ATTACHMENT 2

King County

DEPARTMENT OF NATURAL RESOURCES AND PARKS
WASTEWATER TREATMENT DIVISION

Long-Term Financial & Sewer Rate Forecast Executive Summary

FINAL REPORT/AUGUST 2025

King County

RAFTELIS

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Contents

Tables

Figures

Appendices

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Introduction and Purpose

As part of the King County (County) Department of Natural Resources and Parks (DNRP), the Wastewater Treatment Division (WTD) provides wholesale wastewater treatment in the Puget Sound region. WTD's wholesale services are contracted by Local Sewer Agencies (LSAs), which include 18 cities, 15 sewer districts and the Muckleshoot Tribe located in King County, southern Snohomish County, and northern Pierce County. Transparency and appropriate validation of the methodologies used to forecast sewer rates are important considerations to WTD, its customers, and other interested stakeholders. The development of an updated comprehensive Clean Water Plan was paused so that it could better target current WTD objectives. During the time the sewer plan was being restarted as the Regional Wastewater Services Plan (RWSP), King County Council introduced two Motions that would promote long-term capital forecasting during the interim. The first focused on long-term capital forecasting methodologies used in the water sector and the report on Motion findings was presented in a final "Capital Investment Forecasting Methodologies and Recommendations" report submitted in April 2024. This Executive Summary is prepared to satisfy the requirements of the second motion, 16449, intentionally sequenced after Motion 16410 to allow the interim long term capital forecasting approaches to be included in the long term financial plan revenue requirement developed in this phase. Requirements for Motion 16449 include developing a long-term financial and rate projection that allows for scenario evaluation, incorporates stakeholder feedback, projects system revenue requirements, and are presented in this Executive summary.

WTD engaged Consor and Raftelis to perform a study of peer agency benchmarking and utility best practices that satisfied the requirements of King County Council Motion 16410 (proposed No. 2023-0257.2) which requested the WTD to perform the following (a full copy of the motion is included as Appendix A):

> *The wastewater treatment division is requested to research and identify methodologies to forecast the long-term costs of its capital improvement needs and to seek comment and an advisory recommendation on the methodologies from the metropolitan water pollution abatement advisory committee. The forecast should include, but not be limited to, the following capital improvement categories: asset management; capacity improvements including projects for population growth and those projects addressing infiltration and inflow; and known and potential regulatory requirements. It is acknowledged that any forecasts beyond the standard six-year capital improvement program will have increasing levels of uncertainty with each year beyond the six-year capital improvement program. The recommended methodologies should allow for forecast periods of up to seventy-five years. Each methodology should allow for changes in various assumptions including but not limited to growth capacity, asset lifespan, and known and projected regulatory requirements such that forecast scenarios can be compared using different assumptions.*

WTD engaged Consor, a national engineering firm with strong knowledge of WTD and the Pacific Northwest region, and Raftelis, a nationally known firm specializing in providing financial and management consulting expertise to local utilities, to provide support to perform this work. This Study was documented in two reports:

1. Information gathered from peer agencies on methods for developing short- and long-term capital investment and rate forecasts. Refer to the *Peer Agency Methods for Developing Long-term Capital Forecasts* report for the research and findings from the peer agencies review, included as Attachment C to this report.

2. The recommended methodologies for developing a long-term capital forecast presented in the *Capital Investment Forecasting Methodologies and Recommendations* report, included as Attachment D to this report.

WTD has presented preliminary findings from these previous reports to the Metropolitan Water Pollution Abatement Advisory Committee (MWPAAC) as well as the MWPAAC Asset Management Work Group (AMWG) subcommittee. MWPAAC is comprised of representatives of wholesale customer LSAs. Feedback from the MWPAAC and AMWG has been incorporated into those reports when appropriate. These reports, along with the peer agency research performed, satisfies the requirements of Motion 16410.
The purpose of the completed study and this current study is to explore and recommend long-term forecasting approaches that WTD can use while working to complete the RWSP. The approaches will help develop a clearer picture of the infrastructure needs for a highly complex system that will inform WTD's Capital Improvement Program (CIP), which is a significant driver of sewer rates. Some infrastructure needs are easier to define and predict than others, and reliable approaches to projecting capital needs vary depending on the type of facility or asset. Specifically, long-term asset management and asset renewal needs are simpler to forecast based on existing system asset records (install date, useful life, etc.) and can effectively be forecast for longer periods of time. Capital needs to support system expansion/capacity requirements and regulatory obligations require more complex engineering and planning efforts to accurately predict.

The purpose of this report is to provide a holistic review of the rate, financial and capital forecasting efforts that WTD has recently completed which supports their ability to develop long-term revenue requirement, rate and capital investment forecasts. Additionally, we will demonstrate how developing revenue requirements is accomplished through WTD's rate-setting approach and process. This report will demonstrate that WTD has satisfactorily completed the requirements of County Council Motion 16449 (proposed No. 2023-0308.1) that requested the WTD to perform the following (a full copy of the motion is included as Appendix B):

i) The wastewater treatment division is requested to develop and maintain a long-term financial and sewer rate forecast.
ii) The wastewater treatment division is requested to seek comments from ratepayers and other stakeholders and advisors, including the metropolitan water pollution abatement advisory committee.
iii) The revenue requirements should be reported in total and by categories.
iv) The long-term financial and sewer rate forecast should allow for changes in various assumptions…
v) The wastewater treatment division is requested to develop an executive summary that explains the long-term financial and sewer rate forecast, the drivers behind the rates, and changes from prior years in simple-to-understand terms.

This report will demonstrate that WTD's long-term rate model is a dynamic tool that provides a long-term revenue requirement and rate forecast as required by Motion 16449, and the forecast now extends 20 years as part of the 2026 Sewer Rate Proposal process. The development of the long-term capital forecasting Tool is an interim enhancement to one of the key inputs for the rate model and bridges the period until the RWSP update is completed. The rate model is a decision support tool for understanding the impacts of RWSP scenarios/alternatives and will facilitate proactive discussions of RWSP scenarios with members of MWPAAC, RWQC, and County Council.

Summary of Previous Studies

WTD is committed to the continuous improvement of how it forecasts and develops wastewater rates and charges with the objective of promoting transparency, predictability, and stakeholder support. Consistent focus from internal management has improved WTD's resources and processes that support the rate setting process. Additionally, WTD regularly engages with industry experts to provide additional experience and expertise on specific focus areas. The recent efforts that help support WTD's completion of Motion 16449 are further described in this section.

WTD Rate Model Development

In 2020, WTD engaged Raftelis to develop a financial capability assessment and affordability analysis related to ongoing negotiations between King County, the U.S. Department of Justice, the United States Environmental Protection Agency (the "EPA"), and Washington Department of Ecology ("Ecology") related to modifying their consent decree. A robust financial planning and rate model (Rate Model) was developed as part of this engagement because the anticipated sewer rate is an essential element for understanding how future investments will impact a customer's ability to afford service.

The Rate Model is a complex spreadsheet tool that was built using Microsoft Excel and allows for the evaluation of various assumptions and scenarios while indicating a sewer rate that promotes the key fiscal policies and requirements of the enterprise. Developing a realistic projection of enterprise revenue requirements is critical to producing the primary output of the Rate Model, which is a recommended sewer rate.

To accomplish the goal of developing revenue requirements and an appropriate sewer rate, the Rate Model is based on key inputs from WTD, including:

- Customer account information: as a wholesale service provider, WTD has relatively few direct customers. However, they provide wastewater service to over 775,000 residential customer equivalents through the 34 member cities and agencies.
- Operating and maintenance (O&M) costs across WTD: this includes salaries and wages for personnel, other personnel overhead and benefits, chemicals, energy, other materials and supplies, contracted and professional services, and other costs needed for the day-to-day operation of the wastewater system.
- Existing long-term debt obligations: The WTD enterprise has approximately $3.5 billion in outstanding long-term debt obligations. The annual principal and interest payments associated with these payments is a key factor in future costs.
- Planned capital improvement program (CIP) needs: capital investments that are driven by regulations, asset management, renewal and replacement, and system expansion all impact the future sewer rates and their financing is included in the Rate Model. This involves identification of cash v. debt-funding for projects.
- Other miscellaneous system revenues: while WTD generates the majority of its annual revenue through the monthly sewer rate, significant revenue is received from other miscellaneous sources. This includes a projection of capacity charge revenues driven by growth and new connections to the system. Other miscellaneous revenue sources include the industrial waste program, resource recovery sales and septic charges, among others.

- Maintaining cash reserves is an essential component of the financial forecast. The beginning and ending balances of the system reserves funds are included and forecast based on projected system cashflows.

Identification of System Revenue Requirements

Revenue requirements are the summation of current operating expenses, annual debt service payments, annual cash-financed capital improvements, and any allowances for complying with financial metric policies and targets. Identifying the current revenue requirement for the sewer system is a relatively straightforward process that relies heavily on the adopted budget, outstanding debt obligations, and near-term capital projects. Projecting revenue requirements over time requires the utility to be thoughtful about how operating costs will change over time due to inflationary pressures, material and supply cost increases, and changes to how the system is operated. Additionally, long-term capital improvement needs and how these projects will likely be financed plays a major component in the identification of long-term revenue requirements. A diagram of this process is presented in Figure 1 below. The rate model examines each of these elements and can evaluate various scenarios of each.

The figure presented in Figure 1 begins with the financial plan inputs, including the capital plan. For WTD, the primary source for the capital plan will be the updated RWSP once it is completed.

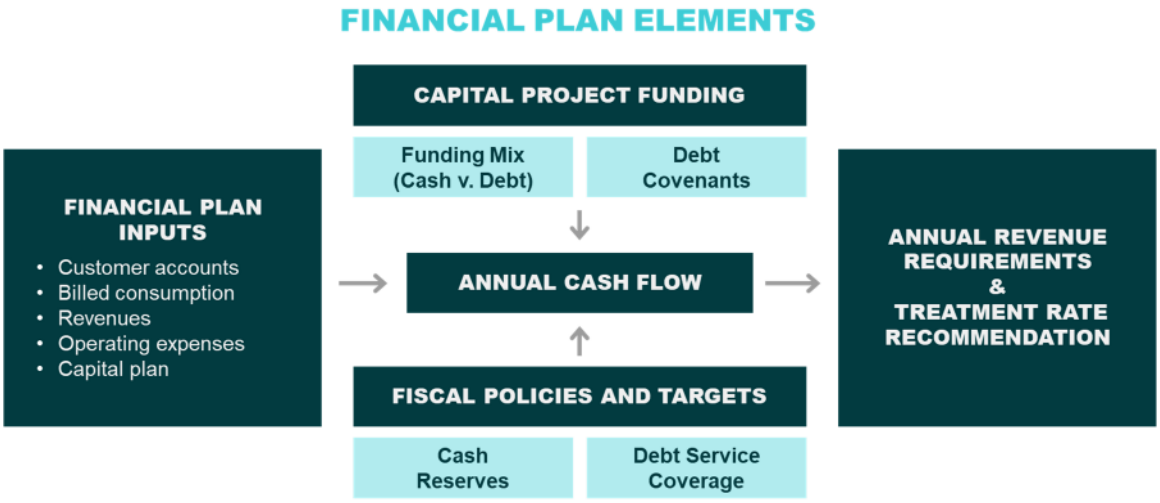


Figure 1. Identifying Revenue Requirements

System Operating Expenses

The primary function of WTD is to build, operate and maintain a wastewater treatment and resource recovery system to serve partner agencies within its service area. Operating costs include salaries for staff, materials and supplies for operating the plants, electricity and utilities, and contractual services for things like solids disposal, engineering, and other professional services. The rate model projects operating costs throughout the forecast based on historical cost escalation trends, known and expected changes for the future, and common inflationary factors. These inflation factors can be modified to evaluate and model a range of options. An example of the factors is detailed and described in the 2026 Sewer Rate Technical Memorandum (Figure 31 on page 38).

Capital Expenditures & Long-Term Debt

The expansive infrastructure needs of WTD have been well-documented in previous reports and studies. As the regional service provider, WTD has an extensive system that needs to be maintained, rehabilitated, and upgraded to comply with new regulations, support capacity expansion to serve growth, and allow for the continued delivery of safe and reliable service. The rate model must integrate the projected capital needs to develop a financing plan that balances cash and debt funding of the program.

The primary source for future capital improvement needs has been WTD's approved CIP which is distilled from more comprehensive RWSP collection system improvement, treatment, and conceptual planning needs that align with the 10-year period being evaluated. The recommended long-term forecasting approaches outlined in response to Motion 16410 provide an interim result for long-term capital planning until the updated RWSP is complete, which will become the source for long-term capital investments.

The CIP identifies specific projects and the timing of capital expenditures that are needed across WTD's capital portfolio. WTD has a robust, existing capital planning process that produces the CIP forecast each year based on a prioritization of projects that will provide for continued and sustained provision of reliable services throughout the region. Beyond the CIP, the 20-year projection of capital investment is developed using the same process, incorporating identified conceptual projects when available and informed allowances where specifics are not yet defined. Each project in the CIP is categorized into one of the portfolios and the CIP also includes long-term placeholders for each portfolio. The portfolio categories include:

Asset Management, Plants	Capacity Improvement	Planning & Administration	Regulatory
Asset Management, Conveyance	Resource Recovery	Operational Enhancement	Resiliency

As shown in the 2026 Sewer Rate Proposal Memorandum, the CIP includes major projects for improvements at the wastewater treatment plants (WWTP)and throughout the conveyance system. Additionally, projects needed for compliance with the combined sewer overflow consent decree, near-term nutrient reduction optimization (first permit cycle), asset management priorities, and capacity expansion are included in the rate model. The rate model recognizes that capital delivery often lags relative to the planned spending due to contracting, staffing, permitting, easement acquisition, and other issues. As such, a schedule risk adjustment is applied to the project costs in the first four years of the forecast to produce a revised capital improvement spending. This schedule risk adjustment is based on historical capital delivery performance and informed by known initiatives that WTD is deploying to improve project through-put.

CIP Financing Plan

Identification of the project needs is just the first step in developing an annual revenue requirement, as shown in Figure 1. The capital financing plan identifies the funding sources of the net annual capital investment needs, specifically how much of the project needs will be funded with cash or debt. Due to the significant investments that are required to support these capital improvements, WTD must utilize long-term debt to finance many of the projects. This allows a utility to leverage its revenue stream and for future customers to pay for the system that benefits them. WTD has traditionally relied mostly on revenue bonds when borrowing for capital projects. The WTD debt portfolio is large and complex (over $3.5 billion in outstanding debt), with

Parity and Junior Lien indebtedness, variable rate bonds, interim financing through a commercial paper program, and low-interest rate loans from the state and federal government.

The rate model includes a capital funding module that identifies the financing sources that will support the overall capital needs of the system. State Revolving Fund (SRF) and Water Infrastructure Financing Improvement Act (WIFIA) loans that have been awarded to specific capital projects are identified to reflect those unique debt terms. The total project cost needs are then recovered through a combination of cash and revenue bond debt based on meeting WTD's depreciation-based cash-funding target and a minimum debt service coverage of 1.40x, which contribute to maintaining system financial performance and meeting key metrics that support strong credit ratings. All of this information results in a projection of future annual cash funded spending and debt service requirements which are key elements of the annual revenue requirement.

Long-Term Indebtedness Summary

As mentioned previously, WTD has a large outstanding debt portfolio related to system improvements that have been completed historically. The rate model includes a module that tracks and forecast annual payments related to each type of debt the system holds: revenue bonds, general obligation backed revenue bonds, variable rate debt, SRF and WIFIA loans, and interim financing obligations. As these existing debt obligations are paid down over time, the projected new debt that will finance the CIP is added to yield the total annual forecast of system debt service. Figure 2 presents a summary of the total system outstanding debt from the 2026 Sewer Rate Proposal Memorandum (Figure 13 on page 19).

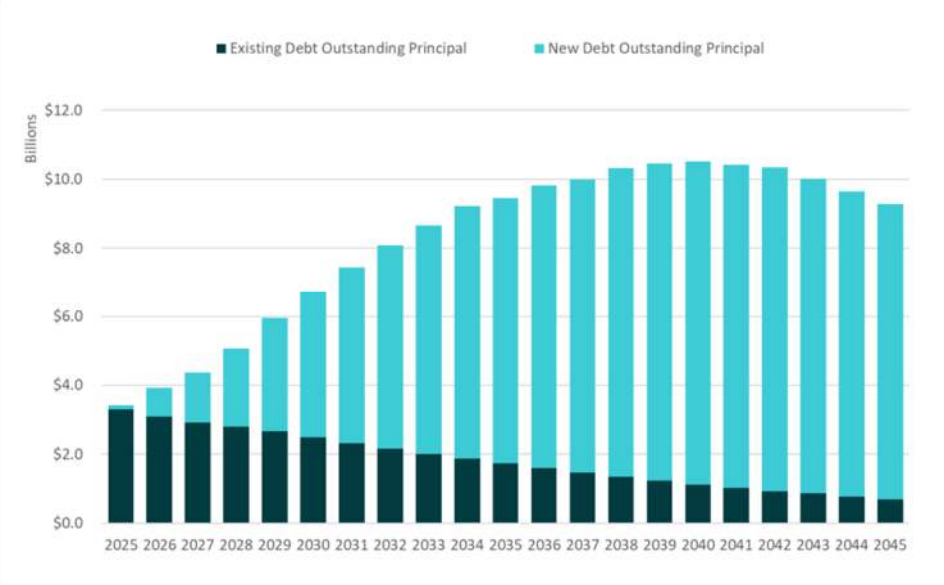


Figure 2. Long-term Outstanding Debt

Financial Policy Requirements

The final component of developing an annual revenue requirement is to ensure the projected rates and charges will generate system revenues that maintain key financial metrics. These include the cash test and the debt service coverage ratio test.

Cash Test
As an enterprise fund, WTD functions as a self-supporting entity within the overall King County organization. The cash test is a measure of the annual revenue received by the enterprise compared against the system's revenue requirements to ensure this self-sufficiency is maintained. The test considers the system revenues generated from rates, charges, and other miscellaneous sources compared to the total revenue requirements including operating expenditures, debt service, cash capital expenditures, and reserve contribution requirements in order to maintain minimum target balances.

Debt Service Coverage
In addition to cash reserves, maintaining healthy debt service coverage ratios is important when borrowing money, especially revenue bonds. Debt service coverage refers to the cushion available once annual revenues are used to pay operating costs and before making debt service coverage payments. Having higher coverage provides a utility's creditors with assurance that even if unexpected operational issues occur, the utility will have sufficient revenue to repay its obligations as planned. The rate model and financial plan maintains the MWPAAC-recommended minimum all-in debt coverage target of 1.40x.

These cash and debt service coverage tests are used when establishing future revenue requirements and rates, but are not a fixed requirement solely driving any rate increase. Rather they are taken together with the overall system needs to develop a stable financial plan that achieves the targets over many years. The rate model allows WTD to evaluate various capital financing scenarios across these critical metrics.

Model Sensitivity and Outputs

Each of the key inputs to revenue requirements listed above has an impact to the future sewer rates that will support WTD financial policies for annual revenue sufficiency, debt service coverage ratios, and cash reserves. Additionally, the assumptions that are used to forecast each of these key inputs throughout a projection period can materially impact the results. Generally, WTD uses conservative assumptions for forecasting future operating and capital costs; however, the Rate Model allows for these assumptions to be tested against historical trends and economic indicators.

Utility rate and financial planning models commonly have projection periods of up to five years. Sometimes, ten-year financial planning and rate forecasts are prepared but they are seldom used for short-term decision making and rate setting. The WTD Rate Model was developed with the capability to forecast WTD revenues, expenses, and rates for a projection period of 40 years to support the recommendations from the Clean Water Plan. However, the focus and reliability of the projections is much shorter due to the speculative nature of a long-term forecast. The assumptions used to forecast key inputs have substantial opportunities to misrepresent what may happen as the duration from present day increases. The updated RWSP will provide specific project needs that will yield a more reliable long-term forecast once it is complete. The Rate Model can be modified to produce financial forecasts of up to 75 years; however, a forecast of this duration should not be used for any activity other than macro analyses and big-picture evaluations of future needs.

Phase 1 of Long-term Capital Forecasting Project

Benchmarking peer utilities

In March 2024, Raftelis and Consor conducted research to gather information about peer agency methods for developing long-term capital investment and rate forecasts. Research included reviewing publicly available

documents and interviewing representatives from select peer agencies. An initial list of 12 potential peer utilities was selected to research by examining their long-term planning and capital investment approaches and durations. Information was obtained from publicly available sources and used by the project team to draw comparisons to WTD. The team used this information to select 4 of the 12 agencies for more detailed research. The benchmarking findings are presented in the full report included as Appendix C.

It is important to clarify the various types of planning that utilities perform and how they relate to rate setting. All major utilities develop long-range system plans (often called their "master plan") that forecast future capacity requirements, regulatory requirements, asset renewal needs, etc. and the projects that are needed to respond to these pressures. These are the highest-level plan that identifies a loose roadmap for planning system infrastructure needs and often forecast needs over a twenty year (or similar) horizon. The system master plan is used to drive shorter-term capital improvement plans which are often five to ten years in length. The CIP identifies specific projects that the utility will execute to support the master plan and the timing for their delivery. A financing plan is developed for the projects in the CIP and this drives short-term revenue requirement needs by identifying the amount of cash-funded and debt-funding that will be needed. Motion 16449 requires a forecast of system revenue requirements.

None of the 12 peer utilities benchmarked had performed a long-range capital planning or forecasts for 75 years. This doesn't mean that utilities are not performing forecasting for that length of time. The AMWG noted previously that some LSAs in the working group have forecasted asset management needs out as far as 100 years using remaining useful life and other assumptions. A projection of asset management needs over a long-term planning horizon can identify investment spikes and is a valuable input to inform a CIP and the ultimate revenue requirement needs (performed through subsequent efforts), but this is not a projection of revenue requirements over a 100-year period.

A common element identified with all four peer utilities was the prioritized list of projects identified in their long-term planning were translated into short-term capital budgets (~5 years) and long-term capital plans (~10-20 years) by balancing:

1. **System needs and risk-based priorities**. Projects were prioritized and ranked based on addressing risk of failure, consequence of failure, and immediate and long-term regulatory requirements. Each peer utility developed specific project ranking criteria for selecting the priority and timing of their projects.

2. **Financial and rates implications**. Each peer utility identified numerous projects and associated costs that exceeded the financial capabilities of the utility's ratepayers and their governing body's willingness to increase rates.

3. **Capital delivery & project staffing considerations**. The annual CIP spending and 5- to 10-year capital budgets forecasting were selected to be realistic and fit within the utility's capital delivery capabilities and available staffing. If increased capital delivery to meet annual CIP spending targets was identified, the peers evaluated their current capital delivery processes and staffing, identified improvements and limitations, and implemented changes to meet their capital delivery targets.

For the long-range capital program forecasting, it was found the peer utilities developed projects and the associated capital cost estimates in four primary stages for capital forecasting, as described below. Additional

details specific to each category of Asset Renewal/Replacement, Growth, Consent Decree/Integrated Watershed Plan (IWM) Plan, New Regulations, Emerging Contaminants, and Climate change can be found in the Peer Review Report.

- Years 1 – 5: Specific asset management and new infrastructure projects primarily based on risk scoring with accurate cost estimates were developed and adjusted as needed to fit within spending limitations. Staffing and capital delivery needs were also considered for the immediate next five years and beyond to ensure the cash flow spending projections could be realistically achieved.

- Years 6 – 10: Specific asset management and new infrastructure projects scopes primarily based on risk scoring. Costs were less specific and defined, with added cost contingencies, because projects are likely to change or receive modifications. Consent Decree required costs were based on the long-term control plan or integrated watershed plan and cost estimates defined with appropriate contingencies for the implementation years. Rate forecasts were generally not performed or appropriately qualified as subject to change, because of the cost uncertainties.

- Years 11 – 20: Some projects such as sewer or equipment asset renewal/replacement could be defined based on risk scores. Historical costs were used for estimating the asset renewal/replacement projects' future costs. Consent Decree required costs were based on the long-term control plan or integrated watershed plan and cost estimates defined with appropriate contingencies for the implementation years. Other projects identified to address items, such as new regulations, emerging contaminants and climate change, were included, but cost estimates were generally based on high level planning estimates and assumptions. Costs were noted to be order of magnitude and subject to large changes. Where possible climate change impacts, such as sea level rise, were estimated and design criteria developed to incorporate into future applicable asset renewal and replacement projects at the WWTPs, remote facilities and outfalls.

- Years 20+: Some projects such as sewer or equipment asset renewal/replacement could be defined based on risk scores, and historical costs used for estimating those asset renewal/replacement future costs. Other projects such as additional consent decree costs, new regulations, emerging contaminants, and climate change were included as order of magnitude costs. Historical costs were used where available, such as dollars per overflow gallon reduced, for estimating further potential overflow reductions, but detailed projects and cost estimates were not performed. Placeholder cost allowances based on limited information were used for new regulations, emerging contaminants, and climate change impacts.

WTD has a strong foundation in capital planning and rate forecasting that is driven by their position as the Puget Sound region's largest wastewater treatment service provider. WTD maintains a strong understanding of the infrastructure needs that will keep the system in good working condition. WTD completed a self-assessment describing their current methods for determining capital projects for short- and long-term capital forecasts. In general, WTD already employs many best practices related to identifying and prioritizing capital projects and has projects and initiatives underway to address several areas for improvement. The details of WTD's self-assessment summarized by portfolio category are included in Appendix D as part of the *Capital Investment Forecasting Methodologies and Recommendations* report.

Engagement with MWPACC

On October 3, 2023, WTD and Raftelis met with the MWPACC Asset Management Working Group (AMWG) to discuss and seek feedback on the peer review findings on short-term and long-term capital planning. A summary presentation to the AMWG was provided on the peer research completed at that time. The key items discussed were:

1. Common elements included by the peers when developing long-range capital plans based on best practices included:
    - Asset management
    - Pollution abatement
    - Future growth
    - Green energy/renewables
    - Climate change/level of service
    - Project considerations (prioritization, lifecycle costs, coordination with other utilities)
2. Statistical system and financial data on 12 peer agencies for use in selecting 5 agencies for more detailed review.
3. Length of capital program and projects planning based on the initial research of peer utilities, which ranged from 20 to 50 years.
4. More detailed findings from 5 peer utilities
5. Next Steps for the project

On December 13, 2023, WTD and Raftelis met with MWPACC to discuss and seek feedback on the results of the peer review and utility best practices findings for the recommended short-term and long-term capital planning methodologies. A summary presentation to MWPACC was provided and the key items discussed were:

1. Peer agencies are doing long-term capital forecasting – generally 30-40 years into the future. Only forecasting rates for typically 5-years due to uncertainties.
2. No peers are performing 75-year, long-range capital planning or revenue requirement forecasts.
3. Can generally be of value to forecast capital costs to 20-40 years depending on available data & cost assumptions. Asset management costs can be forecasted longer than 40 years depending on data and assumptions.
4. Methods for developing projects and forecasting costs is unique to each project category, i.e., 1) Asset Renewal/Replacement – Sewers/Conveyance, 2) Asset Renewal/Replacement – WWTP/Remote Facilities, 3) New Infrastructure: Consent Decree/IWM Plan, 4) New Infrastructure: Growth, 5) New Regulations – i.e., Nutrients, PFAS, Biosolids, 6) Emerging Contaminants – i.e., Pharmaceuticals, Endocrine Disruptors, etc., 7) Climate Change, and 8) Operational Enhancements – residuals upgrades, energy recovery, etc. Generally 1 to 2 recommended methods for developing CIP budgets for each category of projects were identified.
5. Long-term capital forecasting is a balance of 1) system asset needs and risk-based priorities, 2) financial capability and affordability, and 3) available resources to deliver the projects and spend the capital funds. There will likely be more project needs and costs than financial rates and capital delivery capabilities can support in any given year. Therefore, it is essential that multiple capital forecast scenarios are developed. Capital forecasts are meant to inform, not dictate, a specific required capital investment and be balanced with all three elements.

Feedback received from MWPAAC noted that while affordability, resource and staffing constraints are an element of rate setting, the fiscal resources needed to operate and fund a sustainable system should first be identified as most expenditures related to capital investment are not discretionary. Furthermore, MWPAAC noted it is crucial to understand what the true capital program needs are prior to assessing what can be accomplished with the available resources and policy requirements. An unconstrained view is necessary to provide policymakers with an evaluation of the costs and benefits of addressing the resource constraints.

Long-term Capital Planning Tool Overview

A long-term capital planning forecast tool (Tool) was developed that incorporates WTD data and current CIP information, the recommended forecast methodologies, and outputs that will integrate with WTD's long-term rate model. The purpose of this tool is to enhance WTD's current processes and planning efforts and to be a decision-support tool for evaluating the current and long-term capital investment needs of the system, particularly while the RWSP update is being completed. As described in the peer benchmarking report and in the recommended methodologies, developing a forecast of longer than 10-20 years is an imprecise endeavor. As such, the Tool includes the capability to modify key variables and assumptions that lead to changes in the overall long-term capital needs; specific project requirements are not identified beyond the current CIP planning period.

The Tool functions using two main inputs, the current CIP and 20-year projection of capital projects developed and maintained by WTD staff, and the register (accounting records) of assets currently in service throughout the system. The CIP identifies specific projects and the timing of capital expenditures that are needed across WTD's planning portfolios according to the process previously described on page 8 of this Executive Summary (the Capital Expenditures & Long Term Debt subsection of the WTD Rate Model section).
The asset register is a report pulled from the financial and accounting system that is used in developing WTD's financial statements (long-term asset values, annual depreciation, etc.). This list contains approximately 3,300 specific assets throughout the system and includes things like conveyance mains, treatment plant components, lift stations, land, buildings, equipment, etc. Data included in this table includes the original cost of each asset, the date it was placed in service, its useful life (for accounting purposes), and is assigned to a major asset category and asset subcategory. The asset details are used to develop a long-term (75-year) asset replacement forecast by considering the original cost of the asset, the projected year when that asset will reach the end of its useful life (and subsequent future intervals over the full forecast period), and an adjustment of the cost of the asset to account for inflation. The Tool allows users to modify the useful life of asset categories recognizing that many assets can provide adequate and reliable service for longer periods of time than the accounting useful life may suggest. The Tool uses an engineering estimated useful life as the default length of time before an asset will need to be replaced. Non-depreciable assets, such as land and easements, are excluded from the replacement forecast.

The utility best practices identified in this study recommend not using remaining useful life and replacement costs as the primary source when developing long-term capital plans. The best practices for determining long-term asset renewal and replacement costs are to:

A. Confirm the existing baseline of assets needing R/R and available costs, available BRE scores (Extreme, High, Medium, Low).

B. Complete AM cost forecasts in phases with the available BRE data and then refine and adjust as additional data is collected recognizing that BRE data is typically collected over time and no utility has a full data set starting out.

C. Use WTD recent project bid data, available design cost estimates, and regional project cost data to support the development of expenditures for assets by class and prioritized by BRE scores. Also include cost estimates for gathering the missing data and add appropriate cost contingencies clearly defined based on the types and number of unknowns.

D. Confirm short-term and develop long-term forecast of expenditures based on the BRE scores (focus on Extreme assets first, then High-risk assets), desired level of service, available cost data and defined assumptions (to address missing data and add cost contingencies for amount of unknowns).

WTD has ongoing efforts to enhance their asset management and condition assessment practices that will allow these best practices to be used in the future and this data can be added to the Tool.

The Tool has three primary steps in developing a long-term capital plan for the WTD system:

1) Identify specific projects from the CIP and capital projects forecast as the foundation. WTD's existing process of prioritizing and scheduling projects to meet various objectives and constraints makes this data the most reliable for short-term spending needs. This process is also consistent with the recommended approach.
   a) Long-term placeholders from the 20-year capital projects list are identified and excluded to avoid overstating future needs given the subsequent steps.
   b) The average annual spend by portfolio category is determined based on these actual needs and is included as a potential long-term forecasting alternative.
2) Asset replacement costs based on the projection developed using accounting records are incorporated starting in year 10 of the long-term forecast.
3) Additional spending for key portfolio placeholders is incorporated based on user input. This includes allowances for recurring planning studies and other anticipated major projects that may not yet be included in the CIP. The planning studies are crucial as non-asset management capital needs cannot reliably be forecast without evaluation and input from engineering and planning groups.
4) Future replacement costs of new assets being constructed as part of the approved CIP (i.e. specific projects identified in years 1-10) are incorporated for long-term planning and replacement. This is specific to non-asset management portfolio projects only; future asset management costs are reflected in the costs from step 2.

The information from these three components is summarized for each portfolio category to develop a long-term capital planning forecast. Each portfolio's forecast can then be modified to evaluate the sensitivity to key variables and assumptions, as well as the impact of potential future capital needs. Some of the key variables that users of the Tool can adjust include whether to use spending over the first 10-years of the forecast (driven by the current CIP) as a good indicator for long-term needs, modifying the historical spend rate up or down, or overriding the spending to align with new estimates.

The Tool produces an overall projection of system capital improvement needs over the next 75 years. This information is presented in a series of tabular and graphical summaries that demonstrate the primary portfolios and specific capital projects that will drive system spending and revenue requirements in the future.

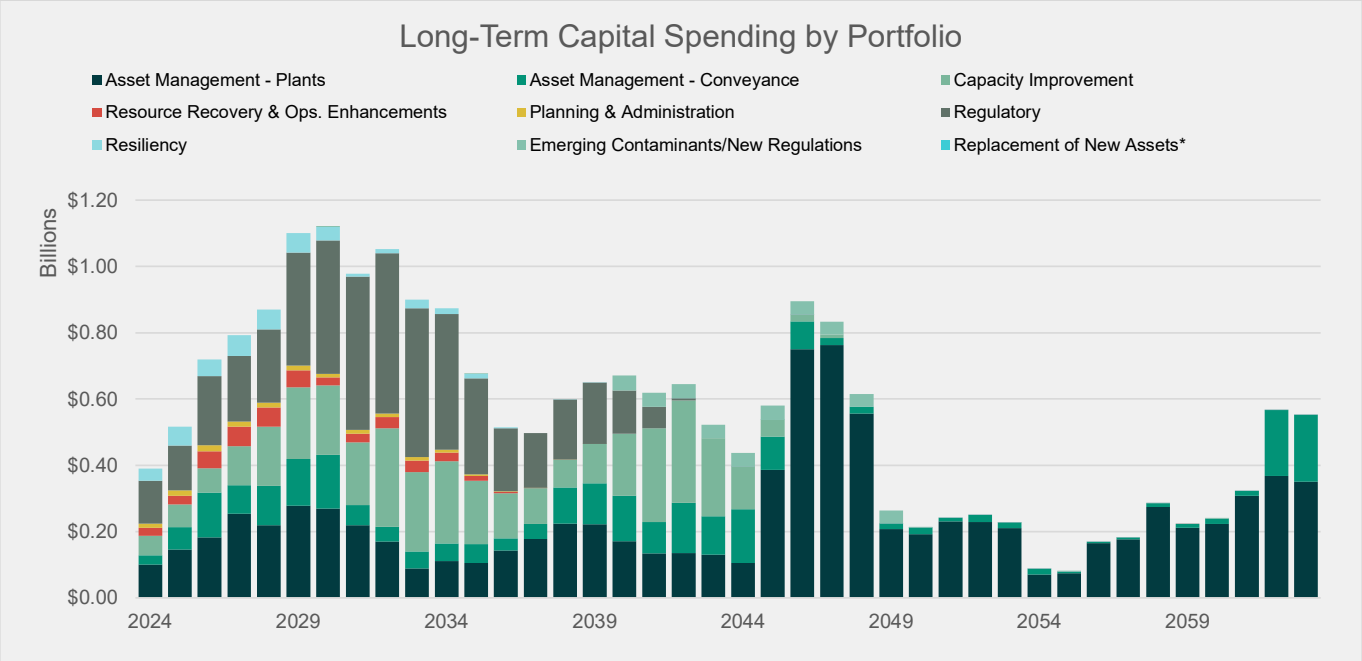
The sample table below shows the overall spending produced by the Tool. The data is grouped in 10-year increments to provide a high-level estimate of periods of higher capital investment needs. The costs presented below are for illustrative purposes only, and not specific capital investments to be made by WTD.

Table 1. Long-term Capital Spending Needs, by Portfolio ($ millions)

Long Term Capital Needs by Portfolio ($M)	Rank	2024-2033	2034-2043	2044-2053	2054-2063	2064-2073	2074-2083	2084-2093	2094-2103	Total
Asset Management - Plants	1	$ 1,925.57	$ 1,555.64	$ 3,631.37	$ 2,222.10	$ 2,370.56	$ 963.67	$ 2,510.42	$ 2,347.86	$17,527.19
Asset Management - Conveyance	3	897.22	922.41	472.43	486.12	585.77	1,040.46	2,168.56	351.37	6,924.34
Capacity Improvement	5	1,645.32	1,897.50	211.47	-	-	-	-	-	3,754.29
Resource Recovery & Operational Enhancement	8	390.63	47.63	-	-	-	-	-	-	438.26
Planning & Administration	9	136.42	15.24	-	-	-	-	-	-	151.66
Regulatory	4	3,031.39	1,621.80	2.50	2.50	2.50	2.50	2.50	1.50	4,667.19
Resiliency	6	411.98	34.59	2.50	2.50	2.50	2.50	2.50	1.50	460.57
Emerging Contaminants/New Regulations	7	2.50	173.58	239.78	5.00	5.00	5.00	5.00	2.50	438.36
Replacement of New Assets*	2	-	-	-	-	5,738.89	4,483.77	607.24	8.52	10,838.42
Total Long Term Capital Needs - Current Dollars		**$ 8,441.02**	**$ 6,268.40**	**$ 4,560.05**	**$ 2,718.21**	**$ 8,705.23**	**$ 6,497.90**	**$ 5,296.22**	**$ 2,713.25**	**$45,200.28**
% of Total		18.7%	13.9%	10.1%	6.0%	19.3%	14.4%	11.7%	6.0%	100.0%

The graphical output is presented in the following figure and has been limited to annual needs over the next 40 years. In this example, long-term asset management costs are the key driver for needs into the future. It is expected that additional estimated needs for other portfolios will be needed, but as described are driven from engineering and planning analyses and they have not been included in this example. These projects will more clearly be identified at the completion of the RWSP update.

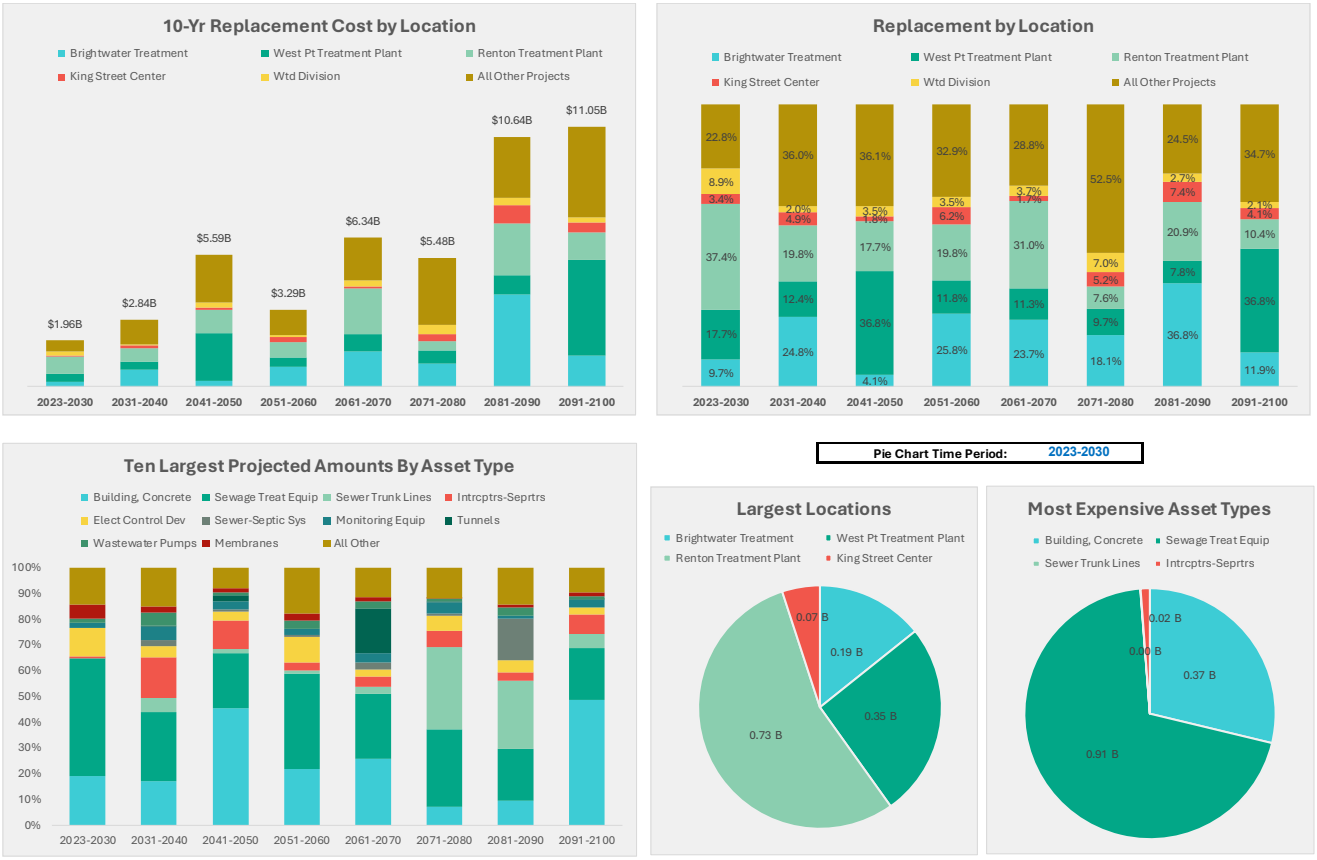
Figure 3. Annual Long-term Capital Spending Needs, by Portfolio



The costs of maintaining and reinvesting in the extensive infrastructure that WTD owns and operates to provide regional wastewater service is a major driver of long-term capital planning needs. The asset replacement forecast is summarized into several easy-to-use outputs that help identify when major investments can be expected, and which facilities will require the most investment. Figure 4 presents this

information. Because the needs vary over time, the two pie charts in the bottom right of this figure do adjust to examine future 10-year periods.

Figure 4. Summary of Asset Replacement Forecast Needs



WTD is currently working with an engineering consultant to perform a condition assessment across its entire asset base and the results of this effort will be used to refine and improve the projections of the Tool. For example, the condition assessment may suggest that pipes or pumping equipment installed in the 1980's is in excellent condition, and we can expect an extra 25% functional life when compared to the accounting useful life. In this example, the Tool can override the accounting useful life to defer when replacement of assets is needed. In a similar way, any future enhancements to the existing CIP identification and prioritization process will be incorporated into the Tool.

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Long-Term Capital Planning and Rates

WTD performs a comprehensive sewer rate and financial forecast update biennially as part of the budget and rate proposal process. The key inputs, assumptions, and recommendations from this effort are documented in a publicly available report (the "Technical Memorandum" or "Tech Memo") that is submitted to King County Council and shared with MWPAAC and the RWQC. As described above, WTD's long-term rate model is a dynamic tool that provides a long-term revenue requirement and rate forecast as required by Motion 16449.

The model considers the number of customers currently connected to the regional system, potential future growth, current and forecasted operating expenses, capital investment needs and financing considerations, and continued compliance with key financial metrics and targets. These key inputs are presented in the Sewer Rate Proposal that is shared with MWPAAC, RWQC, and other interested parties. The 2026 Sewer Rate Proposal is an example of how WTD has developed and maintains a long-term revenue requirement and rate forecast. The development of the long-term capital forecasting Tool is an enhancement to one of the key inputs for the rate model. Capital planning scenarios developed using the Tool can be evaluated for their impact to the overall enterprise financial plan using the rate model. Eventually, the capital needs included in the comprehensive RWSP update that is currently underway will become the "official" long-term capital forecast once it is completed.

The key recommendation from this annual process is a forecast of the rate increases that will be needed to support the long-term financial health of the enterprise. With the extension of the forecast to a 20-year period, the 2026 Sewer Rate Proposal clearly demonstrates the current projection of WTD sewer rates through 2045. Figure 5 presents the sewer rate path as presented in a March 6, 2025 presentation to the Rates & Finance Subcommittee of MWPAAC.

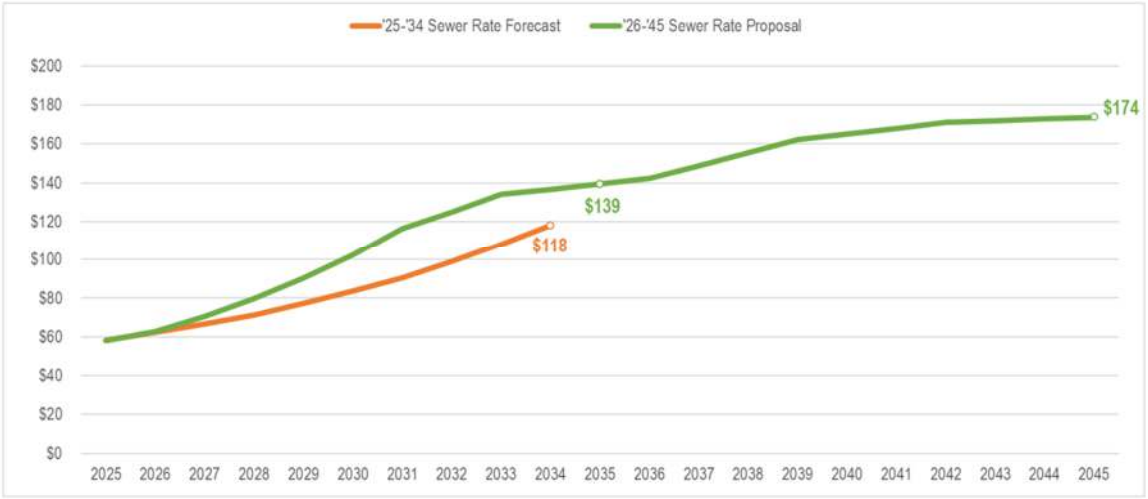

Figure 5. 2026 Sewer Rate Proposal: Sewer Rate Path

This forecast provides the member cities and agencies with visibility that can be used for their internal planning. Throughout the water sector, recent increases in the costs of materials and supplies, as well as the costs for construction have exceeded expectations and the forecast accounts for these changes. While every

forecast has some degree of uncertainty, WTD's regular review and update of the financial plan will lessen the potential for unexpected or large variances in the forecasted rate increases. Additionally, the annual rate process provides opportunities for MWPAAC/RWQC to provide comments and input on WTD's objectives and approach. The Sewer Rate Proposal process clearly identifies the major capital projects that are driving long-term revenue requirements, with tables and charts that demonstrate the changes from the prior year, as shown in Figure 6.

	Category	Adopted 2025 Forecast ('24-'34)	2026 Prop. First Decade ('25-'35)	2026 Prop. Second Decade ('36-'45)
Mouth of the Duwamish CSO	Regulatory	$1,980m	$3,370m	-
Additional Nitrogen Optimization Investments	Regulatory	-	350m	-
Other Newly Identified Investments	AM and other categories	-	155m	250m
Current Projects and Programs	All Categories	4,230m	4,830m	
Conceptual Projects Budgeted in 2025	All Categories	320m	370m	
Conceptual Projects	All Categories	4,000m	2,300m	4,800m
Forecast Deferred by Accomplishment Rate Approach		-2,290m		
Allowances for long-term category projections	All Categories	-	-	3,150m
Total		**$8,240m**	**$11,375m**	**$8,200m**

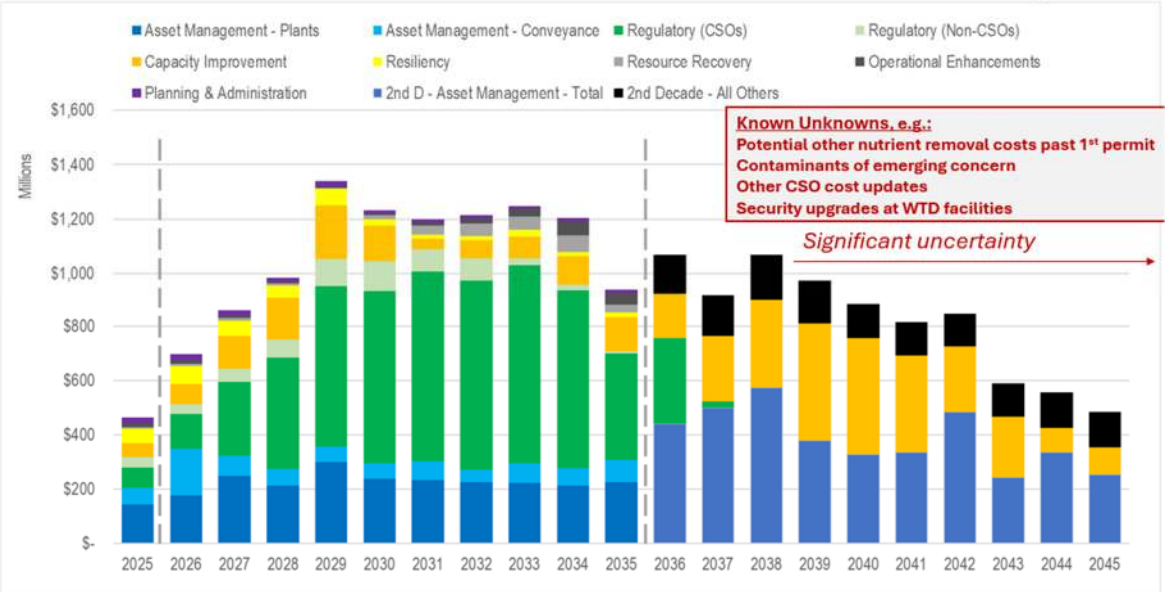

Figure 6. 2026 Sewer Rate Proposal: Capital Needs

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Conclusion

WTD's long-term rate model is a dynamic tool that provides a long-term revenue requirement and rate forecast as required by Motion 16449, and the forecast now extends 20 years as part of the 2026 Sewer Rate Proposal process. This provides visibility to the potential sewer rates that is among the longest forecasts found in any of the peer agencies. The development of the long-term capital forecasting Tool is an interim enhancement to one of the key inputs for the rate model. The capital needs included in the comprehensive RWSP update that is currently underway will become the "official" long-term capital forecast once it is completed. Additionally, the asset management needs that are estimated in the Tool provide WTD with long-term visibility on a major component of the capital plan. The asset management needs will be improved as WTD continues to develop a mature and robust asset management program.

Previous work by WTD staff to develop a complex, WTD enterprise rate model that determines annual revenue requirements for a long-term planning horizon will enable WTD to support current capital planning scenario evaluation. The rate model will be a decision support tool for understanding the impacts of RWSP scenarios/alternatives and will facilitate proactive discussions of RWSP scenarios with members of MWPAAC, RWQC, and County Council.