2022 Cash-Funded Capital Policy Review for 2024 Sewer Rate Setting

Summary

The King County Wastewater Treatment Division (WTD) prepares the sewer rate (the rate) proposal, and related 10-year forecast, based on a set of financial policies and practices that guide a consistent approach. One primary guiding practice is the percentage of cash funding for WTD's Capital Improvement Program (CIP) expenditures. Since 2017, after receiving input from the Metropolitan Water Pollution Abatement Advisory Committee (MWPAAC), the current practice of funding 40% of CIP with cash has been implemented.

The 40% cash-funding level is intended to limit WTD's debt growth and strengthen its financial capability to confront future capital investments. Maintaining 40% cash funding for the most recent CIP forecast[1] will require steep rate increases especially in outer years, raising affordability concerns. Having cash-funding requirements tied to the CIP forecast also adds volatility to the rate, which makes rate management and smoothing[2] more difficult.

WTD reviewed several alternatives and has three recommendations related to cash funding policy:

1) Implement a cash-funding approach that uses annual depreciation[3], including estimated future depreciation, as a basis for capital cash-funding requirements. This would provide a more stable basis for forecasting while supporting WTD's financial health and helping address affordability
2) Maintain the 1.40x Debt Service Coverage (DSC)[4] ratio as a minimum to help maintain overall financial health
3) Conduct a comprehensive policy review, with contract agency participation, every five years

Table 1 and Chart 1 compare the 10-year rate forecast of current practice to the recommended policy. There you can see the results including a reduced sewer rate while maintaining the DSC coverage throughout the period. If the recommendation is approved, WTD can implement the change starting in 2023 for the 2024 rate.

[1] King County Council adopted 10-year (2023-2032) rate forecast (Ordinance 19447)
[2] Rate smoothing is the averaging mechanism used to make rate changes more gradual. More information on this is provided in the Defining Concepts section of the paper
[3] Depreciation is an accounting concept that divides an asset's cost by its estimated useful life. Depreciation acts as a proxy for the investments needed to maintain current levels of service, through asset replacement
[4] Debt Service Coverage (DSC) is the other financial measure used in developing the rate forecast. More information on this is provided in the Defining Concepts section of the paper

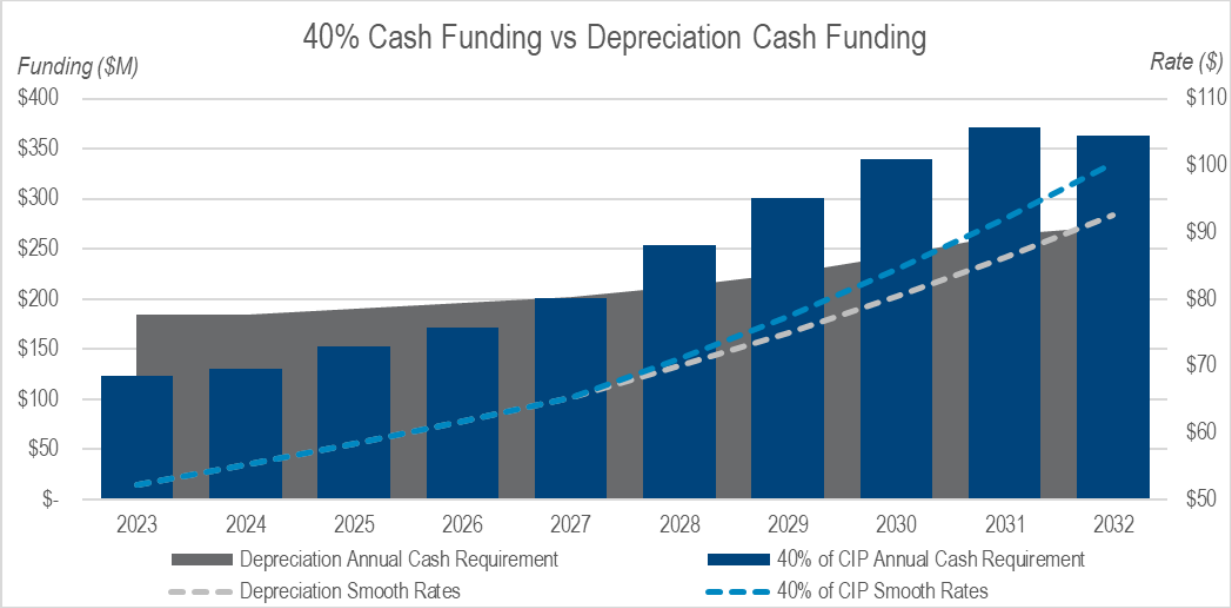
Recommendation Visuals

Table 1: Current Practice vs. Recommended Policy

Current Practice										
40% Cash Funding	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**
Rate Increase %	**5.75%**	5.75%	5.75%	5.75%	5.75%	9.00%	9.00%	9.00%	9.00%	9.00%
Monthly Sewer Rate	**$52.11**	$55.11	$58.28	$61.64	$65.19	$71.06	$77.46	$84.44	$92.04	$100.33
All-In Debt Service Coverage	1.59x	1.63x	1.64x	1.65x	1.67x	1.69x	1.72x	1.70x	1.70x	1.71x
Cash Funding									10-Year Average	40.2%

Recommended Policy										
Depreciation Cash Funding	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**
Rate Increase %	**5.75%**	5.75%	5.75%	5.75%	5.75%	7.25%	7.25%	7.25%	7.25%	7.25%
Monthly Sewer Rate	**$52.11**	$55.11	$58.28	$61.64	$65.19	$69.92	$74.99	$80.43	$86.27	$92.53
All-In Debt Service Coverage	1.59x	1.63x	1.64x	1.65x	1.67x	1.66x	1.65x	1.59x	1.56x	1.53x
Cash Funding									10-Year Average	36.4%

Chart 1: Current Practice vs. Recommended Policy[5]



[5] Annual cash funding requirements shown before smoothing. Chart illustrates the higher variability in establishing cash funding based on 40% of CIP, when compared to the depreciation method. In practice, annual cash requirements are distributed across the 10-year forecast to facilitate gradual changes in the rate. The effect of smoothing can be seen in the projected rate

Background

Historically, the sewer rate was set based on achieving the minimum DSC ratio required by bond ordinance: 1.15x on all debt. In 2013, a MWPAAC Debt Review Committee convened in response to concerns over the amount of debt issued to finance Brightwater and the expected new debt for future capital projects. In a December 2015 letter, MWPAAC recommended increasing the DSC minimum from 1.15x to 1.40x to reduce growth in WTD's debt balance.

> *"It should be recognized that increasing debt service coverage to 140% by 2030 is not intended to improve bond ratings, but rather to continue to strengthen WTD's financial capability to respond to future regulatory requirements and other capital needs."*

In response to MWPAAC's recommendations, WTD implemented the practice of funding 40% of forecasted capital expenditures through cash; this was considered more conservative than 1.40x DSC. The 40% cash-funding practice has been in effect since the King County Council adoption of the 2017 rate.

Issues

There are two primary issues driving the assessment of alternatives to the current practice:

(1) Projected significant rate increases and impacts to customer affordability

(2) Increasingly difficult to achieve a smoothed rate pattern over multiple years given a significantly increasing capital program

Impact on Rate Increases

Affordability is a concern in our region, and rate increases in the 10-year forecast are projected to rise significantly, especially the last five years of the forecast. In general, funding through higher cash percentages raises near-term rates but reduces overall costs due to the avoided interest on debt. In contrast, higher debt percentages may reduce near-term rates but result in higher long-term costs due to larger interest payments. Cash-funding 40% of a growing CIP requires large revenue increases as rate increases are proportionate to CIP growth.

Linking Cash Funding and CIP Expenditures

The current practice of linking cash funding directly to annual CIP expenditures creates financial management challenges. Gradual (predictable) rate increases are more difficult to accomplish when the rate has high sensitivity[6] to changes in CIP. Rate sensitivity introduces rate volatility, and under current practices WTD does not have a mechanism to control rate change due to significant CIP changes. WTD does have the ability to distribute the change over a 10-year period through smoothing.

Policy Alternatives

WTD reviewed six alternatives, including the current practice of funding 40% of capital expenditures with cash. A summary of those findings can be found in Table 2 below. A more detailed review is available in the Capital Program Cash-funding Policy Alternatives Analysis section of this paper.

[6] Sensitivity is how much something will change based on some other variable

Table 2: Summary of Cash-Funding Policy Alternatives at end of 10 Year Rate Forecast

Alternatives*	Cash Funding Average	Sewer Rate in 2032	Reduces Sewer Rate Increases	Meets DSC 1.40x	Change in Total Interest Expense	Reduces Volatility
1. 40% of Total CIP (Current Practice)	40.2%	$100.33	N/A	Yes (1.59x - 1.72x)	N/A	N/A
2. 30% of Total CIP	30.3%	$87.23	Yes	No (1.37x - 1.60x)	$0.6 billion	No
3. Repair & Replacement at 100%	40.2%	$100.33	No	Yes (1.59x - 1.72x)	$0.0 billion	Some
4. Repair & Replacement at 80%	32.1%	$89.30	Yes	Yes (1.43x - 1.60x)	$0.5 billion	Some
5. Original Cost Depreciation	36.4%	$92.53	Yes	Yes (1.53x - 1.67x)	$0.2 billion	Yes
6. Replacement Cost Depreciation	69.4%	$129.35	No	Yes (1.66x - 2.80x)	($1.7 billion)	Yes

**Alternatives compared to current 10 year sewer rate forecast at year 10*

Recommendation

Of the six reviewed alternatives, WTD recommends Alternative 5: Original Cost Depreciation. This methodology is widely accepted in the industry, reduces the volatility in rate forecasting, and achieves lower rate increases given projected CIP forecasts. The resulting average cash-funding ratio would be equivalent to 36% and DSC would remain above 1.40x.

WTD also recommends comprehensive policy reviews every five years with participation from interested parties including contract agencies; the next review would be 2027 and could result in further adjustments reflected in the 2029 rate-setting process. In the five years since the implementation of the 2017 cash-funding practice, experience with evolving regulatory and economic conditions has resulted in lessons learned and an opportunity to consider a new path that better serves the agency and ratepayers.

Supporting Analysis

Defining Concepts

Debt Service Coverage

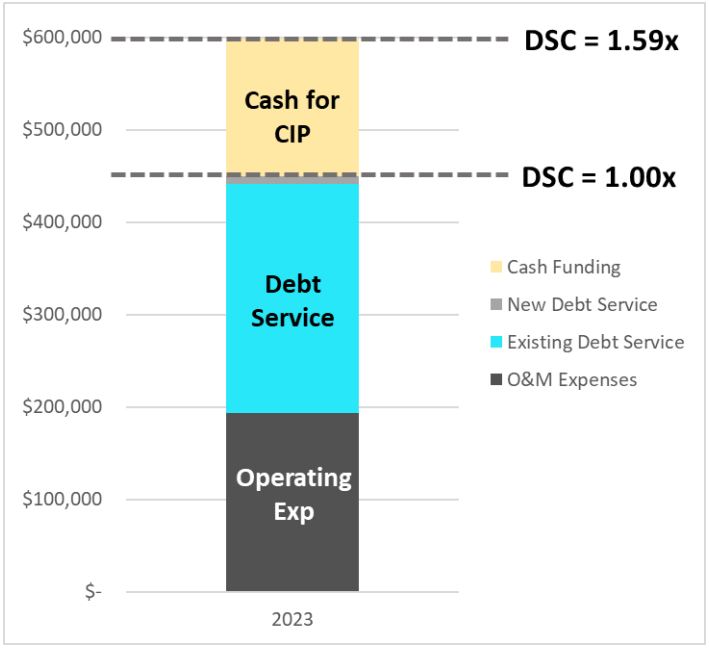
There is a direct relationship between the revenue generated to fund capital expenditures with cash and the resulting annual debt-service coverage. Debt-service coverage is of strong interest to rating agencies and WTD bond holders who ask the question: "How many times can net revenue cover the debt service I am owed?" It's a simple formula:

$$\frac{\textit{(Operating Revenues – Operating Expenses)}}{\textit{Debt Service}}$$

If the answer is 1, then net revenue covers debt service one time. This means WTD is generating only enough net revenue to pay for debt service, but there is no cushion, which elevates the risk that the agency will not be able to repay the debt in any given year. WTD's bond ordinances and the covenants with bond holders establish a minimum DSC of 1.15x for all debt service. Investors and rating agencies prefer DSC that is higher than the required minimum level. The median reports generated by the rating agencies indicate that most utilities achieve ratios higher than required minimums.

Using the most recent 10-year forecast as an example, in Chart 2 the yellow portion of the annual revenue requirement represents the revenue generated to cash-fund a portion of capital expenditures. This outcome could be based on either a DSC target (in this case, that would be 1.59x) or a cash-funding target for the capital program that, in turn, generates this DSC outcome. Any cash generated increases the revenue cushion calculated by the DSC metric. If the cash-funded capital is increased for 2023, the debt-service coverage result would increase. In the example below, the cushion represents 159% of the debt service (blue), so that revenue after paying operating expenses can cover debt service 1.59 times.

Chart 2: Coverage Components



Cash-Funded Capital

Utilities must determine how much cash to generate from annual revenue to fund capital expenditures. The remaining capital costs are financed by borrowing — issuing debt in the capital markets or securing loans from the federal or state government.

There is a tradeoff when choosing the balance between cash funding and debt financing. Cash funding means using revenue generated the same year the capital spending takes place, which can lead to higher rates in the near term and potentially uneven rate forecasts. Debt financing spreads capital cost funding over a longer period of time and, to some degree, matches annual capital payments to the useful life of the assets. It also distributes costs across existing and future benefiting ratepayers. However, issuing debt in place of cash funding results in higher total revenue needed and higher resulting rates over the long term, since the utility needs to repay both principal and interest (usually over 30 years). The higher the cash funding, the lower the growth in debt balances, future interest costs, and the sewer rate over time.

Rating agencies and bond holders assess agency financial risk in a way that favors a balanced approach to the use of debt. Overreliance on debt financing can impact an agency's bond rating, and there are several approaches to determining the optimal cash and debt financing strategy.

Rate Smoothing

Smoothing out rate increases is a common practice among utilities that develop multiyear rate forecasts. It is intended to avoid large, one-time rate adjustments and to provide a more even rate path. Rate smoothing implies over (or under) collecting revenue in a given year to be used (or compensated) in a later year. The practice is similar to averaging the rate increases over a given period.

Rate smoothing requires the use of reserves or debt to manage fluctuations in annual revenue requirements. A utility that operates close to its minimum DSC will usually require the use of reserves for rate-smoothing purposes. WTD comfortably complies with its DSC minimums and sets rates using an average cash-funding target over a 10-year period. This provides the flexibility to adjust the amount of debt issued at any given year to balance its revenue requirements, provided its DSC stays above 1.40x. If needed, WTD can use its Rate Stabilization Reserve to supplement revenues and avoid dipping below DSC minimums.[7]

Industry and Rating Agency Perspectives on Cash Policy

Industry Rates and Finance Reference Material

Industry organizations provide generalized guidance around cash-funding capital programs. The Water Environment Federation (WEF) produces *Financing and Charges for Wastewater Systems*, which states:

> *"It is common practice for municipally owned utilities to finance normal annual replacements and improvements from current revenues."*

WEF notes that a more detailed discussion of funding and financing alternatives can be found in other industry publications and specifically references the American Water Works Association (AWWA).

[7] Rate Stabilization Reserve authorized uses are described in Ordinance 19447, Section 1.C

AWWA's *M1 Principles of Water Rates, Fees, and Charges* refers to cash-funding in the context of public utilities in the following terms:

> *"It is common practice for utilities to finance a portion of its capital improvement program from annual revenues . . . Also, utilities may use current revenue to fund a portion of major capital replacements and improvements"*

As a reference for their practical examples, AWWA assumes that a utility's annual repair and replacement spending levels equal 2% of their total gross capital assets, which is an approximation for depreciation. Depreciation can also act as a proxy for estimating costs associated with replacements and improvements. It is WTD's interpretation that, as a common industry practice, depreciation should be used as a minimum for cash contributions to capital.

Rating Agencies

Cash contributions to capital are an important metric for rating agencies. Debt-to-asset metrics and debt-service coverage are used on agency scorecards as a proxy for how much a given capital program is funded through cash. The scoring metrics illustrate a preference for more cash-funding (lower debt-to-asset levels and high debt-service coverage ratios). WTD rating history can be seen in Table 3.

Table 3: DSC & Ratings History

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
WTD All-in DSC Ratio	1.24x	1.33x	1.30x	1.32x	1.28x	1.33x	1.33x	1.36x	1.41x	1.51x	1.49x	1.58x	1.56x	1.57x
S&P Rating	AA+	AA+	AA+	AA+	AA+	AA+	AA+	AA+	AA+	AA+	AA+	AA+	AA+	AA+
Moody's Rating	Aa3	Aa3	Aa2	Aa2	Aa2	Aa2	Aa2	Aa2	Aa2	Aa1	Aa1	Aa1	Aa1	Aa1

Standard & Poor's

Standard & Poor's (S&P) provides criteria to assess debt to capitalization across different sewer agencies: the best score (1) is achieved with debt-to-capitalization ratio of up to 20% and the worst score (6) has a value greater than 80%. When S&P reaffirmed WTD's AA+ long-term rating in December 2021, it mentioned this indebtedness metric as a point of concern:

> *"Extremely high existing leverage (as measured by the system's 96% debt-to-capitalization ratio, as of Dec. 31, 2020) further tempered by the WTD's $2.3 billion CIP, which we understand will require approximately $1.5 billion of additional debt through 2027 (and does not include any potential costs related to the proposed nutrient removal permit)."*

Other points of reference can be found in S&P's *Ratings Median Data Report* (2019), which indicates the median leverage levels for Northwest Utilities (30%) and National "Very Large" Utilities (47%).

Moody's

In Moody's ratings scorecard, the annual DSC is the highest-weighted factor (15% of total scoring), along with "days cash on hand" (also 15%) a measure of liquidity. In its latest rating report that affirmed WTD's Aa1 long-term rating, Moody's described WTD's debt service coverage as satisfactory but below the sector median, which stood at 2.10x. Moody's median DSC tracking shows a 30% increase between 2009 and 2019 across the industry, whereas WTD presented a slower 19% increase. This increase in WTD's DSC has been most pronounced since 2016, coinciding with the implementation of the 40% cash-funding approach.

Moody's scorecard can be found in Table 4[8]. Cash-funding policy impacts 25% of the score (Annual DSC and Debt to Operating Revenues).

Table 4: Moody's Scorecard

EXHIBIT 1

Municipal Utility Scorecard Factors

Broad Scorecard Factors	Factor Weighting	Subfactors	Subfactor Weighting
System Characteristics	30%	Asset Condition (Remaining Useful Life)	10%
		Service Area Wealth (Median Family Income)	12.5%
		System Size (O&M)	7.5%
Financial Strength	40%	Annual Debt Service Coverage	15%
		Days Cash on Hand	15%
		Debt to Operating Revenues	10%
Management	20%	Rate Management	10%
		Regulatory Compliance and Capital Planning	10%
Legal Provisions	10%	Rate Covenant	5%
		Debt Service Reserve Requirement	5%
Total	100%	Total	100%

Cash-Funding Policy Industry Benchmarking

The policy survey summarized in Table 5 is a collection of readily available information found on agency websites, including ordinances, rate studies, and other published sources. The survey focused on two distinct groups: A sample of WTD's "peer" agencies across the country and the local sewer agencies that WTD serves.

Cash-funding policies vary considerably. Some, such as the Massachusetts Water Resources Authority and the City of Portland Bureau of Environmental Services, rely on DSC. Others, such as Northeast Ohio Regional Sewer District and East Bay Municipal Utility District, have established minimum cash-funding. As a result, their existing targets for forecasting purposes are usually higher. The minimums range between 15% and 35% cash-funding targets for capital, compared to WTD's current use of 40%.

The key takeaway from reviewing these peer agencies' cash-funding policies is that they cannot be evaluated separately from their other financial policies and from each agency's current financial context. Some agencies might have lower cash-funding targets, but higher debt-service coverage policies, which act instead as the constraint for rate setting. Others already have low levels of indebtedness, measured by debt-to-asset ratios, and can therefore afford to cash-fund a smaller proportion of their capital programs. Lastly, most agencies incorporate some degree of flexibility with their policies establishing ranges or minimums that are easily exceeded.

[8] Moody's: *Rating Methodology: US Municipal Utility Revenue Debt* - Page 6 of their 2017 (revised from 2014)

Table 5: Peer Agency Survey

Agency Name	Agency Type	CIP Cash Funding	Debt Service Coverage
Local Sewer Agencies Sample			
Seattle Public Utilities	Water & Sewer, Retail	At least 25% Debt-to-asset below 70%	Target 1.80x
City of Bellevue	Water & Sewer, Retail	100% target	2.00x if there is debt
Woodinville Water District	Water & Sewer, Retail	Annual Depreciation	Target 1.50x
Regional Sample			
Discovery Clean Water Alliance (DCWA)	Sewer, Wholesale	Repair & Replacement Projects Debt-to-asset below 60%	Minimum 1.25x Projected 4.49x
LOTT Clean Water Alliance	Sewer, Wholesale	Asset Management Projects At least 15% (projected 34%)	No minimum or target Actual 2.16x
City of Tacoma Wastewater Management	Sewer, Retail	A result of the coverage policy	Target 1.70x
City of Portland (OR) Bureau of Environmental Services	Sewer, Retail	A result of the coverage policy	Target 1.30x
City of Vancouver Public Works	Water & Sewer, Retail	As much pay-go as possible Currently 100% for sewer projects	No debt
National Sample			
Milwaukee Metropolitan Sewerage District	Sewer, Wholesale	25% target, but funded primarily through property taxes	Debt limit instead of coverage: below 2.5% of property values
Sacramento Regional County Sanitation District	Sewer, Retail	At least 25%	Target 1.20x
Hampton Roads Sanitation District	Sewer, Retail	At least 15%	Target 1.40x
LA County Sanitation Districts	Sewer, Retail	Debt-to-asset below 50%	Target 1.30x
Northeast Ohio Regional Sewer District	Sewer, Retail	25% target, current projection 42% Debt-to-asset below 60%	Target 1.50x
Metropolitan Sewer District of Greater Cincinnati	Sewer, Retail		Minimum 1.25x Actual 1.77x
Massachusetts Water Resources Authority	Water & Sewer, Wholesale	A result of the coverage policy	Target 1.10x
Philadelphia Water Department	Water & Sewer, Retail & Wholesale	20% target, current projection 11%	Minimum 1.00x Projected 1.04x
Orange Water and Sewer Authority	Water & Sewer, Retail	At least 30% Debt-to-asset below 50%	Target 2.00x
San Francisco Public Utilities Commission	Water, Sewer, and Power, Retail	Between 15% to 30%	Target 1.35x
District of Columbia Water and Sewer Authority	Water & Sewer, Retail	A result of the coverage policy	Target 1.60x
East Bay Municipal Utility District	Water & Sewer, Retail	At least 35%	Target 1.60x
Boston Water and Sewer Commission	Water & Sewer, Retail	Renewal & Replacements Projects	Minimum 1.25x Actual 1.48x

Capital Program Cash-Funding Policy Alternatives Analysis

A collection of industry reference material, rating agency scoring criteria, and current financial policies of peer public utilities was reviewed to inform the selection and evaluation of cash-funding policy alternatives.

Cash-funding approaches fall into three general categories:

> (A) Based on a percentage of capital expenditures, generally intended to limit the utility's resulting debt ratios
>
> (B) Anchored in concepts related to asset renewal/replacement, system reinvestment, or annual consumption of assets by current ratepayers
>
> (C) No cash-funding policy or approach — defaulting to cash generated from meeting debt-service coverage minimums or targets

The existing WTD practice and alternative percentages, such as 30% cash-funding rather than 40%, would fall into category A. The MWPAAC 2022 rate letter requested evaluation of cash-funding alternatives, such as a depreciation-anchored approach, which would fall into category B. While there are utilities that default to category C, this issue paper is an evaluation of policy options, and reverting to no cash-funding policy (pre-2017 WTD) is not listed as an alternative evaluated at this time.

Cash-funding policies answer two questions:

- Basis for cash requirements
- Percent of basis to target

The category A approach can be set to explicitly generate any level of cash-funding desired. Approaches under Category B will result in different cash-funding outcomes, depending on the alternative selected.

Selected Cash-Funding Policy Alternatives:

Category A

Category A includes two alternatives that apply a percentage of cash-funding to the overall annual CIP expenditures. The first alternative is the current practice of applying a percentage of 40% to the annual CIP expenditures. The second alternative applies a reduced percentage of 30% to the annual CIP expenditures.

> **Alternative 1 - 40% cash-funding of total CIP**
>
> **Alternative 2 - 30% cash-funding of total CIP**

Category B

Category B uses industry approaches that link cash-funding to the aging of system assets.

> **Alternative 3 - Repair & Replacement CIP at 100%**: fully cash-funding WTD's Asset Management[9] portfolio category every year

[9] Asset management is a capital portfolio category with projects intended to maintain a level of service through the rehabilitation or replacement of critical assets

Alternative 4 - Repair & Replacement CIP at 80%: cash-funding 80% of WTD's Asset Management portfolio category every year

Alternative 5 - Original Cost Depreciation: cash-funding an amount equivalent to WTD's forecasted annual depreciation. This includes Original Cost (existing depreciation schedules) from accounting records, an estimate for Construction Work-in-Progress (CWIP)[10], and projected new depreciation from future capital spending

Alternative 6 - Replacement Cost Depreciation (also referred to as a Renewal Rate Basis): a method similar to original cost depreciation, but capital assets costs are escalated to today's dollars from the year they were placed into service

Criteria for Evaluation

In order to systematically compare the different alternatives and propose a recommendation, four criteria were used. The criteria reflect priorities and goals expressed by WTD's interested parties.

1. Reduction of future sewer rate increases
2. Reduction in the impact of CIP volatility to annual cash-funding requirements
3. Responsiveness to MWPAAC concerns regarding debt accumulation
4. Risk to performance against bond rating agency metrics and potential effects on King County sewer bond ratings

Summary of Outcomes

Table 6 below presents a summary of key financial outcomes for each policy alternative evaluated.

All the alternatives evaluated reduce or maintain future sewer rate increases in the 10-year adopted rate forecast, except for replacement cost depreciation. It is important to note that, under the current approach of applying a percentage to the CIP expenditures, any percentage less than the current 40% would produce a lower sewer rate in the 10-year forecast (i.e. 35%).

Each of the alternatives produce a 30% to 40% cash-funding range, except for the replacement cost-based approach, which is much higher. Alternatives 2, 4, and 5 would reduce projected rate increases from the adopted rate forecast level, though Alternative 2 would result in DSC declining to a level below the minimum 1.40x.

Alternatives 1 and 3 show no change to the rate increase forecast; Alternative 1 is the current approach and, in Alternative 3, repair and replacements make up 40% of the CIP[11]. With 100% cash-funded repair and replacements, cash-funding is equal to the current 40% approach.

[10] WTD projects can take up to ten years to complete. Adding depreciation on CWIP avoids significant lags in recognizing large investments in the cash-funding target.

[11] Repair and replacement capital expenditures make up the Asset Management portfolio category which is allocated 40% of total CIP spending in the adopted rate forecast.

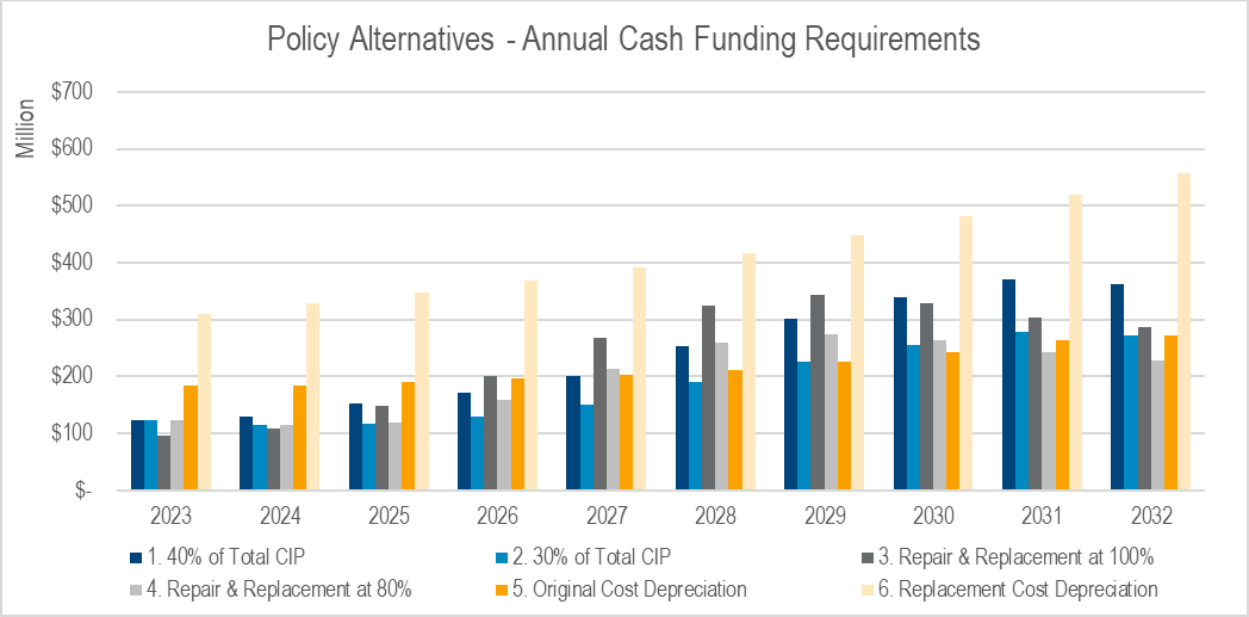
Table 6: Projected Annual and 10-Year Outcomes of Policy Alternatives

Cash Funding Alternatives	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	Total
CIP ('000s)	$ 307,113	$ 325,702	$ 380,513	$ 428,502	$ 502,666	$ 633,308	$ 751,943	$ 849,363	$ 927,513	$ 907,770	$6,014,394
1. 40% of Total CIP											
Sewer Rate	$52.11	$55.11	$58.28	$61.64	$65.19	$71.06	$77.46	$84.44	$92.04	$100.33	
Rate Increase (%)	*5.75%*	*5.75%*	*5.75%*	*5.75%*	*5.75%*	*9.00%*	*9.00%*	*9.00%*	*9.00%*	*9.00%*	
Cash Funding ('000s)	$ 149,089	$ 171,955	$ 181,259	$ 196,756	$ 213,048	$ 241,362	$ 273,324	$ 295,916	$ 329,204	$ 364,461	$2,416,375
Cash Funding Ratio (%)	*48.5%*	*52.8%*	*47.6%*	*45.9%*	*42.4%*	*38.1%*	*36.3%*	*34.8%*	*35.5%*	*40.1%*	**40.2%**
Debt Service Coverage	1.59x	1.63x	1.64x	1.65x	1.67x	1.69x	1.72x	1.70x	1.70x	1.71x	
2. 30% of Total CIP											
Sewer Rate	$51.62	$54.08	$56.65	$59.35	$62.17	$66.53	$71.19	$76.18	$81.52	$87.23	
Rate Increase (%)	*4.75%*	*4.75%*	*4.75%*	*4.75%*	*4.75%*	*7.00%*	*7.00%*	*7.00%*	*7.00%*	*7.00%*	
Cash Funding ('000s)	$ 144,621	$ 161,965	$ 164,684	$ 172,547	$ 179,876	$ 190,955	$ 201,850	$ 199,154	$ 202,521	$ 202,276	$1,820,449
Cash Funding Ratio (%)	*47.1%*	*49.7%*	*43.3%*	*40.3%*	*35.8%*	*30.2%*	*26.8%*	*23.4%*	*21.8%*	*22.3%*	**30.3%**
Debt Service Coverage	1.57x	1.60x	1.58x	1.57x	1.56x	1.54x	1.52x	1.45x	1.42x	1.37x	
3. Repair & Replacement at 100%											
Sewer Rate	$52.11	$55.11	$58.28	$61.64	$65.19	$71.06	$77.46	$84.44	$92.04	$100.33	
Rate Increase (%)	*5.75%*	*5.75%*	*5.75%*	*5.75%*	*5.75%*	*9.00%*	*9.00%*	*9.00%*	*9.00%*	*9.00%*	
Cash Funding ('000s)	$ 149,089	$ 171,955	$ 181,259	$ 196,756	$ 213,048	$ 241,362	$ 273,324	$ 295,916	$ 329,204	$ 364,461	$2,416,375
Cash Funding Ratio (%)	*48.5%*	*52.8%*	*47.6%*	*45.9%*	*42.4%*	*38.1%*	*36.3%*	*34.8%*	*35.5%*	*40.1%*	**40.2%**
Debt Service Coverage	1.59x	1.63x	1.64x	1.65x	1.67x	1.69x	1.72x	1.70x	1.70x	1.71x	
4. Repair & Replacement at 80%											
Sewer Rate	$51.74	$54.33	$57.05	$59.91	$62.91	$67.48	$72.38	$77.63	$83.26	$89.30	
Rate Increase (%)	*5.00%*	*5.00%*	*5.00%*	*5.00%*	*5.00%*	*7.25%*	*7.25%*	*7.25%*	*7.25%*	*7.25%*	
Cash Funding ('000s)	$ 145,716	$ 164,390	$ 168,749	$ 178,467	$ 188,002	$ 201,768	$ 215,865	$ 216,831	$ 224,427	$ 229,142	$1,933,355
Cash Funding Ratio (%)	*47.4%*	*50.5%*	*44.3%*	*41.6%*	*37.4%*	*31.9%*	*28.7%*	*25.5%*	*24.2%*	*25.2%*	**32.1%**
Debt Service Coverage	1.57x	1.60x	1.59x	1.59x	1.59x	1.57x	1.56x	1.50x	1.46x	1.43x	
5. Original Cost Depreciation											
Sewer Rate	$52.11	$55.11	$58.28	$61.64	$65.19	$69.92	$74.99	$80.43	$86.27	$92.53	
Rate Increase (%)	*5.75%*	*5.75%*	*5.75%*	*5.75%*	*5.75%*	*7.25%*	*7.25%*	*7.25%*	*7.25%*	*7.25%*	
Cash Funding ('000s)	$ 149,089	$ 171,955	$ 181,259	$ 196,756	$ 213,048	$ 230,415	$ 248,392	$ 253,719	$ 266,154	$ 276,166	$2,186,955
Cash Funding Ratio (%)	*48.5%*	*52.8%*	*47.6%*	*45.9%*	*42.4%*	*36.4%*	*33.0%*	*29.9%*	*28.7%*	*30.4%*	**36.4%**
Debt Service Coverage	1.59x	1.63x	1.64x	1.65x	1.67x	1.66x	1.65x	1.59x	1.56x	1.53x	
6. Replacement Cost Depreciation											
Sewer Rate	$54.08	$59.36	$65.15	$71.51	$78.49	$86.74	$95.85	$105.92	$117.05	$129.35	
Rate Increase (%)	*9.75%*	*9.75%*	*9.75%*	*9.75%*	*9.75%*	*10.50%*	*10.50%*	*10.50%*	*10.50%*	*10.50%*	
Cash Funding ('000s)	$ 167,050	$ 213,137	$ 250,972	$ 300,729	$ 358,365	$ 421,568	$ 494,153	$ 564,335	$ 653,006	$ 752,738	$4,176,051
Cash Funding Ratio (%)	*54.4%*	*65.4%*	*66.0%*	*70.2%*	*71.3%*	*66.6%*	*65.7%*	*66.4%*	*70.4%*	*82.9%*	**69.4%**
Debt Service Coverage	1.66x	1.79x	1.89x	2.03x	2.19x	2.31x	2.45x	2.52x	2.66x	2.80x	

Table 7 demonstrates the pattern of funding that each policy is projected to generate. One key takeaway is that there is volatility in the alternatives that are based on cash-funding percentages that are tied to the annual CIP expenditures and, to some degree, the asset management portfolio-based target. Asset management investments taper off in the last years of the forecast to make room for significant regulatory investments—cash funding would follow this same pattern. Only the depreciation-anchored approaches have a smooth growing pattern, reflecting the continuous integration of new investments over time.

The existing approach of tying cash funding to CIP produces volatility that is smoothed by averaging the cash-funding target over the 10-year forecast. The issue with using only a moving average is that every year one value drops off and another is added; this can materially change cash funding targets between rate setting cycles. The depreciation-anchored approach has inherent stability and is not subject to the same issues of multi-year averaging dependency to achieve a smooth outcome.

Table 7: Annual Cash-Funding Patterns



Recommendation

WTD recommends the implementation of an Original Cost Depreciation cash-funding policy. This alternative reduces rate increases in the 10-year forecast, is based on a defensible rationale, and results in a more stable projected revenue requirement, even before rate-smoothing occurs.

Regardless of the selected cash-funding approach, it is prudent to maintain the 1.40x debt service coverage as a secondary rate-setting floor. This would honor MWPAAC's original recommendation in 2015 and signal to rating agencies that WTD is committed to maintaining strong financial metrics. The 1.40x coverage has been exceeded since 2016 and is projected to be achieved in all but one of the evaluated alternatives.