Variable Costs										
JWC		18,011,610	18,822,132	19,669,128	20,554,239	21,479,180	22,445,743	23,455,801	24,511,312	25,614,322
Pumping Power		5,840,805	6,103,641	6,378,305	6,665,329	6,965,269	7,278,706	7,606,247	7,948,528	8,306,212
Pension Expense [1][2]		2,625,746	2,498,152	2,610,569	2,445,742	2,555,800	3,000,706	3,135,737	2,958,347	3,091,473
OPEB Funded by Operations		1,106,288	1,128,414	1,150,982	1,174,002	1,197,482	1,221,431	1,258,074	1,276,945	1,296,099
Total O&M		$174,118,618	$181,600,575	$189,404,036	$197,542,815	$206,031,321	$214,884,582	$224,118,272	$233,748,738	$243,793,029
Less Capitalized OH & Outlays from O&M		$9,316,373	$9,735,610	$10,173,712	$10,631,529	$11,109,948	$11,609,895	$12,132,341	$12,678,296	$13,248,819
Net O&M	[A]	$164,802,245	$171,864,966	$179,230,324	$186,911,286	$194,921,373	$203,274,687	$211,985,931	$221,070,442	$230,544,209
Debt Service from Rates *(net of Debt Reserve Retirements)*										
Future Revenue Bonds		$30,419,207	$30,419,207	$30,419,207	$30,419,207	$30,419,207	$28,485,775	$28,485,775	$28,485,775	$27,566,535
WIFIA		21,186,871	21,186,871	21,186,871	21,186,871	21,186,871	21,186,871	21,186,871	0	0
Total Debt Service	[B]	$51,606,077	$51,606,077	$51,606,077	$51,606,077	$51,606,077	$49,672,646	$49,672,646	$28,485,775	$27,566,535
Cash-Funded Capital Expenditures										
Capital Projects & Outlays from O&M		$79,492,011	$103,572,404	$105,912,239	$107,870,010	$93,154,973	$94,262,273	$97,842,108	$101,020,808	$106,232,833
Less Debt Funding		0	0	0	0	0	0	0	0	0
CIP & Outlays from Cash/Reserves	[C]	$79,492,011	$103,572,404	$105,912,239	$107,870,010	$93,154,973	$94,262,273	$97,842,108	$101,020,808	$106,232,833
Total Requirements [A]+[B]+[C]	[D]	$295,900,334	$327,043,448	$336,748,641	$346,387,373	$339,682,423	$347,209,606	$359,500,685	$350,577,025	$364,343,578
***Less* Non-Rate Revenues and Reserves**										
Meter & Svc Revenue		$3,283,749	$3,382,262	$3,483,730	$3,588,242	$3,695,889	$3,806,765	$3,920,968	$4,038,598	$4,159,755
Non-Rate Revenue *(net of related expenses)*		7,001,722	7,211,773	7,428,126	7,650,970	7,880,499	8,116,914	8,360,422	8,611,234	8,869,571
SDC Funding for Capital		634,676	656,890	679,881	703,677	728,306	753,797	780,179	807,486	835,748
Funding from Reserves *(incl. interest earnings)*		4,533,149	8,524,323	7,902,808	6,879,962	6,660,558	5,336,106	6,024,635	8,021,123	10,739,978
Totals	[E]	$15,453,296	$19,775,248	$19,494,546	$18,822,851	$18,965,252	$18,013,582	$19,086,205	$21,478,441	$24,605,052
Net Revenue Requirements [D]-[E]		**$280,447,037**	**$307,268,200**	**$317,254,095**	**$327,564,522**	**$320,717,172**	**$329,196,024**	**$340,414,481**	**$329,098,584**	**$339,738,525**

[1] Pension costs included in *Fixed Expenses* to FY2021.
[2] Pension costs aggregated separately beginning FY2022.

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TVWD Forecast Model Summary

Table 22
Tualatin Valley Water District
Water Financial Plan
45-year Rate Revenue, Coverage, and Reserves

	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY2027
Rate Revenue Forecast									
Overall Rate Revenue Increases	13.50%	3.90%	3.90%	3.90%	3.90%	3.90%	3.90%	3.90%	3.90%
Prorated Percent Impact of Increase	48.46%	48.46%	48.46%	48.46%	48.46%	48.46%	48.46%	48.46%	48.46%
Internal Revenue Growth	(2.36%)	(5.81%)	0.43%	0.42%	0.41%	0.40%	0.39%	0.38%	0.37%
Revenue Before Increase	$65,701,514	$70,240,157	$73,291,456	$76,467,475	$79,772,952	$83,212,791	$86,792,066	$90,516,024	$94,390,092
Revenue from Increase	4,298,486	1,327,567	1,385,238	1,445,266	1,507,741	1,572,755	1,640,405	1,710,789	1,784,011
Total Rate Revenue	$70,000,000	$71,567,724	$74,676,694	$77,912,740	$81,280,693	$84,785,546	$88,432,471	$92,226,813	$96,174,102
Debt Service Coverage Summary									
Net Revenue *(incl. SDCs & interest earnings)*	$47,014,369	$35,584,372	$37,992,219	$38,954,011	$50,002,593	$51,694,185	$53,347,896	$55,409,166	$59,098,006
Debt Service	0	0	0	0	1,606,262	5,146,471	7,080,419	7,080,419	17,673,854
Debt Service Coverage	0.00	0.00	0.00	0.00	31.13	10.04	7.53	7.83	3.34
Cash & Investments Summary									
Beginning Reserves Balance	$114,278,867	$112,750,000	$76,198,228	$33,703,414	$34,511,870	$34,662,620	$40,322,378	$39,638,083	$53,187,488
Change in Cash Balance *(net of interest earnings)*	(1,528,867)	(36,551,772)	(42,494,815)	808,456	150,751	5,659,757	(684,294)	13,549,405	(12,509,943)
Ending Cash Balance	$112,750,000	$76,198,228	$33,703,414	$34,511,870	$34,662,620	$40,322,378	$39,638,083	$53,187,488	$40,677,544
Debt Service Reserve	$0	$0	$0	$0	$3,212,524	$7,080,419	$7,080,419	$7,080,419	$17,673,854
Total Year-End Reserves	$112,750,000	$76,198,228	$33,703,414	$34,511,870	$37,875,144	$47,402,796	$46,718,502	$60,267,907	$58,351,398
Min. Ending Cash Balance	$26,867,904	$29,996,340	$29,794,551	$31,042,062	$32,851,492	$34,356,214	$35,931,109	$37,371,042	$35,444,994

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TVWD Forecast Model Summary

Table 22
Tualatin Valley Water District
Water Financial Plan
45-year Rate Revenue, Coverage, and Reserves

	FY2028	FY2029	FY2030	FY2031	FY2032	FY2033	FY2034	FY2035	FY2036
Rate Revenue Forecast									
Overall Rate Revenue Increases	3.90%	3.90%	3.90%	3.90%	4.25%	4.25%	4.25%	4.25%	4.25%
Prorated Percent Impact of Increase	48.46%	48.46%	48.46%	48.46%	48.46%	48.46%	48.46%	48.46%	48.46%
Internal Revenue Growth	0.36%	0.35%	0.30%	0.25%	0.20%	0.15%	0.10%	0.05%	0.00%
Revenue Before Increase	$98,419,883	$102,611,200	$106,933,033	$111,381,293	$115,956,689	$121,066,220	$126,337,766	$131,772,980	$137,373,332
Revenue from Increase	1,860,175	1,939,393	2,021,077	2,105,151	2,388,312	2,493,551	2,602,127	2,714,074	2,829,422
Total Rate Revenue	$100,280,058	$104,550,593	$108,954,110	$113,486,444	$118,345,002	$123,559,771	$128,939,894	$134,487,055	$140,202,754
Debt Service Coverage Summary									
Net Revenue *(incl. SDCs & interest earnings)*	$60,856,334	$63,036,565	$64,696,734	$66,631,357	$69,026,671	$71,809,146	$74,138,118	$77,171,595	$80,032,470
Debt Service	28,267,289	29,234,005	30,200,721	30,200,721	30,660,341	32,205,366	33,290,771	34,501,918	37,014,691
Debt Service Coverage	2.15	2.16	2.14	2.21	2.25	2.23	2.23	2.24	2.16
Cash & Investments Summary									
Beginning Reserves Balance	$40,677,544	$38,643,248	$49,455,100	$47,857,196	$45,568,406	$45,560,864	$60,925,356	$53,237,861	$53,115,212
Change in Cash Balance *(net of interest earnings)*	(2,034,296)	10,811,851	(1,597,904)	(2,288,790)	(7,542)	15,364,492	(7,687,495)	(122,648)	1,844,088
Ending Cash Balance	$38,643,248	$49,455,100	$47,857,196	$45,568,406	$45,560,864	$60,925,356	$53,237,861	$53,115,212	$54,959,300
Debt Service Reserve	$28,267,289	$30,200,721	$30,200,721	$30,200,721	$31,119,961	$33,290,771	$33,290,771	$35,713,065	$38,316,316
Total Year-End Reserves	$66,910,538	$79,655,821	$78,057,916	$75,769,126	$76,680,825	$94,216,127	$86,528,632	$88,828,277	$93,275,617
Min. Ending Cash Balance	$37,016,566	$38,713,799	$40,862,531	$42,730,058	$44,534,074	$46,552,759	$48,890,220	$50,674,623	$52,835,515

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TVWD Forecast Model Summary

Table 22
Tualatin Valley Water District
Water Financial Plan
45-year Rate Revenue, Coverage, and Reserves

	FY2037	FY2038	FY2039	FY2040	FY2041	FY2042	FY2043	FY2044	FY2045
Rate Revenue Forecast									
Overall Rate Revenue Increases	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.50%	4.50%
Prorated Percent Impact of Increase	48.46%	48.46%	48.46%	48.46%	48.46%	48.46%	48.46%	48.46%	48.46%
Internal Revenue Growth	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Revenue Before Increase	$143,211,699	$149,298,196	$155,643,369	$162,258,212	$169,154,186	$176,343,239	$183,837,827	$191,650,935	$200,275,227
Revenue from Increase	2,949,673	3,075,034	3,205,723	3,341,966	3,484,000	3,632,070	3,786,433	4,179,553	4,367,633
Total Rate Revenue	$146,161,372	$152,373,230	$158,849,092	$165,600,178	$172,638,186	$179,975,309	$187,624,260	$195,830,488	$204,642,860
Debt Service Coverage Summary									
Net Revenue *(incl. SDCs & interest earnings)*	$82,987,191	$86,084,778	$88,927,119	$92,220,951	$95,575,830	$98,703,640	$102,130,252	$105,356,737	$110,293,376
Debt Service	39,306,254	40,296,192	41,178,105	44,141,553	46,223,088	46,223,088	47,169,506	48,115,924	48,704,382
Debt Service Coverage	2.11	2.14	2.16	2.09	2.07	2.14	2.17	2.19	2.26
Cash & Investments Summary									
Beginning Reserves Balance	$54,959,300	$65,270,673	$60,696,741	$61,998,673	$87,890,964	$74,688,563	$72,817,618	$81,249,232	$80,368,642
Change in Cash Balance *(net of interest earnings)*	10,311,373	(4,573,933)	1,301,932	25,892,291	(13,202,402)	(1,870,944)	8,431,613	(880,589)	4,069,823
Ending Cash Balance	$65,270,673	$60,696,741	$61,998,673	$87,890,964	$74,688,563	$72,817,618	$81,249,232	$80,368,642	$84,438,465
Debt Service Reserve	$40,296,192	$40,296,192	$42,060,018	$46,223,088	$46,223,088	$46,223,088	$48,115,924	$48,115,924	$49,292,840
Total Year-End Reserves	$105,566,865	$100,992,932	$104,058,691	$134,114,052	$120,911,650	$119,040,706	$129,365,156	$128,484,566	$133,731,305
Min. Ending Cash Balance	$55,215,327	$57,559,318	$60,144,726	$63,020,443	$65,851,429	$68,655,262	$71,744,690	$75,358,955	$78,149,876

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TVWD Forecast Model Summary

Table 22
Tualatin Valley Water District
Water Financial Plan
45-year Rate Revenue, Coverage, and Reserves

	FY2046	FY2047	FY2048	FY2049	FY2050	FY2051	FY2052	FY2053	FY2054
Rate Revenue Forecast									
Overall Rate Revenue Increases	4.50%	4.50%	4.50%	4.50%	3.25%	3.25%	3.25%	3.25%	3.25%
Prorated Percent Impact of Increase	48.46%	48.46%	48.46%	48.46%	48.46%	48.46%	48.46%	48.46%	48.46%
Internal Revenue Growth	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Revenue Before Increase	$209,287,612	$218,705,555	$228,547,304	$238,831,933	$249,579,370	$257,690,700	$266,065,647	$274,712,781	$283,640,946
Revenue from Increase	4,564,177	4,769,565	4,984,195	5,208,484	3,930,958	4,058,715	4,190,623	4,326,818	4,467,440
Total Rate Revenue	$213,851,789	$223,475,119	$233,531,500	$244,040,417	$253,510,329	$261,749,414	$270,256,270	$279,039,599	$288,108,386
Debt Service Coverage Summary									
Net Revenue *(incl. SDCs & interest earnings)*	$114,850,221	$119,976,808	$125,363,123	$125,051,016	$129,306,575	$132,104,403	$134,933,270	$137,791,626	$140,677,766
Debt Service	51,083,845	57,233,584	58,686,496	58,686,496	58,686,496	58,686,496	58,686,496	58,686,496	55,473,972
Debt Service Coverage	2.25	2.10	2.14	2.13	2.20	2.25	2.30	2.35	2.54
Cash & Investments Summary									
Beginning Reserves Balance	$84,438,465	$84,199,640	$117,575,723	$111,728,400	$111,119,408	$106,812,702	$107,898,888	$107,731,414	$116,674,975
Change in Cash Balance *(net of interest earnings)*	(238,825)	33,376,083	(5,847,323)	(608,993)	(4,306,706)	1,086,186	(167,475)	8,943,561	12,807,521
Ending Cash Balance	$84,199,640	$117,575,723	$111,728,400	$111,119,408	$106,812,702	$107,898,888	$107,731,414	$116,674,975	$129,482,496
Debt Service Reserve	$52,874,849	$58,686,496	$58,686,496	$58,686,496	$58,686,496	$58,686,496	$58,686,496	$55,473,972	$51,606,077
Total Year-End Reserves	$137,074,489	$176,262,219	$170,414,897	$169,805,904	$165,499,198	$166,585,385	$166,417,910	$172,148,947	$181,088,574
Min. Ending Cash Balance	$81,516,330	$85,175,812	$88,835,856	$92,653,174	$96,634,524	$100,786,954	$105,117,816	$109,634,777	$114,345,834

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TVWD Forecast Model Summary

Table 22
Tualatin Valley Water District
Water Financial Plan
45-year Rate Revenue, Coverage, and Reserves

	FY2055	FY2056	FY2057	FY2058	FY2059	FY2060	FY2061	FY2062	FY2063
Rate Revenue Forecast									
Overall Rate Revenue Increases	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%
Prorated Percent Impact of Increase	48.46%	48.46%	48.46%	48.46%	48.46%	48.46%	48.46%	48.46%	48.46%
Internal Revenue Growth	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Revenue Before Increase	$292,859,277	$302,377,204	$312,204,463	$322,351,108	$332,827,519	$343,644,413	$354,812,857	$366,344,274	$378,250,463
Revenue from Increase	4,612,632	4,762,542	4,917,325	5,077,138	5,242,145	5,412,514	5,588,421	5,770,045	5,957,571
Total Rate Revenue	$297,471,909	$307,139,746	$317,121,787	$327,428,245	$338,069,663	$349,056,928	$360,401,278	$372,114,319	$384,208,035
Debt Service Coverage Summary									
Net Revenue *(incl. SDCs & interest earnings)*	$143,589,811	$146,525,705	$149,483,201	$152,459,848	$155,452,984	$158,459,717	$161,476,916	$164,501,195	$167,528,900
Debt Service	51,606,077	51,606,077	51,606,077	51,606,077	51,606,077	49,672,646	49,672,646	28,485,775	27,566,535
Debt Service Coverage	2.78	2.84	2.90	2.95	3.01	3.19	3.25	5.77	6.08
Cash & Investments Summary									
Beginning Reserves Balance	$129,482,496	$146,632,080	$142,863,609	$139,581,342	$137,210,596	$152,770,022	$172,775,502	$192,911,212	$235,161,088
Change in Cash Balance *(net of interest earnings)*	17,149,584	(3,768,471)	(3,282,267)	(2,370,746)	15,559,425	20,005,480	20,135,710	42,249,876	42,456,681
Ending Cash Balance	$146,632,080	$142,863,609	$139,581,342	$137,210,596	$152,770,022	$172,775,502	$192,911,212	$235,161,088	$277,617,770
Debt Service Reserve	$51,606,077	$51,606,077	$51,606,077	$51,606,077	$49,672,646	$49,672,646	$49,672,646	$27,566,535	$25,395,725
Total Year-End Reserves	$198,238,158	$194,469,687	$191,187,420	$188,816,674	$202,442,668	$222,448,148	$242,583,858	$262,727,624	$303,013,495
Min. Ending Cash Balance	$119,259,327	$124,383,956	$129,728,792	$135,303,298	$141,117,343	$147,181,221	$153,505,666	$160,101,875	$166,981,527

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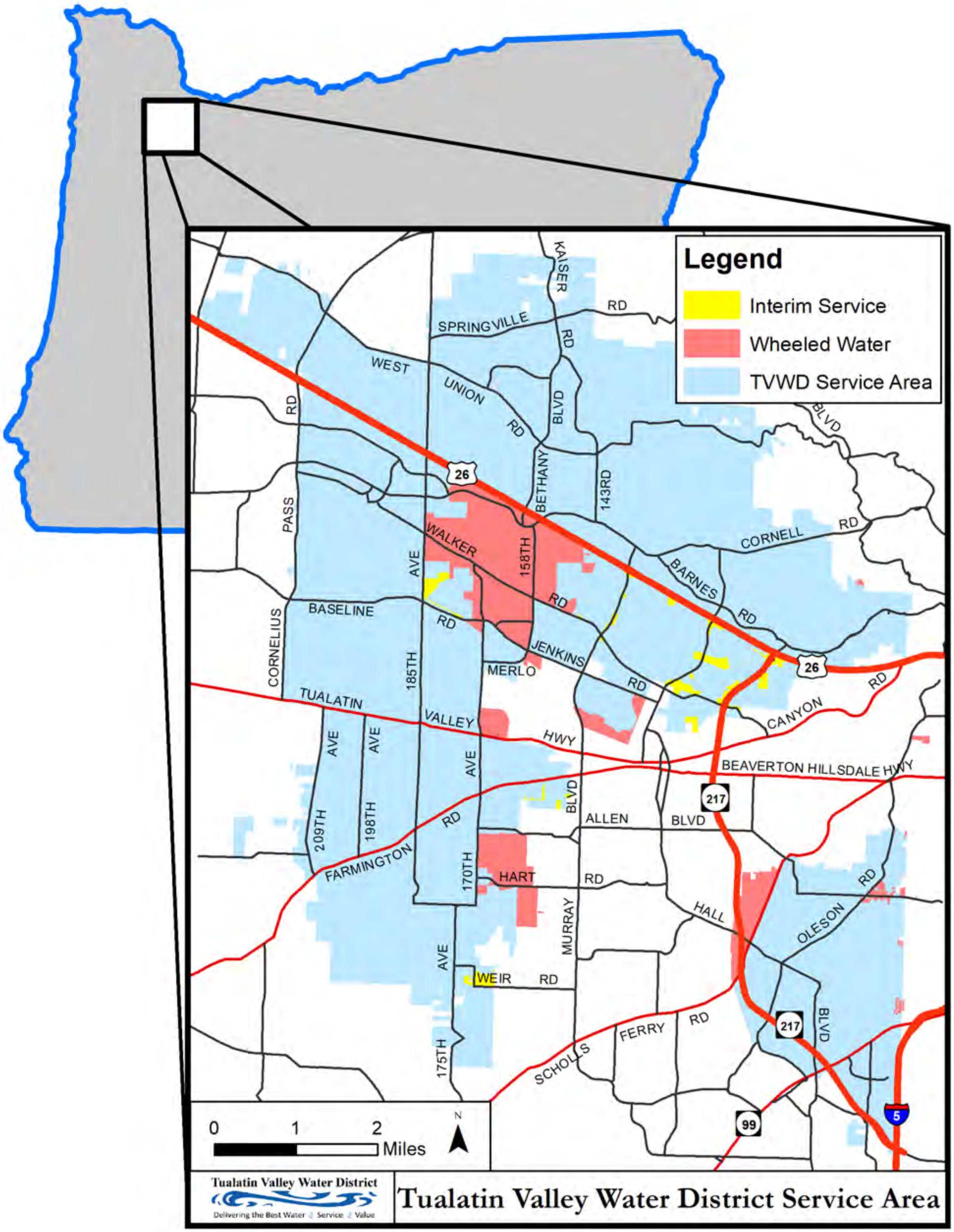
F. Map – Tualatin Valley Water District (Washington County, Oregon)



TUALATIN VALLEY
WATER DISTRICT

This is the **first** publication in a biennial series of financial communication tools:

2019-2020 Financial Plan (Issued May 2019)

2019-2021 Adopted Budget (Issued June 2019)

Comprehensive Annual Financial Report (CAFR) for the fiscal year ended June 30, 2019
(Planned for Fall 2019)

2020-2021 Financial Plan (Planned May 2020)

Comprehensive Annual Financial Report (CAFR) for the fiscal year ended June 30, 2020
(Planned for Fall 2020)

1850 SW 170th Ave., Beaverton, OR 97003
Phone: (503) 848-3000
www.TVWD.org