Memo

Date:	Tuesday, October 21, 2014
Project:	Infrastructure Financing Services: Water
To:	Toby LaFrance, John Goodrich
From:	Joe Healy
Subject:	Water Revenue Requirements Summary

Thank you for the opportunity to serve the City of Tigard (City). HDR is pleased to continue supporting the City with its water infrastructure financing needs.

Introduction to the Financial Plan Analysis

The first major task of this study was to review rate revenue scenarios that prudently fund the City's future revenue requirements under alternative capital improvements plans and cost assumptions.

HDR met at the City's offices for a financial planning workshop on September 4, 2014. During the workshop, HDR and the City analyzed all of the assumptions within the financial planning model, including capital improvements plan (CIP) costs, operations and maintenance (O&M) costs, debt service repayments, rate and non-rate revenues, system development charge (SDC) collections, reserve funds, and various assumptions around interest rates and escalation factors for future years of the projection period.

Once all of the assumptions had been reviewed and agreed to, HDR and the City calibrated the financial planning model to develop the optimal solution to meeting the City's water revenue requirements going forward. The forecast scenarios included fiscal year (FY) 2015 through FY2044[1], and examined the impacts of funding capital improvements with a mix of rate revenue, reserves, and future debt financing. By forecasting costs over an extended time-period, Tigard can anticipate and plan for significant needs in operating and capital requirements. By planning around these anticipated needs, Tigard may also minimize short-term rate impacts and overall long-term rates. Softening rate impacts was the goal of the first scenario presented in this memorandum. The two scenarios analyzed include:

1. **Smoothed Rate Impact** – This scenario is based on the City's capital projects to identify optimal amounts of new debt and rates to pay for projects while minimizing short-term rate impacts to the City's customers.
2. **One-Time Rate Hike in 2015** – The City requested an analysis of the water financial forecast given a large rate adjustment in 2015, and holding future annual rate adjustments to approximately 2% or less.

[1] In this analysis, *FY2015* represents fiscal year ending in 2015, or FY2014-15.

The scenarios presented in this memorandum are based on the agreed upon CIP assumptions, budget numbers, and collective estimates of interest rates and escalation factors. Each scenario raises sufficient rate revenue to meet the City's future revenue requirements[2], maintain prudent reserve fund balances, and achieve target debt service coverage ratios.

Overview of the Revenue Requirement Calculation

The financial plan, or revenue requirement analysis, is the first analytical step in a water rate study process. This analysis determines the overall adequacy of Tigard's water rates. From this analysis, a determination can be made as to the overall level of water rate revenue adjustment needed to provide adequate and prudent funding for both operating and capital needs. Typically, the main objective of a water financial plan is to develop a plan to meet future revenue requirements, while attempting to minimize the impacts to the City's customers. A major focus of most revenue requirement analyses (including the City's) is the funding of capital improvements.

Financial planning for utilities is based on a "cash-flow" approach, also known as the "cash basis" approach. This approach matches revenue with costs over time such that over the planning period, annual revenues will be equal to or greater than the utility's annual costs. Table 1 provides a summary of the cash basis methodology used to develop the City's water revenue requirements.

Table 1: Overview of the "Cash Basis" Revenue Requirement Methodology

+	Operations and Maintenance Costs
+	Taxes/Transfer Payments
+	Capital Projects Funded from Rates
+	Debt Service Repayments (P + I)
=	Total Revenue Requirement
–	Miscellaneous Revenues
=	Net Revenue Requirement from Rates

Each of these components is described below.

Water Revenue Requirements Assumptions

The primary financial inputs in this process were the City's accounting and billing records, capital plan, and budget. Provided below is a detailed discussion of the steps and key assumptions contained within the development of the City's water utility revenue requirement.

[2] Revenue requirements include cash-funded capital improvements, debt service, and operational expenses.

Capital Improvements

Capital improvements typically consist of large and costly additions to utility facilities that oftentimes occur infrequently and at irregular intervals. Capital improvement projects are designed to fulfill a range of needs including:

- Compliance with new state and federal regulations,
- Enhancement of the level and reliability of the service provided,
- Meet ongoing demands of system growth and economic development, and
- Replacement and refurbishment of existing system infrastructure.

Table 2 provides a summary of the City's CIP over the next seven years and totals over the 30-year projection period. In addition to the water supply costs of the Partnership, the City has a significant capital improvement program that includes water storage, pipelines, and other system improvements. All amounts include the effects of assumed cost escalation.[3] To improve visibility in years with actual expenditures, HDR shaded the zeroes in years with no projected expenditures.

Table 2: CIP Summary (millions)

	Fiscal Year Ending							2015-44
Description	2015	2016	2017	2018	2019	2020	2021	Totals
Water Meter Replacement Program	$0.2	$0.2	$0.2	$0.2	$0.2	$0.2	$0.2	$10.7
Water Main Line Oversizing	0.2	0.2	0.2	0.2	0.2	0.2	0.2	8.0
Aquifer Storage & Recovery Well #3	0.3	0.0	0.0	0.0	3.6	0.0	0.0	3.8
Lake Oswego-Tigard Water Partnership	72.8	22.9	1.3	0.0	0.0	0.0	0.0	96.9
LO-Tigard Water Partnership Internal Expenses	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.6
Water Line Replacement Program	0.1	0.1	0.1	0.2	0.2	0.2	0.2	7.5
Fire Hydrant Replacement Program	0.2	0.1	0.1	0.1	0.1	0.1	0.1	5.4
Main Street/Waterline Replacement	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1
New Water Source Systemwide Improvements	0.3	0.2	0.1	0.1	0.0	0.0	0.0	0.7
Pipeline Connecting 550 Zone to 530 Zone	0.0	0.0	0.0	0.0	2.5	0.0	0.0	2.5
Annual Fire Flow Improvement Allocation	0.1	0.1	0.1	0.1	0.1	0.1	0.1	4.8
Tigard HS Well Abandonment	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.2
Barrows/Scholls Ferry 16" Line Extensions (River Road)	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.3
Pacific Highway/Gaarde Utility Casing Bore Crossing	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.3
Cach Reservoir and Pump Station Design	0.0	0.0	0.0	1.1	0.0	5.8	6.0	13.0
550 Pressure Zone Connection to Price Reservoir	0.3	1.8	0.0	0.0	0.0	0.0	0.0	2.0
Vehicles	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.4
Totals	$75.6	$25.7	$2.1	$2.1	$6.8	$6.6	$6.9	$157.3

Debt Service Costs

The next component of Tigard's water revenue requirement is debt service. Debt service relates to the City's annual debt repayment obligations (principal and interest), incurred when capital projects are financed with long-term borrowing.

[3] Partnership project cost estimates already included assumed capital cost escalation. Tigard provided all other capital improvement plan costs using a FY2015 cost-basis. The assumed escalation rate for future costs began at 2.0% in FY2016, increasing by 0.5% annually to a maximum annual escalation rate of 4.0% in FY2020 and beyond.

Utilities frequently finance major capital improvements by issuing long-term debt for two primary reasons. First, the financial resources required for these types of projects typically exceed the utility's available resources from the normal operation of its system. Second, spreading the debt service costs for the project over the repayment period effectively spreads the financial burden of financing large improvements to both existing and future users of the system. This burden sharing allows the utility to sequence the cost of improvements with those customers using the improvements.

Existing Debt Service

Tigard is currently making repayments for two outstanding debt issues, revenue bonds issued in 2012 and ARRA debt. The City's annual debt service payments are scheduled at $4.88 million in FY2015 and FY2016, and $6.72 million annually thereafter through FY2032. The Series 2012 repayments of $6.56 million annually are scheduled through FY2043, while the final payment on the ARRA debt is FY2033.

As a part of the rate covenants associated with this outstanding debt, the City must maintain minimum debt service coverage (DSC) ratios. DSC is the ratio of the City's net revenues to its annual debt service subject to coverage requirements. With input from the City's financial advisor, HDR assumed that the City must maintain a minimum 1.15 DSC ratio if SDCs are included in the calculation of net revenues. In other words, the City's net revenue[4] must, at a minimum, exceed its annual debt service by 15%. If SDCs are excluded from the calculation of net revenue, a 1.10 DSC ratio is required.

Based on recommendations from HDR and the City's financial advisor, the City chose to set its minimum debt ratio targets higher than the minimum required. This is a matter of prudent financial policy, in which the City will strive to achieve a higher standard than the minimum requirements set forth in its bond covenants. Utilities commonly adopt higher standards to achieve better financial performance, and thereby, a higher bond rating. Additionally, by achieving target net revenue higher than its minimum requirements, the City will provide itself a degree of safety from technical default on its bonds in the case of unforeseen expenditures or revenue shortfalls in the future.

For the purposes of this analysis, the target DSC ratio is 1.40 for all years if SDCs are included in the calculation of net revenues; 1.25 for all years if SDCs are excluded from the calculation of net revenues. Based on this assumption, HDR estimates that the City will exceed the minimum requirements and meet target DSC ratios throughout the planning period.

Future Debt Service

Given the large expenditures related to the City's capital improvements program, HDR and the City anticipate the need for new debt financing in FY2015 (nearly $40 million) and FY2019 (approximately $7 million). For debt service related to future borrowing, HDR and the City assumed that future debt issues would have a 5.0% interest rate and term to coincide with the final repayment of the Series 2012 debt. HDR and the City also assumed that new debt would be subject to the same DSC covenants as the City's existing debt.

[4] Net revenue is gross revenues less operating expenses. Operating expenses do not include depreciation expense.

Total Debt Service

By combining the City's existing debt service repayments with the projected additional debt service, HDR developed estimated debt repayments. Table 3 presents the next 20 years of annual debt service for the CIP scenario presented in Table 2. Note the significant increase in FY2017. This is due to an increase in the annual repayments on the Series 2012 debt and the assumed structuring of the anticipated FY2015 debt financing. The City's financial advisor suggested that the City will structure the new debt so that they may defer principal repayments for 2 years from the time the debt is issued. Therefore, interest-only payments are projected to occur in FY2015 and FY2016, with total repayments (principal and interest) for the FY2015 debt issuance forecasted to begin in FY2017.

Table 3: Annual Debt Service

Year	Annual DS*	Year	Annual DS*
FY2015	$5.5	FY2025	$9.7
FY2016	6.8	FY2026	9.7
FY2017	9.2	FY2027	9.7
FY2018	9.2	FY2028	9.7
FY2019	9.5	FY2029	9.7
FY2020	9.7	FY2030	9.7
FY2021	9.7	FY2031	9.7
FY2022	9.7	FY2032	9.7
FY2023	9.7	FY2033	9.7
FY2024	9.7	FY2034	9.7

* Note: Projected costs rounded to millions.

Given the assumptions of this scenario, HDR and the City projected the structure of the future debt issue in a way that would provide for level annual debt repayments through FY2043 when combined with the currently scheduled repayments on existing debt.

Operations and Maintenance Costs

Tigard incurs operation and maintenance expenses (O&M) for reliable water supply resources and delivery to the City's customers. O&M costs account for most of the day-to-day expenditures for operating a water utility. O&M costs include labor, benefits, insurance, water purchases, etc. The City's budget O&M costs were used as a starting point for the O&M forecast. O&M costs were projected to escalate from FY2015 data at various annual rates, specific to line item. For planning purposes, O&M costs were accounted for during the current year and were not capitalized or amortized over an extended period of years.

HDR and the City walked through the line-item budget to identify and confirm the appropriate cost escalation rates by item. Based on the FY2015 budget assumptions and the cost escalation rates ranging from 2.5% to 4.0% annually (in most instances[5]), the City's total annual O&M costs are expected to increase from $8.4 million in FY2013 to $9.0 million in FY2016. In FY2017, the City expects a significant decrease in O&M costs as water from the Partnership replaces the City's current supply from the City of Portland.

[5] Medical benefits were projected to increase at a rate of 6.65% annually.

The annual O&M cost projection is included in Table 4. Only the first 20 years of the projection period are included. It is assumed that costs will continue escalating in future years.

Table 4: Total Annual O&M Costs (millions)

Year	Annual O&M*	Year	Annual O&M*
FY2015	$8.4	FY2025	$9.2
FY2016	9.0	FY2026	9.6
FY2017	6.9	FY2027	9.9
FY2018	7.2	FY2028	10.3
FY2019	7.4	FY2029	10.7
FY2020	7.7	FY2030	11.0
FY2021	8.0	FY2031	11.5
FY2022	8.3	FY2032	11.9
FY2023	8.6	FY2033	12.3
FY2024	8.9	FY2034	12.8

* Note: Projected costs include escalation.

Forecast of Other Revenue

The City collects other revenue that offsets the revenue needed from customer rates. Other revenue includes non-rate revenue and system development charge collections.

Non-Rate Revenue

For planning purposes, non-rate revenue includes minor amounts of miscellaneous sales and fees. Together, these line items amount to approximately $165,000 in FY2015. This amount is projected to increase by 0.3% annually thereafter.

System Development Charges

The City receives SDCs from new development. For the revenue requirements calculation, the City uses SDCs to offset capital costs, including future debt service costs when applicable. In FY2015, the City will receive approximately $944,000 from water SDCs.

For the duration of the forecast, the City and HDR forecasted future SDC collections conservatively. Future SDC collections were projected using the City's existing customer data and an assumed growth rate of 0.3% annually. Table 5 provides the projected SDC revenue.

Table 5: Total Annual SDC Revenue

Year	SDCs*	Year	SDCs*
FY2015	$944	FY2025	$824
FY2016	559	FY2026	860
FY2017	583	FY2027	898
FY2018	609	FY2028	938
FY2019	636	FY2029	979
FY2020	664	FY2030	1,023
FY2021	693	FY2031	1,068
FY2022	724	FY2032	1,115
FY2023	756	FY2033	1,164
FY2024	789	FY2034	1,215

* Note: Projected revenue rounded to thousands.

The City will collect more than the projected SDCs with the future development of River Terrace. However, until SDCs are actually collected from developers, HDR recommends that the City use the lower future SDC estimates as a matter of prudent financial planning for the purpose of funding capital projects and issuing bonds.

Interest Earnings

Interest earnings on the City's reserve fund balances also reduce pressure on rate revenue requirements. Interest earnings on the City's reserve funds were calculated based on interest rates of 0.5% or less in 2015. The assumed annual interest rates were increased over time until each reached 1.5% in FY2021. HDR and the City left the assumed interest rate at 1.5% annually thereafter.

Reserve Funds

For its minimum reserve fund balance, the City targets 90 days of projected annual O&M costs, plus $2 million of emergency reserves. Based on the analysis and assumptions contained in this memorandum, the City will meet this reserve target for the duration of the projection period.

Summary Results from the Water Financial Plan

The water financial planning model that HDR developed for the City is designed to calculate the annual water rate revenue adjustments needed to meet the City's existing and future water revenue requirements. Based on the revenue requirements described above, less non-rate revenues and SDCs, HDR calculated the rate revenue adjustments that meet the City's goals, while meeting all of the needs of the water utility's operations and capital infrastructure.

As discussed in the introduction, the financial planning model included FY2015 through FY2044 (30 years). However, for the purposes of this memorandum and potential adoption by the City Council, only the next five years of rate revenue adjustments are presented in this section.

Scenario 1 – Smoothed Rate Impact

Summaries of the annual water rate revenue adjustments and example customer impacts for this scenario are shown in Table 6.

Table 6: Summary of Customer Impacts – Scenario 1

		Fiscal Year Ending				
Description	Current	2015	2016	2017	2018	2019
Rate Adj.		5.30%	5.30%	5.30%	2.00%	2.00%
Monthly Bill	$45.92	$48.35	$50.91	$53.61	$54.68	$55.77
Bill Increase		2.43	2.56	2.70	1.07	1.09

Table 7 (next page) presents a summary of the water revenue requirements (sources and uses of funds). The first five years of the projection period are shown so that the new bond issues associated with major capital improvements could be presented. The rate revenue presented in Table 7 includes the proposed annual water rate revenue adjustments shown in Table 6. With

these proposed annual rate revenue adjustments, the total sources and uses of funds (pertaining to the City's water revenue requirements) balance for each year of the forecast.

Table 7: Scenario 1 Summary of Revenue Requirements Analysis (millions)

	Fiscal Year Ending				
	2015	2016	2017	2018	2019
Sources of Funds					
Rate Revenue	$17.0	$18.0	$19.0	$19.7	$20.2
Non-Rate Rev. & SDCs	1.2	0.8	0.8	0.8	0.9
New Bond Issues	38.4	0.0	0.0	0.0	7.1
Spending Reserves	37.3	22.6	0.0	0.0	0.0
Total Sources	$94.0	$41.4	$19.8	$20.6	$28.2
Uses of Funds					
Capital Improvements	$75.6	$25.7	$2.1	$2.1	$6.8
Debt Repayments	5.4	6.6	9.2	9.2	9.5
Debt Issuance Costs	4.6	0.0	0.0	0.0	0.8
O&M Expenses	8.4	9.0	6.9	7.2	7.4
Increasing Reserves	0.0	0.0	1.5	2.1	3.5
Total Uses	$94.0	$41.4	$19.8	$20.6	$28.2

In Table 7, to improve visibility for active years the same formatting was used as in Table 2. This is helpful for new debt activity and changes in the overall balance of reserve funds.

Scenario 2 – One-Time Rate Hike in 2015

Summaries of the annual water rate revenue adjustments and example customer impacts for this scenario are shown in Table 8.

Table 8: Summary of Customer Impacts – Scenario 2

		Fiscal Year Ending				
Description	Current	2015	2016	2017	2018	2019
Rate Adj.		10.50%	2.00%	2.00%	2.00%	2.00%
Monthly Bill	$45.92	$50.74	$51.76	$52.80	$53.86	$54.94
Bill Increase		4.82	1.02	1.04	1.06	1.08

Table 9 (next page) presents a summary of the water revenue requirements (sources and uses of funds). The first five years of the projection period are shown so that the new bond issues could be presented. The rate revenue presented in Table 9 includes the proposed annual water rate revenue adjustments shown in Table 8.

Table 9: Scenario 2 Summary of Revenue Requirements Analysis (millions)

	Fiscal Year Ending				
	2015	2016	2017	2018	2019
Sources of Funds					
Rate Revenue	$17.4	$18.6	$19.0	$19.4	$19.9
Non-Rate Rev. & SDCs	1.2	0.8	0.8	0.8	0.9
New Bond Issues	38.4	0.0	0.0	0.0	7.1
Spending Reserves	36.9	22.0	0.0	0.0	0.0
Total Sources	$94.0	$41.4	$19.8	$20.3	$27.9
Uses of Funds					
Capital Improvements	$75.6	$25.7	$2.1	$2.1	$6.8
Debt Repayments	5.4	6.6	9.2	9.2	9.5
Debt Issuance Costs	4.6	0.0	0.0	0.0	0.9
O&M Expenses	8.4	9.0	6.9	7.1	7.4
Increasing Reserves	0.0	0.0	1.5	1.8	3.3
Total Uses	$94.0	$41.4	$19.8	$20.3	$27.9

Scenario Comparison

The City's CIP includes planned infrastructure improvements amounting to $129 million over the next 10 years. These costs, and planning a strategy to fund them, were the primary drivers for the City's water financial plan analysis.

HDR developed two alternative rate revenue impact scenarios.

1. **Smoothed Rate Impact** – This scenario is based on the City's capital projects to identify optimal amounts of new debt and rates to pay for projects while minimizing short-term rate impacts to the City's customers.
2. **One-Time Rate Hike in 2015** – The City requested an analysis of the water financial forecast given a large rate adjustment in 2015, and holding future annual rate adjustments to approximately 2% or less.

In each of these scenarios, HDR assumed that Tigard would incur additional debt only to the amount needed to meet the lower limit of the water utility's financial and reserve targets. In other words, HDR used its utility financial planning model to calibrate each scenario to the lowest rate revenue adjustments possible to meet reserve fund balance targets and DSC targets.

The results of the two financial forecasts listed above are included in Table 10 (next page). For each scenario, Table 10 presents the overall rate revenue adjustments for the next 5 years and the impacts that those adjustments have on an example single-family residential bill.[6,7]

[6] Rate adjustment percentage is the required overall average adjustment to total rate revenue from all customers.
[7] Example bill assumes monthly billing and 700 cubic feet of water consumed per month.

Table 10: Rate Adjustments and Bill Impacts by CIP Scenario

Year	Smoothed Rates		2015 Rate Hike	
	Adj.	Ex. Bill	Adj.	Ex. Bill
Current		$45.92		$45.92
FY2015	5.3%	48.35	10.5%	50.74
FY2016	5.3%	50.92	2.0%	51.76
FY2017	5.3%	53.62	2.0%	52.79
FY2018	2.0%	54.69	2.0%	53.85
FY2019	2.0%	55.78	2.0%	54.92

Conclusion of the Financial Planning Analysis

Based on the assumptions and results of this analysis, HDR determined that the City could meet all of its water utility financial targets with either annual rate adjustments of 5.3% for the next three years, or a one-time rate hike of approximately 10.5% in FY2015. From FY2018 and beyond, annual rate revenue adjustments could be minimal or intermittent under the assumptions included in this analysis. HDR and Tigard view this scenario as a very positive development for Tigard's existing and future water customers.

Recommendations

The City should continue to take great care to mitigate risk by following prudent management practices. This includes reviewing rates and revenues annually to see if additional adjustments are necessary. The City should give special attention to its water rates and revenue requirements once it completes the change in governance and costs from a water purchaser to an operator of a water treatment plant. When the City is off the Portland system and operating the Partnership facilities, it should consider undertaking another comprehensive rate study.

Limitations

Many assumptions are employed in an analysis like this. For this reason, results are not concrete in nature but are necessarily estimates.