

City of Havre de Grace, Maryland

WATER AND SEWER RATE STUDY

Preliminary Financial Plan Briefing Document

Date: March 22, 2017

Subject: Briefing Document - Preliminary Draft Financial Plan & Assumptions

Purpose: This document is intended to provide an overview of the preliminary financial plan results for the City of Havre de Grace's Water and Sewer utilities. An overview of the assumptions used to develop the respective financial plans for the period of FY 2017 – FY 2022 is presented followed by a summary of the results.

Water and Sewer Rate Study

Study Background

The City of Havre de Grace ("City") provides water and wastewater utility services to residents and businesses within the City and to a few customers outside the City's jurisdiction. The water and sewer operations are supported by an enterprise fund, with revenues generated primarily from water and sewer user fees and charges, and system connection fees. The water/sewer fund has been facing an increasing funding deficit with revenues not adequate to meet all the revenue requirements, and significantly impacting the critical reinvestment in infrastructure. The funding deficit is due to a combination of factors including lower than projected operating and capital revenues due to decline in water consumption and a decrease in the number of new connections respectively.

To address the funding deficit and build financial stability of the City's water/sewer fund, the City engaged Black & Veatch to help develop a comprehensive water and sewer financial plan. In addition, the City requested the development of a water infrastructure renewal forecast to provide a sound basis for planning and implementing the rehabilitation and replacement of critical water distribution and treatment assets.

Key Tasks

To accomplish this, the following key tasks were envisioned:

- Development of a 10-year forecast of the renewal and replacement needs for the key water infrastructure;
- Alignment of the water capital improvement program (CIP) with the water infrastructure renewal forecast;
- Development of a five-year financial plan;
- Design of rate schedules and fees; and

- Support City Staff in key stakeholder education efforts.

Key Objectives

The financial plan was developed based upon the following key objectives:

- Finance the O&M requirements
- Finance Capital Plan including Water Infrastructure R&R Forecast
- Account for any general fund obligations of the water/sewer fund
- Address funding deficit and plan for repayment of general fund borrowing
- Consider future debt service payments in FY 2027 and FY 2028
- Other objectives:
 - Achieve debt service coverage target of 1.20 by FY 2022
 - Build 60-day operating reserve by FY 2022

Assumptions

This section outlines the underlying assumptions used in developing the financial plan.

1. Revenue Projections

- a. Projected water and sewer service revenues under existing rates reflect the current rate schedule as of the beginning of FY 2017.
- b. Water and Sewer billing units for each customer class are projected as follows:
 - i. FY 2016 water and sewer accounts, units and billed volumes based on FY 2016 billing records.
 - ii. FY 2017 – FY 2022 water and sewer accounts reflect anticipated growth of 140 accounts over the next 6 years. 25 new accounts are added annually beginning in FY 17 through FY 21 with an additional 15 accounts anticipated in FY 22. All accounts are assumed to be 5/8 - 1 inch.
 - iii. FY 2017 – FY 2022 average billed volume per account is assumed to remain flat (i.e. no growth) for projection purposes.
- c. Other Revenues:
 - i. BOD and Industrial Pretreatment Charges are based upon the actual 3-year average.
 - ii. Miscellaneous Revenues are projected to remain at the FY 17 budget level.
 - iii. User Benefit Assessment Revenues – projected based upon schedule as provided by City staff.
 - iv. Revenues from Water Wholesale Agreement (i.e. County):
 - Assumes customer(s) will be in place when the agreement with the County is bought out in Q1 FY 2018.
 - Assumes the new Water Wholesale Agreement rate will be a minimum 1.92X the current purchase agreement rates. This is based upon estimated historical unit costs for total production (including City and County Volumes) costs net of Loop Meter Expenses, customer related distributed administrative expense and includes a mark-up of 10% for administration and 10% for profit.

- Assumes 6 month lag in the implementation of new agreement (i.e. adjustment in FY 2018 is only 50% of anticipated increase in wholesale revenue).
- This equates to an approximate increase in wholesale revenues under existing rates of \$2.21M from FY 2018 to FY 2022.
- v. Debt Service Fee (DSF) – Assumes existing DSF will be discontinued on June 30, 2017 and will be replaced by an infrastructure reinvestment fee, which (at a minimum) will provide revenues similar to the current DSF.
- vi. Interest Income is based upon an assumed interest income rate of 0.5% and calculated for the operating fund balance only.

2. Revenue Requirements

- a. Baseline Water & Sewer O&M expenses
 - i. Projected O&M based upon FY 2017 Budget
 - ii. Projected FY 2017 reflects 100% of budgeted O&M expenses.
 - iii. Annual increase in O&M projection purposes as follows:
 - 1. Chemicals – 4%
 - 2. Contractual Services – 3%
 - 3. Equipment – 4%
 - 4. Gas/Oil/Fuel – 3%
 - 5. General Inflation – 3%
 - 6. Materials and Supplies – 3%
 - 7. Personnel – 2%
 - 8. Benefits – 8%
 - 9. Power – 0% in FY 18; 1% FY 19 to FY 21; 4% thereafter.
- b. Incremental Water and Sewer O&M expenses: - N/A

3. Capital Improvement Program (CIP)

- a. Two (2) CIP Scenarios were analyzed:
 - i. Baseline CIP as provided - \$14.79M from FY 17 to FY 22.
 - ii. Baseline CIP plus additional funding to meet the projected level of investment needed to meet the Renewal and Replacement Profile - \$15.8M from FY 17 to FY 22.

4. Existing Debt

- a. Reflects the following Loans and Bonds:
 - i. MDE 2000 NR – Loan #117
 - ii. Water Quality Bond [WQ06-346-13L] Wastewater Plant ENR Upgrade & Expansion – Loan #138
 - iii. 2013 Refinancing of FHA 92-4 Sewer Facilities (Loan 109) – Loan #142
 - iv. 2013 Refinancing of CDA 03A (Loan 119) – Loan # 142
 - v. 2016 DHCD 2015 WTP Rehabilitation – Loan #143

5. Proposed Debt

- a. Alternative capital program financing scenarios were analyzed assuming bond issuance(s) as needed to maintain total debt service below the City's maximum threshold and to minimize rate impacts.
See "Financial Plan Scenarios" for additional discussion on Proposed Debt.
- b. General Obligation Bond Assumptions:

- i. Term: 20 Years
- ii. Rate: 4.0%
- iii. Issuance Expense: 1%
- iv. Timing: Assumed issuance during in August of each fiscal year.
- c. Proposed debt service based upon level principal and interest payment over the term of the bond.

6. Other Expenses

- a. Transfers/General Fund Payback:
 - i. Additional borrowing from general fund in FY 2017 of \$455K to maintain positive cashflow. Assumes payback.
 - ii. Buy-out of County Water Agreement: Assumes transfer from general fund in FY 18 with payback to general fund over 4-year period beginning in FY 19.

7. Fund Balances

- a. Starting fund balances utilized in the financial plan model are assumed to be as follows, as of 6/30/2016:
 - i. **Construction Fund Balance** = \$0
 - ii. **Operating Fund Balance** = \$0 (assuming additional general fund contribution to maintain positive fund balance – see assumption #6 regarding other expenses)

8. Revenue Adjustments and Target Financial Plan Metrics

- a. Adjust revenues annually to balance and meet financial plan targets. Provide for levelized rate increases as feasible.
- b. Rate increases are assumed to be effective as of July 1 for each fiscal year.
- c. Balance bond issuance(s) with available funding sources (including Grants, Pay-go/available cash from the Operating Fund, additional rate revenues/cash funding for CIP, etc.).
- d. **Target End of Year Operating Fund Balance** - equivalent to a minimum of 60 days of annual O&M expense by the end of FY 22 (or sooner).
- e. **Create a Rate Stabilization Fund (RSF)** – Establish a rate stabilization fund and achieve a minimum balance of \$1M to help mitigate significant volatility with respect to rate increases, beyond the five-year planning period. Note – the City's outstanding debt service payments related to the wastewater treatment plant increase by \$1M in FY 2027 and FY 2028, driving the need to establish a RSF.
- f. **Target Debt Service Coverage** – 120% for G.O. bonds.

Water and Sewer Financial Plan Scenarios

CIP Scenarios

The following table provides a high-level summary of the costs associated with the CIP program utilized in developing the financial plan:

		CIP Program		
		Current 6-YR CIP as provided by City Staff plus additional funding to meet R&R profile reinvestment, which equates to an additional \$520K over the planning period.		
CIP Program All years presented in FY 2017 cost levels (not escalated)	Fiscal Year	Current CIP	Additional Water R&R	Total
	2017	\$ 1.16M	\$ 0.00M	\$ 1.16M
	2018	\$ 3.48M	\$ 0.06M	\$ 3.54M
	2019	\$ 2.62M	\$ 0.04M	\$ 2.66M
	2020	\$ 2.19M	\$ 0.06M	\$ 2.25M
	2021	\$ 0.88M	\$ 0.24M	\$ 1.12M
	2022	\$ 3.03M	\$ 0.12M	\$ 3.15M
	Total	\$13.37M	\$ 0.52M	\$13.89M

Funding Scenarios

The following table provides a high-level summary of the funding options evaluated and the various funding sources evaluated for the CIP program listed above. Scenario A is provided for information purposes only and meant to show the financial performance under existing rates and charges. Scenario B and C consider annual revenue adjustments and alternative CIP financing approaches as described below.

	Scenario A	Scenario B	Scenario C
	<u>No increase</u> in Base Service Charge and Volume Rates	Adjust Base Service Charge and Volume Rates	Adjust Base Service Charge and Volume Rates
Revenues	Wholesale Water Agreement -	Wholesale Water Agreement -	Wholesale Water Agreement -
Adjustments	1.92X current unit pricing effective by Dec. 30 th , 2018	1.92X current unit pricing effective by Dec. 30 th , 2018	1.92X current unit pricing effective by Dec. 30 th , 2018
	DSF continues	DSF continues	DSF continues
	Bond funding based upon recent WTP bond issue only	Bond funding based upon recent WTP bond issue only	Bond funding based upon recent WTP bond issue <u>plus</u>
Bonds			Additional \$2.96M in to minimize rates and stay below City's debt service threshold
Pay-go	All remaining as Pay-go	All remaining as Pay-go	Balance as Pay-go

Note: While City Staff pursue grant opportunities each fiscal year to aid in funding critical CIP, previous grant awards have not been significant (i.e. less than \$60K) and were not considered as a reliable source of revenue for Financial Planning purposes. Should significant grant funding be secured then revenue adjustments contemplated herein could further be reduced.

Water and Sewer Financial Plan Scenario Results

Combined water and sewer cash flow tables for all scenarios are provided in the Appendix. The table below provides a high-level overview and comparison of the three scenarios of the financial plan.

Financial Plan Scenario		A	B	C
Revenue Increases	FY 18	0%	16.5%	13%
	FY 19	0%	16.5%	13%
	FY 20	0%	3%	3%
	FY 21	0%	3%	3%
	FY 22	0%	3%	3%
CIP Funding Sources (6-Year Total FY 17 to FY 22)				
Sources	G.O Bonds	\$2.40M	\$2.40M	\$5.36M
	Grant Funding	\$0	\$0	\$0
	PAY-GO	\$12.34M	\$12.34M	\$9.34M
Financial Plan Metrics				
Metrics	Target Days O&M Achieved	N/A	FY 20	FY 19
Metrics (ending FY 22)	Operating Fund Balance	(\$9.42M)	\$3.08M	\$2.52M
	Debt Service Coverage	139%	316%	257%
	Rate Stabilization Fund Balance	\$0M	\$1.0M	\$1.0M

Estimated Rates

Estimated rate schedules were developed based upon Scenario C, discussed above. Rates are adjusted across the meter base charge and volume rates for water and sewer to generate sufficient revenue under Scenario C. These rates are designed based on the existing rate structure and do not account for any change in the rate structure such as the introduction of an Asset Reinvestment Charge (ARC).

Note: Scenario C assumes the DSF would continue throughout the projection period. Any changes to the existing rate structure such as recovering a portion of the revenues via an asset reinvestment charge will correspondingly decrease the amount of revenue that needs to be recovered via the adjusted base charge and volume rates for water and sewer, respectively.

Quarterly Base Service Charges

	CURRENT	PROPOSED		
Meter Size (Inches)	FY 2017	FY 2018	FY 2019	FY 2020
Quarterly Base Service Charge (\$)				
5/8	18.75	21.25	24.00	24.75
3/4	18.75	21.25	24.00	24.75
1	18.75	21.25	24.00	24.75
1 1/2	79.50	90.00	101.75	104.75
2	128.50	145.25	164.25	169.25
3	208.00	235.25	265.75	273.75
4	336.50	380.25	429.75	442.75
6	544.50	615.50	695.50	716.25
8	880.75	995.25	1,124.75	1,158.50

Volume Charges

	CURRENT	PROPOSED		
	FY 2017	FY 2018	FY 2019	FY 2020
Water Service (\$ per 1,000 gallons)				
Inside City	5.85	6.65	7.50	7.70
Outside City	11.70	13.25	14.95	15.40
Sewer Service (\$ per 1,000 gallons)				
Inside City	8.75	9.90	11.20	11.55
Outside City	17.50	19.80	22.35	23.05

Currently, the debt service fee generates roughly \$550,000 annually. To assure a more stable source of revenue to support the growing needs of R&R of the water and sewer infrastructure, we recommend replacing the existing limited purpose debt service fee with a more holistic ARC that is based on meter size. The magnitude of annual revenues to be generated by the ARC is defined taking in to consideration the often competing factors of customer affordability, revenue stability, and equity of cost recovery. The following section provides additional discussion on the ARC.

Asset Reinvestment Charge Evaluation

Per discussions with City Staff on February 22, 2017, a separate scenario was analyzed to review the potential impact of implementing an Asset Reinvestment Charge (ARC) for both the water and sewer systems. The intent of the ARC is to provide revenues dedicated to financing reinvestments in existing water and sewer assets ("the system"). Reinvestments in the system need to occur in a proactive manner in order to maintain system integrity and service reliability. These investments in the system assets are essentially fixed costs that have to be incurred regardless of the volume of water treated, stored, and distributed or

wastewater collected, treated and disposed. Therefore, the ARC is designed as a quarterly fixed charge based on meter size. The capacity ratios of the meters were used in designing the meter size based ARC.

The total number of meters for the Test Year is projected on the basis of the number of equivalent 1" meters on a capacity ratio basis to reflect the capacity of the service line size. 1" meters were utilized based upon discussion with City Staff as all new and replacement meter size are installed at a minimum of 1" to allow for increased capacity and fire flow. The service line capacity ratios are used to translate the meters to equivalent 1" meters, as shown in the figure below.

Equivalent Meters & Services Ratios

LINE SIZE	EQUIVALENT CAPACITY RATIOS
5/8"	2.5
3/4"	2.5
1"	2.5
1 1/4"	3.8
1 1/2"	5.0
2"	8.0
3"	16.0
4"	25.0
6"	50.0
8"	80.0

Currently, the revenue from the existing Debt Service Fee is primarily utilized to pay for debt related to wastewater treatment upgrades. However, the objective of the ARC is more holistic and it is intended to help fund future reinvestment into the system, not just existing debt service, as discussed in the following paragraph.

The City's current estimated annual depreciation is \$3 million. In order to replace those existing assets, an equivalent amount should be reinvested annually into the system in order to maintain the assets, system integrity and the associated service. For the purposes of this analysis, it was assumed that one-third of the annual depreciation or \$1 million should be generated via the asset reinvestment charge. This approach helps to balance revenue volatility associated with water consumption and wastewater service sales with the stability of a fixed charge. Based upon the Water Infrastructure Renewal Forecast, an average of \$500,000/year should be reinvested in the water system over a 10-year period. Note this is not based on the previously discussed 6-year CIP plan as developed by City Staff. This looks to the additional repair and replacement that should occur on a routine basis. This is primarily driven by costs related to replacement of the water distribution system. As the City has a similar level of amount wastewater infrastructure, it was assumed that a similar amount should be generated for wastewater assets. Therefore, the ARC was estimated to recover approximately \$500,000 in costs related to water system reinvestments as well as a

similar amount for the wastewater system (i.e. approximately \$1M per year). Note: The ARC would be considered a Capital Revenue; its impact is reflected in Scenario D in the Combined Water & Sewer Proforma Cashflow provided in the appendix on Line No. 5.

ARC Phase-In

With the implementation of the ARC, a typical residential customer would potentially be impacted in the short term. A strategy to mitigate this impact would be to phase-in the ARC fee over a four year period. In order to achieve this, revenues from water and sewer base fees and volume rates would need to be adjusted accordingly – resulting in increases similar to Scenario C. The ARC fee would be initially implemented at 62.5% of the charge, it would then increase 12.5% annually for the next 3 years. This was done to partially mitigate the impact of the loss of revenues due to the discontinuation of the DSF. While the fees have a different a basis, the revenues do influence the City's ability to meet all of its water and sewer commitments. The ARC revenues will be directed to reinvestment and replacement projections. The loss of the DSF will need to be made up by increase in the volume rates. The Arc Phase-in was analyzed as Scenario D. A comparison of the Scenarios C and D is presented in the following table.

Financial Plan Scenario		C	D
Revenue Increases	FY 18	13%	13%
	FY 19	13%	13%
	FY 20	3%	3%
	FY 21	3%	3%
	FY 22	3%	3%
CIP Funding Sources (6-Year Total FY 17 to FY 22)			
Sources	G.O Bonds	\$5.36M	\$5.36M
	Grant Funding	\$0	\$0
	PAY-GO	\$9.34M	\$9.34M
Financial Plan Metrics			
Metric	Target Days O&M Achieved	FY 19	FY 19
Metrics (ending FY 22)	Operating Fund Balance	\$2.52M	\$2.70M
	Debt Service Coverage	257%	260%
	Rate Stabilization Fund Balance	\$1.0M	\$1.0M

Estimated Rates with ARC

Estimated rate schedules were developed based upon Scenario D with ARC implementation, discussed above. The resulting rate schedules for the meter base charge and volume rates for water and sewer services would be the same as those previously presented under Scenario C on Page 8. The phase-in for the ARC is presented in the following table.

Asset Reinvestment Charges

Draft ARC Schedule				
Meter Size (Inches)	FY 2018	FY 2019	FY 2020	FY 2021
5/8 - 1	27.75	33.50	39.00	44.50
1 1/2	55.50	66.75	77.75	89.00
2	89.00	106.75	124.50	142.25
3	177.75	213.25	248.75	284.25
4	277.50	333.00	388.50	444.00
6	555.00	666.00	777.00	888.00
8	888.00	1,065.75	1,243.25	1,421.00

Customer Bill Impacts

The impact on customers is presented on the following pages. Estimated rate schedules were developed based upon Scenario D with ARC implementation, discussed above. For a typical residential customer (5/8-inch meter @ 15,000 gallons quarterly water use) would see a 13% increase in their total water and sewer bill.

Scenario D: Quarterly Bill Impact (FY 2018)

Line No.	Meter Size Inches	Water				
		Quarterly Usage kgal	Existing	Proposed	Increase	Percent
1	5/8	3	\$ 36.30	\$ 41.20	\$ 4.90	13.50%
2	5/8	9	\$ 71.40	\$ 81.10	\$ 9.70	13.59%
3	5/8	15	\$ 106.50	\$ 121.00	\$ 14.50	13.62%
4	5/8	20	\$ 135.75	\$ 154.25	\$ 18.50	13.63%
5	5/8	25	\$ 165.00	\$ 187.50	\$ 22.50	13.64%
6	3/4	30	\$ 194.25	\$ 220.75	\$ 26.50	13.64%
7	3/4	50	\$ 311.25	\$ 353.75	\$ 42.50	13.65%
8	1	75	\$ 457.50	\$ 520.00	\$ 62.50	13.66%
9	1	100	\$ 603.75	\$ 686.25	\$ 82.50	13.66%
10	1 1/2	150	\$ 957.00	\$ 1,087.50	\$ 130.50	13.64%
11	2	200	\$ 1,298.50	\$ 1,475.25	\$ 176.75	13.61%
12	2	300	\$ 1,883.50	\$ 2,140.25	\$ 256.75	13.63%
13	3	500	\$ 3,133.00	\$ 3,560.25	\$ 427.25	13.64%
14	3	1,000	\$ 6,058.00	\$ 6,885.25	\$ 827.25	13.66%
15	4	5,000	\$ 29,586.50	\$ 33,630.25	\$ 4,043.75	13.67%
16	6	10,000	\$ 59,044.50	\$ 67,115.50	\$ 8,071.00	13.67%
17	8	20,000	\$ 117,880.75	\$ 133,995.25	\$ 16,114.50	13.67%

Sewer			
Existing	Proposed	Increase	Percent
\$ 262.5	\$ 29.70	\$ 3.45	13.14%
\$ 787.5	\$ 89.10	\$ 10.35	13.14%
\$ 1,312.5	\$ 148.50	\$ 17.25	13.14%
\$ 1,750.0	\$ 198.00	\$ 23.00	13.14%
\$ 2,187.5	\$ 247.50	\$ 28.75	13.14%
\$ 2,625.0	\$ 297.00	\$ 34.50	13.14%
\$ 4,375.0	\$ 495.00	\$ 57.50	13.14%
\$ 6,562.5	\$ 742.50	\$ 86.25	13.14%
\$ 8,750.0	\$ 990.00	\$ 115.00	13.14%
\$ 13,125.0	\$ 1,485.00	\$ 172.50	13.14%
\$ 17,500.0	\$ 1,980.00	\$ 230.00	13.14%
\$ 26,250.0	\$ 2,970.00	\$ 345.00	13.14%
\$ 43,750.0	\$ 4,950.00	\$ 575.00	13.14%
\$ 87,500.0	\$ 9,900.00	\$ 1,150.00	13.14%
\$ 175,000.0	\$ 49,500.00	\$ 5,750.00	13.14%
\$ 87,500.0	\$ 99,000.00	\$ 11,500.00	13.14%
\$ 175,000.0	\$ 198,000.00	\$ 23,000.00	13.14%

Line No.	Meter Size	Quarterly				
		Usage	Existing	Proposed	Increase	Percent
	Inches	k gal	DSF	ARC		
1	5/8	3	\$ 25.00	\$ 27.75	\$ 2.75	11%
2	5/8	9	\$ 25.00	\$ 27.75	\$ 2.75	11%
3	5/8	15	\$ 25.00	\$ 27.75	\$ 2.75	11%
4	5/8	20	\$ 25.00	\$ 27.75	\$ 2.75	11%
5	5/8	25	\$ 25.00	\$ 27.75	\$ 2.75	11%
6	3/4	30	\$ 25.00	\$ 27.75	\$ 2.75	11%
7	3/4	50	\$ 30.00	\$ 27.75	\$ (2.25)	-8%
8	1	75	\$ 30.00	\$ 27.75	\$ (2.25)	-8%
9	1	100	\$ 100.00	\$ 27.75	\$ (72.25)	-72%
10	1 1/2	150	\$ 100.00	\$ 55.50	\$ (44.50)	-45%
11	2	200	\$ 100.00	\$ 89.00	\$ (11.00)	-11%
12	2	300	\$ 100.00	\$ 89.00	\$ (11.00)	-11%
13	3	500	\$ 100.00	\$ 177.75	\$ 77.75	78%
14	3	1,000	\$ 250.00	\$ 177.75	\$ (72.25)	-29%
15	4	5,000	\$ 250.00	\$ 277.50	\$ 27.50	11%
16	6	10,000	\$ 250.00	\$ 555.00	\$ 305.00	122%
17	8	20,000	\$ 250.00	\$ 888.00	\$ 638.00	255%

Total			
Existing	Proposed	Increase	Percent
\$ 87.55	\$ 98.65	\$ 11.10	12.68%
\$ 175.15	\$ 197.95	\$ 22.80	13.02%
\$ 262.75	\$ 297.25	\$ 34.50	13.13%
\$ 335.75	\$ 380.00	\$ 44.25	13.18%
\$ 408.75	\$ 462.75	\$ 54.00	13.21%
\$ 481.75	\$ 545.50	\$ 63.75	13.23%
\$ 778.75	\$ 876.50	\$ 97.75	12.55%
\$ 1,143.75	\$ 1,290.25	\$ 146.50	12.81%
\$ 1,578.75	\$ 1,704.00	\$ 125.25	7.93%
\$ 2,369.50	\$ 2,628.00	\$ 258.50	10.91%
\$ 3,148.50	\$ 3,544.25	\$ 395.75	12.57%
\$ 4,608.50	\$ 5,199.25	\$ 590.75	12.82%
\$ 7,608.00	\$ 8,688.00	\$ 1,080.00	14.20%
\$ 15,058.00	\$ 16,963.00	\$ 1,905.00	12.65%
\$ 73,586.50	\$ 83,407.75	\$ 9,821.25	13.35%
\$146,794.50	\$166,670.50	\$19,876.00	13.54%
\$293,130.75	\$332,883.25	\$39,752.50	13.56%

Recommendation

The Black & Veatch Team recommends that the City consider the implementation of Scenario D, as this scenario helps achieve the following: (i) mitigate the level of revenue increases needed from rates and charges; (ii) provide a more stable revenue source for water and sewer infrastructure R&R; and (iii) mitigate the magnitude of bill impact through phasing in of the ARC.

By approving the proposed financial plan along with the recommended rate schedules that include a dedicated asset renewal charge, paves the way for:

- Increased financial stability and resilience;
- Elimination of reliance upon the general fund to support water/sewer enterprise fund
- Accomplish repayment of previous loans from the General Fund;
- Effective financing of the Capital Program to address critical infrastructure needs based upon anticipated system service life;
- Establishing a minimum of 60 days of O&M reserve; and
- Positions the City to adequately fund future O&M and debt service costs.

Appendix – Scenario Proforma Cashflow

Water and Sewer Financial Plan Scenario Results

Combined water and sewer cash flow tables for Scenarios A, B, C and D are presented herein.

Financial Plan Notes:

Notes:

- a. Revenues from Base Charges and Volume Charges.
- b. Revenues from Capital Recovery Charge, User Benefit Fee and Debt Service Fee.
- c. Interest on projected average operating fund balance and interest earnings rate of 1.00%.
- d. Other Revenues includes Service Charge Turn-On/Off, Industrial Surcharge, and Other Revenues.
- e. Miscellaneous Revenues includes BOD Surcharge, Connectoin Fees, and Miscellaneous charges.
- f. Not Applicable.
- g. Total Revenues (Line 10) less Total Revenue Requirements (Line 19).
- h. FY 2017 beginning balance assumed to be \$0.
- i. Not Applicable.
- j. Total Revenues (Line 10) less O&M Expense (Line 19).
- k. Interest on Construction Fund balance (Line 36).
- l. Revenue Available for Coverage (Line 25) divided by Total Debt Service (Line 14).
- m. Bond issuance costs estimated as 1% of bond issuance.
- n. Interest on projected average construction fund balance and interest earnings rate of 1.00%.
- o. Projected capital program expenses including capital program budgeted Paygo.
- p. New Sources of Funds (Line 33) plus Existing Sources of Funds (Line 37) less Capital Program expenses (Line 39).
- q. End of year balance sufficient to provide funding prior to the subsequent year proposed bond issue plus an additional 2 months of capital program expenses.

Scenario A – Financial Performance under Existing Rates and Charges

Line No.	Description	Fiscal Year					
		2017	2018	2019	2020	2021	2022
COMBINED WATER & SEWER							
Operating Fund							
	Revenues:						
1	Proposed Revenue Increases		0.00%	0.00%	0.00%	0.00%	0.00%
2	Revenue from Rates (a)						
3	Revenue from Existing Rates	\$ 6,653,198	\$ 6,925,567	\$ 7,212,923	\$ 7,272,661	\$ 7,334,133	\$ 7,387,107
4	Revenue Increases	-	-	-	-	-	-
5	Total Revenue from Rates	\$ 6,653,198	\$ 6,925,567	\$ 7,212,923	\$ 7,272,661	\$ 7,334,133	\$ 7,387,107
6	Capital Revenue (b)	\$ 1,134,606	\$ 1,135,861	\$ 1,131,829	\$ 1,112,006	\$ 1,091,076	\$ 901,155
7	Interest Income (c)	\$ 2,773	\$ 1,463	\$ -	\$ -	\$ -	\$ -
8	Other Revenues (d)	\$ 116,600	\$ 116,600	\$ 116,600	\$ 116,600	\$ 116,600	\$ 116,600
9	Miscellaneous Revenues (e)	\$ 175,500	\$ 175,500	\$ 175,500	\$ 175,500	\$ 175,500	\$ 175,500
10	Intra-City Revenues	\$ 455,000	\$ 400,000	\$ -	\$ -	\$ -	\$ -
11	Total Revenues	\$ 8,537,677	\$ 8,754,990	\$ 8,636,852	\$ 8,676,767	\$ 8,717,309	\$ 8,580,363
	Revenue Requirements:						
12	O&M Expenses	\$ 4,903,400	\$ 5,450,929	\$ 5,210,783	\$ 5,377,865	\$ 5,552,611	\$ 5,752,671
	Debt Service Requirements						
13	Existing GO Bonds	2,382,321	2,426,533	2,277,037	2,275,696	2,217,427	2,038,073
14	Proposed GO Bonds	-	-	-	-	-	-
15	Total Debt Service	\$ 2,382,321	\$ 2,426,533	\$ 2,277,037	\$ 2,275,696	\$ 2,217,427	\$ 2,038,073
	Transfer to Construction						
16	Cash Funded Capital (Paygo) (f)	909,000	1,739,146	2,423,065	2,414,996	1,241,114	3,613,261
17	Total Transfer to Construction	909,000	1,739,146	2,423,065	2,414,996	1,241,114	3,613,261
18	Transfer to General Fund	-	-	810,520	810,520	820,520	680,520
19	Transfer to Rate Stabilization Fund	-	-	-	-	-	-
20	Total Revenue Requirements	\$ 8,194,721	\$ 9,616,608	\$ 10,721,404	\$ 10,879,077	\$ 9,831,673	\$ 12,084,525
21	Annual Net Balance (g)	\$ 342,956	\$ (861,617)	\$ (2,084,553)	\$ (2,202,310)	\$ (1,114,364)	\$ (3,504,162)
22	Beginning Balance (h)	0	342,956	(518,661)	(2,603,213)	(4,805,523)	(5,919,887)
23	Ending Fund Balance	342,956	(518,661)	(2,603,213)	(4,805,523)	(5,919,887)	(9,424,049)
24	Target Balance (60 Days O&M)	\$ 806,038	\$ 896,043	\$ 856,567	\$ 884,033	\$ 912,758	\$ 945,645
25	Days Working Capital	26	(35)	(182)	(326)	(389)	(598)
	Revenue Available for Coverage:						
26	Net Revenue from Operations (j)	\$ 3,634,277	\$ 3,304,061	\$ 3,426,069	\$ 3,298,902	\$ 3,164,697	\$ 2,827,692
27	Other Interest Income (k)	17,856	15,919	10,733	9,478	3,162	8,475
28	Revenue Available for Coverage	\$ 3,652,133	\$ 3,319,980	\$ 3,436,802	\$ 3,308,380	\$ 3,167,859	\$ 2,836,167
	Debt Service Coverage						
29	Total Debt Service (l)	153%	137%	151%	145%	143%	139%
30	Minimum Required	120%	120%	120%	120%	120%	120%
	Rate Stabilization Fund						
31	End of Year Balance	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Construction Fund							
	New Capital Funding Sources						
32	GO Bond Issuance	2,400,000	0	0	0	0	0
33	GO Bond Issuance Costs (m)	(24,000)	0	0	0	0	0
34	Net GO Bond Proceeds	2,376,000	0	0	0	0	0
35	Federal Grants	0	0	0	0	0	0
36	Other Sources	0	0	0	0	0	0
37	Total New Funding Sources	\$ 2,376,000	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
	Existing Source of Funds:						
38	Beginning of Year Balance	\$ 384	\$ 2,140,240	\$ 352,522	\$ 32,056	\$ 41,534	\$ 44,696
39	Transfer from Operations (Line 17)	909,000	1,739,146	2,423,065	2,414,996	1,241,114	3,613,261
40	Interest Income (n)	17,856	15,919	10,733	9,478	3,162	8,475
41	Total Existing Source of Funds	\$ 927,240	\$ 3,895,304	\$ 2,786,321	\$ 2,456,530	\$ 1,285,810	\$ 3,666,432
	Application of Funds:						
42	Major Capital Improvements (o)	1,163,000	3,542,782	2,754,265	2,414,996	1,241,114	3,613,261
43	Total Use of Funds	1,163,000	3,542,782	2,754,265	2,414,996	1,241,114	3,613,261
44	End of Year Balance (p)	\$ 2,140,240	\$ 352,522	\$ 32,056	\$ 41,534	\$ 44,696	\$ 53,171
45	Required Balance (q)	1,352,727	248,400	-	-	-	-

Scenario B – Financial Performance with Revenue Adjustments – No Additional Bond Financing

Line No.	Description	Fiscal Year					
		2017	2018	2019	2020	2021	2022
COMBINED WATER & SEWER							
Operating Fund							
Revenues:							
1	Proposed Revenue Increases		16.50%	16.50%	3.00%	3.00%	3.00%
Revenue from Rates (a)							
2	Revenue from Existing Rates	\$ 6,653,198	\$ 6,925,567	\$ 7,212,923	\$ 7,272,661	\$ 7,334,133	\$ 7,387,107
3	Revenue Increases	-	1,142,719	2,576,636	2,894,096	3,226,139	3,568,537
4	Total Revenue from Rates	\$ 6,653,198	\$ 8,068,285	\$ 9,789,559	\$ 10,166,757	\$ 10,560,272	\$ 10,955,644
5	Capital Revenue (b)	\$ 1,134,606	\$ 1,135,861	\$ 1,131,829	\$ 1,112,006	\$ 1,091,076	\$ 901,155
6	Interest Income (c)	\$ 2,773	\$ 4,852	\$ 12,852	\$ 15,613	\$ 26,592	\$ 33,674
7	Other Revenues (d)	\$ 116,600	\$ 116,600	\$ 116,600	\$ 116,600	\$ 116,600	\$ 116,600
8	Miscellaneous Revenues (e)	\$ 175,500	\$ 175,500	\$ 175,500	\$ 175,500	\$ 175,500	\$ 175,500
9	Intra-City Revenues	\$ 455,000	\$ 400,000	\$ -	\$ -	\$ -	\$ -
10	Total Revenues	\$ 8,537,677	\$ 9,901,098	\$ 11,226,340	\$ 11,586,476	\$ 11,970,040	\$ 12,182,574
Revenue Requirements:							
11	O&M Expenses	\$ 4,903,400	\$ 5,450,929	\$ 5,210,783	\$ 5,377,865	\$ 5,552,611	\$ 5,752,671
Debt Service Requirements							
12	Existing GO Bonds	2,382,321	2,426,533	2,277,037	2,275,696	2,217,427	2,038,073
13	Proposed GO Bonds	-	-	-	-	-	-
14	Total Debt Service	\$ 2,382,321	\$ 2,426,533	\$ 2,277,037	\$ 2,275,696	\$ 2,217,427	\$ 2,038,073
Transfer to Construction							
15	Cash Funded Capital (Paygo) (f)	909,000	1,739,146	2,423,065	2,414,996	1,241,114	3,613,261
16	Total Transfer to Construction	909,000	1,739,146	2,423,065	2,414,996	1,241,114	3,613,261
17	Transfer to General Fund	-	-	810,520	810,520	820,520	680,520
18	Transfer to Rate Stabilization Fund	-	-	330,000	330,000	340,000	-
19	Total Revenue Requirements	\$ 8,194,721	\$ 9,616,608	\$ 11,051,404	\$ 11,209,077	\$ 10,171,673	\$ 12,084,525
20	Annual Net Balance (g)	\$ 342,956	\$ 284,491	\$ 174,936	\$ 377,399	\$ 1,798,367	\$ 98,049
21	Beginning Balance (h)	0	342,956	627,447	802,383	1,179,782	2,978,149
22	Ending Fund Balance	342,956	627,447	802,383	1,179,782	2,978,149	3,076,199
23	Target Balance (60 Days O&M)	\$ 806,038	\$ 896,043	\$ 856,567	\$ 884,033	\$ 912,758	\$ 945,645
24	Days Working Capital	26	42	56	80	196	195
Revenue Available for Coverage:							
25	Net Revenue from Operations (j)	\$ 3,634,277	\$ 4,450,169	\$ 6,015,557	\$ 6,208,611	\$ 6,417,428	\$ 6,429,903
26	Other Interest Income (k)	17,856	15,919	10,733	9,478	3,162	8,475
27	Revenue Available for Coverage	\$ 3,652,133	\$ 4,466,088	\$ 6,026,290	\$ 6,218,089	\$ 6,420,590	\$ 6,438,378
Debt Service Coverage							
28	Total Debt Service (l)	153%	184%	265%	273%	290%	316%
29	Minimum Required	120%	120%	120%	120%	120%	120%
Rate Stabilization Fund							
30	End of Year Balance	\$ -	\$ -	\$ 330,000	\$ 660,000	\$ 1,000,000	\$ 1,000,000
Construction Fund							
New Capital Funding Sources							
31	GO Bond Issuance	2,400,000	0	0	0	0	0
32	GO Bond Issuance Costs (m)	(24,000)	0	0	0	0	0
33	Net GO Bond Proceeds	2,376,000	0	0	0	0	0
34	Federal Grants	0	0	0	0	0	0
35	Other Sources	0	0	0	0	0	0
36	Total New Funding Sources	\$ 2,376,000	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
Existing Source of Funds:							
37	Beginning of Year Balance	\$ 384	\$ 2,140,240	\$ 352,522	\$ 32,056	\$ 41,534	\$ 44,696
38	Transfer from Operations (Line 17)	909,000	1,739,146	2,423,065	2,414,996	1,241,114	3,613,261
39	Interest Income (n)	17,856	15,919	10,733	9,478	3,162	8,475
40	Total Existing Source of Funds	\$ 927,240	\$ 3,895,304	\$ 2,786,321	\$ 2,456,530	\$ 1,285,810	\$ 3,666,432
Application of Funds:							
41	Major Capital Improvements (o)	1,163,000	3,542,782	2,754,265	2,414,996	1,241,114	3,613,261
42	Total Use of Funds	1,163,000	3,542,782	2,754,265	2,414,996	1,241,114	3,613,261
43	End of Year Balance (p)	\$ 2,140,240	\$ 352,522	\$ 32,056	\$ 41,534	\$ 44,696	\$ 53,171
44	Required Balance (q)	1,352,727	248,400	-	-	-	-

Scenario C – Financial Performance with Revenue Adjustments and Additional Bond Financing

Line No.	Description	Fiscal Year					
		2017	2018	2019	2020	2021	2022
COMBINED WATER & SEWER							
Operating Fund							
	Revenues:						
1	Proposed Revenue Increases		13.00%	13.00%	3.00%	3.00%	3.00%
	Revenue from Rates (a)						
2	Revenue from Existing Rates	\$ 6,653,198	\$ 6,925,567	\$ 7,212,923	\$ 7,272,661	\$ 7,334,133	\$ 7,387,107
3	Revenue Increases	-	900,324	1,997,258	2,292,394	2,601,147	2,920,146
4	Total Revenue from Rates	\$ 6,653,198	\$ 7,825,891	\$ 9,210,181	\$ 9,565,055	\$ 9,935,280	\$ 10,307,254
5	Capital Revenue (b)	\$ 1,134,606	\$ 1,135,861	\$ 1,131,829	\$ 1,112,006	\$ 1,091,076	\$ 901,155
6	Interest Income (c)	\$ 2,773	\$ 3,634	\$ 12,576	22,272	33,846	32,414
7	Other Revenues (d)	\$ 116,600	\$ 116,600	\$ 116,600	116,600	116,600	116,600
8	Miscellaneous Revenues (e)	\$ 175,500	\$ 175,500	\$ 175,500	175,500	175,500	175,500
9	Intra-City Revenues	\$ 455,000	\$ 400,000	\$ -	-	-	-
10	Total Revenues	\$ 8,537,677	\$ 9,657,485	\$ 10,646,686	\$ 10,991,433	\$ 11,352,302	\$ 11,532,922
	Revenue Requirements:						
11	O&M Expenses	\$ 4,903,400	\$ 5,450,929	\$ 5,210,783	\$ 5,377,865	\$ 5,552,611	\$ 5,752,671
	Debt Service Requirements						
12	Existing GO Bonds	2,382,321	2,426,533	2,277,037	2,275,696	2,217,427	2,038,073
13	Proposed GO Bonds	-	-	217,802	217,802	217,802	217,802
14	Total Debt Service	\$ 2,382,321	\$ 2,426,533	\$ 2,494,839	\$ 2,493,498	\$ 2,435,229	\$ 2,255,875
	Transfer to Construction						
15	Cash Funded Capital (Paygo) (f)	909,000	1,739,146	1,193,485	647,475	1,241,114	3,613,261
16	Total Transfer to Construction	909,000	1,739,146	1,193,485	647,475	1,241,114	3,613,261
17	Transfer to General Fund	-	-	810,520	810,520	820,520	680,520
18	Transfer to Rate Stabilization Fund	-	-	330,000	330,000	340,000	-
19	Total Revenue Requirements	\$ 8,194,721	\$ 9,616,608	\$ 10,039,626	\$ 9,659,358	\$ 10,389,475	\$ 12,302,327
20	Annual Net Balance (g)	\$ 342,956	\$ 40,878	\$ 607,060	\$ 1,332,075	\$ 962,828	\$ (769,404)
21	Beginning Balance (h)	0	342,956	383,834	990,894	2,322,969	3,285,797
22	Ending Fund Balance	342,956	383,834	990,894	2,322,969	3,285,797	2,516,393
23	Target Balance (60 Days O&M)	\$ 806,038	\$ 896,043	\$ 856,567	\$ 884,033	\$ 912,758	\$ 945,645
24	Days Working Capital	26	26	69	158	216	160
	Revenue Available for Coverage:						
25	Net Revenue from Operations (j)	\$ 3,634,277	\$ 4,206,556	\$ 5,435,903	\$ 5,613,568	\$ 5,799,691	\$ 5,780,251
26	Other Interest Income (k)	17,856	43,007	29,171	10,144	3,016	8,328
27	Revenue Available for Coverage	\$ 3,652,133	\$ 4,249,564	\$ 5,465,074	\$ 5,623,711	\$ 5,802,707	\$ 5,788,580
	Debt Service Coverage						
28	Total Debt Service (l)	153%	175%	219%	226%	238%	257%
29	Minimum Required	120%	120%	120%	120%	120%	120%
	Rate Stabilization Fund						
30	End of Year Balance	\$ -	\$ -	\$ 330,000	\$ 660,000	\$ 1,000,000	\$ 1,000,000
Construction Fund							
	New Capital Funding Sources						
31	GO Bond Issuance	2,400,000	2,960,000	0	0	0	0
32	GO Bond Issuance Costs (m)	(24,000)	(29,600)	0	0	0	0
33	Net GO Bond Proceeds	2,376,000	2,930,400	0	0	0	0
34	Federal Grants	0	0	0	0	0	0
35	Other Sources	0	0	0	0	0	0
36	Total New Funding Sources	\$ 2,376,000	\$ 2,930,400	\$ 0	\$ 0	\$ 0	\$ 0
	Existing Source of Funds:						
37	Beginning of Year Balance	\$ 384	\$ 2,140,240	\$ 3,310,011	\$ 1,778,402	\$ 21,024	\$ 24,040
38	Transfer from Operations (Line 17)	909,000	1,739,146	1,193,485	647,475	1,241,114	3,613,261
39	Interest Income (n)	17,856	43,007	29,171	10,144	3,016	8,328
40	Total Existing Source of Funds	\$ 927,240	\$ 3,922,393	\$ 4,532,667	\$ 2,436,020	\$ 1,265,154	\$ 3,645,629
	Application of Funds:						
41	Major Capital Improvements (o)	1,163,000	3,542,782	2,754,265	2,414,996	1,241,114	3,613,261
42	Total Use of Funds	1,163,000	3,542,782	2,754,265	2,414,996	1,241,114	3,613,261
43	End of Year Balance (p)	\$ 2,140,240	\$ 3,310,011	\$ 1,778,402	\$ 21,024	\$ 24,040	\$ 32,368
44	Required Balance (q)	1,352,727	1,170,585	1,325,641	-	-	-

Scenario D with ARC – Financial Performance with Revenue Adjustments, Additional Bond Financing and ARC Implementation

Line No.	Description	Fiscal Year					
		2017	2018	2019	2020	2021	2022
COMBINED WATER & SEWER							
Operating Fund							
	Revenues:						
1	Proposed Revenue Increases		13.00%	13.00%	3.00%	3.00%	3.00%
	Revenue from Rates (a)						\$ 3,654,056
2	Revenue from Existing Rates	\$ 6,653,198	\$ 6,925,567	\$ 7,212,923	\$ 7,272,661	\$ 7,334,133	\$ 7,387,107
3	Revenue Increases	-	900,324	1,997,258	2,292,394	2,601,147	2,920,146
4	Total Revenue from Rates	\$ 6,653,198	\$ 7,825,891	\$ 9,210,181	\$ 9,565,055	\$ 9,935,280	\$ 10,307,254
5	Capital Revenue (b)	\$ 1,134,606	\$ 1,115,659	\$ 1,143,032	\$ 1,154,895	\$ 1,165,927	\$ 976,032
6	Interest Income (c)	\$ 2,773	\$ 3,739	\$ 12,431	22,397	34,564	33,891
7	Other Revenues (d)	\$ 116,600	\$ 116,600	\$ 116,600	116,600	116,600	116,600
8	Miscellaneous Revenues (e)	\$ 175,500	\$ 175,500	\$ 175,500	175,500	175,500	175,500
9	Intra-City Revenues	\$ 455,000	\$ 400,000	\$ -	-	-	-
10	Total Revenues	\$ 8,537,677	\$ 9,637,389	\$ 10,657,744	\$ 11,034,447	\$ 11,427,872	\$ 11,609,276
	Revenue Requirements:						
11	O&M Expenses	\$ 4,903,400	\$ 5,450,929	\$ 5,210,783	\$ 5,377,865	\$ 5,552,611	\$ 5,752,671
	Debt Service Requirements						
12	Existing GO Bonds	2,382,321	2,426,533	2,277,037	2,275,696	2,217,427	2,038,073
13	Proposed GO Bonds	-	-	217,802	217,802	217,802	217,802
14	Total Debt Service	\$ 2,382,321	\$ 2,426,533	\$ 2,494,839	\$ 2,493,498	\$ 2,435,229	\$ 2,255,875
	Transfer to Construction						
15	Cash Funded Capital (Paygo) (f)	909,000	1,739,146	1,193,485	647,475	1,241,114	3,613,261
16	Total Transfer to Construction	909,000	1,739,146	1,193,485	647,475	1,241,114	3,613,261
17	Transfer to General Fund	-	-	810,520	810,520	820,520	680,520
18	Transfer to Rate Stabilization Fund	-	-	330,000	330,000	340,000	-
19	Total Revenue Requirements	\$ 8,194,721	\$ 9,616,608	\$ 10,039,626	\$ 9,659,358	\$ 10,389,475	\$ 12,302,327
20	Annual Net Balance (g)	\$ 342,956	\$ 20,781	\$ 618,117	\$ 1,375,089	\$ 1,038,397	\$ (693,050)
21	Beginning Balance (h)	0	342,956	363,737	981,855	2,356,943	3,395,341
22	Ending Fund Balance	342,956	363,737	981,855	2,356,943	3,395,341	2,702,290
23	Target Balance (60 Days O&M)	\$ 806,038	\$ 896,043	\$ 856,567	\$ 884,033	\$ 912,758	\$ 945,645
24	Days Working Capital	26	24	69	160	223	171
	Revenue Available for Coverage:						
25	Net Revenue from Operations (j)	\$ 3,634,277	\$ 4,186,460	\$ 5,446,961	\$ 5,656,582	\$ 5,875,260	\$ 5,856,605
26	Other Interest Income (k)	17,856	43,007	29,171	10,144	3,016	8,328
27	Revenue Available for Coverage	\$ 3,652,133	\$ 4,229,467	\$ 5,476,131	\$ 5,666,725	\$ 5,878,276	\$ 5,864,933
	Debt Service Coverage						
28	Total Debt Service (l)	153%	174%	219%	227%	241%	260%
29	Minimum Required	120%	120%	120%	120%	120%	120%
	Rate Stabilization Fund						
30	End of Year Balance	\$ -	\$ -	\$ 330,000	\$ 660,000	\$ 1,000,000	\$ 1,000,000
Construction Fund							
	New Capital Funding Sources						
31	GO Bond Issuance	2,400,000	2,960,000	0	0	0	0
32	GO Bond Issuance Costs (m)	(24,000)	(29,600)	0	0	0	0
33	Net GO Bond Proceeds	2,376,000	2,930,400	0	0	0	0
34	Federal Grants	0	0	0	0	0	0
35	Other Sources	0	0	0	0	0	0
36	Total New Funding Sources	\$ 2,376,000	\$ 2,930,400	\$ 0	\$ 0	\$ 0	\$ 0
	Existing Source of Funds:						
37	Beginning of Year Balance	\$ 384	\$ 2,140,240	\$ 3,310,011	\$ 1,778,402	\$ 21,024	\$ 24,040
38	Transfer from Operations (Line 17)	909,000	1,739,146	1,193,485	647,475	1,241,114	3,613,261
39	Interest Income (n)	17,856	43,007	29,171	10,144	3,016	8,328
40	Total Existing Source of Funds	\$ 927,240	\$ 3,922,393	\$ 4,532,667	\$ 2,436,020	\$ 1,265,154	\$ 3,645,629
	Application of Funds:						
41	Major Capital Improvements (o)	1,163,000	3,542,782	2,754,265	2,414,996	1,241,114	3,613,261
42	Total Use of Funds	1,163,000	3,542,782	2,754,265	2,414,996	1,241,114	3,613,261
43	End of Year Balance (p)	\$ 2,140,240	\$ 3,310,011	\$ 1,778,402	\$ 21,024	\$ 24,040	\$ 32,368
44	Required Balance (q)	1,352,727	1,170,585	1,325,641	-	-	-



ROADMAP TO WATER AND SEWER FUND FINANCIAL RESILIENCE

-- *WATER AND SEWER FINANCIAL PLAN AND INFRASTRUCTURE RENEWAL FORECAST STUDY*

Presented to the City of Havre de Grace

BUILDING A WORLD OF DIFFERENCE®



Focus of Our Discussion Today

Discussion

We'll focus on four key aspects during today's discussion on the Water/Sewer Financial Planning & Rate Study



21 March 2017 | 2

The Context: Havre de Grace Water/Sewer Utility

The Current State:
Utility's Fiscal Health

The Desired State:
Best Practice Driven
Financial Resilience

The Roadmap:
Our Proposed
Financial Plan

Havre de Grace – Water/Sewer Utility

Our Mission, System, and Services

Water/Sewer Enterprise Fund

Key Sources of Utility Revenues

The Mission of Our Water & Wastewater Divisions

Our Mission

A core part of the Department of Public Works' Mission it to deliver quality water and wastewater services to our Community and Customers.

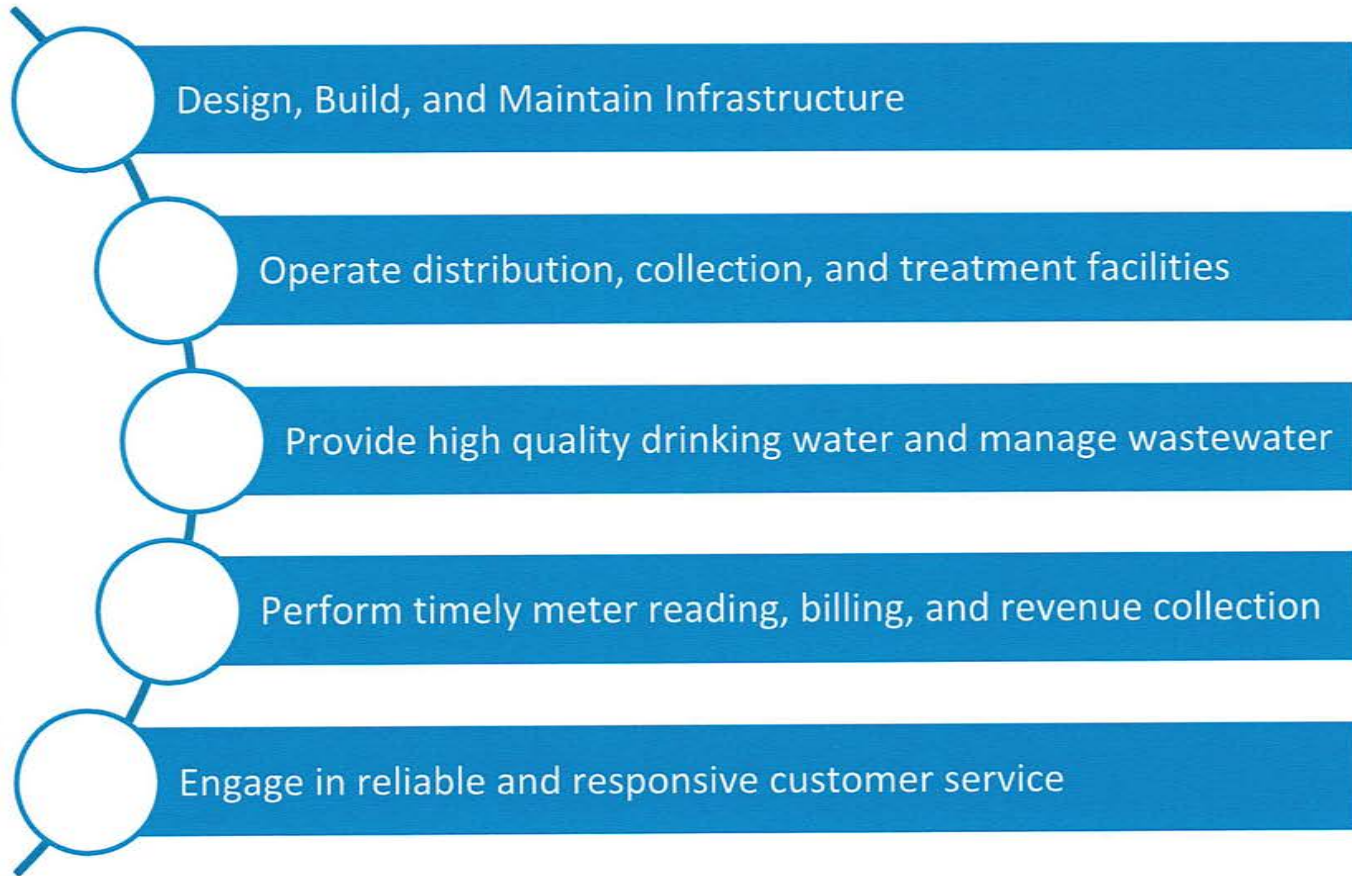
- **Protect public health & environment**
- **Support public safety**
- **Protect and sustain economic growth**
- **Manage & maintain infrastructure**
- **Provide water and wastewater services to approximately 13,300 citizens**



We Provide Water and Wastewater Services Every Day

Our Services

- Water Treatment
- Water Distribution
- Wastewater Collection
- Wastewater Treatment
- Utility Billing
- Revenue Collection
- Customer Service



Our Water and Sewer Infrastructure

Our System

We have made a significant investment into our water and wastewater infrastructure.

However, many of our assets are over 50 years old and already at /or beyond their anticipated service life.

- Buried assets (pipes) and facilities
 - 44 miles of **WATER** pipes
 - 47 miles of **SEWER** pipes
- 3 water storage facilities / tanks
- 1 booster stations
- 16 sewer pumping stations
- Water (4 mgd) and Wastewater (3.3 mgd) treatment facilities
- Solids Handling Facilities



We Comply With Diverse Regulatory Requirements

We are committed to full compliance with federal, state and local regulatory standards:

- Clean Water Act
- Safe Drinking Water Act

This requires treatment to:

- Meet stringent Microbial, Organic & Inorganic contaminant and Byproducts in drinking water
- Enhance water quality in the Chesapeake Bay through
 - Enhanced Nutrient Removal (ENR)
 - Increased management of biosolids generated from wastewater treatment

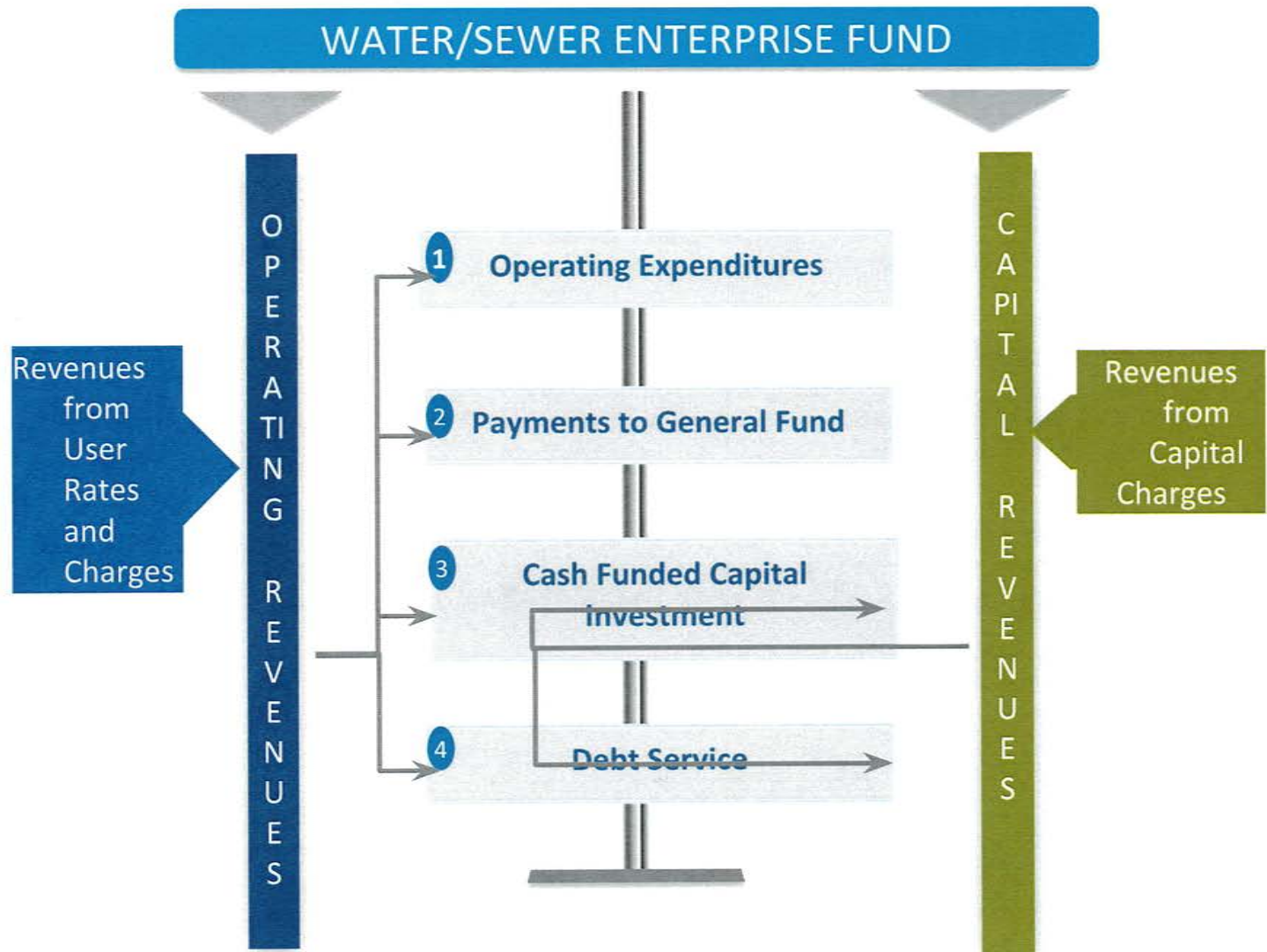
Our Requirements

The City is subject to the provisions of the federal Safe Water Drinking Act and the Clean Water Act, and multiple State and Local Requirements.



Water/Sewer Fund

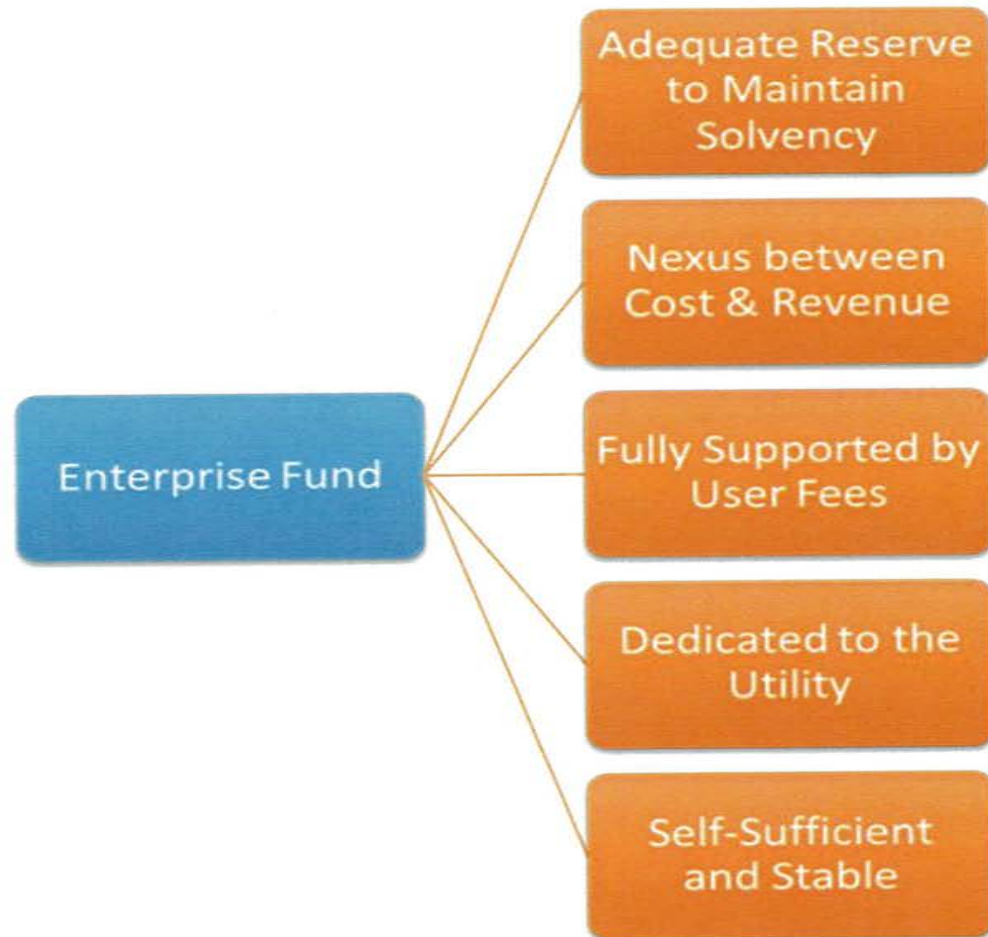
The Water/Sewer Fund is a distinct Enterprise Fund. All utility revenues and expenditures are accounted for in this Enterprise Fund.



The Enterprise Fund

The water and sewer operations are funded via a dedicated Enterprise Fund.

Key Characteristics of an Enterprise Fund



The Current State: Utility's Fiscal Health

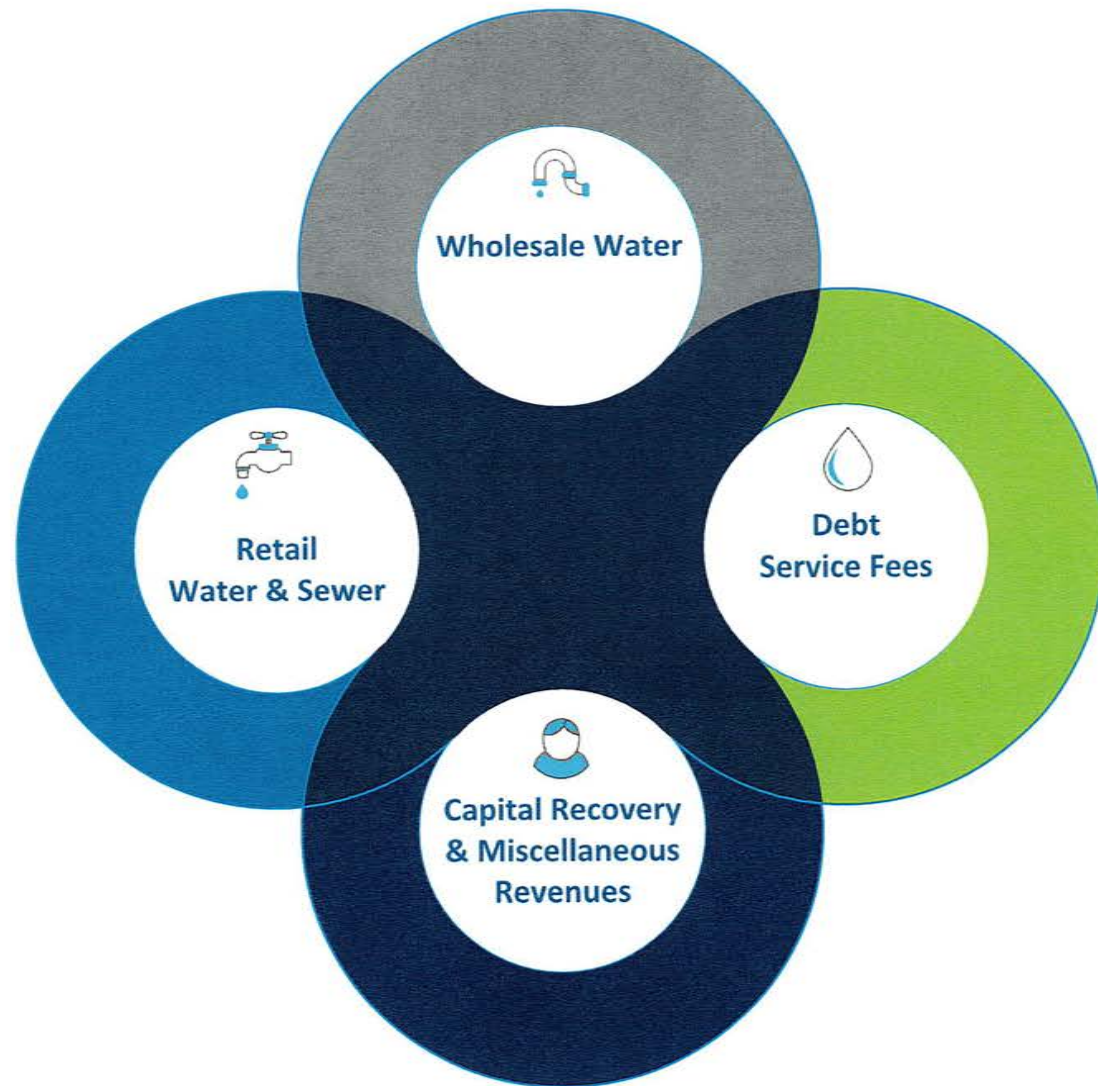
What Drives Our Utility Needs?

Current Financial Position

Current Financial Planning Practice

Existing Funding Sources

In recent years, to manage the annual revenue shortfall, the water/sewer fund had to borrow from the General Fund.



REVENUE PROJECTIONS

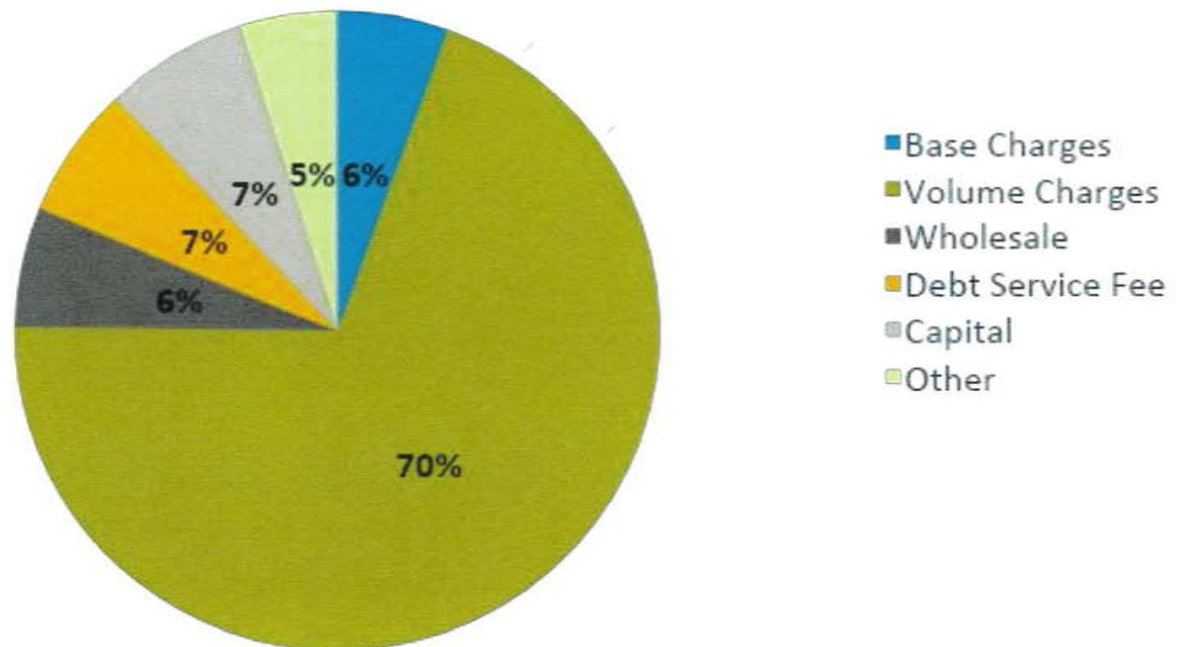
Revenues from volume charges make up over 70% of the revenue.

Customer Usage can significantly influence revenues, while many needs such as debt service and capital expenses are fixed.



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FY 2017 – Estimated Revenues Total : \$8.1M



What Factors Impact Utility Revenues?

Revenue Impact

A slow growth in the number of customers reduction in water consumption has caused an annual “funding gap”.

- Very minimal growth in customer accounts
- Continued decline in overall retail water consumption
- Potential under recovery of cost of service from wholesale customer



Expenditure Impact

Utility O&M costs typically run higher than normal inflation

Infrastructure management and regulatory requirements drive capital program costs

What Factors Impact Utility Expenditures?

- **O&M costs typically increase higher than Consumer Price Index (CPI)**
- **The City has maintained a steady level of O&M costs**
 - Through reductions in staffing levels
 - Deferring proactive preventive maintenance
- **Low levels of capital improvements investments**
 - Major investment only on the WWTP
 - Investments on buried infrastructure have largely been reactive
 - Currently using a “fix as fail” approach due to inadequate funding
 - Limited borrowing capacity available

Key Risk: Failure of critical assets that can impact safety, health, and reliable service



Existing Financial Profile

Without any revenue increases, the water/sewer fund deficit will be even more significant in FY 2018 than in previous fiscal years.

FY 2018 - Under Current Rates and Charges



- Current revenues do not cover costs
- Deficits cannot be managed via cost reductions
- Water/Sewer fund needs increased revenues
- Continued support from the general fund will be required

Without action funding deficit will grow

	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022
Balance (\$M)	(0.1)	(0.88)	(2.22)	(3.67)	(4.02)	(6.91)



Prior Revenue Increases Are Not Keeping Pace with Current Revenue Needs

Industry Best Practices

What are the Industry's Rate Setting Best Practices?

- Financial standards that drive a "self-sustaining" utility
- Develop annually a 5 to 10 year **financial plan (forecast) including O&M and Planned CIP**
 - Perform a **cost of service** review every three to five years
 - Establish rates to ensure **self-sufficiency** to meet all revenue requirements and performance targets



What was the City's Rate Setting Practice?

- Limited rate increases based on short term view
- No long term financial forecast
 - Revenue increases are not aligned with the utility's actual cost needs
 - Rates have not been adjusted for usage decline; slow growth
 - No cash financing of capital program
 - Funding gap managed through borrowing from the General Fund

Multiple Factors Adversely Impact Enterprise Fund Solvency

Factors Impacting Utility Resilience

These key issues adversely impact the following:

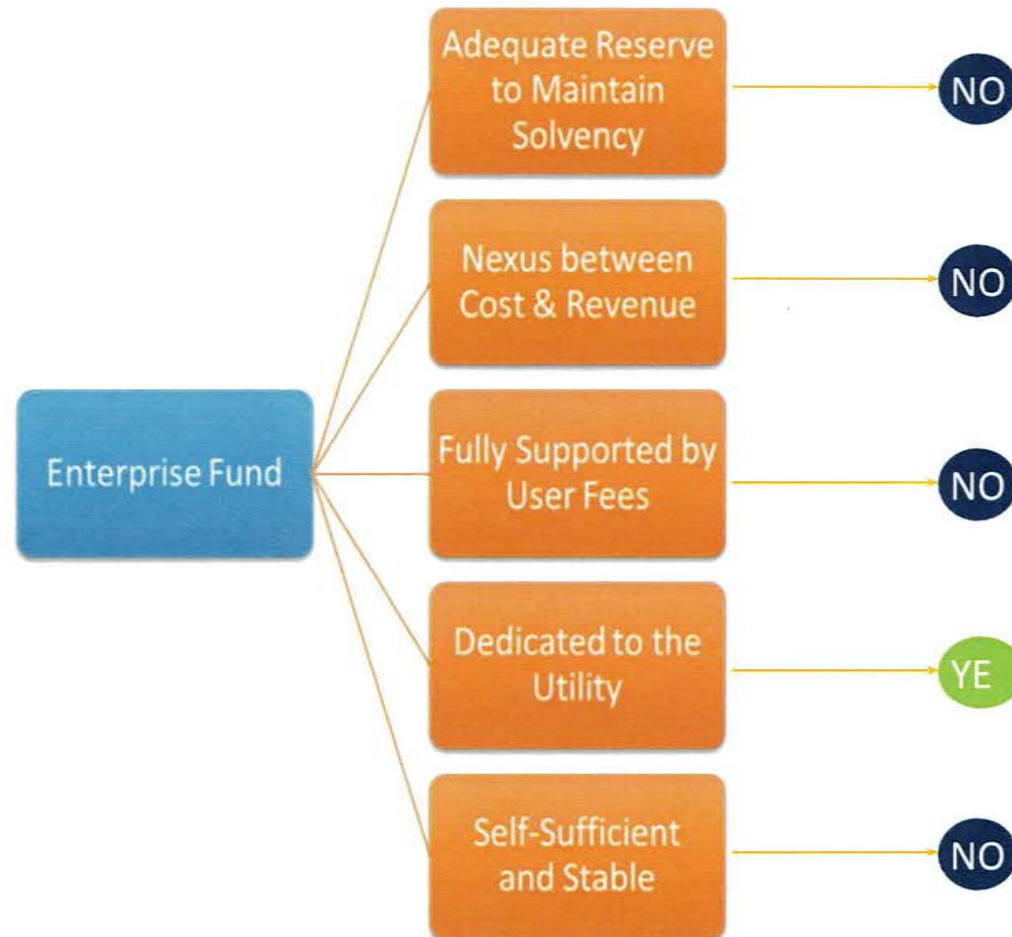
- Financial Adequacy
- Financial Stability
- Financial Resiliency



Current Fiscal Health of the Enterprise Fund

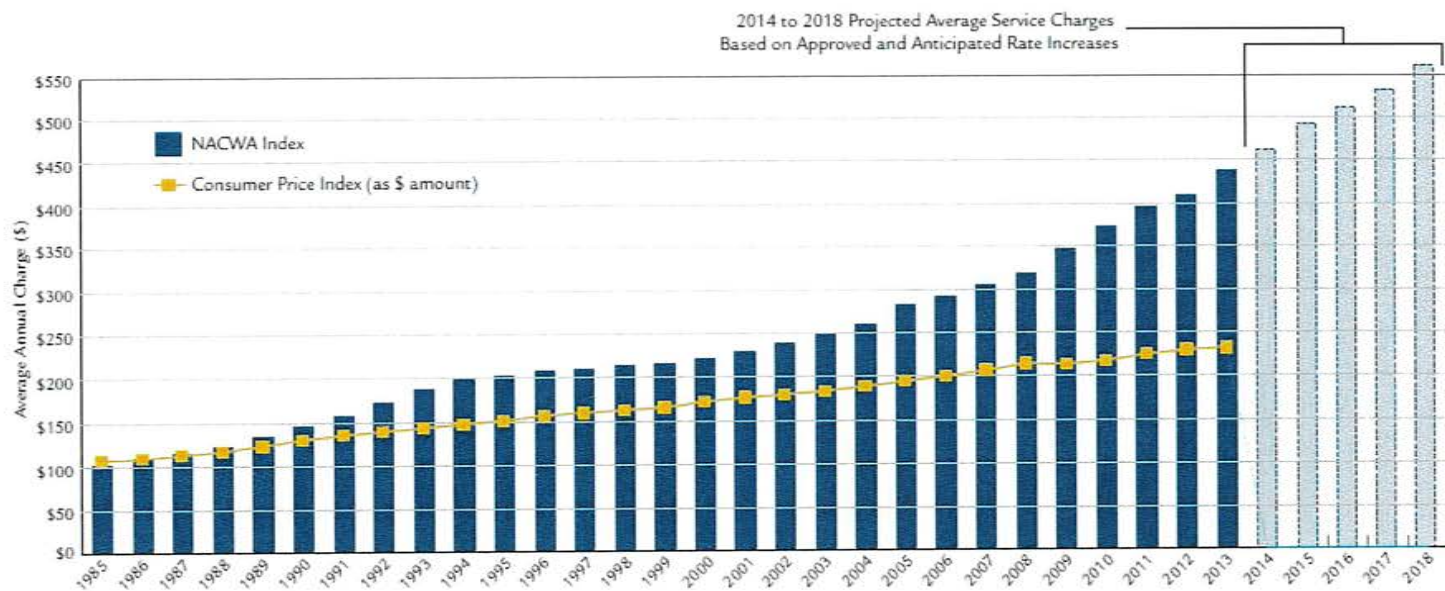
The City's Water/Sewer Enterprise Fund currently fails to meet many of the key characteristics of the Enterprise Fund.

Summary of Current Financial Performance



National Trend in Wastewater Charges

National survey indicates that the rate of annual increase in wastewater service charges is higher than that of the CPI.



Source: NACWA 2015 Wastewater Survey



The Desired State: Best Practice Driven Financial Resilience

Pathway to Financial Resilience

Financial Planning Process

FY 2018 – FY 2022 Financial Plan Objectives

Best Practice Financial Policies

What is the envisioned path to financial resiliency for the Water/Sewer Fund ?

PATH TO BUILDING FINANCIAL RESILIENCE

Step 1: Financial Sufficiency

Step 2: Immediate Term Financial Stability

Step 3: Long Term Financial Resiliency



Financial Plan & Infrastructure Renewal Study

Two-Phased Study

Phase 1 - Develop a high-level water infrastructure renewal forecast

Phase 2 - Perform a rate study to address the funding deficit



Key Study Components

- **Develop Water Infrastructure Renewal Forecast**
 - Forecast renewal and replacement (R&R) costs over the next 10-years
 - Develop Water Infrastructure Renewal Forecast Model
- **Establish a reliable 5-year CIP expenditure schedule**
- **Develop a 5-Year Financial Plan**
- **Design a Balanced Rate Structure**

Financial Planning Process

This study addressed Financial Planning & Rate Design

A cost of service analysis should be considered in the future.

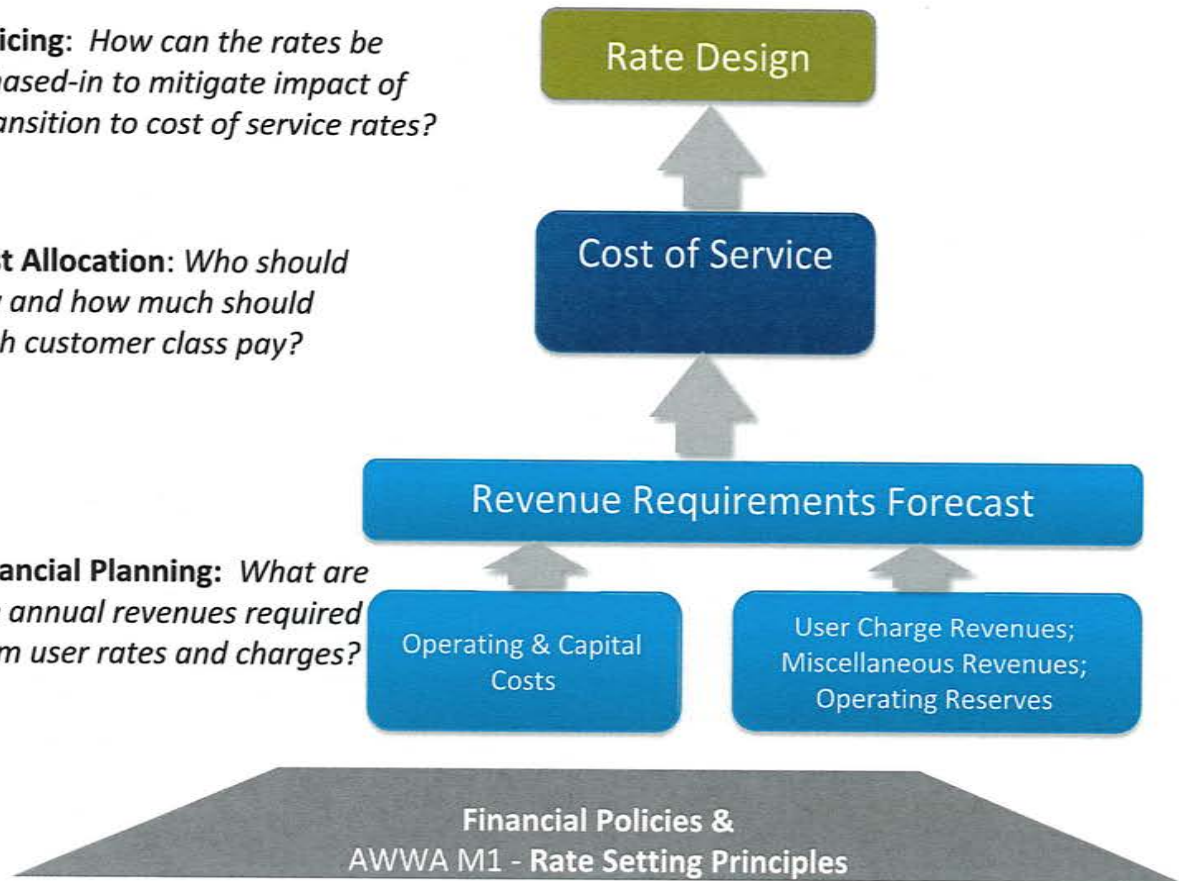
This approach is based on rate setting guidelines set forth by AWWA and WEF along with utility industry financial practices



Pricing: *How can the rates be phased-in to mitigate impact of transition to cost of service rates?*

Cost Allocation: *Who should pay and how much should each customer class pay?*

Financial Planning: *What are the annual revenues required from user rates and charges?*

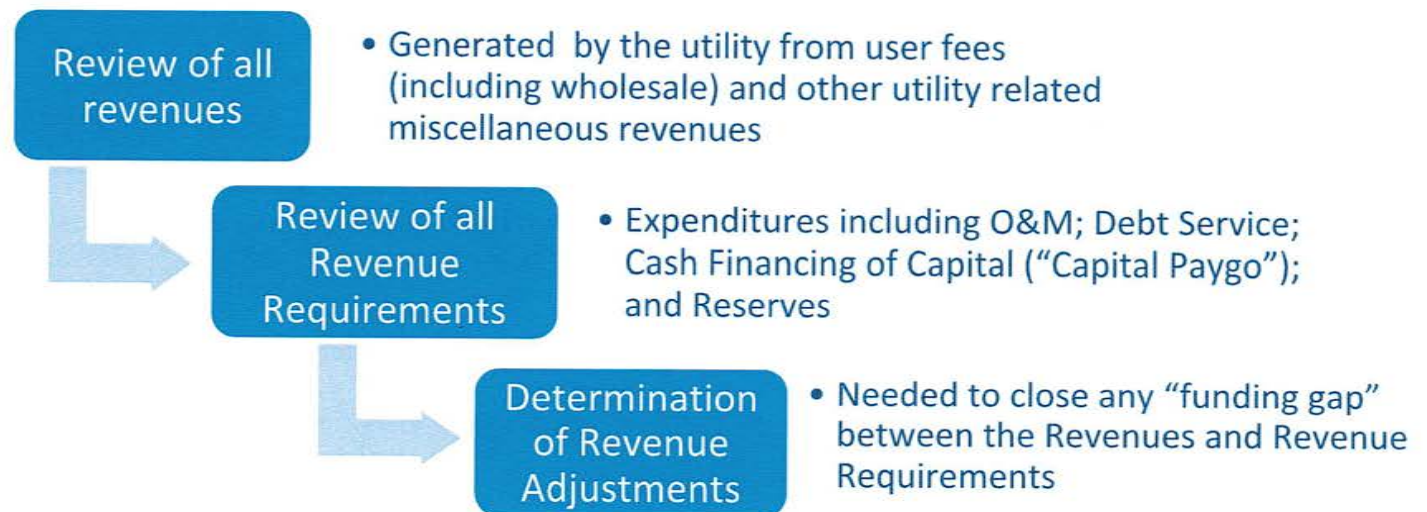


AWWA: American Water Works Association;
WEF: Water Environment Federation

Proposed Financial Plan

A balanced and holistic financial plan restores financial self-sufficiency while mitigating customer bill impact

A Financial Plan Involves Three Key Steps



Financial Plan Objectives

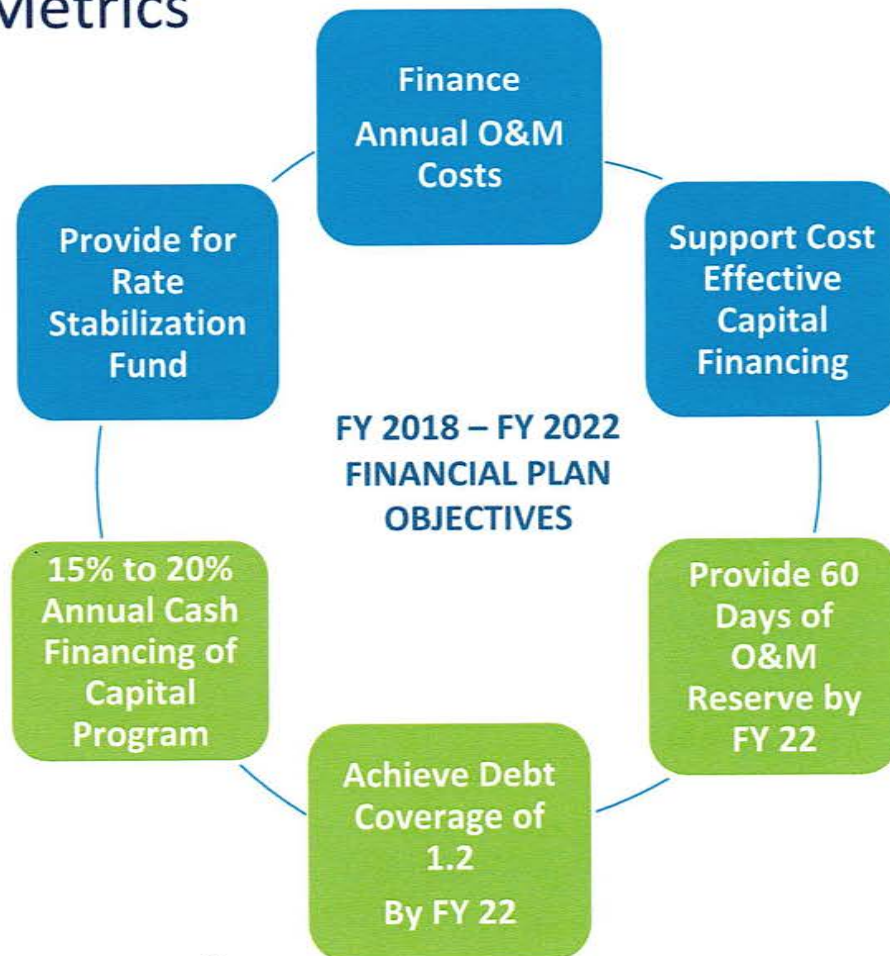
The financial performance target defined for O&M Reserve; Debt Coverage; and Cash Financing are “Minimum” financial targets.

Industry best practice financial policies typically recommend higher targets for these financial performance metrics



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Financial Plan is Designed to Achieve Key Performance Metrics



Proposed Financial Policies to Build Financial Resiliency

Key Financial Policy Recommendations

Three financial policies are proffered to achieve the multiple benefits of:

- *Financial Resiliency*
- *Rate Stability*
- *Customer Affordability*

- **O&M Reserves** – Annual operating reserves to fund operational emergencies and unforeseen expenditures
- **Rate Stabilization Fund (RSF)** – Annual reserve amount that could be used to mitigate magnitude of future revenue increases needed
- **Affordability Programs** - Assistance program for low income customers to enhance affordability

60 Days of
O&M

\$1.0 Million in
RSF

Water usage
allowance



The Roadmap: Proposed Financial Plan

Water/Sewer Fund Financial Plan

Current Financial Performance

Current Financial Planning Practice

The FY 2018 – FY 2022 Financial Plan

Line No.	Description	Fiscal Year					
		2017	2018	2019	2020	2021	2022
COMBINED WATER & SEWER		(\$M)	(\$M)	(\$M)	(\$M)	(\$M)	(\$M)
Operating Fund							
Revenues:							
1	Total Revenue from Rates	6.65	7.83	9.21	9.56	9.94	10.31
2	Total Revenues	8.54	9.64	10.66	11.03	11.43	11.61
Revenue Requirements:							
3	O&M Expenses	4.90	5.45	5.21	5.38	5.55	5.75
4	Total Debt Service	2.38	2.43	2.49	2.49	2.44	2.60
5	Cash Funded Capital	0.91	1.74	1.19	0.65	1.24	3.61
6	Transfer to General Fund	-	-	0.81	0.81	0.82	0.68
7	Transfer to RSF	-	-	0.33	0.33	0.34	-
8	Total Revenue Requirements	8.19	9.62	10.04	9.66	10.39	12.30
Fund Balance							
9	Ending Fund Balance	0.34	0.36	0.98	2.36	3.34	2.70

Proposed 5-Year Financial Plan

- Revenues reflect proposed level of annual increases
- Revenue requirements reflect O&M cost escalations, existing and future debt service, cash funding of capital program, loan repayment to General Fund, and funding to create a Rate Stabilization Fund.



Financial Performance Under the Proposed Financial Plan

Financial Plan helps gradually achieve all the desired financial performance targets

Financial Performance Forecast

Line No.	Description	Fiscal Year					
		2017	2018	2019	2020	2021	2022
COMBINED WATER & SEWER							
1	Revenue Adjustment (%)	0%	13%	13%	3%	3%	3%
2	Days Working Capital	26	24	69	160	223	171
3	Debt Service Coverage (%)	153%	174%	219%	227%	241%	260%
	Rate Stabilization Fund						
4	End of Year Balance (\$M)	-	-	0.33	0.66	1.0	1.0

Strategies to Mitigate Operating Revenue Increases

This approach assumes wholesale revenues will double by FY 19 and anticipates the buyout of the County Agreement



Balance achieving the financial objectives sooner against the magnitude of revenue increases needed



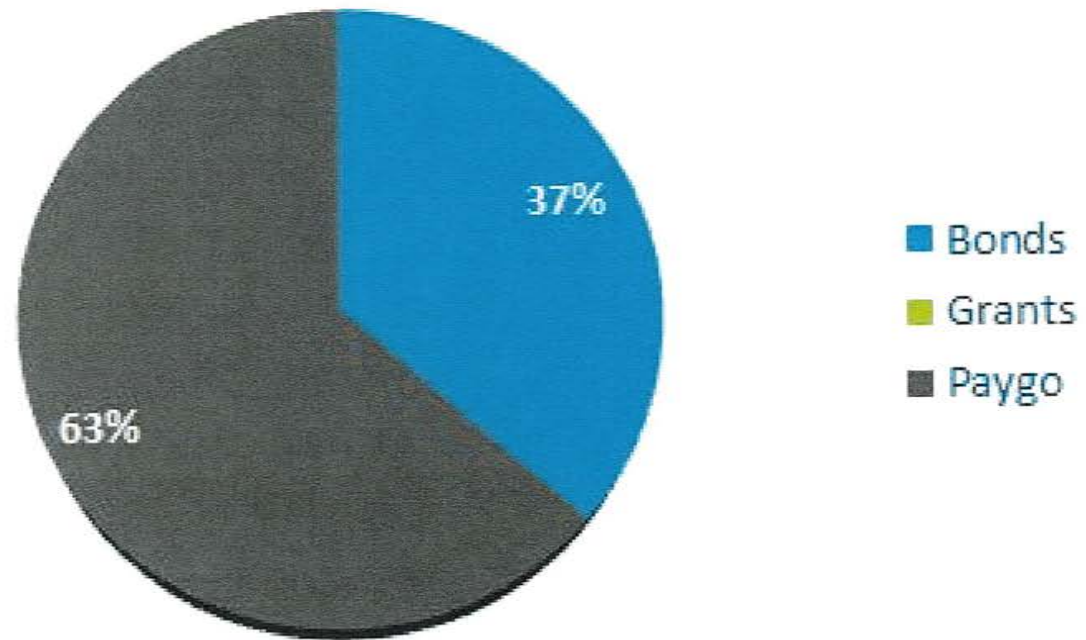
Key strategies to mitigate the levels of revenue increases needed

- New bond issuance in FY 2019 to finance Capital Program
- Supplement capital program funding with Cash Financing
- Establish only 60-days of O&M as the reserve level target
- Proactively establish a Rate Stabilization Fund of \$1.0 Million to mitigate the level of future revenue increases

Capital Improvement Program Financing Distribution

The financial plan assumes primarily Cash Financing and bond financing to fund the 6-year CIP program.

FY 2017-FY 2022 CIP Financing Distribution



Key assumption:

- Additional bond issuance in FY 2018 to help mitigate pressure on existing rates
- Assumes no grant funding



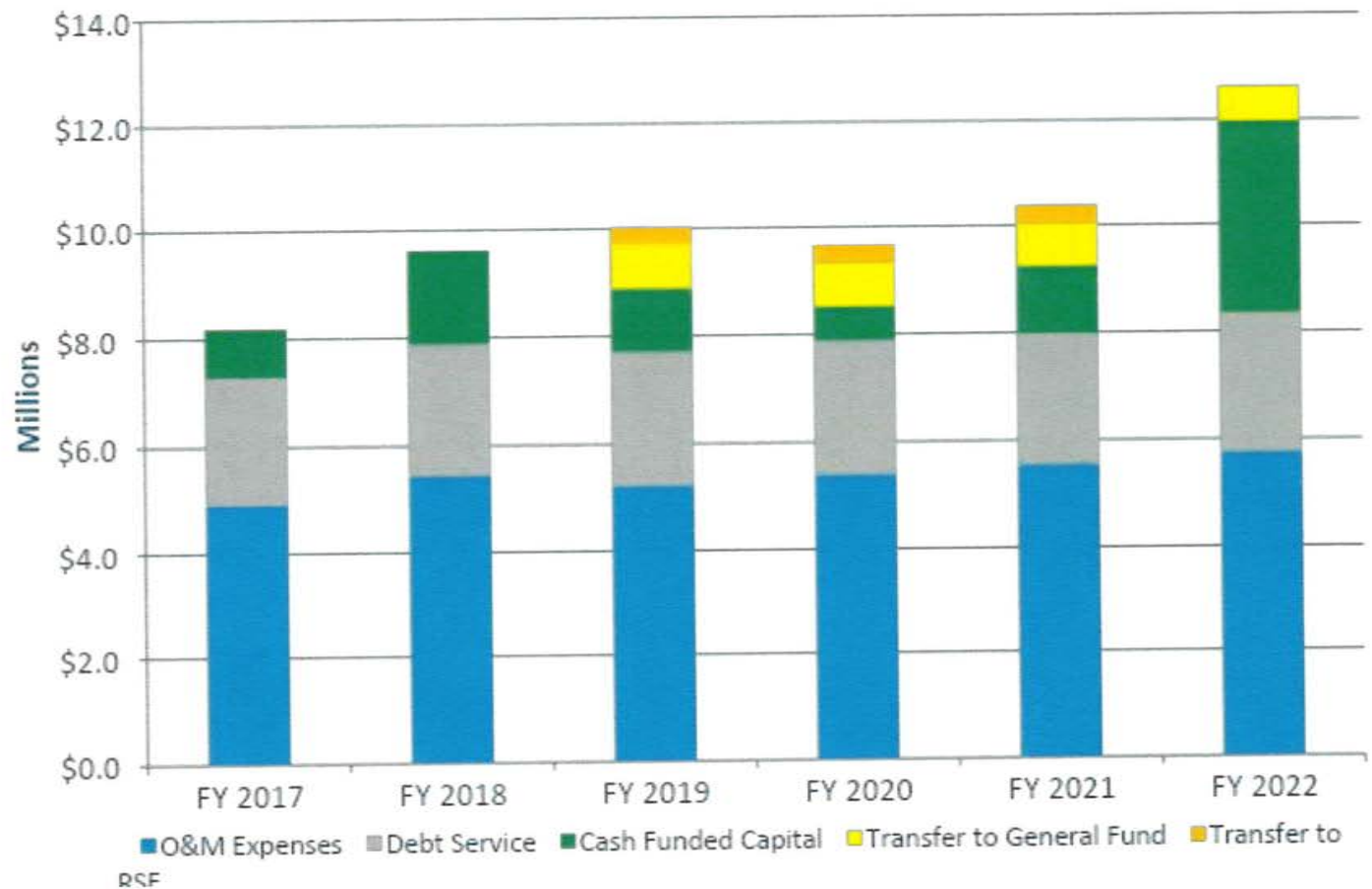
Revenue Requirement Forecast

A significant portion of the annual revenue requirement is driven by the O&M expenditures and cash financing of capital program.



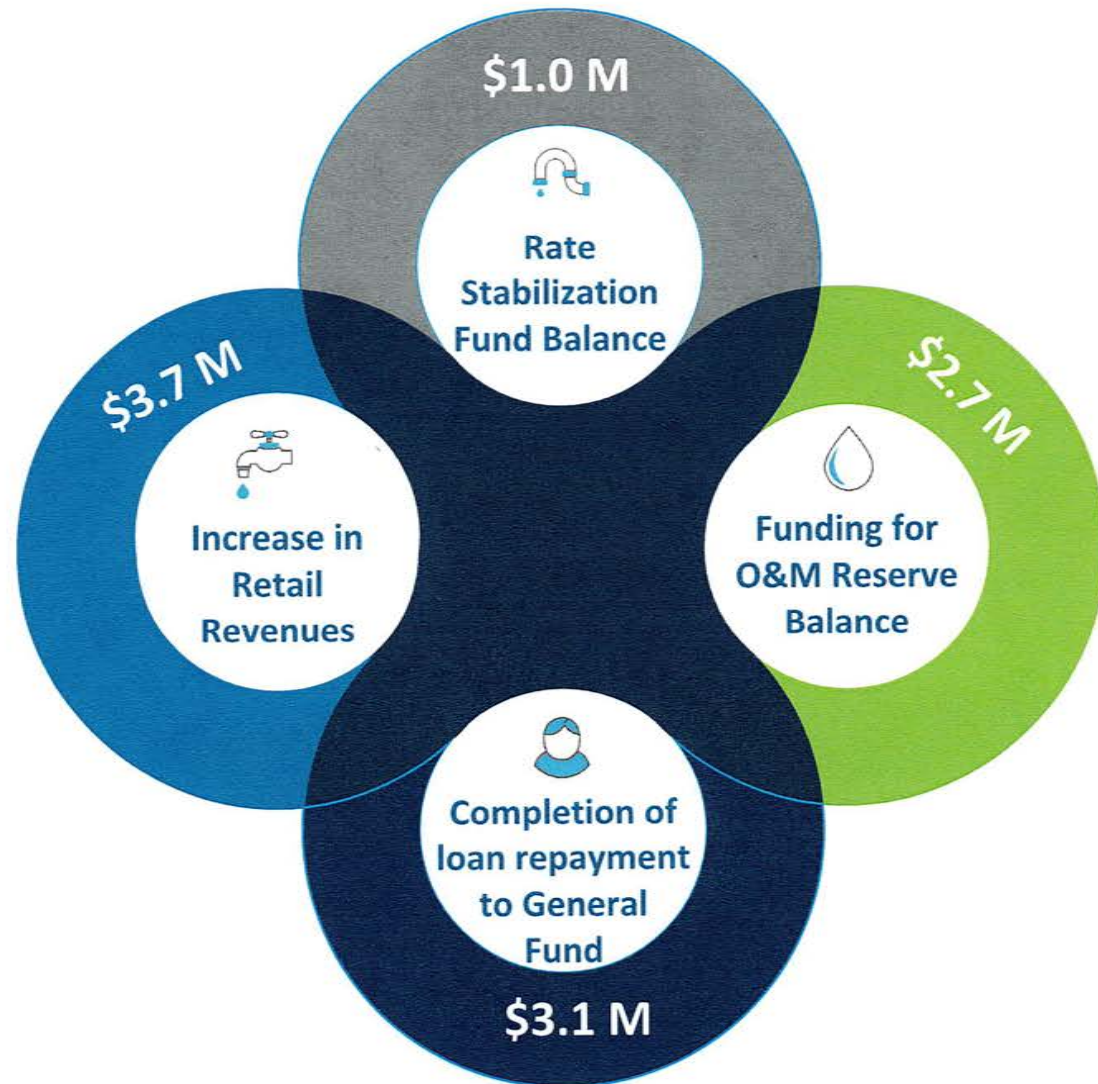
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Annual Revenue Requirement Forecast



Key Financial Plan Achievements

Balanced achievement of multiple benefits.

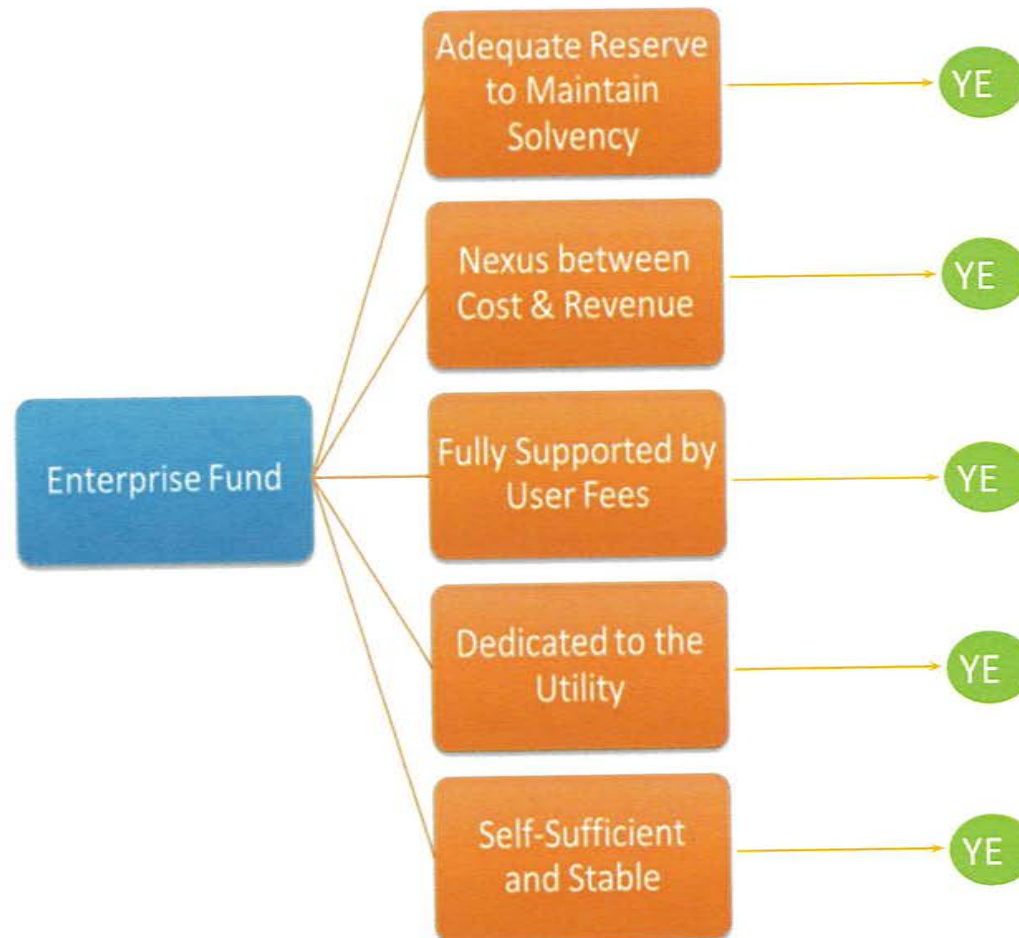


The Enterprise Fund

The proposed financial plan is designed to restore and maintain the key characteristics of the Water/Sewer Enterprise Fund.



Summary of Proposed Financial Performance



Rate Structure & Bill Impact

Existing Rate Structure Review

Proposed Rate Structure

Residential Bill Impact

Peer Utility Bill Comparison

What is a Rate Structure?

Common components include:

- Service charge based on meter size
- Volume charge based on water usage
- Other charges such as special purpose surcharge; asset reinvestment charge

The Rate Structure provides the mechanism to recover a utility's Revenue Requirements in an equitable and fair manner from all the retail and wholesale customers who receive services



Rate Structure Review

The current rate structure contributes to revenue volatility due to heavy reliance on usage volume

Creation of an Asset Reinvestment Charge (ARC) enhances revenue stability



Key Rate Structure Recommendations

Service Charges: FY 2018 to FY 2022

- Adjust Base Service Charge (Meter Charge) and Volume Charges for retail customers annually over the planning period
- Increase wholesale water rates to align revenues with estimated cost of service
 - Renegotiate existing wholesale agreement to enhance equity of cost recovery

Asset Reinvestment Charge: Beginning FY 2018

- Implement a new Asset Reinvestment Charge (ARC) based on Meter Size capacity
- Aging infrastructure requires timely and consistent levels of asset rehabilitation and renewal, to maintain service integrity & reliability
- Assess the ARC from all customers who pay a Base Charge provides for equitable recovery
- Implementing the ARC in FY 2018 to support sustainable funding for Renewal & Repair of aging infrastructure

Proposed Service Charges

The following are the proposed changes to the service charges for FY 2018 through FY 2020

Quarterly Base Service Charges

	CURRENT	PROPOSED		
Meter Size (Inches)	FY 2017	FY 2018	FY 2019	FY 2020
Quarterly Base Service Charge (\$)				
5/8	18.75	21.25	24.00	24.75
3/4	18.75	21.25	24.00	24.75
1	18.75	21.25	24.00	24.75
1 1/2	79.50	90.00	101.75	104.75
2	128.50	145.25	164.25	169.25
3	208.00	235.25	265.75	273.75
4	336.50	380.25	429.75	442.75
6	544.50	615.50	695.50	716.25
8	880.75	995.25	1,124.75	1,158.50

Volume Charges

	CURRENT	PROPOSED		
	FY 2017	FY 2018	FY 2019	FY 2020
Water Service (\$ per 1,000 gallons)				
Inside City	5.85	6.65	7.50	7.70
Outside City	11.70	13.25	14.95	15.40
Sewer Service (\$ per 1,000 gallons)				
Inside City	8.75	9.90	11.20	11.55
Outside City	17.50	19.80	22.35	23.05



Proposed Asset Reinvestment Charge: FY 2018 to FY 2021

Asset Reinvestment Charges

Draft ARC Schedule				
Meter Size (Inches)	FY 2018	FY 2019	FY 2020	FY 2021
5/8 - 1	27.75	33.50	39.00	44.50
1 1/2	55.50	66.75	77.75	89.00
2	89.00	106.75	124.50	142.25
3	177.75	213.25	248.75	284.25
4	277.50	333.00	388.50	444.00
6	555.00	666.00	777.00	888.00
8	888.00	1,065.75	1,243.25	1,421.00

Proposed ARC

The following are the proposed Asset Reinvestment Charges (ARC) for FY 2018 through FY 2021 – showing full phase-in.



Average Quarterly Residential Bill

What is the expected bill in FY 2018 (effective July 1, 2017) for an average residential customer?

Does not include BRFC or other City fees and charges that customers may incur.



Average Residential Customer Bill (FY 2018)

#	Description	Quarterly WATER	Quarterly SEWER	Quarterly TOTAL
1	Base Service Charge	\$21.25		\$21.25
2	Volume Charge	\$99.75	\$148.50	\$248.25
4	Asset Reinvestment Charge			\$27.75
5	Total Quarterly Charges	\$121.00	\$148.50	\$297.25

#	Description	Monthly WATER	Monthly SEWER	Monthly TOTAL
1	Total Monthly Charges	\$40.33	\$49.5	\$99.08

Meter Size: 5/8" @15,000 gallons of usage

Average Residential Bill Impact (FY 2018)

Bill Impact

What is the expected bill impact in FY 2018 (effective July 1, 2017) for an average residential customer?

Does not include BRFC or other City fees and charges that customers may incur.

#	Description	Quarterly WATER	Quarterly SEWER	Quarterly TOTAL
1	EXISTING Residential (5/8")	\$106.50	\$131.25	\$237.75
2	PROPOSED Residential (5/8")	\$121.00	\$148.50	\$269.50
3	Increase in Quarterly Charges	\$14.50	\$17.25	\$31.75

#	Description	Monthly WATER	Monthly SEWER	Monthly TOTAL
1	Increase in Monthly Charges	\$4.83	\$5.75	\$10.58

Meter Size: 5/8" @15,000 gallons of usage



Average Residential Bill Impact From ARC (FY 2018)

Bill Impact

How would the implementation of the ARC impact the average residential customer?

Note the existing DSF is a tiered charge based upon consumption, whereas the DSF would be a fixed rate based upon meter size.

Acronyms:

ARC: Asset Reinvestment Charge;

DSF: Debt Service Fee



#	Description	Quarterly TOTAL
1	EXISTING DSF	\$25.00
2	PROPOSED ARC	\$27.75
3	Increase in Quarterly Charges	\$2.25

#	Description	Monthly TOTAL
1	Increase in Monthly Charges	\$0.75

Meter Size: 5/8" @15,000 gallons of usage

Residential Bill Benchmarking

¹Sources for National Averages:

- Water – AWWA 2012 Financial Survey
- Sewer – NACWA 2015 Financial

²Water and Sewer Charges for Havre de Grace based upon proposed FY 2018 rates. Each charges includes 50% of the ARC.



Comparison of Havre de Grace's Proposed Charges to Nation Averages

TYPICAL 5/8" RESIDENTIAL CUSTOMER

	WATER	SEWER
National Average ¹	\$220	\$435

Havre de Grace ²	\$134.88	\$162.37
-----------------------------	----------	----------

Meter Size: 5/8" @15,000 gallons of usage

Value of Water

▢ Benefits of the Recommended Plan

The Cost of Water

The City of Havre de Grace's monthly water and sewer bill is still lower than a discretionary cable bill.

Comparison To Other Discretionary Costs



Proposed Monthly Water & Sewer Bill: **\$102**



Monthly Cable TV Bill: **\$200**

The City's Public Works Department will continue to fulfill its critical mission of providing high quality services balancing customer impact, infrastructure integrity and financial resiliency

Recommendations

Our Recommendations For
Building And Sustaining The
Resiliency of the City's
Water/Sewer Utility

- **Establish multi-year rate increases per the proposed rate schedules in order to:**
 - Fund water and wastewater operations and support capital projects
 - Eliminate reliance on the general fund and repay prior year loans
- **Establish and phase-in the Asset Reinvestment Charge to:**
 - Eliminate the Debt Service Fee and enhance revenue stability to fund Renewal & Repair
 - Maintain service reliability
 - Enable equitable cost recovery
 - Mitigate short-term bill impact via phase-in
- **Align wholesale water cost recovery with cost of providing service**



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City of Harve De Grace, MD
Utility Financial Planning & Rate Design
Existing vs. Proposed Rates Typical Quarterly Bill

Line No.	Meter Size	Water				
		Quarterly Usage	Existing	Proposed	Increase	Percent
	Inches	kgal				
1	5/8	0	\$ 18.75	\$ 20.63	\$ 1.88	10.03%
2	5/8	3	\$ 36.30	\$ 39.95	\$ 3.65	10.06%
3	5/8	6	\$ 53.85	\$ 59.27	\$ 5.42	10.06%
4	5/8	9	\$ 71.40	\$ 78.59	\$ 7.19	10.07%
5	5/8	12	\$ 88.95	\$ 97.91	\$ 8.96	10.07%
6	5/8	15	\$ 106.50	\$ 117.23	\$ 10.73	10.08%
7	5/8	20	\$ 135.75	\$ 149.43	\$ 13.68	10.08%
8	5/8	25	\$ 165.00	\$ 181.63	\$ 16.63	10.08%
9	3/4	30	\$ 194.25	\$ 213.83	\$ 19.58	10.08%
10	3/4	50	\$ 311.25	\$ 342.63	\$ 31.38	10.08%
11	1	75	\$ 457.50	\$ 503.63	\$ 46.13	10.08%
12	1	100	\$ 603.75	\$ 664.63	\$ 60.88	10.08%
13	1 1/2	150	\$ 957.00	\$ 1,053.45	\$ 96.45	10.08%
14	2	200	\$ 1,298.50	\$ 1,429.35	\$ 130.85	10.08%
15	2	300	\$ 1,883.50	\$ 2,073.35	\$ 189.85	10.08%
16	3	500	\$ 3,133.00	\$ 3,448.80	\$ 315.80	10.08%
17	3	1,000	\$ 6,058.00	\$ 6,668.80	\$ 610.80	10.08%
18	4	5,000	\$ 29,586.50	\$ 32,570.15	\$ 2,983.65	10.08%
19	6	10,000	\$ 59,044.50	\$ 64,998.95	\$ 5,954.45	10.08%
20	8	20,000	\$ 117,880.75	\$ 129,768.83	\$ 11,888.08	10.08%

Sewer			
Existing	Proposed	Increase	Percent
\$ 0	\$ 0	\$ 0	0.00%
\$ 26.25	\$ 28.89	\$ 2.64	10.06%
\$ 52.50	\$ 57.78	\$ 5.28	10.06%
\$ 78.75	\$ 86.67	\$ 7.92	10.06%
\$ 105.00	\$ 115.56	\$ 10.56	10.06%
\$ 131.25	\$ 144.45	\$ 13.20	10.06%
\$ 175.00	\$ 192.60	\$ 17.60	10.06%
\$ 218.75	\$ 240.75	\$ 22.00	10.06%
\$ 262.50	\$ 288.90	\$ 26.40	10.06%
\$ 437.50	\$ 481.50	\$ 44.00	10.06%
\$ 656.25	\$ 722.25	\$ 66.00	10.06%
\$ 875.00	\$ 963.00	\$ 88.00	10.06%
\$ 1,312.50	\$ 1,444.50	\$ 132.00	10.06%
\$ 1,750.00	\$ 1,926.00	\$ 176.00	10.06%
\$ 2,625.00	\$ 2,889.00	\$ 264.00	10.06%
\$ 4,375.00	\$ 4,815.00	\$ 440.00	10.06%
\$ 8,750.00	\$ 9,630.00	\$ 880.00	10.06%
\$ 43,750.00	\$ 48,150.00	\$ 4,400.00	10.06%
\$ 87,500.00	\$ 96,300.00	\$ 8,800.00	10.06%
\$ 175,000.00	\$ 192,600.00	\$ 17,600.00	10.06%

City of Harve De Grace, MD
Utility Financial Planning & Rate Design
Existing vs. Proposed Rates Typical Quarterly Bill

Line No.	Meter Size Inches	Quarterly	Debt Service/Asset Renewal Charge			
		Usage kgal	Existing DSF	Proposed ARC	Increase	Percent
1	5/8	0	\$ 25.00	\$ 44.40	\$ 19.40	78%
2	5/8	3	\$ 25.00	\$ 44.40	\$ 19.40	78%
3	5/8	6	\$ 25.00	\$ 44.40	\$ 19.40	78%
4	5/8	9	\$ 25.00	\$ 44.40	\$ 19.40	78%
5	5/8	12	\$ 25.00	\$ 44.40	\$ 19.40	78%
6	5/8	15	\$ 25.00	\$ 44.40	\$ 19.40	78%
7	5/8	20	\$ 25.00	\$ 44.40	\$ 19.40	78%
8	5/8	25	\$ 25.00	\$ 44.40	\$ 19.40	78%
9	3/4	30	\$ 25.00	\$ 44.40	\$ 19.40	78%
10	3/4	50	\$ 30.00	\$ 44.40	\$ 14.40	48%
11	1	75	\$ 30.00	\$ 44.40	\$ 14.40	48%
12	1	100	\$ 100.00	\$ 44.40	\$ (55.60)	-56%
13	1 1/2	150	\$ 100.00	\$ 88.80	\$ (11.20)	-11%
14	2	200	\$ 100.00	\$ 142.08	\$ 42.08	42%
15	2	300	\$ 100.00	\$ 142.08	\$ 42.08	42%
16	3	500	\$ 100.00	\$ 284.16	\$ 184.16	184%
17	3	1,000	\$ 250.00	\$ 284.16	\$ 34.16	14%
18	4	5,000	\$ 250.00	\$ 444.00	\$ 194.00	78%
19	6	10,000	\$ 250.00	\$ 888.00	\$ 638.00	255%
20	8	20,000	\$ 250.00	\$ 1,420.80	\$ 1,170.80	468%

Total			
Existing	Proposed	Increase	Percent
\$ 43.75	\$ 65.03	\$ 21.28	48.64%
\$ 87.55	\$ 113.24	\$ 25.69	29.34%
\$ 131.35	\$ 161.45	\$ 30.10	22.92%
\$ 175.15	\$ 209.66	\$ 34.51	19.70%
\$ 218.95	\$ 257.87	\$ 38.92	17.78%
\$ 262.75	\$ 306.08	\$ 43.33	16.49%
\$ 335.75	\$ 386.43	\$ 50.68	15.09%
\$ 408.75	\$ 466.78	\$ 58.03	14.20%
\$ 481.75	\$ 547.13	\$ 65.38	13.57%
\$ 778.75	\$ 868.53	\$ 89.78	11.53%
\$ 1,143.75	\$ 1,270.28	\$ 126.53	11.06%
\$ 1,578.75	\$ 1,672.03	\$ 93.28	5.91%
\$ 2,369.50	\$ 2,586.75	\$ 217.25	9.17%
\$ 3,148.50	\$ 3,497.43	\$ 348.93	11.08%
\$ 4,608.50	\$ 5,104.43	\$ 495.93	10.76%
\$ 7,608.00	\$ 8,547.96	\$ 939.96	12.35%
\$ 15,058.00	\$ 16,582.96	\$ 1,524.96	10.13%
\$ 73,586.50	\$ 81,164.15	\$ 7,577.65	10.30%
\$146,794.50	\$162,186.95	\$15,392.45	10.49%
\$293,130.75	\$323,789.63	\$30,658.88	10.46%

City of Harve De Grace, MD
Utility Financial Planning & Rate Design
Capital Improvement Program (CIP) Scenario 1
Desc: Base CIP
Source:

Source:

Line No.	Project No.	Funding Type	Project Description	Total Expenditure	Fiscal Year					
					2016	2017	2018	2019	2020	2021
Unescalated CIP										
Water Production (09-1231)										
1	09-1231-6501	Paygo	Capital Expenditures	515,143	155,143	360,000				
2	09-1231-9018	Paygo	Solids Handling Facility, EN	-	-	-				
3	09-1231-9020	Paygo	Upgrade WTP Pumping Capacity	-	-	-				
4	09-1231-9023	Paygo	SCADA System	-	-	-				
5	09-1231-9024	Bonds	WTP Upgrades	1,118,000	-	1,118,000				
6	09-1231-9025	Bonds	WTP Filter Controls	196,000	-	196,000				
7	09-1231-9026	Bonds	WTP Tube Settlers	207,000	-	207,000				
8	09-1231-9027	Paygo	WTP Roof	254,000	-	254,000				
9	09-1231-xxxx	Bonds	Filter Controls Conversion	265,000			265,000			
10	09-1231-xxxx	Paygo	WTP Control Installation	-			-	-	-	-
11	09-1231-xxxx	Paygo	WTP Rotary Control Drive	17,891			17,891			
12	09-1231xxxx	Bonds	WTP Intake Repairs	470,000			150,000	320,000	-	-
13	09-1231-xxxx	Paygo	Intake Gate Valves	12,800			12,800	-	-	-
14	09-1231-xxxx	Bonds	WTP Tube Settlers	289,836			289,836			
15			Subtotal	\$ 3,345,670	\$ 155,143	\$ 2,135,000	\$ 735,527	\$ 320,000	\$ -	\$ -
Wastewater Treatment (09-1245)										
16	09-1245-6501	Paygo	Capital Expenditures	302,110	81,110	221,000				
17	09-1245-9037	Paygo	WWTP SCADA Repairs	28,000	-	28,000				
18	09-1245-xxxx	Paygo	Warren St. Sewer Main Replacement	300,000			-	300,000		
19	09-1245-xxxx	Paygo	Sewer Manhole Replacement	48,130			48,130			
20			Subtotal	\$ 678,240	\$ 81,110	\$ 249,000	\$ 48,130	\$ 300,000	\$ -	\$ -
Water Distribution (09-1232)										
21	09-1232-6501	Paygo	Capital Expenditures	369,837	104,837	265,000				
22	09-1232-9024	Paygo	Ontario St Water Line	-	-	-				
23	09-1232-9025	Paygo	Meter Changeout	-	-	-				
24	09-1232-9028	Paygo	Bourbon Street Line Repair	-	-	-				
25	09-1232-9029	Paygo	Phase III System Improvements	-	-	-				
26	09-1232-9031	Paygo	8" Water line Rt. 40 at Lewis	-	-	-				
27	09-1232-9032	Paygo	Polybuteline Pipe Replacement	-	-	-				
28	09-1232-9033	Paygo	Backflow Inspections	-	-	-				
29	09-1232-9034	Paygo	Water Main Valve Replacement	103,566	68,566	35,000				
30	09-1232-9036	Paygo	Water Distribution Improvement	-	-	-				

City of Harve De Grace, MD
Utility Financial Planning & Rate Design
Capital Improvement Program (CIP) Scenario 1

Desc: Base CIP

Source:

Line No.	Project No.	Funding Type	Project Description	Total Expenditure	Fiscal Year						
					2016	2017	2018	2019	2020	2021	2022
31	09-1232-9037	Paygo	Inflow and Infiltration Repair	-	-	-					
32	09-1232-9038	Paygo	Graceview Stn Generator	-	-	-					
33	09-1232-9041	Paygo	Backflow Preventor WWTP	-	-	-					
34	09-1232-9042	Paygo	Water Valve Inserts	85,000	-	85,000					
35	09-1232-9043	Paygo	Canvas Cove Backflow/Meter Renewal	12,403	12,403	-					
36	09-1232-9044	Paygo	Pearl Street Water Line Extension	-	-	-					
37	09-1232-9045	Bonds	Transmission Main to Graceview	2,255,000	-	2,255,000					
38	09-1232-9046	Bonds	Main Connection Monarchos to Lapidum Twr	1,295,000	-	1,295,000					
39	09-1232-xxxx	Paygo	Chesapeake Apts. Pumping Station	30,000			30,000				
40	09-1232-xxxx	Paygo	Fire Hydrant Replacement	250,000			50,000	50,000	50,000	50,000	50,000
41	09-1232-xxxx	Paygo	Graceview Water Tank Rehab	272,000			85,500	186,500	-	-	-
42	09-1232-xxxx	Paygo	Lapidum Water Tower	74,200			74,200				
43	09-1232-xxxx	Paygo	Bulle Rock Water Tower	-			-	-	-	-	-
44	09-1232-xxxx	Paygo	National Guard Pump Station	55,000				55,000			
45	09-1232-xxxx	Paygo	Water Line Upgrades	1,666,000			280,000	269,500	385,000	269,500	462,000
46			Subtotal	\$ 6,468,006	\$ 185,806	\$ 3,935,000	\$ 519,700	\$ 561,000	\$ 435,000	\$ 319,500	\$ 512,000

Water Infrastructure Renewal

47		Bonds	Water Supply	-							
48		Bonds	Water Treatment	-							
49		Bonds	TW Pumping	-							
50		Bonds	TW Storage	-							
51		Bonds	Transmission	-							
52		Bonds	Distribution	-							
53		Bonds	Trans & Dist	200,000							200,000
54		Bonds	Meters	-							
55		Bonds	Water General	9,370,873			404,623	799,500	1,182,500	1,240,250	1,144,000
56		Paygo	Water Supply	-							
57		Paygo	Water Treatment	-							
58		Paygo	TW Pumping	-							
59		Paygo	TW Storage	-							
60		Paygo	Transmission	-							
61		Paygo	Distribution	-							
62		Paygo	Trans & Dist	(200,000)							(200,000)
63		Paygo	Meters	-							
64		Paygo	Water General	1,000,000							
65			Subtotal	\$ 10,370,873	\$ -	\$ -	\$ 404,623	\$ 799,500	\$ 1,182,500	\$ 1,240,250	\$ 1,144,000

City of Harve De Grace, MD
 Utility Financial Planning & Rate Design
 Capital Improvement Program (CIP) Scenario 1
 Desc: Base CIP
 Source:

Dest: Base City

Source:

Line No.	Project No.	Funding Type	Project Description	Total Expenditure	Fiscal Year						
					2016	2017	2018	2019	2020	2021	2022
Sewer Infrastructure Renewal											
66		Bonds	Collection	-							
67		Bonds	Interceptor	-							
68		Bonds	Pumping Stations	-							
69		Bonds	WWTP	-			1,092,020	819,500	1,182,500	990,250	894,000
70		Bonds	Sewer General	9,578,270							
71		Paygo	Collection	-							
72		Paygo	Interceptor	-							
73		Paygo	Pumping Stations	-							
74		Paygo	WWTP	-							
75		Paygo	Sewer General	1,500,000						250,000	250,000
76			Subtotal	\$ 11,078,270	\$ -	\$ -	\$ 1,092,020	\$ 819,500	\$ 1,182,500	\$ 1,240,250	\$ 1,144,000
77			Total Projects	\$ 31,941,059	\$ 422,059	\$ 6,319,000	\$ 2,800,000	\$ 2,800,000	\$ 2,800,000	\$ 2,800,000	\$ 2,800,000