



COMMISSION MEETING MINUTES
May 23, 2017

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Name	Title	Present for Item Nos.
Elofson, Frederick N.	Commission Chair	1-29
Lynch, Maurice P.	Commission Vice-Chair	1-29
Bredemeyer, Arthur C.	Commissioner	Absent
Glenn, Michael E.	Commissioner	Absent
Lakdawala, Vishnu K.	Commissioner	Absent
Levenston, Jr., Willie	Commissioner	1-29
Rodriguez, Stephen C.	Commissioner	1-29
Templeman, Ann	Commissioner	Absent

Commissioner Michael Glenn requested approval to participate in today's meeting from Washington, D.C. due to out of town travel.

Moved: Stephen Rodriguez
Seconded: Willie Levenston

Roll call vote to allow remote participation: Ayes: 4 Nays: 0

Due to an equipment issue, Commissioner Glenn was not able to connect to the call and consequently did not participate by phone.

1. **AWARDS AND RECOGNITION**

Brief:

a. Service Award Recognition

Chair Elofson presented a service award to Mr. Clyde "Buddy" Goss who achieved his 30th year of service with HRSD on April 15, 2017. Buddy was hired in February 1987 as a Sewage Treatment Plant Operator Helper at the Army Base Treatment Plant and was promoted to Plant Operator in March 1987. In April 1990, he transferred to Pinnars Point as a Maintenance Operator. In January 1992 he transferred to the Atlantic Treatment Plant. He continues to work as a Maintenance Operator/Plant Operator at the Chesapeake-Elizabeth Treatment Plant, where he transferred in October 2014. Buddy graduated from the HRSD Apprentice Program in 1992, holds a Class 3 Wastewater Works Operators License and has been a member of the HRSD Employees' Association.



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b. Promotion Announcement

Mr. Henifin introduced Mr. Michael Chapman who was recently promoted to Plant Manager at the Chesapeake-Elizabeth Treatment Plant. Michael began his career at HRSD in 1987, working part time on weekends for the Technical Services Division. He was soon hired full time as a Treatment Plant Facility Assistant, then ascended to Operator, Lead Operator and Superintendent. Mr. Chapman has worked at five of HRSD's treatment plants; one of them twice. He started a literacy program within the organization for HRSD employees. He was a Roadmap Facilitator for eight years as part of HRSD's employee quality training program. Mr. Chapman is an avid believer in HRSD's OD&T program, having attended most of the classes offered, especially in the areas of supervisory and leadership training. He is a member of VWEA, WEF and the Society for Human Resource Management and is also a certified paralegal.

c. New Employee Introduction

Mr. Henifin introduced Mr. Jeff Scarano who joined HRSD on April 10 as the Interceptor Engineer in South Shore Operations. Mr. Scarano brings an extensive range of experience to HRSD, having served as a Supervising Engineer in his 11 years as a consultant with Brown and Caldwell. He also has locality experience from his four years with the City of Lynchburg as a Combined Sewer Overflow (CSO) Manager, and regulatory experience as a Program Manager with the New Mexico Environment Department (two years). Jeff will be responsible for managing in-house projects, coordinating with Engineering on CIP projects, and principally helping with implementation of the Regional Wet Weather Management Plan.

d. Commending Resolution

Mr. Henifin said it was his privilege to recognize Ms. Karen Russo-Scarano, Community Relations Liaison, whose extraordinary contributions in planning and executing led to the successful SWIFT Groundbreaking ceremony held on March 31, 2017. Chair Elofson then read a Commending Resolution, which he presented to Ms. Russo-Scarano.

Action: Approve Resolution Commending the extraordinary achievement of Karen Russo-Scarano, Community Relations Liaison, in planning and executing a successful SWIFT celebration on March 31, 2017.

Moved: Maurice Lynch
Seconded: Stephen Rodriguez

Ayes: 4
Nays: 0

Attachment #1: [Resolution](#)
Public Comment: None



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2. **CONSENT AGENDA**

Action: Approve the items listed in the Consent Agenda.

Moved: Stephen Rodriguez **Ayes:** 4
Seconded: Willie Levenston **Nays:** 0

Brief:

- a. Approval of minutes from previous meeting.
- b. Contract Awards
 - 1. [James River Treatment Plant Grit Tanks and Anitamox Effluent Channel](#) \$586,420
 - 2. [Mathews Collection System Vacuum Valve Replacement](#) \$312,444
- c. Sole Source
 - 1. [Agilent™ Gas Chromatograph \(GC\) and Mass Spectrometry \(MS\) Preventative Maintenance and Support Contracts](#)
 - 2. [Americamysis Bahia for Toxicity Analysis](#)
 - 3. [Biosolids Grinder Pump, Replacement Parts and Repairs](#)
 - 4. [Cyprinodon Variegatus for Toxicity Analysis](#)
 - 5. [Flygt Pump Parts, Rebuild and Repair Services - over 90 Horsepower \(hp\)](#)
 - 6. [GraniteNet \(GNet\) Software License Support Contract](#)
 - 7. [Online Information Technology \(IT\) Learning License and Support Contract](#)
 - 8. [Thermo Fisher™ Dionex™ Ion Chromatography \(IC\) System Preventative Maintenance and Support Contract](#)
 - 9. [WEMCO® Hydrogritter® Grit Removal and Dewatering System Parts and Repairs](#)



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d. HRSD Use of Existing Competitively Awarded Contract Vehicle

1. [Performance Optimized Datacenter \(POD\) Solution for Remote Sites at All Treatment Plants and Small Communities](#) \$773,404

Item(s) Removed for Discussion: None

Attachment #2: [Consent Agenda](#)

Public Comment: None



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3. **FINANCIAL POLICY REVISIONS
COMMISSION ADOPTED POLICY**

Action: Approve the revised Financial Policy, as amended, and authorize staff to make non-material/non-substantive “housekeeping” changes as necessary without Commission approval.

Moved:	Stephen Rodriguez	Ayes:	4
Seconded:	Maurice Lynch	Nays:	0

Brief: HRSD’s Financial Operations are guided by its Financial Policy (Policy). The Policy was originally adopted in 2009 and most recently revised in March 2015. It is the primary document that places parameters and defines management discretion and philosophies relative to the financial aspects of HRSD. The Policy covers areas such as reserves, budgetary principles and control, key financial metrics, internal controls and audits, debt affordability, and risk, debt, derivative and investment management.

One of the primary drivers for the attached [revisions](#) is to provide consistency with the Amended and Restated Subordinate Trust agreement (Subordinate Trust) adopted in March 2016. Since HRSD will be spending money on Locality assets that must be expensed rather than capitalized, there are two versions of how the Debt Service Coverage Ratio (DSCR) is calculated along with definitions of the variables in the formula. The DSCR – GAAP will remain the key ratio that the Ratings Agencies will use and DSCR – Adjusted is consistent with the Subordinate Trust covenants.

Since HRSD will be issuing debt at the subordinate level, the section on Debt Refinancing was modified to allow for refinancing if the present value savings is less than three percent. This could happen if we refunded senior lien bonds down to the subordinate level that would cause the majority of bonds to be at the subordinate level. In the Virginia Resources Authority (VRA) agreement, this would trigger the migration of VRA senior lien debt to the subordinate lien. With the majority of debt at the subordinate level, it would essentially become our senior lien and we would look to the Ratings Agencies to upgrade our ratings since subordinate debt is one ratings notch lower than senior debt.

Another driver for the revision is to modify the portions of the Investment section to reflect different terminology and categories that more closely match how HRSD’s Investment Advisor is managing our funds. At the end of the policy, a new section on Asset Capitalization was added. Many of the changes include new or expanded defined terms referenced in the document and updates related to regulatory changes. The formatting was revised to provide for an easy way to reference specific sections.



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The Finance Committee and other Commissioners met on February 28 to review the revised Financial Policy. Comments were incorporated into the draft version submitted to the Commission for review on April 25. The final version in this submission includes additional comments received and minor formatting changes.

Summary of Key Changes:

- New definitions related to how key ratios are calculated, including the Liquidity Ratio (Days Cash on Hand), the DSCR - GAAP and Adjusted Ratios, Operating Expenses and Locality Assets
- Senior and Subordinate Bonds defined
- Added a caveat to Debt Refinancing that allows the Commission to refinance debt if we obtain other benefits
- State Non-Arbitrage Program (SNAP) Fund included as a permitted investment for bond proceeds only
- Investment benchmarks changed to ones where data is more readily available
- Asset classes changed to Growth, Income and Real Return
- Reduced the REITs Weightings target to 0%, since this is a cyclical investment
- Asset Capitalization section added

Discussion Summary: Mr. Henifin presented one additional small change on Page 53 under Fixed Income to align the policy with current practices.

Attachment #3: [Financial Policy](#)

Public Comment: None



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4. **REVENUE POLICY
COMMISSION ADOPTED POLICY**

Action: Approve the new Revenue Policy and authorize staff to make non-material/non-substantive “housekeeping” changes as necessary without Commission approval.

Moved:	Stephen Rodriguez	Ayes:	4
Seconded:	Willie Levenston	Nays:	0

Brief: The purpose of the [Revenue Policy](#) is to ensure that there is sufficient revenue to support direct and indirect operating, capital, reserves and current and future debt service costs. This policy aggregates existing policies and philosophies related to revenue into one Commission-approved document. It provides the framework to ensure consistency in making financial decisions. The policy covers areas such as the basis of charges, how charges are determined, how rates are approved, revenue forecasts, collections and an overview of HRSD’s Rate Model.

The Finance Committee and other Commissioners met on February 28 to review the new Revenue Policy. A draft version was submitted to the Commission on April 25. Since no comments were received, the final version is substantially the same.

Attachment #4: [Revenue Policy](#)

Public Comment: None



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5. **FISCAL YEAR-2018 BUDGETS**

Actions:

- a. Approve the [FY-2018 to FY-2037 Financial Forecast](#)
- b. Approve the [Operating Budget for FY-2018](#), which includes the Operating, Debt Service and Transfer Appropriations, and authorize distribution of the Budget in accordance with the Trust Agreement.
- c. Approve the [Capital Budget](#) for FY-2018
- d. Approve the Capital Improvement Program for FY-2018 to FY-2027 ([Summary Capital Improvement Program](#))
- e. Approve the [Rate Schedules](#) to be effective July 1, 2017 subject to the requirements of the Enabling Act.

<u>Moved:</u>	Willie Levenston	<u>Ayes:</u>	4
<u>Seconded:</u>	Stephen Rodriguez	<u>Nays:</u>	0

Brief: The annual budgeting process includes updating the 20-year Financial Forecast and preparing the Operating Budget (which includes the operating, debt service and transfer appropriations), the Capital Budget and the Capital Improvement Program (CIP) as well as the corresponding Rate Schedules to support these budgets.

The preliminary budgets were forwarded for Commission review in mid-March. The Chairman appointed Commissioners Rodriguez and Lynch to the Finance Committee. They and several other commissioners participated in the CIP review meetings and met with staff to review the draft components of the budget for the next fiscal year. The Finance Committee reported to the Commission at the April 25, 2017 meeting. The Commission is required to approve an annual budget by June 1 and to print and distribute the budget by June 30.

The Capital Budget includes the first year of the CIP. The CIP includes the proposed capital projects to be undertaken by HRSD over the next ten years. Projects in the approved CIP (including those in the approved Capital Budget) are individually presented to the Commission for full project funding specific to each project at the time first dollar is spent for funding authorization. Changes to the CIP, which may be required by changing conditions, are presented to the Commission as amendments. The proposed CIP recommends spending approximately \$2.35 billion over the next 10 years. The CIP will be available on the HRSD website upon Commission approval.



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The Financial Forecast was updated to cover the period 2018 through 2037 to forecast HRSD finances over an extended timeframe. The Financial Forecast is a planning tool used to project revenue requirements and spending limits needed for HRSD to comply with its financial policies throughout the forecast period.

The Rate Schedules summarize rates necessary to generate sufficient revenue to cover expenses and reserves requirements for the next fiscal year. HRSD's Rate Model assigns the operating and debt service costs from the proposed budget to the four primary treatment parameters of Biochemical Oxygen Demand (BOD), total suspended solids, phosphorus and nitrogen at each treatment plant as weighted averages or percentages to determine the total cost for treating each parameter. The total cost is converted into a unit cost based on the estimated quantity of each parameter, and surcharge rates for high strength wastewater are calculated. The result is that the Rate Model calculates rates sufficient to recover expenses based on the waste characteristics of each customer. To meet the requirements of the Financial Forecast, the FY-2018 wastewater charge will increase from \$4.51 per 100 cubic feet to \$4.92 per 100 cubic feet. The current average residential customer (as measured by a 5/8-inch meter) uses approximately 6.5 CCF of water per month, resulting in an average monthly increase of \$2.66 (approximately \$0.09 per day). Our charges for wastewater treatment remain reasonable, with the average residential customer paying about \$1.07 per day to ensure future generations will inherit clean waterways and be able to keep them clean.

Rates to provide wastewater services to the Middle Peninsula communities include both the cost of the treatment and the collection systems. Middle Peninsula residents pay the HRSD regional treatment rate, the weighted average sewer collection system rate for the metro area, plus the capital costs (Capital Recovery Rate) of the collection systems. The capital cost component generally includes the amortized cost incurred by HRSD when the systems were acquired.

Attachment #5: [FY-2018 Budget](#)

Public Comment: None



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6. EXPENDITURE OF TAX EXEMPT BOND PROCEEDS
REIMBURSEMENT RESOLUTION FOR FISCAL YEAR (FY) 2017-2019

Action: Approved reimbursement resolution.

Moved:	Maurice Lynch	Ayes:	4
Seconded:	Stephen Rodriguez	Nays:	0

Brief: Federal tax law requires that a government officially declare its intent to “reimburse” itself for capital expenditures occurring prior to the availability of tax-exempt debt proceeds used to eventually finance the improvements.

The [reimbursement resolution](#) amount of \$148,465,000 is based on the balance of the FY-2017 Capital Improvement Program and the FY-2018-2019 Capital Improvement Program less amounts that HRSD intends to pay with cash and is a reasonable estimation of the maximum amount of debt or loan proceeds that could be subject to reimbursement.

In FY-2018, staff is planning to re-open our tax-exempt line of credit to serve as interim financing. A portion of these funds will be needed to front the project costs as the Virginia Clean Water Revolving Loan Fund reimbursements are processed. The remaining portion will be used to fund other capital projects until a new revenue bond is issued.

Attachment #6: [Resolution](#)

Public Comment: None



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7. **SURRY COUNTY SEWER SYSTEM
SUSSEX SERVICE AUTHORITY OPERATION AND MAINTENANCE AGREEMENT**

Action: Approve the terms and conditions of the agreement with the Sussex Service Authority to operate and maintain the Surry County sewer system on behalf of HRSD and authorize the General Manager to execute same, substantially as presented, together with such changes, modifications and deletions as the General Manager may deem necessary.

Moved:	Maurice Lynch	Ayes:	4
Seconded:	Willie Levenston	Nays:	0

Agreement Description: The [attached agreement](#) between HRSD and the Sussex Service Authority (Authority) describes the terms and conditions under which the Authority will operate the Surry County system for HRSD.

The Authority has successfully operated the system for Surry County for many years. Staff determined it is in HRSD's best interest and most cost effective for it to continue to maintain the system.

This agreement was approved by the Sussex Service Authority Board on May 15, 2017.

Attachment #7: [Agreement](#)

Public Comment: None



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8. **ATLANTIC TREATMENT PLANT THERMAL HYDROLYSIS PROCESS (THP) AND ATLANTIC TREATMENT PLANT FATS, OILS AND GREASE (FOG) RECEIVING STATION BRIEFING**

Action: No action required.

CIP Project: AT012900 and AT013500

Brief: The Commission approved a Construction Management Agreement with Crowder Construction Company in June 2015. The construction management project delivery method allows for the early hire of the construction firm while the project is still in the design phase. This allows for collaboration during the design to deliver the best possible project. The project design is now complete and the contractor has completed their effort to prepare a final cost estimate or Guaranteed Maximum Price (GMP). The project status, schedule and expected costs will be discussed at the May meeting.

Discussion Summary: A question was asked about marketable byproducts. Staff does not have the expertise to market these types of products and are searching for a consultant to conduct a market analysis. Staff will look at opportunities for risk sharing as they finalize the plans for the construction of this project.

Attachment #8: [PowerPoint Presentation](#)

Public Comment: None



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9. **ATLANTIC TREATMENT PLANT THERMAL HYDROLYSIS PROCESS AND FATS, OILS AND GREASE (FOG) RECEIVING STATION VIRGINIA CLEAN WATER REVOLVING LOAN FUND (VCWRLF)**

Action: Approve the terms and conditions of the resolution authorizing the issuance of a subordinate wastewater revenue bond, not to exceed \$60 million in principal amount, for the purpose of providing funds, with other available money, to pay the costs of certain improvements to the Atlantic Treatment Plant, fixing the principal installment maturity dates, the interest rate, the redemption provisions and certain other details of the bond, directing the authentication and delivery of the bond, and authorizing the execution of a financing agreement with the Virginia Resources Authority.

Moved:	Maurice Lynch	Ayes:	4
Seconded:	Willie Levenston	Nays:	0

CIP Project: AT012900 and AT013500

Brief: The VCWRLF provides reduces interest rates for local governments for projects that improve water quality or prevent future problems. The Virginia Resources Authority (VRA) manages the loans and the Department of Environmental Quality administers the program and policy aspects of the fund on behalf of the State Water Control Board (SWCB). On December 12, 2016, the SWCB approved seven HRSD projects to received subsidized interest rates that vary based on the term and project type. The loans require adhering to Davis-Bacon wages and using American Iron and Steel, which increases total project cost. Staff determined that the interest savings far outweigh the potential increased project costs. The subsidized interest rate provides a 20 percent gross savings of the principal amount compared to HRSD issuing debt in the open market.

The attached [resolution](#) for the Atlantic Treatment Plant Thermal Hydrolysis Process and FOG Receiving Station is the first project loan that is ready to close. The loan amount is set at a not-to-exceed amount of \$60 million at 2.40 percent for 25 years. The rate is based on a 1.25 percent subsidy for a 25-year loan. The interest savings compared to HRSD issuing debt in the open market is estimated at \$7 million net of the estimated increased costs for the VCWRLF requirements.

These documents have been reviewed by bond and local counsel.

Attachment #9: [Resolution](#)

Public Comment: None



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10. **ARCTIC AVENUE PUMP STATION AND NEWTOWN ROAD PUMP STATION
ELECTRICAL IMPROVEMENTS
INITIAL APPROPRIATION**

Action: Appropriate total project funding in the amount of \$750,000.

Moved: Stephen Rodriguez **Ayes:** 4
Seconded: Willie Levenston **Nays:** 0

CIP Project: GN015100

Project Description: This project will provide electrical upgrades and modifications for equipment installed in the early 1980s at Newtown Road and Arctic Avenue Pump Stations that is nearing the end of its useful life. The following work will be performed at Newtown Road Pump Station: Replacement of “FloMatcher” pump controls, Motor Control Center (MCC), automatic transfer switch, three motors and diesel generator at Newtown Road Pump Station. The existing “FloMatcher” pump controls will be replaced by Variable Frequency Drives (VFDs). The existing 330 kW generator will be demolded and replaced by relocating an existing 400 kW generator that formerly served the South Shore Customer Service Center. In addition, the following work will be performed at Arctic Avenue Pump Station: Replacement of “FloMatcher” pump controls with VFDs and two motors. These projects will improve overall system flexibility, efficiency, and reliability.

Funding Description: The total cost for this project is estimated to be \$750,000 and is based upon HRSD estimates. Installation of motors and VFDs will be procured and installed by HRSD’s Electrical and Energy Management (EEM) Division, which will reduce construction cost for Arctic Avenue Pump Station. A 400 kW generator will replace the existing 330 kW generator at Newtown Road Pump station, due to the age and uncertainty of the operational compatibility with the new VFDs. Guernsey Tingle will provide engineering services by managing the design and construction efforts for Newtown Road Pump Station.

<u>Schedule:</u>	Design	June 2017
	Bid	December 2017
	Construction	March 2018
	Project Completion	December 2018

Attachment: None

Public Comment: None



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11. ATLANTIC PRESSURE REDUCING STATION RELIABILITY MODIFICATIONS INITIAL APPROPRIATION

Action: Appropriate total project funding in the amount of \$7,586,000.

<u>Moved:</u>	Stephen Rodriguez	<u>Ayes:</u>	4
<u>Seconded:</u>	Maurice Lynch	<u>Nays:</u>	0

CIP Project: CE011827

Project Description: The project involves the design and construction of reliability modifications at the Atlantic Pressure Reducing Station (PRS) in the City of Virginia Beach. Improvements include but are not limited to new pumps, piping, and electrical system modifications. No property acquisition is planned. This project must be substantially complete by June 2021.

This project is needed to provide reliable capacity and maintain HRSD pressure policy requirements when flow is diverted in support of the Chesapeake-Elizabeth Treatment Plant closure and for the ultimate Regional Wet Weather Management Plan (RWWMP). HRSD personnel spend significant man hours keeping the station’s pumps operational due to clogging impellers. This situation will become more difficult without improvements to this pressure reducing station.

Funding Description: The total cost for this project is estimated to be \$7,586,000 and is based upon pipe, mechanical, and electrical work in recent pump station projects. Kimley-Horn and Associates, Inc. (KHA) will prepare a Preliminary Engineering Report (PER) for this project at a cost of \$178,200. KHA was awarded a contract in September 2016 to perform the Program Definition Phase to develop a coordinated plan of required interceptor system improvements in support of the Chesapeake-Elizabeth Treatment Plant closure. They will continue with preliminary engineering on the individual capital improvement projects identified in the program definition report. Future phases of work will be negotiated after the PER is completed.

<u>Schedule:</u>	PER	June 2017
	Design	November 2017
	Bid	October 2018
	Construction	August 2019
	Project Completion	February 2021

Discussion Summary: Changes to other PRS systems as a result of the RWWMP will be analyzed on a case-by-case basis.

Attachment: None

Public Comment: None



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12. **INDEPENDENCE BOULEVARD PRESSURE REDUCING STATION MODIFICATIONS
INITIAL APPROPRIATION**

Action: Appropriate total project funding in the amount of \$3,062,000.

Moved: Willie Levenston **Ayes:** 4
Seconded: Stephen Rodriguez **Nays:** 0

CIP Project: CE010400

Project Description: The project involves the design and construction of reliability modifications at the Independence Boulevard Pressure Reducing Station (PRS) in the City of Virginia Beach. Improvements include, but are not limited to new pumps, piping, and electrical system modifications. No property acquisition is planned. This project must be substantially complete by June 2021.

This project is needed to provide reliable capacity and maintain HRSD pressure policy requirements when flow is diverted in support of the Chesapeake-Elizabeth Treatment Plant closure and for the ultimate Regional Wet Weather Management Plan (RWWMP). HRSD personnel already devote significant man hours keeping the station’s pumps operational due to clogging impellers. This situation will become more difficult without improvements to this pressure reducing station. This project is also part of HRSD’s Rehabilitation Action Plan, which is part of the requirements for the Regional Special Order by Consent and the Federal Consent Decree to address sewer overflows in the region.

Funding Description: The total cost for this project is estimated to be \$3,062,000 and is based upon pipe, mechanical and electrical work in recent pump station projects. Kimley-Horn and Associates, Inc. (KHA) will prepare a Preliminary Engineering Report (PER) for this project at a cost of \$144,600. KHA was awarded a contract in September 2016 to perform the Program Definition Phase to develop a coordinated plan of required interceptor system improvements in support of the Chesapeake-Elizabeth Treatment Plant closure. They will continue with preliminary engineering on the individual capital improvement projects identified in the program definition report. Future phases of work will be negotiated after the PER is completed.

Schedule:

PER	June 2017
Design	November 2017
Bid	August 2019
Construction	January 2020
Project Completion	May 2021

Attachment: None

Public Comment: None



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13. **KEMPSVILLE PRESSURE REDUCING STATION RELIABILITY MODIFICATIONS
INITIAL APPROPRIATION**

Action: Appropriate total project funding in the amount of \$3,208,000.

Moved:	Stephen Rodriguez	Ayes:	4
Seconded:	Willie Levenston	Nays:	0

CIP Project: CE011828

Project Description: The project involves the design and construction of reliability modifications at the Kempsville Pressure Reducing Station (PRS) in the City of Virginia Beach. Improvements include but are not limited to new pumps, piping, and electrical system modifications. No property acquisition is planned. This project must be substantially complete by June 2021.

This project is needed to provide reliable capacity and maintain HRSD pressure policy requirements when flow is diverted in support of the Chesapeake-Elizabeth Treatment Plant closure and for the ultimate Regional Wet Weather Management Plan (RWWMP). HRSD personnel spend significant man hours keeping the station's pumps operational due to clogging impellers. This situation will become more difficult without improvements to this pressure reducing station.

Funding Description: The total cost for this project is estimated to be \$3,208,000 and is based upon pipe, mechanical, and electrical work in recent pump station projects. Kimley-Horn and Associates, Inc. (KHA) will prepare a Preliminary Engineering Report (PER) for this project at a cost of \$134,900. KHA was awarded a contract in September 2016 to perform the Program Definition Phase to develop a coordinated plan of required interceptor system improvements in support of the Chesapeake-Elizabeth Treatment Plant closure. They will continue with preliminary engineering on the individual capital improvement projects identified in the program definition report. Future phases of work will be negotiated after the PER is completed.

Schedule:	PER	June 2017
	Design	November 2017
	Bid	July 2019
	Construction	October 2019
	Project Completion	April 2021

Attachment: None

Public Comment: None



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14. **LASKIN ROAD PRESSURE REDUCING STATION RELIABILITY MODIFICATIONS
INITIAL APPROPRIATION**

Action: Appropriate total project funding in the amount of \$3,220,000.

Moved: Willie Levenston **Ayes:** 4
Seconded: Stephen Rodriguez **Nays:** 0

CIP Project: CE011829

Project Description: The project involves the design and construction of reliability modifications at the Laskin Road Pressure Reducing Station (PRS) in the City of Virginia Beach. Improvements include but are not limited to new pumps, piping, and electrical system modifications. No property acquisition is planned. This project must be substantially complete by June 2021. This project is needed to provide reliable capacity and maintain HRSD pressure policy requirements when flow is diverted in support of the Chesapeake-Elizabeth Treatment Plant closure and for the ultimate Regional Wet Weather Management Plan (RWWMP). HRSD personnel spend significant man hours keeping the station’s pumps operational due to clogging impellers. This situation will become more difficult without improvements to this pressure reducing station.

Funding Description: The total cost for this project is estimated to be \$3,220,000 and is based upon pipe, mechanical, and electrical work in recent pump station projects. Kimley-Horn and Associates, Inc. (KHA) will prepare a Preliminary Engineering Report (PER) for this project at a cost of \$134,500. KHA was awarded a contract in September 2016 to perform the Program Definition Phase to develop a coordinated plan of required interceptor system improvements in support of the Chesapeake-Elizabeth Treatment Plant closure. They will continue with preliminary engineering on the individual capital improvement projects identified in the program definition report. Future phases of work will be negotiated after the PER is completed.

Schedule:	PER	June 2017
	Design	November 2017
	Bid	July 2019
	Construction	October 2019
	Project Completion	April 2021

Discussion Summary: One consulting engineer was selected from a competitive bid process to prepare PERs for the projects necessary to prepare for the Chesapeake-Elizabeth Diversion. Since timely completion of these projects is critical, staff will analyze the best way to solicit bids.

Attachment: None
Public Comment: None



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15. **PINE TREE PRESSURE REDUCING STATION RELIABILITY MODIFICATIONS
INITIAL APPROPRIATION**

Action: Appropriate total project funding in the amount of \$3,479,000.

Moved: Willie Levenston **Ayes:** 4
Seconded: Maurice Lynch **Nays:** 0

CIP Project: CE012200

Project Description: The project involves the design and construction of reliability modifications at the Pine Tree Pressure Reducing Station (PRS) in the City of Virginia Beach. Improvements include but are not limited to new pumps, piping, and electrical system modifications. No property acquisition is planned. This project must be substantially complete by June 2021.

This project is needed to provide reliable capacity and maintain HRSD pressure policy requirements when flow is diverted in support of the Chesapeake-Elizabeth Treatment Plant closure and for the ultimate Regional Wet Weather Management Plan (RWWMP). HRSD personnel spend significant man hours keeping the station’s pumps operational due to clogging impellers. This situation will become more difficult without improvements to this pressure reducing station.

Funding Description: The total cost for this project is estimated to be \$3,479,000 and is based upon pipe, mechanical, and electrical work in recent pump station projects. Kimley-Horn and Associates, Inc. (KHA) will prepare a Preliminary Engineering Report (PER) for this project at a cost of \$148,600. KHA was awarded a contract in September 2016 to perform the Program Definition Phase to develop a coordinated plan of required interceptor system improvements in support of the Chesapeake-Elizabeth Treatment Plant closure. They will continue with preliminary engineering on the individual capital improvement projects identified in the program definition report. Future phases of work will be negotiated after the PER is completed.

Schedule:

PER	June 2017
Design	November 2017
Bid	September 2018
Construction	December 2018
Project Completion	June 2020

Attachment: None

Public Comment: None



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16. SALEM ROAD INTERCONNECT FORCE MAIN
INITIAL APPROPRIATION

Action: Appropriate total project funding in the amount of \$1,449,000.

Moved: Maurice Lynch **Ayes:** 4
Seconded: Willie Levenston **Nays:** 0

CIP Project: CE011825

Project Description: This project is to construct a 600 linear foot jumper pipe from the City of Virginia Beach's Salem Road Force Main (FM) to HRSD's East Kempsville Interceptor FM. This project must be substantially complete by June 2021.

The project is needed to maintain acceptable pressures in the locality sewer system when flow is diverted in support of the Chesapeake-Elizabeth plant closure. This project was part of the Chesapeake-Elizabeth offline solution set developed by HRSD, CDM Smith, and Brown and Caldwell assuming a 2-year level of service. Hydraulic model results have indicated that flow from the City's Salem Road FM needs to flow to HRSD's Southern Loop. Since the City's Salem Road FM is undersized and is not planned to be upgraded before 2021, the jumper must be constructed to send flow to the Southern Loop through HRSD's East Kempsville Interceptor FM.

Funding Description: The total cost for this project is estimated to be \$1,449,000 and is based upon a recent cost estimate for the construction of a 30-inch force main. Kimley-Horn and Associates, Inc. (KHA) will prepare a Preliminary Engineering Report (PER) for this project at a cost of \$41,500. KHA was awarded a contract in September 2016 to perform the Program Definition Phase to develop a coordinated plan of required interceptor system improvements in support of the Chesapeake-Elizabeth Treatment Plant closure. They will continue with preliminary engineering on the individual capital improvement projects identified in the program definition report. Future phases of work will be negotiated after the PER is completed.

Schedule:

PER	June 2017
Design	November 2017
Bid	March 2019
Construction	June 2019
Project Completion	February 2020

Attachment: None

Public Comment: None



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17. **FEREBEE AVENUE PUMP STATION REPLACEMENT
INITIAL APPROPRIATION AND CONTRACT AWARD**

Actions:

- a. **Appropriate total project funding in the amount of \$5,852,747.**
- b. **Award a contract to Gannett Fleming, Inc. in the amount of \$163,516.**

Moved: Stephen Rodriguez **Ayes:** 4
Seconded: Maurice Lynch **Nays:** 0

CIP Project: VP014010

Type of Procurement: Competitive Negotiation

Proposers	Technical Points	Recommended Selection Ranking
Gannett Fleming, Inc.	88	1
CDM Smith, Inc.	85	2
Michael Baker International, Inc.	79	3

A Public Notice was issued on March 12, 2017 for procurement of professional services for three projects: Ferebee Avenue Pump Station Replacement (VP014010), Sanitary Sewer Project 1950 12-Inch Force Main and 24 and 18-Inch Gravity Replacement (VP014020), and Park Avenue Pump Station Replacement (VP011020) projects. Seven firms submitted proposals on April 7, 2017 and all firms that submitted were determined to be responsive and deemed fully qualified, responsible and suitable as per the requirements in the Request for Proposal. Three firms were short listed, interviewed, and technically ranked as listed above. The Professional Services Selection Committee selected Gannett Fleming, Inc., whose professional qualifications and proposed services will best serve the interest of HRSD in addressing the requirements for all three projects.

Project Description: This project will evaluate and implement the replacement of the 1951 Ferebee Avenue Pump Station, as it is nearing the end of its useful life.

Funding Description: The initial appropriation is based on an estimated construction cost of \$3,500,000, which was prepared by HRSD Design and Construction staff, combined with estimated engineering services and a contingency allowance. Total engineering services, including PER, design, and construction phase services, were estimated at approximately \$1,453,700. An 18 percent contingency was included in the total project cost estimate. The professional services for the PER effort for this project were negotiated and a fee of \$163,516 was considered to be appropriate for the scope of work. This fee is 4.7 percent of the estimated construction cost.



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Contract Description: Due to the interdependence of three projects, preliminary engineering for the Ferebee Avenue Pump Station Replacement (VP014010) project will be conducted concurrently and coordinated directly with preliminary engineering efforts for the Sanitary Sewer Project 1950 12-Inch Force Main and 24 and 18-Inch Gravity Replacement (VP014020) and Park Avenue Pump Station Replacement (VP011020) projects. This combined effort will result in one comprehensive Preliminary Engineering Report (PER) that addresses all three projects. Meetings were held to discuss this specific project and the related scope of services. The scope and fee was negotiated to provide the required professional services to develop the portion of the PER based on the criteria and scope related specifically to the Ferebee Avenue Pump Station Replacement project.

<u>Schedule:</u>	PER	June 2017
	Design	September 2018
	Bid	June 2019
	Construction	September 2019
	Project Completion	May 2021

Discussion Summary: The Norchester Pump Station Rehabilitation was the last project successfully completed by Gannett Fleming.

Attachment: None

Public Comment: None



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18. **PARK AVENUE PUMP STATION REPLACEMENT
INITIAL APPROPRIATION AND CONTRACT AWARD**

Actions:

- a. **Appropriate total project funding in the amount of \$5,955,271.**
- b. **Award a contract to Gannett Fleming, Inc. in the amount of \$177,355.**

Moved: Willie Levenston **Ayes:** 4
Seconded: Stephen Rodriguez **Nays:** 0

CIP Project: VP011020

Type of Procurement: Competitive Negotiation

Proposers	Technical Points	Recommended Selection Ranking
Gannett Fleming, Inc.	88	1
CDM Smith, Inc.	85	2
Michael Baker International, Inc.	79	3

A Public Notice was issued on March 12, 2017 for procurement of professional services for three projects: Ferebee Avenue Pump Station Replacement (VP014010), Sanitary Sewer Project 1950 12-Inch Force Main and 24 and 18-Inch Gravity Replacement (VP014020), and Park Avenue Pump Station Replacement (VP011020) projects. Seven firms submitted proposals on April 7, 2017 and all firms that submitted were determined to be responsive and deemed fully qualified, responsible and suitable, as per the requirements in the Request for Proposal. Three firms were short listed, interviewed, and technically ranked as listed above. The Professional Services Selection Committee selected Gannett Fleming, Inc., whose professional qualifications and proposed services will best serve the interest of HRSD in addressing the requirements for all three projects.

Project Description: This project will design and construct a replacement pump station for the existing Park Avenue Pump Station, built in 1922, as it is nearing the end of its useful life. Efforts to replace the Park Avenue Pump Station were previously initiated in October 2006 as part of larger capital improvement plan project. However, those previous engineering efforts were terminated in 2009 and did not progress to design or construction. The scope of the current replacement project has been further developed in the nine years since the initial effort commenced.



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Funding Description: The initial appropriation is based on an estimated construction cost of \$3,900,000, which was prepared by HRSD Design and Construction staff, combined with estimated engineering services and a contingency allowance. Total engineering services, including PER, design, and construction phase services, were estimated at approximately \$1,140,450. An 18 percent contingency was included in the total project cost estimate. The professional services for the PER effort for this project were negotiated and a fee of \$177,355 was considered to be appropriate for the scope of work. This fee is 4.5 percent of the estimated construction cost.

Contract Description: Due to the interdependence of three projects, preliminary engineering for the Park Avenue Pump Station Replacement (VP011020) project will be conducted concurrently and coordinated directly with preliminary engineering efforts for the Ferebee Avenue Pump Station Replacement (VP014010) and Sanitary Sewer Project 1950 12 Inch Force Main and 24 and 18 Inch Gravity Replacement (VP014020) projects. This combined effort will result in one comprehensive Preliminary Engineering Report (PER) that addresses all three projects. Meetings were held to discuss this specific project and the related scope of services. The scope and fee was negotiated to provide the required professional services to develop the portion of the PER based on the criteria and scope related specifically to Park Avenue Pump Station Replacement project.

<u>Schedule:</u>	PER	June 2017
	Design	September 2018
	Bid	December 2019
	Construction	April 2020
	Project Completion	April 2022

Attachment: None

Public Comment: None



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19. **SANITARY SEWER PROJECT 1950 12-INCH FORCE MAIN AND 24 AND 18-INCH GRAVITY REPLACEMENT INITIAL APPROPRIATION AND CONTRACT AWARD**

Actions:

- a. **Appropriate total project funding in the amount of \$7,179,000.**
- b. **Award a contract to Gannett Fleming, Inc. in the amount of \$143,869.**

Moved: Stephen Rodriguez **Ayes:** 4
Seconded: Maurice Lynch **Nays:** 0

CIP Project: VP014020

Type of Procurement: Competitive Negotiation

Proposers	Technical Points	Recommended Selection Ranking
Gannett Fleming, Inc.	88	1
CDM Smith, Inc.	85	2
Michael Baker International, Inc.	79	3

A Public Notice was issued on March 12, 2017 for procurement of professional services for three projects: Ferebee Avenue Pump Station Replacement (VP014010), Sanitary Sewer Project 1950 12-Inch Force Main and 24 and 18-Inch Gravity Replacement (VP014020), and Park Avenue Pump Station Replacement (VP011020) projects. Seven firms submitted proposals on April 7, 2017 and all firms that submitted were determined to be responsive and deemed fully qualified, responsible and suitable, as per the requirements in the Request for Proposal. Three firms were short listed, interviewed, and technically ranked as listed above. The Professional Services Selection Committee selected Gannett Fleming, Inc., whose professional qualifications and proposed services will best serve the interest of HRSD in addressing the requirements for all three projects.

Project Description: This project is to design and construct a force main to replace the 850 feet cast iron discharge force main SF-155 Sanitary Sewer Project 1950 12-inch Force Main. This project will also replace 2,900 feet 18-inch gravity line 1960 SG-153 and replace 3,500 feet 24-inch 1960 SG-149.



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Funding Description: The initial appropriation is based on an estimated construction cost of \$4,930,000, which was prepared by HRSD Design and Construction staff, combined with estimated engineering services and a contingency allowance. Total engineering services, including PER, design, and construction phase services, were estimated at approximately \$1,040,300. A 20 percent contingency was included in the total project cost estimate. The professional services for the PER effort for this project were negotiated and a fee of \$143,869 was considered to be appropriate for the scope of work. This fee is 2.9 percent of the estimated construction cost.

Contract Description: Due to the interdependence of three projects, preliminary engineering for the Sanitary Sewer Project 1950 12 Inch Force Main and 24 and 18 Inch Gravity Replacement (VP014020) project will be conducted concurrently and coordinated directly with preliminary engineering efforts for the Ferebee Avenue Pump Station Replacement (VP014010) and Park Avenue Pump Station Replacement (VP011020) projects. This combined effort will result in one comprehensive Preliminary Engineering Report (PER) that addresses all three projects. Meetings were held to discuss this specific project and the related scope of services. The scope and fee was negotiated to provide the required professional services to develop the portion of the PER based on the criteria and scope related specifically to the Sanitary Sewer Project 1950 12 Inch Force Main and 24 and 18 Inch Gravity Replacement project.

<u>Schedule:</u>	PER	June 2017
	Design	September 2018
	Bid	September 2019
	Construction	December 2019
	Project Completion	April 2021

Attachment: None

Public Comment: None



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20. **REGIONAL WET WEATHER MANAGEMENT PLAN PROJECT PRIORITIZATION BRIEFING**

Action: No action required.

Brief: The Regional Wet Weather Management Plan (RWWMP) will be submitted to the U.S. Environmental Protection Agency (US EPA) by October 1, 2017 as part of the HRSD Integrated Plan that will include SWIFT. The US EPA's integrated planning guidance allows local governments to prioritize their various compliance obligations to address the issues that are most important to the locality and have the most significant environmental return-on-investment first.

Our proposed schedule for the integrated plan puts SWIFT in front of the majority of the wet weather work as the environmental benefits from SWIFT dwarf those resulting from the wet weather work. During the SWIFT implementation, proposed to occur between 2020 and 2030, the integrated plan includes some financial capacity to address priority wet weather projects (approximately \$200 million over the 10-year SWIFT implementation).

With nearly \$2 billion of wet weather work to accomplish, prioritization of the few projects to be accomplished during the SWIFT implementation is a challenging task. Our locality partners have a keen interest in which projects get done early as these projects can have some ancillary benefits beyond wet weather capacity. To ensure an objective process for project selection, Brown and Caldwell has developed a prioritization methodology to apply to the wet weather projects to identify the priority projects to be accomplished during SWIFT implementation.

The prioritization methodology and proposed projects will be presented to the localities over the coming weeks. This briefing will allow the Commission to review the prioritization methodology and be fully informed to address any questions that may be asked by localities after their briefings.

Discussion Summary: Model Sanitary Sewer Overflow (SSO) simulations identified the proposed projects as realizing the most environmental benefit. Additional modeling is required to determine total volume of modeled overflows that may be eliminated with completion of the full suite of priority wet weather projects.

Attachment #10: [PowerPoint Presentation](#)

Public Comment: None



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21. **POVERTY SIMULATION
BRIEFING**

Action: No action required.

Brief: As HRSD rates continue to increase, affordability, particularly to the lower income segment of our population, is becoming a concern. HRSD is not unique; the wastewater industry benefitted from significant federal investment in the 1970s and 1980s that is no longer available, leaving local and regional governments to fill in the funding gap.

Staff is developing proposals to address some of the affordability challenges with a goal of having something to present to the Commission prior to the FY 2019 budget. To set the stage for this work, the Virginia Cooperative Extension offers a poverty simulation session that provides powerful insights into the challenges of living in poverty. We have worked with the Extension Service to schedule a simulation on August 22, 2017 for HRSD staff after the scheduled Commission meeting. Senior staff, as well as staff from HRSD Customer Care Center will be participating, and the Commission is invited to participate as well. The simulation takes approximately 3 hours and will begin at 12:30 on August 22. Lunch will be provided to all participants immediately before the simulation start.

A description of the [simulation](#) is attached for your information.

Discussion Summary: Commissioner Rodriguez commended staff on the great job they do as a regional agency. The models identified in this simulation will help deal with affordability and provide assistance to low-income ratepayers. We are not looking to develop programs, only investigating being an intermediary to connect ratepayers to the appropriate services for help. We currently participate in H2O, which is a voluntary contribution program managed through the Salvation Army. This program provides one-time emergency assistance to pay a bill.

Attachment #11: [Simulation Description](#)

Public Comment: None



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22. **OPERATIONS & NOMINATIONS (O&N) COMMITTEE APPOINTMENT**

Action: Chair Elofson appointed Commissioners Levenston and Templeman to the O&N Committee to recommend nominations for Chair and Vice-Chair of the Commission for the coming year.

Brief: The Commission is required by the Enabling Act to elect a chair and vice-chair each year, but the Act does not specify when the election is to be held. The election of officers is normally held in June, and the new officers assume their duties in July. The Committee will also review the HRSD Commission Governance Guidelines, Remote Participation and Ethics policies.

The Chair customarily appoints an O&N Committee to nominate Commission officers for the coming year. Commissioners Levenston and Rotkis served on the committee last year.

Attachment: None

Public Comment: None



COMMISSION MEETING MINUTES
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23. **UNFINISHED BUSINESS** – None

24. **NEW BUSINESS** – None

25. **COMMISSIONER COMMENTS**

Commissioner Lynch commented on the use of acronyms and initialisms in HRSD documents and correspondence reminding staff to be careful to ensure they are defined for others who are not familiar with these terms.

26. **PUBLIC COMMENTS NOT RELATED TO AGENDA** – None

27. **INFORMATIONAL ITEMS**

Action: No action required.

Brief: The items listed below were presented for information.

- a. [Management Reports](#)
- b. [Strategic Planning Metrics Summary](#)
- c. [Effluent Summary](#)
- d. [Air Summary](#)

Attachment #12: [Informational Items](#)

Public Comment: None



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28. **CLOSED MEETING**

Actions: Motion to go into Closed Meeting for discussion with legal counsel and staff regarding:

- a. Acquisition of real property in the City of Norfolk for a public purpose [Specific Exemption: Va. Code §2.2-3711.A3]
- b. Legal matters concerning litigation [Specific Exemption: Va. Code §2.2-3711.A7]
- c. Personnel matter [Specific Exemption: Va. Code §2.2-3711.A1]

Moved: Willie Levenston
Seconded: Maurice Lynch

Ayes: 4
Nays: 0

Brief:

- a. Discussion or consideration of the acquisition of real property in the City of Norfolk for a public purpose, where discussion in an open meeting would adversely affect the bargaining position or negotiating strategy of the public body.
- b. Consultation with legal counsel and briefing by staff members pertaining to actual litigation, where such consultation or briefing in open meeting would adversely affect the negotiating or litigating posture of the public body.
- c. Consultation with legal counsel and briefing by staff members pertaining to a personnel matter, where such consultation will involve discussion of the performance of specific individuals.

Roll call vote to allow remote participation: **Ayes:** 4 **Nays:** 0

29. **RECONVENED MEETING**

Action: No action required.

Attachment: None
Public Comment: None

Next Commission Meeting Date: June 27, 2017 at the HRSD South Shore Operations Complex, 1434 Air Rail Avenue, Virginia Beach, VA 23455

Meeting Adjourned: 11:17 a.m.

SUBMITTED:

APPROVED:

Jennifer L. Cascio
Secretary

Frederick N. Eloffson, CPA
Chair

HRSD COMMISSION MEETING MINUTES
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ATTACHMENT #1

AGENDA ITEM 1. – Resolution



RESOLUTION
Recognition of Karen Russo-Scarano
For Extraordinary Achievement

WHEREAS, Karen Russo-Scarano serves multiple roles in her position with HRSD as the Community Liaison for Capital Projects; and,

WHEREAS, she readily volunteers to assist with other HRSD community outreach efforts and special events, pitching in personally regardless of the task; and,

WHEREAS, she has great skill in organizing high profile events, and has planned and assisted in the execution of numerous open houses, ground breakings, ribbon cuttings and other similar public events with attention to every detail; and,

WHEREAS, in February 2017 she was asked to plan a complex event to celebrate progress on SWIFT to be attended by multiple regional and state officials including the Governor and scheduled to be held on March 31, 2017; and,

WHEREAS, the SWIFT celebration included a presentation of National Environmental Achievement Awards to the Secretary and Deputy Secretary of Natural Resources, a formal signing ceremony of the region's first nutrient trading agreement, a ribbon cutting for the USGS Extensometer and a groundbreaking for the SWIFT Research Center with the Governor participating in each event; and,


WHEREAS, the SWIFT event was attended by nearly 200 people and was universally lauded as a great success by all in attendance, reflecting positively on HRSD despite challenging weather conditions; and,

WHEREAS, the SWIFT event would not have been successful without the efforts of a large HRSD team that was led by Karen Russo-Scarano, who's attention to every detail and drive for perfection was evident throughout the celebration; now, therefore,

BE IT RESOLVED by the HRSD Commission that it hereby commend Karen Russo-Scarano for her extraordinary achievement in planning and executing the SWIFT Celebration; and,

BE IT FURTHER RESOLVED, that the Secretary of the HRSD Commission prepares a copy of this resolution for presentation to Karen Russo-Scarano as an expression of the Commission's appreciation and esteem.

Adopted by the HRSD Commission on the twenty-third day of May, 2017.


Frederick N. Elofson, CPA
HRSD Commission Chair



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ATTACHMENT #2

AGENDA ITEM 2. – Consent Agenda

CONSENT AGENDA ITEM 2.b.1. – May 23, 2017

Subject: James River Treatment Plant Grit Tanks and Anitamox Effluent Channel Contract Award (>\$200,000)

Recommended Action: Award a contract to TA Sheets General Contractors in the amount of \$586,420.

Type of Procurement: Competitive Bid

Bidder	Bid Amount
TA Sheets General Contractors	\$586,420.00
Shaw Construction Corporation	\$881,676.68
MEB General Contractors	\$987,730.00

HRSD/CH2MHill Estimate: \$795,880.40

Project Description: The project involves installation of epoxy coatings in the Grit Tanks and in the Anitamox Effluent Channel at the James River Treatment Plant. This work will require a significant bypass operation in order to isolate the Grit Tank Influent Channels. Structural modifications to Grit Tanks Three and Four will be completed to provide a new access hatch. The influent hatch support beam for Grit Tanks One and Two will also be replaced.

Contract Description: This contract is for construction of the James River Treatment Plant Grit Tanks and Anitamox Effluent Channel project.

Schedule:

Construction	July 2017
Project Completion	February 2018

CONSENT AGENDA ITEM 2.b.2. – May 23, 2017

Subject: Mathews Collection System Vacuum Valve Replacement
Contract Award (>\$200,000)

Recommended Action: Award a contract to Bush Construction Corporation in the amount of \$312,444.

CIP Project: MP011400

Budget	\$1,452,000
Previous Expenditures and Encumbrances	(\$975,847)
Available Balance	<u>\$476,153</u>

Type of Procurement: Competitive Bid

Bidder	Bid Amount
Bush Construction Corporation	\$312,444
Shaw Construction Corp	\$393,000
Tidewater Utility Construction Inc.	\$475,000
C T Redd Construction Inc.	Non-Responsive

HRSD Estimate: \$350,000

Project Description: This ongoing project will replace a total of 177 failing vacuum valve chambers and sumps per year over eight years. Ninety-five units have been replaced so far, leaving 82 to be replaced over the next three years amounting to 28 per year. The contractor will excavate and remove both the existing orangeburg valve chambers and the existing unreinforced concrete sumps and replace them with new single piece plastic valve chamber and sump systems with internal controller vent. The project will require sole source procurement of the systems from Airvac.

Contract Description: This contract is an agreement for the installation of 36 Airvac valve pit packages throughout Mathews County. Contractor shall remove and install new valve pit packages and connect piping structure. This is phase five of the ongoing project. C T Redd Construction Inc. was the apparent low bidder, but was declared non-responsive for not including the required bid deposit with submittal

Schedule:

PER	July 2010
Design	July 2010
Bid	July 2010
Construction	July 2010
Project Completion	June 2018

CONSENT AGENDA ITEM 2.c.1. – May 23, 2017

Subject: Agilent™ Gas Chromatograph (GC) and Mass Spectrometry (MS)
Preventative Maintenance and Support Contracts
Sole Source (>\$10,000)

Recommended Action: Approve Agilent Technologies, Inc. as a provider of preventative maintenance, support services, repairs and related parts for Agilent GC and MS instruments for use in the Central Environmental Laboratory.

Sole Source Justification:

- Compatibility with existing equipment or systems is required
- Support of a special program in which the product or service has unique characteristics essential to the needs of the program
- Product or service is covered by a patent or copyright
- Product or service is part of standardization program to minimize training for maintenance and operation, and parts inventory
- Only known source

Details: Services include agreements for annual preventative maintenance, technical support, related repair parts and labor. The Agilent GC and MS instruments are used by the Central Environmental Lab for analysis of different elements in water, soil and sediments.

CONSENT AGENDA ITEM 2.c.2. – May 23, 2017

Subject: Americamysis Bahia for Toxicity Analysis
Sole Source (>\$10,000)

Recommended Action: Approve Chesapeake Cultures Inc. as the provider of Americamysis Bahia for toxicity analysis at HRSD.

Sole Source Justification:

- Compatibility with existing equipment or systems is required
- Support of a special program in which the product or service has unique characteristics essential to the needs of the program
- Product or service is covered by a patent or copyright
- Product or service is part of standardization program to minimize training for maintenance and operation, and parts inventory
- Only known source

Details: Product includes the purchase of Americamysis Bahia (shrimp-like crustacean) used for regulatory required whole effluent toxicity testing at nine HRSD treatment plants. Chesapeake Cultures Inc. has supplied aquatic organisms for HRSD testing for more than 20 years, creating an extensive historical database used in evaluating the performance of the testing system. This evaluation is a required component of regulatory compliance.

CONSENT AGENDA ITEM 2.c.3.– May 23, 2017

Subject: Biosolids Grinder Pump, Replacement Parts and Repairs
Sole Source (>\$10,000)

Recommended Action: Approve Moyno EZstrip™ TR Muncher Grinder Pump, replacement parts and repairs for use at the Atlantic Treatment Plant.

Sole Source Justification:

- Compatibility with existing equipment or systems is required
- Support of a special program in which the product has unique characteristics essential to the needs of the program
- Product is covered by a patent or copyright
- Product is part of standardization program to minimize training for maintenance and operation, and parts inventory
- Only known source

Details: Product includes purchase of replacement cutter stacks and associated repairs for the Moyno EZstrip™ TR Muncher Biosolids Grinder Pump in use at the Atlantic Treatment Plant. The grinder cartridge gearbox assembly contains internal cutter stacks that are proprietary to the grinders and must be exact. This will allow for continued reuse of the existing equipment and act as drop-in place replacements.

CONSENT AGENDA ITEM 2.c.4. – May 23, 2017

Subject: Cyprinodon Variegatus for Toxicity Analysis
Sole Source (>\$10,000)

Recommended Action: Approve Aquatic BioSystems, Inc. as the provider of Cyprinodon Variegatus for toxicity analysis at HRSD.

Sole Source Justification:

- Compatibility with existing equipment or systems is required
- Support of a special program in which the product or service has unique characteristics essential to the needs of the program
- Product or service is covered by a patent or copyright
- Product or service is part of standardization program to minimize training for maintenance and operation, and parts inventory
- Only known source

Details: Product includes the purchase of Cyprinodon Variegatus (sheep head minnow) used for regulatory required whole effluent toxicity testing at nine HRSD treatment plants. Aquatic BioSystems Inc. has supplied aquatic organisms for HRSD testing for more than seven years, creating an extensive historical database used in evaluating the performance of the testing system. This evaluation is a required component of regulatory compliance.

CONSENT AGENDA ITEM 2.c.5. – May 23, 2017

Subject: Flygt Pump Parts, Rebuild and Repair Services - over 90 horsepower (hp) Sole Source (>\$10,000) and Emergency Declaration

Recommended Action: Approve Xylem, Inc. as the provider of parts, rebuild and repair services to Flygt Pumps specifically over 90hp in use at HRSD.

CIP Project: VP016320

Sole Source Justification:

- Compatibility with existing equipment or systems is required
- Support of a special program in which the product has unique characteristics essential to the needs of the program
- Product is covered by a patent or copyright
- Product is part of standardization program to minimize training for maintenance and operation, and parts inventory
- Only known source

Details: Services include the rebuild of a submersible Nitrified Recycle (NRCY) Flygt 90 hp pump in use at the Virginia Initiative Plant. This pump is acting as backup to the submersible Anaerobic Recycle (ARCY) Flygt pumps. The plant does not have a backup for the ARCY system which is critical to the biological nutrient process and phosphorous removal.

Xylem, Inc. is the only factory-direct service facility covering the Maryland/Virginia market that can provide parts and services for Flygt Pumps specifically over 90hp. The facility offers pump repair services and factory OEM parts. Xylem is an authorized warranty center and offers certification for explosion-proof pump repair.

An emergency declaration was authorized on May 5, 2017.

This emergency was declared to proceed with the rebuild and repairs of the backup NRCY pump sent to Xylem, Inc. for inspection. This will ensure ARCY pumping until the new pumps are installed as part of the VIP NRI upgrade.

The estimated cost of this work is \$27,625 and will be funded from the CIP VP016320 appropriation.

CONSENT AGENDA ITEM 2.c.6. – May 23, 2017

Subject: GraniteNet (GNet) Software License Support Contract
Sole Source (>\$10,000)

Recommended Action: Approve Elxsi DBA Cues as the provider of GraniteNet software support for HRSD.

Sole Source Justification:

- Compatibility with existing equipment or systems is required
- Support of a special program in which the product or service has unique characteristics essential to the needs of the program
- Product or service is covered by a patent or copyright
- Product or service is part of standardization program to minimize training for maintenance and operation, and parts inventory
- Only known source

Details: Service includes on-going maintenance, release updates and upgrades to the GNet software. Services also include telephone, remote and online support and customization services via an online interactive technical support team.

HRSD owns two inspection licenses and two office licenses for GNet software currently installed in closed circuit television (CCTV) vehicles. The software assists with pipeline inspection and manages the video portion as well as the data being added into the CCTV database.

CONSENT AGENDA ITEM 2.c.7. – May 23, 2017

Subject: Online Information Technology (IT) Learning License and Support Contract
Sole Source (>\$10,000)

Recommended Action: Approve CBT Nuggets LLC as the provider of licenses and support for online IT learning used by the Information Technology Division.

Sole Source Justification:

- Compatibility with existing equipment or systems is required
- Support of a special program in which the product or service has unique characteristics essential to the needs of the program
- Product or service is covered by a patent or copyright
- Product or service is part of standardization program to minimize training for maintenance and operation, and parts inventory
- Only known source

Details: Product includes licensing that allows the ability for Senior System Engineers (SSEs) to stream online courses 365 days a year, 24 hours a day from any device. Services include annual license support. The licensing provides the ability to train on multiple software platforms through videos, virtual labs, coaching and other features.

The SSEs have pre-existing individual accounts obtained over multiple years that have been imported and saved into an HRSD group account. The training allows SSEs to reinforce core concepts and new skills, learn from industry experts and prepare for certifications.

CONSENT AGENDA ITEM 2.c.8. – May 23, 2017

Subject: Thermo Fisher™ Dionex™ Ion Chromatography (IC) System Preventative Maintenance and Support Contract
Sole Source (>\$10,000)

Recommended Action: Approve Thermo Electron North America LLC as a provider of preventative maintenance and support services, repairs and related parts for the Thermo Fisher™ Dionex™ IC System in the Central Environmental Laboratory.

Sole Source Justification:

- Compatibility with existing equipment or systems is required
- Support of a special program in which the product or service has unique characteristics essential to the needs of the program
- Product or service is covered by a patent or copyright
- Product or service is part of standardization program to minimize training for maintenance and operation, and parts inventory
- Only known source

Details: Services include annual agreement for preventative maintenance, technical support, related repair parts and labor. The Thermo Fisher™ Dionex™ IC system is used by the Central Environmental Lab for anion analysis that includes bromate, bromide, chloride, chlorite, chlorate, fluoride and sulfate analyses. The bromate and bromide is daily analysis in support of the Sustainable Water Initiative for Tomorrow (SWIFT) pilot operations.

CONSENT AGENDA ITEM 2.c.9. – May 23, 2017

Subject: WEMCO[®] Hydrogritter[®] Grit Removal and Dewatering System Parts and Repairs
Sole Source (>\$10,000)

Recommended Action: Approve the purchase of WEMCO[®] Hydrogritter[®] parts and repairs for use at HRSD.

Sole Source Justification:

- Compatibility with existing equipment or systems is required
- Support of a special program in which the product has unique characteristics essential to the needs of the program
- Product is covered by a patent or copyright
- Product is part of standardization program to minimize training for maintenance and operation, and parts inventory
- Only known source

Details: Product includes purchase of a grit classifier spiral assembly. The WEMCO[®] Hydrogritter[®] system has three major components: a pump, a cyclone separator/concentrator and a dewatering/washing classifier. Three grit classifiers are used in the grit removal process at the James River Treatment Plant. Replacement parts will allow for the reuse of the existing equipment and act as a drop-in place replacement.

CONSENT AGENDA ITEM 2.d.1. – May 23, 2017

Subject: Performance Optimized Datacenter (POD) Solution for Remote Sites at All Treatment Plants and Small Communities
HRSD Use of Existing Competitively Awarded Contract Vehicle
(>\$200,000)

Recommended Action: Approve the use of the City of Hampton Contract 15-34E for the purchase of a nine POD Data Center solution in the amount of \$773,404 to Innovative Systems and Solutions DBA ABS Technology Architects. This contract includes enhanced software support for five years.

HRSD Estimate: \$773,404

Contract Description: This contract is for the purchase of nine POD Data Center solutions. The PODs are mini self-contained data centers which include multiple pieces of hardware, software and support. The PODs will provide remote site data center capabilities which include: virtualization of servers and virtual desktops, hardware redundancy for compute and storage, remote site backups and replication to other designated sites and disaster recovery fail-over capabilities. The development of these mini data centers allows continuous operation at remote sites should network connectivity be disrupted to the data center located at the South Shore Main Office complex.

The City of Hampton competitively solicited this cooperative contract solution. HRSD is eligible to ride this competitively bid contract.

HRSD COMMISSION MEETING MINUTES
May 23, 2017

ATTACHMENT #3

AGENDA ITEM 3. – Financial Policy

1.0 PURPOSE AND NEED

Hampton Roads Sanitation District (HRSD) was created in 1940 by the Virginia General Assembly as a political subdivision of the Commonwealth of Virginia and was established as a governmental instrumentality to provide for the public health and welfare. HRSD was created for the specific purpose of abating pollution in the Hampton Roads area of Virginia through the interception of existing wastewater outfalls, the construction of wastewater treatment facilities and the installation of interceptors throughout the service area.

HRSD operates under the direction of the Hampton Roads Sanitation District Commission (the Commission) comprised of eight members appointed by the Governor for staggered terms of four years.

Regulatory requirements to reduce nutrients, hydraulic expansion, aging infrastructure renewals and replacements, and increased treatment capacity are addressed through HRSD's Capital Improvement Program (CIP).

HRSD recognizes that one of the keys to sound financial management is the development of formal financial policy. This sentiment is echoed by bond rating agencies, investors and the Government Finance Officers Association.

This Financial Policy (Policy) is designed to help protect HRSD's financial resources by:

- a. Promoting sound financial management;
- b. Ensuring the legal and prudent use of HRSD's debt issuance authority; and
- c. Guiding HRSD and its managers in policy, investment and debt issuance decisions.

2.0 DEFINITIONS

2.1 HRSD Enabling Act. HRSD's Enabling Act is Chapter 66 of the Acts of Assembly of Virginia of 1960, as amended.

2.2 Annual Determined Contribution (ADC). The annual contribution requirement determined by an actuary for a defined benefit plan.

2.3 Arbitrage. The simultaneous purchase and sale of an asset in order to profit from a difference in the price. It is a trade that profits by exploiting price differences of identical or similar financial instruments in different markets or in different forms. For the purposes of this Policy, Arbitrage refers to the difference between the interest paid on the tax-exempt securities and the interest earned by investing the security

proceeds in higher-yielding taxable securities. The IRS Code governs arbitrage on the proceeds from issuance of tax-exempt municipal securities.

- 2.4 Asset Allocation.** An investment strategy that attempts to balance risk versus reward by adjusting the percentage of each asset in an investment portfolio according to the investor's risk tolerance, goals and investment time frame.
- 2.5 Balloon Maturity.** A maturity within an issue of bonds, which contains twenty-five percent (25%) or more of the principal amount of the original issue.
- 2.6 Bankers' Acceptance.** A draft or bill or exchange accepted by a bank or trust company. The accepting institution guarantees payment of the bill, as well as the issuer.
- 2.7 Basis Swap.** An agreement between two parties to exchange interest payments based on different variable-rate indices, e.g. SIFMA vs. LIBOR; a floating-to-floating swap.
- 2.8 Benchmark.** A comparative base for measuring the performance or risk tolerance of an investment portfolio. A benchmark should represent a close correlation to the level of risk and the average duration of the portfolio's investments.
- 2.9 Bond Anticipation Notes.** Notes which are generally repaid from the proceeds of the issuance of long-term indebtedness.
- 2.10 Broker.** Brings buyers and sellers together for a commission.
- 2.11 Bullet Maturity.** A maturity within an issue of bonds for which there are no principal and/or sinking fund payments prior to the stated maturity date.
- 2.12 Call Provisions.** The term of a bond giving the issuer the right to redeem all or a portion of such bond prior to its stated date of maturity at a specific price, usually at or above par.
- 2.13 Capital Appreciation Bonds.** A municipal security on which the investment return on an initial principal amount is reinvested at a stated compounded rate until maturity. At maturity the investor receives a single payment (the "maturity value") representing both the initial principal amount and the total investment return.
- 2.14 Capital Asset.** A unit of property purchased by, constructed by or donated to HRSD that: (1) was acquired or produced and has a value of \$5,000 or more; and (2) has an economic useful life of a minimum of 60 months. Capital Assets must be capitalized and depreciated for financial statement purposes. Assets constructed and paid by HRSD that improve the performance of the Wastewater System and

subsequently transferred to a Locality constitute Locality Assets and will not be capitalized by HRSD for any purpose.

- 2.15 Capital Improvement Program (CIP).** The CIP is HRSD's planned program of capital projects (greater than \$100,000), such as property, plant and equipment and related engineering, legal and construction services, and may consist of Capital Assets and Locality Assets.
- 2.16 Capitalized Interest.** A portion of the proceeds of a bond issue which is set aside to pay interest on one or more bond issues for a specific period of time. Interest is commonly capitalized for the construction period of the project.
- 2.17 Certificate of Deposit (CD).** A time deposit with a specific maturity evidenced by a Certificate. Large-denomination CDs are typically negotiable.
- 2.18 IRS Code.** The Internal Revenue Code of 1986, as amended, and the regulations promulgated thereunder.
- 2.19 Collateral.** Securities, evidence of deposit or other property, which a borrower pledges to secure repayment of a loan. Also refers to securities pledged by a bank to secure deposits of public monies.
- 2.20 Commercial Paper (CP).** Short-term, unsecured promissory notes issued by corporations or governments to finance receivables for a maturity specified by the purchaser that ranges from three days to 270 days. Notes are generally sold at a discount, and carry credit ratings issued by an NRSRO.
- 2.21 Competitive Sale.** A sale/auction of securities by an issuer in which underwriters or syndicates of underwriters submit sealed bids to purchase the securities.
- 2.22 Constant Maturity Swap.** An interest rate swap that is predicated upon the shape of the forward implied yield curve whereby counterparties exchange interest rate payments based on an anticipated future interest rate and a variable swap index rate. The interest rate on one leg of the swap is reset periodically but with reference to a market swap rate rather than an index such as LIBOR. The other leg of the swap is generally a market index, such as LIBOR.
- 2.23 Continuing Disclosure.** The principle that accurate and complete information material to a transaction or HRSD, which potential investors would likely consider material in making investment decisions with respect to the securities be made available on an ongoing basis. Pursuant to Rule 15c2-12 promulgated by the SEC, underwriters of HRSD's bonds are obligated to obtain a Continuing Disclosure Agreement (CDA) from HRSD prior to underwriting such bonds.

- 2.24 Corporate Notes.** Unsecured promissory notes issued by corporations to raise capital for a maturity that is longer than 270 days. Notes are generally sold at a discount, and carry credit ratings issued by an NRSRO.
- 2.25 Credit Enhancement.** Credit support purchased by the issuer to raise the credit rating of a debt issue. The most common credit enhancements consist of bond insurance, direct or standby letters of credit, and lines of credit.
- 2.26 Days Cash on Hand.** Measured by current and non-current cash and investments, plus any restricted cash and investments, if available for general system purposes, divided by operating and maintenance expenses less depreciation, divided by 365. This calculation will exclude accrued debt service for the next fiscal year and all funds in the Risk Reserve and Renewal and Replacement Reserve.
- 2.27 Dealer.** Acts as a principal in all transactions, buying and selling for his own account.
- 2.28 Debenture.** A bond secured only by the general credit of the issuer.
- 2.29 Debt Service Coverage Ratio – GAAP.** Calculated in accordance with HRSD's Senior Trust Agreement, the ratio determined by dividing the Net Revenues by annual debt service. In such calculation, funds spent on Locality Assets are considered an expense. Annual debt service will be based on actual principal and interest payments during the year (i.e., not accrual based).
- 2.30 Debt Service Coverage Ratio - Adjusted.** Calculated in accordance with HRSD's Subordinate Trust Agreement, the ratio determined by dividing the Net Revenues by annual debt service. In such calculation, funds spent on Locality Assets may be excluded from the calculation of Net Revenues under the circumstances described within the definitions of Net Revenues and Operating Expenses. Annual debt service will be based on actual principal and interest payments during the year (i.e., not accrual based).
- 2.31 Debt Service Reserve Fund.** The fund in which moneys are placed that may be used to pay debt service if revenues available for debt service and Credit Enhancements, if applicable, are insufficient to pay debt service on HRSD's bonds secured by a Debt Service Reserve Fund as it becomes due and payable.
- 2.32 Deep Discount Bonds.** Bonds which are priced for sale at a substantial discount from their face or par value.
- 2.33 Delivery versus Payment.** Delivery of securities with an exchange of money for the securities. (See also Delivery versus Receipt)

- 2.34 Delivery versus Receipt.** Delivery of securities with an exchange of a signed receipt for the securities. Also known as “free” delivery; (See also Delivery versus Payment).
- 2.35 Derivatives.** A financial product whose value is derived from some underlying asset value.
- 2.36 Designation Policies.** Outline how an investor’s order is filled when a bond’s maturity is oversubscribed when there is an underwriting syndicate. The senior managing underwriter and issuer decide how the bonds will be allocated among the syndicate. There are three primary classifications of orders which form the designation policy: Group Net orders; Net Designated orders and Member orders.
- 2.37 Discount.** A bond that is issued for less than its par (or face) value, or a bond currently trading for less than its par value in the secondary market.
- 2.38 Diversification.** A process of investing assets among a variety of security types by sector, maturity and quality rating.
- 2.39 Encumbrances.** Commitments related to unperformed contracts for goods and services (i.e., purchase orders, contracts and commitments). Encumbrance accounting is utilized to the extent necessary to assure effective budgetary control and accountability and to facilitate effective cash planning and control.
- 2.40 Escrow.** A fund established to hold moneys pledged and to be used to pay debt service on a one or more series of HRSD’s bonds or other indebtedness.
- 2.41 Federal Agency.** Government sponsored/owned entity created by the U.S. Congress, generally for the purpose of acting as a financial intermediary by borrowing in the marketplace and directing proceeds to specific areas of the economy considered to otherwise have restricted access to credit markets, also referred to as Government Sponsored Enterprises (GSEs). The largest are Ginnie Mae (GNMA), Fannie Mae (FNMA), Freddie Mac (FHLMC), Federal Home Loan Bank (FHLB), Federal Farm Credit Bank (FFCB), and Tennessee Valley Authority (TVA).
- 2.42 Federal Funds Rate.** The rate of interest at which Federal Funds are traded. This rate is currently set by the Federal Reserve through open – market operations.
- 2.43 Federal Funds.** Funds placed in Federal Reserve Banks by depository institutions in excess of current reserve requirements, and frequently loaned or borrowed on an overnight basis between depository institutions.
- 2.44 FINRA.** The Financial Industry Regulatory Authority.

2.45 Forward Swap. A swap executed today, the exchange of interest payments on which starts at some future date (the Effective Date), based on rates and terms determined and agreed upon today. On the **Effective Date** of a Forward swap begin net exchange of swap payments. On the **Trade Date** of the swap:

- Enter into Forward swap agreement
- Set terms of the swap
- Pay commitment fees for swap and bond insurance (if done in conjunction with a synthetic forward refunding of bonds)

2.46 Interest Rate Cap. An option that pays its holder when and if the floating interest rate index is above the pre-determined fixed rate (strike price).

2.47 Interest Rate Collar. The simultaneous purchase and sale of an Interest Rate Cap and an Interest Rate Floor on a floating index.

2.48 Interest Rate Floor. An option that pays its holder when and if the floating interest rate index is below the pre-determined fixed rate (strike price).

2.49 Interest Rate Swap. A contract between two parties, referred to as “counterparties”, to exchange interest rate payments at specified dates in the future. One party under the swap contract normally makes payments based on a fixed rate while the other party makes payments based on a variable (floating) rate.

2.50 Internal Controls. Systematic measures (such as reviews, checks and balances, methods and procedures) instituted by an organization to: conduct its business in an orderly and efficient manner; safeguard its assets and resources; deter and detect errors, fraud, and theft; ensure accuracy and completeness of its accounting data; produce reliable and timely financial and management information; and ensure adherence to its policies and plans. An important concept in establishing appropriate internal controls is that the cost of the controls should not exceed their anticipated benefits.

2.51 Knock-in Option. An option the existence of which is conditional upon a pre-set trigger price trading before the option's designated maturity. If the trigger is not touched before maturity, then the option is deemed not to exist.

2.52 Letters of Credit. A bank credit facility wherein the bank agrees to lend a specified amount of funds for a limited term. Letters of Credit may be used as Credit Enhancement for HRSD's indebtedness.

2.53 Line of Credit. A bank facility wherein the bank permits the borrower to access funds at any time, subject to a maximum loan balance.

- 2.54 Liquidity.** The ability of ease with which an asset can be converted into cash without a substantial loss of value.
- 2.55 Liquidity Facility.** A type of bank credit facility wherein the bank agrees to purchase securities, typically variable rate debt, that cannot be immediately remarketed to investors. The Liquidity Facility provider purchases the securities until such time as they can be remarketed.
- 2.56 Locality Assets.** Assets constructed and paid for by HRSD and subsequently transferred to a locality. A Commission Resolution is required to exclude these costs from the calculation of the Operating Expenses for purposes of the calculation of the Debt Service Coverage Ratio – Adjusted.
- 2.57 London InterBank Offered Rate (LIBOR).** LIBOR is the rate on U.S. dollar denominated deposits with maturities from one day to 12 months transacted between banks in London. LIBOR is generally the benchmark floating index in the taxable or corporate swap market.
- 2.58 Management Fee.** The fixed percentage of the gross spread which is paid to the senior managing underwriter for the structuring phase of a bond issue.
- 2.59 Market Value.** The price at which a security is trading and could presumably be purchased or sold.
- 2.60 Master Repurchase Agreement.** A written contract covering all future transactions between the parties to repurchase—reverse repurchase agreements that establishes each party’s rights in the transactions. A master agreement will often specify, among other things, the right of the buyer-lender to liquidate the underlying securities in the event of default by the seller borrower.
- 2.61 Maturity.** The date upon which the principal or stated value of an investment becomes due and payable.
- 2.62 Members.** Underwriters in a syndicate other than the senior underwriter.
- 2.63 Moody’s.** Moody’s Investors Service, Inc. is a NRSRO.
- 2.64 Nationally Recognized Statistical Rating Organization (NRSRO).** A credit rating agency which issues credit ratings that the SEC permits other financial firms to use for certain regulatory purposes. Examples include Moody’s and S&P.
- 2.65 Negotiated Sale.** A method of sale in which the issuer chooses an underwriter to negotiate terms pursuant to which such underwriter will purchase and market the bonds.

- 2.66 Net Revenues.** All revenues received by HRSD less Operating Expenses.
- 2.67 Nominal Interest Rate.** The interest rate before taking inflation into account. Generally, it is the stated or quoted rate in a loan or deposit agreement.
- 2.68 Normal Cost.** The annual current cost of a member's future retirement benefit.
- 2.69 Operating Expenses.** As defined by the Enabling Act and as used in the Senior Trust Agreement, operating expenses includes the cost of maintaining, repairing and operating such system or systems or sewer improvements and to provide such reserves therefor as may be provided in the resolution providing for the issuance or such revenue bonds or in the trust agreement securing the same. As defined in the Subordinate Trust Agreement, Operating Expenses includes those expenses required to pay the cost of maintaining, repairing and operating the Wastewater System, including, but not limited to, reasonable and necessary usual expenses of administration, operation, maintenance and repair, costs for billing and collecting the rates, fees and other charges for the use of or the services furnished by the Wastewater System, insurance premiums, credit enhancement and liquidity support fees, legal, engineering, auditing and financial advisory expenses, expenses and compensation of the Trustee, and deposits into a self-insurance program. Operating Expenses shall exclude allowance for depreciation and amortization and expenditures for extraordinary maintenance or repair or improvements. Operating Expenses shall also exclude expenses for improvements that will not be owned by HRSD but which will, in the reasonable determination of the Commission, as evidenced by a resolution thereof, maintain or improve the integrity of the Wastewater System.
- 2.70 Original Issue Discount.** The amount by which the original par amount of an issue exceeds its public offering price at the time it is originally offered to an investor.
- 2.71 Percentage of (% of) LIBOR Swap.** A swap whose floating rate is reset based on a percentage of a taxable rate (e.g. 67% of LIBOR) rather than a true tax-exempt rate, e.g. the SIFMA Index. A Percentage of LIBOR swap generally carries a lower expected or nominal fixed rate than a comparable SIFMA swap to compensate the fixed payer (issuer) for the assumption of basis and tax risk.
- 2.72 Portfolio.** Collection of securities held by an investor.
- 2.73 Premium.** The difference between the higher price paid for a fixed-income security and the security's face amount at issue.
- 2.74 Present Value.** The current value of a future cash flow.

- 2.75 Primary Dealer.** A group of government securities dealers who submit daily reports of market activity and positions and monthly financial statements to the Federal Reserve Bank of New York and are subject to its informal oversight. Primary dealers include SEC, registered securities broker-dealers, banks, and a few unregulated firms.
- 2.76 Private Placement.** The placement of an issue of indebtedness directly with one or more qualified or institutional investors.
- 2.77 Prudent Person Rule.** An investment standard outlining the fiduciary responsibilities of public funds invested relating to investment practices.
- 2.78 Rate Lock.** An interest rate hedge that is cash-settled at maturity based on the prevailing level of an agreed upon underlying index. (e.g. the SIFMA 'AAA' scales)
- 2.79 Rate of Return.** The yield obtainable on a security based on its purchase price or its current market price. This may be the amortized yield to maturity on a bond or the current income return.
- 2.80 Rebate.** A requirement imposed by the Tax Reform Act of 1986 whereby the issuer of tax exempt bonds must pay the IRS an amount equal to its profit earned from investment of tax-exempt bond proceeds at rates exceeding the tax exempt borrowing rate. The tax-exempt borrowing rate (or bond yield) is calculated pursuant to the IRS code together with all income earned on the accumulated profit pending payment.
- 2.81 Repurchase Agreement (RP or REPO).** An agreement under which the holder of securities sells these securities to an investor with a contract to repurchase the securities at a fixed price on a fixed date. The security "buyer" in effect lends the "seller" money for the period of the agreement, and the terms of the agreement are structured to compensate him for this.
- 2.82 Revenue (Limited Liability) Bonds.** Bonds issued by HRSD secured by a specific revenue pledge of rates, rents or fees.
- 2.83 Revenue Anticipation Notes.** Notes issued in anticipation of receiving revenues at a future date.
- 2.84 Safekeeping.** A service to customers rendered by banks for a fee whereby securities and valuables of all types and descriptions are held in the bank's vaults for protection.
- 2.85 SEC Rule 15C3-1.** See Uniform Net Capital Rule.

- 2.86 Securities and Exchange Commission (SEC).** Agency created by Congress to protect investors in securities transactions by administering securities legislation.
- 2.87 Securities Industry and Financial Markets Association (SIFMA).** SIFMA is a high grade market index of 7-day variable rate demand notes that is produced by Municipal Market Data. SIFMA is the benchmark swap floating index in the tax-exempt swap market.
- 2.88 Self-Liquidity.** A term used in connection with variable rate bond financings whereby the issuer agrees to repurchase with its own capital bonds that have been tendered but not yet remarketed without procuring a third-party Liquidity Facility. In this instance, the issuer uses its own funds to purchase securities.
- 2.89 Selling Groups.** The group of securities dealers who participate in an offering not as underwriters but rather who receive securities less the selling concession from the managing underwriter for distribution at the public offering price.
- 2.90 Senior Bonds.** Bonds and other indebtedness issued by HRSD secured by the Senior Trust Agreement.
- 2.91 Senior Trust Agreement.** The Trust Agreement, dated March 1, 2008, as the same may be amended and supplemented from time, between HRSD and a trustee. The Senior Trust Agreement secures HRSD's Senior Bonds.
- 2.92 Serial Bond.** A bond issue in which a portion of the outstanding bonds matures at regular intervals until eventually all of the bonds have matured.
- 2.93 Standard & Poor's (S&P).** Standard & Poor's Global Ratings is a NRSRO.
- 2.94 Stripped Security.** Security that has been transformed from a principal amount with periodic interest coupons into a series of zero-coupon bonds, with the range of maturities matching the coupon payment dates and the redemption date of the principal amount.
- 2.95 Subordinate Bonds.** Bonds and other indebtedness issued by HRSD and secured by the Subordinate Trust Agreement.
- 2.96 Subordinate Trust Agreement.** The Trust Agreement, dated October 1, 2011, as amended and restated as of March 1, 2016, as the same may be amended and supplemented from time to time, between HRSD and a trustee. The Subordinate Trust Agreement secures HRSD's Subordinate Bonds.
- 2.97 Swaption.** An option on a forward swap. The purchaser of a swaption (counterparty) has the right, but not the obligation, to compel the swaption seller

(usually an issuer) to enter into a pre-negotiated swap agreement at some future date (exercise date). In exchange for this right, the swaption purchaser pays the swaption seller a premium amount. This amount can be paid up front, at some future date, or as an annuity over time.

- 2.98 Syndicate Policies.** The contractual obligations placed on the underwriting group relating to distribution, price limitations and market transactions.
- 2.99 Term Bonds.** Bonds from the same issue that share the same maturity dates and interest rate. A term bond is the opposite of a serial bond, which has various maturity schedules at regular intervals until the issue is retired.
- 2.100 Termination Payment Risk.** The risk that an issuer is forced to liquidate a swap when it owes a termination payment to its counterparty.
- 2.101 Treasury Bills.** A non-interest bearing discount security issued by the U.S. Treasury to finance the national debt. Most bills are issued to mature in three months, six months, or one year.
- 2.102 Treasury Bonds.** Long-term coupon-bearing U.S. Treasury securities issued as direct obligations of the U.S. Government and having initial maturities of more than 10 years.
- 2.103 Treasury Inflation Protected Securities (TIPS).** The principal of a TIPS increases with inflation and decreases with deflation, as measured by the Consumer Price Index. When a TIPS matures, the adjusted principal or original principal, whichever is greater is paid.
- 2.104 Treasury Notes.** Medium-term coupon-bearing U.S. Treasury securities issued as direct obligations of the U.S. Government and having initial maturities from two to 10 years.
- 2.105 Trust Agreements.** Collectively, the Senior Trust Agreement and the Subordinate Trust Agreement.
- 2.106 Underwriter.** A dealer that purchases new issues of municipal securities from the Issuer and resells them to investors.
- 2.107 Underwriter's Discount.** The difference between the price at which bonds are bought by the Underwriter from the Issuer and the price at which they are offered to investors.
- 2.108 Underwriter's Expenses.** Compensates senior managers for out-of-pocket expenses including: underwriter's counsel; DTC charges, travel, syndicate

expenses, dealer fees, overtime expenses, communication expenses, computer time and postage.

2.109 Uniform Net Capital Rule. SEC requirement that member firms as well as nonmember broker-dealers in securities maintain a maximum ratio of indebtedness to liquid capital also called net capital rule and net capital ratio. Indebtedness covers all money owed to a firm, including margin loans and commitments to purchase securities, one reason new public issues are spread among members of underwriting syndicates. Liquid capital includes cash and assets easily converted into cash.

2.110 Variable Rate Debt (VRD). An interest rate on a security which changes at intervals according to an index or a formula or other standard of measurement as stated in the bond contract.

2.111 Yield. The rate of annual income return on an investment, expressed as a percentage. Income/current yield is obtained by dividing the current dollar income by the current market price for the security. Net yield or yield to maturity is the current income yield minus any premium above par or plus any discount from par in purchase price, with the adjustment spread over the period from the date of purchase to the date of maturity of the bond.

3.0 GUIDING PRINCIPLES

3.1 RESERVES. An important metric of HRSD's financial flexibility is its liquidity position as measured by available cash and investments. Setting a minimum liquidity position for known risks and obligations will provide funding in emergency or other unexpected situations as they arise. The reserves represent an earmarking, for budgetary and Policy purposes, of cash and liquid investments (current and non-current). These reserves are in addition to existing reserves required by the Trust Agreements, if any, and any funds earmarked for capital improvements or budget carryover amounts.

3.1.1 General Reserve. HRSD will maintain sufficient liquidity to ensure adequate working capital for HRSD's operations. These funds are intended to help HRSD cover unanticipated expenses that cannot be paid from the current fiscal year's budgetary resources. Liquidity will be determined in terms of Days Cash on Hand which will be measured by current and non-current cash and investments, plus any restricted cash and investments, if available for general system purposes, divided by operating and maintenance expenses less depreciation, divided by 365. This calculation will exclude accrued debt service for the next fiscal year and all funds in the Risk Reserve and Renewal and Replacement Reserve, described below. Days Cash on Hand at the end of a fiscal year may not be less than 270 or more than 365 days.

In the event the cash and investments are used to provide funding for unanticipated expenses and the Days Cash on Hand falls below the 270 day minimum, the General Manager will submit a plan in writing to the Commission that will restore the Days Cash on Hand to the policy level over a period not to exceed five fiscal years.

3.1.2 Risk Reserve. HRSD maintains a self-insurance program for some of its risk exposures.

- A. HRSD will maintain a Risk Reserve as of the end of the fiscal year of not less than 25 percent of projected annual self-insured claims costs for known, retained risks.
- B. In the event the Risk Reserve is used and reduced to a level that is less than the 25 percent minimum to provide funding of unanticipated self-insured expenses, the General Manager will submit a plan in writing to the Commission that will restore the reserve to the policy level over a period not to exceed five fiscal years.

3.1.3 Renewal and Replacement Reserve. As required by the Enabling Act, HRSD's Trust Agreements establish a reserve to finance "anticipated renewals, replacements, extensions, additions and extraordinary repairs" to wastewater system the extent needed. Under the Trust Agreement, the funding of the Renewal and Replacement Reserve is discretionary.

3.2 BUDGETARY PRINCIPLES.

3.2.1 Long-Range Financial Forecast. Each fiscal year the General Manager will submit to the Commission a 20-year financial forecast of anticipated annual revenues and expenses and capital improvements.

This forecast will serve as the foundation for the General Manager's annual budget proposal to the Commission.

3.2.2 Annual Operating Budget Proposals. The Commission is required to adopt an operating budget no later than June 30 each fiscal year.

The Commission will adopt an operating budget that:

- A. Is structurally balanced whereby current budgetary revenues are sufficient to meet current budgetary expenses (those that are ongoing in nature);
- B. Considers the affordability of rates within the context of local wealth and income indicators;

- C. Is at a level necessary to ensure the adequate maintenance and operations of the wastewater system;
- D. Is sufficient to meet Actuarially Determined Contribution (ADC) for HRSD's defined benefit plans;
- E. Includes amounts necessary to maintain the required reserves in amounts at least equal to the minimum balances as defined in this Policy;
- F. Enables HRSD to meet the debt service coverage targets defined in these policies; and
- G. Annually funds at least 15 percent of its capital improvement program in cash.

3.2.3 Capital Improvement Program (CIP). Each year HRSD will adopt a ten-year CIP that identifies projects to be undertaken over next ten years to meet projected needs for infrastructure renewal, expansion, replacing old or new facilities.

A capital project by definition involves expenditures to acquire or add assets of a relatively permanent nature such as property, plant and equipment. The CIP is typically for capital projects (not less than \$100,000), new facilities, expansions and improvements requiring engineering and/or construction services.

3.2.4 Budgetary Accounting and Control. HRSD operates in accordance with annual operating and capital budgets prepared on a basis of accounting that is different from generally accepted accounting principles.

- A. The operating budget is adopted by department, with budgetary controls exercised administratively by management at the department level. The General Manager is authorized to transfer funds among departments without further approval by the Commission. Appropriations lapse at the end of the fiscal year. Valid, outstanding encumbrances (those for which performance under a contract is expected in the next year) are re-appropriated without further approval by the Commission and become part of the subsequent year's budget.
- B. The capital budget is a ten-year plan of CIP spending based on estimated project costs and prioritized schedules. Prior to the commencement of construction for any project, the Commission must appropriate funding for the total project cost. If a project is expected to exceed its initial appropriation, the Commission must approve any additional funding through a revised appropriation. .

3.3 DEBT AFFORDABILITY. HRSD will comply with the debt service coverage ratios included in its Trust Agreements. Beyond the Trust Agreements' minimums, HRSD will adopt operating and capital budgets that it projects will enable HRSD to maintain a Debt Service Coverage Ratio – Adjusted at a minimum of 1.5 times on senior lien debt and 1.4 times on total debt.

3.4 DERIVATIVES. The derivatives section outlined herein is intended to provide general procedural direction regarding the use, procurement and execution of interest rate swaps and options by HRSD. The Policy is intended to relate to the use of various interest rate hedging techniques, including the contractual exchange of different fixed and variable rate payment streams through interest rate swap agreements. The Policy is not intended to relate to other derivative products, such as hedges for fuel or other commodities that HRSD may consider for hedging exposures other than to interest rates.

3.5 ACCOUNTING AND FINANCIAL REPORTING. HRSD will comply with all Generally Accepted Accounting Principles (GAAP). As permitted by the Subordinate Trust Agreement, HRSD may present, or cause to be presented, certain calculations that reflect certain adjustments that are not in accordance with GAAP.

HRSD will maintain a comprehensive framework of internal controls, and policies and procedures.

Over a period of not more than every five years, HRSD under the direction of the Finance Committee of the Commission will seek proposals from qualified certified public accountant firms, including the current auditors, if their performance has been satisfactory to perform an annual audit of HRSD's financial statements.

3.6 RISK MANAGEMENT. HRSD will make diligent efforts to protect and preserve HRSD assets through a Risk Management program that selectively transfers risk (purchase insurance) for high severity-low frequency exposures and retains risk (self-insurance) for low severity-high frequency exposures.

3.7 INTERNAL AUDIT. HRSD or its designee will conduct internal audits using a risk based approach. Such audit efforts will be approved and directed by the Finance Committee of the Commission.

4.0 PROCEDURES

4.1 DEBT MANAGEMENT. HRSD's debt management program represents an effort to smooth out the fiscal impact of major capital investments while aligning the costs of utility service with the payment of those who will actually use the service.

The proceeds of long-term indebtedness will not be used to finance current operations or expenses for normal maintenance. Long-term indebtedness will be structured such that financial obligations do not exceed the aggregate expected useful lives of the assets financed. Short-term borrowing may be utilized for the temporary funding of operational cash flow deficits or interim construction requirements.

The most appropriate instrument for a proposed sale of debt shall be determined by financing needs and expected market conditions at the time of sale.

4.1.1 Permitted Debt by Type.

- A. **Lease Financing.** HRSD may use leasing for facilities or equipment if (1) it can be demonstrated that this is the most cost effective or appropriate way to secure financing, or (2) on small projects that do not warrant entry into the bond market.
- B. **Installment Purchases or Conditional Sale Contracts.** HRSD may utilize installment purchase or conditional sale contracts having an original term of one year or less.
- C. **Bond Anticipation Notes, Commercial Paper (CP) and Lines of Credit.** Each are typically short duration debt instruments issued to provide interim financing and due to their short duration, expose HRSD to interest rate risk and market access risk upon renewal. Bond Anticipation Notes, Commercial Paper and Lines of Credit may be used to
 - (1) To finance small projects until such time as the project or projects can be incorporated into a larger bond sale
 - (2) During times of high interest rates and when the expectation is that interest rates will stabilize in the future or trend downward
 - (3) When market conditions are such that a Bond Anticipation Notes, Commercial Paper or Lines of Credit may be more readily received in the market than long-term debt, or (4) as an interim financing tool during the construction period for a project(s) until such time as the project(s) is placed into service and / or HRSD sells long-term debt.
- D. **Long-Term Revenue Bonds.** HRSD may issue long-term revenue bonds to fund Capital Assets and Locality Assets.
- E. **Revenue Anticipation Notes.** May be issued to meet HRSD's operational cash flow needs.

4.1.2 Guidelines on Debt Issuance.

- A. **Trust Agreements.** HRSD will abide by the covenants contained in its Trust Agreements. HRSD considers these covenants to be minimum requirements and generally expects to exceed the requirements of each covenant.
- B. **Authorization.** Prior to the issuance of debt, the Commission will pass a resolution authorizing the financing arrangements and setting appropriate limits and parameters for the anticipated financing.
- C. **Lowest Cost Financing.** Generally, HRSD intends to pursue the lowest cost of financing within the parameters of this Policy, the Trust Agreements and the Enabling Act.
- D. **Cash Financing from Available Sources.** HRSD will contribute at least 15 percent of each year's CIP in cash.
- E. **Project Costs Prior to Debt Issue.** If project costs are incurred prior to the issuance of debt, the Commission will pass a resolution documenting its intent to be reimbursed from bond proceeds.
- F. **Variable Rate Debt (VRD) and Bond Anticipation Notes.** VRD and Bond Anticipation Notes carry inherent interest rate risk. Such securities historically have interest rates lower than fixed rate securities and offer the potential for lower debt service costs over the term of the bond issue. HRSD will consider using VRD when it improves matching of assets and liabilities, potentially lowers debt service costs, adds flexibility to HRSD's capital structure, or diversifies HRSD's investor base.
 - (1) Debt service on VRD will be budgeted at a conservative rate based on historical fluctuations in interest activity and current market assumptions. Before issuing VRD, HRSD will determine how potential spikes in the debt service will be funded and consider the impact of various interest rate scenarios on its financial position and on various debt ratios.
 - (2) HRSD will not issue VRD in excess of 15 percent of its total debt portfolio. This limitation, however does not apply to Bond Anticipation Notes with a maturity greater than nine months from the date of issue or Bond Anticipation Notes issued as part of an interim financing program. In addition, if HRSD can demonstrate historical and projected sufficiency of offsetting principal and interest coverage from short-term and variable rate investment assets held in unrestricted,

non-operating accounts, these assets may be netted from variable rate liabilities.

- G. **Derivative Products.** HRSD recognizes that the use of derivatives may aid HRSD in reducing the cost of capital and gaining flexibility in structuring its debt portfolio. The use of such products are governed by the Derivatives section of this policy.
- H. **Method of Sale.** HRSD will select a method of sale it believes is the most appropriate and economically advantageous in light of financial, market, transaction-specific and HRSD-related conditions. Acceptable methods of sale may include a competitive sale, a negotiated sale, or a private placement.
- I. **Duration of Debt.** HRSD will not issue debt for a period longer than aggregate useful lives of the projects being financed. Pursuant to the Enabling Act, HRSD cannot issue debt with a final maturity more than 40 years from the date of issuance. Factors to be considered when determining the final maturity of debt include: the average life of the assets being financed, relative level of interest rates, and the year-to-year differential in interest rates.

4.1.3 Debt Structure

- A. **Interest Rate Structure.** HRSD may make use of both variable and fixed rate debt in accordance with limitations set forth in this policy.
- B. **Tax Status.** Tax-exempt debt will be used whenever possible and appropriate.
- C. **Maturity Structure.** HRSD's long-term debt may include serial and term bonds. Other maturity structures may also be considered when demonstrated to be advantageous to HRSD.
- D. **Coupon Structure.** Fixed rate debt may include par, discount, premium and capital appreciation bonds.
- E. **Redemption Features.** In order to preserve flexibility and refinancing opportunities, HRSD debt shall generally be issued with call provisions. HRSD may consider call provisions that are shorter than traditional and/or non-call debt when warranted by market conditions. For each transaction, various call option scenarios will be evaluated so that the most beneficial can be utilized.

- F. **Credit Enhancement.** HRSD may use bond insurance and/or line and letters of credit for credit enhancement when it is economically advantageous to do so.
- (1) When considering the use of bond insurance, HRSD will perform a maturity-by-maturity analysis. The economic feasibility of insurance will be analyzed based on the value of insurance as priced to the earlier of each maturity's first applicable call date and the maturity date of such maturity. Enhancement will be used when present value savings result or when such use permits HRSD to incorporate less restrictive covenants into a transaction which results in greater flexibility or lower user charges. HRSD may insure bonds in maturities that are borderline from an economic feasibility standpoint if warranted by other factors (e.g., use of insurance to attract investor interest where certain bond maturities might otherwise be difficult to sell).
 - (2) When considering the use of a letter of credit or Liquidity Facility, HRSD will examine the economic feasibility of a credit facility by taking into account the trading spread, the cost of the credit facility and the interest costs of HRSD's debt if enhanced.
- G. **Debt Service Reserve Fund.** The Senior Trust Agreement requires HRSD to fund a Debt Service Reserve Fund when certain debt service coverage and liquidity ratios are not met. HRSD will fund such reserve when and if it is required. The Subordinate Trust Agreement permits, but does not require, the funding of a Debt Service Reserve Fund.
- H. **Capitalized Interest.** By definition, capitalization of interest increases the amount of debt that is issued. If HRSD capitalizes interest on one or more series of indebtedness, it will do so only until such time as the project being financed is expected to be placed in service.
- I. **Refinancing of Debt.** HRSD will refinance debt from time to time to achieve debt service savings as market opportunities arise.

Since federal regulations limit a tax-exempt issue to one advance refunding (a refinancing prior to a bond's call provision), HRSD will ensure that the advance refunding results in a significant present value savings. A proposed refinancing should achieve a minimum cumulative, net present value savings of three percent of the amount refinanced, provided HRSD may refinance debt that does not meet this threshold if it obtains other benefits, financial or otherwise, from the refinancing and only if the Commission determines that the issuance of such bonds will be in the District's best interests. In addition, HRSD may consider the efficiency of a proposed refinancing transaction. The

efficiency evaluation considers the value realized by HRSD when exercising its option to redeem its bonds early calculated under a variety of different interest rate environments versus the savings garnered. In general, HRSD believes a weighted average aggregate efficiency of 70 percent or greater is a reasonable benchmark.

In any refinancing transaction, HRSD maintains a bias to not extend maturities.

- J. **Escrow Structuring.** HRSD will utilize the least costly securities available in structuring refinancing escrows. Unless State and Local Government Securities (SLGS) are used, a certificate will be provided by a third party agent stating that the securities were procured through an arms-length, competitive bid process (in the case of open market securities), and that the price paid for the securities was reasonable within federal guidelines. Under no circumstances will an underwriter, agent or financial advisor sell escrow securities to HRSD from its own account.
- K. **Hiring of Professionals.** All members of the financial advisory team including underwriter, financial advisor, bond counsel, and other professionals will be selected in a manner consistent with HRSD's procurement policy for professional services.

4.1.4 Underwriter Selection.

- A. **Senior Manager Selection.** HRSD will select a senior manager for any proposed negotiated sale. The selection criteria will include but not be limited to the following:
 - (1) The firm's ability and experience in managing transactions similar to that contemplated by HRSD
 - (2) Prior knowledge and experience with HRSD
 - (3) The firm's ability and willingness to risk capital and demonstration of the firm's capital availability and underwriting of unsold balances
 - (4) Quality and experience of personnel assigned to HRSD's engagement
 - (5) Financing plan presented
 - (6) Cost including underwriting fees and anticipated pricing
- B. **Co-Manager Selection.** Co-managers may be selected on the same bases as the senior manager with the exception of underwriting fees, which are

determined by the senior manager. In addition to their qualifications, co-managers appointed to specific transactions will be a function of transaction size and the necessity to ensure maximum distribution of HRSD's bonds.

- C. **Selling Groups.** HRSD may establish selling groups in certain transactions. To the extent that selling groups are used, HRSD may make appointments to selling groups, as the transaction dictates.
- D. **Underwriter's Counsel.** In any negotiated sale of HRSD debt in which legal counsel is required to represent the underwriter, the appointment will be made by the Senior Manager.
- E. **Underwriter's Discount.** HRSD will evaluate the proposed underwriter's discount against other proposals and/or comparable issues in the market. If there are multiple underwriters in the transaction, HRSD will determine the allocation of underwriting liability and management fees. The allocation of fees will be determined prior to the sale date; a cap on management fees, expenses and underwriter's counsel fee will be established and communicated to all parties by HRSD. Any additional expenses must be substantiated.
- F. **Evaluation of Underwriter Performance.** HRSD will evaluate each bond sale after completion to assess the following: costs of issuance including underwriters' compensation, pricing of the bonds in terms of the overall interest cost and on a maturity-by-maturity basis, and the distribution of bonds and sales credits.
- G. **Syndicate Policies.** For each negotiated transaction, HRSD will establish syndicate policies that will describe the priority of orders and designation policies governing the upcoming sale.
- H. **Designation Policies.** To encourage the pre-marketing efforts of each member of the underwriting team, orders for HRSD's bonds will be net designated, unless otherwise expressly stated. HRSD shall require the senior manager to:
 - (1) Fairly allocate bonds to other managers and the selling group.
 - (2) Comply with the Municipal Securities Rulemaking Board's (MSRB) regulations governing the priority of orders and allocations.
 - (3) Within 10 working days after the sale date, submit to HRSD a detail of orders, allocations and other relevant information pertaining to HRSD's sale.

4.1.5 Consultants.

- A. **Financial Advisor.** HRSD will select a financial advisor (or advisors) to assist in its debt issuance and debt administration processes. Such financial advisor(s) will be an Independent Registered Municipal Advisor within the meaning of the Securities Exchange Act of 1934, as amended. Selection of HRSD's financial advisor(s) will be based on, but not limited to, the following criteria:
- (1) Experience in providing consulting services to entities similar to HRSD
 - (2) Knowledge and experience in structuring and analyzing bond issues
 - (3) Experience and reputation of assigned personnel
 - (4) Fees and expenses
- B. **Bond Counsel.** HRSD debt will include a written opinion by legal counsel affirming that HRSD is authorized to issue the proposed debt, that HRSD has met all legal requirements necessary for issuance, and, if the interest on the debt to be issued is to be exempt under the IRS Code, a determination consistent therewith. The approving opinion and other documents relating to the issuance of debt will be prepared by counsel with extensive experience in public finance and tax issues. The Bond Counsel will be selected by HRSD.
- C. **Conflicts of Interest.** HRSD requires that its consultants and advisors provide objective advice and analysis, maintain the confidentiality of HRSD financial plans, and be free from any conflict of interest. In no case will HRSD's financial advisor be permitted to underwrite any portion of HRSD's bond issues, whether sold competitively or negotiated.
- D. **Disclosure by Financing Team Members.** All financing team members will be required to provide full and complete disclosure, relative to agreements with other financing team members and outside parties. The extent of disclosure may vary depending on the nature of the transaction. However, in general terms, no agreements will be permitted which could compromise the firm's ability to provide independent advice which is solely in HRSD's best interests or which could reasonably be perceived as a conflict of interest.

4.1.6 Communication and Disclosure.

- A. **Rating Agencies.** HRSD seeks to maintain the highest possible credit ratings it believes appropriate for its debt without compromising the delivery of its basic core services. The Director of Finance will manage relationships with the rating analysts assigned to HRSD.
- B. **Investors, Bond Insurers, Liquidity Providers.** The Director of Finance will manage relationships using both informal and formal methods to disseminate information.
- C. **Continuing Disclosure.** HRSD recognizes that accurate and complete disclosure is imperative to maintaining the high credit quality of its debt. HRSD will comply with all of its contractual obligations and applicable law and will meet such disclosure requirements in a timely and thorough manner.
- D. **Arbitrage Compliance.** HRSD will maintain a system of record keeping and reporting in order to comply with the Arbitrage Rebate Compliance Requirements of the Internal Revenue Code of 1986, as amended.
- E. **Post-Issuance Compliance Procedures.** Separate from this policy, HRSD will maintain and follow post-issuance compliance procedures. Such procedures will include provisions regarding continuing disclosure and arbitrage compliance, among others.

4.2 DERIVATIVES.

4.2.1 Approach and Objectives. Interest rate swaps and options (swaps) are tools that can help HRSD meet important financial objectives. Properly used, these instruments can increase HRSD's financial flexibility, provide opportunities for interest rate savings or enhanced investment yields, and help HRSD manage its balance sheet through better matching of assets and liabilities.

- A. **Specific Objectives for Utilizing Swaps.** HRSD may consider the use of specific swaps if they meet one or more of the benefits previously described in this Policy or if they:
 - (1) Result in an expected lower net borrowing cost than traditional debt alternatives;
 - (2) Result in an improved capital structure (e.g., altered pattern of debt service payments or to create variable rate exposure) or better asset/liability matching;

- (3) Cap, limit, or hedge HRSD's exposure to changes in interest rates on a particular financial transaction; or
- (4) Provide a specific benefit not otherwise available.
- (5) Swaps must not be speculative or create unreasonable risk. Each swap will be reviewed on a case-by-case basis to determine whether or not the level of risk is appropriate for HRSD. Examples of swaps that HRSD considers speculative and which create unreasonable risk include, without limitation:
 - Basis swaps;
 - Constant maturity swaps;
 - Knock-in options on swaps;
 - Swaps that including a floating index multiplier (e.g., three times SIFMA); and
 - Swaps that are not associated with a specific bond issue.
- (6) HRSD prefers Swaps that meet the "consistent critical terms method" for evaluating the effectiveness of Swaps as defined by the Governmental Accounting Standards Board ("GASB") in Statement #53: Accounting and Financial Reporting for Derivative Instruments.

B. Prohibited Swap Features. HRSD will not use Swaps that:

- (1) Are speculative or create extraordinary leverage or risk;
- (2) Lack adequate liquidity to terminate without incurring a significant bid/ask spread;
- (3) Provide insufficient price transparency to allow reasonable valuation; or
- (4) Are not reasonably uniform to the risk evaluation criteria by this Policy.

C. Legal Authority. As stated in Section 29 of HRSD's Enabling Act, as approved by the Virginia General Assembly on March 11, 2008,

"With respect to contracts concerning interest rates, currency, cash flow and other basis, the District may enter into any contract that the Commission determines to be necessary or appropriate to place any

obligation or investment of the District, as represented by bonds or the investment of their proceeds, in whole or in part, on the interest rate, cash flow or other basis desired by the Commission. Such contracts may include, without limitation, contracts commonly known as interest rate swap agreements, rate locks, forward purchase agreements, and futures or contracts providing for payments based on levels of, or changes in, interest rates. Such contracts or arrangements may be entered into by the District in connection with, or incidental to, entering into or maintaining any (i) agreement that secures bonds or (ii) investment, or contract providing for investment, otherwise authorized by law. These contracts and arrangements may contain such payment, security, default, remedy, and other terms and conditions as determined by the Commission, after giving due consideration to the creditworthiness of the counterparty or other obligated party, including any rating by any nationally recognized rating agency.”

All derivatives contracts require Commission approval.

- D. **Permitted Instruments.** HRSD may utilize the following financial products on a current or forward basis, after identifying the objective(s) to be realized and assessing the attendant risks.
- (1) Interest rate swaps, including fixed and floating rate swaps.
 - (2) Options, including swaptions, Interest Rate Caps, Interest Rate Floors, and Interest Rate Collars.

HRSD prefers swaps that have strong price transparency and which are of a type referred to as “plain vanilla,” e.g., a fixed to floating rate SIFMA based interest rate swap.

Swaps will be subject to the legal provisions set forth in HRSD’s Trust Agreement, applicable debt documents, and statutory requirements.

- E. **Procedure for Submission and Execution.** HRSD may consider swaps that are either presented as proposals or that are developed by HRSD in consultation with its financial advisor and legal counsel. HRSD will give detailed consideration only to proposals that HRSD, in its sole discretion, believes will offer the projected savings or other benefits and will have the ability to meet one or more of the objectives outlined herein.
- (1) When feasible, swaps should be competitively procured either under a competitive sealed bid or competitive negotiation (e.g. RFP). On a product-by-product basis, HRSD will have authority to negotiate the

procurement of financial instruments that have customized or specific attributes designed for HRSD.

- (2) For both competitive and negotiated procurements, the execution of any swap transaction will be subject to receipt of a fairness opinion from HRSD's financial advisor, finding that the terms and conditions of the swap reflect a fair market value of such transaction as of the date and time of its execution.
- (3) The execution of all Swaps will be subject to receipt of an opinion from a law firm with extensive experience in public finance and tax issues that the contract is a legal, valid and binding obligation of HRSD and complies with applicable law.

F. **Swap Analysis and Participant Requirements.** In connection with any swap, HRSD, its financial advisor and legal counsel will review the proposed transaction and outline considerations associated with the transaction. Such a review will include the following:

- (1) The identification of the proposed benefit and potential risks, which will include, but not necessarily be limited to, those risks outlined in this Policy;
- (2) Analysis of potential savings and stress testing of the proposed transaction;
- (3) Fixed versus variable rate and swap exposure;
- (4) To the extent HRSD deems relevant, any rating reports or criteria regarding swaps by rating agencies; and
- (5) Legal constraints.

G. **Swap Risks.** In reviewing proposed or possible swaps, HRSD will consider at a minimum each of the following types of risks, as applicable:

- (1) **Counterparty Risk.** The risk of a payment default on a swap by a swap counterparty.
- (2) **Termination Risk.** The risk that a swap has a negative value and HRSD owes a "breakage" fee if the contract has to be terminated.
- (3) **Tax Risk.** A mismatch between changes in the rate or price on HRSD's underlying debt and the swap caused by a reduction or elimination in the benefits of the tax exemption for municipal bonds,

e.g. a tax cut that results in an increase in the ratio of tax-exempt to taxable yields.

- (4) **Basis Risk.** A mismatch between the rate on HRSD's underlying debt and the rate paid under the swap, e.g. a tax-exempt variable rate issue which trades at 67% of LIBOR while HRSD receives 80% of LIBOR under the swap.
- (5) **Liquidity/Remarketing Risk.** The risk that HRSD cannot secure a cost-effective renewal of a Letter or Line of Credit or suffers a failed remarketing with respect to its variable rate debt.
- (6) **Rollover Risk.** The risk that a swap maturity does not match maturity of the related debt or asset.

H. **Counterparty Risk Assessment.** HRSD will only enter into a swap with highly rated financial institutions. Credit criteria for financial institutions are as follows:

- (1) The institutions' long-term, unsecured and unsubordinated obligations are rated at the time of execution of the swap by at least one rating agency at least "Aa3" by Moody's Investors Services, Inc. ("Moody's") or "AA" by Standard & Poor's Rating Services ("S&P"), or "AA" by Fitch Ratings ("Fitch") and by at least one other rating agency at no lower than "A2" by Moody's, "A" by S&P, or "A" by Fitch; or
- (2) The institutions' obligations under the swap and the Credit Support Annex are unconditionally guaranteed by a bank or non-bank financial institution the long-term, unsecured and unsubordinated obligations of which are rated at the time of execution of the swap by at least one credit agency at least "Aa3" by Moody's or "AA" by S&P or "AA" by Fitch and by at least one other rating agency at no lower than "A2" by Moody's, "A" by S&P, or "A" by Fitch.

In the event of downgrade of a swap counterparty below the minimal rating standard set forth above, the counterparty will be required to:

- a. Provide a substitute guarantor or assign the swap contract to an acceptable counterparty meeting the rating criteria, or
- b. Provide collateral as described in the Collateral section of this Policy.

I. **Benefit Expectation.** Financial transactions using swaps or other derivative products related to a debt issue should generate at least two percent or

greater projected debt service savings than a traditional debt alternative. Such savings analysis will include, where applicable, the consideration of the probability (based on historical interest rate indices, where applicable, or other accepted analytic techniques) of the realization of savings for the derivative structure. The savings target requirement is intended to reflect the complexity and risk of derivative financial instruments, and should include a risk adjustment for other factors. For example, if the underlying debt is callable and the swap is not, then the analysis should include a risk adjustment for this factor.

In determining any benefit in implementing a swap, the cost of remarketing, in addition to the cost of credit enhancement or liquidity fees, will be added to the projected variable rate. Such a calculation should consider the trading performance of comparable indebtedness and any trading premium resulting from a specific form of credit enhancement or liquidity and/or any impact related to broader industry trends.

- J. **Hedging Derivatives.** When utilizing a derivative to cap, limit or hedge HRSD's exposure to changes in interest rates, HRSD will evaluate various interest rate scenarios and the estimated impact on projected wastewater rates.

- K. **Legal and Contractual Requirements.** HRSD will use standard International Swap and Derivatives Association, Inc. (ISDA) swap documentation, including the Schedule to the Master Agreement and a Credit Support Annex, and related ISDA protocols. HRSD may use additional documentation if the product is proprietary or HRSD deems in its sole discretion that such documentation is otherwise in its interest. The swap agreement between HRSD and each counterparty will include payment, term, security, collateral, default, remedy, termination, and other terms, conditions, provisions and safeguards as HRSD, in consultation with its legal counsel, deems necessary and desirable.

- L. **Legal Terms of Swaps.** Terms and conditions of any swap will be negotiated by HRSD in the best interests of HRSD. Swap documentation and terms should include the following:
 - (1) Downgrade provisions triggering termination based on HRSD's credit rating will in no event be less advantageous than those permitting termination based on a downgrade of the counterparty.

 - (2) Governing law for swaps will be New York law to the extent permitted by law, but should reflect that HRSD's authorization of the related agreement is governed by Virginia law.

- (3) The specified debt related to credit events in any swap agreement should be narrowly drafted and refers only to specific debt.
- (4) Collateral thresholds will be set on a sliding scale reflective of credit ratings (see Collateral Section).
- (5) Eligible collateral will be as set forth in the Collateral Section.
- (6) Termination value will be established by “market quotation” methodology, which involves the solicitation of quotations from unrelated brokers regarding the valuation of the swaps.

- M. **Notional Amount.** HRSD will limit the aggregate notional amount of derivatives to an amount not to exceed 20 percent of aggregate outstanding debt.

To the extent that HRSD is party to multiple derivatives contracts at any given time, HRSD will seek to diversify its counterparty credit risk by limiting its credit exposure to any single counterparty.

- N. **Final Maturity.** The final maturity of any swap agreement will not extend beyond the lesser of the final maturity date of HRSD’s related debt and the expiration date of any letter of credit or Liquidity Facility on the related bonds unless HRSD has the right to cancel the swap agreement without cost on such expiration date.

- O. **Termination Provisions.** Swaps will contain provisions granting HRSD the right to optionally terminate a swap agreement at any time over the term of the agreement. Such a provision will be required even if the termination is at market. In general, exercising the right to terminate an agreement should produce a benefit to HRSD, either through the receipt of a payment from a termination or, if the termination payment is made by HRSD, in conjunction with the conversion of the related indebtedness to a more beneficial interest rate mode or mitigates a risk to HRSD, as will be determined by HRSD in its sole discretion.

Any termination payment will be established by a “market quotation” methodology, unless HRSD deems an alternate methodology to be appropriate. HRSD’s Director of Finance will provide a written report to the Commission with respect to any termination, including the reason(s) why the swap was terminated.

- P. **Collateral.** As part of any swap, HRSD will require collateralization or other forms of credit enhancement to secure any or all swap payment obligations.

As appropriate, HRSD, in consultation with its financial advisor, will require collateral or other credit enhancement to be posted by each swap counterparty as follows:

- (1) Each counterparty to HRSD will be required to post collateral if the long-term credit rating of the counterparty or its guarantor falls below the requirements outlined in the Counterparty Risk Assessment section of this Policy. Additional collateral for further decreases in credit ratings of a counterparty will be posted by the counterparty in accordance with the provisions contained in the related Collateral Support Annex. Threshold amounts for collateral posting will be determined by HRSD on a case-by-case basis.
- (2) In determining maximum uncollateralized exposure, HRSD will consider financial exposure that it may have to the same corporate entities through other forms of financial dealings, such as commercial paper investments.
- (3) Collateral will be deposited with a third party trustee, or as mutually agreed upon between HRSD and the counterparty.
- (4) A list of acceptable securities that may be posted as collateral and the valuation of such collateral will be determined and mutually agreed upon during negotiation of the swap agreement with each swap counterparty. A complete list of acceptable securities and valuation percentages is included in the Acceptable Collateral section of the Policy.
- (5) The market value of the collateral will be determined on at least a weekly basis, or more frequently if HRSD determines it is in its best interest given the specific collateral.

Q. Ongoing Management. HRSD will seek to maximize the benefits and minimize the risks it carries by actively managing its swap program. This will entail frequent monitoring of market conditions for emergent opportunities and risks. Active management may require modification of existing positions including, for example:

- Early full or partial termination;
- Shortening or lengthening the term of swaps; or
- Sale or purchase of options.

Legal modification to an existing swap will require approval from the Commission. In modifying any swap, HRSD will fulfill all terms of this Policy and refer back to the original procurement and execution procedures outlined in this Policy.

- R. **Ongoing Reporting Requirements.** HRSD will take steps to ensure that there is full and complete disclosure of all swaps to HRSD's Commission, to Rating Agencies. HRSD will also present a summary description of its swaps in its disclosure documents.

HRSD will provide a written report regarding the status of all swap agreements to the Commission at least on a semi-annual basis and will include the following:

- (1) A description of all outstanding swap agreements, including, if and when applicable, bond series, type of swap, rates paid and received by HRSD, total notional amount, average life of each swap agreement, remaining term of each swap agreement and covenant compliance.
- (2) Highlights of all material changes to swap agreements or new swap agreements entered into by HRSD since the last report.
- (3) The credit rating of each swap counterparty and credit enhancer insuring swap payments, if any.
- (4) A summary of swap agreements that were terminated or that have expired.
- (5) A mark-to-market valuation of swap agreements and the source of the valuation, which HRSD may use for financial reporting purposes.
- (6) A summary of Collateral postings.

S. Acceptable Collateral.

<u>Security</u>	<u>Valuation Percentage*</u>	<u>Collateral Requirement Example: \$ Value Based on \$1.0 Million</u>
Cash	100%	\$1.0 million
(x) Negotiable debt obligations issued by the U.S. Treasury Department or the Government National Mortgage Association (Ginnie Mae), or		
(y) Mortgage backed securities issued by Ginnie Mae (but with respect to either (x) or (y) excluding interest only or principal only Stripped Securities, securities representing residual interests in mortgage pools, or securities that are not listed on a national securities exchange or regularly quoted in a national quotation service) and in each case having a remaining maturity of:		
less than one year	98%	\$1.02 million
greater than one year	95%	\$1.05 million

*To calculate the dollar amount required to satisfy the collateral requirement, divide the collateral requirement by the valuation percentage shown above.

T. Conformance with Dodd-Frank Act. It is the intent of HRSD to conform to the requirements relating to legislation and regulations for over-the-counter derivatives transactions under Title VII of the Dodd-Frank Wall Street Transparency and Accountability Act of 2010, as amended from time to time, and the regulations promulgated thereunder (herein collectively referred to as Dodd-Frank). It is the policy of HRSD that (i) each swap advisor engaged or to be engaged by HRSD will function as the designated qualified investment representative of HRSD (Designated QIR); (ii) each swap advisor agrees to meet and meets the requirements specified in the Commodity Futures Trading Commission Regulation 23.450(b)(1) or any successor regulation thereto (hereinafter referred to as the QIR Regulation); (iii) each swap advisor provide a written certification to HRSD to the effect that such swap advisor agrees to meet and meets the requirements specified in the QIR Regulation; (iv) HRSD monitor the performance of each swap advisor consistent with the

requirements specified in the QIR regulation; (v) HRSD exercise independent judgment in consultation with its swap advisor in evaluating all recommendations, if any presented by any counterparty with respect to transactions authorized pursuant to this Financial Policy; (vi) HRSD rely on the advice of its swap advisor with respect to transactions authorized pursuant to this Financial Policy and not rely on recommendations, if any, presented by any counterparty with respect to transactions authorized pursuant to this Financial Policy; (vii) HRSD comply with all recordkeeping reporting and certification requirements for end-users as applicable under the Commodity Exchange Act.

4.3 INVESTMENT

4.3.1 Ethics and Conflicts Of Interest. The Director of Finance and other employees involved in the investment process will comply with the Code of Virginia Section §2.2-3100 et seq., the state and Local Government Conflict of Interests Act.

- A. Specifically, no officer or employee will:
 - (1) Accept any money, loan, gift, favor, service, or business or professional opportunity that reasonably tends to influence him in the performance of his official duties; or
 - (2) Accept any business or professional opportunity when he knows there is a reasonable likelihood that the opportunity is being afforded to influence him in the performance of his official duties.
- B. All employees involved in the investment process will refrain from personal business activity that could conflict with the proper execution and management of the investment program, or that could impair their ability to make impartial decisions.
- C. All employees involved in the investment process will disclose to the Director of Finance and the General Manager any material interest in financial institutions with which they conduct business. They will further disclose any personal financial or investment positions that could be related to the performance of the investment portfolio.
- D. All employees involved in the investment process will refrain from undertaking personal investment transactions with the same individual with whom business is conducted on behalf of HRSD.

4.3.2 Operating Funds

- A. **Scope.** Except for funds maintained in trust for retirement and health and welfare benefits for employees and/or retirees, this Policy applies to all HRSD's cash and investments (the Investment Portfolio). The Policy will apply to such monies from the time of receipt until the time the monies leave HRSD's accounts. Although these assets may be pooled for investment purposes, they may be segregated as necessary for accounting and budgetary reporting purposes.
- B. **Objectives.**
- (1) All investments will be in compliance with the Code of Virginia Sections §2.2-4400 et seq. and §2.2-4500 et seq. and the Trust Agreements.
 - (2) The cash management and investment activities of HRSD will be conducted in a manner which is consistent with applicable law and prevailing prudent business practices which may be applied by other public organizations of similar size and financial resources.
 - (3) The Investment Portfolio will be managed to accomplish the following fundamental goals:
 - a. **Safety of Principal.** The single most important objective of the investment program is the preservation of principal of those funds within the Investment Portfolio.
 - b. **Maintenance of Liquidity.** The Investment Portfolio will be managed at all times with sufficient liquidity to meet all daily and seasonal needs, to fund special projects and other operational requirements which are either known or which might reasonably be anticipated, and to provide adequate Self-Liquidity, if applicable.
 - c. **Maximizing Return.** The Investment Portfolio will be managed so as to maximize the return on investments within the context and parameters set forth by the safety and liquidity objectives above.
- C. **Standard of Prudence.** All investments will be in compliance with the Code of Virginia Sections §2.2-4400 et seq. and §2.2-4500 et seq. and the Trust Agreement. Public funds held and invested by HRSD are held for the benefit of its rate payers and any investment of such funds will be made solely in the interest of the rate payers and with the care, skill, prudence, and diligence

under the circumstances then prevailing that a person acting in a like capacity and familiar with such matters would use in the conduct of an enterprise of a like character and with like aims.

The Director of Finance and other HRSD employees acting in accordance with written procedures and this Policy and exercising due diligence will be relieved of personal responsibility for an individual security's performance, provided that deviations from expectations are reported in a timely fashion to the Commission.

- D. **General Account Structure.** In order to meet HRSD's general objectives, the Investment Portfolio is divided into three major investment strategies: an Operating Liquidity Strategy, a Total Return Strategy and a Capital Investment Strategy.
- (1) The **Operating Liquidity Strategy** consists of funds that are expected to provide for HRSD's day-to-day disbursement and operational needs. As such, liquidity is the emphasis in this strategy. This strategy will be funded to meet all known operating needs. Selection of investment maturities will be consistent with the cash requirements of HRSD in order to minimize the forced sale of securities prior to maturity. It is expected that a portion of the Operating Liquidity Strategy will be invested in highly liquid funds such as money market funds, overnight repurchase agreements, bank deposit accounts, or other short-term investment vehicles.
 - (2) The **Total Return Strategy** consists of operating funds that are not expected to be a major source of HRSD's day-to-day disbursement requirements and operational needs. The Total Return Strategy may therefore be invested in longer-term securities in order to generate an investment return, which, over time, is higher than the total return of the Operating Liquidity Strategy. This strategy may be utilized to provide Self-Liquidity on debt financings.
 - (3) The **Capital Investment Strategy** is the source for capital improvement disbursements. The strategy will consist of unspent debt proceeds and unspent HRSD cash contributions to its CIP. It is anticipated that investments will be made in the Capital Investment Strategy with maturity dates matching the anticipated expenditures or invested in highly liquid funds such as money market funds, overnight repurchase agreements, bank deposits or other short-term investment vehicles.

- E. **Authorized Investments.** Under the Trust Agreement, the Director of Finance may invest in the following securities that are in compliance with applicable law. The Director of Finance, however, may impose additional requirements and restrictions in order to ensure that HRSD's goals are met. Permitted investments for the Investment Portfolio include:
- (1) **U.S. Treasury Obligations.** Bills, notes and any other obligation or security issued by or backed by the full faith and credit of the United States of America. The final maturity will not exceed a period of five years from the time of purchase.
 - (2) **Federal Agency Obligations.** Bonds, notes and other obligations of the United States, and securities issued by any federal government agency or instrumentality or government sponsored enterprise, provided that such investments must be rated in one of the two highest rating categories by at least one NRSRO and or the have the same rating as those of U.S. Treasury obligations. The final maturity will not exceed a period of five years from the time of purchase.
 - (3) **Municipal Obligations.** Bonds, notes and other general obligation indebtedness, upon which there is no default, with a rating of at least AA from S&P and Aa from Moody's Investor Services, maturing within five years of the date of purchase, and otherwise meeting the requirements of Code of Virginia §2.2-4501. However, HRSD is prohibited from purchasing its own debt for the purpose of investing its Operating Funds. Please see the *Self-Liquidity* section of this policy for important language related to Self-Liquidity and HRSD's purchase of its own debt.
 - (4) **Commercial Paper.** Prime quality commercial paper, with a maturity of 270 days or less, issued by domestic corporations (corporations organized and operating under the laws of the United States or any state thereof) provided that the issuing corporation, or its guarantor, has a short-term debt rating of no less than "A-1" (or its equivalent) from at least two of the NRSROs.
 - (5) **Bankers Acceptance.** Issued by domestic banks or a federally chartered office of a foreign bank, which are eligible for purchase by the Federal Reserve System with a maturity of 180 days or less. The issuing corporation, or its guarantor, must have a short-term debt rating of no less than "A-1" (or its equivalent) from at least two of the NRSROs.

- (6) **Corporate Notes.** High quality corporate notes with a rating of at least "Aa" by Moody's and at least "AA" by S&P. The final maturity will not exceed a period of five years from the time of purchase.
- (7) **Negotiable Certificates of Deposit and Bank Deposit Notes.** Negotiable certificates of deposit and negotiable bank deposit notes of domestic banks and domestic offices of foreign banks with ratings of at least A-1 from P-1 from Moody's, for maturities of one year or less, and a rating of at least AA from S&P and Aa Moody's, for maturities over one year. The final maturity may not exceed a period of five years from the time of purchase.
- (8) **Money Market Mutual Funds (Open-Ended Investment Funds).** Shares in open-end, no-load investment funds provided such funds are registered under the Federal Investment Company Act of 1940, provided that the fund is rated at least "AAAm" or the equivalent by an NRSRO. The mutual fund must comply with the diversification, quality and maturity requirements of Rule 2(a)-7, or any successor rule, of the SEC, provided the investments by such funds are restricted to investments otherwise permitted by the Code of Virginia for political sub-divisions.
- (9) **Local Government Investment Pool.** A specialized fund created in the 1980 session of the General Assembly designed to offer a convenient, liquid, and cost-effective investment vehicle for public entities. The Fund is administered by the Treasury Board of the Commonwealth of Virginia and is rated AAAM by Standard & Poor's, Inc.
- (10) **SNAP Fund.** Any pooled investment vehicle established for the investment of bond proceeds under the Government Non-Arbitrage Investment Act (Chapter 47 of Title 2.2 of the Code of Virginia).
- (11) **Repurchase Agreements.** In overnight, term and open repurchase agreements provided that the following conditions are met:
 - a. The contract is fully secured by deliverable U.S. Treasury and Federal Agency obligations as described in paragraph 1 and 2 above (with a maximum maturity of five years), having a market value at all times of at least 102 percent of the amount of the contract;
 - b. A Master Repurchase Agreement or specific written Repurchase Agreement governs the transaction;

- c. The securities are free and clear of any lien and held by an independent third party custodian acting solely as agent for HRSD, provided such third party is not the seller under the repurchase agreement;
 - d. A perfected first security interest under the Uniform Commercial Code in accordance with book entry procedures prescribed at 31 C.F.R. 306.1 et seq. or 31 C.F.R. 350.0 et seq. in such securities is created for the benefit of HRSD;
 - e. For repurchase agreements with terms to maturity of greater than one day, HRSD will value the collateral securities daily and require that if additional collateral is required then that collateral must be delivered within one business day (if a collateral deficiency is not corrected within this time frame, the collateral securities will be liquidated);
 - f. The counterparty is a:
 - (1) Primary government securities dealer who reports daily to the Federal Reserve Bank of New York; or
 - (2) A bank, savings and loan association, or diversified securities broker-dealer having at least \$5 billion in assets and \$500 million in capital and subject to regulation of capital standards by any state or federal regulatory agency; and
 - (3) The counterparty meets the following criteria: A long-term credit rating of at least 'AA' or the equivalent from an NRSRO; has been in operation for at least five years; is reputable among market participants.
12. **Collateralized Bank Deposits.** Certificates of deposit and other evidence of deposit as permitted by Section 2.2.4400 et seq. of the Code of Virginia.
13. **U.S. Dollar Denominated Supra Sovereign Agency Bonds.** Bonds and other obligations issued, guaranteed or assumed by the International Bank for Reconstruction and Development, by the Asian Development Bank or by the African Development Bank, provided that the obligation is rated by an NRSRO the higher of "AA" or the rating on U.S. Treasury obligations.

- E. **Portfolio Diversification.** The Investment Portfolio will be diversified by security type and institution. The maximum percentage of the portfolio permitted in each eligible security is as follows:

<u>Permitted Investment</u>	<u>Sector Limit</u>	<u>Issuer Limit</u>
U.S. Treasury Obligations	100%	100%
Federal Agency Obligations	100%	35%
Municipal Obligations	15%	5%
Commercial Paper	25%	5%
Bankers' Acceptances	25%	5%
Corporate Notes	25%	3%
Negotiable Certificates of Deposit and Bank Deposit Notes	25%	3%
Money Market Mutual Funds	100%	100%
LGIP	100%	100%
SNAP Fund (bond proceeds only)	100%	100%
Repurchase Agreements	35%	35%
Collateralized Bank Deposits	100%	100%
Supra Sovereign Agency Bonds	15%	10%

The Sector Limit and Issuer Limit will be applied to the total Investment Portfolio value at the date of acquisition.

- F. **Maximum Maturity.** Maintenance of adequate liquidity to meet the cash flow needs of HRSD is essential. Accordingly, to the extent possible, the investment portfolio will be structured in a manner that ensures sufficient cash is available to meet anticipated liquidity needs. Whenever practical, selection of investment maturities will be consistent with the known cash requirements of HRSD in order to minimize the forced sale of securities prior to maturity.

For the purposes of the Investment Policy:

- (1) The **Operating Liquidity Strategy** will be invested in short-term investments maturing in 12 months or less. Because of the difficulties inherent in accurately forecasting all cash flow requirements, at least 25 percent of this strategy will be continuously invested in readily available funds such as bank deposit accounts, money market funds and overnight repurchase agreements and at least 75 percent of this strategy will be invested in securities with maturities less than 180 days.
- (2) The **Total Return Strategy** will be invested in permitted investments with a stated maturity of not more than five years from the date of purchase. To manage volatility, the Director of Finance will from time-

to-time determine an investment duration target which will not exceed three years and which will be comparable to the selected performance standards as identified under the Performance Standards section of this Policy.

- (3) The Capital Investment Strategy will be invested in compliance with the specific requirements of the Trust Agreements. However, in no case will bond proceeds, or funds set aside for capital projects, be invested in securities with a term to maturity that exceeds the expected disbursement date of those monies.
 - (4) Debt service reserve funds with longer term investment horizons may be invested in securities exceeding five years, provided that such investments will mature no later than the first call date for the related bonds.
- G. **Security Downgrades.** In the event that any security held in the Investment Portfolio is downgraded below AA or equivalent rating by any NRSRO, the security will be sold within 180 days of such downgrade.
- H. **Self-Liquidity.** In the event that HRSD determines to provide Self-Liquidity for any issuance of CP, VRDs, or related indebtedness investments of the Total Return Strategy will be used to support such obligations, if necessary, provided that HRSD will not be legally obligated to pledge such funds for such purpose. The Strategy's investments identified to provide self-liquidity coverage will be sufficient to meet the quality, volatility, liquidity, and maturity guidelines of the NRSRO's then providing ratings on HRSD's debt obligations. If needed, HRSD is permitted to purchase its own debt on a temporary basis or for the retirement of the debt. Such purchase will not be limited to the sector and issuer diversification limits as set forth in the Portfolio Diversification section of this policy or the maximum maturity requirement as set forth in the Capital Investment Strategy section of this Policy.
- I. **Investment of Bond Proceeds.** HRSD intends to comply with all applicable sections of the Internal Revenue Code as it relates to Arbitrage Rebate and the investment of bond proceeds. All investment records will be maintained to ensure compliance with all regulations.
- J. **Collateralization of Bank Deposits.** All bank deposits of HRSD should be considered Public Deposits as defined by Code of Virginia Security for Public Deposits Act (Section 2.2-4400 et seq.) and all deposits must be made with Qualified Public Depositories within the meaning of such law.

- K. **Selection of Broker/Dealers.** All broker/dealers who desire to provide investment services to HRSD will be provided with current copies of HRSD's Financial Policy. Before an organization can provide investment services to HRSD, it must confirm in writing that it has received and reviewed HRSD's Financial Policy.
- (1) At the request of the Director of Finance, broker/dealers will supply HRSD with information sufficient to adequately evaluate their financial capacity and creditworthiness. The following information will be provided:
 - (a) Audited financial statements;
 - (b) Regulatory reports on financial condition;
 - (c) Proof of Financial Institution Regulatory Authority (FINRA) certification and of state registration;
 - (d) A sworn statement by an authorized representative of the broker/dealer pledging to adhere to Capital Adequacy Standards established by the Federal Reserve Bank and acknowledging the broker/dealer understands that HRSD has relied upon this pledge; and
 - (e) Any additional information requested by the Director of Finance in evaluating the creditworthiness of the institution.
 - (2) Only firms meeting the following requirements will be eligible to serve as broker/dealers for HRSD:
 - (a) "Primary" dealers and regional dealers that qualify under Securities and Exchange Commission Rule 15C3-1 (uniform net capital rule);
 - (b) Capital of at least \$10,000,000;
 - (c) Registered as a dealer under the Securities Exchange Act of 1934;
 - (d) Member of the FINRA;
 - (e) Registered to sell securities in the Commonwealth of Virginia; and

- (f) Engaged in the business of effecting transactions in U.S. government and agency obligations for at least five consecutive years.
 - (3) HRSD will designate broker/dealers on an annual basis.
- L. **Competitive Selection of Investment Instruments.** All securities purchases and sales will be transacted only with designated broker/dealers through a formal and competitive process requiring the solicitation and evaluation of at least three bids/offers, taking into consideration current market conditions. Electronic bids will be accepted. HRSD will accept the bid which, in the sole judgment of the Director of Finance or his/her designee: (1) offers the highest rate of return within the maturity required; and (2) optimizes the investment objective of the overall investment portfolio, including diversification requirements. When selling a security, HRSD will select the bid that generates the highest sale price, consistent with the diversification requirements.
- M. **Safekeeping and Custody.** All investment securities purchased by HRSD or held as collateral on deposits or investments will be held by HRSD or by a third-party custodial agent that may not otherwise be counterparty to the investment transaction.
 - (1) All securities in HRSD's investment portfolio will be held in the name of HRSD and will be free and clear of any lien. Further, all investment transactions will be conducted on a delivery versus payment basis. On a monthly basis, the custodial agent will provide reports that list all securities held for HRSD, the book value of holdings, and the market value as of month-end.
 - (2) HRSD officials and representatives of the custodial agent responsible for, or in any manner involved with, the safekeeping and custody process of HRSD will be bonded in such a manner as to protect HRSD from losses from malfeasance and misfeasance.
 - (3) Original copies of non-negotiable certificates of deposit and confirming copies of all other investment transactions must be delivered to HRSD or its custodial agent.
- N. **Internal Controls.** The Director of Finance will establish a framework of internal controls governing the administration and management of HRSD's investment portfolio, and these controls will be documented in writing. Such controls will be designed to prevent and control losses of HRSD monies arising from fraud, employee error, and misrepresentation by third parties,

unanticipated changes in financial markets, or imprudent actions by any personnel. The internal control structure will be designed to provide reasonable assurance that these objectives are met. The concept of reasonable assurance recognizes that: (1) the cost of a control should not exceed the benefits likely to be derived, and (2) the valuation of costs and benefits require estimates and judgments by management.

- O. **Records and Reports.** The Director of Finance will prepare an investment report on at least a quarterly basis for the Commission.

- P. **Performance Standards.** The investment portfolio will be designed to obtain at least a market level rate of return, given budgetary and economic cycles, commensurate with HRSD's investment risk and cash flow needs. HRSD's portfolio management approach will be active, allowing periodic restructuring of the investment portfolio to take advantage of current and anticipated interest rate movements.
 - (1) The returns on HRSD's investments will be compared on a quarterly basis to indices of U.S. Treasury securities having similar maturities or to other appropriate benchmarks.
 - (2) The applicable benchmarks for each of HRSD's three major Investment strategies are listed below:

<u>Fund</u>	<u>Benchmark</u>
Operating Liquidity	3-Month U.S. Treasury Bill or Effective Federal Funds rate
Total Return	Merrill Lynch 1-3 Year U.S. Treasury Index
Capital Investment	3-Month U.S. Treasury Bill, Effective Federal Funds rate, Virginia LGIP or similar index appropriate to the duration of the expected cash flows

- Q. **Engagement of Investment Managers.** The Director of Finance may engage one or more qualified firms to provide discretionary investment management services in compliance with this Policy for HRSD. All investment management firms who desire to provide investment services to HRSD will be provided with current copies of HRSD's Investment Policy. Before an organization can provide investment services to HRSD, it must confirm in writing that it has received and reviewed HRSD's Investment Policy. The Director of Finance will conduct appropriate due diligence in the selection of qualified investment management firms and will periodically

confirm a manager's qualifications by visiting that manager's operational facilities that provide services to HRSD.

- (1) Only firms meeting the following requirements will be eligible to serve as investment manager for HRSD:
 - (a) Registered with the SEC under the Investment Advisers Act of 1940;
 - (b) Must provide to HRSD an annual updated copy of Form ADV, Part II;
 - (c) Must be registered to conduct business in the Commonwealth of Virginia; and
 - (d) Must have proven experience in providing investment management services under Code of Virginia §Sections 2.2-4500 et seq.
- (2) Any firm engaged by HRSD to provide investment services will:
 - (a) Maintain a list of approved security brokers/dealers selected by creditworthiness who are authorized to provide investment services in the Commonwealth of Virginia;
 - (b) Provide monthly reports of transactions and holdings to the Director of Finance;
 - (c) Provide performance reports, at least quarterly, that display investment performance in comparison to HRSD's investment benchmarks; and
 - (d) Not collect any soft dollar fees from any broker/dealer or other financial firm in relation to services provided to HRSD.

4.3.3 Retiree Health Plan Trust

- A. **Background.** HRSD established the Hampton Roads Sanitation District Retiree Health Plan Trust (the Trust) originally effective July 1, 2002, and amended and restated effective January 22, 2008 and November 25, 2008. The Trust provides for funding of non-pension/Other Post-Employment Benefits for employees who meet the age and service requirements outlined in the Hampton Roads Sanitation District Health Benefits Plan (the Plan) originally effective July 1, 2002, as it may be amended from time to time.

- B. **Purpose.** The main investment objective of the Trust is to achieve long-term growth of Trust assets by maximizing long-term rate of return on investments and minimizing risk of loss in order to fulfill HRSD's current and long-term OPEB obligations. The purpose of the Policy is to achieve the following:
- (1) Document investment objectives, performance expectations and investment guidelines for Trust assets.
 - (2) Establish an appropriate investment strategy for managing all Trust assets, including an investment time horizon, risk tolerance ranges and asset allocation to provide sufficient diversification and overall return over the long-term time horizon of the Trust.
 - (3) Establish investment guidelines to control overall risk and liquidity.
 - (4) Establish periodic performance and cost reporting requirements that will effectively monitor investment results and ensure that the investment policy is being followed.
 - (5) Comply with all fiduciary, prudence, due diligence and legal requirements for Trust assets.
- C. **Investment Authority.** HRSD, as Plan Administrator (the Administrator), has oversight authority of certain policies and procedures related to the operation and administration of the Trust. Pursuant to the terms of the Trust, the Trustee is to hold title to the trust assets held for the Plan and to operate exclusively in the capacity as a directed Trustee. HRSD, as the named Administrator, has the authority not only to direct the Trustee but to appoint one or more investment managers. The Administrator will have authority to implement the investment policy and guidelines in the best interest of the Trust to best satisfy the purposes of the Trust.
- (1) The Administrator has a fiduciary duty to the Trust and the participants and beneficiaries, which requires integrity and competence. Integrity requires management of the Trust and the assets for the exclusive benefit of the Trust's participants and beneficiaries. The required level of competence is that of a prudent person acting in like capacity and familiar with such matters would act. This standard of competence extends to the retention and supervision of expert investment advice and all other areas of Trust's management.

- (2) In implementing this Policy, the Administrator, in accord with the provisions of the Trust, may delegate certain functions to:
- (a) An investment advisor (the Investment Advisor) to assist the Administrator in the investment process and to maintain compliance with this Policy. The Investment Advisor may assist the Administrator in establishing investment policy objectives and guidelines. The Investment Advisor will adjust asset allocation for the Trust subject to the guidelines and limitations set forth in this Policy. The Investment Advisor will also select investment managers (Managers) and strategies consistent with its role as a fiduciary for the Trust. The investment vehicles allowed may include mutual funds, commingled trusts, separate accounts, limited partnerships and other investment vehicles deemed to be appropriate by the Investment Advisor. The Investment Advisor is also responsible for monitoring and reviewing investment managers; measuring and evaluating performance; and other tasks as deemed appropriate in its role as Advisor for Trust assets. The Investment Advisor may also select investment managers with discretion to purchase, sell, or hold specific securities, such as Exchange Traded Funds, that will be used to meet the Trust's investment objectives. The Investment Advisor shall never take possession of securities, cash or other assets of the Trust, all of which shall be held by the custodian. The Investment Advisor must be registered with the SEC. The Director of Finance will conduct appropriate due diligence in the selection of the Investment Advisor and will periodically confirm the Investment Advisor's qualifications by visiting its operational facilities that provide services to the Trust and HRSD.
 - (b) A custodian to physically maintain possession of securities owned by the Trust, collect dividend and interest payments, redeem maturing securities, and effect receipt and delivery following purchases and sales, among other things. The custodian may also perform regular accounting of all assets owned, purchased, or sold, as well as movement of assets into and out of the Trust.
 - (c) A trustee appointed by the Trust, such as a bank trust department, if the Trust does not have its own Trustees, to assume fiduciary responsibility for the administration of Trust assets; provided, however, that if the Administrator shall have appointed an investment advisor, then any trustee appointed

under this paragraph shall have no authority with respect to selection of investments.

(d) Specialists such as attorneys, auditors, actuaries and, retirement plan consultants to assist the Administrator in meeting its responsibilities and obligations to administer Trust assets prudently.

(3) HRSD members, staff, investment advisors, consultants and managers will refrain from engaging in any activity that impairs (or has the potential to impair) their ability to make impartial investment decisions for the Trust. Persons who nevertheless engage in such conduct will immediately disclose the conduct to the Administrator. HRSD members, staff, investment managers and advisers will also immediately disclose to the Administrator any activity engaged in by their respective firms, employers, employees and agents which conflicts (or has the potential to conflict) with the execution of HRSD's investment program for the Trust.

D. **Statement of Investment Objectives.** The investment objectives of the Trust are as follows:

(1) **Funding.** The primary objective of the Administrator is to maintain the assets of the Trust at the funding level necessary to provide a pool of funds to be used to provide post-retirement welfare benefits to Plan participants. To obtain this objective the Administrator will diversify Trust assets and adopt an investment strategy consistent with the Trust's investment objectives.

(2) **Safety.** In order to maintain the safety of Trust assets the Administrator will:

(a) Invest assets of the Trust in a manner consistent with the following fiduciary standards: all transactions undertaken must be for the sole interest of Trust beneficiaries and defray reasonable expenses in a prudent manner, and assets are to be diversified in order to minimize the impact of large losses in individual investments.

(b) Conserve and enhance the value of Trust assets in real terms through asset appreciation and income generation, while maintaining a moderate investment risk profile.

- (c) Minimize principal fluctuations over the Time Horizon (as defined below).
 - (d) Achieve a long-term level of return commensurate with contemporary economic conditions and equal to or exceeding the investment objective set forth in this policy under the Performance Expectations section of the Policy.
 - (3) **Liquidity.** The Trust's Investment Portfolio in combination with the projected net cash flows will provide sufficient liquidity to enable the Plan to meet all operating requirements which may be reasonably anticipated.
- E. **Investment Guidelines.** Within this section of the Policy, several terms will be used to articulate various investment concepts. The descriptions are meant to be general and may share investments otherwise considered to be in the same asset class. They are:
 - (1) Growth Assets - a collection of investments and/or asset classes whose primary risk and return characteristics are focused on capital appreciation. Investments within the Growth Assets category can include income and risk mitigating characteristics, so long as the predominant investment risk and return characteristic is capital appreciation. Examples of such investments or asset classes are: domestic and international equities or equity funds, private or leveraged equity, certain real estate investments, and hedge funds focused on equity risk mitigation or equity-like returns.
 - (2) Income Assets - a collection of investments and/or asset classes whose primary risk and return characteristics are focused on income generation. Investments within the Income Assets category can include capital appreciation and risk mitigating characteristics, so long as the primary investment risk and return characteristic is income generation. Examples of such investments or asset classes are: fixed income securities, guaranteed investment contracts, certain real estate investments, and hedge funds focused on interest rate risk mitigation or income investment-like returns.
 - (3) Real Return Assets - a collection of investments and/or asset classes whose primary risk and return characteristics are focused on real returns after inflation. Investments within the Real Return category can include inflation protected securities, commodities, certain real estate investments and hedge funds.

- F. **Time Horizon.** The Trust's investment objectives are based on a market-cycle investment horizon so that interim fluctuations should be viewed with appropriate perspective. HRSD has adopted a long-term investment horizon such that the chances and duration of investment losses are carefully weighed against the long-term potential for appreciation of assets.
- G. **Liquidity and Diversification.** Trust will hold an adequate amount of protected liquidity needs for benefit payments and expenses in cash or cash equivalents, as determined necessary. The liquidity assets will be invested in accordance with statutory requirements applicable to liquid assets, as determined by the Administrator. The remaining assets will be invested in longer-term securities.
- Investments will be diversified with the intent to minimize the risk of long-term investment losses. The total portfolio will be constructed and maintained to provide prudent diversification with regard to the concentration of holdings in individual issues, issuers, countries, governments or industries.
- H. **Asset Allocation.** The Administrator recognizes that asset allocation is one of the most important investment decisions that an investor makes. The Administrator or Investment Advisor, as appropriate, will allocate Trust assets in keeping with the Prudent Person Rule. The Administrator or Investment Advisor has determined that to achieve the greatest likelihood of meeting the applicable investment objectives and achieving the best balance between risk and return for optimal diversification, the Trust should allocate assets into two broad classes called Investment Assets and Liquidity Assets.
- (1) The Investment Assets will be invested in accordance with the targets for each asset class as follows to achieve an average total annual rate of return that is equal to or greater than the Trust's actuarial discount rate as described in the Section titled "Performance Expectations." The Liquidity Assets will be held in cash equivalent investments and used to pay for benefits and expenses of the Trust.
 - (2) The Administrator, Investment Advisor, or Managers will have discretion to temporarily invest a portion of the assets in cash reserves when they deem it appropriate. However, the Investment Advisor and each Manager will be evaluated against their peers on the performance of the total funds under their direct management.

INVESTMENT ASSETS

<u>Asset Classes</u>	<u>Asset Range</u>	<u>Weightings Target</u>
Growth Assets		
Domestic Equity	19% - 59%	39%
International Equity	1% - 41%	21%
Other	0% - 10%	0%
Income Assets		
Fixed Income	20% - 60%	40%
Other	0% - 10%	0%
Real Return Assets	0% - 20%	0%
Cash Equivalents	0% - 20%	0%

LIQUIDITY ASSETS

<u>Asset Classes</u>	<u>Asset Range</u>	<u>Weightings Target</u>
Cash Equivalents	0% - 100%	100%

- I. **Rebalancing Philosophy.** The asset allocation range established by this Policy represents a long-term perspective. For that reason, rapid unanticipated market shifts or changes in economic conditions may cause the asset mix to fall outside the Policy range. When these divergences occur, the Administrator or Investment Advisor, as appropriate, will rebalance the asset mix to its appropriate targets and ranges. Rebalancing will typically occur on at least a quarterly basis, unless the divergence is deemed an appropriate tactical strategy by the Administrator or Investment Advisor. Similarly, if the cash requirement to handle liquidity needs falls to a level at which near-term distributions (over the following six months or less) cannot be met and no contributions are anticipated, the Administrator or Investment Advisor will rebalance the fund to its appropriate targets and ranges.

Regarding allocating contributions to the Trust, the Administrator or Investment Advisor will review the Trust allocation and fill the liquidity allocation first and the remaining investment allocations last.

- J. **Risk Tolerance.** The Trust will be managed in a style that seeks to minimize principal fluctuations over the established Time Horizon and that is consistent with the Trust's investment objectives.
- K. **Performance Expectations.** Over the long-term, a rolling five-period year period, the performance objective for Trust assets will be to achieve an average total annual rate of return that is equal to or greater than the Trust's current actuarial discount rate. Additionally, it is expected that the annual rate of return on Trust assets will be commensurate with the then prevailing investment environment. Measurement of this return expectation will be judged by reviewing returns in the context of industry standard benchmarks, peer universe comparisons for individual Trust investments and blended benchmark comparisons for the Trust in its entirety. Costs will be reviewed by the Administrator and Investment Advisor to determine that they are minimized to the extent possible and are reasonable when compared to benchmarks.
- L. **Selection of Investment Managers.** The Administrator or Investment Advisor will prudently select appropriate investment managers to manage the assets of the Trust. Managers must meet the following criteria:
- (1) The investment manager must be a bank, insurance company, or investment adviser as defined by the Investment Advisers Act of 1940.
 - (2) With respect to Trust assets invested in a mutual fund, the Manager must provide historical quarterly performance data for the mutual fund compliant with SEC and Financial Industry Regulatory Authority (FINRA) standards.
 - (3) The investment manager must provide historical quarterly performance data compliant with Global Investment Performance Standards, SEC, FINRA or industry recognized standards, as appropriate, calculated on a time-weighted basis, based on a composite of all fully discretionary accounts of similar investment style and reported net of fees.
 - (4) The investment manager must provide detailed information on history of the firm, key personnel, key clients, fee schedule (including most favored nation clauses) and support personnel.
 - (5) The investment manager must clearly articulate the investment strategy that will be followed and document that the strategy has been successfully adhered to over time.

- (6) The investment professionals making the investment decisions must have a minimum of three years of experience managing similar strategies either at their current or at previous firms.
- (7) The investment manager for portfolios other than Pooled Vehicles (see the following Guidelines for Portfolio Holdings) must confirm that it has received, understands and will adhere to this policy and any manager specific policies by signing a consent form.

M. Guidelines for Portfolio Holdings. The Administrator will make every effort to prudently select funds that follow the guidelines listed below.

- (1) Until the Trust reaches a size for which investment in separate accounts is viable and appropriate, the Trust will invest in Pooled Vehicles such as commingled and/or mutual funds. Pooled Vehicles are regulated by either the Office of the Comptroller of the Currency (OCC) or the SEC and provide the Trust the ability to appropriately diversify its holdings in a cost effective manner. Inherent within the Pooled Vehicle structure is the limitation on customizing the underlying security selection based on Trust specific economic, social or other screens.
- (2) **Direct Investments by Advisor.** Every effort shall be made, to the extent practical, prudent and appropriate, to select investments that have investment objectives and policies that are consistent with this Policy Statement (as outlined in the following sub-sections of the Guidelines for Portfolio Holdings). However, given the nature of the investments, it is recognized that there may be deviations between this Policy Statement and the objectives of these investments.
- (3) **Limitations on Investment Manager's Portfolios.**

Growth Assets.

Equities. Not more than five percent or weighting in the relevant index (Russell 3000 Index for U.S. issues and MSCI ACWI ex-U.S. for non-U.S. issues) of the total equity portfolio valued at market may be invested in the common stock of any one corporation. Ownership of the shares of one company will not exceed two percent of those outstanding. Not more than 25 percent of stock valued at market may be held in any one sector, as defined by the Global Industry Classification Standard.

(1) **Domestic Equities.** Other than these constraints, there are no quantitative guidelines suggested as to issues, industry or individual security diversification. However, prudent diversification standards should be developed and maintained by the investment manager(s).

(2) **International Equities.** The overall non-U.S. equity allocation, if any, should include a diverse global mix that is comprised of the equity of companies from multiple countries, regions and sectors.

(b) **Income Assets.**

Fixed Income.

Fixed income securities, other than U.S. Treasury/Federal Agency issues, of any one issuer will not exceed five percent of the total bond portfolio at time of purchase. The five percent limitation does not apply to issues of the U.S. Treasury.

The overall weighted rating of the fixed income assets will be at least "A", based upon the ratings of such assets from a NRSRO.

(c) **Other Assets (Growth and Income Assets).**

Other Assets (Alternatives). Alternatives may consist of non-traditional asset classes such as real estate and commodities, when deemed appropriate. The total allocation to this category may not exceed 10 percent of the overall portfolio.

Real Estate. Consists of publicly traded Real Estate Investment Trust (REIT) securities and/or non-publicly traded private real estate and shall be diversified across a broad array of property types and geographic locations. Investments of this type are designed to provide a stable level of income combined with potential for price appreciation, particularly in periods of unexpected inflation. For private real estate, the illiquid, long-term nature should be considered. For purposes of asset allocation targets and limitations, publicly traded REITs will be categorized as "Other" under the Growth Assets category. Depending on the investment characteristics of a private real estate fund, the fund will be categorized as "Other" under either the Income Assets category, for example, a core real estate

fund, or under the Growth Assets category, for example, an opportunistic real estate fund where capital gains are expected to make up a significant portion of the total return.

Portfolio Risk Hedging. Portfolio investments designed to hedge various risks including volatility risk, interest rate risk, etc. are allowed to the extent that the investments are not used for the sole purpose of leveraging Trust assets. One example of a hedge vehicle is an Exchange Traded Fund (“ETF”) which takes short positions.

(d) **Real Return Assets.**

Inflation Hedge. Shall consist of pooled vehicles holding among other assets: Treasury Inflation Protected Securities (TIPS), commodities or commodity contracts, index-linked derivative contracts, certain real estate or real property funds and the equity of companies in businesses thought to hedge inflation. Inflation hedge assets will be reported in the Real Return Assets category.

If the credit quality of any one issue should drop below investment grade (as defined by two of the three rating agencies – Fitch, Moody’s and Standard & Poor’s), the investment manager should notify the Administrator and Investment Advisor immediately detailing a plan of action regarding the security.

(e) **Cash Equivalents.** Liquidity and temporary cash equivalent reserves will be invested according to the provisions of Code of Virginia Sections 2.2-4500 through 2.2-4518 applicable to liquid assets.

(f) **Additional Limitations.**

(1) **Prohibited Investments.** Except for purchase within authorized investments, the following investments and transactions are not authorized and will not be purchased:

- Letter stock and other unregistered securities,
- Direct commodities or commodity contracts,
- Short sales,
- Margin transactions,

- Private placements (with the exception of Rule 144A securities),
- Venture capital funds,
- Private equity,
- Hedge funds;

Further, derivatives, options or futures for the sole purpose of portfolio leveraging (portfolio leveraging refers specifically to investments which can lead to losses in excess of 100 percent of initial invested capital) are also prohibited. Direct ownership of real estate, natural resource properties such as oil, gas or timber and the purchase of collectibles is also prohibited.

(2) **Safekeeping.** All securities will be held by a third-party custodian selected through a public procurement process by the Administrator, pursuant to contract approval, for safekeeping. The custodian will produce statements monthly listing the name and value of all assets held, and the dates and nature of all transactions. Assets of the Trust held as liquidity or investment reserves will, at all times, be invested in interest-bearing accounts. Investments and portfolio securities may not be loaned.

(g) **Control Procedures.**

(1) **Legal Requirements, Controls, and Investment Policy Statement Review.** At all times the Administrator will comply with all local, State, and federal reporting requirements. The Administrator will establish, maintain and review prudent internal controls for the assets of the Trust, including those used by HRSD staff, and the Trust's Investment Advisor and custodian. The Administrator will provide for annual review of the adequacy and compliance of these control procedures.

(2) The Administrator will review the Financial Policy no less than annually and provide documentation to HRSD when their review is complete. Specifically, the investment component of the Financial Policy will be reviewed when any one of the following occurs:

- Change in investment advisors

- Initial use of investment vehicles other than mutual funds
- Significant change in Trust assets
- Significant change in funded status
- Significant change in market conditions

(3) **Review of Investment Objectives.** The Administrator will review annually the appropriateness of the Policy for achieving the Trust's stated objectives. It is not expected that the Policy will change frequently. In particular, short-term changes in the financial markets should not require an adjustment in the investment policy.

(4) **Review of Investment Performance.** The Administrator, on a quarterly basis, will review the total Trust investment performance, including all fees and costs and provide a report to the Commission. In addition, should investment functions be delegated, the Investment Advisor will be responsible for keeping the Administrator advised of any material change in investment strategy, investment managers, and other pertinent information potentially affecting performance of the Trust.

The Administrator will compare the investment results including all fees and costs on a quarterly basis to appropriate benchmarks, as well as to market index returns in both equity and debt markets. Examples of benchmarks and indexes that will be used include the:

- Russell 3000 Index for broad U.S. equity strategies;
- S&P 500 Index for large cap U.S. equities,
- Russell 2000 Index for small cap U.S. equities,
- MSCI ACWI ex-U.S. Index for broad based non-U.S. equity strategies;
- MSCI Europe, Australasia, and Far East (EAFE) Index for developed markets international equities,
- Barclays Capital Aggregate Bond Index for fixed income securities, and
- U.S. 91 Day T-bill for cash equivalents
- Russell 3000 Index will be used to benchmark the U.S. equities portfolio;

- MSCI ACWI ex-U.S. Index will be used to benchmark the non-U.S. equities portfolio;
- Barclays U.S. Aggregate Bond Index will be used to benchmark the fixed income portfolio.

The categories "Other" will be benchmarked against appropriate indices depending on the specific characteristics of the strategies and funds used. The Administrator will also compare investment results with the Virginia Retirement System at the end of each fiscal year.

- (5) **Voting of Proxies.** The Administrator recognizes that proxies are a significant and valuable tool in corporate governance. The voting rights of individual stocks held in separate accounts or collective, common, or pooled funds will be exercised by the investment managers in accordance with their own proxy voting policies. The voting rights of funds will be exercised by the Investment Advisor.

Investment manager(s) are expected to be aware of corporate provisions that may adversely affect stockholdings, including but not limited to "golden parachutes," "super majorities," "poison pills," "fair price" provisions, staggered boards of directors, and other tactics. Proxies should be vigorously voted with the interest of preserving or enhancing the security's value.

The investment manager(s) of a commingled trust or mutual fund that holds the assets of the Trust along with assets of other funds with conflicting proxy voting policies must reconcile the conflicting policies to the extent possible, and, if necessary, to the extent legally permissible, vote the proxies to reflect the policies in proportion to each fund's interest in the pooled fund.

- (6) **Review of Actuarial Data.** The Administrator will review the Trust's actuarial data at least once every two years or more frequently if deemed necessary, to determine whether any substantive change in the investment policy is appropriate. The Administrator will provide for an actuarial valuation in compliance with GAAP, at least bi-annually.

4.4 ASSET CAPITALIZATION

4.4.1 Notifications. Accounting must be notified when any asset is placed in service or is in the process of disposal to ensure accurate asset records are kept.

A. Cost.

- (1) Property, plant and equipment purchased, donated or constructed is recorded at historical cost as of the date acquired.
- (2) Cost includes capitalized interest borrowed to finance the construction of major capital additions.
- (3) Generally, for projects funded with both debt proceeds and other resources, it is HRSD's policy to use available debt proceeds to pay project expenditures prior to using its own resources.
- (4) Assets costing below the \$5,000 threshold amount are recorded as an expense in HRSD's financial statements.
- (5) Routine repairs and maintenance are expensed as incurred.
- (6) Vehicles, office furniture, equipment, software and intangible assets are reviewed monthly to determine whether the asset meets the capitalization threshold.
- (7) Assets that are constructed over a period of time, such as capital projects, treatment plants, buildings and facilities, and interceptor systems, are reviewed at completion to determine the appropriate capitalization value, which may include interest costs.

B. Useful Life.

- (1) Assets with an economic useful life of less than 60 months are required to be expensed for financial statement purposes, regardless of the acquisition or production cost.
- (2) Major repairs that substantially extend the life of an asset or expand its service capacity may be capitalized. For example, if a roof repair or coating is expected to extend the asset's useful life 20 years or beyond, the cost may be capitalized.
- (2) The service lives for Capital Assets are as follows:

COMMISSION ADOPTED POLICY
Financial Policy



Adopted: May 26, 2009

Revised: May 23, 2017

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(2) The service lives for Capital Assets are as follows:

Treatment plants, buildings and facilities	30 years
Interceptor systems	50 years
Office furniture, computer hardware and equipment	5-10 years
Software and intangible assets	5-7 years
Automotive	5 years

5.0 RESPONSIBILITY AND AUTHORITY


These financial policies were created after much study and evaluation and were specifically adopted by the Commission. They were developed subject to the confines of HRSD's Trust Agreement, its Enabling Act and the Code of Virginia. Any changes and exceptions to these policies will be made in writing and approved by the Commission.

HRSD's General Manager and Director of Finance are the designated administrators of these policies. The Director of Finance shall have the day-to-day responsibility and authority for implementing the provisions of these policies.

HRSD understands that changes in the capital markets or other unforeseen circumstances may from time to time produce situations that are not covered by the Policy and will require modifications or exceptions to achieve the Policy goals. In these cases, HRSD's management flexibility is appropriate provided specific authorization from the HRSD Commission is obtained. Failure to comply in any manner with the Policy will not result in any liability on the part of HRSD to any party.

HRSD, together with HRSD's financial advisor and legal counsel, will no less than bi-annually review the Policy and recommend appropriate changes.

Approved:  _____ 5/23/17
Frederick N. Elofson
Commission Chair Date

Attest:  _____ 5/23/17
Jennifer L. Cascio
Commission Secretary Date

HRSD COMMISSION MEETING MINUTES
May 23, 2017

ATTACHMENT #4

AGENDA ITEM 4. – Revenue Policy

1.0 Purpose and Need

The purpose of this revenue policy is to ensure that there is sufficient revenue to support direct and indirect operating, capital, reserves and current and future debt service costs.

2.0 Definitions

- 2.1 Domestic Quality Wastewater.** Defined in accordance with HRSD's Domestic Wastewater Survey that specifies the primary pollutants through sampling and the corresponding concentration limits for domestic wastewater.
- 2.2 Facility Charges.** Charges to cover the cost of treatment and conveyance capacity consumed by new development or redevelopment. Facility charges are applied to any sewer or sewer system discharging into HRSD facilities and any increase to existing service.
- 2.3 Hauled Wastewater.** Wastewater transported to a wastewater treatment plant and discharged that is subject to a fee.
- 2.4 High Strength or Unusual Waste.** Biochemical Oxygen Demand (BOD), Total Suspended Solids (TSS), Total Phosphorus (TP), and Total Kjeldahl Nitrogen (TKN) discharged waste requiring a Surcharge Rate when concentrations exceed the published levels in the Rate Schedule or unusual wastes not covered by the Rate Schedule that may be considered separately and may be assigned a special rate.
- 2.5 HRSD Charges.** Any and all charges or fees billed to customers for wastewater services provide by HRSD.
- 2.6 HRSD Collection System.** All infrastructure conveying flow from homes, businesses and industries to the Interceptor System in localities where HRSD owns or operates a collection system.
- 2.7 HRSD Enabling Act.** The Commonwealth of Virginia 1960 Acts of the Assembly, c. 66 as amended
- 2.8 Interceptor System.** Large pipelines conveying flow from the Collection System to the Wastewater Treatment Plant.

2.9 Rational Nexus Criteria. This ensures that there is a reasonable connection between HRSD Charges and the actual cost of operating the wastewater system. These criteria ensure: (1) the charges are not arbitrary, (2) the charges are equitable, and (3) the charges are not discriminatory.

2.10 Regional Sanitary Sewer System. All portions of the individual locality and HRSD wastewater collection and transmission systems and appurtenances thereto.

2.11 Surcharge Rate. Rates for high strength wastes to recover costs in direct proportion to volume and pollutant concentrations. Since the majority of HRSD's costs are fixed, surcharge rates are based on a marginal cost approach for the variable costs associated with the incremental costs to treat High Strength Wastes.

2.12 Wastewater Treatment Charges. Charges to convey and treat Domestic Quality Wastewater that are based on billed water consumption, an effluent wastewater meter, or a flat rate.

3.0 Guiding Principles

3.1 General.

3.1.1 To the extent feasible, HRSD is a cost recovery enterprise and supports a uniform rate structure for interception and treatment regardless of which wastewater treatment plant treats a customer's wastewater.

3.1.2 Wastewater Treatment and Collection Charges shall not be waived. However, payment extensions may be established for the collection of HRSD Charges.

3.1.3 All new connections shall pay an equitable share for the treatment and conveyance capacity consumed by their wastewater discharge to the Regional Sanitary Sewer System.

3.1.4 All rates shall be reviewed and revised (if required) annually and approved by the Commission as part of the annual budget process. Changes shall be publically advertised in accordance with HRSD's Enabling Act as well as posted on the HRSD web site.

3.1.5 Surcharge rates for high strength wastes are set to recover costs in direct proportion to volume and pollutant concentrations. Since the majority of HRSD's costs are fixed, surcharge rates are based on a marginal cost approach for the

variable costs associated with the incremental costs to treat high strength wastes.

3.1.6 Facility Charges are an up-front charge proportional to the cost of treatment and conveyance capacity consumed by each new user. This charge ensures that an unfair burden is not placed on existing users that would otherwise pay higher rates to expand the system to accommodate new growth. HRSD uses the Rational Nexus Criteria to derive facility charges.

3.1.7 HRSD will avoid dependence on temporary revenues such as grants to fund operating costs. One-time temporary revenues or grants should typically be used to fund capital projects.

3.2 Basis of Charges.

3.2.1 Wastewater Treatment Charges - HRSD shall establish rates based on the wastewater quality and one of the following factors:

- (1) Volume of water purchased by the customer (as recorded by a water meter)
- (2) Volume of effluent discharged to the sewer system (as recorded by an effluent meter)
- (3) A rate based on facility use and billing period.
- (4) A single family residential flat rate.
- (5) HRSD treatment plants are designed to treat domestic quality wastewater. Additional charges may be assessed for wastewater with qualities that differ from the current definition of Domestic Quality Wastewater.
- (6) Minimum charges apply to all accounts, except as specified herein.

3.2.2 Facility Charges.

- (1) HRSD shall establish Facility Charges for new connections based upon the size of the water meter serving the new connection. If the Locality does not offer a specific meter size, a combination meter is proposed or other similar scenario, the Facility Charge may be based on a calculated meter size using the AWWA M22 Sizing Water Service Lines and Meters manual. Additional special exceptions may be outlined in the HRSD rate schedule.

- (2) The Facility Charge for each meter size is based on the unit volume rate, which is the total net replacement value of all HRSD's assets divided by HRSD's total hydraulic capacity, times the average water consumption for each meter size.
- (3) HRSD reserves the right to establish facility charges for new connections based upon wastewater that differs from domestic quality wastewater and that consumes loading capacity in excess of capacity consumed by the equivalent volume of Domestic Quality Wastewater.

3.2.3 HRSD Collection System Maintenance Charges - HRSD may establish separate collection system maintenance charges for each Locality within the HRSD Collection System. A weighted average cost of HRSD Locality collection rates will be used to develop the collection rate annually. Localities that do not charge a Locality collection rate will be excluded from this calculation. The weighted average will be based on the latest population estimates provided by the Welden Cooper Center for Public Service or other Commonwealth designated demographics agency.

3.2.4 Hauled Wastewater - Charges are based on a common charge across all plants as derived from the HRSD rate model and are not subject to a minimum charge.

4.0 Procedures

4.1 Determining Costs.

4.1.1 The budgeted annual costs shall be used to calculate rates that will be in effect for the budget fiscal year.

4.1.2 Budgeted costs shall be loaded into a comprehensive rate model to allocate costs to applicable categories annually (see Appendix A). The model shall allocate costs to volume and each pollutant identified in the current HRSD Domestic Wastewater Survey.

4.2 Determining Total Wastewater Volume.

The total volume of wastewater to be billed during a budget year shall be estimated based upon the water consumption trends within the HRSD service area.

COMMISSION ADOPTED POLICY
Revenue Policy



Adopted: May 23, 2017

Revised: N/A

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4.3 Calculating Rates.

4.3.1 The model shall calculate a wastewater treatment rate based on total budgeted cost divided by the estimated volume of wastewater to be billed in the fiscal year. The rate shall be expressed in dollars per hundred cubic feet or per 1,000 gallons.

4.3.2 The model shall calculate the incremental cost to treat each additional pound of each pollutant in excess of the pounds of pollutants identified for Domestic Quality Wastewater in the current HRSD Domestic Wastewater Survey. The rates shall be expressed in dollars per 100 pounds or per milligrams per liter per hundred cubic feet of wastewater.

4.3.3 The new connection charges shall be calculated by dividing the replacement cost for all HRSD facilities by HRSD's total hydraulic capacity to obtain the replacement cost per gallon. This replacement cost per gallon shall be multiplied by the estimated flow expected from new connections and expressed in dollars per meter size. The average daily flows for each size water meter shall be determined using actual historical data from HRSD's meter database.

4.3.4 Flat Rate Accounts are for single family residential accounts with water meters 1" and smaller that do not have a water meter or that use a significant amount of water that is not discharged to the sanitary sewer. The Flat Rate is based on average residential water consumption for a 30-day period times the prevailing Wastewater Treatment Rate. The General Manager or Director of Finance may approve a flat rate account for water meters greater than 1" if the requestor provides sufficient evidence that there is a significant portion of water that is not discharged into the sanitary sewer system relative to average residential water consumption.

4.3.5 The minimum charge for all accounts will be specified in the Rate Schedule.

4.4 Implementation.

4.4.1 All rates shall be approved by the Commission as part of the annual budget process.

4.4.2 Rates shall be advertised for four consecutive weeks in a newspaper of general circulation within the District

COMMISSION ADOPTED POLICY
Revenue Policy



Adopted: May 23, 2017

Revised: N/A

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4.5 Financial Forecast.

HRSD will analyze water consumption, regional economic and population data periodically to identify any trends that may impact the long-range financial forecast. Based on this analysis, a conservative approach will be used to project revenues in the long-range financial forecast.

4.6 Collections.

HRSD will monitor all collections to ensure they are equitably administered, timely and accurate. The cost of collections shall not exceed the marginal incremental revenue and it should not be a large percentage of the amount to be collected.

5.0 Responsibility and Authority

5.1 The General Manager shall ensure the Commission reviews all rates annually as part of the annual budget process.

5.2 Rates may only be changed with an affirmative vote of a majority of the Commission at a legally noticed public meeting of the Commission.

5.3 The General Manager shall ensure any rate revisions are advertised and published in accordance with the HRSD Enabling Act.

5.4 The Director of Finance will present an updated Financial Forecast to the Commission and manage the update to the Rate Model on an annual basis.

Approved:  _____  _____
Frederick N. Elofson
Commission Chair
Date

Attest:  _____  _____
Jennifer L. Cascio
Commission Secretary
Date

COMMISSION ADOPTED POLICY
Revenue Policy
Appendix A – Rate Model Summary



Adopted: May 23, 2017

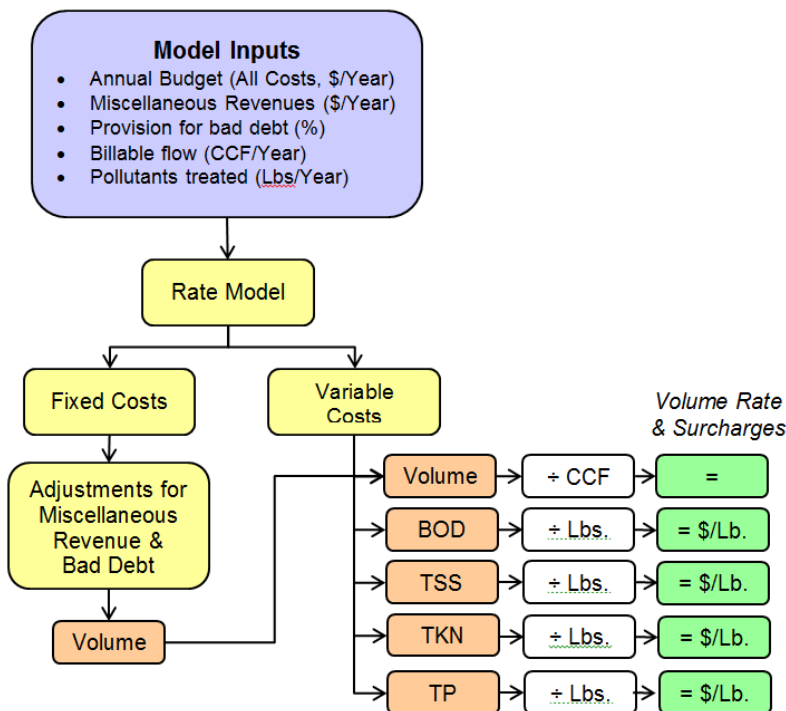
Revised: N/A

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1.0 Rate Model Summary

HRSD's rate model uses a cost accounting process to allocate all operating costs to volume and each of four specific pollutants. The model designates each line item cost as fixed or variable. Fixed costs are those that are not influenced, in the short run, by volume or the quantity of pollutants in the wastewater being treated. These include for example, personnel costs, office, administrative, customer service, billing and collection expenses, and debt service. Conversely, variable costs are those that are affected by the volume and the amount of pollutants present; these include treatment plant expenditures for chemicals, electricity, fuel, and solids disposal. The rate model uses engineering criteria to allocate the variable costs to each of the four pollutants. Once the operating costs have been allocated, the model deducts miscellaneous revenues, includes a provision for bad debt, and derives rates for volume (\$/CCF) and high strength surcharges (\$/pound); the latter equates to HRSD's marginal or incremental cost attributable to treating each pollutant in excess of the amount present in typical domestic wastewater and is also presented as the equivalent \$ per mg/l per 100 CF to facilitate calculation by customers. Net fixed costs and the variable costs to treat the four pollutants present in typical domestic sewage are recovered via the volume rate and surcharges.

2.0 Rate Model Schematic



HRSD COMMISSION MEETING MINUTES
May 23, 2017

ATTACHMENT #5

AGENDA ITEM 5. – Fiscal Year 2018 Budgets

Annual Budget

FOR THE FISCAL YEAR ENDED JUNE 30, 2018



HRSD

Ensuring future generations
inherit clean waterways

HRSD Annual Budget For
Fiscal Year Ended June 30, 2018

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The background image shows several vertical stainless steel cylindrical tanks or columns, likely part of a water filtration or treatment system. They are connected by various pipes and valves. A large, semi-transparent blue circle is overlaid on the right side of the image, containing the text. The overall scene is industrial and brightly lit.

Introduction

Evaluating Technology

Carbon-Based Advanced Water Treatment at the SWIFT Research Center will purify HRSD's highly treated water to meet stringent drinking water standards.

General Manager's Introduction

The voters of Virginia took the bold step in 1940 to address pollution in the Hampton Roads by approving a referendum creating the Hampton Roads Sanitation District (HRSD). That public approval capped a 15-year grassroots campaign that began when the shell-fishing beds in the Hampton Roads were closed by the Virginia Department of Health. At the time, over 30 million gallons of untreated sewage was being dumped into the waters of the Hampton Roads each day. It would take the United States Congress another 32 years to tackle the issue of water pollution on a national scale, finally passing the Clean Water Act in 1972.

Over the past 77 years, HRSD has developed into one of the premier wastewater treatment organizations in the nation. With 16 treatment facilities capable of treating 249 million gallons of wastewater each day, HRSD has eliminated the discharge of untreated sewage into the waters of Hampton Roads from the homes and businesses within our region. However, there is more work to be done to further improve water quality as well as preserve our 77-year investment in wastewater infrastructure.

The Governor-appointed, eight-member HRSD Commission approved this Fiscal Year 2018 budget at its regular meeting on May 23, 2017. The Commission and the HRSD staff worked diligently to balance our focus on stewardship of our ratepayers' hard earned dollars with our mission of stewardship of the waters of the Hampton Roads. The cost of wastewater treatment continues to rise here, as it does across the nation. However, wastewater treatment is still a bargain in Hampton Roads, with the typical household paying less than \$32 per month for this essential service, basically one dollar each day to protect our treasured waterways.

Federal Mandates Drive HRSD Spending

The regional sewer system, although never designed to handle storm water, fills with rainwater runoff, groundwater and tidal water during larger storms. At times, the regional system fills beyond capacity and overflows onto local streets. While these occasional overflows have minimal impact on water quality, the U.S. Environmental Protection Agency has made minimizing these types of events a national priority, and HRSD is under a Federal mandate to invest billions of dollars to further reduce the number and volume of overflows from the regional sewer system. In response to this mandate, HRSD is working throughout the region, in partnership with the local governments we serve, to minimize the impact of storm events on the regional sewer system and the waterways we value so greatly.

The Federally mandated requirement to reduce the amount of nutrients that HRSD's treatment plants discharge into the Chesapeake Bay, while not as large as the overflow mandate, has required a significant investment in infrastructure and process improvements. Major plant upgrades have been completed at the Nansemond Treatment Plant in Suffolk, the James River Treatment Plant in Newport News, the York River Treatment Plant in Seaford, and the Army Base Treatment Plant in Norfolk. Work on HRSD's largest capital project continues at the Virginia Initiative Plant (VIP) that will improve nutrient removal performance while expanding wet weather capacity. With the completion of the VIP project, HRSD is on track to meet the 2017 milestone requirements of the Chesapeake Bay Total Maximum Daily Load.

Pursuing Innovative Solutions to Reduce Costs and Protect Water Quality

HRSD continues to lead international research efforts to reduce the cost of removing nutrients from wastewater. HRSD's research work is leveraged with partnerships with leading universities and other innovative wastewater utilities throughout the world. Putting the knowledge gained into practice has already yielded a significant return on our investment by reducing operational costs for nutrient removal as well as minimizing the capital investment required to construct new systems.

Throughout HRSD's history, changing regulations have required development and implementation of innovative solutions to meet new standards to protect and restore the quality of the waters of Hampton Roads. Treatment processes have progressed from primary, to secondary, to our current advanced nutrient removal processes. Each regulatory change has required significant investment in new treatment processes. Under current regulations, the treated water HRSD discharges to area waterways is nearly clean enough to drink and substantially cleaner than the waterways themselves. With the addition of a few more treatment processes, HRSD can produce water that exceeds drinking water standards, likely to be the ultimate regulatory mandate at some point in the future.

With the various water-related challenges facing Hampton Roads and the Commonwealth, it appears there could be significant benefit from HRSD investing in additional treatment processes to treat water to meet drinking water standards as soon as possible, even before that becomes a regulatory requirement. The challenges of restoring the Chesapeake Bay, the depletion of our groundwater reserves, the impact of sea level rise and the threat of saltwater contamination of coastal groundwater may all be addressed with HRSD's Sustainable Water Initiative for Tomorrow (SWIFT). The concept is for HRSD to treat water to meet drinking water standards and pump it into the ground to provide a sustainable source of groundwater, slow the rate of land subsidence due to over withdrawal of the groundwater, block saltwater intrusion with a pressurized fresh water barrier and practically eliminate HRSD discharges to the York, James and Elizabeth Rivers. The benefits of SWIFT are significant and are needed immediately.

Financing a Sustainable Water Future

HRSD is pursuing SWIFT with a goal of obtaining required approvals to construct beginning in 2020. HRSD is committed to implementing this initiative only if it can be accomplished within the financial framework laid out in the Financial Forecast as presented in this budget. To do that, many of the proposed capital improvements related to reducing system overflows will be deferred until after SWIFT is complete. HRSD remains committed to eliminating system overflows; however, the impact of those transient events on local water quality is minimal and the benefits nearly unperceivable. In contrast, the positive impact SWIFT will have on local waterways, eastern Virginia and the entire Chesapeake Bay is significant, will be immediately evident and critical to sustaining the vitality and prosperity of Hampton Roads and all of eastern Virginia for generations to come.

Reducing overflows from the regional sewer system and reducing the amount of nutrients discharged by our treatment plants are both driven by regulations with which HRSD must comply. These regulatory mandates consume over eighty percent of the \$2.4 billion 10-year Capital Improvement Plan. It is within that portion of our capital improvement plan that we will reprioritize mandated projects to allow construction of SWIFT, a voluntary initiative, to achieve significantly more environmental benefits without influencing our Financial Forecast.

HRSD finances its capital projects by issuing bonds and using cash on hand. Over the past ten years, the annual investment in capital projects (debt payments and cash funded) has grown from less than 33 percent of HRSD's total revenue to more than 47 percent with the Fiscal Year 2018 budget. HRSD is investing in the regional wastewater infrastructure to ensure we leave a fully functional system to the next generation. While HRSD continues to focus on making the right investments in Hampton Roads, across the nation the need for investment in all infrastructure continues to grow. According to the American Society of Civil Engineers, the unmet need for wastewater exceeds \$120 billion per year and the current state of wastewater infrastructure was graded at a D+ in 2017. The federal government contributed over 63 percent of the national investment in wastewater infrastructure in 1977. Last year the federal portion was 9 percent. State, regional and local governments have had to fill that funding gap, passing on significant rate increases as utilities must price service to recover full costs. In Fiscal Year 2018, despite the lack of federal funding and HRSD's significant commitment to maintaining the appropriate level of investment in wastewater infrastructure in Hampton Roads, our average residential customers will see their monthly bills increase by less than \$2.67 per month.

The Community's Role

Our ratepayers can help control their costs by helping us control ours. Ensuring storm water runoff from downspouts, area drains and sump pumps is not directed to the sanitary sewer system and privately owned service piping is well maintained and leak free will reduce the amount of water in the sewer system. This ultimately lowers our costs to pump and treat the region's wastewater. Collecting fats, oils and grease in a container for disposal in the trash, as opposed to pouring them down the drain, reduces wastewater system maintenance and operating costs. Proper disposal of unused medications (and other substances) prevents them from reaching our treatment plants, which are not designed for removal of such substances. By not flushing unused medications down the sink or the toilet, our ratepayers can make a difference. Each flush counts.

As we reflect on 77 years of protecting public health and the waters of Hampton Roads, we remember the mandate so boldly declared by those environmentally concerned Virginians in 1940. It was their foresight that allows us to enjoy the waters of Hampton Roads today. It will take our continued innovation, investment and foresight to ensure future generations will inherit clean waterways and be able to keep them clean.

Sincerely,

A handwritten signature in black ink, appearing to read "Ted Henifin". The signature is fluid and cursive, with a long horizontal stroke at the end.

Ted Henifin, P.E.
General Manager

Principal Officials

May 23, 2017

COMMISSIONERS

Frederick N. Elofson, CPA, Chair

Maurice P. Lynch, PhD, Vice-Chair

Arthur C. Bredemeyer

Michael E. Glenn

Vishnu K. Lakdawala, PhD

Willie Levenston, Jr.

Stephen C. Rodriguez

Ann W. Templeman

COMMISSION SECRETARY

Jennifer L. Cascio

SENIOR STAFF

Edward G. Henifin, PE
General Manager

Jay A. Bernas, PE
Director of Finance
and Treasurer

Charles B. Bott, PhD, PE
Director of Water Technology
And Research

Donald C. Corrado
Director of Information
Technology

Steven G. de Mik, CPA
Director of Operations

Paula A. Hogg
Director of Talent Management

Phillip L. Hubbard, PE
Special Assistant for
Compliance Assurance

Bruce W. Husselbee, PE
Director of Engineering

James J. Pletl, PhD
Director of Water Quality

Leila E. Rice
Director of
Communications

COUNSEL

Kellam, Pickrell, Cox & Tayloe
General Counsel

Jones, Blechman, Woltz & Kelly, PC
Associate Counsel

AquaLaw, PLC
Special Counsel

Norton Rose Fulbright US, LLP
Bond Counsel

Key Facts

Service Area and Operations

Date Established	November 5, 1940
Communities Served	18 communities encompassing 3,087 square miles HRSD is a political subdivision of the Commonwealth of Virginia, created for the specific purpose of water pollution abatement in Hampton Roads by providing a system of interceptor mains and wastewater treatment plants.
Population Served	About 1.7 million, nearly one-fifth of Virginia's population, reside in HRSD's service area.

Operation and Facilities

No. of Positions (FY-2018)	830
Miles of Interceptor Systems	536 Miles
Wastewater Treated	155 million gallons per day average
Wastewater Capacity	249 million gallons per day average

Financial Information

Bond Ratings

Ratings Agency	Senior Debt	Subordinate Long-term	Subordinate Short-term
Standard & Poor's	AA+	AA	A-1+
Fitch Ratings	AA+	AA	F1+
Moody's Investors Service	Aa2	n/a	n/a

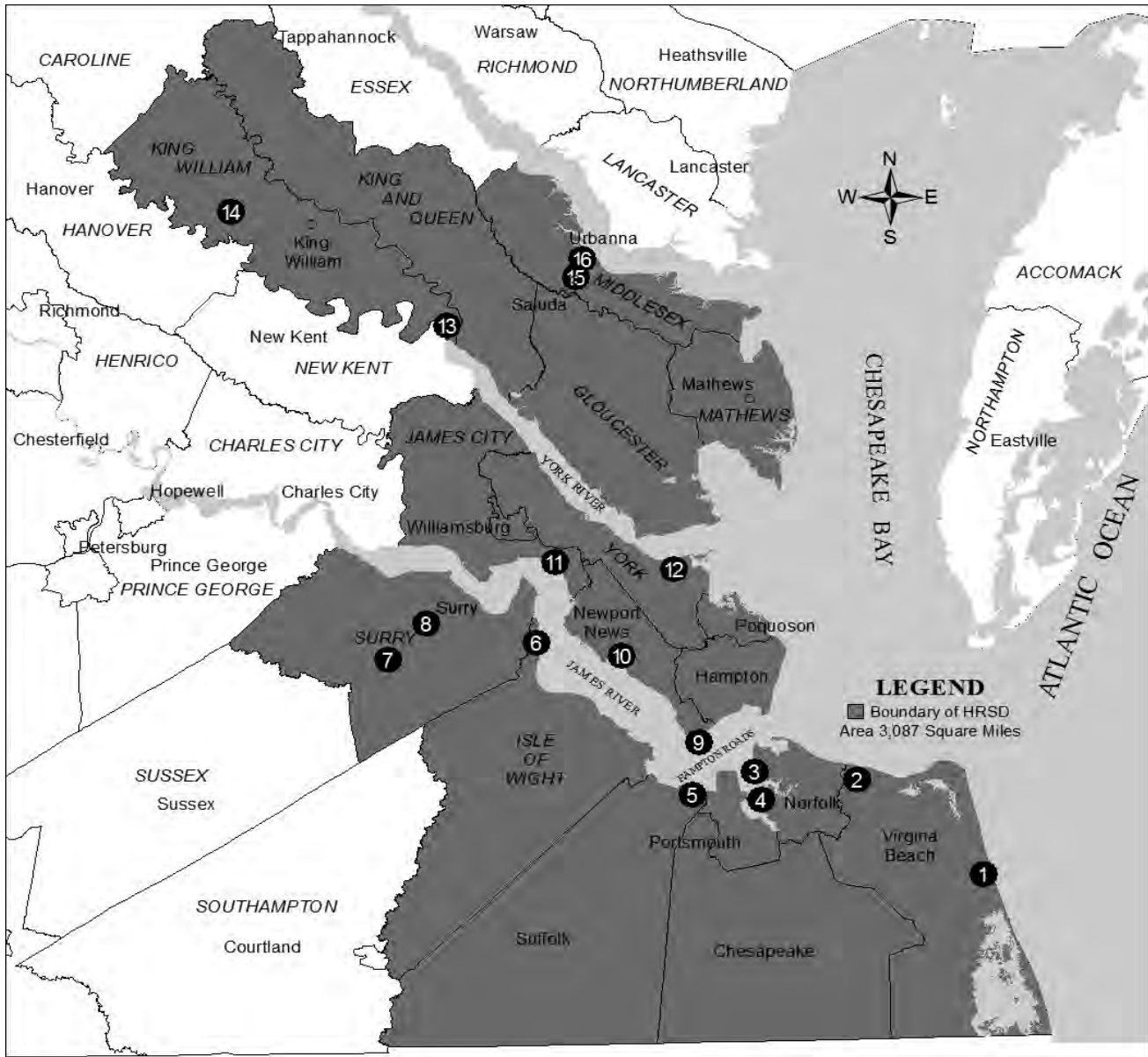
Operating Budget (FY-2018)	\$285,553,000
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HRSD Service Area

A Political Subdivision of the Commonwealth of Virginia

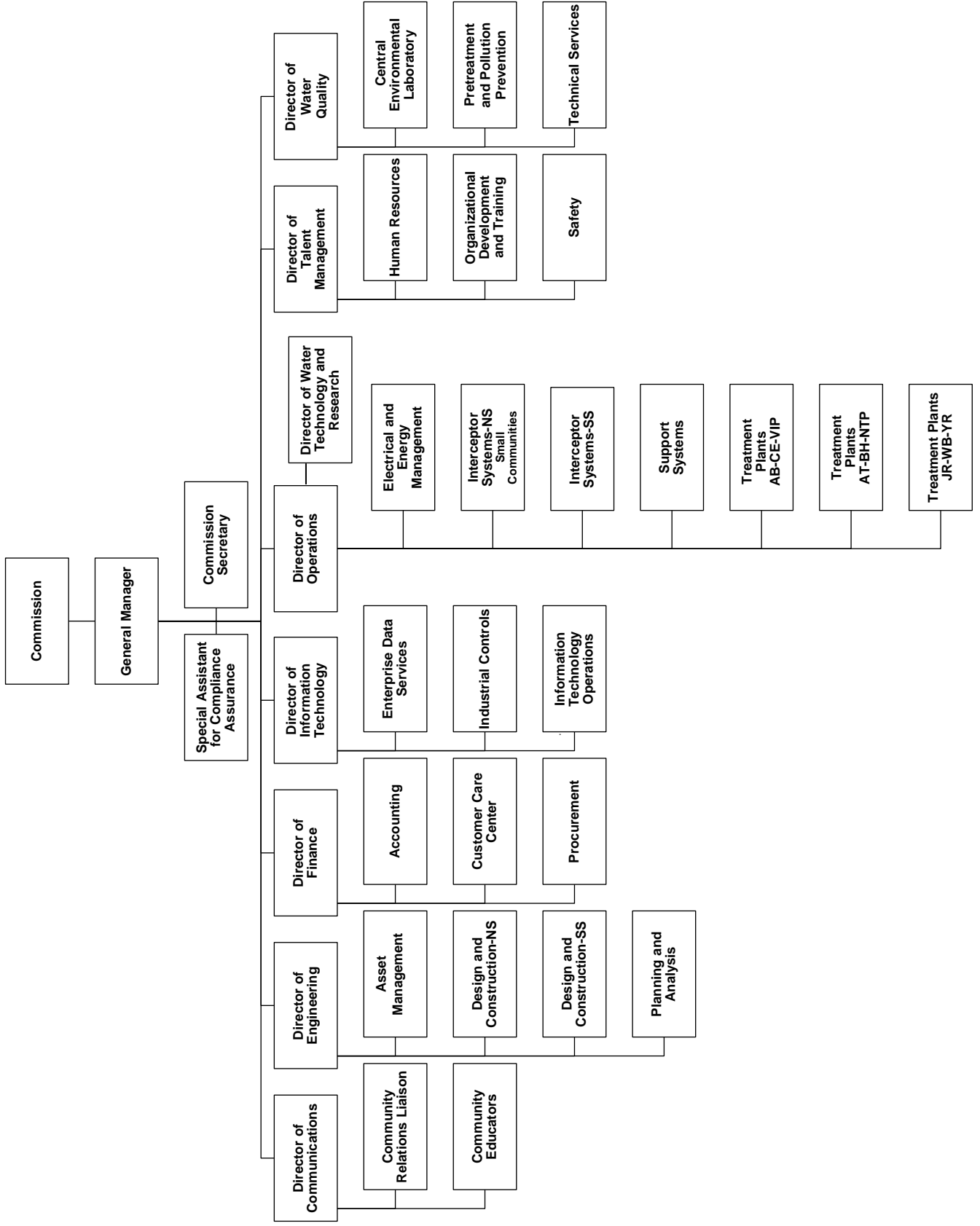
Facilities include the following:

- | | | |
|---|---|--|
| <ol style="list-style-type: none"> 1. Atlantic, Virginia Beach 2. Chesapeake-Elizabeth, Va. Beach 3. Army Base, Norfolk 4. Virginia Initiative, Norfolk 5. Nansemond, Suffolk 6. Lawnes Point, Smithfield 7. County of Surry 8. Town of Surry | <ol style="list-style-type: none"> 9. Boat Harbor, Newport News 10. James River, Newport News 11. Williamsburg, James City County 12. York River, York County 13. West Point, King William County 14. King William, King William County 15. Central Middlesex, Middlesex County 16. Urbanna, Middlesex County | <p>Serving the Cities of
Chesapeake, Hampton,
Newport News, Norfolk,
Poquoson, Portsmouth, Suffolk, Virginia
Beach, Williamsburg and the Counties
of Gloucester,
Isle of Wight, James City,
King and Queen, King William,
Mathews, Middlesex, Surry* and York
*Excluding the Town of Claremont</p> |
|---|---|--|



HRSD Organization Chart

July 1, 2017



History of HRSD

June 30, 2016

HRSD can trace its beginnings to 1925 when the Virginia Department of Health condemned a large oyster producing area in Hampton Roads. The closure resulted in the Virginia General Assembly creating in 1927 a "Commission to Investigate and Survey the Seafood Industry of Virginia." Other studies recommended a public body to construct and operate a sewage system in the area. HRSD was named after Hampton Roads, a ship anchorage used for five centuries located near the convergence of the James, Elizabeth and Nansemond Rivers, before they flow into the Chesapeake Bay in southeastern Virginia.

In 1934, the Virginia General Assembly created the Hampton Roads Sanitation Disposal Commission with instructions to plan the elimination of pollution in Hampton Roads. Recommendations were made to the General Assembly, which resulted in the Sanitary Districts Law of 1938, along with "an Act to provide for and create the Hampton Roads Sanitation District." This Act required the qualified voters within HRSD to decide in a general election on November 8, 1938, if they favored creation of such a District. This referendum failed to gain a majority by about 500 votes out of nearly 20,000 votes cast. This led to a revision of the Act and another referendum was held on November 5, 1940, which resulted in a majority vote for the creation of the Hampton Roads Sanitation District.

The Enabling Act provides for HRSD to operate as a political subdivision of the Commonwealth of Virginia for the specific purpose of water pollution abatement in Hampton Roads by providing a system of interceptor mains and wastewater treatment plants. Its affairs are controlled by a Commission of eight members appointed by the Governor for four-year terms. Administration is under the direction of a General Manager, supported by department directors and their staffs.

HRSD began operations on July 1, 1946, using facilities acquired from the United States Government. The Warwick County Trunk Sewer, HRSD's first construction project, began on June 26, 1946, and was funded by HRSD's \$6.5 million Primary Pledge Sewer Revenue Bonds, dated March 1, 1946. The first treatment plant, the Army Base Plant, began operation on October 14, 1947. Since that time, the facilities of HRSD have grown to provide sanitary sewer service to all major population centers in southeastern Virginia. The population served has increased from nearly 288,000 in 1940 to about 1.7 million in 2016.

Throughout its rich history HRSD has earned many of its industry's most prestigious awards. This tradition continued as the National Association of Clean Water Agencies (NACWA) presented Peak Performance Awards to every HRSD treatment plant for outstanding compliance with National Pollutant Discharge Elimination System (NPDES) permits during calendar year 2015. The Army Base Treatment Plant was honored for 29 consecutive years of perfect permit compliance, an achievement unsurpassed in the nation. The other major treatment plants received the following awards in recognition of their outstanding permit compliance status: Atlantic—Gold, Boat Harbor—Platinum (14 consecutive years), Chesapeake-Elizabeth—Platinum (6 consecutive years), James River—Gold, Nansemond—Platinum (14 consecutive years), Virginia Initiative Plant—Platinum (20 consecutive years), Williamsburg—Platinum (21 consecutive years) and York River—Platinum (8 consecutive years). Two treatment plants in the Small Communities Division, Central Middlesex and King William, earned Gold Awards while Urbanna received a Silver Award. West Point received a Platinum Award for 5 consecutive years of perfect compliance.

HRSD's other Fiscal Year 2016 honors included the NACWA Public Information & Education National Environmental Achievement Award for the Education Program *H2w0w: Wonders of Water*. In addition, HRSD and the Virginia STEAM Academy received from Governor Terry McAuliffe a 2016 Programs that Work award presented by the Virginia Mathematics and Science Coalition. HRSD was the 2016 winner of the prestigious Inside Business River Star Hall of Fame Award and also was recognized by the Elizabeth River Project for Sustained Distinguished Performance as a Model Level River Star Business. HRSD's sustainable water recycling initiative was among the water issue solutions featured during the March 22, 2016, White House Water Summit in Washington, D.C.

Rate Schedules

WASTEWATER TREATMENT CHARGE SCHEDULE

<u>Service</u>		<u>FY-2018</u>	<u>FY-2017</u>
Flow (monthly basis)			
Per CCF *		\$ 4.92	\$ 4.51
Minimum charge (per day)		0.30	0.30
Surcharge, per milligrams/liter per CCF	<u>In Excess of</u>		
Biochemical Oxygen Demand (BOD)	282 mg/L	\$ 0.000091	\$ 0.000206
Total Suspended Solids (TSS)	261 mg/L	\$ 0.000520	0.000454
Total Phosphorus (TP)	6 mg/L	\$ 0.011569	0.011642
Total Kjeldahl Nitrogen (TKN)	47 mg/L	\$ 0.003156	0.001660
Surcharge, per 100 pounds			
BOD	282 mg/L	\$ 1.46	\$ 3.30
TSS	261 mg/L	8.32	7.27
TP	6 mg/L	185.32	186.49
TKN	47 mg/L	50.56	26.59
Septic, per gallon		\$ 0.1300	\$ 0.1366
Residential flat rate (per 30-day period)		\$ 31.98	\$ 29.32

* CCF = 100 Cubic Feet (approximately 748 gallons)

VOLUME BASED FACILITY CHARGE SCHEDULE

<u>Meter Size</u>	<u>FY-2018</u>	<u>FY-2017</u>
5/8 Inch	\$ 1,895	\$ 1,895
3/4 Inch	4,830	4,830
1 Inch	8,170	8,170
1 1/2 Inch	17,260	17,260
2 Inch	30,510	30,510
3 Inch	70,800	70,800
4 Inch	128,660	128,660
6 Inch	298,610	298,610
8 Inch	542,680	542,680
10 Inch	862,550	862,550
12 Inch	1,259,520	1,259,520
14 Inch	1,734,700	1,734,700
16 Inch	2,289,010	2,289,010

SMALL COMMUNITIES CHARGE SCHEDULE

	<u>FY-2018</u>	<u>FY-2017</u>
Flow (monthly basis)		
Per 1,000 gallons		
King William	\$ 12.57	\$ 11.91
Mathews	12.03	11.37
Surry	12.03	11.37
Urbanna	14.16	13.50
West Point	14.27	13.61
Residential flat rate (per 30-day period)		
King William	50.28	n/a
Mathews	48.12	n/a
Surry	48.12	n/a
Urbanna	56.64	n/a
West Point	\$ 57.08	n/a

FEES AND SERVICE CHARGES

	<u>FY-2018</u>	<u>FY-2017</u>
Damaged lock	\$ 100	\$ 100
Service restoration	100	100
Meter reading (customer-owned meter)	75	75
Inaccessible meter	50	50
Returned payments	25	25
Delinquent	15	15
Deduction meter service	2	2

Reader's Guide to the Annual Budget

PURPOSE

The Annual Budget is an instrument that sets HRSD's budgetary policy and authorization to raise revenues and spend funds each fiscal year. The development of the Annual Budget is guided by HRSD's mission and vision statements:

- HRSD's mission is to protect public health and the waters of Hampton Roads by treating wastewater effectively.
- HRSD's vision is future generations will inherit clean waterways and be able to keep them clean.

ANNUAL BUDGET OVERVIEW

HRSD's Annual Budget contains the following sections:

Financial Forecast

This section provides a high level, 20-year forecast of projected retail rate increases, operating revenues and expenses, capital improvements and related funding sources, amounts contributed to and fiscal year-end balances of cash and investment reserves, and selected financial ratios that help to measure the financial health of HRSD.

The forecast is an inflationary based model where trends from past fiscal years and proposed operating budgets are used to forecast future operating needs. Transfers to reserves and to the Capital budget are forecast to be in amounts that are not less than parameters established within HRSD's Financial Policy. Debt service for permanent financings are generally forecast to have a maximum term of 30 years at an interest rate that approximates 20-year average fixed rates for HRSD. Interim, or construction, financings' interest rates are based on a 10-year historical average.

Operating Budget

The Operating Budget represents the authorization by the HRSD Commission to spend funds directly related to operating and maintaining HRSD's programs and assets during the fiscal year. This section includes each department's annual operating budgets. Those expenses that are not attributable to a specific department are assigned to "General Expenses." Transfers represent authorization to transfer revenues raised from operations to either the Capital Budget or to various reserves established in HRSD's Financial Policy. The Operating Budget Summary provides the budget by department and major object code classification. Department Budgets and General Expenses, Debt Service and Transfers detail budget expenditures by major object code classification. The number of full-time positions authorized for the fiscal year is provided by department.

Capital Budget

The Capital Budget represents a plan of specific, major capital improvements over a period of ten fiscal years. The Capital Budget is not an approval or appropriation of funds for individual projects. There is no authorization or funding for individual projects until the Commission acts on the specific project. The Commission formally authorizes spending for individual projects throughout a fiscal year and generally upon project initiation.

The Summary Schedule details the funding sources for capital improvements as well as planned expenditures.

A formal, detailed, Capital Improvement Program with more specific project information is available at <http://www.hrsd.com/capitalimprovementprogram.shtml>.

HRSD's budget authorizations, capital improvement plans, user rate setting practices and other significant financial practices are guided by HRSD's Financial Policy. The Financial Policy is available at <http://www.hrsd.com/Finance.shtml>.

HRSD's Rate Schedule is available at <http://www.hrsd.com/rateschedule.shtml>.

BUDGETARY PROCESS

HRSD prepares its Annual Budget under the provisions of its enabling legislation and its Trust Agreement, dated March 1, 2008. In accordance with those provisions, the following process is used to adopt the Annual Budget:

The process begins in late December with the issuance of the Annual Budget Instructions by the General Manager. Each department completes its Operating Budget by March 1 for the General Manager's review.

The HRSD Commission appoints a Finance Committee which typically consists of two Commissioners. The committee meets in early April to review the budgets. The Commission reviews these budgets during its April meeting.

The final Annual Budget, which incorporates the Operating and Capital Budgets, is presented at the May Commission meeting for adoption. The Commission simultaneously adopts the budget and any resulting wastewater rate schedule changes. All rate adjustments must be publically advertised four consecutive weeks before they can take effect.

The HRSD Commission approves any budget amendments during the fiscal year.

BUDGETARY ACCOUNTING AND CONTROL

HRSD operates in accordance with annual operating and capital budgets prepared on a basis of accounting that is different from generally accepted accounting principles.

The Operating Budget is adopted by department, with budgetary controls exercised administratively by management at the department level. The General Manager is authorized to

transfer funds among departments without further approval by the Commission. Appropriations lapse at the end of the fiscal year. Valid, outstanding encumbrances (those for which performance under a contract is expected in the next year) are re-appropriated without further approval by the Commission and become part of the subsequent year's budget.

The Capital Budget represents a ten-year plan. Funds for the Capital Budget are adopted throughout a fiscal year on a project basis. Transfers among projects require approval by the Commission. Appropriations for these budgets continue until the purpose of the appropriation has been fulfilled.

Glossary of Financial Terms

Appropriation: An authorization granted by the Commission to incur obligations for specific purposes. Appropriations are usually limited to amount, purpose and time.

Basis of Accounting: HRSD's financial statements report the financial position and results of operations of HRSD in accordance with generally accepted accounting principles in the United States of America (GAAP).

Bond Ratings: A grade given to bonds that represents a measure of their credit quality. Private independent rating services such as Standard & Poor's, Moody's and Fitch provide these evaluations of a bond issuer's financial strength, or its the ability to pay a bond's principal and interest in a timely fashion.

Capital Improvement Program (CIP): Ten-year plan for major non-recurring facility, infrastructure, or acquisition expenditures that expand or improve HRSD and/or community assets. Projects included in the CIP include physical descriptions, implementation schedules, year of expenditure cost and funding source estimates, and an indication of HRSD Commission priorities and community benefits.

Centum Cubic Feet (CCF): Typical unit in which industrial-consumption of natural gas or water is measured; each CCF being 100 cubic-feet.

CIP Percent Cash Funded: Percent of each year's capital improvement plan funded with cash through transfers from operations. HRSD's Financial Policy requires that at least 15 percent of each year's planned capital improvements be funded with cash. This ratio indicates the amount of capital improvements that are not leveraged.

Debt Service: Amount of money necessary to pay principal and interest on bonds outstanding.

Debt Service as a Percent of Revenues: Total revenues divided by total debt service. This ratio measures the debt service burden compared to total revenues.

Maximum Annual Debt Service: Represents the greatest long-term debt service requirement for the then current or succeeding fiscal year.

Risk Management Reserve: HRSD maintains a self-insurance program for some of its risk exposures. HRSD'S Financial Policy requires HRSD to maintain a Risk Management Reserve as of the end of the fiscal year of not less than 25 percent of projected annual self-insured claims costs for known, retained risks.

Total Debt Service Coverage Ratio (GAAP): Calculated in accordance with HRSD's Senior Trust Agreement, the ratio determined by dividing the Net Revenues by annual debt service. In such calculation, funds spent on Locality Assets are considered an expense. Annual debt service will be based on actual principal and interest payments during the year (i.e., not accrual based).

Total Debt Service Coverage Ratio (Adjusted): Calculated in accordance with HRSD's Subordinate Trust Agreement, the ratio determined by dividing the Net Revenues by annual debt service. In such calculation, funds spent on Locality Assets may be excluded from the calculation of Net Revenues under the circumstances described within the definitions of Net Revenues and Operating Expenses. Annual debt service will be based on actual principal and interest payments during the year (i.e., not accrual based).

Trust Agreement: The formal agreement between bond holders, acting through a trustee, and HRSD.

Unrestricted Cash as Percentage of Operating Expenses: Unrestricted cash and investments at fiscal year-end that are not earmarked for another purpose divided by budgeted appropriations for Operations adjusted by certain adjustments required by GAAP. HRSD's Financial Policy requires that the General Reserve at the end of any fiscal year not be less than 270 – 365 (75-100 percent) days of the current years' projected operating and maintenance expenses less depreciation. This reserve is intended to help HRSD cover unanticipated expenses that cannot be paid from the current fiscal year's budgetary resources.



Financial Forecast

Protecting Groundwater Supplies

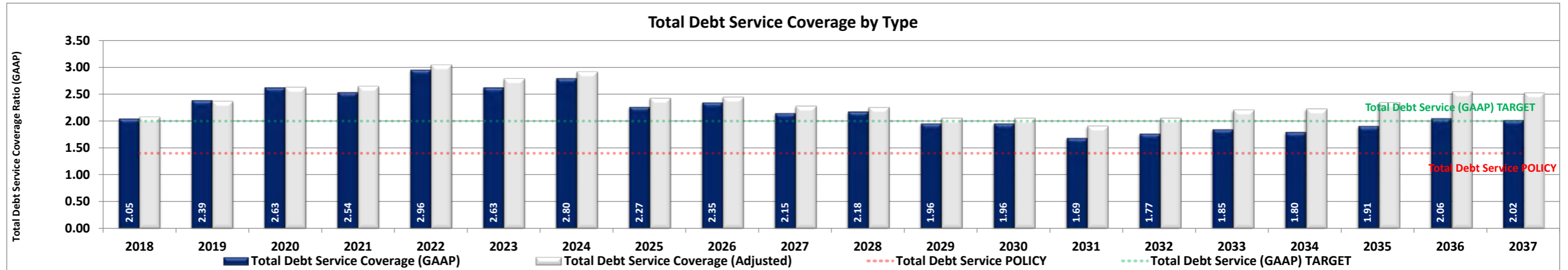
Engineers at the SWIFT Pilot Facility analyzed multiple technologies to ensure the SWIFT Research Center incorporates the safest, most effective treatment options possible.

SWIFT

Flocculation/Sedimentation
Clarification

Flocculation/Sedimentation
Clarification

Financial Forecast (in thousands)	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
Operating Budget Forecast																				
<i>Rate and Fees Increase - %</i>	9%	9%	9%	9%	9%	9%	7%	7%	7%	7%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Revenues																				
Operating Revenues	\$ 274,633	\$ 295,912	\$ 318,831	\$ 343,334	\$ 369,875	\$ 398,387	\$ 421,328	\$ 445,765	\$ 471,645	\$ 498,918	\$ 523,227	\$ 548,445	\$ 575,006	\$ 602,863	\$ 631,969	\$ 662,735	\$ 695,102	\$ 729,013	\$ 764,413	\$ 801,684
Non-Operating Revenues	10,920	11,208	11,146	11,162	11,288	11,321	11,456	12,072	12,408	12,556	13,296	13,652	13,832	14,193	14,725	15,072	15,384	15,651	15,883	16,088
Total Revenues	\$ 285,553	\$ 307,120	\$ 329,976	\$ 354,496	\$ 381,163	\$ 409,708	\$ 432,784	\$ 457,837	\$ 484,052	\$ 511,474	\$ 536,523	\$ 562,097	\$ 588,838	\$ 617,056	\$ 646,694	\$ 677,807	\$ 710,486	\$ 744,664	\$ 780,296	\$ 817,772
Operating Appropriations																				
Operations	\$ 142,578	\$ 147,974	\$ 152,868	\$ 157,938	\$ 160,191	\$ 172,898	\$ 178,669	\$ 202,896	\$ 216,741	\$ 223,949	\$ 248,007	\$ 265,138	\$ 281,437	\$ 300,702	\$ 310,690	\$ 321,041	\$ 331,770	\$ 342,891	\$ 354,423	\$ 366,381
Major Repairs and Replacements	7,831	8,066	8,308	8,557	8,814	9,079	9,351	9,631	9,920	10,218	10,525	10,840	11,165	11,500	11,845	12,201	12,567	12,944	13,332	13,732
Capital Acquisitions	814	839	864	890	916	944	972	1,001	1,031	1,062	1,094	1,127	1,161	1,196	1,231	1,268	1,306	1,346	1,386	1,428
Total Operating Appropriations	151,223	156,879	162,040	167,385	169,921	182,920	188,992	213,529	227,693	235,230	259,625	277,105	293,763	313,398	323,767	334,510	345,643	357,181	369,141	381,540
Debt Service																				
Debt Service	60,849	60,295	61,239	67,860	65,691	78,256	80,804	98,268	101,015	118,396	118,355	135,633	138,266	155,705	150,880	149,906	159,967	158,987	156,711	168,935
Transfer to Capital Improvement Plan (PAYGO)	58,802	89,708	100,852	105,824	138,076	134,030	156,085	120,859	140,553	149,898	134,568	134,241	132,307	113,887	145,929	169,986	183,666	208,981	236,141	249,756
Transfer to General Reserve (Unrestricted Cash)	14,419	-	5,629	13,195	7,228	14,239	6,623	24,883	14,473	7,612	23,614	14,733	24,093	33,630	25,654	22,911	20,683	18,956	17,707	16,905
Transfer to Risk Management Reserve	260	239	218	232	247	263	280	299	318	339	361	384	409	436	464	494	526	560	597	636
Total Appropriations	\$ 285,553	\$ 307,120	\$ 329,976	\$ 354,496	\$ 381,163	\$ 409,708	\$ 432,784	\$ 457,837	\$ 484,052	\$ 511,474	\$ 536,523	\$ 562,097	\$ 588,838	\$ 617,056	\$ 646,694	\$ 677,807	\$ 710,486	\$ 744,664	\$ 780,296	\$ 817,772
Capital Improvement Budget Forecast																				
Beginning Capital Reserves	\$ 22,787	\$ -	\$ 218	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sources of Funds																				
Debt Funded (Revenue Bonds and Interim Financing)	30,139	-	58,661	91,530	80,197	155,268	141,337	178,208	158,426	148,980	154,237	124,826	126,651	104,245	51,150	28,246	39,809	74,640	97,583	98,920
Virginia Clean Water Revolving Loan Fund	21,658	21,658	14,418	11,971	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HRSD - Cash	58,802	89,708	100,852	105,824	138,076	134,030	156,085	120,859	140,553	149,898	134,568	134,241	132,307	113,887	145,929	169,986	183,666	208,981	236,141	249,756
Grants and Other Reimbursements	5,810	3,359	210	-	1,000	-	1,900	-	-	-	-	-	-	-	-	-	-	-	-	-
Transfer from Debt Service Reserve Fund	804	494	642	674	727	702	679	933	1,021	1,123	1,195	933	1,042	1,868	2,921	1,768	1,525	1,379	1,276	1,324
Total Capital Resources	140,000	115,218	175,000	210,000	220,000	290,000	300,000	300,000	300,000	300,000	290,000	260,000	260,000	220,000	200,000	200,000	225,000	285,000	335,000	350,000
Uses of Funds - Capital Expenditures	140,000	115,000	175,000	210,000	220,000	290,000	300,000	300,000	300,000	300,000	290,000	260,000	260,000	220,000	200,000	200,000	225,000	285,000	335,000	350,000
Ending Capital Resources	\$ -	\$ 218	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Reserves Balance Forecast																				
Unrestricted Cash as a % of Operating Expenses	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Unrestricted Cash	\$ 162,838	\$ 162,838	\$ 168,466	\$ 181,661	\$ 188,889	\$ 203,128	\$ 209,751	\$ 234,634	\$ 249,107	\$ 256,719	\$ 280,333	\$ 295,066	\$ 319,158	\$ 352,789	\$ 378,443	\$ 401,354	\$ 422,037	\$ 440,993	\$ 458,699	\$ 475,604
Risk Reserve	3,114	3,353	3,571	3,803	4,050	4,313	4,594	4,892	5,210	5,549	5,910	6,294	6,703	7,139	7,603	8,097	8,623	9,184	9,780	10,416
Debt Service Reserve Fund	30,950	30,456	29,814	29,140	28,413	27,711	27,033	26,100	25,079	23,957	22,762	21,829	20,787	18,919	15,998	14,230	12,705	11,326	10,050	8,727
Total Reserves Balance	\$ 196,902	\$ 196,647	\$ 201,851	\$ 214,604	\$ 221,353	\$ 235,153	\$ 241,378	\$ 265,627	\$ 279,397	\$ 286,225	\$ 309,005	\$ 323,188	\$ 346,648	\$ 378,847	\$ 402,044	\$ 423,680	\$ 443,365	\$ 461,502	\$ 478,530	\$ 494,747
Financial Ratios Forecast																				
Total Debt Service Coverage (GAAP)	2.05	2.39	2.63	2.54	2.96	2.63	2.80	2.27	2.35	2.15	2.18	1.96	1.96	1.69	1.77	1.85	1.80	1.91	2.06	2.02
Total Debt Service Coverage (Adjusted)	2.08	2.37	2.63	2.65	3.05	2.79	2.92	2.43	2.45	2.28	2.26	2.06	2.06	1.91	2.06	2.21	2.23	2.35	2.55	2.53
CIP % Cash Funded (current year contributions)	42%	78%	58%	50%	63%	46%	52%	40%	47%	50%	46%	52%	51%	52%	73%	85%	82%	73%	70%	71%
Debt Service as a % of Total Revenues	21%	20%	19%	19%	17%	19%	19%	21%	21%	23%	22%	24%	23%	25%	23%	22%	23%	21%	20%	21%
Moody's Projected Rating	Aa1	Aa1	Aa1	Aa1	Aaa	Aa1	Aa1	Aa1	Aa1	Aa1	Aa1	Aa1	Aa1	Aa1	Aa1	Aa1	Aa1	Aa1	Aaa	Aaa
Regional Wet Weather Management Plan (RWWMP) Summary																				
HRSD Projected CIP Spending	\$ -	\$ -	\$ 2,044	\$ 7,174	\$ 9,884	\$ 11,152	\$ 11,731	\$ 12,106	\$ 12,446	\$ 12,552	\$ 11,802	\$ 9,088	\$ 11,090	\$ 15,490	\$ 23,027	\$ 29,033	\$ 33,756	\$ 37,433	\$ 40,290	\$ 42,539
Projected Locality/Private Property CIP Spending	\$ -	\$ -	\$ 2,044	\$ 7,174	\$ 9,884	\$ 11,152	\$ 11,731	\$ 12,106	\$ 12,446	\$ 12,552	\$ 11,802	\$ 9,088	\$ 16,556	\$ 30,587	\$ 45,907	\$ 58,112	\$ 67,700	\$ 75,157	\$ 80,945	\$ 85,491
Locality/Private Property % of Total CIP	0.0%	0.0%	1.2%	3.4%	4.5%	3.8%	3.9%	4.0%	4.1%	4.2%	4.1%	3.5%	6.4%	13.9%	23.0%	29.1%	30.1%	26.4%	24.2%	24.4%
RWWMP % of Total CIP	0.0%	0.0%	2.3%	6.8%	9.0%	7.7%	7.8%	8.1%	8.3%	8.4%	8.1%	7.0%	10.6%	20.9%	34.5%	43.6%	45.1%	39.5%	36.2%	36.6%
Line of Credit Balance	\$ 30,139	\$ 30,139	\$ 88,800	\$ 180,330	\$ 60,528	\$ 215,796	\$ 57,133	\$ 235,341	\$ 93,767	\$ 242,747	\$ 96,984	\$ 221,809	\$ 48,461	\$ 152,706	\$ 203,856	\$ 32,102	\$ 71,911	\$ 146,551	\$ 44,134	\$ 143,055
Total Bonds Issued	\$ -	\$ -	\$ -	\$ -	\$ 201,207	\$ -	\$ 301,811	\$ -	\$ 301,811	\$ -	\$ 301,811	\$ -	\$ 301,811	\$ -	\$ -	\$ 201,207	\$ -	\$ -	\$ 201,207	\$ -



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The background image shows a water treatment process. On the left, a vertical pipe is surrounded by a dense cloud of small bubbles. On the right, a larger, more turbulent flow of water is visible, also with many bubbles. In the bottom right corner, a stainless steel faucet is shown with water flowing from it. A large, semi-transparent blue circle is overlaid on the right side of the image, containing the text.

Operating Budget

Producing Purified Water

The SWIFT Research Center will demonstrate HRSD's ability to purify up to one million gallons of highly treated water daily, attaining drinking water standards to replenish diminishing groundwater supplies.

Operating Budget

	FY-2018	Adopted FY-2017	Increase/ (Decrease)	Percent Change
Operating Revenues				
Wastewater Treatment Charges	\$ 273,087,693	\$ 249,743,000	\$ 23,344,693	9%
Miscellaneous	1,545,000	2,120,000	(575,000)	(27%)
Total Operating Revenue	274,632,693	251,863,000	22,769,693	9%
Non-Operating Revenues				
Wastewater Facility Charges	6,000,000	5,850,000	150,000	3%
Investment Earnings	1,800,000	1,400,000	400,000	29%
Build America Bond Subsidy	2,400,000	2,400,000	-	0%
Other	720,000	720,000	-	0%
Total Non-Operating Revenues	10,920,000	10,370,000	550,000	5%
Total Revenues	\$ 285,552,693	\$ 262,233,000	\$ 23,319,693	9%
Operating Appropriations				
General Management	\$ 680,710	\$ 952,913	\$ (272,203)	(29%)
Communications	470,615	-	470,615	0%
Finance	13,593,503	13,274,002	319,501	2%
Information Services	16,229,457	15,318,700	910,756	6%
Talent Management	2,280,395	2,243,164	37,231	2%
Operations	94,102,651	90,913,570	3,189,081	4%
Engineering	5,731,535	5,667,444	64,090	1%
Water Quality	14,205,703	13,477,883	727,820	5%
General Expenses	3,928,399	4,177,026	(248,627)	(6%)
Total Operating Appropriations	151,222,965	146,024,702	5,198,263	4%
Appropriations for Debt Service and Transfers				
Debt Service	60,849,120	63,847,000	(2,997,880)	(5%)
Transfer to Capital Improvement Program	58,802,000	52,101,298	6,700,702	13%
Transfer to General Reserve	14,418,608	-	14,418,608	0%
Transfer to Risk Management Reserve	260,000	260,000	-	0%
Total Appropriations for Debt Service and Transfers	134,329,728	116,208,298	18,121,430	16%
Total Appropriations	\$ 285,552,693	\$ 262,233,000	\$ 23,319,693	9%

Operating Budget Summary

	General		Finance	Information	Talent	Operations	Engineering	Water	General
	Management	Communications		Services	Management			Quality	Expenses
Personal Services	\$ 482,624	\$ 278,347	\$ 5,819,422	\$ 4,389,837	\$ 1,356,029	\$ 32,428,555	\$ 3,464,514	\$ 7,304,005	\$ (1,750,006)
Fringe Benefits	135,085	\$ 87,268	2,721,921	1,679,289	541,996	15,407,324	1,351,675	3,161,895	(395,000)
Materials & Supplies	10,000	\$ 45,000	73,140	902,250	65,500	4,622,095	29,778	1,310,329	30,000
Transportation	2,000	\$ 3,000	14,000	87,251	27,600	1,218,155	16,723	50,656	-
Utilities	-	\$ -	237,800	1,524,000	-	9,738,681	-	-	447,000
Chemical Purchases	-	\$ -	-	-	-	10,324,400	-	-	-
Contractual Services	20,000	\$ 35,000	4,464,850	5,626,354	53,200	12,926,502	703,904	1,649,095	5,515,305
Major Repairs	-	\$ -	-	1,750,000	-	5,893,219	9,000	179,000	-
Capital Assets	-	\$ -	-	-	-	771,100	-	43,000	-
Miscellaneous Expense	31,000	\$ 22,000	262,369	270,475	236,070	772,620	155,941	507,723	81,100
Operating Appropriations	\$ 680,710	\$ 470,615	\$ 13,593,503	\$ 16,229,457	\$ 2,280,395	\$ 94,102,651	\$ 5,731,535	\$ 14,205,703	\$ 3,928,399

Full-time Positions:

Current	4	0	100	48	15	509	39	106
Changes	(1)	2	1	2	0	2	0	3
Budgeted	3	2	101	50	15	511	39	109

Operating Budget Summary

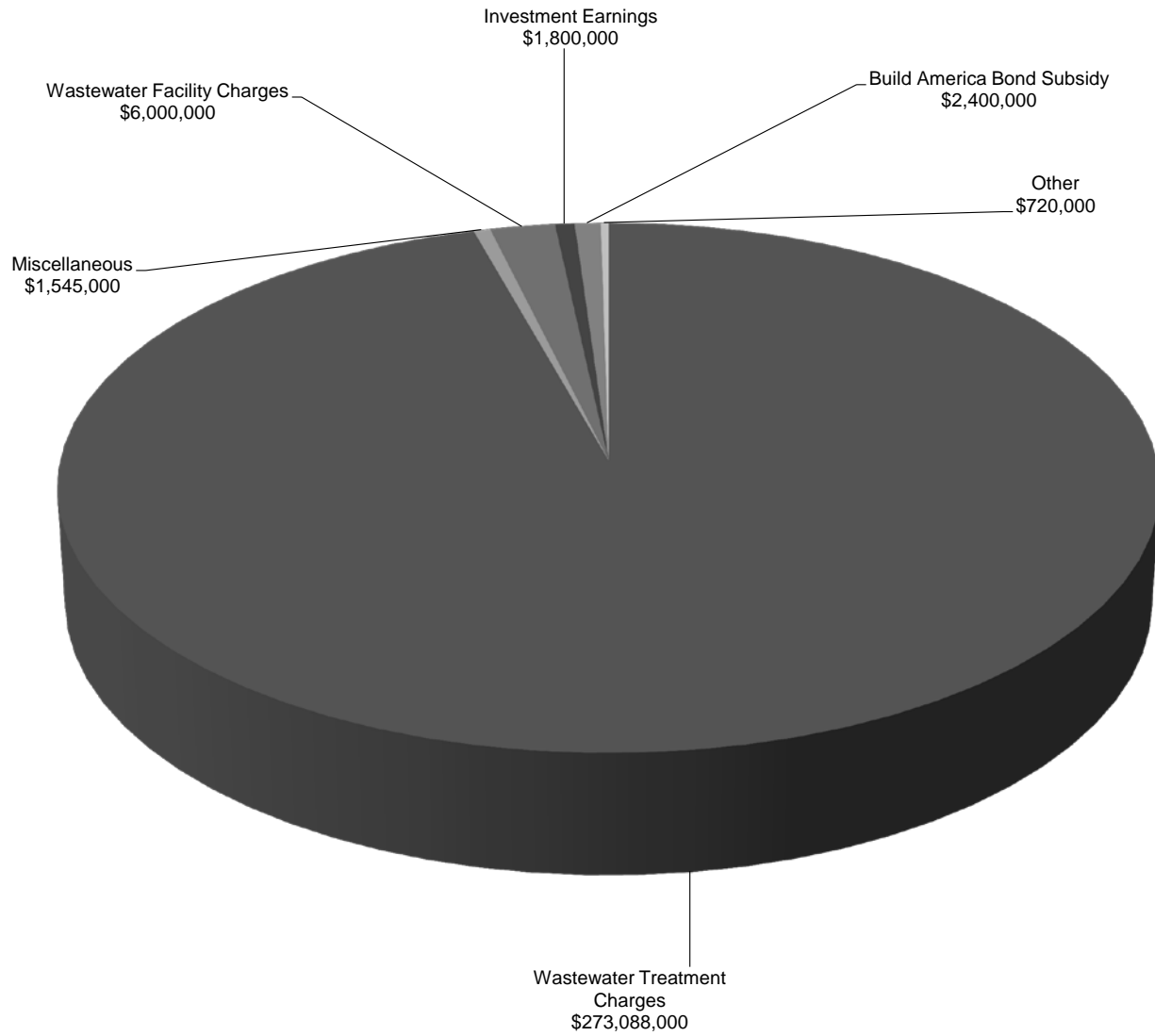
	FY-2018	Percent of Budget	FY-2017 Budget	Increase/ Decrease	Percent Inc/(Dec)
Personal Services	\$ 53,773,327	18.8%	\$ 52,521,153	\$ 1,252,174	2%
Fringe Benefits	\$ 24,691,453	8.6%	\$ 24,277,464	413,990	2%
Materials & Supplies	\$ 7,088,092	2.5%	\$ 7,025,374	62,717	1%
Transportation	\$ 1,419,385	0.5%	\$ 1,443,719	(24,334)	(2%)
Utilities	\$ 11,947,481	4.2%	\$ 12,110,491	(163,010)	(1%)
Chemical Purchases	\$ 10,324,400	3.6%	\$ 9,210,500	1,113,900	12%
Contractual Services	\$ 30,994,210	10.9%	\$ 28,239,821	2,754,389	10%
Major Repairs	\$ 7,831,219	2.7%	\$ 7,424,907	406,312	5%
Capital Assets	\$ 814,100	0.3%	\$ 1,454,400	(640,300)	(44%)
Miscellaneous Expense	\$ 2,339,298	0.8%	\$ 2,316,872	22,426	1%
Operating Appropriations	<u>\$ 151,222,965</u>	53.0%	<u>146,024,702</u>	<u>5,198,263</u>	4%
Debt Service Costs	\$ 60,849,120	21.3%	63,847,000	(2,997,880)	(5%)
Transfer to Capital Improvement Program	\$ 58,802,000	20.6%	52,101,298	6,700,702	13%
Transfer to General Reserve	\$ 14,418,608	5.0%	-	14,418,608	0%
Transfer to Risk Management	\$ 260,000	0.1%	260,000	-	0%
Appropriations for Debt Service and Transfers	<u>\$ 134,329,728</u>	47.0%	<u>116,208,298</u>	<u>18,121,430</u>	16%
	<u>\$ 285,552,693</u>	100.0%	<u>\$ 262,233,000</u>	<u>\$ 23,319,693</u>	9%

Full-time Positions:

Current	821
Changes	9
Budgeted	830

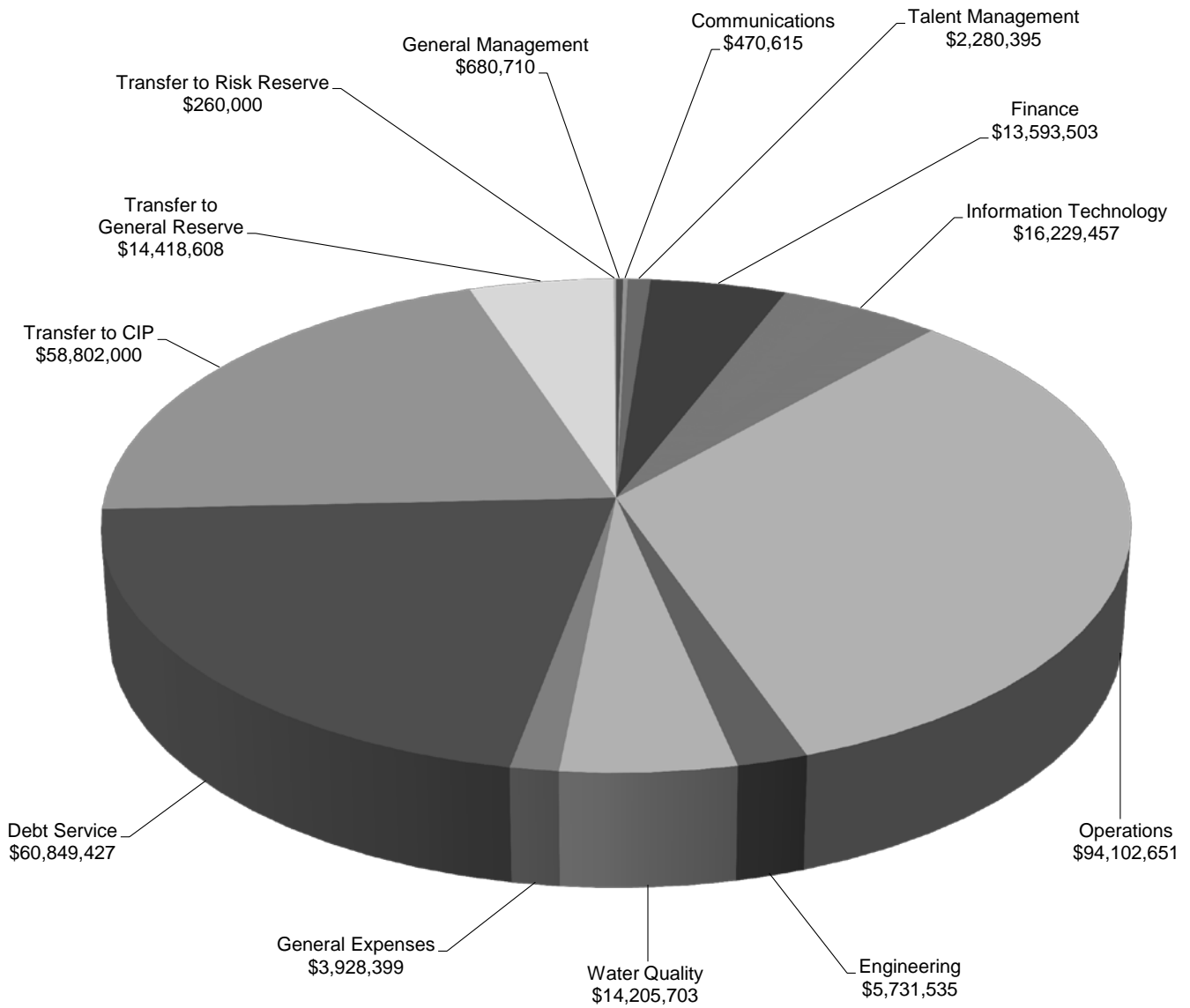
Operating Budget Charts

Revenues and Transfers In \$285,553,000



Operating Budget Charts

Expenses and Transfers Out \$285,553,000



General Management

The General Manager supervises the department directors, Commission Secretary and the Special Assistant for Compliance Assurance. The Commission Secretary provides administrative support to the General Manager as well as the HRSD Commission. The Special Assistant for Compliance Assurance works closely with representatives of local jurisdictions, the Department of Environmental Quality (DEQ) and Environmental Protection Agency (EPA) to ensure appropriate and timely adherence to the requirements of regulatory wet weather enforcement actions.

Expenditure Budget

	FY-2018 Budget	FY-2017 Budget	Increase/ (Decrease)	Percentage Change
Personal Services	\$ 482,624	\$ 624,432	\$ (141,808)	(23%)
Fringe Benefits	135,085	200,081	(64,996)	(32%)
Material & Supplies	10,000	10,000	-	0%
Transportation	2,000	32,400	(30,400)	(94%)
Utilities	-	-	-	0%
Chemical Purchases	-	-	-	0%
Contractual Services	20,000	85,000	(65,000)	(76%)
Major Repairs	-	-	-	0%
Capital Assets	-	-	-	0%
Miscellaneous	31,000	1,000	30,000	3000%
Total	\$ 680,710	\$ 952,913	\$ (272,203)	(29%)

Positions

	Grade	Adopted FY-2017	Adjustments	Final FY-2017	Adjustments	FY-2018
General Manager		1		1		1
Special Assistant for Compliance Assurance	12	1		1		1
Director of Communications	12	0	1	1	(1)	0
Chief of Communications	11	1	(1)	0		0
Commission Secretary	6	1		1		1
Total		4	0	4	(1)	3

Communications

The Communications Department supports HRSD's mission through public outreach, community engagement and educational programs and partnerships. The department also manages internal communications, media relations, social media and branding for both HRSD and SWIFT.

Expenditure Budget

	FY-2018 Budget	FY-2017 Budget	Increase/ (Decrease)	Percentage Change
Personal Services	\$ 278,347	\$ -	\$ 278,347	0%
Fringe Benefits	87,268	-	87,268	0%
Material & Supplies	45,000	-	45,000	0%
Transportation	3,000	-	3,000	0%
Utilities	-	-	-	0%
Chemical Purchases	-	-	-	0%
Contractual Services	35,000	-	35,000	0%
Major Repairs	-	-	-	0%
Capital Assets	-	-	-	0%
Miscellaneous	22,000	-	22,000	0%
Total	\$ 470,615	\$ -	\$ 470,615	0%

Positions

	Grade	Adopted FY-2017	Adjustments	Final FY-2017	Adjustments	FY-2018
Director of Communications	12	0		0	1	1
Community Relations Liaison	6	0		0	1	1
Total		0	0	0	2	2

Finance Department

The Finance Department is responsible for HRSD's general financial and business functions, including financial reporting, investment portfolio, debt and risk management and customer billing. The Accounting and Finance Division handles fiscal affairs such as preparing statements, budgets, management reports and payroll. The Procurement Division is responsible for purchasing, renting, leasing or otherwise acquiring goods and services, managing vendor relationships and disposing of surplus property. The Customer Care Center Division handles billing, collections, maintenance of customer accounts and liaison with HRSD's customers.

Expenditure Budget

	FY-2018 Budget	FY-2017 Budget	Increase/ (Decrease)	Percentage Change
Personal Services	\$ 5,819,422	\$ 5,867,981	\$ (48,558)	(1%)
Fringe Benefits	2,721,921	2,621,566	100,355	4%
Material & Supplies	73,140	131,127	(57,987)	(44%)
Transportation	14,000	108,110	(94,110)	(87%)
Utilities	237,800	266,600	(28,800)	(11%)
Contractual Services	4,464,850	4,004,364	460,486	11%
Capital Assets	-	35,000	(35,000)	(100%)
Miscellaneous	262,369	239,254	23,115	10%
Total	\$ 13,593,503	\$ 13,274,002	\$ 319,501	2%

Positions

	Grade	Adopted FY-2017	Adjustments	Final FY-2017	Adjustments	FY-2018
Director of Finance	12	1		1		1
Chief of Accounting & Finance	11	1		1		1
Chief of Customer Care Center	11	1		1		1
Chief of Procurement	11	1		1		1
Accounting Manager	9	1		1		1
Customer Care Manager	9	3		3		3
Strategic Sourcing Manager	9	1		1		1
Business Analyst	8	3		3		3
Customer Care Operations Manager	8	1		1		1
Financial Analyst	8	2		2	1	3
Procurement Analyst	8	0		0	1	1
Customer Care Supervisor	7	4		4		4
Procurement Analyst	7	1		1	(1)	0
Accounts Payable Supervisor	6	1		1		1
Accounts Receivable Specialist	6	3		3		3
Payroll Specialist	6	1		1		1
Procurement Specialist	6	4		4		4
Accounting Coordinator	4	1		1		1
Accounts Receivable Technician	4	3		3		3
Customer Care Administrative Coordinator	4	1		1		1
Customer Care Coordinator	4	4		4		4
Procurement Coordinator	4	1		1		1
Account Investigator	3	14		14		14
Accounts Payable Associate	3	2		2		2
Customer Care Account Representative	3	41		41		41
Procurement Administrative Assistant	3	2		2		2
Mail Processing Clerk	2	2		2		2
Total		100	0	100	1	101

Information Technology Department

The Information Technology Department is responsible for HRSD's computer systems, communication systems, network systems, cyber security and data management functions. The Information Technology Operations Division assists HRSD departments in achieving their missions by ensuring all required hardware, storage and network devices are accessible and available to support all business and operational requirements. The Enterprise Data Services Division is responsible for data management, storage and all software supporting HRSD operations. Industrial Controls Division personnel also are responsible for programming industrial controls and automation at HRSD operation facilities.

Expenditure Budget

	FY-2018 Budget	FY-2017 Budget	Increase/ (Decrease)	Percentage Change
Personal Services	\$ 4,389,837	\$ 4,229,958	\$ 159,879	4%
Fringe Benefits	1,679,289	1,579,216	100,073	6%
Material & Supplies	902,250	948,500	(46,250)	(5%)
Transportation	87,251	68,651	18,600	27%
Utilities	1,524,000	1,424,700	99,300	7%
Contractual Services	5,626,354	5,310,200	316,154	6%
Major Repairs	1,750,000	1,500,000	250,000	17%
Miscellaneous	270,475	257,475	13,000	5%
Total	\$ 16,229,457	\$ 15,318,700	\$ 910,756	6%

Positions

	Grade	Adopted FY-2017	Adjustments	Final FY-2017	Adjustments	FY-2018
Director of Information Technology (IT)	12	1		1		1
Chief of Enterprise Data Services	11	1		1		1
Chief of Industrial Controls	11	1		1		1
Chief of Information Technology	11	1		1		1
Database Administrator	9	3		3		3
Enterprise Architect	9	5		5	(2)	3
Industrial Control Manager	9	1		1		1
Oracle Developer	9	2		2		2
Programming Development Manager	9	1		1		1
Senior Systems Engineer	9	5		5	1	6
SharePoint Web Developer	9	0		0	1	1
Systems Analysis Manager	9	1		1		1
Industrial Automation Programmer	8	0		0	5	5
Industrial Control Systems Manager	8	4		4	(4)	0
Senior Programmer Analyst	8	6		6		6
Senior Systems Analyst	8	3		3		3
Unix Systems Administrator	8	2		2		2
IT HelpDesktop Supervisor	7	1		1		1
Desktop Support Analyst	6	5		5		5
Web Portal Programmer	5	1		1		1
IT Administrative Coordinator	4	1		1		1
Telecommunications Support Coordinator	4	0		0	1	1
Computer Operator	3	3		3		3
Total		48	0	48	2	50

Talent Management

The Talent Management Department attracts new talent, develops talent and retains existing talent. The department maintains employee records, handles employee recruiting and orientation, administers employee benefits, oversees training and ensures employee safety.

Expenditure Budget

	FY-2018 Budget	FY-2017 Budget	Increase/ (Decrease)	Percentage Change
Personal Services	\$ 1,356,029	\$ 1,329,872	\$ 26,157	2%
Fringe Benefits	541,996	557,651	(15,655)	(3%)
Material & Supplies	65,500	65,500	-	0%
Transportation	27,600	26,300	1,300	5%
Contractual Services	53,200	48,800	4,400	9%
Capital Assets	-	-	-	0%
Miscellaneous	236,070	215,040	21,030	10%
Total	\$ 2,280,395	\$ 2,243,164	\$ 37,231	2%

Positions

	Grade	Adopted FY-2017	Adjustments	Final FY-2017	Adjustments	FY-2018
Director of Talent Management	12	1		1		1
Human Resources Manager	9	1		1		1
Organizational Development and Training Manager	9	1		1		1
Safety Manager	9	1		1		1
Human Resources Business Analyst	8	1		1		1
Industrial Hygienist	8	2		2		2
Training Superintendent	8	1		1		1
Human Resources Specialist	7	3		3		3
Human Resources Coordinator	4	2		2		2
Organizational Development and Training Coordinator	4	1		1		1
Safety Coordinator	4	1		1		1
Total		15	0	15	0	15

Operations Department

The Operations Department is responsible for operating and maintaining all of HRSD's treatment plants, pump stations, pipelines, buildings and equipment. The department also includes the Director of Water Technology and Research developing new technology with a focus on rapid deployment of innovative solutions. Services are delivered through seven divisions. There are three treatment plant divisions (each with three treatment plants) treating wastewater from over 1.7 million people in 18 cities and counties in Hampton Roads. The Small Communities Divisions (SCD) operates four smaller treatment plants and all the associated sewer collection systems for four counties on the Middle Peninsula, including the Town of West Point. The Electrical and Energy Management Division supports the electrical and instrumentation maintenance and construction needs of all HRSD facilities. The Interceptor Divisions operate and maintain over 500 miles of interceptor pipelines and over 100 pump stations using Supervisory Control and Data Acquisition (SCADA) to monitor wastewater conveyed to each treatment plant. The Support Systems Division is responsible of the maintenance for the HRSD fleet, all buildings, operates two carpentry shops and a full service machine shop.

Expenditure Budget

	FY-2018 Budget	FY-2017 Budget	Increase/ (Decrease)	Percentage Change
Personal Services	\$ 32,428,555	\$ 31,696,205	\$ 732,350	2%
Fringe Benefits	15,407,324	14,905,386	501,938	3%
Material & Supplies	4,622,095	4,628,977	(6,883)	(0%)
Transportation	1,218,155	943,369	274,786	29%
Utilities	9,738,681	9,884,191	(145,510)	(1%)
Chemical Purchases	10,324,400	9,210,500	1,113,900	12%
Contractual Services	12,926,502	12,404,645	521,857	4%
Major Repairs	5,893,219	5,767,907	125,312	2%
Capital Assets	771,100	564,400	206,700	37%
Miscellaneous	772,620	907,990	(135,370)	(15%)
Total	\$ 94,102,651	\$ 90,913,570	\$ 3,189,081	4%

Positions

	Grade	Adopted FY-2017	Adjustments	Final FY-2017	Adjustments	FY-2018
Director of Operations	12	1		1		1
Director of Water Technology and Research	12	1		1		1
Chief of Electrical & Energy Management	11	1		1		1
Chief of South Shore Interceptor Operations	11	2		2	(1)	1
Chief of North Shore Interceptors & SCD	11	0		0	1	1
Senior Plant Manager	11	3		3		3
Electrical Manager	9	2		2		2
Instrumentation Manager	9	1		1		1
Interceptor Engineer	9	1	1	2		2
Plant Manager	9	6		6		6
Process Engineering & Research Manager	9	1		1		1
Support Systems Manager	9	1		1		1
SWIFT Project Manager	9	0	1	1		1
Systems Manager	9	3	(1)	2		2
Water Recycling Project Manager	9	1	(1)	0		0
Automotive Superintendent	8	1		1		1
Condition Assessment Superintendent	8	0	1	1		1
Electrical and Instrumentation Supervisor	8	0	4	4		4
Electrical Superintendent	8	1		1		1
Facility Superintendent	8	1		1		1
Instrumentation Supervisor	8	2	(2)	0		0
Interceptor Superintendent	8	3	(1)	2		2
Plant Superintendent	8	18	(1)	17	1	18
Chief Foreman	7	0		0	2	2
Chief Foreman Pump Station	7	2		2	(2)	0
Chief Maintenance Management	7	0		0	2	2
Chief Systems Operator	7	1		1	1	2
Coating, Concrete and Roofing Chief Inspector	7	0	1	1		1
Electrical & Instrumentation Process Specialist	7	0	1	1		1
Electrical & Instrumentation Specialist	7	0	57	57	1	58
Electrical Supervisor	7	2	(2)	0		0
Instrumentation Specialist	7	28	(28)	0		0
Interceptor Chief Foreman	7	3		3	(3)	0
Lead Operator	7	31	1	32	(1)	31
Operations Support Specialist	7	1		1		1
Structural & Roofing Inspector	7	1	(1)	0		0
Automotive Foreman	6	2		2		2
Coatings Inspector	6	2		2		2
Condition Assessment Supervisor	6	1		1		1

	Grade	Adopted FY-2017	Adjustments	Final FY-2017	Adjustments	FY-2018
Electrician	6	28	(28)	0		0
Engineering Assistant	6	4		4		4
Interceptor Foreman	6	7		7		7
Interceptor Systems Supervisor	6	1		1	1	2
Machinist Foreman	6	1		1		1
Maintenance Specialist	6	3		3		3
Pump Station Supervisor	6	1		1	1	2
Automotive Technician	5	5		5		5
Carpenter	5	4		4		4
Condition Assessment Technician	5	0		0	2	2
Equipment Technician	5	3		3		3
Facility Maintenance Technician	5	2		2		2
Interceptor Technician	5	31		31	(2)	29
Machinist	5	3		3		3
Maintenance Operator	5	57	3	60	1	61
Plant Operator	5	72		72	1	73
Heavy Equipment Operator 1	4	22		22	(1)	21
Materials Operations Coordinator	4	2		2		2
Operations Admin Coordinator	4	1		1		1
Operations Coordinator	4	2		2		2
Automotive Administrative Assistant	3	1		1		1
Support Systems Administrative Assistant	3	1		1		1
Utility Administrative Assistant	3	2		2	(1)	1
SCADA Administrative Assistant	3	1		1		1
Interceptor Assistant	2	28		28	(1)	27
Maintenance Operations Assistant	2	56	(4)	52		52
Plant Clerk	2	9		9		9
Facility Assistant	1	12	(1)	11		11
Custodian	1	2	2	4		4
Subtotal - Operations		485	2	487	2	489
Small Communities						
Systems Manager	9	1		1		1
Systems Superintendent	8	1		1		1
Systems Chief Foreman	7	1		1		1
Systems Lead Operator	7	3		3		3
Systems Operator	5	11		11		11
Administrative Coordinator	4	1		1		1
Heavy Equipment Operator 1	4	1		1		1
Maintenance Operations Assistant	2	2		2		2
Facility Assistant	1	1		1		1
Subtotal - Small Communities		22	0	22	0	22
Total		507	2	509	2	511

Engineering Department

The Engineering Department is responsible for HRSD facility planning, design and construction and related support. The Asset Management Division is responsible for using the Computerized Maintenance Management System (CMMS) to manage asset information to inform all maintenance, replacement and capital planning decisions. The Design and Construction Division works with consultants and contractors to ensure that work is performed in a manner consistent with our quality standards. The Planning and Analysis Division manages the Capital Improvement Program (CIP), Hydraulic Modeling, Geographic Information System (GIS), Data Analysis, Computer Aided Design (CAD) and Records Management System and plans the capital infrastructure required to meet the region's future wastewater needs.

Expenditure Budget

	FY-2018 Budget	FY-2017 Budget	Increase/ (Decrease)	Percentage Change
Personal Services	\$ 3,464,514	\$ 3,526,675	\$ (62,161)	(2%)
Fringe Benefits	1,351,675	1,402,754	(51,079)	(4%)
Material & Supplies	29,778	25,100	4,678	19%
Transportation	16,723	71,458	(54,735)	(77%)
Contractual Services	703,904	510,062	193,842	38%
Major Repairs	9,000	-	9,000	0%
Miscellaneous	155,941	131,395	24,546	19%
Total	\$ 5,731,535	\$ 5,667,444	\$ 64,090	1%

Positions

	Grade	Adopted FY-2017	Adjustments	Final FY-2017	Adjustments	FY-2018
Director of Engineering	12	1		1		1
Chief of Asset Management	11	1		1		1
Chief of Condition Assessment	11	1		1	(1)	0
Chief of Design & Construction	11	2		2		2
Chief of Planning & Analysis	11	1		1		1
Capital Program Manager	9	1		1		1
Condition Assessment Manager	9	0		0	2	2
Data Analysis Manager	9	1		1		1
GIS Manager	9	1		1		1
Hydraulic Analysis Manager	9	4		4		4
Project Manager	9	9		9		9
Real Estate Manager	8	1		1		1
Data Analyst	7	3		3		3
GIS Analyst	7	2		2		2
CMMS Analyst	6	1		1		1
Community Liaison	6	1		1	(1)	0
Contract Specialist	6	2		2		2
GIS CAD Technician	5	3		3		3
CIP Coordinator	4	0	1	1		1
Data Analysis Technician	4	1		1		1
Administrative Coordinator	4	1		1		1
CMMS Administrative Assistant	3	1		1		1
Engineering Clerk	2	1	(1)	0		0
Total		39	0	39	0	39

Water Quality Department

The Water Quality Department's mission is to provide quality environmental services to support HRSD and its partners. This department helps ensure compliance with HRSD environmental permits and leads regulatory advocacy through the work of three divisions. The Central Environmental Laboratory (Lab) Division uses the Environmental Data Management System (EDMS) and other tools to provide analytical support for numerous monitoring, research and regulatory purposes. The Pretreatment and Pollution Prevention (P3) Division monitors wastewater conveyed to treatment plants using the Pretreatment Information Management System (PIMS) and other tools, and implements its industrial permit regulations to protect treatment plant staff, facilities and processes. The Technical Services Division (TSD) is responsible for a number of activities including environmental monitoring, specialized sampling, treatment process and research studies, the Municipal Assistance Program (MAP) to assist localities and all reporting required by HRSD permits.

Expenditure Budget

	FY-2018 Budget	FY-2017 Budget	Increase/ (Decrease)	Percentage Change
Personal Services	\$ 7,304,005	\$ 6,996,033	\$ 307,971	4%
Fringe Benefits	3,161,895	2,965,813	196,082	7%
Material & Supplies	1,310,329	1,156,170	154,159	13%
Transportation	50,656	193,431	(142,775)	(74%)
Contractual Services	1,649,095	723,250	925,845	128%
Major Repairs	179,000	157,000	22,000	14%
Capital Assets	43,000	855,000	(812,000)	(95%)
Miscellaneous	507,723	431,185	76,538	18%
Total	\$ 14,205,703	\$ 13,477,883	\$ 727,820	5%

Positions

	Grade	Adopted FY-2017	Adjustments	Final FY-2017	Adjustments	FY-2018
Director of Water Quality (WQ)	12	1		1		1
Chief of Lab	11	1		1		1
Chief of P3	11	1		1		1
Chief of TSD	11	1		1		1
Environmental Scientist	9	7		7		7
Lab Manager	9	4		4		4
Lab Quality Assurance Manager	9	1		1		1
P3 Manager	9	4		4		4
Recycling Manager	9	1		1		1
Lab EDMS Administrator	8	0		0	1	1
Lab Operations Manager	8	1		1		1
Lab Supervising Chemist	8	0		0	11	11
P3 Supervising Specialist	8	0		0	3	3
TSD Operations Manager	8	1		1		1
TSD Supervising Specialist	8	0		0	3	3
Lab EDMS Administrator	7	1		1	(1)	0
Lab Supervising Chemist	7	11		11	(11)	0
P3 Administrative Supervising Specialist	7	0		0	1	1
P3 Supervising Specialist	7	3	1	4	(4)	0
TSD Supervising Specialist	7	3		3	(3)	0
Lab EDMS Analyst	6	1		1		1
Lab Quality Assurance Specialist	6	1		1		1
Lab Specialist	6	13		13		13
P3 PIMS Analyst	6	0	1	1		1
P3 Specialist	6	2		2	1	3
TSD Specialist	6	5	3	8	2	10
Lab Data Technician	5	0		0	1	1
Lab Technician	5	5		5		5
P3 Administrative Technician	5	1	(1)	0		0
P3 Technician	5	11		11		11
TSD Technician	5	3	(3)	0		0
Lab Data Coordinator	4	1		1		1
MAP Coordinator	4	1		1	(1)	0
P3 Administrative Coordinator	4	1		1		1
TSD Operations Coordinator	4	1		1		1
WQ Administrative Coordinator	4	1		1		1
P3 Administrative Assistant	3	2		2		2
TSD Investigator	3	7		7		7
Lab Assistant	2	7		7		7
TSD Assistant	2	1		1		1
Total		105	1	106	3	109

General Expenses, Debt Service and Transfers

General Expenses includes operating expenditures not assigned to any specific HRSD Department. Debt Service includes payments on bonds issued by HRSD and through the Virginia Clean Water Revolving Loan Fund (VCWRLF).

Expenditure Budget

	FY-2018 Budget	FY-2017 Budget	Increase/ (Decrease)	Percentage Change
Personal Services	\$ (1,750,006)	\$ (1,750,003)	\$ (3)	0%
Fringe Benefits	(395,000)	44,996	(439,996)	(978%)
Material & Supplies	30,000	60,000	(30,000)	(50%)
Utilities	447,000	535,000	(88,000)	(16%)
Contractual Services	5,515,305	5,153,500	361,805	7%
Miscellaneous	81,100	133,533	(52,433)	(39%)
Total General Expenses	\$ 3,928,399	\$ 4,177,026	\$ (248,627)	(6%)
Publically Sold Bonds - Principal	15,845,000	16,780,000	(935,000)	(6%)
Publically Sold Bonds - Interest	30,122,320	29,979,180	143,140	0%
VCWRLF Bonds	13,981,800	16,187,820	(2,206,020)	(14%)
Cost of Issuance	900,000	900,000	-	100%
Subtotal - Debt Service	60,849,120	63,847,000	(2,997,880)	(5%)
Transfer to CIP	58,802,000	52,101,298	6,700,702	13%
Transfer to General Reserve	14,418,608	-	14,418,608	0%
Transfer to Risk Management	260,000	260,000	-	0%
Subtotal - Transfers	73,480,608	52,361,298	21,119,310	40%
Total Debt Service and Transfers	\$ 134,329,728	\$ 116,208,298	\$ 18,121,430	16%

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Capital Budget

Delivering Bold Solutions

SWIFT is designed to replenish Virginia's diminishing groundwater supply, which in turn fights sea level rise and also reduces the amount of nutrients HRSD discharges into the Chesapeake Bay and its tributaries.

swift

Capital Budget

HRSD prepares a Capital Improvement Program (CIP) each year for the capital projects currently underway or proposed for the future. The first year of the CIP is authorized as the Capital Budget for FY-2018 in the amount of \$140 million. The remaining years (FY-2019 to FY-2027) include all known projects planned for these years; however, approval of the plan does not authorize the Capital Budgets for those years. Each year's Capital Budget will be approved during the budget process for the specific year.

The ten-year Capital Improvement Program for FY-2018 to FY-2027 highlights the anticipated cost of each project and the fiscal year(s) in which the work is expected to occur. All costs listed in the CIP are stated in current year dollars and total approximately \$2.35 billion.

The bond component of the plan may include one or all of the following:

- Interim or construction financings
- Federally subsidized borrowing programs administered by the Virginia Resource Authority
- HRSD Revenue Bonds or Notes

The grant component represents funds estimated to be received from a federal or state agency for specific projects. Other reimbursements, if any, include amounts paid by other parties who may participate in a project.

Capital Budget

CIP Budget Forecast (in thousands)	Total FY-2018 to				
	FY-2027	FY-2018	FY-2019	FY-2020	FY-2021
Begin Capital Reserves	\$ 22,787	\$ 22,787	\$ -	\$ -	\$ -
Bonds	1,042,995	30,139	0	58,879	91,532
VCWRLF	69,704	21,658	21,658	14,418	11,971
Cash	1,194,656	58,802	89,708	100,852	105,823
Grants and Other Reimbursements	12,061	5,810	3,141	210	-
Transfer from Debt Service Reserve Fund	7,797	804	494	642	674
Total Capital Resources	2,350,000	140,000	115,000	175,000	210,000
Capital Expenditures	2,350,000	140,000	115,000	175,000	210,000
End Capital Reserves	\$ -	\$ -	\$ -	\$ -	\$ -

Capital Expenditures (in thousands)	Total FY-2018 to				
	FY-2027	FY-2018	FY-2019	FY-2020	FY-2021
Administration	\$ 2,507	\$ 1,373	\$ 567	\$ 567	\$ -
Army Base	27,827	2,148	1,250	-	1,785
Atlantic	79,350	13,819	25,219	14,333	2,740
Boat Harbor	79,977	11,080	13,492	14,499	14,327
Chesapeake-Elizabeth	125,470	7,589	12,158	56,703	27,526
James River	36,433	8,310	4,352	4,146	8,962
Middle Peninsula	12,164	5,368	5,456	932	408
Nansemond	47,557	11,167	16,620	11,598	5,547
Surry	2,850	104	895	1,850	-
Virginia Initiative Plant	81,822	23,289	2,289	6,075	18,113
Williamsburg	6,417	509	1,378	2,182	2,034
York River	16,608	2,185	1,210	493	879
General	879,016	53,058	17,876	19,305	67,950
Future Improvements	849,986	-	9,983	33,985	49,728
Subtotal	2,247,983	140,000	112,745	166,667	200,000
Contingency	102,017	-	2,255	8,333	10,000
Total Expenditures	\$ 2,350,000	\$140,000	\$115,000	\$175,000	\$210,000

Capital Budget

CIP Budget Forecast (in thousands)	FY-2022	FY-2023	FY-2024	FY-2025	FY-2026	FY-2027
Begin Capital Reserves	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Bonds	80,201	155,273	141,342	178,214	158,431	148,985
VCWRLF	-	-	-	-	-	-
Cash	138,072	134,025	156,080	120,854	140,548	149,892
Grants and Other Reimbursements	1,000	-	1,900	-	-	-
Transfer from Debt Service Reserve Fund	727	702	679	933	1,021	1,123
Total Capital Resources	220,000	290,000	300,000	300,000	300,000	300,000
Capital Expenditures	220,000	290,000	300,000	300,000	300,000	300,000
End Capital Reserves	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Capital Expenditures (in thousands)	FY-2022	FY-2023	FY-2024	FY-2025	FY-2026	FY-2027
Administration	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Army Base	5,282	14,882	2,480	-	-	-
Atlantic	1,428	3,513	8,734	9,565	-	-
Boat Harbor	15,027	11,547	4	-	-	-
Chesapeake-Elizabeth	2,373	3,226	3,033	1,343	6,174	5,343
James River	9,851	813	-	-	-	-
Middle Peninsula	-	-	-	-	-	-
Nansemond	151	151	2,322	-	-	-
Surry	-	-	-	-	-	-
Virginia Initiative Plant	15,632	6,753	4,918	4,753	-	-
Williamsburg	314	-	-	-	-	-
York River	1,566	3,779	1,794	1,508	2,255	939
General	89,216	103,488	132,117	152,360	125,606	118,041
Future Improvements	68,684	128,038	130,311	116,186	151,680	161,391
Subtotal	209,524	276,190	285,714	285,714	285,714	285,714
Contingency	10,476	13,810	14,286	14,286	14,286	14,286
Total Expenditures	\$220,000	\$290,000	\$300,000	\$300,000	\$300,000	\$300,000

FY-2017 to FY-2027

Cash Flow Projections (in thousands)

CIP No	Project Name	Total FY-2018 to FY-2027	FY-2018	FY-2019	FY-2020	FY-2021
Administration						
AD010400	Environmental Data Management System	\$ 582	\$ 582	\$ -	\$ -	\$ -
AD012000	Water Quality Department Work Space Expansion-Redesign	\$ 224	\$ 224	\$ -	\$ -	\$ -
AD012100	Asset Management Implementation	\$ 1,700	\$ 567	\$ 567	\$ 567	\$ -
	Subtotal	\$ 2,507	\$ 1,373	\$ 567	\$ 567	\$ -
Army Base						
AB010000	Army Base 24-Inch and 20-Inch Transmission Main Replacements	\$ 22,339	\$ -	\$ -	\$ -	\$ 1,607
AB010100	Army Base Treatment Plant Improvements - Phase III	\$ 1,848	\$ 1,848	\$ -	\$ -	\$ -
AB010500	Section W Force Main Replacement	\$ 2,090	\$ -	\$ -	\$ -	\$ 178
AB011600	Army Base Treatment Plant Biosolids Loading Facility	\$ 1,550	\$ 300	\$ 1,250	\$ -	\$ -
	Subtotal	\$ 27,827	\$ 2,148	\$ 1,250	\$ -	\$ 1,785
Atlantic						
AT011410	Providence Road Interim Pressure Reducing Station	\$ 661	\$ 661	\$ -	\$ -	\$ -
AT011510	Shipp's Corner Interim Pressure Reducing Station	\$ 1,514	\$ 1,514	\$ -	\$ -	\$ -
AT011520	Shipp's Corner Pressure Reducing Station Modifications	\$ 13,933	\$ -	\$ -	\$ -	\$ 662
AT011900	Great Bridge Interceptor Extension 16-Inch Replacement	\$ 4,185	\$ -	\$ -	\$ -	\$ -
AT012000	Atlantic Treatment Plant Administration Building Renovation and Expansion	\$ 2,654	\$ 2,654	\$ -	\$ -	\$ -
AT012910	Atlantic Treatment Plant FOG Receiving Station	\$ 3,495	\$ 1,075	\$ 1,075	\$ 1,075	\$ 269
AT013000	Washington District Pump Station Area Sanitary Sewer Improvements	\$ 1,479	\$ -	\$ 70	\$ 80	\$ 615
AT013100	South Norfolk Area Gravity Sewer Improvements	\$ 5,141	\$ -	\$ -	\$ -	\$ 314
AT013200	Dozers Corner Pump Station and Washington District Pump Station Flooding Mitigation Improvements	\$ 243	\$ -	\$ -	\$ -	\$ -
AT013320	Atlantic Treatment Plant Primary Clarifiers 1 thru 4 Automated Scum Removal	\$ 533	\$ 533	\$ -	\$ -	\$ -
AT013500	Atlantic Treatment Plant Thermal Hydrolysis Process	\$ 42,863	\$ 6,890	\$ 22,550	\$ 12,576	\$ 847
AT013600	Atlantic Treatment Plant Motor Control Center Replacements	\$ 495	\$ 239	\$ 256	\$ -	\$ -
AT013700	Atlantic Trunk Interceptor Force Main Relocation (VDOT Laskin Road Betterment)	\$ 295	\$ 66	\$ 98	\$ 98	\$ 33
AT013900	Atlantic Treatment Plant Influent Screen Expansion	\$ 1,859	\$ 187	\$ 1,169	\$ 503	\$ -
	Subtotal	\$ 79,350	\$ 13,819	\$ 25,219	\$ 14,333	\$ 2,740
Boat Harbor						
BH010000	33rd Street Pump Station Replacement Rehabilitation	\$ 227	\$ 227	\$ -	\$ -	\$ -
BH010100	58th Street Connecting Sewer Rehabilitation	\$ 368	\$ 368	\$ -	\$ -	\$ -
BH011600	Bridge Street Pump Station Replacement	\$ 5,529	\$ 5,529	\$ -	\$ -	\$ -
BH012000	Hampton Trunk Sewer Extension Division E Gravity Replacement	\$ 703	\$ 703	\$ -	\$ -	\$ -
BH012700	Hampton Trunk Sewer Extension Division B - Claremont Force Main Replacement	\$ 4,639	\$ 2,418	\$ 2,218	\$ 3	\$ -
BH013000	Willard Avenue Pump Station Upgrades	\$ 5,320	\$ -	\$ 502	\$ 2,751	\$ 2,067
BH013400	Bridge Street Siphon and Vent Relocation Replacement	\$ 239	\$ 239	\$ -	\$ -	\$ -
BH013700	Ferguson Park Interceptor Force Main - Bridge Span Relocation	\$ 911	\$ 911	\$ -	\$ -	\$ -
BH014000	West Avenue and 35th Street Interceptor Force Main Replacement	\$ 3,200	\$ -	\$ -	\$ -	\$ 99
BH014220	Hampton Trunk Sewer Extension Divisions I and J Relocation Phase II	\$ 11,172	\$ -	\$ 745	\$ 2,572	\$ 4,277
BH014500	Ivy Home-Shell Road Sewer Extension Division I Replacement	\$ 2,013	\$ -	\$ -	\$ -	\$ 16
BH014600	46th Street Diversion Sewer Rehabilitation Replacement	\$ 9,664	\$ 286	\$ 337	\$ 1,334	\$ 4,865
BH014700	Boat Harbor Outlet Sewer Improvements	\$ 3,429	\$ 204	\$ 114	\$ 2,071	\$ 1,040
BH014800	Jefferson Avenue Extension Gravity Improvements	\$ 2,324	\$ 127	\$ 1,371	\$ 826	\$ -
BH014900	Hampton Trunk Sewer Extension Division K Gravity Improvements	\$ 3,578	\$ -	\$ -	\$ 170	\$ 174
BH015000	Orcutt Avenue and Mercury Blvd Gravity Sewer Improvements	\$ 5,721	\$ 60	\$ 3,566	\$ 2,095	\$ -
BH015100	Bloxoms Corner Force Main Replacement	\$ 2,633	\$ -	\$ -	\$ 100	\$ 135
BH015300	Boat Harbor Treatment Plant Switchgear and Controls Replacements	\$ 6,986	\$ 10	\$ 4,640	\$ 2,335	\$ -
BH015500	LaSalle Avenue Interceptor Force Main Replacement	\$ 1,765	\$ -	\$ -	\$ 65	\$ 1,059
BH015600	Hampton Trunk A and B Replacement - Jefferson Ave. to Buxton	\$ 9,557	\$ -	\$ -	\$ 176	\$ 596
	Subtotal	\$ 79,977	\$ 11,080	\$ 13,492	\$ 14,499	\$ 14,327
Note:	Fats, Oils and Grease (FOG) Virginia Department of Transportation (VDOT)					

FY-2017 to FY-2027

Cash Flow Projections (in thousands)

CIP No	Project Name	FY-2022	FY-2023	FY-2024	FY-2025	FY-2026	FY-2027
Administration							
AD010400	Environmental Data Management System	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
AD012000	Water Quality Department Work Space Expansion-Redesign	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
AD012100	Asset Management Implementation	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Subtotal	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Army Base							
AB010000	Army Base 24-Inch and 20-Inch Transmission Main Replacements	\$ 4,832	\$ 13,629	\$ 2,271	\$ -	\$ -	\$ -
AB010100	Army Base Treatment Plant Improvements - Phase III	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
AB010500	Section W Force Main Replacement	\$ 450	\$ 1,253	\$ 209	\$ -	\$ -	\$ -
AB011600	Army Base Treatment Plant Biosolids Loading Facility	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Subtotal	\$ 5,282	\$ 14,882	\$ 2,480	\$ -	\$ -	\$ -
Atlantic							
AT011410	Providence Road Interim Pressure Reducing Station	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
AT011510	Shippis Corner Interim Pressure Reducing Station	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
AT011520	Shippis Corner Pressure Reducing Station Modifications	\$ 376	\$ 251	\$ 5,206	\$ 7,438	\$ -	\$ -
AT011900	Great Bridge Interceptor Extension 16-Inch Replacement	\$ 59	\$ 214	\$ 1,975	\$ 1,937	\$ -	\$ -
AT012000	Atlantic Treatment Plant Administration Building Renovation and Expansion	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
AT012910	Atlantic Treatment Plant FOG Receiving Station	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
AT013000	Washington District Pump Station Area Sanitary Sewer Improvements	\$ 713	\$ -	\$ -	\$ -	\$ -	\$ -
AT013100	South Norfolk Area Gravity Sewer Improvements	\$ 279	\$ 3,032	\$ 1,516	\$ -	\$ -	\$ -
AT013200	Doziers Corner Pump Station and Washington District Pump Station Flooding Mitigation Improvements	\$ -	\$ 16	\$ 37	\$ 190	\$ -	\$ -
AT013320	Atlantic Treatment Plant Primary Clarifiers 1 thru 4 Automated Scum Removal	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
AT013500	Atlantic Treatment Plant Thermal Hydrolysis Process	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
AT013600	Atlantic Treatment Plant Motor Control Center Replacements	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
AT013700	Atlantic Trunk Interceptor Force Main Relocation (VDOT Laskin Road Betterment)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
AT013900	Atlantic Treatment Plant Influent Screen Expansion	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Subtotal	\$ 1,428	\$ 3,513	\$ 8,734	\$ 9,565	\$ -	\$ -
Boat Harbor							
BH010000	33rd Street Pump Station Replacement Rehabilitation	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
BH010100	58th Street Connecting Sewer Rehabilitation	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
BH011600	Bridge Street Pump Station Replacement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
BH012000	Hampton Trunk Sewer Extension Division E Gravity Replacement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
BH012700	Hampton Trunk Sewer Extension Division B - Claremont Force Main Replacement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
BH013000	Willard Avenue Pump Station Upgrades	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
BH013400	Bridge Street Siphon and Vent Relocation Replacement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
BH013700	Ferguson Park Interceptor Force Main - Bridge Span Relocation	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
BH014000	West Avenue and 35th Street Interceptor Force Main Replacement	\$ 1,175	\$ 1,926	\$ -	\$ -	\$ -	\$ -
BH014220	Hampton Trunk Sewer Extension Divisions I and J Relocation Phase II	\$ 3,571	\$ 8	\$ -	\$ -	\$ -	\$ -
BH014500	Ivy Home-Shell Road Sewer Extension Division I Replacement	\$ 584	\$ 1,413	\$ -	\$ -	\$ -	\$ -
BH014600	46th Street Diversion Sewer Rehabilitation Replacement	\$ 2,843	\$ -	\$ -	\$ -	\$ -	\$ -
BH014700	Boat Harbor Outlet Sewer Improvements	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
BH014800	Jefferson Avenue Extension Gravity Improvements	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
BH014900	Hampton Trunk Sewer Extension Division K Gravity Improvements	\$ 1,107	\$ 2,122	\$ 4	\$ -	\$ -	\$ -
BH015000	Orcutt Avenue and Mercury Blvd Gravity Sewer Improvements	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
BH015100	Bloxoms Corner Force Main Replacement	\$ 714	\$ 1,684	\$ -	\$ -	\$ -	\$ -
BH015300	Boat Harbor Treatment Plant Switchgear and Controls Replacements	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
BH015500	LaSalle Avenue Interceptor Force Main Replacement	\$ 641	\$ -	\$ -	\$ -	\$ -	\$ -
BH015600	Hampton Trunk A and B Replacement - Jefferson Ave. to Buxton	\$ 4,391	\$ 4,393	\$ -	\$ -	\$ -	\$ -
	Subtotal	\$ 15,027	\$ 11,547	\$ 4	\$ -	\$ -	\$ -
Note:	Fats, Oils and Grease (FOG) Virginia Department of Transportation (VDOT)						

FY-2017 to FY-2027

Cash Flow Projections (in thousands)

CIP No	Project Name	Total FY-2018 to FY-2027	FY-2018	FY-2019	FY-2020	FY-2021
Chesapeake-Elizabeth						
CE010400	Independence Boulevard Pressure Reducing Station Modifications	\$ 2,544	\$ 278	\$ -	\$ 853	\$ 1,413
CE010520	Newtown Road Interceptor Force Main Relocation	\$ 12,961	\$ 457	\$ 291	\$ 1,700	\$ -
CE011300	Birchwood Trunk 24-Inch 30-Inch Force Main at Independence Boulevard Replacement Phase II	\$ 1,425	\$ -	\$ -	\$ -	\$ -
CE011600	Poplar Hall Davis Corner Trunk 24-Inch Gravity Sewer Improvements	\$ 1,685	\$ -	\$ -	\$ -	\$ 20
CE011700	Western Trunk Force Main Replacement	\$ 3,641	\$ 128	\$ 83	\$ 1,929	\$ 1,501
CE011810	Chesapeake-Elizabeth Treatment Plant Decommissioning	\$ 10,759	\$ -	\$ 478	\$ 1,674	\$ 717
CE011821	Elbow Road Pressure Reducing Station	\$ 7,397	\$ 521	\$ 1,398	\$ 4,382	\$ 1,096
CE011822	Providence Road PRS Upgrades and Interconnect Force Main	\$ 4,389	\$ 370	\$ 1,355	\$ 2,459	\$ 205
CE011823	Virginia Beach Boulevard Force Main Phase VI	\$ 13,128	\$ 682	\$ 613	\$ 6,513	\$ 5,321
CE011824	Lynnhaven Parkway Force Main Phase II	\$ 16,718	\$ 953	\$ 1,500	\$ 9,510	\$ 4,755
CE011825	Salem Road Interconnect Force Main	\$ 1,205	\$ 88	\$ 174	\$ 943	\$ -
CE011826	Providence Road Off-Line Storage Facility	\$ 21,283	\$ 1,041	\$ 1,492	\$ 13,754	\$ 4,996
CE011827	Atlantic PRS Reliability Modifications	\$ 6,292	\$ 563	\$ 174	\$ 3,396	\$ 2,158
CE011828	Kempsville PRS Reliability Modifications	\$ 2,660	\$ 257	\$ 51	\$ 1,179	\$ 1,174
CE011829	Laskin Road PRS Reliability Modifications	\$ 2,670	\$ 258	\$ 52	\$ 1,183	\$ 1,178
CE01182A	Pine Tree PRS Reliability Modifications	\$ 2,885	\$ 278	\$ 1,051	\$ 1,555	\$ -
CE011830	Little Creek Pump Station Modifications	\$ 698	\$ 71	\$ 44	\$ 299	\$ 283
CE011831	Virginia Beach City Pump Station Upgrades, Phase I	\$ 3,456	\$ 468	\$ 1,360	\$ 1,628	\$ -
CE011832	Virginia Beach City Pump Station Upgrades, Phase II	\$ 1,849	\$ 122	\$ 95	\$ 725	\$ 907
CE011833	Virginia Beach City Pump Station Upgrades, Phase III	\$ 826	\$ 111	\$ 152	\$ 564	\$ -
CE011834	Virginia Beach City Pump Station Upgrades, Phase IV	\$ 1,806	\$ 300	\$ 49	\$ 644	\$ 813
CE011835	Virginia Beach City Pump Station Upgrades, Phase V	\$ 2,232	\$ 359	\$ 64	\$ 819	\$ 989
CE012000	Poplar Hall Davis Corner Trunk 24-Inch Gravity Sewer Improvements (I-264 VDOT Betterment)	\$ 118	\$ 73	\$ 45	\$ -	\$ -
CE012100	Southern Blvd and Witchduck Rd IFM Improvements	\$ 2,843	\$ 211	\$ 1,638	\$ 994	\$ -
	Subtotal	\$ 125,470	\$ 7,589	\$ 12,158	\$ 56,703	\$ 27,526
JR010100						
JR010100	Center Avenue Pump Station Service Area I I Remediation	\$ 166	\$ 166	\$ -	\$ -	\$ -
JR010600	Lucas Creek Pump Station Upgrade	\$ 6,347	\$ -	\$ -	\$ 133	\$ 303
JR010820	Warwick Boulevard to James River Influent Force Main Section 2	\$ 723	\$ 723	\$ -	\$ -	\$ -
JR011100	Warwick Boulevard to James River Influent Force Main Section 1	\$ 996	\$ 996	\$ -	\$ -	\$ -
JR011300	Patrick Henry Pump Station Interconnection Force Main	\$ 3,284	\$ 87	\$ 320	\$ 1,370	\$ 1,507
JR011500	Center Avenue I-I Remediation Phase II	\$ 235	\$ 235	\$ -	\$ -	\$ -
JR011730	Jefferson Avenue Interceptor Force Main Replacement Phase III	\$ 9,407	\$ 333	\$ 580	\$ 2,135	\$ 5,442
JR012020	Warwick Boulevard to James River Influent Force Main Section 3, Phase 2	\$ 1,516	\$ 1,517	\$ -	\$ -	\$ -
JR012100	Huxley to Middle Ground Force Main Extension	\$ 3,361	\$ 625	\$ 2,730	\$ 5	\$ -
JR012800	James River Treatment Plant Hydraulic Improvements	\$ 100	\$ 100	\$ -	\$ -	\$ -
JR012900	James River Treatment Plant Centrate Equalization Improvements	\$ 100	\$ 100	\$ -	\$ -	\$ -
JR013000	Morrison Pump Station Discharge Force Main Replacement & Capacity Enhancements	\$ 1,183	\$ -	\$ 31	\$ 122	\$ 430
JR013100	Lucas Creek-Woodhaven Interceptor Force Main Replacement Phase I	\$ 4,005	\$ 3,429	\$ 576	\$ -	\$ -
JR013200	Lucas Creek-Woodhaven Interceptor Force Main Replacement Phase II	\$ 5,009	\$ -	\$ 115	\$ 381	\$ 1,280
	Subtotal	\$ 36,433	\$ 8,310	\$ 4,352	\$ 4,146	\$ 8,962
Middle Peninsula						
MP011400	Mathews Collection System Vacuum Valve Replacement	\$ 574	\$ 574	\$ -	\$ -	\$ -
MP011700	Middle Peninsula Interceptor Systems Pump Station Control and SCADA Upgrades and Enhancements	\$ 3,420	\$ 2,400	\$ 1,020	\$ -	\$ -
MP011800	Kirby Street Sanitary Sewer Rehabilitation	\$ 495	\$ 495	\$ -	\$ -	\$ -
MP012000	King William Treatment Plant Improvements	\$ 2,069	\$ 778	\$ 1,291	\$ -	\$ -
MP012400	West Point Treatment Plant Tertiary Filter	\$ 460	\$ 412	\$ 48	\$ -	\$ -
MP012500	Mathews Main Vacuum Pump Station Replacement	\$ 1,672	\$ 140	\$ 1,176	\$ 357	\$ -
MP012700	Middle Peninsula Sewer Lateral Improvements	\$ 23,750	\$ -	\$ -	\$ -	\$ -
MP012900	Mathews Nursing Home Line Vacuum Sewer Main Improvements	\$ 544	\$ 80	\$ 465	\$ -	\$ -
MP013000	Small Communities Collection System Rehabilitation Phase I	\$ 1,900	\$ 342	\$ 575	\$ 575	\$ 408
MP013100	Small Communities Mobile Dewatering Facilities Installation	\$ 1,030	\$ 148	\$ 881	\$ -	\$ -
	Subtotal	\$ 12,164	\$ 5,368	\$ 5,456	\$ 932	\$ 408

FY-2017 to FY-2027

Cash Flow Projections (in thousands)

CIP No	Project Name	FY-2022	FY-2023	FY-2024	FY-2025	FY-2026	FY-2027
Chesapeake-Elizabeth							
CE010400	Independence Boulevard Pressure Reducing Station Modifications	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CE010520	Newtown Road Interceptor Force Main Relocation	\$ -	\$ -	\$ -	\$ -	\$ 5,170	\$ 5,343
CE011300	Birchwood Trunk 24-Inch 30-Inch Force Main at Independence Boulevard Replacement Phase II	\$ 509	\$ 916	\$ -	\$ -	\$ -	\$ -
CE011600	Poplar Hall Davis Corner Trunk 24-Inch Gravity Sewer Improvements	\$ 126	\$ 605	\$ 934	\$ -	\$ -	\$ -
CE011700	Western Trunk Force Main Replacement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CE011810	Chesapeake-Elizabeth Treatment Plant Decommissioning	\$ 1,738	\$ 1,705	\$ 2,100	\$ 1,343	\$ 1,004	\$ -
CE011821	Elbow Road Pressure Reducing Station	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CE011822	Providence Road PRS Upgrades and Interconnect Force Main	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CE011823	Virginia Beach Boulevard Force Main Phase VI	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CE011824	Lynnhaven Parkway Force Main Phase II	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CE011825	Salem Road Interconnect Force Main	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CE011826	Providence Road Off-Line Storage Facility	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CE011827	Atlantic PRS Reliability Modifications	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CE011828	Kempsville PRS Reliability Modifications	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CE011829	Laskin Road PRS Reliability Modifications	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CE01182A	Pine Tree PRS Reliability Modifications	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CE011830	Little Creek Pump Station Modifications	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CE011831	Virginia Beach City Pump Station Upgrades, Phase I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CE011832	Virginia Beach City Pump Station Upgrades, Phase II	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CE011833	Virginia Beach City Pump Station Upgrades, Phase III	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CE011834	Virginia Beach City Pump Station Upgrades, Phase IV	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CE011835	Virginia Beach City Pump Station Upgrades, Phase V	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CE012000	Poplar Hall Davis Corner Trunk 24-Inch Gravity Sewer Improvements (I-264 VDOT Betterment)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CE012100	Southern Blvd and Witchduck Rd IFM Improvements	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Subtotal	\$ 2,373	\$ 3,226	\$ 3,033	\$ 1,343	\$ 6,174	\$ 5,343
JR010100							
JR010100	Center Avenue Pump Station Service Area I I Remediation	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
JR010600	Lucas Creek Pump Station Upgrade	\$ 5,912	\$ -	\$ -	\$ -	\$ -	\$ -
JR010820	Warwick Boulevard to James River Influent Force Main Section 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
JR011100	Warwick Boulevard to James River Influent Force Main Section 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
JR011300	Patrick Henry Pump Station Interconnection Force Main	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
JR011500	Center Avenue I-I Remediation Phase II	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
JR011730	Jefferson Avenue Interceptor Force Main Replacement Phase III	\$ 917	\$ -	\$ -	\$ -	\$ -	\$ -
JR012020	Warwick Boulevard to James River Influent Force Main Section 3, Phase 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
JR012100	Huxley to Middle Ground Force Main Extension	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
JR012800	James River Treatment Plant Hydraulic Improvements	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
JR012900	James River Treatment Plant Centrate Equalization Improvements	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
JR013000	Morrison Pump Station Discharge Force Main Replacement & Capacity Enhancements	\$ 600	\$ -	\$ -	\$ -	\$ -	\$ -
JR013100	Lucas Creek-Woodhaven Interceptor Force Main Replacement Phase I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
JR013200	Lucas Creek-Woodhaven Interceptor Force Main Replacement Phase II	\$ 2,422	\$ 813	\$ -	\$ -	\$ -	\$ -
	Subtotal	\$ 9,851	\$ 813	\$ -	\$ -	\$ -	\$ -
Middle Peninsula							
MP011400	Mathews Collection System Vacuum Valve Replacement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
MP011700	Middle Peninsula Interceptor Systems Pump Station Control and SCADA Upgrades and Enhancements	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
MP011800	Kirby Street Sanitary Sewer Rehabilitation	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
MP012000	King William Treatment Plant Improvements	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
MP012400	West Point Treatment Plant Tertiary Filter	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
MP012500	Mathews Main Vacuum Pump Station Replacement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
MP012700	Middle Peninsula Sewer Lateral Improvements	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
MP012900	Mathews Nursing Home Line Vacuum Sewer Main Improvements	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
MP013000	Small Communities Collection System Rehabilitation Phase I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
MP013100	Small Communities Mobile Dewatering Facilities Installation	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Subtotal	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

FY-2017 to FY-2027

Cash Flow Projections (in thousands)

CIP No	Project Name	Total FY-2018 to FY-2027	FY-2018	FY-2019	FY-2020	FY-2021
Nansemond						
NP010620	Suffolk Pump Station Replacement	\$ 10,107	\$ 472	\$ 606	\$ 4,332	\$ 4,698
NP011300	Suffolk Interceptor Force Main Section I Main Line Valving Replacement	\$ 1,250	\$ 2	\$ 833	\$ 415	\$ -
NP011810	Holland Road 24-Inch Interceptor Force Main - Section A Phase I	\$ 3,174	\$ 3,174	\$ -	\$ -	\$ -
NP012200	Pughsville Pressure Reducing Station Upgrades	\$ 1,375	\$ 1,375	\$ -	\$ -	\$ -
NP012400	Western Branch Sewer System Gravity Improvements	\$ 2,625	\$ -	\$ -	\$ -	\$ -
NP012500	Shingle Creek and Hickman's Branch Gravity Sewer Improvements	\$ 7,512	\$ 355	\$ 1,503	\$ 5,220	\$ 435
NP012600	Deep Creek Interceptor Force Main Replacement	\$ 5,587	\$ 1,047	\$ 3,405	\$ 1,135	\$ -
NP012700	Nansemond Treatment Plant AAA Tank Coating	\$ 928	\$ 928	\$ -	\$ -	\$ -
NP013000	Nansemond Treatment Plant Motor Control Center Replacements	\$ 1,904	\$ 497	\$ 497	\$ 497	\$ 414
NP013300	Nansemond Treatment Plant Digester Rehabilitation	\$ 426	\$ 426	\$ -	\$ -	\$ -
NP013400	Deep Creek Interceptor Force Main Risk Mitigation Project	\$ 3,310	\$ 250	\$ 3,060	\$ -	\$ -
NP013500	Nansemond Treatment Plant Land Acquisition-Land Stabilization	\$ 1,734	\$ 306	\$ 1,428	\$ -	\$ -
NP013600	Nansemond Treatment Plant Land Acquisition-Structure Demolition	\$ 1,785	\$ -	\$ 1,785	\$ -	\$ -
NP013700	Nansemond Treatment Plant Struvite Recovery Facility Improvements	\$ 5,840	\$ 2,336	\$ 3,504	\$ -	\$ -
	Subtotal	\$ 47,557	\$ 11,167	\$ 16,620	\$ 11,598	\$ 5,547
Surry						
SU010000	Town of Surry Pump Station and Discharge Force Main	\$ 2,300	\$ 75	\$ 374	\$ 1,850	\$ -
SU010100	Surry Treatment Plant Infrastructure Improvements	\$ 550	\$ 29	\$ 521	\$ -	\$ -
	Subtotal	\$ 2,850	\$ 104	\$ 895	\$ 1,850	\$ -
Virginia Initiative Plant						
VP010910	Norview Estabrook Division I 18-Inch Force Main Replacement Phase II, Section 1 (Norfolk Fairmount Park Phase IX)	\$ 803	\$ 803	\$ -	\$ -	\$ -
VP010920	Norview Estabrook Division I 18-Inch Force Main Replacement Phase II, Section 2	\$ 2,864	\$ -	\$ -	\$ -	\$ -
VP011020	Park Avenue Pump Station Replacement	\$ 5,027	\$ 155	\$ 207	\$ 662	\$ 2,287
VP011600	Sewerage System Improvements Division C, Phase II Replacement	\$ 1,600	\$ 1,600	\$ -	\$ -	\$ -
VP014010	Ferebee Avenue Pump Station Replacement	\$ 4,941	\$ 153	\$ 293	\$ 2,248	\$ 2,248
VP014020	Sanitary Sewer Project 1950 12 Inch Force Main and 24 and 18 Inch Gravity Replacement	\$ 5,974	\$ 79	\$ 260	\$ 2,492	\$ 3,144
VP014700	Ingleside Road Pump Station Replacement	\$ 2,925	\$ -	\$ -	\$ -	\$ -
VP014800	Lee Avenue-Wesley Street Horizontal Valve Replacement	\$ 1,029	\$ -	\$ -	\$ -	\$ -
VP015300	Larchmont Area Pump Station Replacements	\$ 13,352	\$ 94	\$ 493	\$ 288	\$ 4,970
VP015400	Lafayette Norview-Estabrook Pump Station Replacements	\$ 15,905	\$ 56	\$ 615	\$ 349	\$ 5,367
VP015800	Sanitary Sewer System Portsmouth Va Western Diversion Force Main Relcoation (VDOT Turnpike Road Betterment)	\$ 86	\$ 86	\$ -	\$ -	\$ -
VP016320	Virginia Initiative Plant Nutrient Reduction Improvements Contract B	\$ 19,603	\$ 19,182	\$ 421	\$ -	\$ -
VP016500	Norview-Estabrook Division I 12-Inch Force Main Replacement	\$ 1,905	\$ -	\$ -	\$ 35	\$ 98
VP016700	Norview-Estabrook Division I 18-Inch Force Main Replacement Phase III	\$ 2,341	\$ -	\$ -	\$ -	\$ -
VP017000	VIP Treatment Plant Incinerator Scrubber and ID Fans Replacement	\$ 18	\$ 18	\$ -	\$ -	\$ -
VP017100	Central Norfolk Area Gravity Sewer Improvements	\$ 2,386	\$ -	\$ -	\$ -	\$ -
VP017300	Rodman Avenue Pump Station Wet Well Rehabilitation	\$ 1,063	\$ 1,063	\$ -	\$ -	\$ -
	Subtotal	\$ 81,822	\$ 23,289	\$ 2,289	\$ 6,075	\$ 18,113
Williamsburg						
WB010700	Williamsburg Interceptor Force Main Contract A Replacement	\$ 220	\$ 220	\$ -	\$ -	\$ -
WB012200	North Trunk Force Main Part B Replacement	\$ 700	\$ 9	\$ 515	\$ 176	\$ -
WB012400	Williamsburg Treatment Plant Switchgear Replacement	\$ 4,070	\$ 280	\$ 796	\$ 1,884	\$ 1,109
WB012500	Lodge Road Pump Station Upgrades	\$ 1,428	\$ -	\$ 66	\$ 122	\$ 925
	Subtotal	\$ 6,417	\$ 509	\$ 1,378	\$ 2,182	\$ 2,034
York River						
YR010300	Foxridge Sanitary Sewer System Sections 1, 4 & 5 Gravity and Woodland Road Fox Hill Road Gravity Sewer Rehabilitation	\$ 2,940	\$ -	\$ -	\$ -	\$ -
YR010520	Magruder Mercury Interceptor Force Main Replacement - Section B	\$ 4,007	\$ -	\$ -	\$ 64	\$ 312
YR010530	Magruder Mercury Interceptor Force Main Replacement - Section C	\$ 5,266	\$ -	\$ -	\$ -	\$ -
YR011900	Bethel-Poquoson Force Main Part III Replacement	\$ 999	\$ -	\$ 666	\$ 333	\$ -
YR012220	York River Treatment Plant Digester Cover Replacement Phase II	\$ 1,127	\$ 882	\$ 245	\$ -	\$ -
YR013110	York River Treatment Plant Outfall and Diffuser Modifications	\$ 825	\$ 825	\$ -	\$ -	\$ -
YR013140	York River Treatment Plant Environmental Studies and Habitat Enhancement	\$ 777	\$ 478	\$ 299	\$ -	\$ -
YR013500	Westminster Drive Force Main Replacement	\$ 668	\$ -	\$ -	\$ 96	\$ 567
	Subtotal	\$ 16,608	\$ 2,185	\$ 1,210	\$ 493	\$ 879

FY-2017 to FY-2027 Cash Flow Projections (in thousands)

CIP No	Project Name	FY-2022	FY-2023	FY-2024	FY-2025	FY-2026	FY-2027
Nansemond							
NP010620	Suffolk Pump Station Replacement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
NP011300	Suffolk Interceptor Force Main Section I Main Line Valving Replacement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
NP011810	Holland Road 24-Inch Interceptor Force Main - Section A Phase I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
NP012200	Pughsville Pressure Reducing Station Upgrades	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
NP012400	Western Branch Sewer System Gravity Improvements	\$ 151	\$ 151	\$ 2,322	\$ -	\$ -	\$ -
NP012500	Shingle Creek and Hickman's Branch Gravity Sewer Improvements	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
NP012600	Deep Creek Interceptor Force Main Replacement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
NP012700	Nansemond Treatment Plant AAA Tank Coating	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
NP013000	Nansemond Treatment Plant Motor Control Center Replacements	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
NP013300	Nansemond Treatment Plant Digester Rehabilitation	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
NP013400	Deep Creek Interceptor Force Main Risk Mitigation Project	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
NP013500	Nansemond Treatment Plant Land Acquisition-Land Stabilization	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
NP013600	Nansemond Treatment Plant Land Acquisition-Structure Demolition	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
NP013700	Nansemond Treatment Plant Struvite Recovery Facility Improvements	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Subtotal	\$ 151	\$ 151	\$ 2,322	\$ -	\$ -	\$ -
Surry							
SU010000	Town of Surry Pump Station and Discharge Force Main	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
SU010100	Surry Treatment Plant Infrastructure Improvements	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Subtotal	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Virginia Initiative Plant							
VP010910	Norview Estabrook Division I 18-Inch Force Main Replacement Phase II, Section 1 (Norfolk Fairmount Park Phase IX)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
VP010920	Norview Estabrook Division I 18-Inch Force Main Replacement Phase II, Section 2	\$ 71	\$ 142	\$ 1,224	\$ 1,427	\$ -	\$ -
VP011020	Park Avenue Pump Station Replacement	\$ 1,715	\$ -	\$ -	\$ -	\$ -	\$ -
VP011600	Sewerage System Improvements Division C, Phase II Replacement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
VP014010	Ferebee Avenue Pump Station Replacement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
VP014020	Sanitary Sewer Project 1950 12 Inch Force Main and 24 and 18 Inch Gravity Replacement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
VP014700	Ingleside Road Pump Station Replacement	\$ -	\$ 213	\$ 1,023	\$ 1,689	\$ -	\$ -
VP014800	Lee Avenue-Wesley Street Horizontal Valve Replacement	\$ 103	\$ 926	\$ -	\$ -	\$ -	\$ -
VP015300	Larchmont Area Pump Station Replacements	\$ 5,659	\$ 1,848	\$ -	\$ -	\$ -	\$ -
VP015400	Lafayette Norview-Estabrook Pump Station Replacements	\$ 6,766	\$ 2,752	\$ -	\$ -	\$ -	\$ -
VP015800	Sanitary Sewer System Portsmouth Va Western Diversion Force Main Relcoation (VDOT Turnpike Road Betterment)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
VP016320	Virginia Initiative Plant Nutrient Reduction Improvements Contract B	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
VP016500	Norview-Estabrook Division I 12-Inch Force Main Replacement	\$ 1,229	\$ 543	\$ -	\$ -	\$ -	\$ -
VP016700	Norview-Estabrook Division I 18-Inch Force Main Replacement Phase III	\$ 44	\$ 131	\$ 1,667	\$ 500	\$ -	\$ -
VP017000	VIP Treatment Plant Incinerator Scrubber and ID Fans Replacement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
VP017100	Central Norfolk Area Gravity Sewer Improvements	\$ 46	\$ 199	\$ 1,005	\$ 1,137	\$ -	\$ -
VP017300	Rodman Avenue Pump Station Wet Well Rehabilitation	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Subtotal	\$ 15,632	\$ 6,753	\$ 4,918	\$ 4,753	\$ -	\$ -
Williamsburg							
WB010700	Williamsburg Interceptor Force Main Contract A Replacement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
WB012200	North Trunk Force Main Part B Replacement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
WB012400	Williamsburg Treatment Plant Switchgear Replacement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
WB012500	Lodge Road Pump Station Upgrades	\$ 314	\$ -	\$ -	\$ -	\$ -	\$ -
	Subtotal	\$ 314	\$ -	\$ -	\$ -	\$ -	\$ -
York River							
YR010300	Foxridge Sanitary Sewer System Sections 1, 4 & 5 Gravity and Woodland Road Fox Hill Road Gravity Sewer Rehabilitation	\$ 214	\$ 1,414	\$ 1,312	\$ -	\$ -	\$ -
YR010520	Magruder Mercury Interceptor Force Main Replacement - Section B	\$ 1,316	\$ 2,311	\$ 3	\$ -	\$ -	\$ -
YR010530	Magruder Mercury Interceptor Force Main Replacement - Section C	\$ 30	\$ 54	\$ 480	\$ 1,508	\$ 2,255	\$ 939
YR011900	Bethel-Poquoson Force Main Part III Replacement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
YR012220	York River Treatment Plant Digester Cover Replacement Phase II	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
YR013110	York River Treatment Plant Outfall and Diffuser Modifications	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
YR013140	York River Treatment Plant Environmental Studies and Habitat Enhancement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
YR013500	Westminster Drive Force Main Replacement	\$ 5	\$ -	\$ -	\$ -	\$ -	\$ -
	Subtotal	\$ 1,666	\$ 3,779	\$ 1,794	\$ 1,508	\$ 2,255	\$ 939

FY-2017 to FY-2027

Cash Flow Projections (in thousands)

CIP No	Project Name	Total FY-2018 to FY-2027	FY-2018	FY-2019	FY-2020	FY-2021
General						
GN010730	Horizontal Valve Replacement Phase III	\$ 3,041	\$ -	\$ 351	\$ 577	\$ 577
GN011700	Pump Station Generators	\$ 5,181	\$ 1,672	\$ 1,239	\$ 1,239	\$ 1,032
GN012110	Regional Hydraulic Model and Other Consent Order Requirements	\$ 6,180	\$ 4,131	\$ 2,049	\$ -	\$ -
GN012113	Condition Assessment - Pipeline Prompts Repairs	\$ 3,700	\$ 3,700	\$ -	\$ -	\$ -
GN012114	Condition Assessment - Gravity Main Pipeline Inspection	\$ 950	\$ 950	\$ -	\$ -	\$ -
GN012115	Continued Condition Assessment	\$ 1,750	\$ 1,750	\$ -	\$ -	\$ -
GN012130	Manhole Rehabilitation-Replacement Phase I and North Shore Siphon Chamber Rehabilitation Phase I	\$ 6,074	\$ 1,617	\$ 1,617	\$ 1,617	\$ 1,223
GN012140	Pump Station Wet Well Rehabilitation Phase I	\$ 2,963	\$ 726	\$ 789	\$ 789	\$ 658
GN012151	Locality Hydraulic Model	\$ 800	\$ 400	\$ 400	\$ -	\$ -
GN012800	Interceptor Systems Pump Station Control and SCADA Upgrades and Enhancements	\$ 8,828	\$ 6,188	\$ 2,639	\$ -	\$ -
GN013300	Treatment Plant Grease Handling Facilities	\$ 1,984	\$ 1,287	\$ 697	\$ -	\$ -
GN013900	South Shore Interceptors Air Vent Rehabilitation	\$ 1,759	\$ 1,759	\$ -	\$ -	\$ -
GN014500	Renewable Energy Facility and Associated Plant Improvements	\$ 181,996	\$ -	\$ -	\$ -	\$ -
GN014900	North Shore Gravity Sewer Improvements Phase I	\$ 4,352	\$ -	\$ 78	\$ 216	\$ 207
GN015000	South Shore Gravity Sewer Improvements Phase I	\$ 710	\$ -	\$ -	\$ -	\$ 36
GN015100	Arctic Avenue Pump Station and Newtown Road Pump Station Electrical Improvements	\$ 502	\$ 25	\$ 477	\$ -	\$ -
GN015300	Interceptor System Valve Improvements Phase I	\$ 2,514	\$ -	\$ 71	\$ 152	\$ 523
GN015400	South Shore Aerial Crossing Improvements	\$ 253	\$ -	\$ -	\$ 4	\$ 14
GN015700	Aquifer Replenishment System (SWIFT)	\$ 8,449	\$ 8,449	\$ -	\$ -	\$ -
GN015800	North Shore Automated Diversion Facilities	\$ 1,432	\$ 9	\$ 148	\$ 1,040	\$ 235
GN016200	Sustainable Water Phase 3 – Demonstration Facility (SWIFT)	\$ 20,028	\$ 19,622	\$ 375	\$ 31	\$ -
GN016300	Sustainable Water Initiative for Tomorrow (SWIFT)	\$ 1,066,000	\$ -	\$ 5,187	\$ 13,641	\$ 63,445
GN016400	Treatment Plant Dewatering Replacement Phase I	\$ 1,680	\$ 672	\$ 1,008	\$ -	\$ -
GN016500	JR and NTP Dewatering Building Mod and Centrifuge Replacement	\$ 852	\$ 100	\$ 752	\$ -	\$ -
	Subtotal	\$ 879,016	\$ 53,058	\$ 17,876	\$ 19,305	\$ 67,950
Future Improvements						
IP010000	Interceptor System Expansions and Improvements	\$ 38,836	\$ -	\$ 2,415	\$ 4,400	\$ 3,015
IP010100	Pump Station Expansions and Improvements	\$ 19,128	\$ -	\$ 1,190	\$ 2,167	\$ 1,485
IP010200	Treatment Plant Expansions and Improvements	\$ 26,210	\$ -	\$ -	\$ -	\$ -
IP010300	General Expansions and Improvements	\$ 5,824	\$ -	\$ -	\$ -	\$ -
IP010400	Interceptor System Rehabilitation and Replacement	\$ 38,836	\$ -	\$ 2,415	\$ 4,400	\$ 3,015
IP010500	Pump Station Rehabilitation and Replacement	\$ 19,128	\$ -	\$ 1,190	\$ 2,167	\$ 1,485
IP010600	Treatment Plant Rehabilitation and Replacement	\$ 26,210	\$ -	\$ -	\$ -	\$ -
IP010700	General Rehabilitation and Replacement	\$ 5,824	\$ -	\$ -	\$ -	\$ -
IP010800	Regional Wet Weather Improvements	\$ 1,713,034	\$ -	\$ -	\$ 7,313	\$ 17,669
IP011000	Advanced Treatment Infrastructure Upgrades	\$ 905,105	\$ -	\$ 2,773	\$ 13,536	\$ 23,058
	Subtotal	\$ 849,986	\$ -	\$ 9,983	\$ 33,985	\$ 49,728
	CIP TOTALS	\$ 2,247,983	\$ 140,000	\$ 112,745	\$ 166,667	\$ 200,000

FY-2017 to FY-2027

Cash Flow Projections (in thousands)

CIP No	Project Name	FY-2022	FY-2023	FY-2024	FY-2025	FY-2026	FY-2027
General							
GN010730	Horizontal Valve Replacement Phase III	\$ 577	\$ 577	\$ 384	\$ -	\$ -	\$ -
GN011700	Pump Station Generators	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
GN012110	Regional Hydraulic Model and Other Consent Order Requirements	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
GN012113	Condition Assessment - Pipeline Prompts Repairs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
GN012114	Condition Assessment - Gravity Main Pipeline Inspection	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
GN012115	Continued Condition Assessment	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
GN012130	Manhole Rehabilitation-Replacement Phase I and North Shore Siphon Chamber Rehabilitation Phase I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
GN012140	Pump Station Wet Well Rehabilitation Phase I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
GN012151	Locality Hydraulic Model	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
GN012800	Interceptor Systems Pump Station Control and SCADA Upgrades and Enhancements	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
GN013300	Treatment Plant Grease Handling Facilities	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
GN013900	South Shore Interceptors Air Vent Rehabilitation	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
GN014500	Renewable Energy Facility and Associated Plant Improvements	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
GN014900	North Shore Gravity Sewer Improvements Phase I	\$ 2,403	\$ 1,449	\$ -	\$ -	\$ -	\$ -
GN015000	South Shore Gravity Sewer Improvements Phase I	\$ 63	\$ 229	\$ 382	\$ -	\$ -	\$ -
GN015100	Arctic Avenue Pump Station and Newtown Road Pump Station Electrical Improvements	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
GN015300	Interceptor System Valve Improvements Phase I	\$ 1,326	\$ 442	\$ -	\$ -	\$ -	\$ -
GN015400	South Shore Aerial Crossing Improvements	\$ 10	\$ 133	\$ 92	\$ -	\$ -	\$ -
GN015700	Aquifer Replenishment System (SWIFT)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
GN015800	North Shore Automated Diversion Facilities	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
GN016200	Sustainable Water Phase 3 – Demonstration Facility (SWIFT)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
GN016300	Sustainable Water Initiative for Tomorrow (SWIFT)	\$ 84,837	\$ 100,659	\$ 131,258	\$ 152,360	\$ 125,606	\$ 118,041
GN016400	Treatment Plant Dewatering Replacement Phase I	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
GN016500	JR and NTP Dewatering Building Mod and Centrifuge Replacement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Subtotal	\$ 89,216	\$ 103,488	\$ 132,117	\$ 152,360	\$ 125,606	\$ 118,041
Future Improvements							
IP010000	Interceptor System Expansions and Improvements	\$ 284	\$ 1,483	\$ -	\$ 4,751	\$ 12,605	\$ 9,882
IP010100	Pump Station Expansions and Improvements	\$ 140	\$ 730	\$ -	\$ 2,340	\$ 6,208	\$ 4,867
IP010200	Treatment Plant Expansions and Improvements	\$ -	\$ -	\$ -	\$ 819	\$ 15,087	\$ 10,304
IP010300	General Expansions and Improvements	\$ -	\$ -	\$ -	\$ 182	\$ 3,353	\$ 2,290
IP010400	Interceptor System Rehabilitation and Replacement	\$ 284	\$ 1,483	\$ -	\$ 4,751	\$ 12,605	\$ 9,882
IP010500	Pump Station Rehabilitation and Replacement	\$ 140	\$ 730	\$ -	\$ 2,340	\$ 6,208	\$ 4,867
IP010600	Treatment Plant Rehabilitation and Replacement	\$ -	\$ -	\$ -	\$ 819	\$ 15,087	\$ 10,304
IP010700	General Rehabilitation and Replacement	\$ -	\$ -	\$ -	\$ 182	\$ 3,353	\$ 2,290
IP010800	Regional Wet Weather Improvements	\$ 23,189	\$ 25,829	\$ 27,093	\$ 27,951	\$ 28,743	\$ 29,070
IP011000	Advanced Treatment Infrastructure Upgrades	\$ 44,645	\$ 97,783	\$ 103,219	\$ 72,051	\$ 48,431	\$ 77,636
	Subtotal	\$ 68,684	\$ 128,038	\$ 130,311	\$ 116,186	\$ 151,680	\$ 161,391
	CIP TOTALS	\$ 209,524	\$ 276,190	\$ 285,714	\$ 285,714	\$ 285,714	\$ 285,714

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HRSD

1434 Air Rail Avenue
Virginia Beach, VA 23455
www.hrsd.com

swift

HRSD COMMISSION MEETING MINUTES
May 23, 2017

ATTACHMENT #6

AGENDA ITEM 6. – Expenditure of Tax Exempt Bond Proceeds Resolution

REIMBURSEMENT RESOLUTION

RESOLUTION OF THE HAMPTON ROADS SANITATION DISTRICT COMMISSION OF HAMPTON ROADS SANITATION DISTRICT DECLARING ITS INTENTION TO REIMBURSE ITSELF FROM THE PROCEEDS OF ONE OR MORE TAX-ADVANTAGED FINANCINGS FOR CERTAIN EXPENDITURES MADE AND/OR TO BE MADE IN CONNECTION WITH THE ACQUISITION, CONSTRUCTION AND/OR EQUIPPING OF CERTAIN CAPITAL IMPROVEMENTS

WHEREAS, Hampton Roads Sanitation District (the “District”) is a political subdivision organized and existing under the laws of the Commonwealth of Virginia; and

WHEREAS, the District prepares a Capital Improvement Program (“CIP”) each year for capital projects currently underway and proposed to be undertaken over the next 10 years and a draft CIP is reviewed by the Hampton Roads Sanitation District Commission (the “Commission”) in late March or early April with a final CIP typically adopted in May; and

WHEREAS, in connection with the preparation of the annual CIP, the District prepares annual cash flow projections, setting forth the cash flow needs for capital projects and funding sources for such projects broken down into categories of (a) cash from the District’s operation of its facilities, (b) loans from the Virginia Clean Water Revolving Loan Program (such loans, “Clean Water Revolving Fund Loans”), which is administered by the Virginia Resources Authority (“VRA”), and (c) amounts expected to be raised from the sale of bonds (which, for purposes hereof, may include draws from the District’s Credit Agreement by and between the District and Bank of America, N.A., dated as of October, 30, 2015, as amended); and

WHEREAS, as part of the District’s FY2017 – FY2026 CIP adopted on the May 24, 2016 and attached hereto as Exhibit A, the District projected issuing bonds in aggregate amount equal to \$75,000,000 for capital projects in FY2017 (the “FY2017 Projects”)

WHEREAS, as part of the District’s FY2018 – FY2027 CIP adopted on the date hereof and attached hereto as Exhibit B, the District has projected issuing Clean Water Revolving Fund Loans or bonds in an aggregate amount equal to \$73,465,000 for capital projects in FY2018 and FY2019 (the “FY2018-19 Projects” and, together with the FY2017 Projects, the “Projects”); and

WHEREAS, the District has paid, and will pay, no more than 60 days prior to the date hereof, certain expenditures (the “Expenditures”) in connection with the acquisition, construction and/or equipping of the Projects; and

WHEREAS, the Commission has determined that those moneys previously advanced no more than 60 days prior to the date hereof and to be advanced on and after the date hereof to pay the Expenditures are available only for a temporary period and it is necessary to reimburse the District for the Expenditures from the proceeds of the Clean Water Revolving Fund Loans, or one or more issues of tax-advantaged bonds, e.g., bonds issued in accordance with Sections 54A, 54AA or 103 of the Internal Revenue Code of 1986, as amended (the “Bonds”);

NOW, THEREFORE, BE IT RESOLVED BY THE COMMISSION AS FOLLOWS:

Section 1. The Commission hereby declares the District's intent to reimburse the District with the proceeds of the Bonds or Clean Water Revolving Fund Loans for the Expenditures with respect to the Projects made no more than 60 days prior to the date hereof. The District reasonably expects on the date hereof that it will reimburse the Expenditures with the proceeds of the Bonds or Clean Water Revolving Fund Loans.

Section 2. Each Expenditure was and will be either (a) of a type properly chargeable to capital account under general federal income tax principles (determined in each case as of the date of the Expenditure), (b) a cost of issuance with respect to the Clean Water Revolving Fund Loans or the Bonds, (c) an extraordinary nonrecurring item that is not customarily payable from current revenues, or (d) a grant to a party that is not related to or an agent of the District so long as such grant does not impose any obligation or condition (directly or indirectly) to repay any amount to or for the benefit of the District.

Section 3. The maximum principal amount of the Clean Water Revolving Fund Loans and Bonds expected to be issued for the Projects is \$148,465,000.

Section 4. The District will make a reimbursement allocation, which is a written allocation by the District that evidences the District's use of proceeds of the Clean Water Revolving Fund Loans or the Bonds to reimburse an Expenditure, no later than 18 months after the later of the date on which the Expenditure is paid or related to the Projects is placed in service or abandoned, but in no event more than three years after the date on which the Expenditure is paid. The District recognizes that exceptions are available for certain "preliminary expenditures," costs of issuance, certain de minimis amounts, expenditures by "small issuers" (based on the year of issuance and not the year of expenditure) and expenditures for construction projects of at least five years.

Section 5. This resolution shall take effect immediately upon its passage.

PASSED AND ADOPTED this 23rd day of May, 2017.

The undersigned further certifies that the foregoing has been properly approved and adopted in accordance with all applicable requirements of the Hampton Roads Sanitation District Commission.


Frederick N. Elofson, Chairman

CAPITAL IMPROVEMENT PROGRAM

FY2017 – FY2026 [10-Year Plan]

(ATTACHED)

ALSO AVAILABLE AT THE FOLLOWING WEB PAGE:

<http://www.hrsd.com/capitalimprovementprogram.htm>

CAPITAL IMPROVEMENT PROGRAM

FY2018 – FY2027 [10-Year Plan]

(ATTACHED)

ALSO AVAILABLE AT THE FOLLOWING WEB PAGE:

<http://www.hrsd.com/capitalimprovementprogram.htm>

Exhibit A

Fiscal Year 2017-2026 Capital Improvement Plan

HRSD prepares a Capital Improvement Program (CIP) each year for the capital projects currently underway or proposed for the future. The first year of the CIP is authorized as the Capital Budget for FY-2017 in the amount of \$130 million. The remaining years (FY-2018 to FY-2026) include all known projects planned for these years; however, approval of the plan does not authorize the Capital Budgets for those years. Each year's Capital Budget will be approved during the budget process for the specific year.

The ten-year Capital Improvement Program for FY-2017 to FY-2026 highlights the anticipated cost of each project and the fiscal year(s) in which the work is expected to occur. All costs listed in the CIP are stated in current year dollars and total approximately \$1.5 billion.

CIP Budget Forecast (in thousands)	Total FY-2017 to FY-2026	FY-2017	FY-2018	FY-2019	FY-2020	FY-2021	FY-2022	FY-2023	FY-2024	FY-2025	FY-2026
Begin Capital Reserves	\$ 66,361	\$ 66,361	\$ 72,861	\$ 31,523	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Bonds	401,778	75,000	-	9,207	60,980	41,029	20,402	37,267	44,965	35,165	77,763
Cash	1,037,741	52,101	63,062	75,270	74,020	94,471	110,598	119,733	137,535	147,335	163,616
Grants and Other Reimbursements	18,000	9,400	5,600	2,000	-	-	1,000	-	-	-	-
Total Capital Resources		202,861	141,523	118,000	135,000	135,500	132,000	157,000	182,500	182,500	241,379
Capital Expenditures	1,523,879	130,000	110,000	118,000	135,000	135,500	132,000	157,000	182,500	182,500	241,379
End Capital Reserves	\$ -	\$ 72,861	\$ 31,523	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Capital Expenditures (in thousands)	Total FY-2017 to FY-2026	FY-2017	FY-2018	FY-2019	FY-2020	FY-2021	FY-2022	FY-2023	FY-2024	FY-2025	FY-2026
Administration	\$ 4,099	\$ 4,099	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Army Base	26,430	2,000	-	-	-	1,785	5,282	14,882	2,480	-	-
Atlantic	69,800	5,318	18,872	17,089	11,826	1,985	991	3,319	5,492	4,908	-
Boat Harbor	86,545	12,014	8,589	13,743	12,029	14,138	14,828	11,204	-	-	-
Chesapeake-Elizabeth	106,089	3,423	6,799	24,717	32,952	25,262	8,301	3,627	1,008	-	-
James River	49,594	13,677	11,417	7,646	872	5,735	6,644	1,462	1,606	535	-
Middle Peninsula	38,872	1,235	6,949	3,041	8,573	7,252	3,273	1,900	1,900	2,375	2,375
Nansemond	49,425	12,723	9,532	8,927	10,429	5,650	128	113	1,925	-	-
Virginia Initiative Plant	107,254	42,001	18,181	3,401	8,086	9,015	9,936	7,513	5,867	3,255	-
Williamsburg	9,369	3,117	946	1,130	2,192	1,677	308	-	-	-	-
York River	26,020	7,187	1,223	1,124	692	1,759	3,984	3,935	3,876	2,203	36
General	158,666	23,204	25,336	18,161	13,314	12,135	13,461	14,533	12,835	12,709	12,979
Future Improvements	728,423	-	-	13,402	27,609	42,656	58,580	87,037	136,820	147,824	214,495
<i>Subtotal</i>	1,460,585	130,000	107,843	112,381	128,571	129,048	125,714	149,524	173,810	173,810	229,885
Contingency	63,293	-	2,157	5,619	6,429	6,452	6,286	7,476	8,690	8,690	11,494
Total Expenditures	\$ 1,523,878	\$ 130,000	\$ 110,000	\$ 118,000	\$ 135,000	\$ 135,500	\$ 132,000	\$ 157,000	\$ 182,500	\$ 182,500	\$ 241,379

The bond component of the plan may include one or all of the following:

- Interim or construction financings
- Federally subsidized borrowing programs administered by the Virginia Resource Authority
- HRSD Revenue Bonds or Notes

The grant component represents funds estimated to be received from a federal or state agency for specific projects. Other reimbursements, if any, include amounts paid by other parties who may participate in a project.

Exhibit B

Fiscal Year 2018-2027 Capital Improvement Plan

HRSD prepares a Capital Improvement Program (CIP) each year for the capital projects currently underway or proposed for the future. The first year of the CIP is authorized as the Capital Budget for FY-2018 in the amount of \$140 million. The remaining years (FY 2019 to FY 2027) include all known projects planned for these years; however, approval of the plan does not authorize the Capital Budgets for those years. Each year's Capital Budget will be approved during the budget process for the specific year.

The ten-year Capital Improvement Program for FY 2018 to FY 2027 highlights the anticipated cost of each project and the fiscal year(s) in which the work is expected to occur. All costs listed in the CIP are stated in current year dollars and total approximately \$2.35 billion.

CIP Budget Forecast (in thousands)	Total FY-2018 to FY-2027										
	FY-2018	FY-2019	FY-2020	FY-2021	FY-2022	FY-2023	FY-2024	FY-2025	FY-2026	FY-2027	
Begin Capital Reserves	\$ 22,787	\$ 22,787	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Bonds	1,042,995	30,139	0	58,879	91,532	80,201	155,273	141,342	178,214	158,431	148,985
VCWRLF	69,704	21,658	21,658	14,418	11,971	-	-	-	-	-	-
Cash	1,194,656	58,802	89,708	100,852	105,823	138,072	134,025	156,080	120,854	140,548	149,892
Grants and Other Reimbursements	12,061	5,810	3,141	210	-	1,000	-	1,900	-	-	-
Transfer from Debt Service Reserve Fund	7,797	804	494	642	674	727	702	679	933	1,021	1,123
Total Capital Resources	2,350,000	140,000	115,000	175,000	210,000	220,000	290,000	300,000	300,000	300,000	300,000
Capital Expenditures	2,350,000	140,000	115,000	175,000	210,000	220,000	290,000	300,000	300,000	300,000	300,000
End Capital Reserves	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Capital Expenditures (in thousands)	Total FY-2018 to FY-2027										
	FY-2018	FY-2019	FY-2020	FY-2021	FY-2022	FY-2023	FY-2024	FY-2025	FY-2026	FY-2027	
Administration	\$ 2,507	\$ 1,373	\$ 567	\$ 567	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Army Base	27,827	2,148	1,250	-	1,785	5,282	14,882	2,480	-	-	
Atlantic	79,350	13,819	25,219	14,333	2,740	1,428	3,513	8,734	9,565	-	
Boat Harbor	79,977	11,080	13,492	14,499	14,327	15,027	11,547	4	-	-	
Chesapeake-Elizabeth	125,470	7,589	12,158	56,703	27,526	2,373	3,226	3,033	1,343	6,174	
James River	36,433	8,310	4,352	4,146	8,962	9,851	813	-	-	-	
Middle Peninsula	12,164	5,368	5,456	932	408	-	-	-	-	-	
Nansemond	47,557	11,167	16,620	11,598	5,547	151	151	2,322	-	-	
Surry	2,850	104	895	1,850	-	-	-	-	-	-	
Virginia Initiative Plant	81,822	23,289	2,289	6,075	18,113	15,632	6,753	4,918	4,753	-	
Williamsburg	6,417	509	1,378	2,182	2,034	314	-	-	-	-	
York River	16,608	2,185	1,210	493	879	1,566	3,779	1,794	1,508	2,255	
General	879,016	53,058	17,876	19,305	67,950	89,216	103,488	132,117	152,360	125,606	
Future Improvements	849,986	-	9,983	33,985	49,728	68,684	128,038	130,311	116,186	151,680	
Sub-Total	2,247,983	140,000	112,745	166,667	200,000	209,524	276,190	285,714	285,714	285,714	
Contingency	102,017	-	2,255	8,333	10,000	10,476	13,810	14,286	14,286	14,286	
Total Expenditures	\$ 2,350,000	\$ 140,000	\$ 115,000	\$ 175,000	\$ 210,000	\$ 220,000	\$ 290,000	\$ 300,000	\$ 300,000	\$ 300,000	

The bond component of the plan may include one or all of the following:

- Interim or construction financings
- Federally subsidized borrowing programs administered by the Virginia Resource Authority
- HRSD Revenue Bonds or Notes

The grant component represents funds estimated to be received from a federal or state agency for specific projects. Other reimbursements, if any, include amounts paid by other parties who may participate in a project.

HRSD COMMISSION MEETING MINUTES
May 23, 2017

ATTACHMENT #7

AGENDA ITEM 7. – Surry County Sewer System – Sussex Service Authority Operation and Maintenance Agreement

OPERATION AND MAINTENANCE AGREEMENT

HAMPTON ROADS SANITATION DISTRICT

AND

SUSSEX SERVICE AUTHORITY

This Operation and Maintenance Agreement (“Agreement”) is made and entered effective August 1, 2017, by and between the Hampton Roads Sanitation District (“HRSD”), and the Sussex Service Authority, a body politic and corporate, (the "Authority").

RECITALS

R-1. HRSD owns a Sewer System (the "System") to provide sewer services to the residents of the County of Surry, Virginia (the “County”). The System is located within the County.

R-2. HRSD hereby chooses the Authority to operate and maintain the System on its behalf.

R-3. The Authority is empowered by the Virginia Water and Waste Authorities Act (the "Act"), and by its charter to operate and maintain wastewater treatment facilities and facilities relating hereto. In furtherance of the purpose for which the Authority was created and as permitted by the Act, the Authority is willing to agree to operate and maintain the System for the mutual benefit of HRSD and the customers of HRSD, all upon the terms provided herein.

NOW, THEREFORE, in consideration of these premises, the parties do agree as follows:

AGREEMENT OBLIGATIONS OF THE AUTHORITY

1. The Authority has all necessary staff, equipment, technical and administrative expertise which will enable it to operate and to maintain the System.
2. The Authority will supply all necessary personnel, equipment and administrative experience necessary to operate the Systems in strict compliance with all applicable health and regulatory requirements, including, without limitation, the permit and regulatory requirements of the Virginia State Department of Health and the Virginia Department of Environmental Quality.
3. The Authority shall provide its services in a good and workman like manner on a full-time basis, and as necessary, in conformance with applicable regulations and within its powers under the Act.
4. The Authority will provide operation and maintenance services to HRSD as an independent contractor. The means, methods and execution of its operation and maintenance activities shall be determined by the Authority. The Authority will consult and take direction from HRSD when warranted. The personnel and equipment used in performance of its duties hereunder with respect to the System also shall be available to operate and maintain the water and sewer systems within the Authority's service area, yet not to the detriment of HRSD.
5. The Authority shall provide monthly and annual reports providing financial and operating statistics regarding the System under this Agreement to HRSD and the books of the Authority regarding such systems shall be open to inspection by HRSD.
6. The Authority shall maintain general liability insurance with a limit of at least \$1,000,000 and workers compensation insurance.

7. The Authority is hereby authorized to expend up to \$10,000 on emergency repairs as may be needed from time to time.
8. In the event of default, HRSD will become responsible for all maintenance and operation of the System.
9. Included within the operational and maintenance responsibilities hereunder, the Authority specifically shall (a) maintain the System, to the best of their ability, to standards promulgated by the Virginia Department of Environmental Quality and Virginia Department of Health, (b) prepare and deliver all reports required by cognizant regulatory agencies; (c) ensure that maintenance, other than routine day-to-day efforts, will be accomplished on an event-by-event basis in consultation with HRSD; and (d) provide HRSD with 24-hour availability.
10. The Authority will perform the necessary treatment control testing and obtain the required samples and send samples to a contracted laboratory for all regular laboratory tests and report the results to cognizant regulatory agencies.
11. The Authority shall provide all field activity to include: meter reading, delinquent bill notifications, disconnections and reconnections.
12. The scope of services provided under this Agreement is summarized in Exhibit C attached hereto.

OBLIGATIONS OF HRSD

13. It shall be HRSD's responsibility to pursue any construction, warrant, completion or contractor and third-party claims with respect to the System as Owner of the System.
14. Provide all necessary easements, permits or rights-of-way to permit the Authority and its personnel to have operational and maintenance access to the System.

15. HRSD shall be listed as the Owner of the System and shall continue all responsibilities as an Owner under permits, licenses and approvals issued by cognizant regulatory authorities.
16. HRSD, in consultation with the County, shall be responsible to define the Service Areas within the County and to designate the location, nature and extent of any extensions of facilities of the System.
17. HRSD shall adopt and maintain its Industrial pre-treatment regulations as necessary.

PAYMENT FOR SERVICES

18. The Authority shall provide its operation and maintenance services on a cost, plus fixed fee basis. Pricing shown in Exhibit B are only for the existing System as shown in Exhibit A and any additional costs incurred due to expansions of any of the System will be quoted on a cost basis as agreed by both parties. Any exceptions to this pricing concept shall be set forth in writing signed by the parties. Attached hereto is Exhibit B regarding specific pricing arrangements to which the parties initially agree. The Authority shall maintain records of all personnel and equipment used to provide its services to HRSD hereunder and shall bill HRSD monthly in arrears for those services. HRSD shall pay the amount billed within 30 days of receipt of the statement from the Authority. The Authority's records shall be available during reasonable business hours for inspection by HRSD to verify cost and accounting factors with respect to sums billed to HRSD.
19. Any maintenance beyond daily maintenance to be provided by the Authority, and any construction or extension of the System's facilities, shall be subject to an estimate prepared by the Authority and approved in advance by HRSD before such

extraordinary maintenance or construction activities shall be undertaken by the Authority.

TERM

20. This Agreement shall be for a term from the effective date of this Agreement until July 1, 2018 and on that date shall be renewable automatically for one year increments thereafter. This Agreement may be terminated for any reason upon sixty days prior written notice by either party. Any increase in cost shall be justified by the Authority.

MISCELLANEOUS

21. Any and all notices shall herein be in writing and be deemed to have been sufficiently given to the HRSD by registered mail, postage prepaid addressed to:

If By U.S. Postal Service:
General Manager
HRSD
P. O. Box 5911
Virginia Beach, VA 23471-0911
E-mail: thenifin@hrsd.com

If By Overnight Mail:
General Manager
HRSD
1434 Air Rail Avenue
Virginia Beach, VA 23455

And to the Authority if mailed, postage prepaid to:

Executive Director
Sussex Service Authority
4385 Beef Steak Road
Waverly, VA 23890
Or by Facsimile: (804) 834-6910
E-mail: firving@ssa-va.org

22. Section and subsection headings in this Agreement are for convenience only and are not to construed as a part hereof or in any way limiting or amplifying the provisions hereof.

23. This Agreement constitutes and contains the entire Agreement of the parties hereto and supersedes any and all prior negotiations, correspondence, understanding and agreements between the parties affecting the subject matter hereof and may not be modified, altered or changed in any manner whatsoever except by written agreement between the parties hereto.
24. This Agreement may be executed in several counterparts, each of which shall be deemed an original, as of all of which together shall constitute one and the same instrument.
25. This Agreement shall inure to the benefit of and be binding upon the successors and assigns of the parties.
26. This Agreement and the transactions contemplated thereby shall be governed by and construed in accordance with the laws of the Commonwealth of Virginia.

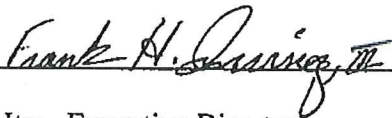
HAMPTON ROADS SANITATION DISTRICT

By: 
Edward G. Henifin, P.E.

Its: General Manager

Date: 7/21/2017

SUSSEX SERVICE AUTHORITY

By: 

Its: Executive Director

Date: 6/27/17

**OPERATION AND MAINTENANCE AGREEMENT
HRSD and SUSSEX SERVICE AUTHORITY**

EXHIBIT A - HRSD SEWER SYSTEM (THE SYSTEM)

- 1) Waste Water Treatment Facility located at 2105 Holly Bush Road
- 2) Pump Station A and appurtenances located at 3335 Rolfe Highway in Dendron, VA
- 3) Pump Station B and appurtenances located at 889 Railroad Avenue in Dendron VA
- 4) Pump Station located at Elberon Heights
- 5) Pump Station located at Surry Industrial Park
- 6) Various Duplex and Single Dwelling Pump Stations owned by HRSD
- 7) All Force Mains associated with the above listed pump stations

**OPERATION AND MAINTENANCE AGREEMENT
HRSD and SUSSEX SERVICE AUTHORITY**

**EXHIBIT B
PRICING**

Operation and Maintenance Fees	\$ 4,650.00
Administrative Fee	\$ 350.00
Laboratory Analyses Fees	\$ 500.00
Generator Maintenance (3 Generators)	\$ 187.50
Lawn Maintenance	\$ 435.00
Total Monthly Management Fee	\$ 6,122.50

EMPLOYEE & EQUIPMENT RATES

EMPLOYEES ARE CHARGED PER HOUR	\$ 50.00
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HOURLY EQUIPMENT RATES

MAINT VEHICLE	\$ 25.00
EXCAVATOR	\$ 100.00
LOADER	\$ 16.00
TRACTOR	\$ 30.00
DUMP TRUCK - SMALL	\$ 40.00
DUMP TRUCK - LARGE	\$ 75.00
TRENCHER - WALK BEHIND	\$ 25.00
TRENCHER - RIDE	\$ 40.00
SEWER JET	\$ 90.00
TERRIMITE	\$ 45.00
SKIDSTER	\$ 30.00
BOOM TRUCK	\$ 50.00
CHOP SAW	\$ 20.00

MISC SERVICES ARE CHARGES AT THE FOLLOWING RATES

PUMPER TRUCK - PER LOAD	\$ 300.00
PUMPER TRUCK - SURRY SEAFOOD	\$ 350.00
MUD PUMP - PER DAY	\$ 50.00
TRAFFIC CONT EQUIP - DAILY	\$ 120.00
EXTRA LAB RUNS - PER RUN	\$ 60.00

CHEMICALS RATES WILL CHANGE IF YOU NEED YOU CAN USE THESE

BLEACH - PER GALLON	\$ 1.69
SO2 - PER BUCKET	\$ 140.00
CL2 - PER BUCKET	\$ 139.00
POLYMER - PER DRUM	\$ 700.00

**OPERATION AND MAINTENANCE AGREEMENT
HRSD and SUSSEX SERVICE AUTHORITY**

EXHIBIT C – SUMMARY OF RESPONSIBILITIES

Area of Responsibility	Responsible Party	General Description	Suggested Frequency
Regulatory reporting	Authority	Examples include but are not limited to spills, overflows, missed samples, permit exceedances	Daily/Monthly
Records maintenance	Authority	Maintain records of plant operations, including but not limited to flow, pH, UV/chlorine, process issues, maintenance done, etc.	Daily
DMR generation and signatories	Authority	Discharge Monitoring Reports, entered into the DEQ eDMR system monthly by the 8 th . HRSD internal note: the eDMR software requires entry of licensed operator (provided by SSA) but HRSD/Jim Pletl will be signing as the owner. The finalized report is due to DEQ by the 10 th of each month.	Monthly
Sample collection and courier scheduling and analysis	Authority		
Maintaining a current O&M manual	Authority		Annual review

Area of Responsibility	Responsible Party	General Description	Suggested Frequency
Customer Issues and complaints	Authority	<p>Respond to customer issues and complaints such as mechanical failures, leaks, or odors.</p> <p>For the Interceptor System Facilities, the Authority will investigate failures and/or overflows within 2 hours of being notified. Corrective action to remediate as soon as possible thereafter.</p> <p>For the Collection System Facilities, the Authority will investigate failures and/or overflows within 4 hours of being notified. Corrective action to remediate as soon as possible thereafter.</p> <p>For System Odors, the Authority will investigate failures and/or overflows within 2 days of being notified. Corrective action to remediate as soon as possible thereafter.</p>	As required
Grounds Keeping	Authority	Provide for cutting and trimming of grass and other vegetation and the picking up of trash or other debris on wastewater system property.	Weekly
Major Repairs and Replacements	Authority	Inform HRSD of major repairs and replacements needed on the wastewater system. By September 1 of each year, provide a list of major repairs and replacements requiring funding for the next fiscal year.	As required/Annually
Pump Station & Grinder Operations & Maintenance	Authority	Maintain, inspect, and service pump stations and grinder pumps to ensure proper operations and reliability.	As required/weekly

Area of Responsibility	Responsible Party	General Description	Suggested Frequency
SSO & Emergency Response	Authority	Maintain SCADA system and emergency response notification system to respond to all SSO alarms from pump stations and citizen complaints. Response should include resolution to the following issues: SSOs, pump station alarms, grinder pump complaints, citizen calls, odor issues, lateral backups, sewer cave-ins, etc. (Not full list). Provide HRSD notice within 24 hours. If any large issues arise, call for HRSD support as need.	As required
SSO Reporting	Authority	Provide notification to DEQ as required by law within the allowable time constraints. Copy HRSD on all notifications.	As required
Collection Systems Operations & Maintenance	Authority	Maintain collection system on an as needed basis to include casting adjustments, ROW clearing, line/lateral cleaning, air vent venting, valve exercising, etc.	As required/weekly
Treatment Plant General Maintenance	Authority	Schedule and conduct routine preventative and as-needed maintenance to treatment facilities, process equipment, and treatment plant infrastructure to allow continuous operations as defined in the Treatment Plant O&M manual and current standard operating procedures (SOP).	As required/Daily
Maintenance of installed instrumentation	Authority	Maintain in a working condition any installed instrumentation put in place by HRSD for the purpose of process monitoring and control or regulatory compliance. Maintain calibration of installed probes and sensors as required by vendor O&M manuals and current standard operation procedures (SOP).	As required
Treatment Plant Operations	Authority	Provide operations staff of appropriate level of licensure as required by the VPDES permit. Practice routine operational decision making and intervention to achieve compliance of the treatment process with requirements of the VPDES permit.	Daily
Maintenance of Generators	Authority	Routine maintenance on all generators.	As required

Area of Responsibility	Responsible Party	General Description	Suggested Frequency
Miss Utility	HRSD	Miss Utility Service to include responding to calls and marking sites within the limits required Damage Prevention Act. Manage tickets and properly update the VA811 system with proper response.	As required
Establish requirements/permit conditions of Industrial Dischargers	HRSD		
Administration of Industrial Discharge Permits	HRSD		
Meter Reading	Authority	Read customer meters and provide an electronic file to HRSD	Monthly
Drop Box	Authority	Mail payments received in drop box	As required
Delinquent Bill Notifications	Authority	Tag delinquent customers	As required
Water Service Disconnections	Authority	Disconnect water service for delinquent customers	As required
Water Restoration	Authority	Reconnect water service once outstanding payment has been made	As required
New Customers	Authority	Notify HRSD of any new proposed connections	As required

HRSD COMMISSION MEETING MINUTES
May 23, 2017

ATTACHMENT #8

AGENDA ITEM 8. – Atlantic Treatment Plant Thermal Hydrolysis Process (THP) and Fats, Oils and Grease (FOG) Receiving Station Briefing PowerPoint Presentation



Atlantic Treatment Plant Thermal Hydrolysis Process (THP) and FOG Receiving Facility May 23, 2017

Project Goals

- Class A (with certainty)
 - Land Application
 - Marketable products
- High quality, low odor
- Improve dewaterability
 - Storage at plant (or field)
 - Stackability
- Increased solids production at the plant
- FOG and high strength waste co-digestion → Energy



Project Mission & Challenges

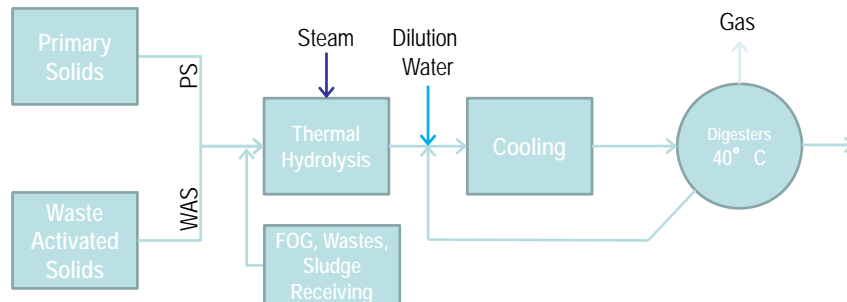
Project Mission Statement:

Produce a high-quality Class A biosolids product by processing solids through the CAMBI Thermal Hydrolysis Process, provide for future increases in solids handling capability, and provide for a new fats, oils and grease (FOG) receiving station to feed the CAMBI system. The system should be reliable, operator friendly, cost effective, and energy efficient, and should result in no offsite odors.

Project Challenges:

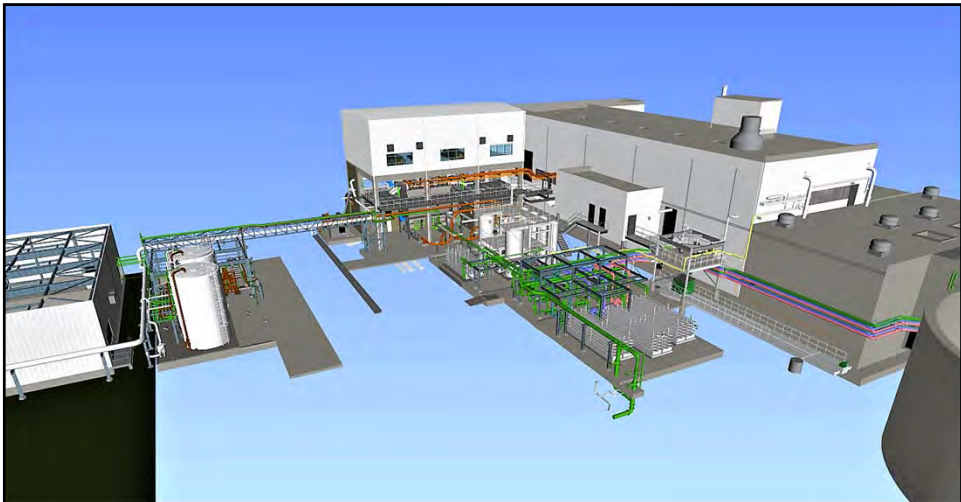
- New technology to U.S. Market and HRSD
- Highly complex system to construct
- Desire to integrate into existing space
- Pre-Purchase of CAMBI equipment and assignment to CM

Thermal Hydrolysis Digestion



THP Solids Operations	Benefit
Feed to digesters at twice the typical percent solids	Reduction in digester volume
Digestion occurs faster – no 15-day SRT limitation	
Biosolids volume reduction, improved quality and low odor	More end use options
Class A Biosolids	Reduced permitting
Increased biogas generation	Energy and economic benefits

4



THP Design Integration at Atlantic Treatment Plant

Construction Management Delivery Method

- Defined by State Procurement (VPPA) and HRSD Procurement Policy.
- Allows for the selection of a Construction Manager during the design phase to facilitate collaboration.
- Construction Manager provides constructability reviews and manages construction.
- Construction Manager is selected on qualifications and some limited cost information (OH/Profit, Fixed Costs, Services During Design)
- Project is divided into separate bid packages and competitively awarded based on best value.
- Construction Manager can also compete for the work but is limited to no more than 50% of the construction.

7

Project Status

- HDR Engineering, Inc. selected for the design in November 2013.
- Crowder Construction Company selected as the Construction Manager (CM) in June 2015.
- Final approvals and permit acquisition is underway.
- Pre-purchase Contract of CAMBI system is complete.
- Design is complete and CM firm has completed the bidding of the various bid packages for construction.
- CM firm has prepared the Guaranteed Maximum Price (GMP).

8

Summary of Sub-Contractor Bidding Efforts

- Multiple bid packages were issued:
 - Seven (7) Major Subcontractor
 - Sixteen (16) Trade Subcontractor
 - Twenty-six (26) Materials
 - Three (3) Sole source
- Limited bids were received on the Major Subcontractor and some Trade Subcontractor bid packages.
- Some competition was received on the Trade Subcontractor bid packages.
- Packages with no-bids were re-advertised to get more interest from potential bidders.
- CM and HRSD participated in significant negotiation and clarification with many of the responders.

9

Project Budget Summary

Project is divided into two FY2018 CIP Projects:

- Atlantic Treatment Plant FOG Receiving Station (AT012910) = \$4,493,290
 - Atlantic Treatment Plant Thermal Hydrolysis Process (AT013500) = \$52,830,822
- FY2018 CIP Total = \$57,324,112

Current Total Project Cost = \$68,000,000 (GMP is \$49,700,000 of this cost)

10

Project Schedule – Construction Phase

<u>Date</u>	<u>Task</u>
June 2017	Construction Notice to Proceed
June 2017 – August 2017	Procurement/Submittal Review
Aug 2017 – March 2019	Onsite General Construction
March 2019 – Aug. 2019	CAMBI Start-Up
Aug. 2019 – Feb. 2020	Process Conversions
Feb 2020 – Oct. 2020	Digester Modifications
Jun. 2020	Begin Diversions from Ches-Eliz
Oct. 2020	Substantial Completion
Dec. 2020	Final Completion

11

Project Next Steps

- Review and refine final costs
- Review scope for potential savings
- Review CIP for other opportunities

12

Questions?

HRSD COMMISSION MEETING MINUTES
May 23, 2017

ATTACHMENT #9

AGENDA ITEM 9. – Atlantic Treatment Plant Thermal Hydrolysis Process (THP) and Fats, Oils and Grease (FOG) Receiving Station Virginia Clean Water Revolving Loan Fund (VCWRLF) Resolution

Hampton Roads Sanitation District
Resolution of
May 23, 2017

HAMPTON ROADS SANITATION DISTRICT COMMISSION

RESOLUTION
PROVIDING FOR THE ISSUANCE OF

A SUBORDINATE WASTEWATER REVENUE BOND

Adopted May 23, 2017

Atlantic Treatment Plant Project: #C-515613-01

Resolution

RESOLUTION AUTHORIZING THE ISSUANCE OF A SUBORDINATE WASTEWATER REVENUE BOND, NOT TO EXCEED \$60,000,000 IN PRINCIPAL AMOUNT, FOR THE PURPOSE OF PROVIDING FUNDS, WITH OTHER AVAILABLE MONEY, TO PAY THE COSTS OF CERTAIN IMPROVEMENTS TO THE ATLANTIC TREATMENT PLANT, FIXING THE PRINCIPAL INSTALLMENT MATURITY DATES, THE INTEREST RATE, THE REDEMPTION PROVISIONS AND CERTAIN OTHER DETAILS OF THE BOND, DIRECTING THE AUTHENTICATION AND DELIVERY OF THE BOND, AND AUTHORIZING THE EXECUTION OF A FINANCING AGREEMENT WITH THE VIRGINIA RESOURCES AUTHORITY.

WHEREAS, the Hampton Roads Sanitation District (the “Borrower”) entered into a Trust Agreement, dated as of October 11, 2011 (the “Trust Agreement”), with The Bank of New York Mellon Trust Company, N.A., as trustee (the “Trustee”), as amended and restated as of March 1, 2016, pursuant to which the Borrower may incur Parity Obligations, as defined in the Trust Agreement; and

WHEREAS, pursuant to Chapter 22, Title 62.1, Code of Virginia of 1950, as amended (the “VWFRF Act”), the General Assembly of the Commonwealth of Virginia created a permanent and perpetual fund known as the Virginia Water Facilities Revolving Fund (the “Fund”); and

WHEREAS, the Hampton Roads Sanitation District Commission (the “Commission”) heretofore received an offer from the Virginia Resources Authority (the “Authority”), as Administrator of the Virginia Water Facilities Revolving Fund (the “Fund”), to make a loan from the Fund to the Borrower in an amount expected not to exceed \$60,000,000 for the purpose of financing a project described in such offer as improvements to the Borrower’s Atlantic

Treatment Plant, together with related expenses; and

WHEREAS, the Commission, as the governing body of the Borrower, has determined to accept such offer and close on the loan from the Authority, as Administrator of the Fund, by authorizing and issuing its subordinate wastewater revenue bond for the purpose of financing Capital Improvement Program Costs (as defined in the Trust Agreement) of improvements to the Borrower's Atlantic Treatment Plant (the "2017 Atlantic Local Bond"), to be payable solely from the Net Revenues Available for Debt Service (as defined in the Trust Agreement) on a parity with all Parity Obligations (as defined in the Trust Agreement) of the Borrower and subordinated to all Senior Indebtedness, as defined in, and to extent set forth, in the Trust Agreement, all in conformity with the terms and provisions of the Trust Agreement; now, therefore,

BE IT RESOLVED by the Hampton Roads Sanitation District Commission as follows:

Section 1. (a) Definitions. The capitalized terms contained in this Resolution and not defined above shall have the meanings set forth in the Glossary of Defined Terms attached to this Resolution as Exhibit A, unless the context requires otherwise.

(b) Rules of Construction. The following rules shall apply to the construction of this Resolution unless the context requires otherwise:

(i) Singular words shall connote the plural number as well as the singular and vice versa.

(ii) All references in this Resolution to particular Sections or Exhibits are references to Sections or Exhibits of this Resolution unless otherwise indicated.

Section 2. Authorization of 2017 Atlantic Local Bond. Pursuant to Sections 209(b) and 704(a) of the Trust Agreement and for the purpose of financing the Capital Improvement

Program Costs of the Project, which are Project Costs within the definition thereof found in the Financing Agreement, the 2017 Atlantic Local Bond of the Borrower is hereby authorized to be issued in the principal amount not to exceed \$60,000,000. The 2017 Atlantic Local Bond shall be issuable as a single registered bond without coupons and shall be dated as of its date of issue. The 2017 Atlantic Local Bond shall be substantially in the form attached to this Resolution as Exhibit B, with such variations, omissions and insertions as may be necessary or appropriate to conform to the provisions of this Resolution. The 2017 Atlantic Local Bond shall be a Parity Obligation and shall be a VRA Subordinate Obligation, each as defined in the Trust Agreement, shall be secured on a parity with all other Parity Obligations of the Borrower under the Trust Agreement, and shall be senior to all Junior Obligations (as defined in the Trust Agreement), as set forth therein.

The 2017 Atlantic Local Bond shall be dated as of its date of issue and shall bear interest (or “Cost of Funds” as described in the 2017 Atlantic Financing Agreement Supplement) on the disbursed principal balance of the 2017 Atlantic Local Bond at a rate not to exceed 2.40% per annum. Such interest shall be payable as to interest only on September 1, 2019, 2020 and 2021, and commencing on the date set forth in a certificate of the General Manager delivered on the date of issue of the 2017 Atlantic Local Bond (the “General Manager’s Certificate”), such principal and interest shall be payable in essentially equal semi-annual installments (rounded to the nearest \$100), with the balance due on the date set forth in the General Manager’s Certificate, but not later than March 1, 2046.

Section 3. Redemption Provisions. The principal installments on the 2017 Atlantic Local Bond shall be subject to redemption prior to their respective maturities, at the option of the Borrower, from any money that may be made available for such purpose, either in whole or in

part on any date at the redemption price of par plus accrued interest on ten (10) days' written notice to the Authority and otherwise as provided in the Financing Agreement. Any such partial redemption shall not postpone the due date of any subsequent payment on the 2017 Atlantic Local Bond, or change the amount of such installment, unless the Borrower and the Authority agree otherwise in writing.

Section 4. Deposits to Local Bond Fund. The Borrower shall deposit money with or to the order of the Authority, as Administrator of the Fund, in amounts sufficient to pay in full, when due (whether by maturity, redemption, acceleration or otherwise), the 2017 Atlantic Local Bond issued under this Resolution, together with the interest thereon, all as set forth in the 2017 Atlantic Local Bond.

Section 5. Authority to Execute 2017 Atlantic Financing Agreement Supplement. The execution and delivery of the 2017 Atlantic Financing Agreement Supplement, substantially in the form presented at this meeting, relating to the loan from the Authority, as Administrator to the Fund, to the Borrower and the repayment of the loan by the Borrower in accordance with the 2017 Atlantic Local Bond, are hereby authorized, with such changes, insertions and omissions as may be approved by the Chairman or Vice Chairman of the Commission, the execution of the 2017 Atlantic Financing Agreement Supplement by the Chairman or the Vice Chairman to be conclusive evidence of his approval of any changes, insertions and omissions therein.

Section 6. Manner of Execution of 2017 Atlantic Local Bond. The 2017 Atlantic Local Bond shall be executed by the Chairman or Vice Chairman and the Secretary or an Assistant Secretary of the Commission, and the seal of the Commission shall be impressed on the 2017 Atlantic Local Bond. The 2017 Atlantic Local Bond shall be delivered to or for the

account of the Authority, as Administrator of the Fund, upon execution and delivery of the 2017 Atlantic Financing Agreement.

Section 7. Obligations of Borrower Unconditional. Subject to the terms of the Trust Agreement, nothing contained in this Resolution or the 2017 Atlantic Local Bond is intended to or shall impair, as between the Borrower, its creditors, and the holder of the 2017 Atlantic Local Bond, the obligation of the Borrower, which is absolute and unconditional, to pay to the holder of the 2017 Atlantic Local Bond the principal of, redemption premium, if any, and interest on the 2017 Atlantic Local Bond as and when the same shall become due and payable in accordance with its terms, or affect the relative rights of the holder of the 2017 Atlantic Local Bond and creditors of the Borrower, nor shall anything herein or therein prevent the holder of the 2017 Atlantic Local Bond from exercising all remedies otherwise permitted by applicable law and under the Trust Agreement upon default under the 2017 Atlantic Local Bond and the 2017 Atlantic Financing Agreement Supplement.

Section 8. Payments on 2017 Atlantic Local Bond Permitted. Nothing contained in this Resolution or the 2017 Atlantic Local Bond shall affect the obligation of the Borrower to make, or prevent the Borrower from making, payment of the principal of, redemption premium, if any, or interest on the 2017 Atlantic Local Bond in accordance with the provisions hereof, except as otherwise provided in this Resolution.

Section 9. Benefits of Resolution. Nothing in this Resolution or the 2017 Atlantic Local Bond, express or implied, shall give to any person, other than the holder of the 2017 Atlantic Local Bond, any benefit or any legal or equitable right, remedy or claim under this Resolution.

Section 10. Further Action. The Chairman, Vice Chairman, the Secretary and any

Assistant Secretary of the Commission and the General Manager, the Director of Engineering and the Director of Finance of the Borrower are authorized and directed (without limitation except as may be expressly set forth therein) to take such action and to execute and deliver any such documents, certificates, undertakings, agreements or other instruments as they, with the advice of counsel, may deem necessary or appropriate to effect the transactions contemplated by the 2017 Atlantic Financing Agreement Supplement.

Section 11. Effectiveness. This Resolution shall take effect immediately upon its adoption.

[END OF RESOLUTION]

Adopted by the Hampton Roads Sanitation District Commission on May 23, 2017.


Frederick N. Elofson, CPA, Chairman

EXHIBIT A

GLOSSARY OF DEFINED TERMS

“*2017 Atlantic Financing Agreement Supplement*” means the Supplement to Master Financing Agreement relating to the 2017 Atlantic Local Bond, between the Borrower and the Authority, as Administrator of the Fund, together with any amendments or supplements thereto.

“*2017 Atlantic Local Bond*” means the bond in substantially the form attached to this Resolution as Exhibit B, to be issued by the Borrower to the Authority, as Administrator of the Fund, pursuant to this Resolution and the 2017 Atlantic Financing Agreement Supplement.

“*2017 Atlantic Local Bond Proceeds*” means proceeds of the issuance and sale of the 2017 Atlantic Local Bond to the Authority, as Administrator of the Fund, pursuant to the 2017 Atlantic Financing Agreement Supplement.

“*Capital Improvement Program Costs*” means “Capital Improvement Program Costs” as defined in the Trust Agreement.

“*Financing Agreement*” means the Master Financing Agreement, dated as of February 1, 2016, between the Authority, as Administrator of the Fund, and the Borrower, as amended to the date hereof, and as supplemented by the 2017 Atlantic Financing Agreement Supplement.

“*General Manager’s Certificate*” means the certificate of the General Manager delivered on the date of issue of the 2017 Atlantic Local Bond.

“*Junior Indebtedness*” means “Junior Indebtedness,” as defined in the Trust Agreement.

“*Net Revenues*” means “Net Revenues” as defined in the Trust Agreement.

“*Parity Obligations*” means “Parity Obligations,” as defined in the Trust Agreement.

“*Project*” means the project described in Exhibit B to the 2017 Atlantic Financing Agreement Supplement, the costs of the acquisition, construction, improving or equipping of which are to be financed or refinanced in part with the 2017 Atlantic Local Bond Proceeds.

“Project Budget” means the budget for the financing or the refinancing of the Project, a copy of which is attached to the 2017 Atlantic Financing Agreement Supplement as Exhibit C, with such changes therein as may be approved in writing by the Authority.

“Senior Indebtedness” means “Senior Indebtedness,” as defined in the Trust Agreement.

“Trust Agreement” means the Trust Agreement, dated as of October 1, 2011, by and between the Borrower and the Trustee, as amended and restated as of March 1, 2016.

“Trustee” means The Bank of New York Mellon Trust Company, N.A., as trustee under the Trust Agreement, and any successor in trust thereto.

EXHIBIT B

FORM OF LOCAL BOND

United States of America
Commonwealth of Virginia

**HAMPTON ROADS SANITATION DISTRICT
Subordinate Wastewater Revenue Bond**

Hampton Roads Sanitation District (the “Borrower”), a political subdivision of the Commonwealth of Virginia, by Hampton Roads Sanitation District Commission (the “Commission”), the governing body of the Borrower, acknowledges itself indebted and, for value received, hereby promises to pay, solely from the revenues and other property hereinafter described and pledged to the payment of this Bond, to the order of the Virginia Resources Authority (the “Authority”), as Administrator of the Virginia Water Facilities Revolving Fund, Richmond, Virginia (the “Fund”), the principal amount equal to the sum of the principal disbursements made by the Authority, as Administrator of the Fund, to the Borrower (as shown in Schedule 1) pursuant to the Master Financing Agreement, dated as of March 1, 2016, between the Authority, as Administrator of the Fund, and the Borrower, as amended to the date hereof, and as supplemented by the Supplement to Master Financing Agreement, dated as of June 1, 2017 (as so amended and supplemented, the “Financing Agreement”) not to exceed _____ Dollars (\$ _____), together with interest (or “Cost of Funds” as described in the Financing Agreement) on the disbursed principal at the rate of 2.40% per annum, as follows:

Interest shall be payable on September 1, 2019, 2020, and 2021, and thereafter principal and interest due under this Bond shall be payable in essentially equal semi-annual installments (rounded to the nearest one hundred dollars (\$100)) on March 1 and September 1 of each year, commencing March 1, 2022 (as shown on Schedule 2), provided that if not sooner paid, all amounts under this Bond shall be due and payable in full on March 1, 2046.

In addition, if any installment of principal or interest is not received by the holder of this Bond within ten (10) days from its due date, the Borrower shall pay to the holder of this Bond, a late payment charge in an amount equal to five percent (5.00%) per annum on such overdue installment. Both principal and interest are payable in lawful money of the United States.

No notation is required to be made on this Bond of the payment of any principal or interest on normal installment payment dates. HENCE, THE FACE AMOUNT OF THIS BOND MAY EXCEED THE PRINCIPAL SUM REMAINING OUTSTANDING AND DUE HEREUNDER. This Bond and the premium, if any, and the interest thereon are limited obligations of the Borrower and (except to the extent payment with respect to the Bond shall be made from the proceeds from the sale of the Bond or the income, if any, derived from the investment thereof) are payable solely from Net Revenues Available for Debt Service (as defined in the below-mentioned Trust Agreement) from time to time deposited by the Borrower with or to the order of the Authority, as the Administrator of the Fund pursuant to the Resolution (the “Resolution”) adopted by the Commission on May 23, 2017, authorizing the issuance of this

Bond, which Net Revenues Available for Debt Service have been pledged pursuant to the Financing Agreement to secure payment hereof. Neither the Commonwealth of Virginia nor any political subdivision thereof, including the Borrower, shall be obligated to pay the principal of or premium, if any, or interest on this Bond or other costs incident thereto except from the revenues pledged therefor, and neither the faith and credit nor the taxing power of the Commonwealth of Virginia or any political subdivision thereof, including the Borrower, is pledged to the payment of the principal of or premium, if any, or interest on this Bond or other costs incident thereto.

This Bond shall be a Parity Obligation and a VRA Subordinate Obligation and secured on parity with all other all Parity Obligations and VRA Subordinate Obligations heretofore and hereafter issued and outstanding under the Trust Agreement, dated as of October 1, 2011, as amended and restated as of March 1, 2016 (the "Trust Agreement"), by and between the Borrower and the predecessor in trust to The Bank of New York Mellon Trust Company, N.A., as trustee (the "Trustee"), and shall be senior to all Junior Indebtedness (as defined in the Trust Agreement), to the extent and in the manner set forth therein.

This Bond is being issued pursuant to the terms of the Resolution and the Financing Agreement to evidence a loan from the Authority, as Administrator of the Fund, to the Borrower to finance Capital Improvement Program Costs (as defined in the Trust Agreement).

This Bond is subject to optional prepayment to the extent and on the terms set forth in the Resolution and the Financing Agreement.

If an Event of Default (as defined in the Financing Agreement) occurs, the principal of and accrued interest on this Bond may be declared immediately due and payable by the holder by written notice to the Borrower.

The obligations of the Borrower under this Bond shall terminate when all amounts due and to become due pursuant to this Bond have been paid in full.

All provisions of this Bond are subject to the terms of the Trust Agreement, and all capitalized terms used herein and not otherwise defined herein shall have the meanings assigned thereto by the Resolution and the Financing Agreement.

All acts, conditions and things required to happen, exist or be performed precedent to and in the issuance of this Bond have happened, exist and have been performed.

IN WITNESS WHEREOF, the Borrower has caused this Bond to be signed by the Chairman of its Commission and its seal to be impressed hereon and attested by the Secretary of its Commission all as of June __, 2017.

HAMPTON ROADS SANITATION DISTRICT

By: _____
Chairman of the Hampton Roads Sanitation
District Commission

(SEAL)
ATTEST:

Secretary of the Hampton Roads
Sanitation District Commission

SCHEDULE OF PRINCIPAL DISBURSEMENTS

The amount and date of disbursements of the principal of the Bond to which this Schedule is attached, not to exceed \$_____, shall be entered hereon by the authorized representative of Virginia Resources Authority when each such disbursement of principal is made to the Borrower.

<u>Date</u>	<u>Amount</u>	<u>Cumulative Amount</u>	<u>Authorized Signature</u>
_____	\$ _____	\$ _____	_____
_____	\$ _____	\$ _____	_____
_____	\$ _____	\$ _____	_____
_____	\$ _____	\$ _____	_____
_____	\$ _____	\$ _____	_____
_____	\$ _____	\$ _____	_____
_____	\$ _____	\$ _____	_____
_____	\$ _____	\$ _____	_____
_____	\$ _____	\$ _____	_____
_____	\$ _____	\$ _____	_____
_____	\$ _____	\$ _____	_____
_____	\$ _____	\$ _____	_____
_____	\$ _____	\$ _____	_____
_____	\$ _____	\$ _____	_____
_____	\$ _____	\$ _____	_____
_____	\$ _____	\$ _____	_____
_____	\$ _____	\$ _____	_____
_____	\$ _____	\$ _____	_____
_____	\$ _____	\$ _____	_____
_____	\$ _____	\$ _____	_____
_____	\$ _____	\$ _____	_____

AMORTIZATION SCHEDULE

**SUPPLEMENT TO
MASTER FINANCING AGREEMENT**

dated as of _____ 1, 2017

BETWEEN

VIRGINIA RESOURCES AUTHORITY,

**as Administrator of the
Virginia Water Facilities Revolving Fund**

AND

HAMPTON ROADS SANITATION DISTRICT

Virginia Resources Authority
Virginia Water Facilities Revolving Fund

**Atlantic Treatment Plant Project
Loan No. C-515613-0_**

SUPPLEMENT TO MASTER FINANCING AGREEMENT

THIS SUPPLEMENT TO MASTER FINANCING AGREEMENT (this “Supplement”) is made as of _____ 1, 2017, between the **VIRGINIA RESOURCES AUTHORITY**, a public body corporate and a political subdivision of the Commonwealth of Virginia (the “Authority”), as Administrator of the **VIRGINIA WATER FACILITIES REVOLVING FUND**, and the **HAMPTON ROADS SANITATION DISTRICT**, a political subdivision of the Commonwealth of Virginia (the “Borrower”), acting by and through the **HAMPTON ROADS SANITATION DISTRICT COMMISSION**, the governing body of the Borrower (the “Commission”).

A. The Authority and the Borrower previously entered into a Master Financing Agreement, dated as of February 1, 2016, as previously amended by a First Amendment to Master Financing Agreement, dated as of August 1, 2016 (together, the “Master Financing Agreement”), with respect to certain loans from the Fund evidenced by the Direct Local Bonds the Borrower issued and sold to the Authority, as Administrator of the Fund, and the Leveraged Local Bonds the Borrower issued and sold to (i) the Authority and assigned to the Trustee or (ii) the Trustee on behalf of the Authority, pursuant to the Authority’s Master Indenture.

B. The Borrower has requested an additional loan from the Fund and will evidence its obligation to repay such loan by the 2017 Atlantic Local Bond (as defined below) the Borrower will issue and sell to the Authority, as Administrator of the Fund.

C. The Borrower will use the proceeds of the sale of the 2017 Atlantic Local Bond to the Authority to finance that portion of the 2017 Atlantic Project Costs (as defined below) not being paid from other sources, all as further set forth in the 2017 Atlantic Project Budget (as defined below).

D. The Authority and the Borrower desire to supplement the Master Financing Agreement with respect to the 2017 Atlantic Local Bond, as set forth herein.

E. The Authority and the Borrower hereby set forth certain supplements to the Master Financing Agreement.

NOW, THEREFORE, in consideration of the premises and the mutual covenants and agreements hereinafter contained, the Authority and the Borrower covenant and agree as follows:

ARTICLE I

DEFINITIONS

Section 1.1 Definitions. The capitalized terms contained in this Supplement and not defined above shall have the meanings set forth below unless the context requires otherwise and any capitalized terms not otherwise defined herein shall have the meaning assigned to such terms in the Master Financing Agreement:

“Agreement” means the Master Financing Agreement between the Authority and the Borrower, as supplemented, amended or modified by one or more Supplemental Financing Agreements.

“Annual Administrative Fee” means the portion of the Cost of Funds, if any, specified in Section 5.1 and Exhibit G payable as an annual fee for administrative and management services attributable to the 2017 Atlantic Local Bond.

“2017 Atlantic Closing Date” means the date of delivery of the 2017 Atlantic Local Bond to the Authority.

“2017 Atlantic Commitment Letter” shall mean the commitment letter from the Authority to the Borrower with respect to the 2017 Atlantic Local Bond, and all extensions, modifications and amendments thereto.

“2017 Atlantic Local Bond” means the Direct Local Bond in substantially the form attached to this Financing Agreement as Exhibit A issued by the Borrower to the Authority, as Administrator of the Fund, pursuant to the Agreement.

“2017 Atlantic Local Bond Proceeds” means the aggregate proceeds from the sale of the 2017 Atlantic Local Bond pursuant to this Supplement.

“2017 Atlantic Local Bond Resolution” means all resolutions adopted by the Commission approving the transactions contemplated by and authorizing the execution and delivery of this Supplement and the execution, issuance, and delivery of the 2017 Atlantic Local Bond.

“2017 Atlantic Project” means the particular project described in Exhibit B, the costs of the acquisition, construction, improving or equipping of which are to be financed in whole or in part with the 2017 Atlantic Local Bond Proceeds.

“2017 Atlantic Project Budget” means the budget for the financing of the 2017 Atlantic Project, a copy of which is attached as Exhibit C, with such changes therein as may be approved in writing by the Authority.

“2017 Atlantic Project Costs” means the costs of the acquisition, construction, improving or equipping of the 2017 Atlantic Project, as further described in the 2017 Atlantic Project Budget, and such other costs as may be approved in writing by the Authority, provided such costs are permitted by the VWFRF Act.

“Authorized Representative” means any member, official or employee of the Borrower authorized by resolution, ordinance or other official act of the Commission to perform the act or sign the document in question.

“Borrower” means the Hampton Roads Sanitation District, a political subdivision of the Commonwealth of Virginia, created by and acting under Chapter 66 of the Acts of Assembly of

Virginia of 1960, as amended by Chapter 584 of the Acts of Assembly of Virginia of 1962, Chapter 520 of the Acts of Assembly of Virginia of 1964, Chapter 112 of the Acts of Assembly of Virginia of 1974, Chapter 637 of the Acts of Assembly of Virginia of 1976, Chapter 271 of the Acts of Assembly of Virginia of 1977, Chapter 30 of the Acts of Assembly of Virginia of 1987, Chapter 350 of the Acts of Assembly of Virginia of 1989, Chapter 153 of the Acts of Assembly of Virginia of 1990, Chapter 210 of the Acts of Assembly of Virginia of 1998, Chapter 120 of the Acts of Assembly of Virginia of 2004, Chapter 574 of the Acts of Assembly of Virginia of 2008, Chapter 724 of the Acts of Assembly of Virginia of 2012, as such acts may be further amended from time to time.

“Cost of Funds” means interest, including the part thereof allocable to the Annual Administrative Fee, if any, payable as set forth in Section 5.1 and Exhibit G with respect to the 2017 Atlantic Local Bond.

“Direct Local Bonds” means, collectively, the bonds and any allonges thereto described in Exhibit F-1 issued by the Borrower to the Authority, including the 2017 Atlantic Local Bond.

“Local Bonds” means, collectively, the Direct Local Bonds and the Leveraged Local Bonds.

“Parity Bonds” means any of the Borrower’s bonds, notes or other evidences of indebtedness, as further described on Exhibit F-3 or issued under or secured by the Parity Trust Agreement after the date hereof, that are secured on parity by a pledge of Net Revenues Available for Debt Service, including the 2017 Atlantic Local Bond.

“Senior Bonds” means any of the Borrower’s bonds, notes or other evidences of indebtedness; as further described on Exhibit F-3 or issued under or secured by the Senior Trust Agreement after the date hereof; that are secured by or payable from a pledge of Net Revenues all or any portion of which is senior to the pledge of Net Revenues Available for Debt Service securing the Parity Bonds.

“Supplement” means this Supplement to Master Financing Agreement, dated as of _____ 1, 2017, supplementing, amending or modifying the provisions of the Agreement entered into by the Authority and the Borrower.

“Taxable Leveraged Local Bonds” means, collectively, the bonds and any allonges thereto described in Exhibit F-2 as the Taxable Leveraged Local Bonds, issued by the Borrower to (i) the Authority and assigned to the Trustee or (ii) the Trustee on behalf of the Authority.

“Tax-Exempt Leveraged Local Bonds” means, collectively, the bonds and any allonges thereto described in Exhibit F-2 as the Tax-Exempt Leveraged Local Bonds, issued by the Borrower to (i) the Authority and assigned to the Trustee or (ii) the Trustee on behalf of the Authority.

ARTICLE II

REPRESENTATIONS

Section 2.1. Representations by Borrower. The Borrower makes the following representations as the basis for its undertakings under this Supplement:

(a) The Borrower is a duly created and validly existing “local government” (as defined in Section 62.1-224 of the VWFRF Act) of the Commonwealth of Virginia and is vested with the rights and powers conferred upon it by Virginia law.

(b) The Borrower has full right, power and authority to (i) adopt the 2017 Atlantic Local Bond Resolution and execute and deliver this Supplement and the other documents related thereto, (ii) issue, sell and deliver the 2017 Atlantic Local Bond to the Authority, as Administrator of the Fund, (iii) own and operate the System, (iv) construct, acquire or equip the 2017 Atlantic Project and finance or refinance the 2017 Atlantic Project Costs by borrowing money for such purpose pursuant to this Supplement and the issuance of the 2017 Atlantic Local Bond, and (v) carry out and consummate all of the transactions contemplated by the 2017 Atlantic Local Bond Resolution, this Supplement and the 2017 Atlantic Local Bond.

(c) This Supplement and the 2017 Atlantic Local Bond were duly authorized by the 2017 Atlantic Local Bond Resolution and this Supplement and the 2017 Atlantic Local Bond are in substantially the same form as presented to the governing body of the Borrower at its meeting at which the 2017 Atlantic Local Bond Resolution was adopted.

(d) All governmental permits, licenses, registrations, certificates, authorizations and approvals required to have been obtained as of the date of the delivery of this Supplement have been obtained for (i) the Borrower’s adoption of the 2017 Atlantic Local Bond Resolution, (ii) the execution and delivery by the Borrower of this Supplement and the 2017 Atlantic Local Bond, (iii) the performance and enforcement of the obligations of the Borrower thereunder, (iv) the acquisition, construction, improving, equipping, occupation, operation and use of the 2017 Atlantic Project, and (v) the operation and use of the System and the performance by the Borrower of its obligations under the Senior Trust Agreement and the Parity Trust Agreement. The Borrower knows of no reason why any such required governmental permits, licenses, registrations, certificates, authorizations and approvals not obtained as of the date hereof cannot be obtained as needed.

(e) The Agreement, the Senior Trust Agreement, the Parity Trust Agreement and the 2017 Atlantic Local Bond have been executed and delivered by duly authorized officials of the Borrower and constitute the legal, valid and binding obligations of the Borrower enforceable against the Borrower in accordance with their terms.

(f) The 2017 Atlantic Local Bond has been executed and delivered by duly authorized officials of the Borrower and constitutes a legal, valid and binding limited obligation of the Borrower enforceable against the Borrower in accordance with its terms.

(g) The issuance of the 2017 Atlantic Local Bond and the execution and delivery of this Supplement and the performance by the Borrower of its obligations thereunder

are within the powers of the Borrower and do not conflict with, or constitute a breach or result in a violation of, (i) to the best of the Borrower's knowledge, any Federal or Virginia constitutional or statutory provision, including the Borrower's charter or articles of incorporation, if any, (ii) any agreement or other instrument to which the Borrower is a party or by which it is bound or (iii) any order, rule, regulation, decree or ordinance of any court, government or governmental authority having jurisdiction over the Borrower or its property.

(h) The Borrower is not in default in the payment of the principal of or interest on any of its indebtedness for borrowed money and is not in default under any instrument under and subject to which any indebtedness for borrowed money has been incurred. No event or condition has happened or existed, or is happening or existing, under the provisions of any such instrument, including but not limited to the Agreement, the Senior Trust Agreement and the Parity Trust Agreement, which constitutes, or which, with notice or lapse of time, or both, would constitute an event of default thereunder.

(i) The Borrower (i) to the best of the Borrower's knowledge, is not in violation of any existing law, rule or regulation applicable to it in any way which would have a material adverse effect on its financial condition or its ability to perform its obligations under the Agreement, the Senior Trust Agreement, the Parity Trust Agreement or the 2017 Atlantic Local Bond and (ii) is not in default under any indenture, mortgage, deed of trust, lien, lease, contract, note, order, judgment, decree or other agreement, instrument or restriction of any kind to which the Borrower is a party or by which it is bound or to which any of its assets is subject, which would have a material adverse effect on its financial condition or its ability to perform its obligations under the Agreement, the Senior Trust Agreement, the Parity Trust Agreement or the 2017 Atlantic Local Bond. The execution and delivery by the Borrower of this Supplement or the 2017 Atlantic Local Bond and the compliance with the terms and conditions thereof does not conflict with or result in a breach of or constitute a default under any of the foregoing.

(j) There are not pending or, to the best of the Borrower's knowledge, threatened against the Borrower, any actions, suits, proceedings or investigations of a legal, equitable, regulatory, administrative or legislative nature, (i) affecting the creation, organization or existence of the Borrower or the title of its officers to their respective offices, (ii) seeking to prohibit, restrain or enjoin the approval, execution, delivery or performance of the 2017 Atlantic Local Bond Resolution, the Agreement, the Senior Trust Agreement, the Parity Trust Agreement or the 2017 Atlantic Local Bond or the issuance or delivery of the 2017 Atlantic Local Bond, (iii) in any way contesting or affecting the validity or enforceability of the 2017 Atlantic Local Bond Resolution, the Agreement, the Senior Trust Agreement, the Parity Trust Agreement, the 2017 Atlantic Local Bond or any agreement or instrument relating to any of the foregoing, (iv) in which a judgment, order or resolution may have a material adverse effect on the Borrower or its business, assets, condition (financial or otherwise), operations or prospects or on its ability to perform its obligations under the 2017 Atlantic Local Bond Resolution, the Agreement, the Senior Trust Agreement, the Parity Trust Agreement or the 2017 Atlantic Local Bond, or (v) the undertaking of the 2017 Atlantic Project. Notwithstanding the preceding sentence, the Borrower references the ongoing matter described in Exhibit H. The status of the matter is essentially the same as described herein.

(k) There has been no change in the Borrower's AA ratings by S&P Global Ratings and Fitch Ratings, respectively, on its debt outstanding under the Parity Trust Agreement;

(l) To the best of the Borrower's knowledge, the Borrower is in material compliance with its financial policies in effect as of June 30, 2016.

(m) No material adverse change has occurred in the financial condition of the Borrower as indicated in the financial statements, applications and other information furnished to the Authority.

(n) There have been no defaults by any contractor or subcontractor under any contract made by the Borrower in connection with the construction, improving or equipping of the 2017 Atlantic Project.

(o) Except as may otherwise be approved by the Authority or permitted by the terms of the Senior Trust Agreement or the Parity Trust Agreement or the terms hereof, the 2017 Atlantic Project and the System at all times will be owned by the Borrower and will not be operated or controlled by any other entity or person.

(p) There is no indebtedness of the Borrower secured by or payable from a pledge of Net Revenues with respect to the Senior Bonds or Net Revenues Available for Debt Service with respect to the Parity Bonds on a parity with or prior to the lien of the pledge of Revenues securing the 2017 Atlantic Local Bond except any Parity Bonds or Senior Bonds set forth on Exhibit F-3.

(q) No Event of Default or Default has occurred and is continuing.

ARTICLE III

ISSUANCE AND DELIVERY OF THE 2017 ATLANTIC LOCAL BOND

Section 3.1. Loan to Borrower and Purchase of the 2017 Atlantic Local Bond. The Borrower agrees to borrow from the Authority and the Authority agrees to lend to the Borrower, from the Fund, the principal amount equal to the sum of the principal disbursements made pursuant to Section 4.1, but not to exceed \$____, for the purposes herein set forth. The Borrower's obligation shall be evidenced by the 2017 Atlantic Local Bond, which shall be in substantially the form of Exhibit A attached hereto and made a part hereof and delivered to the Authority on the 2017 Atlantic Closing Date. The 2017 Atlantic Local Bond shall bear a Cost of Funds, mature and be payable as hereinafter provided.

Section 3.2. Conditions Precedent to Purchase of the 2017 Atlantic Local Bond. The Authority shall not be required to make the loan to the Borrower and purchase the 2017 Atlantic Local Bond unless the Authority shall have received the following, all in form and substance satisfactory to the Authority:

(a) The 2017 Atlantic Local Bond.

- (b) A certified copy of the 2017 Atlantic Local Bond Resolution.
- (c) A certificate of appropriate officials of the Borrower as to the matters set forth in Section 2.1 and such other matters as the Authority may reasonably require.
- (d) A closing certificate from the Department certifying that the 2017 Atlantic Project is in compliance with all federal and state laws and project requirements applicable to the Fund and evidencing the Board's concurrence in the closing of the loan with the Borrower.
- (e) A certificate of the Consulting Engineer estimating the total 2017 Atlantic Project Costs to be financed with the 2017 Atlantic Local Bond Proceeds, which estimate is in an amount and otherwise compatible with the financing plan described in the 2017 Atlantic Project Budget.
- (f) A certificate, including supporting documentation, of the District Engineer or the General Manager to the effect that in the opinion of the District Engineer or the General Manager (i) the 2017 Atlantic Project will be a part of the System, (ii) the 2017 Atlantic Local Bond Proceeds and funds available from the other sources specified in the 2017 Atlantic Project Budget will be sufficient to pay the estimated 2017 Atlantic Project Costs, and (iii) during the first two complete Fiscal Years of the Borrower following completion of the 2017 Atlantic Project, the projected Net Revenues Available for Debt Service will satisfy the Rate Covenant set forth in Section 705 of the Parity Trust Agreement with respect to the Parity Bonds. In providing this certificate, the District Engineer or the General Manager may take into consideration future System rate increases, provided that such rate increases have been duly approved by the governing body of the Borrower and any other person or entity required to give approval for the rate increase to become effective. In addition, the District Engineer or the General Manager may take into consideration additional future revenues to be derived under existing contractual arrangements entered into by the Borrower and from reasonable estimates of growth in the consumer base of the Borrower.
- (g) A certificate of the District Engineer as to the date the Borrower is expected to complete the acquisition, construction, improving and equipping of the 2017 Atlantic Project.
- (h) Evidence satisfactory to the Authority that all governmental permits, licenses, registrations, certificates, authorizations and approvals for the 2017 Atlantic Project required to have been obtained as of the date of the delivery of this Supplement have been obtained and a statement of the District Engineer that he knows of no reason why any future required governmental permits, licenses, registrations, certificates, authorizations and approvals cannot be obtained as needed.
- (i) Evidence satisfactory to the Authority that the Borrower has obtained or has made arrangements satisfactory to the Authority to obtain any funds or other financing required to provide funds in excess of the 2017 Atlantic Local Bond Proceeds for the 2017 Atlantic Project as contemplated in the 2017 Atlantic Project Budget.

(j) Evidence satisfactory to the Authority that the Borrower has performed and satisfied all of the terms and conditions contained in this Supplement to be performed and satisfied by it as of such date.

(k) An Opinion of Bond Counsel, substantially in the form of Exhibit D, addressed to the Fund and the Authority.

(l) An opinion of counsel to the Borrower in form and substance reasonably satisfactory to the Authority.

(m) Evidence satisfactory to the Authority that the Borrower has complied with the insurance provisions set forth in the Agreement.

(n) Copies of any and all documents, certificates or instruments required to be delivered to the Local Trustee pursuant to Section 704 of the Parity Trust Agreement as a condition precedent to the issuance of the 2017 Atlantic Local Bond, and such other evidence satisfactory to the Authority that the 2017 Atlantic Local Bond will be issued as VRA Subordinate Obligations under and as defined in the Parity Trust Agreement on a parity with the Parity Bonds.

(o) Such other documentation, certificates and opinions as the Authority, the Board or the Department may reasonably require.

ARTICLE IV

USE OF LOCAL BOND PROCEEDS AND CONSTRUCTION OF 2017 ATLANTIC PROJECT

Section 4.1. Application of Proceeds.

(a) The Borrower agrees to apply the 2017 Atlantic Local Bond Proceeds solely and exclusively to the payment, or to the reimbursement of the Borrower for the payment, of 2017 Atlantic Project Costs and further agrees to exhibit to the Department or the Authority receipts, vouchers, statements, bills of sale or other evidence of the actual payment of such 2017 Atlantic Project Costs. The Authority shall disburse money from the Fund to or for the account of the Borrower not more frequently than once each calendar month (unless otherwise agreed by the Authority and the Borrower) upon receipt by the Authority (with a copy to be furnished to the Department) of the following:

(1) A requisition (upon which the Authority, the Board and the Department shall be entitled to rely) signed by an Authorized Representative and containing all information called for by, and otherwise being in the form of, Exhibit E to this Supplement;

(2) If any requisition includes an item for payment for labor or to contractors, builders or materialmen,

(i) a certificate, signed by the District Engineer, stating that such work was actually performed or such materials, supplies or equipment were

actually furnished or installed in or about the construction of the 2017 Atlantic Project; and

(ii) a certificate, signed by an Authorized Representative, stating either that such materials, supplies or equipment are not subject to any lien or security interest or that such lien or security interest will be released or discharged upon payment of the requisition.

Upon receipt of each such requisition and accompanying certificate or certificates and approval thereof by the Department, the Authority shall disburse 2017 Atlantic Local Bond Proceeds hereunder to or for the account of the Borrower in accordance with such requisition in an amount and to the extent approved by the Department and shall note the date and amount of each such disbursement on a schedule of principal disbursements to be included on the 2017 Atlantic Local Bond. The Authority shall have no obligation to disburse any such 2017 Atlantic Local Bond Proceeds if the Borrower is in default hereunder nor shall the Department have any obligation to approve any requisition if the Borrower is not in compliance with the terms of the Agreement.

(b) Upon receipt of each such requisition and accompanying certificate or certificates and approval thereof by the Department, the Authority shall disburse 2017 Atlantic Local Bond Proceeds hereunder to or for the account of the Borrower in accordance with such requisition in an amount and to the extent approved by the Department and shall note the date and amount of each such disbursement on a schedule of principal disbursements to be included on the 2017 Atlantic Local Bond. The Authority shall have no obligation to arrange for the disbursement of any such 2017 Atlantic Local Bond Proceeds if the Borrower is in default hereunder nor shall the Department have any obligation to approve any requisition if the Borrower is not in compliance with the terms of the Agreement.

(c) The Borrower shall comply with all applicable laws of the Commonwealth of Virginia, including but not limited to, the Virginia Public Procurement Act, as amended, regarding the awarding and performance of public construction contracts. Except as may otherwise be approved by the Department, disbursements shall be held at ninety-five percent (95%) of the maximum authorized amount of the 2017 Atlantic Local Bond to ensure satisfactory completion of the 2017 Atlantic Project. Upon receipt from the Borrower of the certificate specified in Section 4.2 and a final requisition detailing all retainages to which the Borrower is then entitled, the Authority, to the extent approved by the Department and subject to the provisions of this Section and Section 4.2, will arrange for the disbursement of Local Bond Proceeds to or for the account of the Borrower to the extent of such approval.

The Authority shall have no obligation to disburse Local Bond Proceeds in excess of the amount necessary to pay for approved Project Costs. If principal disbursements up to the maximum authorized amount of the 2017 Atlantic Local Bond are not made, installments due on the 2017 Atlantic Local Bond shall be reduced in accordance with Section 5.1.

Section 4.2. Agreement to Accomplish Project. The Borrower agrees to cause the 2017 Atlantic Project to be acquired, constructed, expanded, renovated or equipped as described in Exhibit B and in accordance with the 2017 Atlantic Project Budget and the plans,

specifications and designs accepted by the District Engineer and approved by the Department. The Borrower shall use its best efforts to complete the 2017 Atlantic Project by the date set forth in the certificate provided to the Authority pursuant to Section 3.2(f). All plans, specifications and designs shall be approved by all applicable regulatory agencies. The Borrower agrees to maintain complete and accurate books and records of the 2017 Atlantic Project Costs and permit the Authority and the Department through their duly authorized representatives to inspect such books and records at any reasonable time in accordance with Section 8.4 of the Master Financing Agreement. The Borrower and the Authority, with the consent of the Department, may amend the description of the 2017 Atlantic Project set forth in Exhibit B.

When the 2017 Atlantic Project has been completed, the Borrower shall promptly deliver to the Authority and the Department a certificate signed by an Authorized Representative of the Borrower and by the District Engineer stating (i) that the 2017 Atlantic Project has been completed substantially in accordance with this Section, the plans and specifications as amended from time to time, as approved by the Department, and in substantial compliance with all material applicable laws, ordinances, rules and regulations, (ii) the date of such completion, (iii) that all certificates of occupancy or other material permits necessary for the 2017 Atlantic Project's use, occupancy and operation have been issued or obtained, and (iv) the amount, if any, to be reserved for payment of 2017 Atlantic Project Costs.

Section 4.3. Permits. The Borrower, at its sole cost and expense, shall comply with, and shall obtain all permits, consents and approvals required by local, state or federal laws, ordinances, rules, regulations or requirements in connection with the acquisition, construction, improving, equipping, occupation, operation or use of the 2017 Atlantic Project. The Borrower shall, upon request, promptly furnish to the Authority and the Department copies of all such permits, consents and approvals. The Borrower shall also comply with all lawful program or procedural guidelines or requirements duly promulgated and amended from time to time by the Department in connection with the acquisition, construction, improving, equipping, occupation, operation or use of projects financed under the Act, including, but not limited to, those pertaining to the adoption of any requisite sewer use ordinance. The Borrower shall also comply in all respects with all applicable federal, state and local laws, regulations and other requirements relating to or arising out of or in connection with the 2017 Atlantic Project and the funding thereof from the Fund. Where noncompliance with such requirements is determined by the Authority or the Board, the issue shall be referred to the proper governmental authority or agency for consultation or enforcement action.

Section 4.4. Construction Contractors. Each construction contractor employed in the accomplishment of the 2017 Atlantic Project shall be required in the construction contract to furnish a performance bond and a payment bond each in an amount equal to one hundred percent (100%) of the particular contract price. Such bonds shall list the Borrower, the Fund, the Authority, the Department and the Board as beneficiaries. Each contractor shall be required to maintain during the construction period covered by the particular construction contract builder's risk insurance, workers' compensation insurance, public liability insurance, property damage insurance and vehicle liability insurance in amounts and on terms satisfactory to the District Engineer. Upon request of the Authority, the Department or the Board, the Borrower shall cause each contractor to furnish evidence of such bonds and insurance to the Authority, the Board or the Department.

Section 4.5. Engineering Services. The Borrower shall designate a District Engineer to provide engineering services covering the operation of the System and the supervision and inspection of the construction of the 2017 Atlantic Project. The District Engineer shall certify to the Authority and the Department as to the various stages of the completion of the 2017 Atlantic Project as disbursements of Local Bond Proceeds are requested and shall upon completion of the 2017 Atlantic Project provide to the Fund, the Authority and the Department the certificates required by Sections 4.1 and 4.2.

Section 4.6. Borrower Required to Complete Project. If the 2017 Atlantic Local Bond Proceeds, together with amounts made available to the Borrower pursuant to the Funding Agreement, are not sufficient to pay in full the cost of the 2017 Atlantic Project, the Borrower will complete the 2017 Atlantic Project at its own expense and shall not be entitled to any reimbursement therefor from the Fund, the Authority or the Department or any abatement, diminution or postponement of the Borrower's payments under the 2017 Atlantic Local Bond or the Agreement.

Section 4.7. Davis-Bacon Act. The Borrower agrees to comply with the Davis-Bacon Act and related acts, as amended, with respect to the 2017 Atlantic Project and require that all laborers and mechanics employed by contractors and subcontractors for the 2017 Atlantic Project shall be paid wages at rates not less than those prevailing on projects of a similar character, as determined by the United States Secretary of Labor in accordance with Section 513 of the Federal Water Pollution Control Act, as amended.

Section 4.8. American Iron and Steel. The Borrower agrees to comply with Section 608 of the Federal Water Pollution Control Act and related acts, as amended, with respect to the 2017 Atlantic Project and require that all iron and steel products used for the 2017 Atlantic Project are to be produced in the United States as required under such act. The term "iron and steel products" is defined to mean the following products made primarily of iron or steel: lined or unlined pipes and fittings, manhole covers and other municipal castings, hydrants, tanks, flanges, pipe clamps and restraints, valves, structural steel, reinforced precast concrete and construction materials.

Section 4.9. Fiscal Sustainability Plan. The Borrower agrees to develop and implement a fiscal sustainability plan ("FSP") to the reasonable satisfaction of the Department that includes but is not limited to: (1) an inventory of critical assets that are part of the treatment works, (2) evaluation of the condition and performance of inventoried assets or asset groupings, (3) certification that the recipient has evaluated and will be implementing water and energy conservation efforts as part of the plan, and (4) a plan for maintaining, repairing, funding, and as necessary, replacing the treatment works. Except as may otherwise be approved by the Department, disbursements shall be held at eighty percent (80%) of the maximum authorized amount of the 2017 Atlantic Local Bond until a draft FSP is submitted to the Department and at ninety-five percent (95%) of the maximum authorized amount of the 2017 Atlantic Local Bond until a final FSP is submitted and approved by the Department.

ARTICLE V

PAYMENTS

Section 5.1. Payment of 2017 Atlantic Local Bond. The 2017 Atlantic Local Bond shall be dated the 2017 Atlantic Closing Date. The Cost of Funds of the 2017 Atlantic Local Bond shall be computed on the disbursed principal balance thereof from the date of each disbursement at the rate set forth on Exhibit G with respect to the 2017 Atlantic Local Bond. Principal and the Cost of Funds due under the 2017 Atlantic Local Bond shall be payable in equal installments as set forth on Exhibit G with respect to the 2017 Atlantic Local Bond. All amounts due under the Agreement and the 2017 Atlantic Local Bond shall be due and payable in full with the final installment of principal and Cost of Funds due as set forth on Exhibit G with respect to the 2017 Atlantic Local Bond. Each installment shall be applied first to payment of the Cost of Funds accrued and unpaid to the payment date and then to principal. If principal disbursements up to the maximum authorized amount of the 2017 Atlantic Local Bond are not made, the principal amount due on the 2017 Atlantic Local Bond shall not include such undisbursed amount. However, unless the Borrower and the Authority agree otherwise in writing, until all amounts due hereunder and under the 2017 Atlantic Local Bond shall have been paid in full, less than full disbursement of the maximum authorized amount of the 2017 Atlantic Local Bond shall not postpone the due date of any semi-annual installment due on the 2017 Atlantic Local Bond, or change the amount of such installment unless the principal amount due under the 2017 Atlantic Local Bond is less than the amount of such installment. If any installment of principal or the Cost of Funds on the 2017 Atlantic Local Bond is not paid within ten (10) days after its due date, the Borrower agrees to pay the Authority a late payment charge in an amount equal to five percent (5.0%) of the overdue installment on the 2017 Atlantic Local Bond.

ARTICLE VI

PREPAYMENTS

Section 6.1. Prepayment of 2017 Atlantic Local Bond. Upon completion of the 2017 Atlantic Project and after giving at least ten (10) days' written notice to the Authority, the Borrower may prepay the 2017 Atlantic Local Bond at any time, in whole or in part and without penalty. Such written notice shall specify the date on which the Borrower will make such prepayment and whether the 2017 Atlantic Local Bond will be prepaid in full or in part, and if in part, the principal amount to be prepaid. Any such partial prepayment shall be applied against the principal amount outstanding under the 2017 Atlantic Local Bond but shall not postpone the due date of any subsequent payment on the 2017 Atlantic Local Bond, or change the amount of such installment, unless the Authority and the Borrower agree otherwise in writing.

ARTICLE VII

MISCELLANEOUS

Section 7.1. Successors and Assigns. This Supplement shall be binding upon, inure to the benefit of and be enforceable by the parties and their respective successors and assigns.

Section 7.2. Applicable Law. This Supplement shall be governed by the laws of the Commonwealth of Virginia.

Section 7.3. Authorization of Supplement. All terms, covenants, conditions and agreements of the Master Financing Agreement shall apply with full force and effect to the 2017 Atlantic Local Bond, except as otherwise provided herein.

Section 7.4. Ratification of Master Financing Agreement. All of the representations and warranties of the Borrower contained in Article II of the Master Financing Agreement are true and correct as of the date hereof. All terms of the Master Financing Agreement except as amended or modified by the terms of this Supplement are hereby reaffirmed, ratified and confirmed.

Section 7.5. Severability. If any clause, provision or section of this Supplement shall be held illegal or invalid by any court, the illegality or invalidity of such clause, provision or section shall not affect the remainder of this Supplement which shall be construed and enforced as if such illegal or invalid clause, provision or section had not been contained in this Supplement. If any agreement or obligation contained in this Supplement is held to be in violation of law, then such agreement or obligation shall be deemed to be the agreement or obligation of the Authority and the Borrower, as the case may be, only to the extent permitted by law.

Section 7.6. Headings. The headings of the several articles and sections of this Supplement are inserted for convenience only and do not comprise a part of this Supplement.

Section 7.7. Term of Supplement. This Supplement shall be effective upon its execution and delivery, provided that the 2017 Atlantic Local Bond previously or simultaneously has been executed and delivered. Except as otherwise specified, the Borrower's obligations under the 2017 Atlantic Local Bond and this Supplement shall expire upon payment in full of the 2017 Atlantic Local Bond and all other amounts payable by the Borrower under the Agreement.

Section 7.8. 2017 Atlantic Commitment Letter. The 2017 Atlantic Commitment Letter is an integral part of this Supplement and shall survive closing hereunder.

Section 7.9 Counterparts. This Supplement may be executed in any number of counterparts, each of which shall be an original and all of which together shall constitute but one and the same instrument.

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

WITNESS the following signatures, all duly authorized.

**VIRGINIA RESOURCES AUTHORITY, as
Administrator of the Virginia Water Facilities
Revolving Fund**

By: _____
Stephanie L. Hamlett, Executive Director

HAMPTON ROADS SANITATION DISTRICT

By: _____

Title: _____

EXHIBIT A
Form of Local Bond
Hampton Roads Sanitation District
Atlantic Treatment Plant Project
Loan No. C-515613-0_

[To Come from Borrower's Bond Counsel]

EXHIBIT B
2017 Atlantic Project Description
Hampton Roads Sanitation District
Atlantic Treatment Plant Project
Loan No. C-515613-0_

The 2017 Atlantic Project includes financing a thermal hydrolysis process and a fats, oils and grease receiving station at the Atlantic Treatment Plant, along with related expenses.

EXHIBIT C
2017 Atlantic Project Budget
Hampton Roads Sanitation District
Atlantic Treatment Plant Project
Loan No. C-515613-0_

[To Come]

EXHIBIT D
Opinion of Bond Counsel
Hampton Roads Sanitation District
Atlantic Treatment Plant Project
Loan No. C-515613-0_

[To Come from Borrower's Bond Counsel]

EXHIBIT E
Form of Requisition
Hampton Roads Sanitation District
Atlantic Treatment Plant Project
Loan No. C-515613-0_

(To Be on Borrower's Letterhead)

[Date]

Walter A. Gills, Program Manager
Construction Assistance Program
Department of Environmental Quality
P. O. Box 1105
Richmond, Virginia 23218

Re: Hampton Roads Sanitation District
Loan No. C-515613-0_

Dear Mr. Gills:

This requisition, Number _____, is submitted in connection with the Master Financing Agreement, dated as of March 1, 2016, between the Authority, as Administrator of the Fund, and the Borrower, as amended to the date hereof, and as supplemented by the Supplement to Master Financing Agreement, dated as of ____ 1, 2017 (as so amended and supplemented, the "Agreement"), between the Virginia Resources Authority, as Administrator of the Virginia Water Facilities Revolving Fund, and the Hampton Roads Sanitation District (the "Borrower"). Unless otherwise defined in this requisition, all capitalized terms used herein shall have the meaning set forth in the Agreement. The undersigned Authorized Representative of the Borrower hereby requests disbursement of loan proceeds under the Agreement in the amount of \$_____, for the purposes of payment of the 2017 Atlantic Project Costs as set forth in Schedule 1 attached hereto.

Attached hereto are invoices relating to the items for which payment is requested.

The undersigned certifies that (a) the amounts requested by the requisition will be applied solely and exclusively to the payment, or to the reimbursement of the Borrower for the payment, of the 2017 Atlantic Project Costs, and (b) any materials, supplies or equipment covered by this requisition are not subject to any lien or security interest or such lien or security interest will be released upon payment of the requisition. In addition, to the extent applicable, the undersigned certifies that the Borrower has conducted adequate oversight for compliance with the Davis-Bacon Act and related acts through (a) the review of payrolls and associated certifications, (b) the conducting of employee interviews, and (c) the posting of all wage determinations and additional classifications (as appropriate) on the work site, and through this oversight, the Borrower has determined to the best of its ability that the 2017 Atlantic Project complies with the requirements of the Davis-Bacon Act and related acts. The Borrower further certifies that all products included in

this request satisfy the appropriate provisions of the American Iron and Steel requirements included in the Agreement.

The undersigned further certifies that (a) no Event of Default or Default has occurred and is continuing, and no condition exists which, with the passing of time or with the giving of notice or both, would constitute an Event of Default hereunder, and (b) the representations and warranties of the Borrower contained in the Agreement are true, correct and complete and the Borrower has performed all of its obligations thereunder required to be performed as of the date hereof.

This requisition includes an accompanying Certificate of the Consulting Engineer as to the performance of the work.

Very truly yours,

By: _____

Its: _____

Attachments

cc: DEQ Regional Engineer (with all attachments)

CERTIFICATE OF THE CONSULTING ENGINEER
FORM TO ACCOMPANY REQUEST FOR DISBURSEMENT

This Certificate is being executed and delivered in connection with Requisition Number ____, dated _____, 20__, submitted by the Hampton Roads Sanitation District (the “Borrower”), pursuant to the Master Financing Agreement, dated as of March 1, 2016, between the Authority, as Administrator of the Fund, and the Borrower, as amended to the date hereof, and as supplemented by the Supplement to Master Financing Agreement, dated as of ____ 1, 2017 (as so amended and supplemented, the “Agreement”), between the Virginia Resources Authority, as Administrator of the Virginia Water Facilities Revolving Fund (the “Authority”), and the Borrower. Capitalized terms used herein shall have the same meanings set forth in the Agreement.

The undersigned Consulting Engineer for the Borrower hereby certifies to the Authority that, insofar as the amounts covered by this Requisition include payments for labor or to contractors, builders or materialmen, such work was actually performed or such materials, supplies or equipment were actually furnished to or installed in the construction portion of the 2017 Atlantic Project.

[Consulting Engineer]

By: _____

Date: _____

**SCHEDULE 1
 VIRGINIA WATER FACILITIES REVOLVING FUND
 FORM TO ACCOMPANY REQUEST FOR DISBURSEMENT**

REQUISITION # _____
BORROWER: HAMPTON ROADS SANITATION DISTRICT
LOAN NUMBER: C-515613-0_
CERTIFYING SIGNATURE: _____
TITLE: _____

Cost Category	Amount Budgeted	Previous Disbursements	Expenditures This Period	Total Expenditures to Date	Net Balance Remaining
TOTALS:					

Total Loan Amount \$ _____
Previous Disbursements \$ _____
This Request \$ _____
Loan Proceeds Remaining \$ _____

EXHIBIT F-1
Direct Local Bonds
Hampton Roads Sanitation District
Atlantic Treatment Plant Project
Loan No. C-515613-0_

\$1,759,000 Hampton Roads Sanitation District Subordinate Pledge Sewer Revenue Bond, dated January 31, 2002 (Army Base Aeration and James River Thickener Projects), as amended on January 9, 2013

\$2,476,000 Hampton Roads Sanitation District Subordinate Pledge Sewer Revenue Bond, dated April 3, 2002 (York River STP-Wastewater Reuse Project), as amended on January 9, 2013

\$40,338,298 Hampton Roads Sanitation District Subordinate Pledge Sewer Revenue Bond, dated February 26, 2004 (Chesapeake-Elizabeth Treatment Plant Project), as amended on January 9, 2013

\$1,235,000 Hampton Roads Sanitation District Subordinate Pledge Sewer Revenue Bond, dated July 29, 2005 (Army Base Treatment Plant Project), as amended on January 9, 2013

\$7,339,600 Hampton Roads Sanitation District Subordinate Pledge Sewer Revenue Bond, dated June 22, 2006 (Atlantic Wastewater Treatment Plant Project), as amended on January 9, 2013

\$1,605,200 Hampton Roads Sanitation District Subordinate Pledge Sewer Revenue Bond, dated June 22, 2006 (Colonial Williamsburg Pump Station Project), as amended on January 9, 2013

\$6,318,000 Hampton Roads Sanitation District Wastewater Revenue Bond, Series 2012, dated March 13, 2012 (Atlantic Treatment Plant: Digester Gas to Energy Project)

EXHIBIT F-2
Tax-Exempt Leveraged Local Bonds and Taxable Leveraged Local Bonds
Hampton Roads Sanitation District
Atlantic Treatment Plant Project
Loan No. C-515613-0_

Tax-Exempt Leveraged Local Bonds.

\$6,490,000 Hampton Roads Sanitation District Subordinate Pledge Sewer Revenue Bond, dated July 19, 2000 (Disinfection Projects)

\$2,380,185 Hampton Roads Sanitation District Subordinate Pledge Sewer Revenue Bond, dated September 28, 2000 (Odor Control Projects)

\$1,070,000 Hampton Roads Sanitation District Subordinate Pledge Sewer Revenue Bond, dated May 31, 2002 (Chesapeake-Elizabeth Incinerator Project)

Taxable Leveraged Local Bonds.

\$30,000,000 Hampton Roads Sanitation District Subordinate Pledge Sewer Revenue Bond, dated December 17, 2008 (York River Wastewater Treatment Plant Project), as amended on January 15, 2015

\$19,410,226 Hampton Roads Sanitation District Wastewater Revenue Bonds, Series 2009, dated May 28, 2009 (Nansemond Treatment Plant Project), as amended on September 11, 2015

\$13,718,671 Hampton Roads Sanitation District Wastewater Revenue Bonds, Series 2009, dated November 20, 2009 (James River Treatment Plant Project), as amended on September 11, 2015

\$11,418,372 Hampton Roads Sanitation District Wastewater Revenue Bonds, Series 2009, dated December 18, 2009 (Interceptor System Metering Project), as amended on September 11, 2015

\$50,000,000 Hampton Roads Sanitation District Wastewater Revenue Bonds, Series 2010, dated June 29, 2010 (Army Base Wastewater Treatment Plant Project), as amended on August 31, 2016

\$5,924,715 Hampton Roads Sanitation District Wastewater Revenue Bonds, Series 2010, dated June 29, 2010 (Williamsburg Oxidation Towers Project), as amended on August 31, 2016

\$7,583,771 Hampton Roads Sanitation District Wastewater Revenue Bonds, Series 2010, dated June 29, 2010 (Boat Harbor Treatment Project), as amended on August 31, 2016

EXHIBIT F-3
Senior Bonds, Migrating Senior Bonds and Parity Bonds
Hampton Roads Sanitation District
Atlantic Treatment Plant Project
Loan No. C-515613-0_

Senior Bonds.

\$223,170,000 Hampton Roads Sanitation District Wastewater Revenue Bonds, Series 2008, dated March 31, 2008

\$152,640,000 Hampton Roads Sanitation District Wastewater Revenue Bonds, Series 2009, dated November 12, 2009

\$45,705,000 Hampton Roads Sanitation District Wastewater Revenue Bonds, Series 2011, dated October 20, 2011

\$130,480,000 Hampton Roads Sanitation District Wastewater Revenue Bonds, Series 2012, dated December 27, 2012

\$111,345,000 Hampton Roads Sanitation District Wastewater Revenue Bonds, Refunding Series 2014A, dated November 12, 2014

Migrating Senior Bonds.

\$19,410,226 Hampton Roads Sanitation District Wastewater Revenue Bonds, Series 2009, dated May 28, 2009 (Nansemond Treatment Plant Project), as amended on September 11, 2015

\$13,718,671 Hampton Roads Sanitation District Wastewater Revenue Bonds, Series 2009, dated November 20, 2009 (James River Treatment Plant Project), as amended on September 11, 2015

\$11,418,372 Hampton Roads Sanitation District Wastewater Revenue Bonds, Series 2009, dated December 18, 2009 (Interceptor System Metering Project), as amended on September 11, 2015

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\$7,583,771 Hampton Roads Sanitation District Wastewater Revenue Bonds, Series 2010, dated June 29, 2010 (Boat Harbor Treatment Project), as amended on August 31, 2016

\$6,318,000 Hampton Roads Sanitation District Wastewater Revenue Bond, Series 2012, dated March 13, 2012 (Atlantic Treatment Plant: Digester Gas to Energy Project)

Parity Bonds.

\$6,490,000 Hampton Roads Sanitation District Subordinate Pledge Sewer Revenue Bond, dated July 19, 2000 (Disinfection Projects)

\$2,380,185 Hampton Roads Sanitation District Subordinate Pledge Sewer Revenue Bond, dated September 28, 2000 (Odor Control Projects)

\$1,759,000 Hampton Roads Sanitation District Subordinate Pledge Sewer Revenue Bond, dated January 31, 2002 (Army Base Aeration and James River Thickener Projects), as amended on January 9, 2013

\$2,476,000 Hampton Roads Sanitation District Subordinate Pledge Sewer Revenue Bond, dated April 3, 2002 (York River STP-Wastewater Reuse Project), as amended on January 9, 2013

\$1,070,000 Hampton Roads Sanitation District Subordinate Pledge Sewer Revenue Bond, dated May 31, 2002 (Chesapeake-Elizabeth Incinerator Project)

\$40,338,298 Hampton Roads Sanitation District Subordinate Pledge Sewer Revenue Bond, dated February 26, 2004 (Chesapeake-Elizabeth Treatment Plant Project), as amended on January 9, 2013

\$1,235,000 Hampton Roads Sanitation District Subordinate Pledge Sewer Revenue Bond, dated July 29, 2005 (Army Base Treatment Plant Project), as amended on January 9, 2013

\$7,339,600 Hampton Roads Sanitation District Subordinate Pledge Sewer Revenue Bond, dated June 22, 2006 (Atlantic Wastewater Treatment Plant Project), as amended on January 9, 2013

\$1,605,200 Hampton Roads Sanitation District Subordinate Pledge Sewer Revenue Bond, dated June 22, 2006 (Colonial Williamsburg Pump Station Project), as amended on January 9, 2013

\$30,000,000 Hampton Roads Sanitation District Subordinate Pledge Sewer Revenue Bond, dated December 17, 2008 (York River Wastewater Treatment Plant Project), as amended on January 15, 2015

\$25,000,000 Hampton Roads Sanitation District Subordinate Wastewater Revenue Bonds, Series 2011, dated October 20, 2011

\$22,680,000 Hampton Roads Sanitation District Subordinate Wastewater Revenue Bonds, Refunding Series 2012, dated December 27, 2012

\$246,845,000 Sanitation District Subordinate Wastewater Revenue Bonds, Refunding Series 2016A, dated March 17, 2016

\$50,000,000 Sanitation District Subordinate Wastewater Revenue Bonds, Refunding Series 2016B, dated April 1, 2016

EXHIBIT G
Debt Service Schedule
Hampton Roads Sanitation District
Atlantic Treatment Plant Project
Loan No. C-515613-0_

[To Come]

EXHIBIT H
EPA Consent Order
Hampton Roads Sanitation District
Atlantic Treatment Plant Project
Loan No. C-515613-0_

[To Come from Borrower's Bond Counsel]

HRSD COMMISSION MEETING MINUTES
May 23, 2017

ATTACHMENT #10

AGENDA ITEM 20. – Regional Wet Weather Management Plan Project Prioritization
Briefing PowerPoint Presentation



Preliminary High Priority Project Selection Commission Meeting

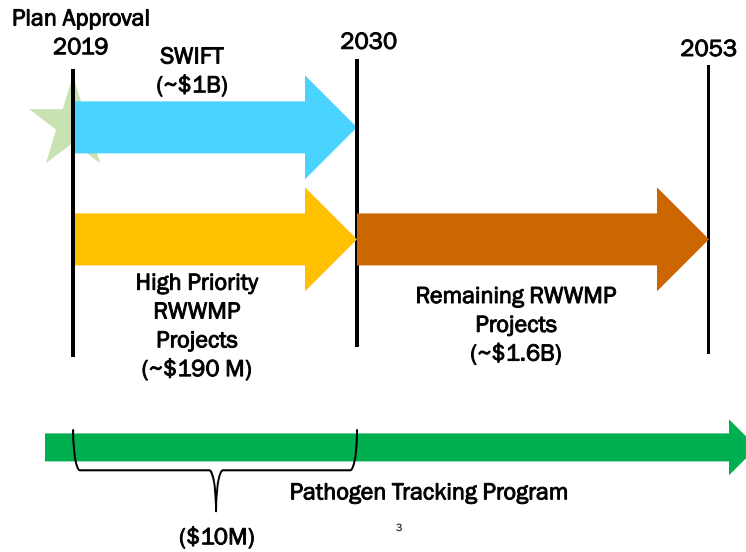
May 23, 2017



Why High Priority Projects?

- Critical component of the Integrated Plan
- Consent Decree Requirement per Modification No 4
- Described in the Alternatives Analysis Report
- \$200M was chosen based on affordability not a CD or EPA requirement
- HRSD has chosen to perform high priority projects as a further commitment to improving the environment

Sequence Places the Greatest Water Quality Benefits First



What commitments will be made in the RWWMP for these projects?

- Completed by 2030
- Total high priority investment
- That selected projects have greatest relative, not absolute, environmental benefit over the program implementation period
- List of projects



Summary of Approach



5



Approach

- Criteria developed to support an objective and rational selection process across the whole of HRSD (area covered by the Consent Decree)
- Consistent with EPA's Integrated Planning framework that provides for implementing the projects first that provide the most human health and environmental benefit.

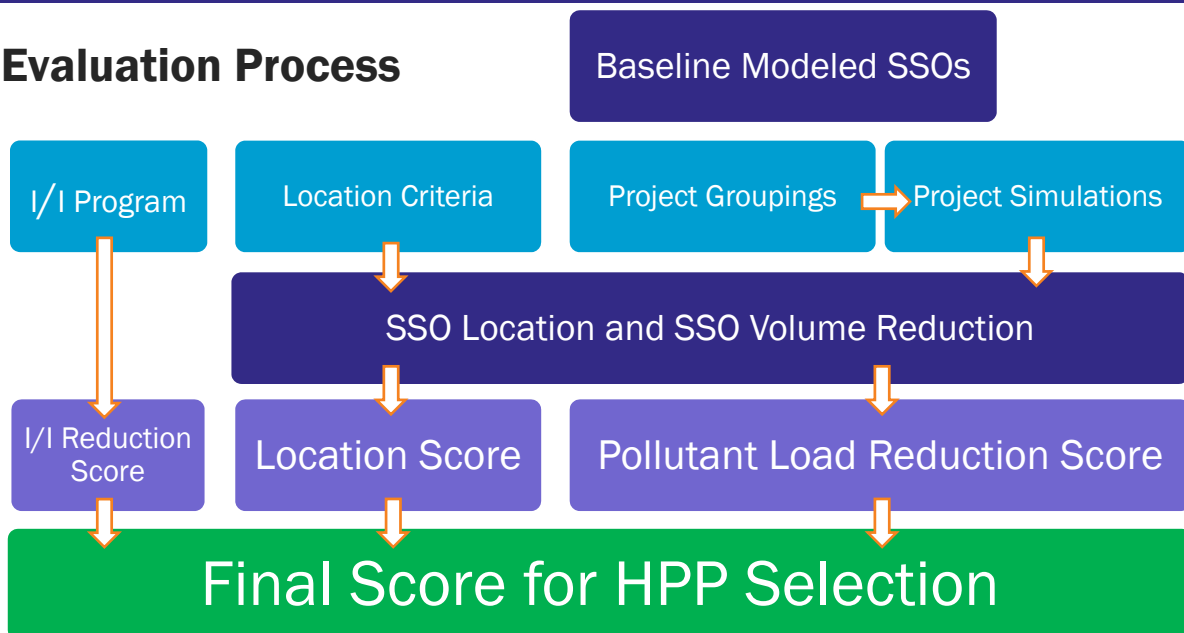
Criteria and Weightings

- Modeled SSO Load Reduction (50%)
- Modeled Location (30%)
 - Proximity to public beaches(VDH)
 - Proximity to public surface drinking water sources
 - Proximity to open shellfish grounds
 - Proximity to high priority waters
 - Drains to bacteriologically impaired water
 - Reduces I/I to SWIFT plant proximate to open shellfish grounds
- I/I Reduction (20%)

Brown and Caldwell

7

Evaluation Process

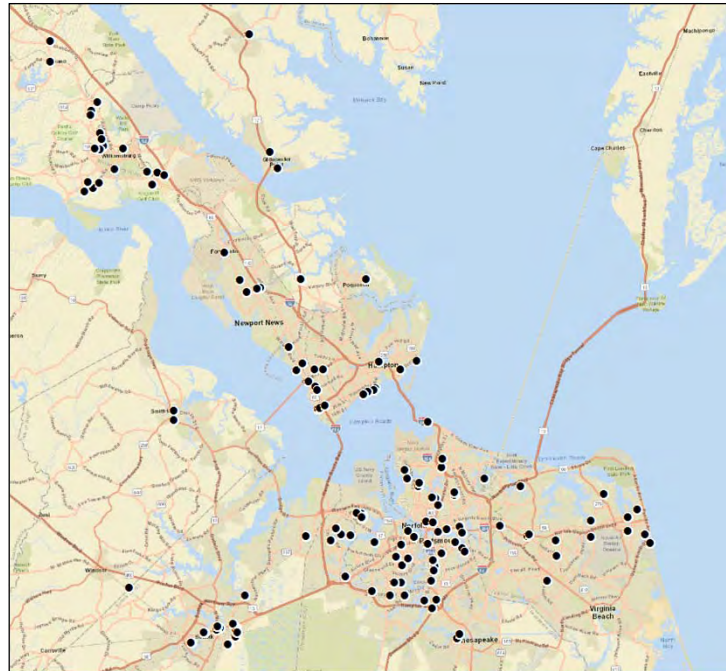


8

HRSD

Baseline Modeled SSOs

- RHM Capacity Analysis
 - Existing Flows
 - 2022 valving
 - CE Solutions in place
 - 5 year event



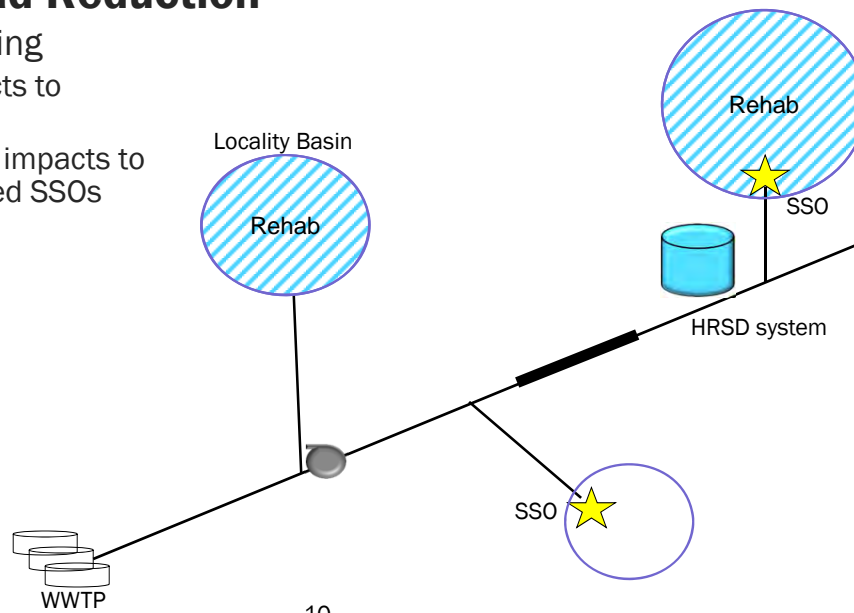
● Modeled SSO Location

9



Pollutant Load Reduction

- Simulation Testing
 - Associate projects to modeled SSOs
 - Quantify project impacts to baseline modeled SSOs



10

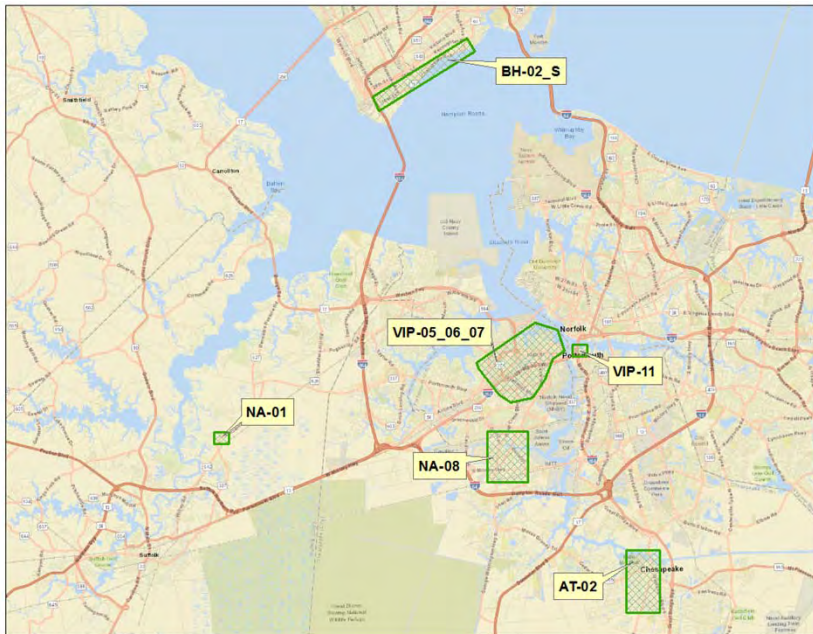


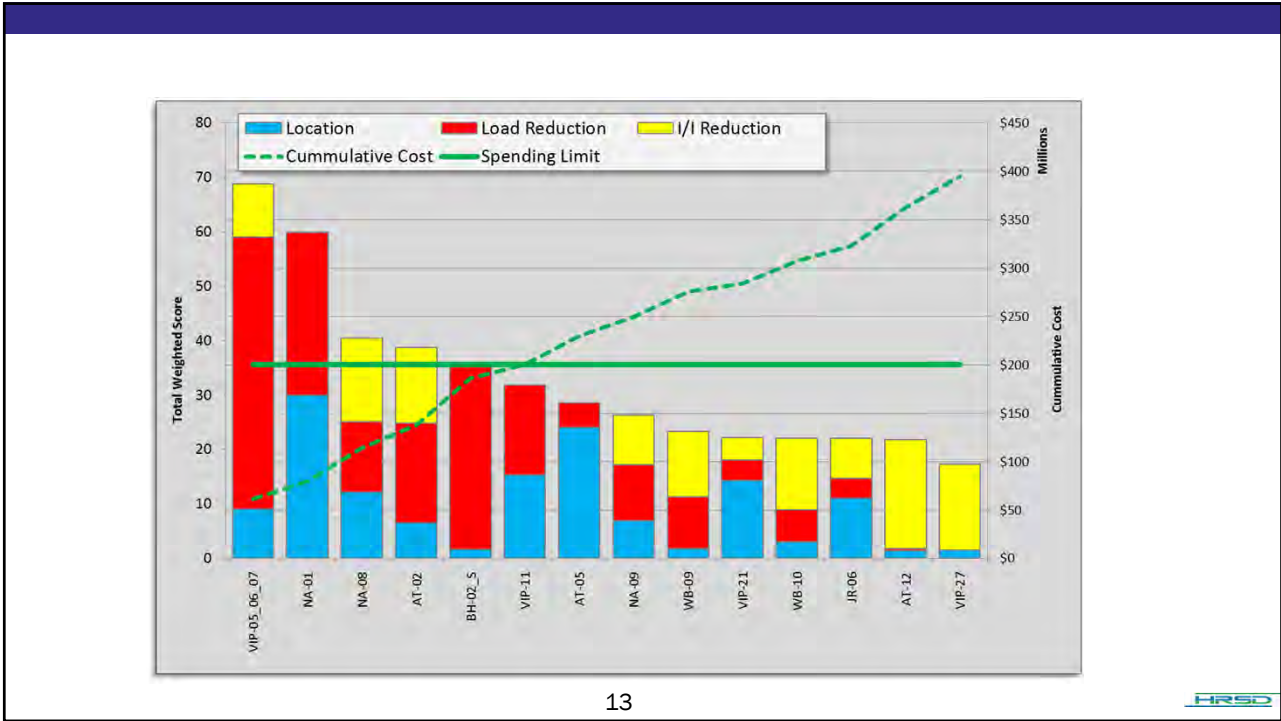


Preliminary Selection

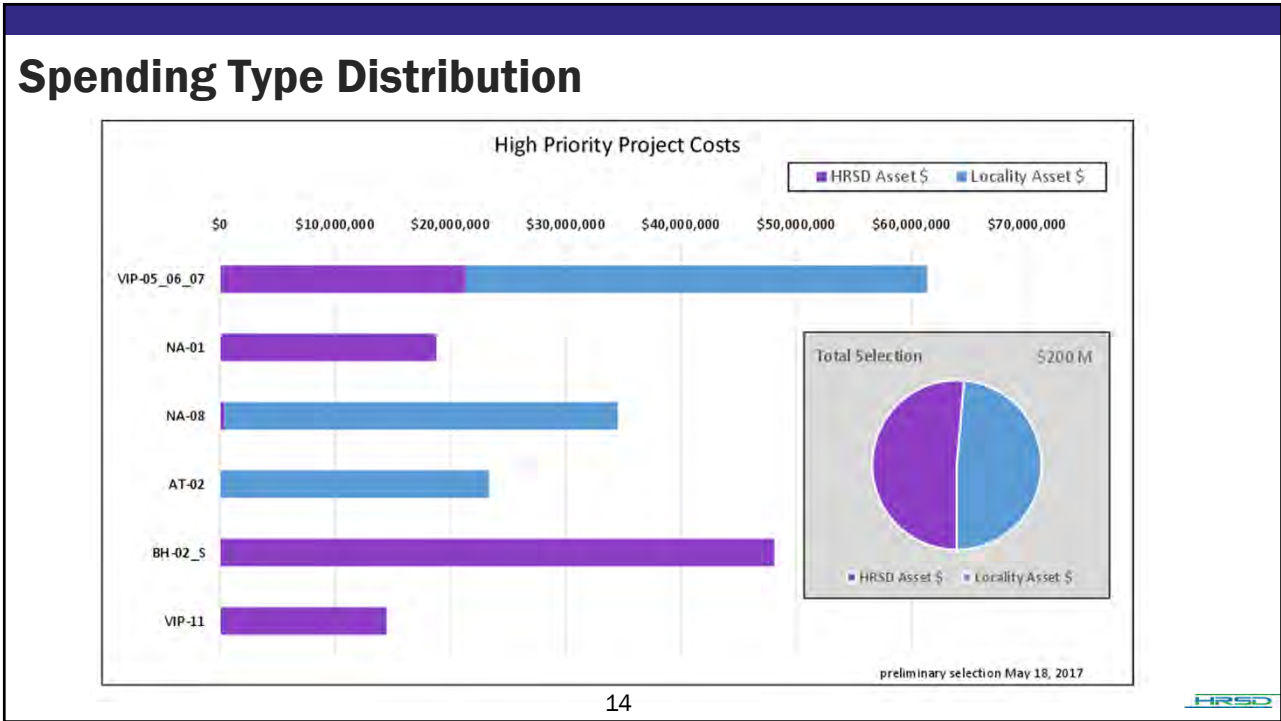


Preliminary High Priority Project Areas





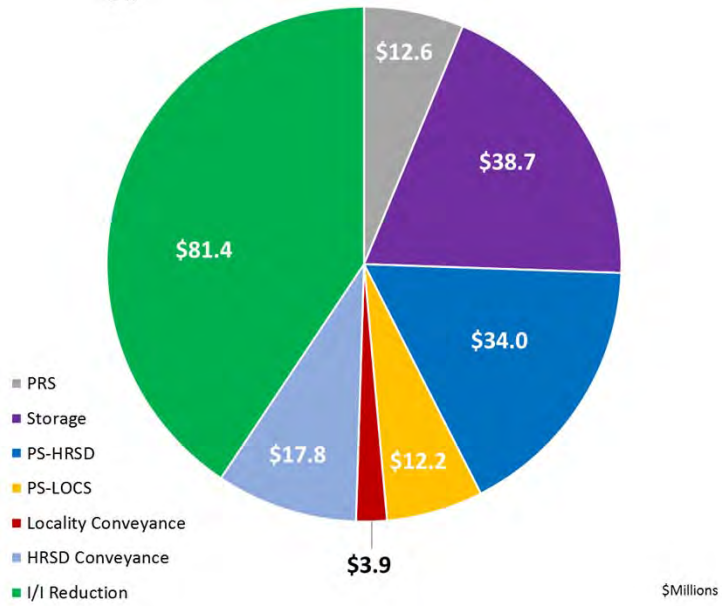
13



14



Costs by Project Type



15



Schedule

Activity	Schedule
HRSD Team review of Preliminary High Priority Projects	May 18, 2017
Commission Presented Preliminary High Priority Projects	May 23, 2017
Preliminary High Priority Projects to DUC	June 7, 2017
Capacity Team Update	June 19, 2017
Finalize High Priority Project Selection	June 30, 2017
Locality Consultation on Draft RWWMP	September 2017

Questions?

HRSD COMMISSION MEETING MINUTES
May 23, 2017

ATTACHMENT #11

AGENDA ITEM 21. – Poverty Simulation Description

A BRIEF DESCRIPTION

THE SIMULATION EXPERIENCE

The poverty simulation experience is designed to help participants begin to understand what it might be like to live in a typical low-income family trying to survive from month to month. **It is a simulation, not a game.** The object is to sensitize participants to the realities faced by low-income people.

In the simulation, 44 to 80 participants assume the roles of up to 26 different families facing poverty. It is recommended that dolls be used for the 1-3 year old children, as these roles do not actively participate in the simulation. (If you use dolls in these roles the number of active participants is reduced to 72.)

Some families are newly unemployed, some are recently deserted by the "breadwinner," some are homeless, and others are recipients of TANF (Temporary Assistance for Needy Families, formerly AFDC), either with or without additional earned income. Still others are senior citizens receiving Disability or Retirement or grandparents raising their grandchildren. The task of the "families" is to provide for basic necessities and shelter during the course of four 15-minute "weeks."

The simulation is conducted in a large room with the "families" seated in groups in the center. Around the perimeter are tables representing community resources and services for the families. These services include a bank, super center, Community Action Agency, employer, utility company, pawn broker, grocery, social service agency, faith-based agency, payday and title loan facility, mortgage company, school, and child care center.

Volunteers, preferably persons who have faced or are facing poverty, are recruited to staff the resource tables. Volunteers are also recruited to assume the roles of police officer and an "illegal activities" person.

The experience lasts from two and a half to three hours. It includes an introduction and briefing, the actual simulation exercise, and a debriefing period in which participants and volunteer staffers share their feelings and experiences and talk about what they have learned about the lives of people in poverty.

THE RESPONSIBILITIES OF VOLUNTEER STAFFERS

Persons recruited as volunteer staffers are asked to think about the role they might like to fill. Staffers may have had personal experiences that enable them to be especially effective in portraying a given role. Realistic portrayals contribute greatly to the success of the experience.

The following staffers are essential and must be staffed for every simulation: police officer, utility collector, pawnbroker, grocer, mortgage/rent collector, Quik Cash manager, two social service caseworkers, a social service receptionist, Community Action worker, employer, child care worker, schoolteacher, faith based agency staffer, and bank/loan collector. The caseworkers will need to have some command of pertinent facts and information. Familiarity or experience with a local social service office is highly desirable. If possible, the Community Action worker should be someone who has had real-life experience in this role.

It is essential that the facilitator meet with the volunteer staffers for an orientation prior to the simulation being conducted. An overview of the simulation will be given at that time, assigned roles and responsibilities will be agreed upon, and instruction packets will be given to each staffer.

At the end of the simulation, staffers will be asked to comment on the simulation experience. This could include a summary of how the participants reacted to the staffer's role, comments about the participants' ability to cope in the State of Poverty during this "month," previous experiences or special information or facts which the staffer may have that could reinforce the realities of living in poverty, how it feels for the staffer to be "on the other side of the table" during this simulation, and whether or not there was a perceptible change of attitude on the part of the participants during the simulation.

HRSD COMMISSION MEETING MINUTES
May 23, 2017

ATTACHMENT #12

AGENDA ITEM 12. – Informational Items

a. Management Reports

- (1) [General Manager](#)
- (2) [Communications](#)
- (3) [Engineering](#)
- (4) [Finance](#)
- (5) [Information Technology](#)
- (6) [Operations](#)
- (7) [Special Assistant for Compliance Assurance](#)
- (8) [Talent Management](#)
- (9) [Water Quality](#)
- (10) [Report of Internal Audit Activities](#)
 - [Internal Audit Status](#)
 - [HR Administration of Employee Health Insurance Review](#)

b. [Strategic Planning Metrics Summary](#)

c. [Effluent Summary](#)

d. [Air Summary](#)



May 15, 2017

Re: General Manager's Report

Dear Commissioners:

April was highlighted by our 24th annual Pretreatment Excellence and Pollution Prevention Awards Ceremony and Luncheon on April 18, 2017. Once again the Pretreatment and Pollution Prevention (P3) staff planned and hosted an outstanding event presenting awards to 113 permitted facilities. Our permitted industries work hard to comply with their permits and are the first line of defense in protecting our plant processes. Without their efforts we would be challenged to meet our permits. Their compliance will become even more important as we implement SWIFT over the coming years. The annual recognition continues to be meaningful to our permitted industries and remains an anticipated event each year.

April was relatively uneventful from an operating perspective as detailed in the attached monthly reports.

1. **Treatment Compliance and System Operations:** All plants met all VPDES and air permit requirements during the month with no reportable events in the interceptor system during the month.
2. **Internal Communications:** I participated in the following meetings/activities with HRSD personnel:
 - a. One length of service breakfast
 - b. A new employee orientation session
 - c. Several meetings to review SPSA leachate issues
 - d. A meeting to discuss the property to transfer with the Surry County and Town of Surry sewer systems
 - e. The monthly update on the Wet Weather Management Plan
 - f. A meeting to discuss decentralized system preferences

PO Box 5911, Virginia Beach, VA 23471-0911 • 757.460.7003

Commissioners: Frederick N. Elofson, CPA, Chair • Maurice P. Lynch, PhD, Vice-Chair • Vishnu K. Lakdawala, PhD
Michael E. Glenn • Arthur C. Bredemeyer • Stephen C. Rodriguez • Willie Levenston, Jr. • Ann W. Templeman
www.hrsd.com

3. **External Communications:** I participated in the following meetings/ activities:
- a. Presented HRSD research priorities to the Global Water Research Council, hosted by Water Environment and Reuse Foundation
 - b. Presented an update on SWIFT to the State Water Commission
 - c. Attended the Environment Virginia symposium
 - d. Met with staff from the City of Virginia Beach to discuss options for the HRSD storage facility required in the vicinity of the Providence Road Pressure Reducing Station (PRS)
 - e. Met with staff from the City of Newport News to discuss concerns with the Regional Wet Weather Management Plan
 - f. A meeting with Middlesex County to discuss future strategy for sewer service expansion in the county
 - g. The quarterly meeting of *Virginiaforever* via teleconference
 - h. An interview by staff from the Joint Legislative Audit and Review Committee about the HRSD biosolids program
 - i. A briefing with HRSD staff for the Director of the Tidewater Regional Office of the Department of Environmental Quality
 - j. Presented an update for SWIFT with a focus on nutrient trading to the Suffolk City Council
 - k. A meeting with D.J. Gribbin, special assistant to the president for infrastructure policy as part of a delegation from the US Water Alliance
 - l. The Portsmouth State of the City luncheon
 - m. The Chesapeake State of the City luncheon

Thanks for your continued dedicated service to HRSD, the Hampton Roads region, the Commonwealth and the environment. **I look forward to seeing you on Tuesday, May 23, 2017 in Virginia Beach.**

Respectfully submitted,

Ted Henifin

Ted Henifin, P.E.
General Manager

TO: General Manager
FROM: Director of Communications
SUBJECT: Monthly Report for April 2017
DATE: May 8, 2017

A. Publicity and Promotion

1. [“Groups Join River Study Effort”](#) | Suffolk News Herald, April 5, 2017
2. “HRSD Breaks Ground on SWIFT Wastewater Facility” | Smithfield Times, April 5, 2017. Story was featured on page 20 of the publication and recapped the SWIFT Multi-Benefit Ceremony which took place on March 31, 2017.
3. [“WE&RF Awards Research Contract To Tailor Effluent Quality For Water Reuse Application”](#) | Water Online (wateronline.com), April 17, 2017
4. [“Experts in Town for Wastewater Forum”](#) | Scoop Independent News, April 18, 2017
5. “Town Okays HRSD Surry Offer” | Smithfield Times, April 19, 2017. Story was featured on the front page of the publication and details the Surry Town Council’s vote to transfer its wastewater treatment systems to HRSD.
6. [“A New Approach to Water for Hampton Roads Cities”](#) | Virginia Lawyer Magazine, April 2017

B. Social Media and Online Engagement

1. Facebook Reach: 5,548
2. Twitter: 8,262 twitter impressions
3. SWIFT website visits: 571
4. Construction Project Page Hits: 6591

C. News Releases, Advisories and Project Notices

1. [Milling and Paving Work to Begin on Boxley Boulevard and Menchville Road](#) – (Newport News) - April 13, 2017
2. [HRSD Honors Local Businesses for Environmental Excellence](#) - April 18, 2017
3. Six (6) Project Notices

D. Special Projects

1. Department staff attended the P3 Awards, supporting the event with photography and greeting of attendees as well as staffing a SWIFT information booth before the luncheon.
2. The department, working with Engineering began coordinating a social media and web campaign to highlight 2017 Infrastructure Week, which takes place May 15 – 19. We are planning to provide updates on our Bridge Street project and VIP via videos, blog posts and other Facebook and Twitter engagement and audience sharing with our partners at MEB, HDR and the U. S. Water Alliance.
3. Director joined the Customer Care Center chief in Surry for a meeting with the Surry County Administrator to discuss customer outreach plans for HRSD's upcoming assumption of the county's wastewater operations and billing.
4. Department staff developed the following SWIFT outreach materials and fact sheets:
 - a. Financing SWIFT: Reprioritizing Investments in Protecting Public Health
 - b. HRSD's Pretreatment Program

E. Internal Communications

1. Director and staff attended a construction photography course.
2. Director continued onboarding process with training sessions from Procurement, HR (new supervisor training), and Safety departments.
3. Director, working with the general manager, completed and submitted an application nominating Director of Finance for "2017 Virginia CFO of the Year."

4. Developed SharePoint and Facebook 2-week campaign to recognize HRSD lab employees for National Environmental Laboratory Professionals Week – 4/24 – 4/28
5. Facilitated TAPS program, “Teams and Problem Solving” – 4/26 – 4/27

F. Metrics

1. Educational and Outreach Activities: 6
 - a. Wings & Things – Spring Fling at Hoffler Creek – 4/2
 - b. Microbiology lecture at ODU (1 class of 55 students) – 4/3
 - c. Corporate Landing Middle School Career Day (all students, grades 6-8) – 4/6
 - d. “What’s Wastewater?” Nansemond Suffolk Academy (45 students) – 4/10
 - e. Washing Water for Earth Week at John Yeates Middle School (60 students) – 4/21
 - f. Washing Water for 2nd grade at Discovery STEM Academy (90 students) – 4/25
2. Number of Community Partners: 7
 - a. Hoffler Creek Wildlife Preserve Foundation
 - b. Old Dominion University
 - c. Nansemond Suffolk Academy
 - d. Starbase Victory
 - e. Virginia Beach Public Schools/Corporate Landing Middle School
 - f. Suffolk Public Schools/John Yeates Middle School
 - g. Newport News Public Schools/Discovery STEM Academy
3. Additional Activities Coordinated by Department: 5
 - a. Stonebridge Christian School STEM Day, materials/display coordination - 4/14
 - b. Boater Ed table, Mount Trashmore VB Earth Day Celebration, materials/display coordination - 4/22
 - c. Touch-a-Truck, Newport News, materials/display coordination - 4/29
 - d. Junior League Touch-a-Truck, Chesapeake, materials/display coordination - 4/29
 - e. School Career Day presentation, materials coordination - 4/21

Item #	Strategic Planning Measure	Unit	April 2017
M-1.4a	Total Training Hours per Full Time Employee (1) - Current Month	Hours / #FTE	8
M-1.4b	Total Training Hours per Full Time Employee (1) - Cumulative Fiscal Year-to-Date	Hours / #FTE	11
M-5.2	Educational and Outreach Events	Number	6
M-5.3	Number of Community Partners	Number	7

Leila Rice

Director of Communications

TO: General Manager

FROM: Director of Engineering

SUBJECT: Engineering Monthly Report for April 2017

DATE: May 10, 2017

A. General

1. Capital Improvement Program (CIP) spending for the ninth month of Fiscal Year-2017 was \$6.9 million, while the planned expenditure for the month was estimated at \$10.5 million. CIP spending continues to track below planned estimates. The largest three CIP projects are a total of \$10 million behind planned spending estimates for the fiscal year. There were no Water Quality Improvement Fund (WQIF) grant reimbursements for the month.
2. The Engineering Department is working to dispose of three surplus properties. An undeveloped pump station site located in Gloucester County was purchased years ago and will not be required. HRSD is in negotiations with the Virginia Institute of Marine Science for a potential sale of this property. The old Center Avenue Pump Station site will be available once the existing pump station is demolished. The old 33rd Street Pump station site will also be available once this pump station is demolished. Sale of these properties is desirable and discussions are underway to market the sites.

B. Asset Management Division

1. Staff efforts continue for the pilot study at the Atlantic Treatment Plant (ATP) to evaluate data gaps in the Computerized Maintenance Management System (CMMS) and to assess critical assets. Several workshops were recently held with a variety of staff members to discuss the various elements of the project. These elements included equipment criticality ranking, iPad implementation, use of the coatings database and the asset hierarchy structure.
2. Staff met with the Operations Department to discuss the deployment of Windows-based Tablets for Plant Maintenance Staff. The tablets will be used to access the Computerized Maintenance Management System (CMMS) and to input relevant data while performing various maintenance functions. The plan is to go live with this deployment in the coming months.

C. North Shore and South Shore Design & Construction Divisions

1. Construction efforts have begun on the Sustainable Water Recycling Phase 3 (SWIFT Research Center) project. This project is being delivered using a Design-Build method that allows for a fast track schedule. Final design efforts are underway while some of the early construction efforts begin. Excavation for the building foundation has been completed and under-slab piping, reinforcing steel has been placed. Concrete will be poured in May and construction will move forward rapidly over the summer months. Shop drawing reviews are underway for long-delivery equipment items. The project team is working closely to address issues of concern and plan for each of the upcoming phases of construction.
2. Equipment challenges have delayed the schedule for the Interceptor Systems Pump Station Control and SCADA Upgrade project. The planned use of a UHF Radio System to transmit data will not meet the project goals related to the speed of data transmission. Evaluation and discussions of alternate communication systems continues. Meetings have been held with various localities who have installed similar systems. A Cellular System to transmit data appears to be the best option for HRSD and will be discussed with the project team in the coming month to verify compatibility with the other system components and to verify cost and schedule implications.

D. Planning & Analysis Division

1. Staff continues their efforts to coordinate with the Hampton Roads Planning District Commission (HRPDC) on a Regional Geographic Information System (GIS) effort. The first information to be added to the regional GIS is land parcels and associated land uses. A program is under development to automate the process to upload this data. This program is being developed in coordination with the HRPDC and a number of localities in the region.
2. Staff has established a GIS data sharing process with the Virginia Department of Health staff in support of the SWIFT Program. This process will facilitate the sharing of existing groundwater well locations within a three mile buffer around the planned injection well sites.

E. Strategic Planning Metrics Summary

1. Educational and Outreach Events: 3
 - a. Staff worked at the HRSD booth at the Anthem EcoFair on April 18.

- b. Staff served as judges during the Virginia Water Environment Association (VWEA) Student Design Competition on April 20.
- c. Staff taught a class to students of the Hampton Roads Public Works Academy (HRPWA) on Engineering and Surveying Practices on April 26.

2. Number of Community Partners: 3

- a. Anthem
- b. VWEA
- c. HRPWA

3. Number of Research Partners: 0

Item #	Strategic Planning Measure	Unit	April 2017
M-1.4a	Total Training Hours per Full Time Employee (39) - Current Month	Hours / #FTE	5.92
M-1.4b	Total Training Hours per Full Time Employee (39) - Cumulative Fiscal Year-to-Date	Hours / #FTE	36.26
M-5.2	Educational and Outreach Events	Number	3
M-5.3	Number of Community Partners	Number	3
M-5.4	Number of Research Partners	Number	0

Bruce W. Husselbee, P.E.

Bruce W. Husselbee, P.E.

TO: General Manager
FROM: Director of Finance
SUBJECT: Monthly Report for April 2017
DATE: May 10, 2017

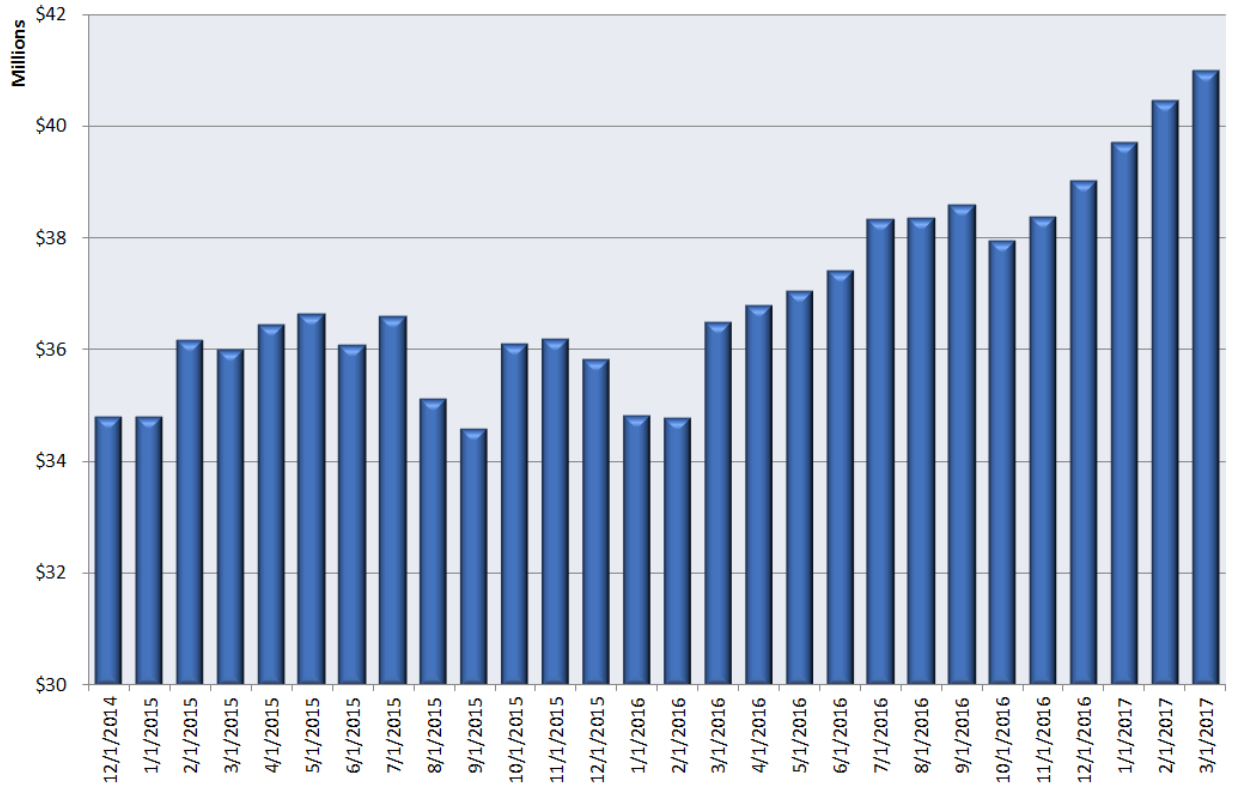
A. General

1. The Total Return Strategy (TRS) outperformed the benchmark (0.36 percent vs 0.26 percent) for the fiscal year third quarter as the value rebounded from the post-election dip. Returns for the third quarter were driven more by income than price appreciation.



- The Retiree Health Plan Trust continues to outperform the benchmark and increase in value with the ongoing “Trump Trade.” The \$41 million portfolio returned 4.29 percent for the fiscal year third quarter compared to 3.82 percent for the benchmark. The actuarial discount rate assumes a 6 percent long-range annual rate of return, which assumes good quarters like this will be offset by some bad quarters. As shown in the graph below, the portfolio has been on a bull run since March 2016.

Retiree Health Plan Trust Value



- We believe that the higher than average rainfall in March and April is contributing to the lower than expected water consumption in April as the need to irrigate is muted. Revenues continue to be higher than budget with Facility Charges ramping up for the summer building season. Expenses are lower than budget, but as all of the final fiscal year requisitions are processed, most of the line items should end closer to the budget estimate. We are projecting that revenues will exceed expenses by the end of the fiscal year.

B. Interim Financial Report

1. Operating Budget for the Period Ended April 30, 2017

	Amended Budget	Current YTD	Current YTD as % of Budget (83% Budget to Date)	Prior YTD as % of Prior Year Budget
Operating Revenues				
Wastewater	\$ 242,810,000	\$ 204,323,292	84%	85%
Surcharge	1,500,000	1,506,561	100%	89%
Indirect Discharge	2,500,000	2,228,192	89%	87%
Norfolk Sludge	90,000	60,772	68%	58%
Fees	2,843,000	2,431,380	86%	79%
Municipal Assistance	1,250,000	781,188	62%	71%
Miscellaneous	750,000	832,480	111%	73%
Total Operating Revenue	251,743,000	212,163,865	84%	85%
Non Operating Revenues				
Facility Charge	5,850,000	5,217,340	89%	78%
Interest Income	1,400,000	765,824	55%	114%
Build America Bond Subsidy	2,400,000	2,361,607	98%	100%
Other	840,000	599,174	71%	85%
Total Non Operating Revenue	10,490,000	8,943,945	85%	88%
Total Revenues	262,233,000	221,107,810	84%	85%
Transfers from Reserves	7,901,331	6,584,443	83%	83%
Total Revenues and Transfers	\$ 270,134,331	\$ 227,692,253	84%	85%
Operating Expenses				
Personal Services	\$ 52,521,153	\$ 44,582,647	85%	79%
Fringe Benefits	24,287,503	20,190,041	83%	79%
Materials & Supplies	7,374,956	6,143,744	83%	102%
Transportation	1,448,541	1,053,196	73%	88%
Utilities	12,286,132	9,279,198	76%	70%
Chemical Purchases	9,360,735	6,273,256	67%	63%
Contractual Services	31,903,100	20,824,657	65%	69%
Major Repairs	9,846,266	5,257,030	53%	45%
Capital Assets	3,519,171	2,248,085	64%	48%
Miscellaneous Expense	2,378,476	1,896,897	80%	62%
Total Operating Expenses	154,926,033	117,748,751	76%	73%
Debt Service and Transfers				
Debt Service	61,947,000	52,954,894	85%	79%
Cost of Issuance Bonds	900,000	3,553	0%	132%
Transfer to CIP	52,101,298	43,417,748	83%	83%
Transfer to Risk management	260,000	216,677	83%	83%
Total Debt Service and Transfers	115,208,298	96,592,872	84%	81%
Total Expenses and Transfers	\$ 270,134,331	\$ 214,341,623	79%	77%

2. Notes to Interim Financial Report

The Interim Financial Report summarizes the results of HRSD's operations on a basis of accounting that differs from generally accepted accounting principles. Revenues are recorded on an accrual basis, whereby they are recognized when billed; expenses are generally recorded on a cash basis. No provision is made for non-cash items such as depreciation and bad debt expense.

This interim report does not reflect financial activity for capital projects contained in HRSD's Capital Improvement Program (CIP).

Transfers represent certain budgetary policy designations as follows:

- a. Transfer to CIP: represents current period's cash and investments that are designated to partially fund HRSD's capital improvement program.
- b. Transfers to Reserves: represents the current period's cash and investments that have been set aside to meet HRSD's cash and investments policy objectives.

3. Reserves and Capital Resources (Cash and Investments Activity) for the Period Ended April 30, 2017

	General	Risk Management	Reserve	Capital
Beginning of Period - July 1, 2016	\$ 155,644,784	\$ 2,740,508	\$ -	\$ 124,405,496
Add: Current Year Sources of Funds				
Cash Receipts	228,933,939			
Capital Grants				8,439,521
Line of Credit				-
Bond Proceeds (includes interest)				97,253
Transfers In		216,677	31,754,250	43,417,748
Sources of Funds	<u>228,933,939</u>	<u>216,677</u>	<u>31,754,250</u>	<u>51,954,522</u>
Total Funds Available	<u>\$ 384,578,723</u>	<u>\$ 2,957,185</u>	<u>\$ 31,754,250</u>	<u>\$ 176,360,018</u>
Deduct: Current Year Uses of Funds				
Cash Disbursements	176,752,222			100,853,925
Transfers Out	43,634,425			31,754,250
Uses of Funds	<u>220,386,647</u>	<u>-</u>	<u>-</u>	<u>132,608,175</u>
End of Period - April 30, 2017	<u>\$ 164,192,076</u>	<u>\$ 2,957,185</u>	<u>\$ 31,754,250</u>	<u>\$ 43,751,843</u>

4. Capital Improvements Budget and Activity Summary for Active Projects for the Period Ended April 30, 2017

Classification/ Treatment Service Area	Expenditures Year to Date			Total Expenditures	Outstanding Encumbrances	Available Balance
	Budget	Expenditures prior to June 30, 2016	Expenditure FY 2017			
Administration	\$ 40,961,073	\$ 35,489,810	\$ 2,913,475	\$ 38,403,284	\$ 1,505,790	\$ 1,051,998
Army Base	156,834,000	117,268,663	1,445,154	118,713,816	4,481,084	33,639,100
Atlantic	91,488,147	37,540,037	2,780,119	40,320,156	9,581,627	41,586,364
Boat Harbor	86,663,081	33,305,878	6,347,575	39,653,453	9,779,488	37,230,140
Ches-Eliz	106,363,458	4,781,814	1,114,243	5,896,057	2,076,964	98,390,437
James River	75,114,256	36,167,539	10,312,810	46,480,349	8,091,670	20,542,238
Middle Peninsula	38,036,619	5,170,712	597,923	5,768,634	4,553,087	27,714,898
Nansemond	74,720,570	24,996,903	7,227,003	32,223,906	4,702,722	37,793,942
VIP	252,394,585	195,724,686	25,118,317	220,843,002	23,753,483	7,798,100
Williamsburg	11,396,383	7,646,446	481,334	8,127,780	1,116,337	2,152,266
York River	45,160,886	30,560,270	7,358,487	37,918,757	2,373,083	4,869,046
General	235,087,960	141,618,472	14,324,794	155,943,267	52,210,519	26,934,174
	<u>\$ 1,214,221,018</u>	<u>\$ 670,271,229</u>	<u>\$ 80,021,233</u>	<u>\$ 750,292,462</u>	<u>\$ 124,225,854</u>	<u>\$ 339,702,702</u>

5. Debt Management Overview

	Debt Outstanding (\$000's)				
	Principal March 2017	Principal Payments	Net Refunding	Principal April 2017	Interest Payments
Fixed Rate					
Senior	\$ 432,165	\$ 3,000	\$ -	\$ 429,165	\$ 169
Subordinate	301,469	85	-	301,384	22
Variable Rate					
Subordinate	50,000	-	-	50,000	32
Line of Credit					
	-	-	-	-	-
Total	<u>\$ 783,634</u>	<u>\$ 3,085</u>	<u>\$ -</u>	<u>\$ 780,549</u>	<u>\$ 223</u>

Series 2016 Variable Rate Interest Summary - Variable Rate Debt Benchmark (SIFMA) as of 04/28/17

	SIFMA Index	HRSD	Spread to SIFMA
Maximum	0.92%	0.93%	0.01%
Average	0.19%	0.18%	-0.01%
Minimum	0.01%	0.01%	0.00%
As of 04/28/17	0.90%	0.90%	0.00%

* Since October 20, 2011 HRSD has averaged 18 basis points on Variable Rate Debt

6. Financial Performance Metrics for the Period Ended April 30, 2017

	Current YTD	Policy Minimum
Capital % Cash Funded	40%	15%
General Reserve as % of Operations	106%	75-100%
Risk Management Reserve as % of Projected Claims Costs	25%	25%

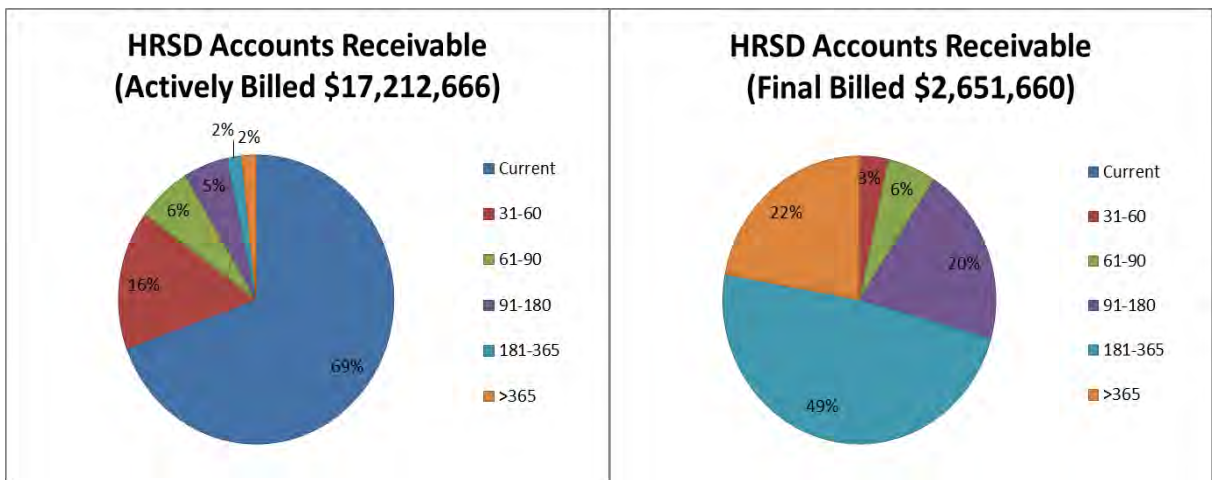
7. Summary of Billed Consumption

Summary of Billed Consumption (ccf)							
Month	Cumulative 3 Year Average	Cumulative 2016 Actual	2017		% Difference		
			Cumulative Budget Estimate	2017 Cumulative Actual	From Budget	From 2016	From 3 Year Average
July	4,902	4,819	4,784	4,776	-0.2%	-0.9%	-2.6%
Aug	9,774	9,783	9,382	9,275	-1.1%	-5.2%	-5.1%
Sept	14,337	14,290	13,595	14,227	4.6%	-0.4%	-0.8%
Oct	19,210	18,976	18,284	19,017	4.0%	0.2%	-1.0%
Nov	23,362	23,486	22,761	23,282	2.3%	-0.9%	-0.3%
Dec	27,733	27,627	26,918	27,761	3.1%	0.5%	0.1%
Jan	31,997	31,844	31,009	32,036	3.3%	0.6%	0.1%
Feb	36,132	35,960	34,750	36,263	4.4%	0.8%	0.4%
March	40,991	40,706	40,257	40,516	0.6%	-0.5%	-1.2%
Apr	45,205	44,834	44,861	44,383	-1.1%	-1.0%	-1.8%
May	49,487	49,022	48,879	-	N/A	N/A	N/A
June	54,069	53,503	52,788	-	N/A	N/A	N/A

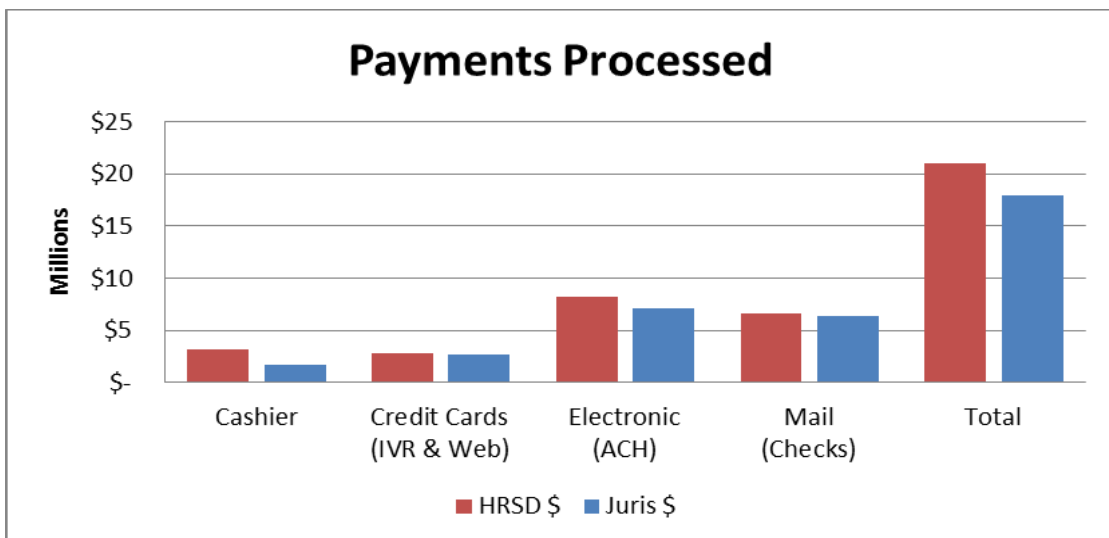
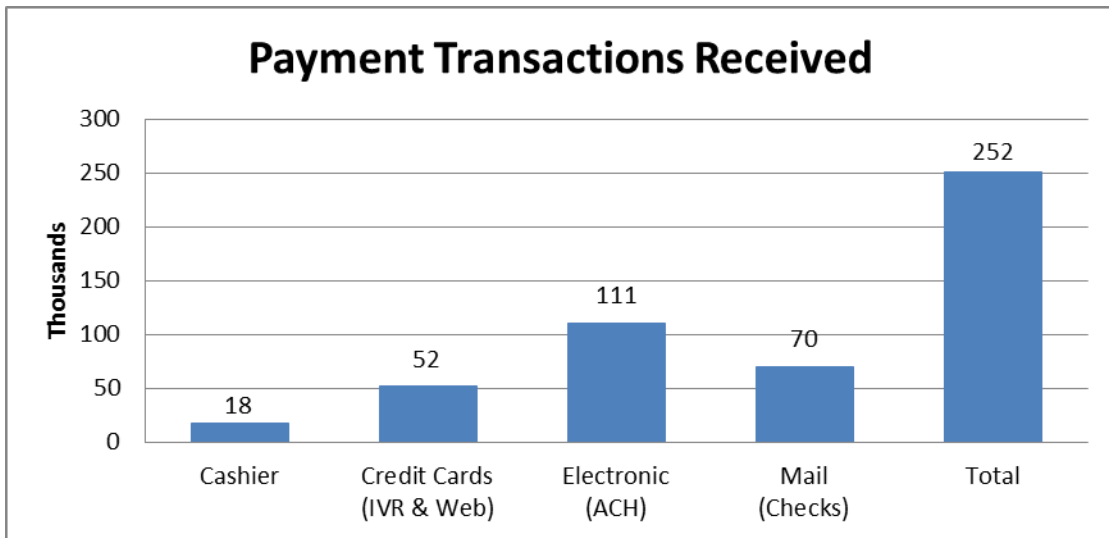
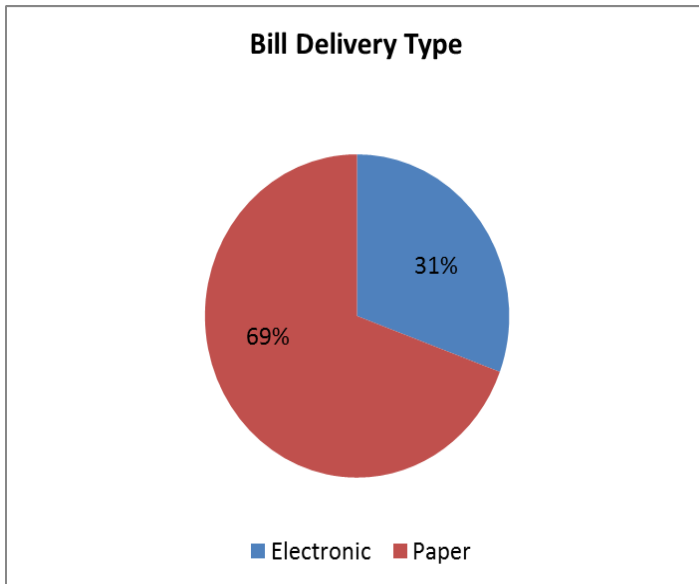
C. Customer Care Center

1. Accounts Receivable Overview

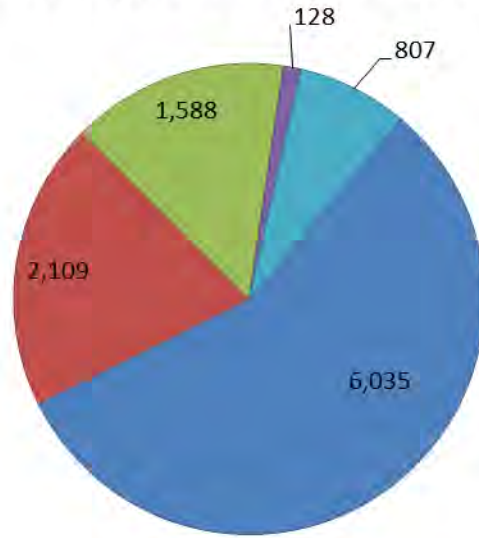
	HRSD	Juris	Total
Roll Forward			
March A/R Balance	\$ 19,826,932	\$ 23,028,654	\$ 42,855,586
Billings	19,052,913	21,039,078	40,091,991
Payments	(21,302,445)	(17,924,926)	(39,227,371)
Delinquency Activity Fees	125,550	-	125,550
Late Payment Charges	60,719	19,359	80,078
Adjustments	2,331,384	(2,672,879)	(341,495)
Balances Written Off	(230,727)	(403,278)	(634,005)
April A/R Balance	\$ 19,864,326	\$ 23,086,008	\$ 42,950,334



2. Customer Care Center Statistics for the Period Ended April 30, 2017

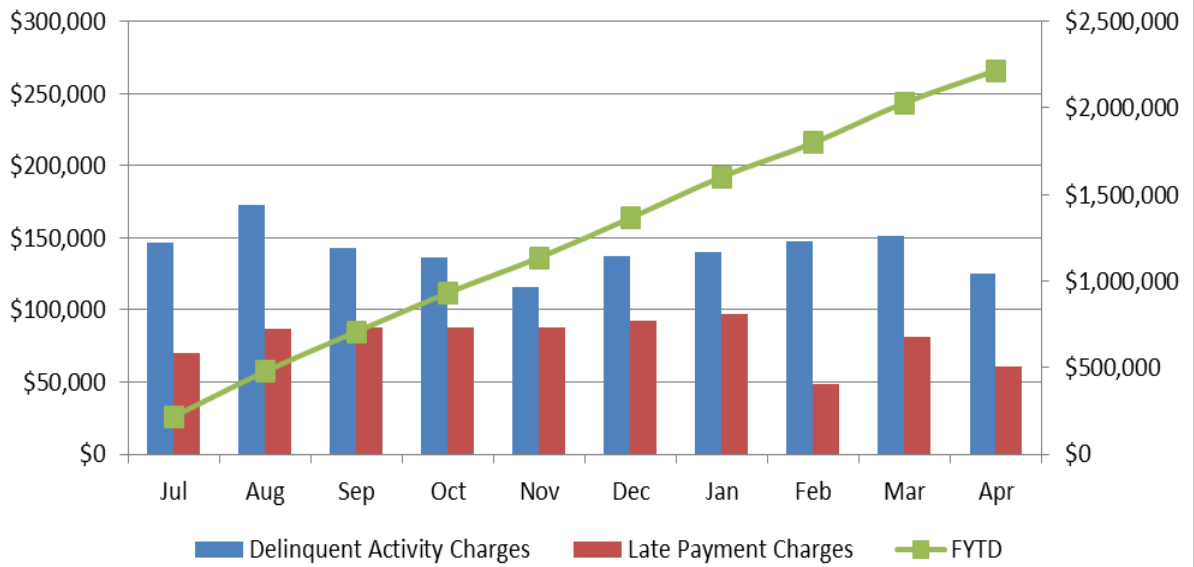


Delinquent Field Activity

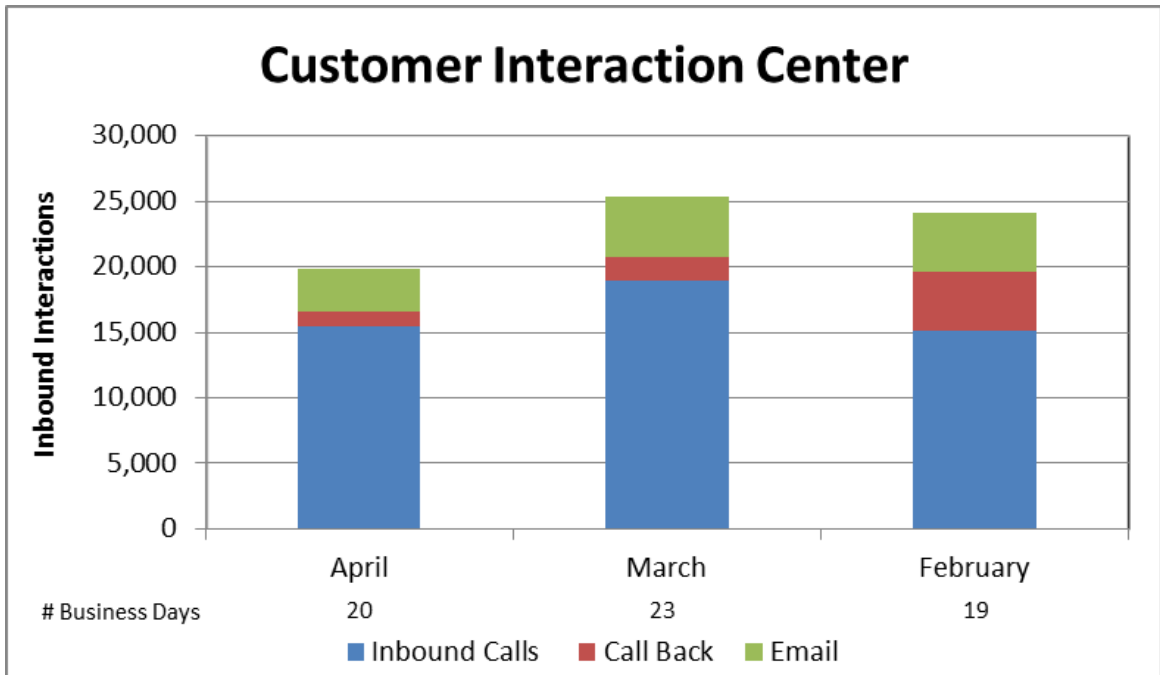


■ Leave Tag
 ■ Cut off
 ■ Turn On
 ■ Lock Meter
 ■ Back Check

Delinquent Fees



■ Delinquent Activity Charges
 ■ Late Payment Charges
 ■ FYTD



Customer Interaction Statistics	April	March	February
Calls Answered within 3 minutes	79%	74%	53%
Average Wait Time	1:44	2:08	4:40
Calls Abandoned	1,230	1,916	3,231

D. Procurement

1. Procurement Statistics

	Current Period	FYTD
Bid Cost Savings	\$ 9,328	\$4,988,756
Negotiated Cost Savings	\$ 207,937	\$ 324,300
Salvage Revenues	\$ 4,499	\$ 24,749
Corporate VISA Card - Estimated Rebate	\$ 19,715	\$ 184,240

Average Cycle Time (Receipt of Requisition to Award)					
Solicitation Types	Award Amounts	Mar-17		Apr-17	
		No. Days	Count	No. Days	Count
RFQs	< \$10,000	38	15	11	13
	\$10,000 - \$50,000	46	27	23	23
IFBs	\$50,000 - \$100,000	25	3	37	6
IFBs/RFPs	>\$100,000	96	2	46	9

Requisition Volume Comparison			
Requisition Amounts	7/1/2015 - 6/30/2016 Requisitions	7/1/2016 - 4/30/2017 Requisitions	Percent Comparison of Past Year
< \$10,000	260	190	73%
\$10,000 – \$50,000	274	215	78%
\$50,000 – \$100,000	47	48	102%
>\$100,000	78	74	95%
Total	659	527	80%

2. Some of the more formal technical competitive bid solicitations for the month include:
 - a. Polymer Blending and Feed Equipment Installation at the Nansemond Treatment Plant
 - b. Concrete Pads and Sidewalk Installation at the James River Treatment Plant

E. Business Intelligence – Enterprise Resource Planning (ERP)

1. ERP Helpdesk currently has 237 open work orders in the following status: 8 escalated, 80 in progress, 15 on hold, 127 open, 7 waiting on user. ERP Helpdesk received 217 work orders in April. In February, 191 work orders were closed and 74 were closed within one hour.
2. Staff attended the 2017 Collaborative Oracle Roundtable for E-Business
3. ERP staff continues to work with consultants on functionality and improvements to the system.

F. Strategic Planning Metrics Summary

1. Educational and Outreach Events: 1
 - a. 2017 William & Mary Supplier Diversity SWaM Fair
2. Community Partners: 0

Item #	Strategic Planning Measure	Unit	April 2017
M-1.4a	Training During Work Hours Per Full Time Employee (100) – Current Month	Hours / #FTE	1.31
M-1.4b	Total Training During Work Hours Per Full Time Employee (100) – Cumulative Fiscal Year-to-Date	Hours / #FTE	28.39
M-5.2	Educational and Outreach Events	Number	1
M-5.3	Number of Community Partners	Number	0
	Wastewater Revenue	Percentage of budgeted	101%
	General Reserves	Percentage of Operating Budget less Depreciation	106%
	Accounts Receivable (HRSD)	Dollars	\$19,864,326
	Aging Accounts Receivable	Percentage of receivables greater than 90 days	20%

Respectfully,

Jay A. Bernas

Jay A. Bernas, P.E.

Director of Finance

TO: General Manager

FROM: Director of Information Technology (IT)

SUBJECT: Information Technology Department Report for April 2017

DATE: May 11, 2017

A. General

1. The Atlantic Treatment Plant Distributed Control System (DCS) servers and workstations were successfully upgraded, without incident or interruption of plant operations.
2. Working closely with the Operations Department, a new Nitrified Recycle (NRCY) control scheme was designed, programmed and tested at the James River Treatment Plant. The test was successful and will now be installed on the seven remaining Integrated Fixed Film Activated Sludge (IFAS) tanks.
3. The primary storage backup software was successfully upgraded to the most current version.
4. Construction of the Small Communities Division Server and Communications Room (SCR) is on schedule and within budget. Existing network and telephone cabling is being rerouted from the existing equipment closet, to the much improved SCR.

B. Strategic Planning Metrics Summary

1. Educational and Outreach Events: 0
2. Number of Community Partners: 0

Item #	Strategic Planning Measure	Unit	April 2017
M-1.4a	Training During Work Hours Per Full Time Employee (48) – Current Month	Total Training Hours / # FTE	0.58
M-1.4b	Total Training During Work Hours Per Full Time Employee (48) – Cumulative Fiscal Year-to-Date	Total Training Hours / # FTE	10.28
M-5.2	Educational and Outreach Events	Number	0
M-5.3	Number of Community Partners	Number	0

Respectfully,
Don Corrado

TO: General Manager
FROM: Director of Operations
SUBJECT: Operations Report for April 2017
DATE: May 8, 2017

A. Highlights

1. Clarence Minters will be returning to the Small Communities Division (SCD) on May 8. Staff is looking forward to the return of their colleague.
2. The Urbanna Treatment Plant (UBTP) Structural Rehabilitation Capital Improvement Project (CIP) was recently completed. The intent of the original project was to apply a protective coating to the plant's biological above-ground steel tanks. Bids for the job were in excess of \$850,000, well above the project estimate. Staff decided to utilize in-house skilled labor to accomplish the rehabilitation. Staff from the Williamsburg Treatment Plant (WBTP), Electrical & Energy Management Project Team and SCD were able to bring each process train offline independently and high- pressure blast and apply industrial coatings, substantially extending the life of the plant. Each train took approximately five weeks to complete. The significant savings allowed additional work to be added to the project including the installation of a new stairway, handrails, safety gratings and concrete sidewalks throughout the plant.

B. Interceptor Systems

1. North Shore (NS) Interceptor Systems
 - a. There was one interceptor complaint and two system alarms during the month. Staff resolved each of these issues.
 - b. Work continued on assessing the implications of taking over ownership of the Surry County and the Town of Surry Sewer Systems. Property acquisition and easement transfer activities continued.
 - c. Work on Lawnes Point continued with pump and haul operations and improvements to the treatment train to initiate the treatment of the lagoon water.

- d. Staff assisted with construction activities and startup procedures for the replacement 33rd St. Pump Station.

2. South Shore (SS) Interceptor Systems

- a. Staff supported the Engineering Department with the Courthouse Pressure Reducing Station (PRS) final testing. The PRS will be set to automatic mode in early May when the final set points are programmed into the automated valve. Once implemented, a portion of the South Shore force main network has the ability to function as a “smart sewer system” improving control features at the station.
- b. While Staff was working at the Norchester pump station, a citizen stated that there were offsite odors coming from the discharge of the station’s odor control system. This is the first biological-followed-by-carbon system that HRSD has deployed. The system has been in operation for eight months and the carbon appears spent. HRSD engaged a carbon expert to address the situation. A similar system is currently planned for installation at the new Bridge Street pump station in Hampton.
- c. Staff assisted Atlantic Treatment Plant (ATP) by cleaning wet wells at the headworks of the plant.
- d. Staff supported Army Base Treatment Plant (ABTP) by removing 70 yards of sludge from one of the aeration tanks.

C. Major Treatment Plant Operations

1. ABTP

- a. Staff reported seven regulatory reportable events (RRE), one due to a short loss of chlorination, four in solids handling and two in odor control.
- b. Since the methanol tank remains out of service and the chemical is not available to assist in the denitrification process, effluent averaged a T-N level of 8.32 mg/L. Staff does not anticipate problems meeting the James River bubble permit levels for the year. Staff is currently pursuing a temporary glycerin-based alternative carbon solution to compensate for the lack of methanol. A consulting firm was engaged to pursue an above-ground storage tank.

- c. SS Interceptors staff along with plant staff cleaned Aeration Tank 2 Cell C to prepare the facility for a contractor who will install two support columns for structural integrity.
- d. Staff completed resistance testing of the new underground electrical cables throughout the entire plant.
- e. Odor B fan delaminated when a contractor restored power after testing electrical cables. The power restoration sequencing signaled the instrumentation to close a critical damper on the odor control system. No alarm exists to provide notice of increasing pressures within the odor control system that resulted in the catastrophic failure. Corrective measures include the addition of pressure-monitoring sensors to the system and a review of the instrumentation setup.

2. ATP

Staff migrated the Digital Control System (DCS) from the old Unix software to a Windows-based system. During the migration, the plant operated in “manual” mode for two days. This project was successful due to a good team effort by the contractor and staff.

3. Boat Harbor Treatment Plant (BHTP)

- a. On April 17, clogged nozzles reduced scrubber flows causing the induced draft fan to shut down resulting in a 1 hour and 5 minute use of the bypass stack. A previously scheduled incinerator burnout allowed staff to replace the clogged scrubber nozzles.
- b. The preliminary compliance report for the March testing of furnace #1 indicated that the furnace passed stack testing.
- c. Staff, along with contractors, installed a Zero Hearth Afterburner (ZHA) on furnace #1. The ZHA will provide better removal of gases and particulates, while potentially reducing natural gas usage. Initial results from the portable gas analyzer unit are promising. Official testing will take place in early May.

4. Chesapeake-Elizabeth Treatment Plant (CE)

- a. The plant experienced three air permit deviations. On April 1, an Operator error caused a less-than-minimum three-hour average scrubber pH level. On April 2, equipment failure led to an unplanned incinerator burnout causing the scrubber pressure to drop. In

addition, on the same day, an Operator-in-training inadvertently pressed the shut-off button for the ID Fan, causing the bypass stack to open.

- b. Staff installed permanent piping for the caustic feed to the incinerator scrubber water.
- c. Staff participated with Talent Management in a Water Environment Federation webcast presentation about hiring and recruitment.
- d. Staff repaired the sand seal on incinerator #2.

5. James River Treatment Plant (JRTP)

- a. Staff completed installation of a cylinder screen on the #2 Nitrified Recycle (NRCY) pipeline on Integrated Fixed Film Activated Solids (IFAS) tank #8. The screen should prevent media from flowing through the pipe to the IFAS effluent during conditions where NRCY pumps might be off while the tank is in operation. Staff placed IFAS tank #8 back in service and began work on modifying the #2 NRCY pipeline in IFAS tank #5 to create an anaerobic zone. A similar cylinder screen will also be installed.
- b. Staff began construction on a tank that will be used to feed and mix magnesium hydroxide with digested solids. Once completed, magnesium hydroxide added to digested solids should create phosphorus compounds that will become part of the cake solids and sent to the contracted compost facility.
- c. Staff performed more testing of the Ammonia-Based Aeration Control (ABAC) on the IFAS tanks. Testing focused on keeping media from bunching at the tank effluent channels by adjusting the automated air valves.

6. Nansemond Treatment Plant (NTP)

- a. Staff continues to focus efforts on the #1 digester recovery. Staff fed roughly six tons of soda ash to the digester in order to increase pH levels. While attempting to recover digester #1, staff is utilizing digester number #2 as a holding tank and is pumping directly into and immediately out of the digester to avoid partial digestion of the solids resulting in dewatering complications. The coatings work on digester number #2 was postponed until digester #1 recovers. Because of the current status of the digestion process at the plant, the Struvite

Recovery Facility (SRF) remains offline. As a result, we are feeding a significant amount of ferric chloride to control TP levels. Staff believes that digester number #1 will fully recover by the end of May.

- b. Staff continues to work in addressing the high solids concentrations in the pond at the Lawnes Point Treatment Plant. The team hopes to be ready to discharge the treated pond water by the end of May.

7. Virginia Initiative Plant (VIP)

- a. A noise-dampening enclosure installed around a small blower reduced off-site noise levels reported in an adjacent neighborhood. The local resident who reported the noise was complimentary and appreciative of staff's response to the issue.
- b. The plant experienced eight air permit deviations. Four occurred when the bypass stack was used because of a high vibration condition of the ID fan. Staff switched furnaces to investigate and repaired the fan. Two deviations were due to low scrubber pH levels and one was due to low scrubber water flow. Staff resolved the scrubber deviations by increasing caustic and water flow through the scrubber. The final deviation was a bypass damper event caused by a power loss.
- c. Plant personnel placed both Versatile Biological Reactors in service, resulting in Total Nitrogen reduction down to 6.5 mg/L. Total phosphorus is well below target with the plant's Bio-P removal enhanced with ferric sulfate addition.

8. WBTP

- a. The plant experienced one air permit deviation when staff, working inside a control panel pumped a loose wire causing the ID fan to shut down and the emergency bypass to open for nine minutes. The fan was restarted and the loose wire was repaired.
- b. Staff drained, cleaned and began modifying the last aeration tank to include an anaerobic selector zone.

9. York River Treatment Plant (YRTP)

- a. Staff received over 100 hours of topic-specific training including front line supervisor orientation, emergency generators from an electrical point of view, centrifugal pump operation, working in teams and problem solving.
- b. Contractors completed punch list work on the Chemical Facility and Hypochlorite tank replacement projects in April.

D. SCD

1. SC Treatment:

- a. West Point Treatment Plant (WPTP)
The Tertiary Filter is under design and should move forward into construction sometime this summer. The filter will be another substantial improvement to treatment reliability and performance. The new plant permit went into effect on 5/1/17 with the more stringent BOD/TSS limits.
- b. UBTP
The fine bubble diffuser and additional mixer equipment are on order for the plant aeration and anoxic selector upgrade in order to enhance biological nutrient removal at the plant due to the increased loading from the Bethpage Campground facilities. The equipment installation will occur in November/December of this year after the campground closes down for the season and completion of the annual Oyster Festival.
- c. King William Treatment Plant (KWTP)
Rebuilding work for the Train #1 MBR will continue into May in order to get the second train online to handle the increased flow coming to the plant.
- d. Central Middlesex Treatment Plant (CMTP)
The two new UV systems were delivered and are currently being installed at the Central Middlesex plant. The new downstream, redundant unit will be installed and tested first, followed by demolition of the existing unit and installation of the new unit in its place. This work is being done in house.

2. SC Collections:

a. Urbanna System

The Cross Street PS rehabilitation project will have the pre-bid on May 8. This will replace the final, remaining suction-lift pump station in the SCD system. SCD engineering and operations staff designed this project in house.

b. Mathews System

Phase V of the valve replacement is currently being bid with the acceptance date set for May 13. Construction will commence in June and continue through November. Phase VI, the last remaining phase, will go out in August/September of this year and complete the replacement of all the original sump and valve pit structures installed in the early 1970s.

E. Support Systems

1. Automotive

- a. Engine repairs on the #2 generator at ABTP continue. The engine is in place. Contractor began reconnection of piping and wiring. Engine startup and testing slated for the first week of May.
- b. Staff performed generator load bank tests at 25th Street, Colley Avenue, Ford's Colony, and Normandy Lane PSs. All generators operated as designed and were returned to service.
- c. Staff met with a contractor to resolve an automatic load bank generator issue at State Street PS. The unit will not release the load after utility is restored. The contractor is in process of remedying.

2. Carpentry Shop

The SS Carpenters completed 13 projects including the fabrication of odor scrubber manway covers for NTP, the removal and installation of new locksets keyed at ABTP, construction of an archway across the reception area hallway at ABTP, and the completion of PS and roof inspections across numerous HRSD's facilities.

3. Condition Assessment (Coatings and Concrete)

- a. The Supervisory Control and Data Acquisition (SCADA) project continues. Staff completed the remaining SS PS Visio screen layouts,

toured 13 NS PSs, and explored numerous City of Virginia Beach locations utilizing Verizon cellular technology and the City of Virginia Beach's SCADA.

- b. Contractor work for 1,600 linear feet of crack repairs began on ABTP's aeration tanks.
- c. Concrete and coating rehabilitation of the aeration and secondary clarifier tanks' exterior walls and roof decks progresses at BHTP.
- d. Coatings Inspectors conducted annual warranty inspections on the gravity thickener and contact tanks at JRTP. Assessment of primary tanks #3 and #4 are also complete.
- e. Rehabilitation of NTP's Triple A/Aeration Tanks continues. Coating of Tank #1 is complete.
- f. Rehabilitation of the Return Effluent Grit Channel at VIP is nearly complete.

4. Facilities Maintenance

- a. Work continues on the Central Environmental Laboratory's (CEL) roof and heating, ventilation and air conditioning (HVAC) upgrade project. The second 200-ton chiller is ready and prepared for startup the first week of May. The HVAC portion of the project is 80 percent complete. Work on the roof replacement progresses.
- b. Staff continues to ready a property purchased in Gloucester for sale after the home is demolished. Staff took samples from the home and tested for asbestos. Two samples were positive and staff is proceeding with abatement of all areas containing asbestos.

5. Machine Shop

The Machine Shop completed 13 projects including the fabrication of new impeller and base rings for Arctic Avenue and Laskin Road PSs, a new base ring for Suffolk PS, and new impeller ring for Elmhurst PS. The shop also manufactured a head space occupier for the Sustainable Water Initiative for Tomorrow (SWIFT) project, a scum concentrator drive shaft and a new grit classifier gear box driver shaft for the YRTP.

F. EEM

1. Staff coordinated a test to simulate a loss of phase with Dominion Virginia Power (DVP) at NTP. The generator control system programmable logic controller (PLC) was modified to improve reliability, starting and transfer of power to generators. The system was tested. It performed as designed and was returned to service.
2. Staff coordinated a planning meeting to discuss required structural bracing and breaker retrofits for two motor control centers (MCC's) at the NTP.
3. Staff replaced the ultraviolet system for the SWIFT pilot facility after sustaining water damage earlier this year.
4. Staff coordinated an outage with DVP and worked with a contractor to inspect the dewatering MCC main breaker at YRTP. A pending report will provide details concerning the necessary modifications to maintain reliability.
5. Project Team performed preventive maintenance (PM) on medium voltage blower starters at ATP and CE.
6. Project Teams continue to support the new 33rd Street PS project by working with NS Interceptors and various contractors to bring the PS on line. Activities involve modifying miscellaneous programs as well as testing and verifying alarms.
7. Project Team provided maintenance assistance to NTP by performing pH, final effluent flow, gas detector and ATI industrial automation sensor PMs this month. This is an opportunity to cross train some of the project staff on this metering.
8. Thermographic inspections were completed this month at BHTP, NTP and SS PSs. These inspections identify abnormal heat signatures in the electrical equipment before they become a serious problem.
9. Generator "black start" training and standby power and generation training across the district continue.

G. Water Technology and Research

The National Water Research Institute (NWRI) conducted an independent third-party expert panel review of the SWIFT program that culminated in one and a half days of workshops and meetings at HRSD. The panel provided a verbal

debriefing following their private deliberations about the project, followed with a written report. Probably the most significant comment from the panel was to consider designing the advanced water treatment (AWT) processes to meet pathogen log removal value (LRV) specifications similar to California for injection of reclaimed wastewater, including the benefit of soil aquifer treatment (SAT). The implication is that a soil column study, along with a detailed monitoring well program associated with the SWIFT Research Center at Nansmond Plant will be required to assess the removal of pathogens through SAT. The panel also suggested some additional benefits of doing the soil column work would be to demonstrate the considerable additional benefit of organic chemical, as measured by total organic carbon, and emerging contaminant removal.

Staff will move ahead with soil column investigations starting in the summer of 2017. The soil columns will be constructed from approximately 12-foot lengths of PVC pipe, filled with aquifer sand and fed finished water from the SWIFT pilot. This type of investigation is relatively new to our field, and in order to learn more about the experimental approach and other ongoing soil column projects, a team from HRSD traveled to several locations in southern California. Staff from Trussell Technologies Inc. coordinated a site visit to the City of Los Angeles' Donald C. Tillman Water Reclamation Plant where a soil column study and advanced treatment pilot work is currently ongoing, specifically focused on emerging contaminant and virus removal by SAT. We also visited the Trussell Technologies laboratory where other similar soil column studies are being underway on behalf of other California utilities contemplating managed aquifer recharge. These tours were incredibly valuable in terms of figuring out how to conduct this type of investigation and avoiding some future difficulties associated with this extremely challenging experimental work.

H. Strategic Measurement Data

1. Education and Outreach Events: 19

- a. Charles Bott presented a briefing on SWIFT at Rappahannock Community College
- b. Charles Bott was gave a podium presentation for workshop at WEF Biosolids Conference
- c. Alexandria Gagnon gave a podium presentation at WEF Biosolids Conference
- d. Jeffrey Nicholson gave a podium presentation at WEF Biosolids Conference
- e. Charles Bott gave two podium presentations for workshops at process seminar in Madison, WI
- f. Charles Bott attended project meetings at University of Michigan in Ann Arbor, MI

- g. Charles Bott gave five presentations as part of an invited visit to New Zealand
- h. CE staff participated in a WEF Webcast regarding HR and Operations
- i. VIP Tour for an ODU Environmental Class
- j. ATP tour for an AP Environmental Science from Ocean Lakes HS
- k. WBTP tour for staff from Delaware County Regional Water Authority
- l. NS Ops staff participated in a Touch A Truck event
- m. SS Ops staff participated in a Touch A Truck event
- n. SCD Staff participated in the VDOT Adopt-A- Highway Program

2. Community Partners: 6

- a. Virginia Institute of Marine Science
- b. Old Dominion University
- c. Chesapeake Bay Foundation – oyster restoration
- d. Ocean Lakes High School
- e. VDOT and Mathews County (Adopt-A-Highway Program)
- f. Rappahannock Community College

Item #	Strategic Planning Measure	Unit	April 2017
M-1.4a	Training During Work Hours per Full Time Employee (FTE) (507) – Current Month-	Hours / FTE	3.87
M-1.4b	Total Training During Work Hours per FTE (507) – Cumulative Year-to-Date	Hours / FTE	40.19
M-2.3a	Planned Maintenance Total Maintenance Hours	Total Recorded Maintenance Labor Hours	30,665.5
M-2.3b	Planned Maintenance – Preventive and Condition Based	% of Total Maintenance Hours	43.24%
M-2.3c	Planned Maintenance - Corrective Maintenance	% of Total Maintenance Hours	22.01%
M-2.3d	Planned Maintenance-Projects	% of Total Maintenance Hours	34.75%
M- 4.1a	Energy Use: Treatment *reported for March 2017	kWh/MG	2,479
M-4.1b	Energy Use: Pump Stations *reported for March 2017	kWh/MG	169

Item #	Strategic Planning Measure	Unit	April 2017
M-4.1c	Energy Use: Office Building *reported for March 2017	kWh/MG	91
M-5.2	Educational and Outreach Events	Number	19
M-5.3	Number of Community Partners	Number	6

Respectfully submitted,

Steve de Mik

Director of Operations

TO: General Manager
FROM: Special Assistant for Compliance Assurance
SUBJECT: Monthly Report for April 2017
DATE: May 5, 2017

A. General

HRSD continues implementing the hybrid regionalized approach to the Regional Wet Weather Management Plan (RWWMP) with the next major Consent Decree milestone, the submittal of the RWWMP, scheduled for October 1, 2017.

B. Submittals Completed in April 2017 – The Fiscal Year 2017 Semi-Annual Report was submitted to the U.S. Environmental Protection Agency (EPA) and Virginia Department of Environmental Quality (DEQ) on **April 28**. The annual update to the Sanitary Sewer Overflow (SSO) Response Plan was also submitted to the EPA and DEQ on **April 28**.

C. Activities

1. **Phase 6 – Rehabilitation Plan.** Work continues on the Rehab Action Plan projects with the next major milestone on May 5, 2018, for Phase 0. Several projects are underway with completions reported in the Semi-Annual Report.
2. **Phase 7 – RWWMP.** Optimization of the RWWMP solution sets from the Alternatives Analysis Report was completed in April. The solution sets were reviewed with the localities at the Capacity Team Meeting on **April 10** and through one-on-one meetings on **April 17, 19, 20, 21, 24, and 25**. These later meetings included discussion of the I/I Reduction Program and locality capacity improvements.

Development of the approach to High Priority Project selection was underway along with sequencing and scheduling the RWWMP projects.

The Technical Coordination Team met on **April 13 and 27** to review overall progress. The HRSD project manager for the Chesapeake-Elizabeth Treatment Plant Closure continues attending monthly coordination meetings as part of an ongoing effort to ensure that closure of this treatment plant is properly modeled and accounted for in the final RWWMP.

3. **Phase 8 – EPA Consent Decree Services.** HRSD continues sharing information with the localities through the regional SharePoint site and flow, pressure and rainfall data portal. A Capacity Team meeting was held **April 10** to review general progress of the Consent Decree activities and provide an overview of the RWWMP solutions.
4. **Phase 9 – Supplemental Services.** A monthly compliance program meeting was held on **April 5** to review overall progress.

Management, Operations and Maintenance (MOM) Program elements are ongoing, including the Hydrogen Sulfide (H₂S) Monitoring Program and implementation of a Business Intelligence (BI) system for the Small Communities Division (SCD). This includes a MOM update manual guidance document for use on the next major update expected in 2018.

The Flow, Pressure and Rainfall (FPR) monitoring program continued in April, with data collection and analysis being performed as part of the MOM Program.

Condition assessment work under Phase II of the Force Main Condition Assessment (FMCA) program progressed in April. Force main inspection work order status is as follows:

- FMP2 035 Hampton Trunk: Under development
- FMP2 039 Bowers Hill II: Work Order sent to HRSD Commission for approval in April.
- FMP2 043 Kempsville Road: Work order nearly final.
- FMP2 044 Battlefield: Original scope completed, minor follow-up work to occur in early May.

Gravity inspection work order status is as follows:

- GMP2 044 Berkley Trunk Sect SS: Completed
- GMP2 045 Arctic Ave: Completed
- Numerous work orders have been signed and are scheduled to be completed in May to inspect gravity pipe upstream of HRSD pumping stations.
- Additional work orders are currently in draft and under review:
 - GMP2 042 NS Siphons 2017
 - GMP2 043 FY17 SS MH Inspection
 - GMP2 046 Ashland Circle
 - GMP2 053 SS Siphons 2017

Work on the Fiscal Year-2016 Condition Assessment Annual Report continued in April.

D. Next Submittals

RWWMP – Due October 1, 2017

E. Program Budget Status

The overall program budget is **\$131,191,858**, excluding the Master Metering Program. A summary of appropriations and expenses is attached.

F. Strategic Planning Metrics Summary

1. Educational and Outreach Events: 0
2. Number of Community Partners: 0

Item #	Strategic Planning Measure	Unit	April 2017
M-1.4a	Total Training Hours Per Full Time Employee (1) – Current Month	Total Training Hours / # FTE	0
M-1.4b	Total Training Hours Per Full Time Employee (1) – Cumulative Fiscal Year to Date	Total Training Hours / # FTE	44
M-5.2	Educational and Outreach Events	Number	0
M-5.3	Number of Community Partners	Number	0

Respectfully submitted,

Phil Hubbard, P.E.

Attachments: [Consent Order State & EPA Expenditures](#)

Consent Order State & EPA Expenditures

	Total Appropriation	April 2017 Obligations	Available Balance
Regional Consent Order and Other Consent Order Requirements			
Regional Hydraulic Model	\$104,248,712	\$108,311,522	-\$4,062,810
Manhole Rehab/Replacement Phase I & North Shore Siphon Chamber	\$2,834,000	\$441,822	\$2,392,178
Pump Station Wet Well Rehabilitation Phase I	\$2,890,000	\$341,226	\$2,548,774
Locality System Monitoring and Condition Assessment	\$21,219,146	\$20,423,005	\$796,141
Subtotal - In progress	\$131,191,858	\$129,517,575	\$1,674,283

Completed Work

Regional Consent Order and Other Consent Order Requirements	(Included in subtotal above)
Master Metering Program III	\$2,005,140
Master Metering Program IV	\$13,628,635
Total	\$145,151,350

TO: General Manager
 FROM: Director of Talent Management
 SUBJECT: Monthly Report for April 2017
 DATE: May 10, 2017

A. Human Resources (HR)

1. Recruitment Summary

New Recruitment Campaigns	3
Job Offers Accepted	
Internal Selections	4
External Selections	9
Internal Applications	23
External Applications	140
Average Days to Fill Position	49

2. Enterprise Resource Planning (ERP)

- a. A new Learning Management catalog was set up for Support Systems. Administrator training was provided to staff for managing training activities.
- b. Benefit setup was completed in preparation for May Open Enrollment.

3. Benefits and Compensation

- a. Open enrollment meetings were scheduled and communication materials finalized.
- b. The Compensation and Classification team completed evaluation of several Water Quality positions and initiated evaluations based on Department requests and compensation study outcomes.

4. Wellness

a. Participation Activities

Year 5 Participation Activities	Unit	April 2017 2017	Year to Date (March 2017– February 2018)
Biometric Screenings	Number	2	2
Preventive Health Exams	Number	4	8

Year 5 Participation Activities	Unit	April 2017 2017	Year to Date (March 2017–February 2018)
Preventive Health Assessments	Number	15	29
Coaching Calls	Number	0	0
On-Line Health Improvement Programs	Number	33	84
Web-MD Online Health Tracking	Number	130	259
Challenges Completed	Number	0	0
Fit-Bit Promotion	Number	21	31

- b. With completion of the appeals process, Optima finalized 2016-2017 Wellness year results identifying employees earning lowest deductible and incentive pay. Over fifty appeals were received and processed. The overall number of employees earning the lowest deductible and incentive pay increased.
 - c. An eight week Boot Camp class began at the Air Rail complex.
 - d. The Wellness Specialist developed Open Enrollment materials.
 - e. The Wellness Committee completed a draft Hurricane Plan healthy alternative food list and meal plan for review by Operations.
5. Workers Compensation
- Three new cases were opened with 10 cases remaining active.
6. Employee Relations
- a. Staff continued partnering and meeting with workcenter supervisors to support employee relations and address HR issues. The HRSD ethics policy was clarified and revised Engineering Department job descriptions were reviewed.
 - b. HR Staff conducted Supervisor Onboarding for new supervisors to provide information on policies, recruitment processes, Americans with Disabilities Act, Family Medical and Leave Act, Worker's Compensation procedures and ERP Manager Functionality.
 - c. The Employee Assistance Program (EAP) provider conducted a *Shift Transitions* pilot training at Chesapeake-Elizabeth Treatment Plant.

7. General

- a. Staff clarified position information for the Fiscal Year 18 budget.
- b. HR information and data was provided for the American Water Works Association's Utility Benchmarking survey.
- c. Staff attended the following training:
 - (1) Society of Human Resources Management Talent Management Conference
 - (2) HRSD's Your Role in Quality
 - (3) Myers Briggs Type Indicator II Webinar
 - (4) EAP Shift Transitions training
 - (5) HRSD Supervisor Training
- d. Staff participated in the following:
 - (1) HRSD Senior Management Team meeting
 - (2) HRSD Leadership Forum
 - (3) HRSD University Team

B. Organization Development and Training (OD&T)

1. The HRSD University team continued developing two e-learning pilot projects: *HR Open Enrollment (Benefits)* and *Introduction to Biological Nutrient Removal (BNR)*. The BNR pilot was conducted. Based on feedback, a glossary and an assessment review are being added. OD&T and HR staff continued to finalize the script for the Benefits project.
2. *The State of OD&T* was presented to the QST covering 2016 highlights and future initiatives.
3. The quarterly Facilitator meeting was held to discuss upcoming training and Workcenter Planning Days. All facilitators will participate in future planning days in order to streamline efforts.
4. The following training programs were held:
 - a. Revised Teams and Problem Solving (TAPS) incorporating *Natural Planning, Five Dysfunctions of a Team*, several brainstorming techniques and engagement activities over two days.
 - b. Semi-annual Supervisory Training, Week 1
 - c. Your Role in Quality
 - d. Introductory and Advanced Coaching
 - e. My Success + Your Success = Our Success

5. Staff participated in Water Environment Federation’s webinar, *Bridging the HR/Operations Gap*. The CE TP Manager and OD&T Manager co-presented *Operations and Recruitment- Navigating the Great Divide* highlighting the experiences of a HR/Operations team established to increase collaboration and improve recruitment. The Director of Talent Management presented *Leadership Development for a Sustainable Future*, covering HRSD’s organization and leadership initiatives and outcomes.
6. OD&T Program information was provided to the Northeastern Ohio Regional Sewer District.
7. The OD&T Manager assisted with the following:
 - a. Planning a *Strengths Finder* workshop for South Shore Operations leadership.
 - b. Initial planning to develop a HRSD project management class in collaboration with employees holding Project Management certifications.
 - c. Work with Army Base TP to pilot EAP’s Emotional Intelligence training.
8. Apprenticeship Program
 - a. The Training Superintendent continued work on curriculums: *Wastewater Analysis, Wastewater Laboratory, Incineration, Disinfection, Math 4 and Collection System Maintenance*.
 - b. Staff reviewed Virginia Department of Professional and Occupational Regulation revisions to Wastewater Operator requirements and monitored the status of planned implementation.
9. Staff attended the following training:
 - a. Association of Training and Development’s *Sustainability*
 - b. *Positive Psychology* by Mentor Coach

C. Safety

1. Mishaps and Work Related Injuries
 - a. HRSD-Wide Injury Mishap Status to Date (OSHA Recordable)

	<u>2016</u>	<u>2017</u>
Mishaps	42	11
Lost Time Mishaps	8	3
<i>Numbers subject to change pending HR review of each case.</i>		

b. MOM Program Year Performance Measure Work Related Injuries

April 2017 Injuries For Operations	April 2017 Injuries for Other HRSD Departments	Total Lost Time Injuries Since July 2016	Total HRSD Injuries Since July 2016
4	0	5	28

c. A follow-up investigation was performed on four work-related injuries and seven auto accidents.

2. HRSD Safety Training

Strategic Planning Measure	Unit	April 2017
Total Safety Training Hours per Full Time Employee (814) All HRSD – April 2017	510.75 Hours / 814 FTE	0.63
Total Safety Training Hours Per Full Time Employee (814) – Cumulative July 2016	3782.43 Hours / 814 FTE	4.65

3. In addition to regularly scheduled safety training and medical monitoring, staff conducted the following sessions:

- a. Seven external briefings for contractors working at HRSD treatment plants and pump stations
- b. Updated Respiratory Protection Program training at work centers:
 - (1) Small Communities Division
 - (2) North Shore Electrical and Energy Management (EEM)
 - (3) Nansemond Treatment Plant
 - (4) Virginia Initiative Plant (VIP)
- c. Confined Space training for North Shore EEM employees
- d. Two Methanol Safety training sessions for VIP employees and four Methanol Safety briefings for contractor employees working at VIP
- e. Main Office Emergency Response training for Customer Care Center employees
- f. Scaffold Safety training for South Shore EEM employees

4. Safety Inspections, Testing and Monitoring

- a. Weekly on-site inspections of the following construction sites:
 - (1) VIP
 - (2) York River Treatment Plant (TP)
 - (3) James River TP
 - (4) Nansemond TP SWIFT Demonstration Project

- b. Quarterly safety inspections of the following work centers:
 - (1) Atlantic TP
 - (2) Boat Harbor TP
 - (3) Chesapeake-Elizabeth TP
 - (4) Nansemond TP
 - (5) North Shore Interceptor Systems
 - (6) North Shore P3
 - (7) North Shore Automotive, Carpentry and Electrical Shops

- c. Monitoring and testing for the following:
 - (1) Monthly Central Environmental Lab, Technical Services Lab and P3 Lab hood velocity tests
 - (2) Evaluated an Apprentice Welding Shop ventilation system
 - (3) Evaluated replacement of a Williamsburg TP primary gate

- d. Conducted the following safety walk-throughs or evaluations:
 - (1) Evaluated hypochlorite sensors and potential carbon monoxide issues for Williamsburg TP
 - (2) Investigated a scrubber fan implosion incident at Army Base TP
 - (3) Evaluated safety needs for the new 33rd Street Pump station
 - (4) Escorted a property insurance vendor on a walk-through of Atlantic TP and provided requested information
 - (5) Escorted an insurance representative on a tour and provided follow-up information as part of a risk management evaluation of construction activities at the Virginia Initiative Plant

- e. Conducted annual respirator fit testing and pulmonary function testing for employees required to wear respirators and coordinated physicals.

- f. Safety Division and Human Resources staff met to discuss administrative procedures for Respirator Clearance physicals.

5. Safety Programs

- a. Staff scheduled training for Main Office Emergency Response procedures.
- b. Industrial Hygienist developed a presentation summarizing survey results to evaluate a Prescription Safety Glasses program.
- c. Staff scheduled Electrical Safety Program training for Operations.
- d. A Safety Recognition initiative was developed for National Safety Month.
- e. The following activities were performed for the Confined Space Program:
 - (1) Updated permits for the Atlantic and Army Base TPs
 - (2) Evaluated a confined space entry into a struvite tank at Nansemond TP
- f. The Safety Coordinator continued maintaining Operation's Safety Accident Tracking report.

6. General

- a. The HRSD Safety Team met to address the following:
 - (1) National Safety Awareness Month activities
 - (2) Options for a prescription safety eyewear program
 - (3) Safety Newsletter
 - (4) Vehicle Backing Accidents and Safety Notice
 - (5) Electrical Safety Program Training
 - (6) Safety SOP Updates

D. Monthly Strategic Planning Metrics Summary

1. Education and Outreach Events: (7)
 - a. Hosted two Hampton Roads Public Works Academy (HRPWA) classes, *Pumping* and *Professional Writing*
 - b. HRPWA summer internship interviews at Prudent Center
 - c. City of Chesapeake Public Schools Career Fair
 - d. City of Newport News Huntington Middle School Career Fair
 - e. Virginian Pilot's Career Connection Spring Career Event
 - f. City of Suffolk Public Schools Annual Career Expo
 - g. Hampton High School's Project Discovery Career Event
2. Community Partners: (6)
 - a. HRPWA
 - b. City of Chesapeake Public Schools

- c. City of Newport News Public Schools
- d. Virginian Pilot
- e. City of Suffolk Public Schools
- f. City of Hampton Public Schools

Item #	Strategic Planning Measure	Unit	April 2017
M-1.1a	Employee Turnover Rate (Total)	Percentage	0.13
M-1.1b	Employee Turnover due to Service Retirements	Percentage	0
M-1.4a	Total Training Hours Per Full Time Employee (15) – Current Month	Total Training Hours/ FTE	2.20
M-1.4b	Total Training Hours Per FTE (15) Cumulative Fiscal Year-to-Date	Total Training Hours/ FTE	39.27
M-5.2	Educational and Outreach Events	Number	7
M-5.3	Community Partners	Number	6

Respectfully submitted,

Paula A. Hogg

Director of Talent Management

TO: General Manager

FROM: Director of Water Quality (WQ)

SUBJECT: Monthly Report for April 2017

DATE: May 15, 2017

A. General

1. Pretreatment and Pollution Prevention (P3) division staff did not assess civil penalties this month.
2. The Director attended the Annual Environment Virginia Symposium in Lexington, Virginia. The Virginia Department of Environmental Quality (DEQ) and US Environmental Protection Agency provided a presentation during the symposium addressing the latest Chesapeake Bay nutrient and sediment TMDL (Total Maximum Daily Load) activities. This TMDL forms the foundation for the nutrient controls currently in place at most of HRSD's large facilities. This presentation promoted the concept that cost-effectiveness and co-benefits need to be evaluated when developing nutrient and sediment management strategies. The context for this part of the presentation was focused on non-point sources of loads, like agriculture, but one could easily apply the concept to any source. Co-benefits of a nutrient management action would include habitat improvement where farm nutrient best management practices are implemented or fewer greenhouse gases are being generated with a particular management action. This approach would potentially move focus away from major capital improvements like wastewater facility upgrades if further nutrient reductions are necessary. Water Quality will monitor DEQ's activities on this topic to determine if there is an opportunity to promote the concept in future TMDL actions.
3. The 24th Annual Pretreatment Excellence and Pollution Prevention Awards Ceremony and Luncheon was held on April 18 at the Hampton Roads Convention Center in Hampton, Virginia. Two industries were honored for their outstanding multi-media pollution prevention efforts. Pretreatment Excellence Awards were presented to 113 permitted facilities who achieved perfect compliance for at least the full calendar year of 2016. Fourteen of those industries were recognized for 10 or more years of perfect compliance and 29 were recognized for five to nine years of perfect compliance.

B. Quality Improvement and Strategic Activities

1. The Sustainability Advocacy Group (SAG) met to decide how to move forward on the latest challenge as well as future efforts of the group.
2. The Technical Services Division (TSD) Technology Team is evaluating the ESRI ArcGIS Data Collector application to see if this aid to our field data collection captures needs. Availability and support of this software is internal to HRSD. A pilot project has been identified and we will be scoping out over the next few months if our needs can be handled by this application.
3. The WQ Communication Team continues monitoring and measuring inter-divisional communication issues within the WQ Department.

C. Municipal Assistance

HRSD provided sampling and analytical services to Bedford County and Hanover County to support their respective Virginia Pollution Discharge Elimination System (VPDES) permit application processes.

D. Strategic Planning Metrics Summary

1. Educational and Outreach Events: 10
 - a. A Laboratory Division manager participated in Old Dominion University's Career fair with Talent Management staff to increase awareness of science-based job opportunities available at HRSD.
 - b. TSD staff presented microbial source tracking results in the Nansemond River watershed to the Nansemond River Preservation Alliance.
 - c. P3 staff participated in a community outreach event at Hoffler Creek Nature Preserve.
 - d. P3 staff participated in Virginia Beach's Earth Day event.
 - e. P3 staff participated in Harbor Fest planning with the City of Norfolk.
 - f. TSD and the Laboratory Division assisted the City of Newport News with a microbial source tracking project at Hilton Beach.
 - g. TSD staff collaborated with the Virginia Department of Health Division of Shellfish Sanitation and the City of Suffolk with a fecal source identification project in the Nansemond River.
 - h. TSD and the Laboratory Division provided Chlorophyll Monitoring and Assessment Program support to the Virginia Department of Environmental Quality in monitoring the James River.

- i. TSD and the Laboratory Division assisted the City of Chesapeake and the Elizabeth River Project with bacterial monitoring and fecal source identification in the Indian River.
 - j. TSD and the Laboratory Division assisted the City of Norfolk with a microbial source tracking project at Knitting Mill Creek.
2. Community Partners: 11
- a. Old Dominion University
 - b. Nansemond River Preservation Alliance
 - c. Hoffler Creek Nature Preserve
 - d. City of Virginia Beach
 - e. City of Norfolk
 - f. City of Newport News
 - g. Virginia Department of Health Division of Shellfish Sanitation
 - h. City of Suffolk
 - i. Virginia Department of Environmental Quality
 - j. City of Chesapeake
 - k. Elizabeth River Project
3. Odor Complaints: 2
- a. South Shore Operations received an odor complaint on April 5, 2017 while working at the Norchester pump station in Norfolk, VA. A citizen stated that there was an odor coming from the station but the citizen did not provide contact information; therefore more information regarding the complaint could not be collected before investigation. TSD investigated the odor complaint and verified that there were offsite odors coming from the discharge of the station's odor control system. Given this is the first biological-followed-by-carbon system installed in the HRSD service area and that it has only been in operation for eight months, HRSD is consulting with HDR's engineering odor expert through HRSD's General Engineering Services to fully address this unique situation. Additionally of concern and with design/build implications, HRSD has a similar system going in at the Bridge Street pump station. HDR and TSD conducted an air and odor sampling event to determine the odorous compounds of concern and system performance. The biological portion of the system is performing well with essentially 100% H₂S removal. While analytical results indicate that the carbon media is exhausted and appears to be converting methyl mercaptan to dimethyl disulfide. More research and sampling is planned along with the replacement of the media once the best media is identified for this application.

- b. On April 17, an odor complaint was received from a local resident, Ms. Sloggie of 5801 Jefferson Avenue, Apt. 2, Newport News, VA regarding a manhole near this location. TSD investigated and confirmed the manhole source of odors/complaint. North Shore Operations immediately sealed the manhole to mitigate the odors. No further odors have been observed and/or complaints received.

Item #	Strategic Planning Measure	Unit	April 2017
M-1.4a	Training During Work Hours Per Full Time Employee (105) (Current Month)	Total Hours / # FTE	7.11
M-1.4b	Total Training During Work Hours Per Full Time Employee (105) (Cumulative Fiscal Year-to-Date)	Total Hours / # FTE	51.6
M-2.5	North Shore/South Shore Capacity Related Overflows	# within Level of Service	0
M-3.1	Permit Compliance	# of Exceedances: # of Permitted Parameters	7:44,363
M-3.2	Odor Complaints	#	2
M-3.4	Pollutant Removal	Total Pounds Removed	160,710,481
M-3.5	Pollutant Discharge	% Pounds Discharged/Pounds Permitted	23%
M-5.2	Educational and Outreach Events	#	10
M-5.3	Community Partners	#	11
	Average Daily Flow	Total MGD for all Treatment Plants	149.83
	Industrial Waste Related System Issues	#	0

Respectfully submitted,
James Plett, Ph.D
 Director of Water Quality

Engagement Background

Our team is continuing to progress with the planned internal audit assignments. During April, SC&H reviewed the management action plans provided in response to the Inventory Process Review report. The report was then finalized and delivered to HRSD management. We also substantially completed the fieldwork phase of the Procurement/ ProCard Process Review. This included working with process owners to request and obtain documentation samples, the performance of control walkthroughs, and ProCard data analysis. SC&H also began to draft the Procurement/ ProCard Process audit report. In addition, we worked with Engineering to finalize the inventory of management action plan (MAP) implementation status reports related the D&C CIP review.

Our audit process consists of four phases:

1. **Planning**: Reviewing relevant background information, gaining an understanding of, and documenting the key areas to be reviewed
2. **Fieldwork**: Testing and examining pertinent documents, reports, transactions, and information to confirm the strength of the processes and related controls
3. **Reporting**: Discussing the conclusions of our audit work and ultimately issuing a written report with suggestions being provided (if identified)
4. **Management Action Plan Monitoring**: Following up with process owners on the status of recommendation implementation from previous audit reports and performing periodic monitoring

Project Accomplishment Summary

During the month of April, our team performed the following:

- **Inventory Process Review**:
 - Reviewed and discussed drafted management action plans with process owners
 - Completed final audit report and delivered to HRSD management
- **Procurement/ ProCard Process Review**:
 - Selected and requested documentation samples for testing
 - Performed testing steps on documentation received from process owners
 - Conducted systematic control walkthroughs for key Procurement processes
 - Analyzed ProCard data from inception of ERP system to present
 - Began drafting audit report
- **Management Action Plan Monitoring**:
 - Reviewed MAP status inventory document updates with D&C process owner
 - Finalized current D&C CIP MAP status inventory

Projected Tasks for May

During the month of May, our team will:

- **Procurement/ P-Card Process Review**:
 - Finalize process flowcharts and audit documentation
 - Complete testing to achieve the objectives detailed in the audit program
 - Draft audit report and discuss observations and recommendations with Procurement process owners
 - Obtain and review management action plans
- **Management Action Plan Monitoring**:



-
- Provide D&C CIP MAP status inventory to HRSD management

 - Engineering Procurement Process Review:
 - Submit audit notification and initial document requests to process owners
 - Conduct kick-off meeting with process owners
 - Schedule on-site walkthrough discussions to begin audit

Engagement Notes/ Delays

SC&H has noted delays in the receipt of documentation review responses and audit information requests in the performance of the Procurement/ P-Card Process review that were the result of timing and availability constraints for process owners. These delays have not been significant and SC&H is continuing to work with the team to move this project forward.



Expertise that Works

HR Administration of Employee Health Insurance Review

Hampton Roads Sanitation District

November 22, 2016

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I. Executive Summary

Background

SC&H conducted an audit of the management procedures for the Hampton Roads Sanitation District (HRSD)'s Employee Health Insurance Program.

In calendar year 2015, HRSD Human Resources (HR) administered the active employee health insurance program for approximately 1,916 members, which includes 834 employees, with spend of \$10,162,351. In FY16, the retiree health insurance program annual expense was approximately \$2,177,782 for 151 non-Medicare retirees, including 15 dependents. The management functions administered by HRSD HR and reviewed by SC&H included new hire enrollment, annual enrollment, change of life events, HSA account set-up, retiree processing, and retiree medical coverage.

Upon beginning employment with HRSD, a new employee has 31 days from his/her new hire orientation date to enroll for medical benefits using the Employee Self-Service ERP. On an annual basis, employees may make changes to their medical benefits during open enrollment between May 1st and May 31st. The only other opportunity during the year for an employee to change his/her health benefit elections is an approved change of life event. Change of life events include, marriage, divorce, birth, adoption, gain or loss in coverage, spouse's open enrollment, or aging of a dependent. Generally, change of life events need to be communicated to HR within 31 days of the event and supported by official documentation. Exceptions to this timeframe are allowed in the event of extenuating circumstances, such as pending court paperwork to support the event.

HRSD is self-insured and assumes the financial risk of providing health benefits to participating employees. HRSD has contracted with Cigna, a third-party health insurance carrier, to administer claims. HRSD does not charge or collect a premium from participating employees. In the event an employee experiences a medical need, the employee is responsible for the assigned deductible amount each plan year. Any medical expense in excess of the employee deductible is paid fully by HRSD excluding prescription co-pays. As part of the self-insurance structure, HRSD has limited its liability via stop-loss insurance of \$250,000. If in any plan year an employee experiences medical expenses exceeding \$250,000, HRSD is insured by Symetra, a third-party provider, to cover the amount in excess of the limit.

The retiree health insurance program is administered and governed in accordance with the Retiree Health Plan Trust. Retirees are eligible to participate in this plan until they reach the age in which he/she qualifies for Medicare coverage. At this point, the retirees can elect to have a retiree Medicare Supplement plan.

There are two deductible rate plans: wellness and non-wellness. The wellness deductible rate is obtained by meeting wellness program participation requirements established by HRSD through Optima Health, a third-party provider. Optima Health obtains wellness documentation from employees to confirm participation and eligibility for a reduced deductible.

Additionally, HRSD offers a three-tiered cash incentive plan as part of the wellness program. Optima Health evaluates whether employees have met the additional requirements for the cash health incentive payments. On an annual basis Optima Health provides HRSD with listing of employees who have qualified for the wellness deductible rate and/or the cash incentive payments.

Objectives

The following audit objectives were established by SC&H based upon the understanding gained during the audit planning procedures.

- A. Identify and document key management procedures, process risks, and controls within the Employee Health Insurance Program offered to both active and retired employees and assess the processes for effectiveness and efficiency.
- B. Ensure that the Employee Health Insurance Program is administered in accordance with HRSD policies and procedures, as well as applicable laws and regulations.
- C. Ensure Wellness Program incentive payments and deductible discounts are supported and made completely, accurately, and timely.
- D. Ensure third party payments are processed in accordance with contract terms and are made completely, accurately, and timely.
- E. Ensure the Retiree Health Program adheres to requirements of the Retiree Health Plan Trust.

Scope

The audit process was initiated in August 2016 and completed in November 2016. The scope included relevant activity within the time period of July 1, 2015 through September 30, 2016. The procedures performed focused on the policies and procedures in place during that time period.

Methodology and Approach

In order to achieve the objectives of this review, SC&H performed the following procedures.

Process Walkthrough and Flowchart Creation

SC&H began the audit by conducting several meetings with members of the HRSD HR Division to identify and walk through the core sub-processes of administering the Employee Health Insurance Program. These discussions focused on process flow, required approval, inputs/outputs, and other control points. Additionally, relevant policy and procedure documentation was obtained and reviewed. Based on these discussions and review of the procedural documentation, SC&H created summarized process flowcharts.

The processes identified and documented included:

-) New Hire Offering of Medical Benefits
-) Annual Enrollment of Medical Benefits
-) Change of Life Event Processing
-) COBRA Offering

-) Wellness Program Administration
-) Employee Health Insurance Program Administrative Costs
-) Retiree Health Insurance Program
-) HSA Administration

Creation of Project Plan

Based on the understanding of the processes, risks, and related controls, SC&H developed an audit program to achieve the objectives described above. This program included detailed steps to address each objective with the goal of verifying the existence of sound internal controls and identifying opportunities for improvement.

Execution of Project Plan

SC&H executed the audit plan by completing the following tasks:

Subject/ Scope	Population	Evaluation
New hires	All	Ensured appropriate, timely enrollment
Change of life events	Sample	Verified the timeliness and accuracy of the benefits updates in the HR system and Cigna records
Current child dependents enrolled in a Cigna plan	All	Verified all non-spouse dependents are 26 years of age or younger
Current Core HR ERP system access	All: System	Ensured appropriately restricted access and user business needs
Terminated employees in scope	All	Verified all received timely COBRA notification from P&A Group (30 days from Term Date)
2015 HSA contributions: All employees with an HSA account	All in scope	Verified payroll deductions did not exceed the allowable IRS limit for 2015
Assigned Cigna Active Membership plans	All	Verified discounted deductible plans are granted only to new hires or compliant Wellness Program participants
Wellness Program FY16 incentive payments	All	Verified payments were only provided to appropriate recipients at the correct rates
Administrative invoices (e.g. Symetra, Sentara, Cigna, Willis, Optima Health, P&A Group)	Sample	Verified process compliance and accuracy

Subject/ Scope	Population	Evaluation
2015 Bolton Partners Valuation Report of the Retiree Health Care Trust program	All: 1 report	Evaluated for compliance with GASB 45 accounting and financial reporting standards
HRSD retired population	Sample	Verified retiree health plan participation procedures were appropriately administered

Summary of Work

After reviewing processes in place and evaluating the current control environment, SC&H concludes that, while there are no significant internal control shortcomings, there are several process improvement opportunities that exist to increase overall process effectiveness and efficiency and strengthening of internal controls. The majority of identified issues can be remediated through enhanced use of automation and the development of formal, consistent procedures.

The following section provides detailed observations and recommendations regarding six separate topics.

We appreciate the assistance and cooperation of the management and staff of HRSD’s Human Resources Division during the performance of the Employee Health Insurance Administration review. Please contact us if you have any questions or comments regarding any of the information contained in the audit report.

SC&H Group, Inc.

Joseph D. Freiburger, CPA, CIA, CISA
 Director

II. Detailed Observations and Recommendations

Observation 1

The manual process of updating changes to employee benefit information into the Cigna records may result in employee coverage errors.

Observation Detail

Bi-weekly, an HR Specialist generates and reviews a Benefits Listing report from Core HR ERP to identify new-hire employees that enrolled in the HRSD health care plan, employees who were recently terminated, and processed change of life requests. The HR Specialist manually updates account information in the Cigna records on the employees' behalf based on selections made in the Employee Self-Service module of ERP and the review of the bi-weekly Benefits Listing report. During the data analytic review of deductible amounts, two employees had active benefits as of September 2016 after being terminated in May and June 2016 respectively. Furthermore, throughout testing it was identified that certain data views within the Cigna records did not accurately reflect the current coverage for the employees.

Risk

Terminated employees can remain active in the employer health program records resulting in inappropriate costs to the organization for separated employee medical costs. Relying upon non-automated processes can result in a reduction in resource efficiency and overall effectiveness.

Recommendation 1.1

HRSD should ensure that the identified errors are resolved in the Cigna records. HRSD should verify that medical expenses for the former employees were not incurred after their termination date. HR Management should also consider incorporating a formal, documented, secondary review by an independent HR Specialist to reconcile the Benefits Listing report to Cigna following the initial profile updates for completeness and accuracy.

Management's Action Plan and Implementation Date

HRSD has corrected the discrepancies identified during the audit to include the verification that medical expenses for former employees did not occur after their termination date. Until the interface file is in production, a monthly review of benefit changes will be completed by an independent HR staff member with the appropriate documentation. This process will begin on December 1, 2016.

Recommendation 1.2

HRSD should continue to work towards integrating the ERP system with the Cigna records and implement an automated interface file which transfers employee benefit changes directly into the Cigna system.

Testing should be performed to ensure all expected changes are completely and accurately updated in all views and reports within Cigna for consistency of reliable information. Furthermore, HRSD should implement a documented audit monitoring process to periodically review the automated benefit changes for completeness and accuracy. Any discrepancies should be communicated to Cigna for system integration issue resolution, as appropriate.

Management's Action Plan and Implementation Date

Work will continue on the interface file with CIGNA. The plan is to have that file finalized, thoroughly tested and in production by February 1, 2017. Once the file is fully functioning, HRSD will be reviewing and documenting any discrepancies after each file transmission.

Observation 2

Employee deductibles are not always appropriately assigned.

Observation Detail

Annually, Optima Health, the third-party provider of the Wellness program, provides HR a report detailing all employees who earned the deductible discount for the upcoming health plan year. In order for employees to be eligible for the deductible discount, employees must satisfy four specific requirements annually or be an employee within the first year of employment. Wellness discount requirements includes an online personal health assessment, biometric screening completion at an on-site location or primary care physician office, annual preventative exam with primary care physician, and completion of four online or on-site health improvement programs. Once HRSD receives the report from Optima Health, an HR Specialist manually updates the deductible rates into the Cigna system on the employees' behalf. Our review of all employee deductible assignments found six employees were granted inappropriate deductible discounts, with a HRSD potential cost impact of \$4,500. Specifically:

-) Three employees enrolled in a family health with dependents with a deductible of \$3,000 rather than \$4,000, resulting in a total variance of \$3,000.
-) Three employees enrolled in an individual plan with a deductible of \$1,500 rather than \$2,000, resulting in a total variance of \$1,500.

Risk

Incorrect deductible amounts increase HRSD's financial exposure and potential cost for medical claims. In the event a deductible is higher than allowed, an employee would pay more out-of-pocket costs.

Recommendation 2.1

HRSD should ensure that the identified errors are resolved in the Cigna records. Furthermore, HRSD should verify that medical expenses for the identified employees did not exceed the discounted deductible rate.

Management’s Action Plan and Implementation Date

HRSD has corrected the discrepancies identified during the audit and verified that employees did not exceed the discounted deductible rate.

Recommendation 2.2

HR Management should consider implementing an annual audit of employee deductible records to ensure completeness and accuracy. The process should verify that the assigned deductible amount matches the plan type (family vs. individual) and includes a reconciliation between the Optima Health deductible eligibility listing and an HR report of new hires. Furthermore, this audit should be conducted by an HR Specialist independent of the Wellness Program.

Management’s Action Plan and Implementation Date

This issue will be resolved with the completion of the interface file between HRSD and CIGNA. With the current processes being separate and manual, the utilization of the interface file will ensure that both systems have the same information. Until the interface file is in production, a monthly review of benefit changes to include the wellness status will be completed by an independent HR staff member with the appropriate documentation. This process will begin December 1, 2016. Once the file is fully functioning, HRSD will be reviewing and documenting any discrepancies after each file transmission and at the beginning of each Wellness year.

Observation 3

HRSD HR does not maintain complete, clear, and accurate documentation for the administration or participation in the health care benefits process.

Observation Detail

Policy and procedure documentation is not formally established or documented for the administration of the health benefits process. This includes Standard Operating Procedure (SOP) documentation for HR employees to reference for process guidelines. The HR manual for HRSD employees to reference for healthcare rules, milestones, and expectations does not include all requirements and rules that impact employees. Specifically, our review found:

-) HR does not have documented policies or SOPs’ for HR employees. HR policies do not reflect the following managerial decisions.
 - o Re-Hire Benefits: There is no current language or policy defining that re-hires are eligible for new-hire deductible discounts regardless of the separation time lapse or HRSD years of service consideration.

- Length of New-Hire Deductible Discounts: There is no current language stating that new-hires joining a plan year in January or later (during a plan year), receive the discounted deductible for the remainder of the plan year plus an additional full plan year without having to meet the wellness program requirements.
- J) The HR Manual does not clearly define all rules and requirements that employees need in order to gain a clear understanding of the active and retiree health care programs. Through testing, SC&H noted the following ad-hoc business practices that were not present in the HR Manual:
- Years of Service Calculation: There is no description regarding the years of service counting toward the qualification for the retiree health plan. It may result from either consecutive years of service or combined total years of service.
 - Retirement Enrollment Forms: There is no language stating that employees must complete and submit a Retirement Enrollment Form prior to their retirement date, upon canceling, or declining coverage, as stated in the Retirement Trust. Furthermore, the HR Manual does not explicitly mandate that the employee must make an election at retirement or they forfeit their right to participate in the program.
 - Retiree Enrollment Requires Active HRSD Health Coverage: Currently, to be eligible for the retiree health care plan, retirees are required to have active HRSD health care coverage. There is no language stating the duration of health care coverage required prior to enrolling within the retiree health care program.

Risk

Non-formalized or undocumented processes can result in inconsistent application of rules, reduced efficiency by department employees, as well as increased business continuity concerns resulting from a lack of available knowledge transfer.

An incomplete or unclear HR Manual can cause employee confusion and be perceived as poor transparency and organizational communication. Additionally, ad hoc HR processes can result in uneven application of rules, which may not be formally approved by HRSD management.

Recommendations 3.1

HR should formally document operating procedures for essential internal functions and processes. The flowcharts created in conjunction with this review may serve as an initial starting point in documenting these procedures. However, operating procedures should include detailed steps for executing key processes and reviews while ensuring compliance with relevant laws and regulations.

Management's Action Plan and Implementation Date

HR will document operating procedures and processes including key process steps. Procedures will be reviewed and updated at a defined frequency to ensure compliance with relevant laws and regulations. Operating procedures will be developed and approved by July 1, 2017.

Recommendation 3.2

HR should update the HR Manual to reflect the components identified in the observation. The updated HR Manual should be reviewed and approved by HRSD Leadership. HR should periodically review and update the HR Manual to reflect changes in employee expectations, benefits, benefit rules, etc. to ensure the HR manual reconciles with the requirements of the Retiree Health Care Trust.

Management's Action Plan and Implementation Date

The HR Manual will be updated to include wording on eligibility requirements to clarify year of service calculations and enrollment requirements. These changes will be effective February 1, 2017. A process exists for continuously updating the HR Manual including Senior Management review and approval. The HR Manual provides a high level overview of our policy consistent with the Retiree Health Care Trust with the specific details of practices being documented in the Retiree Health Plan Description of Plan Benefits.

Recommendations 3.3

HR Management should develop a succession plan to ensure that employees are adequately trained or cross-trained to serve as a back-up for the duties currently performed by HR Specialists.

Management's Action Plan and Implementation Date

HR Specialists are cross-trained to ensure critical business processes are maintained. However, this process is not formally documented. A cross-training plan including documentation will be developed and implemented by July 1, 2017.

Recommendations 3.4

HR Management should coordinate with legal counsel and the Chief Financial Officer to understand the implications of requiring employees to participate in the active health care program prior to enrolling within the retiree health care program. This review should focus on the benefits and rationale of this requirement and should seek to determine an appropriate period of participation in the active health care program prior to eligibility for enrollment in the retiree health care program.

Management's Action Plan and Implementation Date

HR Management is currently following up on this issue with legal counsel. A recommendation is expected by January 1, 2017.

Observation 4

Access to the Core HR ERP system is not properly restricted or monitored.

Observation Detail

HRSD uses an ERP system to integrate modules to manage and execute several business functions. HR uses the Core HR ERP module to administer the health care program. Access to Core HR ERP is restricted primarily to HR employees, however several exceptions were noted. Additionally, it was noted that a process is not in place to monitor or periodically review access for appropriateness. Specifically, our review found:

- J Three users with inappropriate access roles to Core HR ERP. Based on discussions with HR Management, these users no longer have a business need and access should be removed.
 - HRSD US Super HRMS Manager (one user)
 - HRSD US Payroll Super User (one user): Specifically a payroll employee with access to create or edit employee information in the HR system.
 - HRSD HR User (one user)
- J Five generic usernames with access to Core HR ERP roles with multiple employees capable of logging into a generic username. This eliminates the ability to accurately identify a single user and increases the risk of untraceable activity to a specific user.
 - HRSD US Super HRMS Manager (two usernames)
 - System Administrator (five usernames, two of which are the same as the prior role usernames)
- J Three users in the IT area with access to several Core HR ERP roles and there is no activity monitoring. While HR Management stated that IT has access in an administrative capacity, the user activity is not monitored to ensure activity is appropriate.
 - HRSD US Super HRMS Manager
 - HRSD US Payroll Super User
 - HRSD HR User
 - System Administrator

Risk

Failure to properly restrict and monitor access to critical systems within the organization increases the risk of inaccurate records, misuse of confidential information, or fraudulent activity.

A specific segregation of duties risk exists with regard to payroll user access to the HR system. A member of payroll with the capability to create a new employee record within the HR system may have the opportunity to establish a false “ghost” employee in the system. The payroll user may then have the ability to create and approve payments to the ghost employee account, resulting in the misappropriation of funds.

Recommendation 4.1

HR Management should review the business needs of current users and update and restrict the access exposures identified in this observation. Furthermore, HR Management should perform a similar review of access to Cigna administrative roles and verify that access is properly restricted and rights are segregated.

Management's Action Plan and Implementation Date

Based on business needs of current users, roles have been changed to address security concerns using the standard out of the box roles provided by Oracle. HRSD will evaluate development of custom roles to secure the HR and Payroll functions by April 2017.

Recommendation 4.2

HR Management should implement a process to periodically monitor access to Core HR ERP and Cigna Admin for current users, and generic/IT username activity for appropriateness.

Management's Action Plan and Implementation Date

HRSD will develop and implement a process to monitor access to Core HR ERP and CIGNA admin by March 1, 2017.

Recommendation 4.3

HRSD HR Management should remove generic usernames from Core HR ERP. Removing generic usernames will increase accountability and increase the efficiency and simplicity of access reviews.

Management's Action Plan and Implementation Date

HR Management will work with Information Technology to review and determine feasibility of this recommendation or another approach for minimizing this risk. The generic usernames are used by HRSD Business Analysts and IT staff to perform certain system functions established by Oracle EBS standard functionality. The recommendation may require system customization which HRSD has limited due to other business risks.

Observation 5

A process is not in place to ensure HRSD pertinent information relative to employee separations are communicated to P&A Group¹ and assuring that a COBRA package is issued timely.

Observation Detail

Bi-weekly, Core HR ERP is configured to automatically send a report to the P&A Group. The report identifies recent new-hires or recent terminations/deceased employee's families who are eligible to receive COBRA coverage. Once P&A Group receives the report, HRSD requires that the former employee or survivor be informed within 44 days of his/her COBRA coverage options. The Employee Retirement Income Security Act (ERISA) requires that group health plans provide notification of coverage and a summary plan description within 90 days of COBRA coverage. HRSD is invoiced by P&A Group for each notification at an agreed upon rate. During our review, the process in place to communicate COBRA notifications to affected employee populations did not appear to be operating effectively. Specifically, our review of 86 termed employees between July 1, 2015 and July 30, 2016 found:

- J Four former employees were not sent their COBRA separation package timely (55-74 days after termination).
- J Sixteen former employees were not sent their COBRA separation package after termination.
 - o Three did not receive their COBRA separation package because P&A Group did not send the package after being properly informed by HR.
 - o Thirteen did not receive their COBRA Separation Package because communication of the termination was not sent to P&A Group by HR.

Risk

Failure to send a COBRA notification to terminated employees and dependents of recently deceased employees results in non-compliance with policies, governing bodies, and may result in financial penalties, as enforced by the US Department of Labor.

Additionally, there is a risk of incorrect payment to P&A Group resulting from notifications not being properly issued to covered individuals.

Recommendation 5.1

HR Management should establish a process to confirm that P&A Group received the ERP report that lists the former HRSD employees who are expected to receive a COBRA separation package. Additionally, HRSD should reconcile P&A Group invoice detail to HR reports of recent terminations and follow up with P&A Group if any discrepancies are identified.

¹ P&A Group is a third-party service provider contracted with HRSD to provide COBRA notification services.

Management’s Action Plan and Implementation Date

The COBRA file is scheduled to run bi-weekly and is automatically transmitted to the P&A Group. A notification is received once the file runs with a status of completed or failed. HRSD will develop and implement a process to review monthly invoices and terminated employees to ensure all required notifications are sent effective December 1, 2016.

Recommendation 5.2

HR Management should consider implementing formal procedures to periodically test the bi-weekly automated report generation process to gain comfort with completeness and accuracy.

Management’s Action Plan and Implementation Date

HRSD will develop and implement a formal procedure to periodically test the bi-weekly COBRA file effective March 2017. HR will continue to work with IT staff to ensure file accuracy.

Recommendation 5.3

HR Management should establish a process to monitor and grade P&A Group based on contract compliance and performance metrics. Failure by the vendor to provide complete and accurate services should be discussed with the vendor and be considered at the time of contract renewal.

Management’s Action Plan and Implementation Date

HR is currently working with our Benefit Consultants and Procurement staff to implement performance metrics. If able to add at renewal, this will be effective July 1, 2017.

Observation 6

The process in place to ensure the Retiree Program is administered in accordance with the Retiree Trust requirements is not effective.

Observation Detail

In July 2002, HRSD established a retiree benefit plan through a Retiree Trust for the benefit of its participating employees and their dependents. The Trust serves as the guiding document for the Retiree Health Care program, which is independent from the active employee health care program. HR is responsible for facilitating enrollment and administering the day-to-day transactions. HR administration of the Retiree Health Care program should align with the requirements of the Trust and any amendments since its creation. During our review, we found that compliance with aspects of the Retiree Trust does not always occur. Specifically, we noted the following:

-) For three of 10 employees who became eligible to participate in the retiree health plan during the audit scope reviewed, we found that the Retirement Health Care Enrollment form was not completed or not completed timely.

- One employee completed the enrollment form for retiree medical coverage after their retirement date.
- Two employees enrolled within the program without completing the enrollment form.
-) For three of four employees who canceled or declined from participating in the retiree health plan during the audit scope reviewed, there was no documentation supporting or evidencing they elected to cancel or waive retiree health care coverage.
-) For two of seven employees who reached the Medicare Part B enrollment age of 65 during our audit scope, there was a delay in the enrollment and transition to Medicare as primary.
 - One employee did not update their coverage until seven months after turning 65
 - One employee did not update their coverage until 11 months after turning 65

Risk

Failure to align and execute the administration of the Retiree Program with the Retiree Trust increases the risk of non-compliance with policy, causing a potential for a higher cost burden on HRSD as a primary rather than secondary payer in the event that an employee remains on the HRSD plan past age 65.

Additionally, employees who do not elect coverage may be provided coverage and employees who cancel coverage may not be appropriately documented. This can result in confusion in the event of a medical claim, potentially resulting in additional, inappropriate costs to HRSD.

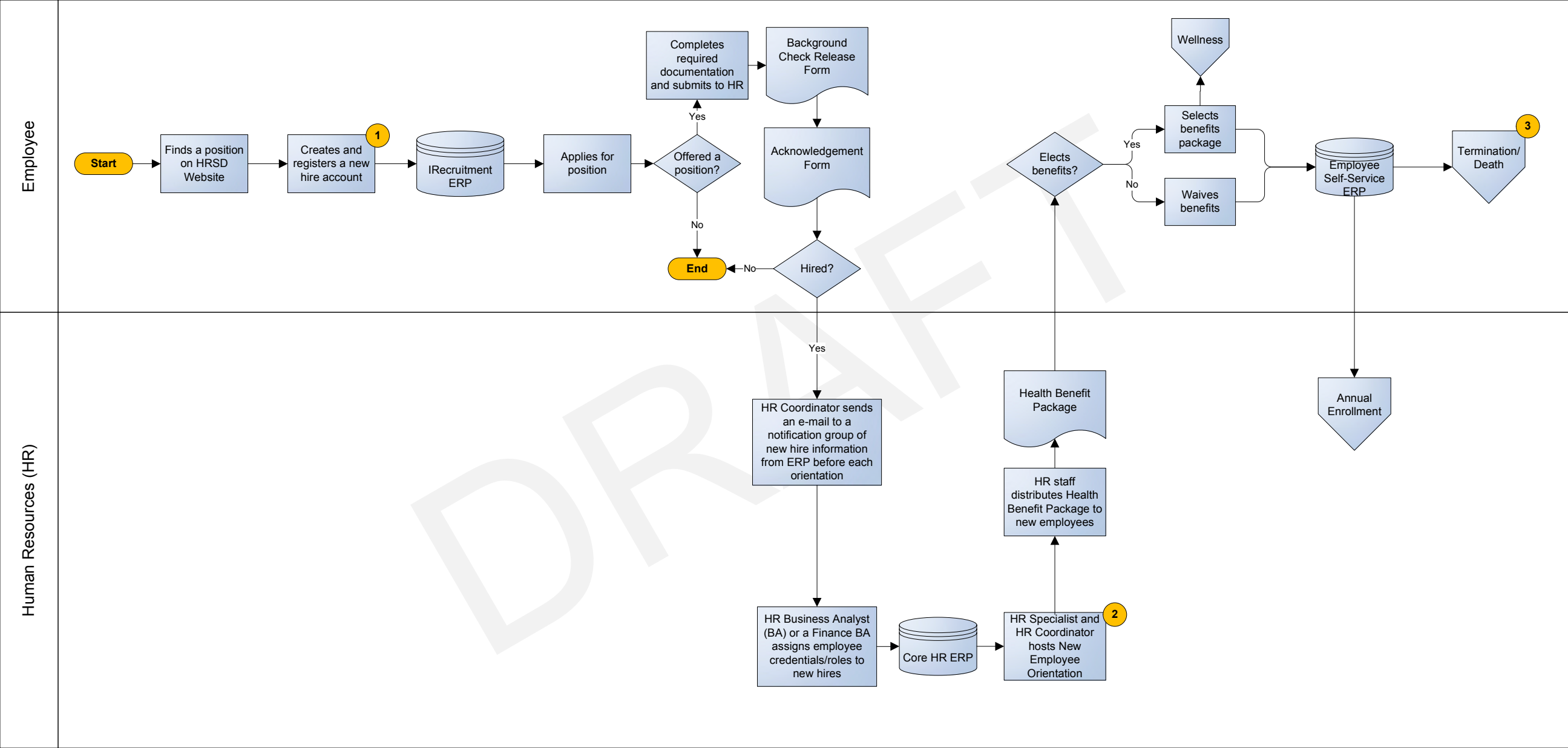
Recommendation 6.1

HR Management should ensure all retiree health plan elections (i.e. enrollments, cancellations, and waivers) are supported by a completed Retiree Healthcare Enrollment Form. Management should consider implementing a retiree checklist. The checklist should include required documentation needed to complete enrollment and the documentation should be retained in the retiree’s file. Furthermore, at the time of retirement, the date the retiree reaches age 65 should be noted and tracked to ensure timely switchover to Medicare. Also, HR should periodically audit retiree accounts for compliance with required documentation.

Management’s Action Plan and Implementation Date

HR has modified the Retiree form to ensure all retiree health plan elections are supported. HR will develop and implement a retiree checklist to document the steps in the process and ensure all documentation is completed by April 2017. In addition, HR will run the Benefit Listing and monitor the date of birth for retirees and dependents to identify those nearing Medicare age to ensure timely switchover to Medicare effective January 2017.

Sub-Process	New Hire	Business Unit	Human Resources	Location	Hampton Roads Sanitation District (HRSD)	Year	2016
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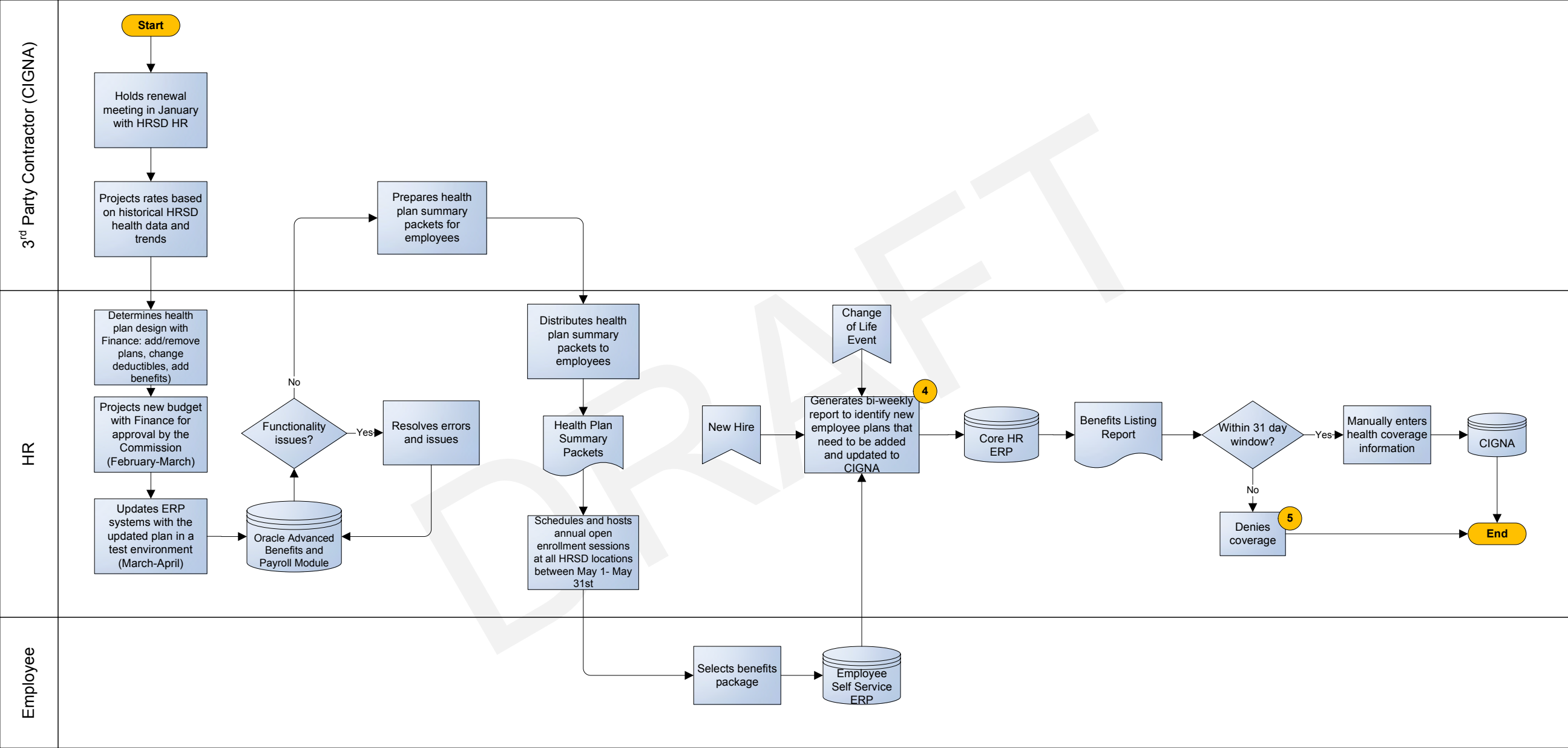


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Incoming Reference	Flow Begin/End

Confidential

Key Personnel:

Inda Ratcliff, Human Resources Specialist



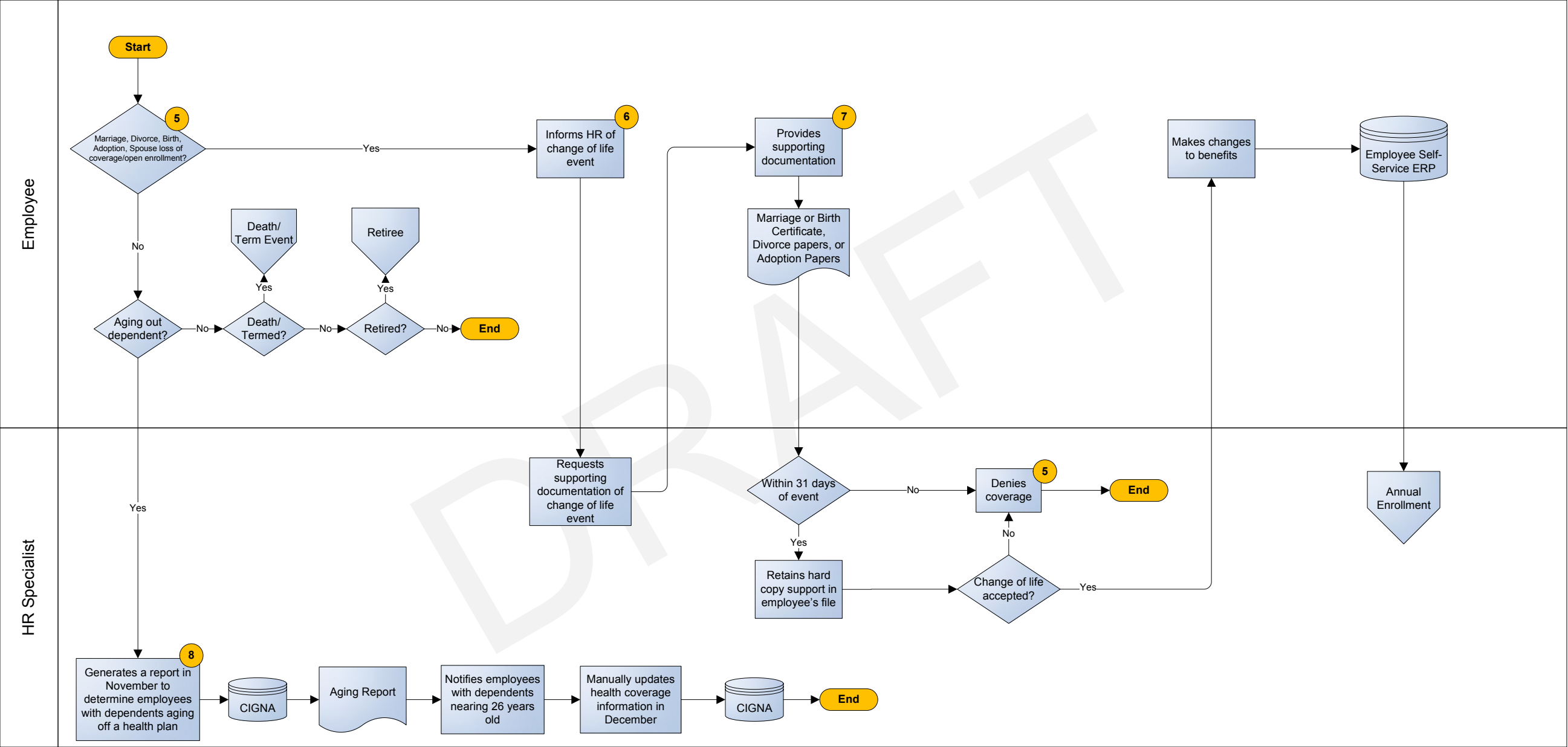
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Key Personnel: Inda Ratcliff, Human Resources Specialist



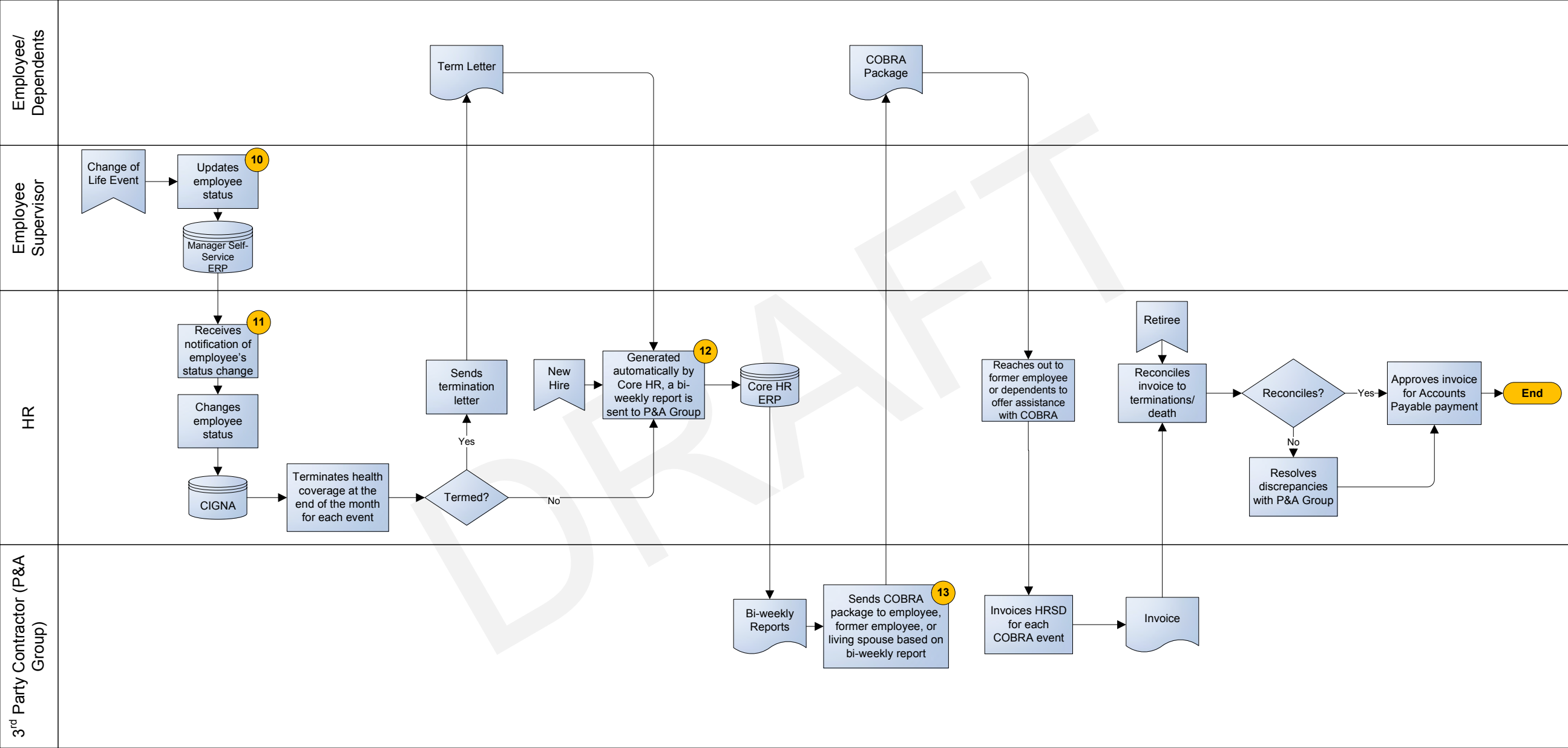
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Key Personnel: Inda Ratcliff, Human Resources Specialist

Sub-Process	Termination/Death of Employee	Business Unit	Human Resources	Location	Hampton Roads Sanitation District (HRSD)	Year	2016
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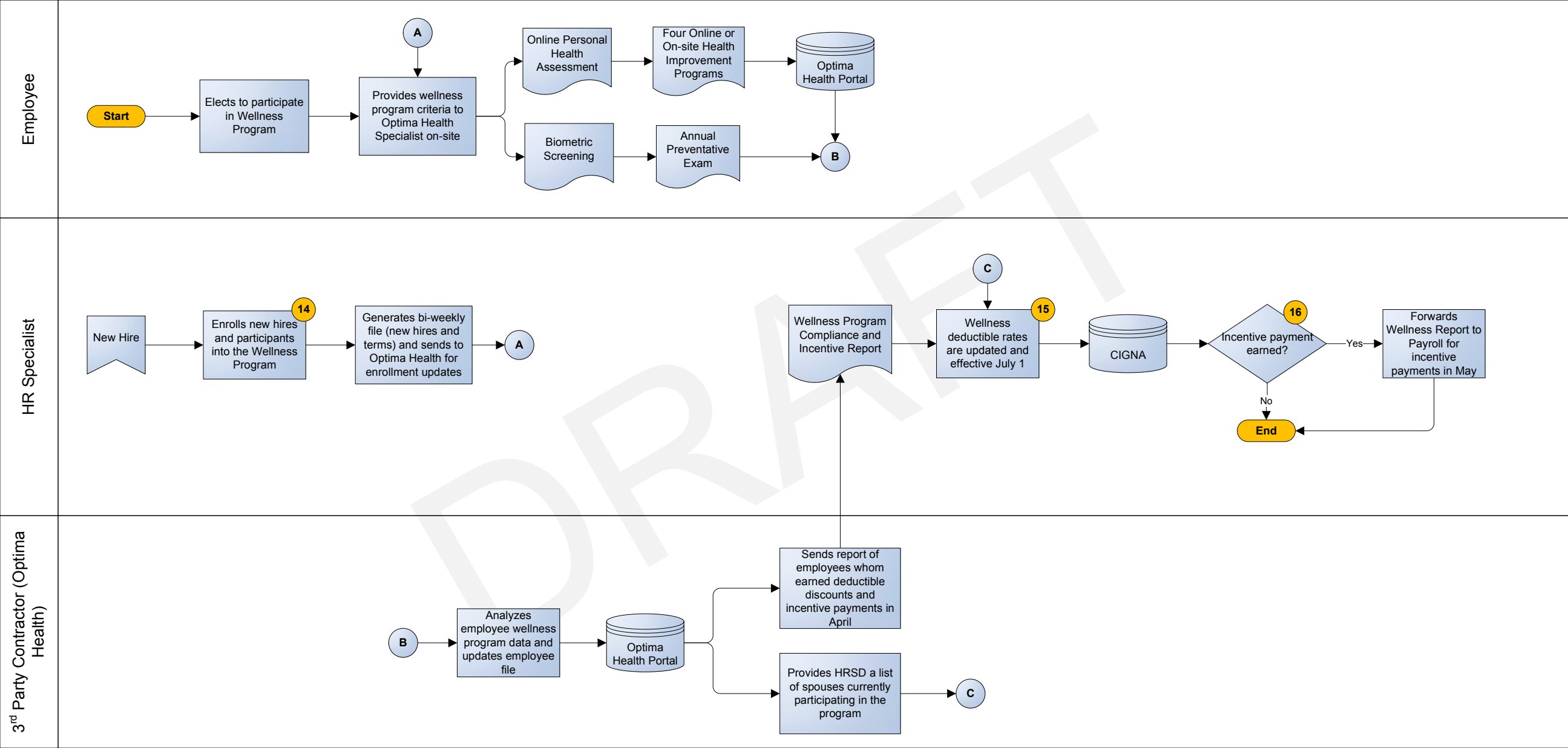
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Key Personnel:

Inda Ratcliff, Human Resources Specialist

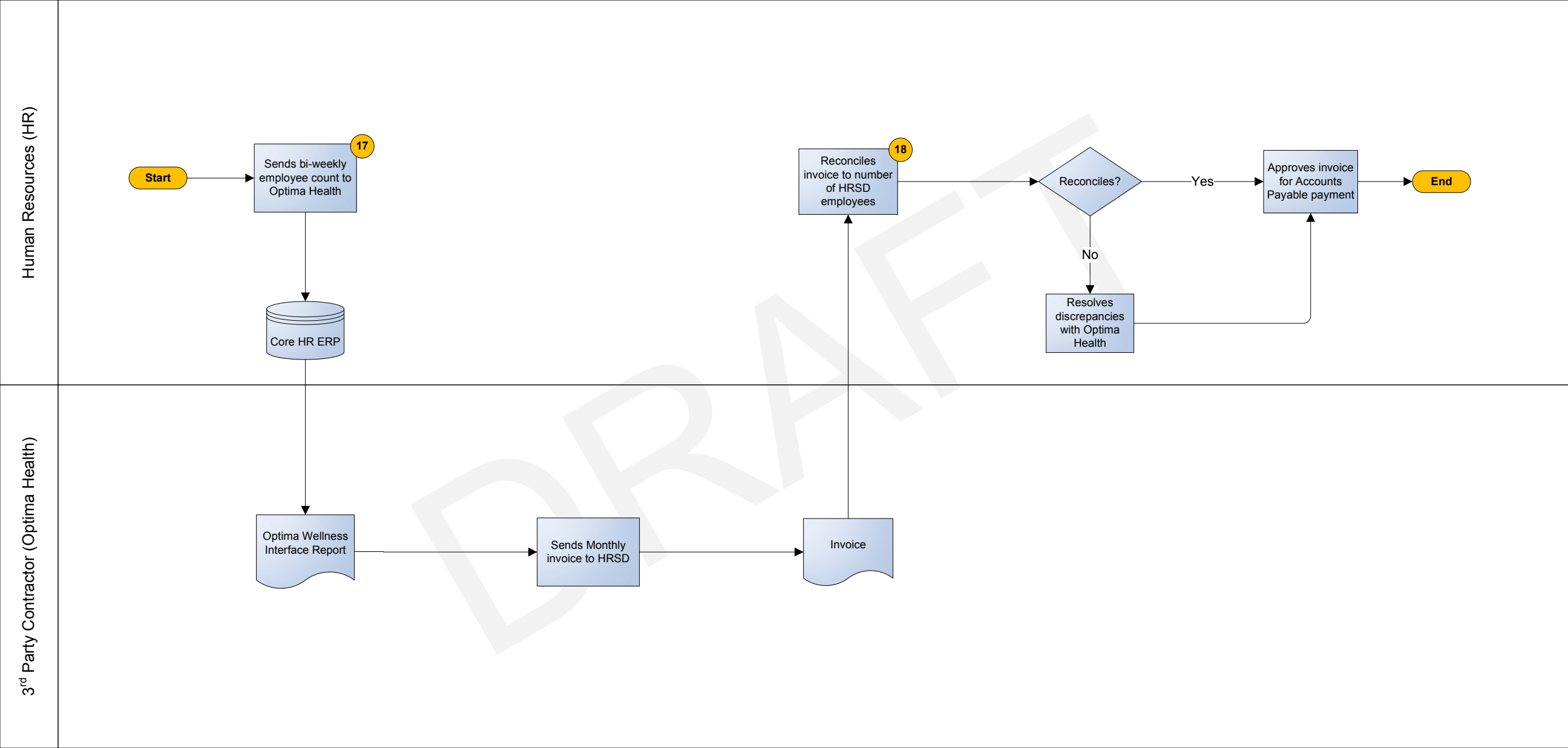
Sub-Process	Wellness Program	Business Unit	Human Resources	Location	Hampton Roads Sanitation District (HRSD)	Year	2016
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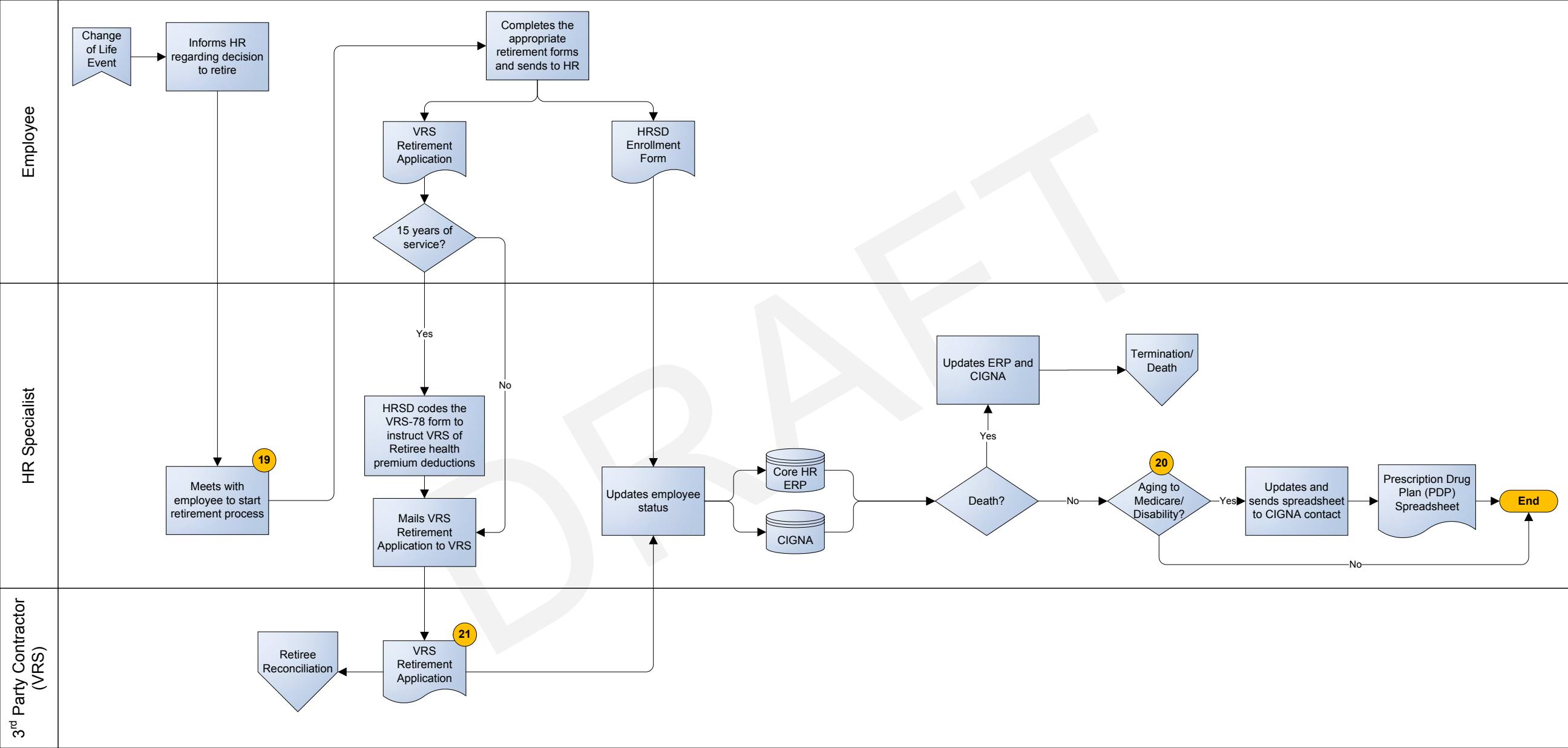
Key Personnel: Chanda Giles, Human Resources Specialist



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Key Personnel: Chanda Giles, Human Resources Specialist

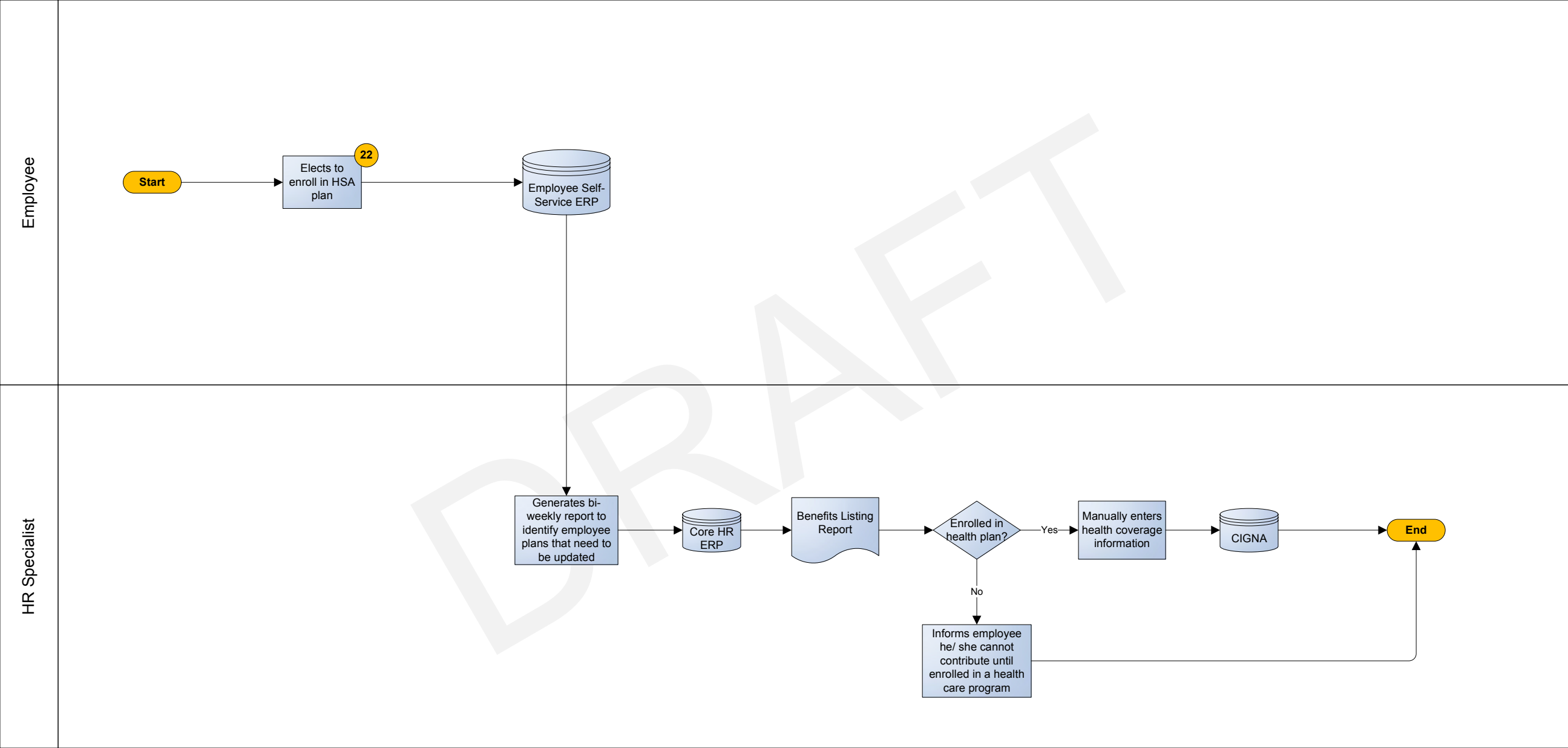


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Key Personnel: Inda Ratcliff, Human Resources Specialist



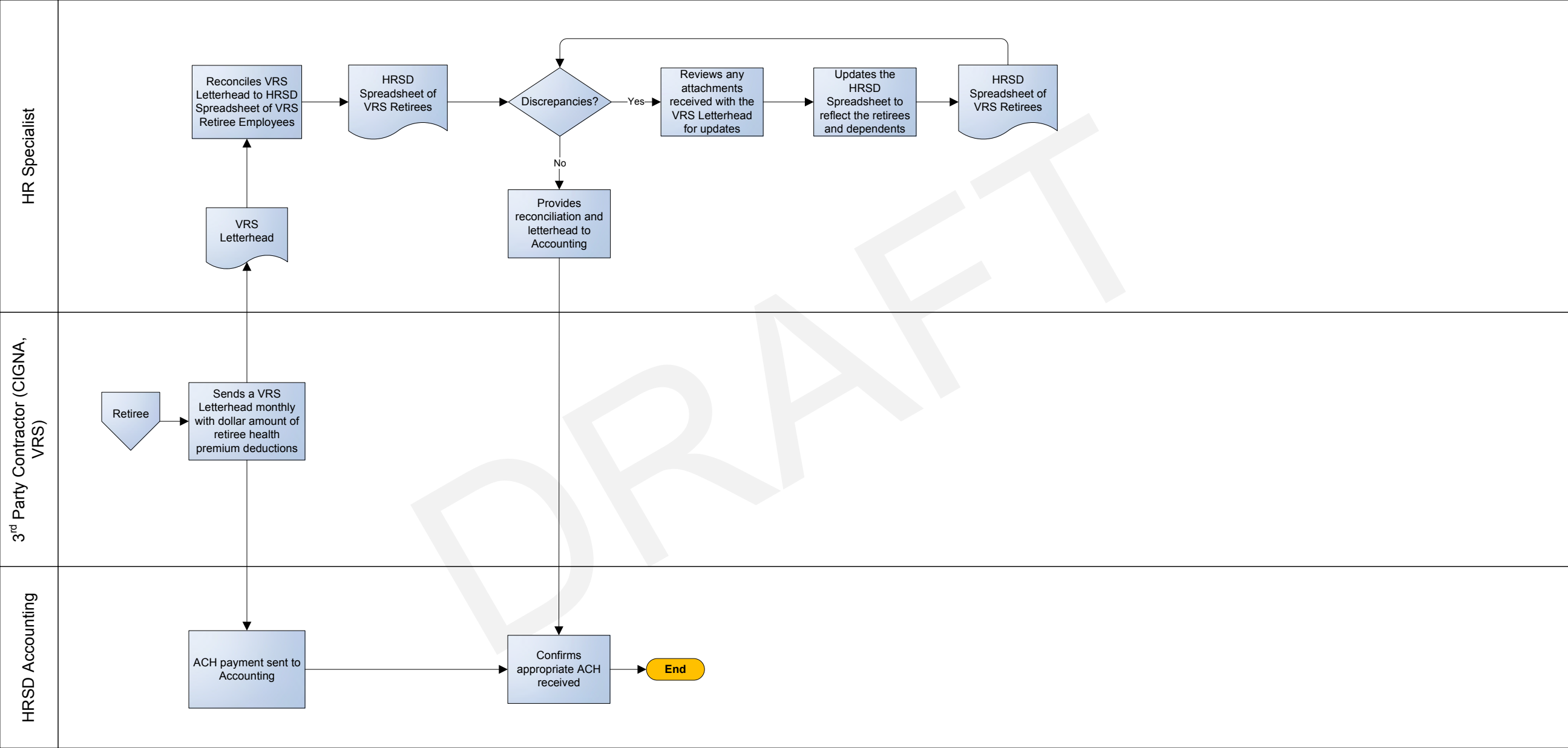
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Key Personnel: Inda Ratcliff, Human Resources Specialist

Sub-Process	Retiree Reconciliation	Business Unit	Human Resources	Location	Hampton Roads Sanitation District (HRSD)	Year	2016
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Key Personnel:	Inda Ratcliff, Human Resources Specialist
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Hampton Roads Sanitation District Human Resources (HR)



Notes

- 1 Upon applying for an HRSD position, the prospective employee has the option of entering his/ her date of birth and basic demographic information. Upon offer, the HR Coordinator will obtain a completed Release Form from the prospective employee which includes his/ her date of birth, social security number and driver's license number. If the information has not been entered into EBS by the prospective employee, the HR Coordinator will complete the information in the system.
- 2 New hire orientations are offered every other week and align with HRSD pay periods. During orientation, new hires have the option to enroll into the HRSD health benefit program. The HR Specialists and HR Coordinators attend the orientation meetings and provide guidance, if needed, to employees interested in enrolling that day.
- 3 See Note 12.
- 4 The Benefits Listing Report can be run at any time by any HR staff member. It is recommended that each HR Specialist run the report on a bi-weekly basis to review changes that have occurred.
- 5 In the event that an employee misses the enrollment window by a few days, HR exercises discretion and has the flexibility to still enroll the employee if deemed appropriate.
- 6 Change of life events includes: marriage, death, divorce, birth, adoption, gain or loss of coverage, spouse's open enrollment and aging out of a dependent.
- 7 Employees may notify HR of change of life events in various ways, such as email, telephone, in-person conversations, and employee self-service ERP.
- 8 The Affordable Care Act (ACA) requires coverage for dependents up to 26 years of age. HRSD has extended that coverage to remain active until the end of the calendar year in which the dependent turns 26.
- 9 All change of life events need proper documentation, e.g. marriage certificate, birth letter, adoption papers, etc.
- 10 Normally, supervisors use the Manager Self-Service ERP module to update an employee's status, but HR staff have the authority to update an employee's status using the self-service or professional ERP modules.
- 11 Once the supervisor changes the employee's status, a notification email is auto generated to inform the notification group which includes HR. HR staff can also use the professional forms ERP module to review employees' status. For both terminations (voluntary and involuntary) and deaths, the supervisor updates the employee's status in the ERP. HR often learns of voluntary terminations through the ERP notification email and retiree deaths through the beneficiaries.
- 12 P&A Group is the 3rd party vendor contracted by HRSD to provide COBRA services to its employees. There are several automated reports that are sent to P&A Group, including the XXHRSD AB PA Cobra New Hire Interface that informs P&A Group of HRSD employee new hires, terminations, and deaths.
- 13 P&A Group has 30 days to notify termed employees of COBRA coverage, and the employee has 60 days to enroll once the notification has been sent.
- 14 New hires are automatically enrolled within the Wellness HDHP Plan for the first year.
- 15 Deductible discounts only apply if the employee, not spouse, meets wellness program compliance requirements, which include: an online personal health assessment, biometric screening, annual preventative exam, and four online or on-site health improvement programs. Wellness program year is March 1 through February 28th.
- 16 Wellness Program incentive payments are offered at the following compliance levels: Bronze (\$125), Silver (\$250), and Gold (\$500). Incentives can be awarded to both the employee and the spouse with all payments payable to the employee.
- 17 All active employees are included in the bi-weekly count. This report also displays the termination date for any employees that have separated so that Optima can update their system.
- 18 The HR Specialist reviews the monthly invoice that is emailed from Optima and compares it to the information previously sent to Optima for that specific timeframe to include the information on the spouse counts. Only employees and spouses can participate in the Wellness Program (not children). HRSD pays Optima Health a flat fee for each employee and spouse enrolled in the program.
- 19 Upon retirement, employees meet in person with an HR Specialist. The HR specialist walks the employee through the retirement process, including three required documents that the employee must complete: 1) HRSD Enrollment Form and 2) VRS 78 Form 3) VRS Retirement Application. The HRSD Enrollment Form enrolls the retiree into a health care program; the employee may elect to waive the program. The VRS 78 form is an application for retirees to earn the monthly health credit and provides VRS authorization to deduct monthly insurance premiums and send them directly to HRSD.
- 20 Retiree change of life consists of either turning 65 or becoming eligible for disability before turning 65. Both of these events are covered by Medicare. All HRSD employees transitioning to retirement must enroll in Medicare Part B. Retirees also have access to all change of life events that current HRSD employees have access to.
- 21 In the event of retiree health plan rate changes, HR completes a new VRS-78 form on behalf of the retiree. This updated form identifies the new rate to be deducted from the VRS benefits and sent to HRSD. Per the HRSD plan description, the signature of the retiree of the original VRS-78 form acts as the authorization for this type of change.
- 22 The Health Savings Account (HSA) plan is available and may be initiated anytime throughout the year by the employee as long as the employee is enrolled in HRSD's HDHP plan.



Hampton Roads Sanitation District Human Resources (HR)



Risks	Controls
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1	Access to HR systems and programs are not properly restricted.	Mitigating Controls: 1, 7 Gap(s): None
2	Employee enrollment in health care program is not processed timely, resulting in non-covered employees or additional costs.	Mitigating Controls: 2, 3, 4 Gap: 1, 3
3	Unauthorized or inaccurate changes are made in CIGNA, resulting in inappropriate coverage for employees/dependents or increased insurance costs.	Mitigating Controls: 3, 4 Gaps: 1, 4
4	Wellness program incentives are not properly earned, resulting in unnecessary payments and added program costs.	Mitigating Control: 11 Gap(s): None
5	Non-compliance with polices, governing bodies and regulations (e.g. Affordable Care Act, COBRA coverage, HSA contribution limits, HIPPA etc.).	Mitigating Controls: 2, 5, 8, 10, 11,12 Gap(s): None
6	Inaccurate payments are made to third party providers for services received.	Mitigating Control: 6 Gap: 2
7	Deductible discounts are inaccurately applied, resulting in additional costs.	Mitigating Control: 7, 9, 13 Gap: 3
8	Plan designs are not cost effective resulting in additional costs to HRSD financial resources.	Mitigating Controls: 12, 15 Gap(s): None
9	Retiree health plan is not adequately funded to support the program.	Mitigating Controls: 12, 13, 14, 15 Gap(s): None

1	The HR Business Analyst grants all new hires Employee Self-Service ERP access rights. The granting and monitoring of access occurs for new hires, retirements, and terminations. Initially, the HR Business Analyst is notified by the HR Coordinator via e-mail of all new hires prior to each upcoming new hire orientation.
2	Bi-weekly, an HR Specialist generates a Benefits Listing Report from HR Admin ERP to determine if there are any new-hire employees that enrolled in the health care plan or if change of life updates were requested. The HR Specialist ensures that the enrollment has occurred within the 31 day window from the date of the new hire orientation or change of life event. The HR Specialist communicates any discrepancies or denied coverage as a result of timeliness issues with the employee directly.
3	The HR Specialist creates and updates accounts in CIGNA on employee's behalf based on selections made in Employee Self-Service ERP and review of the bi-weekly Benefits Listing Report. NOTE: This is a temporary process because the HR Business Analyst is working to integrate the ERP system with the CIGNA system, eliminating the need for the HR Specialist to manually enter employee health care coverage plans from the ERP system into the CIGNA system.
4	HR Specialists process change of life event requests as needed. Employees are required to notify HR of any change of life events and coverage must be updated in CIGNA within 31 days of the event. HR Specialists require supporting documentation of the change of life event to be submitted to validate the event and the support is retained in the employee file.
5	The HR Specialist reviews bi-weekly Payroll reports to identify and ensure any employees that recently created a Health Savings Account are enrolled in the health care benefits. Health Savings Account deductions are put on hold until enrollment in health benefits have occurred.
6	HR Specialists and the HR Manager review and approve all invoices that are received in HR (P&A Group, CIGNA, Synetra, Optima Health). For P&A Group invoices, a reconciliation between the invoice and HRSD records of termed or deceased employees is performed. For Optima Health invoices, HR relies on an employee and spouse count provided by the vendor. The approved invoices are sent to HRSD Accounts Payable for payment.
7	Access to process changes to employee health coverage in CIGNA is restricted to HR Specialists.
8	Annually in November, an HR Specialist generates a CIGNA report to determine employees with dependents that are aging off (26 years of age and non-spouse) a health plan for the calendar year. The HR Specialist notifies the employee and manually updates the employee's health plan in December to ensure that effective January 1 of each year, aged dependents are removed.
9	HR Specialist reconciles VRS Letterhead to HRSD Spreadsheet of VRS Retirees. Discrepancies are communicated and resolved with VRS. The HR Manager reviews and approves the reconciliation spreadsheet.
10	HR Admin ERP is configured to automatically send a bi-weekly report that interfaces with P&A Group to initiate any necessary COBRA coverage steps for recently terminated or deceased employees. P&A Group is required to notify former employees or dependents of COBRA coverage options within 30 days of termination or a deceased employee.
11	Optima Health is responsible for facilitating the Wellness program. Optima directly receives and maintains all health data. Optima Health sends report of employees whom earned deductible discounts and incentive payments in February to HRSD HR. HR Specialists make the necessary updates to employee deductibles in CIGNA and forward the incentive payment data to Payroll for payment.
12	Annually, HRSD engages an Actuarial Consultant to review and analyze the Trust funding, Trust expenses, Retiree Health Program expenses and future funding status. Employer contribution costs, retiree premiums, and deductibles are reassessed and adjusted annually if necessary. Furthermore, the program is reinsured to limit the financial impact and liability to HRSD of high cost claims.
13	HR Specialist reviews each Retiree's VRS Retirement Application for 15 years of HRSD service eligibility into HRSD Retiree Health Plan. The HR Specialist codes the VRS-78 form with the proper premium deduction inclusive of any earned health insurance credit and mails the form to VRS for processing. HR reserves the right to update rates and send a new VRS-78 form without the Retiree's signature.
14	An HR Specialist reconciles the monthly VRS Deduction Letterhead detailing the amount of the ACH payment for VRS deductions of Retiree Premiums to the HRSD Retiree Spreadsheet. Any discrepancies are researched and resolve with VRS.
15	Annually, HRSD HR and Finance review and determine health plan designs (add/remove plans, change deductibles, add/remove benefits based on a renewal meeting with CIGNA, the benefits consultant data, and budget performance.

Gaps	
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1	A formal process is not in place to review and approve all entries and updates made to CIGNA on employee's behalf for completeness, accuracy, and timeliness.
2	A process is not in place to independently determine the number of spouses participating in the Optima Health Wellness Program. HR relies on Optima Health Reporting for accurate invoicing of spouses.
3	Key milestones in the HRSD benefits process are not in sync (fiscal year, calendar year, deductible year, wellness program year).
4	Current system limitations do not allow for automatic transfer of information from HR Admin ERP to CIGNA, resulting in manual updates.
5	A process is not in place to ensure all eligible retirees complete an Enrollment form to elect or waive the benefit option upon retirement.
6	A process is not in place to periodically monitor and review CORE HR ERP access for appropriateness and activity.



Hampton Roads Sanitation District Human Resources (HR)



Process Information

Positions

HR Business Analyst (BA): Responsible for the Enterprise Resource Planning (ERP) system and ERP technical support.

HR Specialist: Responsible for administrative duties related to the employee Health Coverage Plans. The sub-processes include New Hire, Annual Enrollment/Employee Set-up, Change of Life Event, Termination/Death of Employee, Wellness Program, Wellness Plan Invoice, Retiree, Health Savings Account, and Retiree Reconciliation.

HR Coordinator: Supports the HR function and the New Employee Orientation.

Optima Health Specialist: Supports the HR Staff to facilitate the employee Wellness Program.

Systems

ERP: Enterprise Resource Planning tool used by HRSD. The ERP is comprised of several sub-systems used to monitor and control all aspects of HRSD's health care program.

CIGNA System: System used by CIGNA to administer HRSD employee health care coverage programs. HR Staff manually enter employee health care coverage information into the CIGNA system based on the updates made to the ERP.

iRecruitment ERP: System used for prospective employees to create a new hire account and apply for open HRSD positions.

Core HR ERP: Main ERP system used by HR Staff to monitor and control the administration of the health care program. This generates automatic bi-weekly reports that are sent to 3rd party health care administrators.

Employee Self-Service ERP: System used for current HRSD employees to monitor and update their health care coverage plans.

Manager Self-Service ERP: System used for HRSD supervisors to inform HR Staff that there was a termination or death of an employee.

Optima Health Portal: System used by HRSD employees to update and upload their required Wellness Program documentation. Wellness Program documentation includes health assessments, biometric screenings, preventive exams, and improvement programs.

Other

CIGNA: HRSD's health insurance provider.

Consolidated Omnibus Reconciliation Act (COBRA): Act that gives HRSD workers and their family who lose health benefits the right to continue group health benefits provided by HRSD for a limited period of time.

P&A Group: HRSD's COBRA provider.

Optima Health: HRSD's wellness program provider.

Virginia Retirement System (VRS): Retirement System that administers HRSD retiree health premium deductions.

Health Benefit Package: Informational booklet given to all new HRSD hires describing all available health care coverage plans.

Health Plan Summary Packet: Informational booklet given annually to current HRSD employees describing all available health care coverage plans, including any changes from the previous year that may affect their health care coverage.

Open Enrollment Sessions: Informational seminars hosted annually by HR to help HRSD employees enroll in the health care coverage plan that best fits the employees' needs.

Benefits Listing Report: Report used by HR Staff to identify new employee health care coverage plans. This report directly influences the updates made to the CIGNA system.

CIGNA Renewal Meeting: Annual meeting between CIGNA and the HR Staff to project health care rates for the upcoming year. Rates are based on historical HRSD health data and trends.

The Commission: The Hampton Roads Sanitation District Commission. The Commission is responsible for the review and approval of all HRSD Health Plan Benefits.

Aging Report: Report generated by the HR Specialist each November to determine employees with dependents aging off a health plan.

Change of Life Event: Events identified by the IRS Code that warrant an immediate change in health care coverage, if the employee elects to do so. Change of life events include, marriage, divorce, birth, adoption, spouse loss, death, termination, and retirement.

COBRA Package: Informational booklet sent to a recently terminated employee, or dependents of a recently deceased employee. P&A Group provides the COBRA Package booklet.

Wellness Program: Health program that offers HRSD employees health care premium deductibles and cash incentives.

Wellness Program Compliance and Incentive Report: Report sent from Optima Health listing the HRSD employees who earned deductibles and incentive payments.

Prescription Drug Plan (PDP) Spreadsheet: Form HRSD retirees who are eligible for Medicare (>65 or disability) complete out for Medicare coverage.

Health Savings Account (HSA): Non-taxable savings account HRSD employees may use to pay for health plan premiums. The health savings account can roll over year over year.

VRS Letterhead: Monthly letterhead sent to HR Staff listing the dollar amount of retiree health premium deductions. The letterhead is sent monthly by the Virginia Retirement System (VRS).

Annual Metrics

Item	Strategic Planning Measure	Unit	Target	FY-10	FY-11	FY-12	FY-13	FY-14	FY-15	FY-16
M-1.1a	Employee Turnover Rate (Total)	Percentage	< 8%	5.63%	4.09%	6.64%	7.62%	8.22%	9.97%	6.75%
M-1.1b	Employee Turnover Rate within Probationary Period		0%		2.22%	8.16%	14.58%	9.68%	0.66%	0.13%
M-1.2	Internal Employee Promotion Eligible	Percentage	100%		59%	80%	69.57%	71.43%	64.00%	69.00%
M-1.3	Average Time to Fill a Position	Calendar Days	< 30		70	60	52	43.76	51	56
M-1.4	Training Hours per Employee - cumulative fiscal year-to-date	Hours	> 40		30.0	43.8	37.5	35.9	42.8	49.0
M-1.5a	Safety OSHA 300 Incidence Rate Total Cases	# per 100 Employees	< 3.5	6.57	6.15	5.8	11.2	5.07	3.87	7
M-1.5b	Safety OSHA 300 Incidence Rate Cases with Days Away	# per 100 Employees	< 1.1	0.74	1.13	1.33	0.96	1.4	0.82	1.9
M-1.5c	Safety OSHA 300 Incidence Rate Cases with Restriction, etc.	# per 100 Employees	< 0.8	3.72	4.27	2.55	4.5	2	1.76	3.6
M-2.1	CIP Delivery - Budget	Percentage			113%	96%	124%	149%	160%	151%
M-2.2	CIP Delivery - Schedule	Percentage			169%	169%	161%	150%	190%	172%
M-2.3a	Total Maintenance Hours	Total Available Mtc Labor Hours Monthly Avg			16,495	22,347	27,615	30,863	35,431	34,168
M-2.3b	Planned Maintenance	Percentage of Total Mtc Hours Monthly Avg			20%	27%	70%	73%	48%	41%
M-2.3c	Corrective Maintenance	Percentage of Total Mtc Hours Monthly Avg			63%	51%	12%	10%	18%	25%
M-2.3d	Projects	Percentage of Total Mtc Hours Monthly Avg			18%	22%	20%	18%	32%	34%
M-2.4	Infrastructure Investment	Percentage of Total Cost of Infrastructure	2%		8.18%	6%	6%	4%	7%	7%
M-3.3	Carbon Footprint	Tons per MG Annual Total			1.61	1.57	1.47	1.46	1.44	1.45
M-3.6	Alternate Energy	Total KWH			0	0	0	5,911,289	6,123,399	6,555,096
M-4.1a	Energy Use: Treatment	kWh/MG Monthly Avg			2,473	2,571	2,229	2,189	2,176	2,205
M-4.1b	Energy Use: Pump Stations	kWh/MG Monthly Avg			197	173	152	159	168	163
M-4.1c	Energy Use: Office Buildings	kWh/MG Monthly Avg			84	77	102	96	104	97
M-4.2	R&D Budget	Percentage of Total Revenue	> 0.5%		1.0%	1.4%	1.0%	1.3%	1.0%	0.8%
M-4.3	Total Labor Cost/MGD	Personal Services + Fringe Benefits/365/5-Year Average Daily Flow		\$1,028	\$1,095	\$1,174	\$1,232	\$1,249	\$1,279	\$1,246
M-4.4	Affordability	8 CCF Monthly Charge/ Median Household Income	< 0.5%		0.48%	0.48%	0.41%	0.43%	0.53%	0.55%
M-4.5	Total Operating Cost/MGD	Total Operating Expense/ 365/5-Year Average Daily Flow		\$2,741	\$2,970	\$3,262	\$3,316	\$3,305	\$3,526	\$3,434
M-5.1	Name Recognition	Percentage (Survey Result)	100%	67%	71%	N/A	62%	N/A	60%	N/A
M-5.4	Value of Research	Percentage - Total Value/HRSD Investment			129%	235%	177%	149%	181%	178%
M-5.5	Number of Research Partners	Annual Total Number			42	36	31	33	28	35
	Rolling 5 Year Average Daily Flow	MGD		157.8	155.3	152	154.36	155.2	151.51	153.09
	Rainfall	Annual Total Inches		66.9	44.21	56.21	46.65	46.52	51.95	54.14
	Billed Flow	Annual Percentage of Total Treated		71.9%	82.6%	78%	71%	73%	74%	72%
	Senior Debt Coverage	Net Revenue/Senior Annual Debt Service	> 1.5	2.51%	2.30%	2.07%	1.88%	1.72%	1.90%	2.56%
	Total Debt Coverage	Net Revenue/Total Annual Debt	>1.4	1.67%	1.67%	1.46%	1.45%	1.32%	1.46%	1.77%

Monthly Updated Metrics

Item	Strategic Planning Measure	Unit	Target	FY-10	FY-11	FY-12	FY-13	FY-14	FY-15	FY-16	Mar-17	Apr-17
	Average Daily Flow	MGD at the Plants	< 249		136	146.5	158.7	156.3	153.5	155.8	143.2	149.8
	Industrial Waste Related System Issues	Number	0		3	6	6	6	2	4	2	0
	Wastewater Revenue	Percentage of budgeted	100%		97%	96%	98%	107%	102%	104%	103%	101%
	General Reserves	Percentage of Operating and Improvement Budget	75% - 100%		72%	82%	84%	92%	94%	95%	103%	106%
	Accounts Receivable (HRSD)	Dollars (Monthly Avg)			\$ 17,013,784	\$ 17,359,488	\$ 18,795,475	\$ 20,524,316	\$ 20,758,439	\$ 22,444,273	\$19,826,932	\$19,864,326
	Aging Accounts Receivable	Percentage of receivables greater than 90 days			21%	20%	18%	19%	21%	20%	20%	20%
M-2.5	Capacity Related Overflows	Number within Level of Service	0		25	1	30	5	11	16	1	0
M-3.1	Permit Compliance	# of Exceedances to # of Permitted Parameters	0		12:55,045	1:51995	2:52491	1:52491	2:52491	2:52,491	7:39927	7:44363
M-3.2	Odor Complaints	Number	0		6	2	7	11	5	9	0	2
M-3.4	Pollutant Removal (total)	Total Pounds Removed			178,163,629	171,247,526	176,102,248	185,677,185	180,168,546	193,247,790	143,731,031	160,710,481
M-3.5	Pollutant Discharge (% of permitted)	Pounds Discharged/Pounds Removed	< 40%		25%	22%	25%	22%	22%	20%	23%	23%
M-5.2	Educational and Outreach Events	Number			302	184	238	322	334	443	45	45
M-5.3	Number of Community Partners	Number			280	289	286	297	321	354	41	39

EFFLUENT SUMMARY FOR APRIL 2017

PLANT	FLOW mgd	% of Design	BOD mg/l	TSS mg/l	FC #/UBI	ENTERO #/UBI	TP mg/l	TP CY Avg	TN mg/l	TN CY Avg	TKN mg/l	NH3 mg/l	CONTACT TANK EX
ARMY BASE	8.82	49%	3	3.3	4	2	0.65	0.65	8.3	5.4	NA	NA	11
ATLANTIC	27.27	51%	11	10	5	<1	NA	NA	NA	NA	NA	NA	6
BOAT HARBOR	13.06	52%	5	4.9	2	1	0.26	0.33	12	13	NA	NA	6
CENT. MIDDLESEX	0.010	38%	<2	<1.0	<1	2	NA	NA	NA	NA	1.4	<0.20	NA
CHES-ELIZ	18.01	75%	18	18	82	10	1.1	1.0	30	31	NA	NA	3
JAMES RIVER	12.33	62%	4	4.1	1	1	0.76	0.61	11	10	NA	NA	1
KING WILLIAM	0.041	41%	<2	<1.0	NA	1	0.018	0.030	0.32	1.3	0.13	NA	NA
NANSEMOND	18.97	63%	7	6.0	4	1	0.91	0.78	6.9	7.8	NA	NA	3
URBANNA	0.054	54%	5	19	3	2	5.6	4.7	13	25	NA	<0.20	NA
VIP	29.60	74%	2	4.2	4	2	0.49	0.70	8.5	8.7	NA	NA	1
WEST POINT	0.477	79%	18	18	2	1	2.6	2.8	15	17	NA	7.6	0
WILLIAMSBURG	8.34	37%	2	3.4	3	2	0.31	0.39	4.3	5.0	NA	NA	10
YORK RIVER	12.85	86%	2	2.0	1	1	0.28	0.26	1.9	2.3	NA	NA	1
	<u>149.83</u>		<u>7</u>	<u>8</u>									

	% of Capacity
North Shore	56%
South Shore	62%
Mid Peninsula	68%

Tributaries	Tributary Summary					
	Annual Total Nitrogen			Annual Total Phosphorus		
	Discharged	Operational		Discharged	Operational	
	YTD	Projection	CY17	YTD	Projection	CY17
	%	Lbs	%	%	Lbs	%
James River	30%	4,125,431	91%	24%	267,865	84%
York River	14%	213,236	74%	24%	15,499	81%
Rappahannock	78%	NA	NA	220%	NA	NA

Permit Exceedances: Total Possible Exceedances, FY17 to Date: 7:44,363
Pounds of Pollutants Removed in FY17 to Date: 160,710,481
Pollutant Lbs Discharged/Permitted Discharge FY17 to Date: 23%

	Rainfall (inch)		
	<u>North</u>	<u>South</u>	<u>Small</u>
	<u>Shore</u>	<u>Shore</u>	<u>Communities</u>
	(PHF)	(ORF)	(FYJ)
Month	3.53"	3.58"	3.75"
Normal for Month	4.31"	3.29"	4.27"
Year to Date Total	14.43"	13.26"	13.76"
Normal for YTD	14.13"	12.18"	13.68"

AIR EMISSIONS SUMMARY FOR APRIL 2017

MHI PLANT	No. of Permit Deviations below 129 SSI Rule Minimum Operating Parameters								Part 503e Limits		
	BZ Temp	Venturi(s) PD	Precooler Flow	Spray Flow	Venturi Flow	Tray/PBs Flow	Scrubber	Any	THC	THC	BZ Temp
	12 hr ave (F)	12 hr ave (in. WC)	12 hr ave (GPM)	12 hr ave (GPM)	12 hr ave (GPM)	12 hr ave (GPM)	pH 3 hr ave	Bypass Stack Use	Mo. Ave (PPM)	DC (%)	Daily Ave Days >Max
ARMY BASE	0	0	0	0	0	0	1	1	41	91	0
BOAT HARBOR	0	0	0	n/a	0	0	0	1	26	93	0
CHES-ELIZ	0	1	0	0	0	0	1	1	27	99	0
VIP	0	0	1	n/a	0	0	2	5	74	97	0
WILLIAMSBURG	0	0	0	n/a	0	0	0	1	10	93	0

ALL OPERATIONS

DEQ Reportable Air Incidents:	2	No. of Permit Deviations/Possible No. of Permit Deviations (4/17) = 15/2970
DEQ Request for Corrective Action (RCA):	0	No. Permit Deviations/No. Possible Permit Deviations (CY17 to date) = 37/11,798
DEQ Notice of Violation (NOV):	0	Total Time on Bypass/Total Time Operating (4/17) = 3.6 hrs/3167 hrs Total Time on Bypass/Total Time Operating (CY17 to date) = 7.35 hrs/13,107 hrs
Other Air Permit Deviations:	0	Dry Tons Solids Processed (4/17) = 2321
Odor Complaints Received:	2	Total Dry Tons Solids Processed (CY17 to date) = 9458 Monthly average Dry Ton per Day (DTD) per MHI unit = 17.6
Odor Scrubber HRSD Exceptions:	0	