



COMMISSION MEETING MINUTES
November 27, 2018

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Name	Title	Present for Item Nos.
Elofson, Frederick N.	Commission Chair	1-14
Lynch, Maurice P.	Commission Vice-Chair	1-14
Glenn, Michael E.	Commissioner	1-14
Lakdawala, Vishnu K.	Commissioner	1-14
Levenston, Jr., Willie	Commissioner	1-14
Rodriguez, Stephen C.	Commissioner	1-14
Taraski, Elizabeth	Commissioner	Absent
Templeman, Ann	Commissioner	1-14

1. **AWARDS AND RECOGNITION**

Action: No action required.

Brief:

a. Promotion Announcement

Mr. Henifin introduced Mr. Kyle Curtis, who was recently promoted to Environmental Scientist. Kyle was hired in June of 2008 as Water Quality Investigator and was quickly promoted to Water Quality Technician within 30 days. He was then promoted to Water Quality Specialist in August 2009. In 2010, Kyle left HRSD to pursue a graduate degree and returned in May 2014 as a Water Quality Investigator. In 2014 he left HRSD briefly and returned in August 2015 as a Water Quality Supervising Specialist in the Technical Services Division Stormwater Section. He was recently promoted to Environmental Scientist. Kyle holds a bachelor's degree in environmental science from UNC Wilmington and an MS in coastal, marine, and wetland science from Coastal Carolina University. He is currently enrolled in an MS program through William & Mary focusing on business analytics.

b. New Employee Introduction

Mr. Henifin introduced Mr. Michael Hess, the new Systems Manager for Interceptor Operations. Mike is a licensed civil engineer with 15 years of experience in the water industry. He graduated in 2003 with a bachelor's degree in civil engineering from Youngstown State University in Ohio. Mike recently worked for Brown and Caldwell on wastewater, water, and stormwater projects throughout the Mid-Atlantic region and in California. He not only has experience in design and construction, but also condition assessment and permit compliance. Mike will be leading and working closely with field staff, providing optimization strategies for the South Shore interceptor system, and



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planning and implementing innovative programs to continually improve safety, morale, training, and professional development for all staff. He will also be instrumental in making operating budget decisions.

c. Awards

- a. The Engineering News Record (ENR) acknowledged the SWIFT Research Center as a Mid-Atlantic Region best project in the Water/Environment Category on November 7 in Baltimore, Maryland. This is a prestigious award and it highlighted the project and the entire team that worked so collaboratively to deliver this facility. Best project winners are also considered for the national award which will be announced in January.
- b. Mr. Henifin announced Dr. Charles Bott was recently awarded the Frederick George Pohland Medal. This award honors an individual who has made sustained and outstanding efforts to bridge environmental engineering research, education, and practice. Only members of the Association of Environmental Engineering and Science Professors (AEESP) and/or the American Academy of Environmental Engineers and Scientists (AAEES) are eligible to receive this award. Dr. Frederick G. Pohland (1931-2004) was Professor at the Georgia Institute of Technology and Professor and Edward R. Weidlein Chair of Environmental Engineering at the University of Pittsburgh. His research led to fundamental advances in anaerobic processes. He received numerous honors and awards and was the author of more than 150 technical and scientific publications. Dr. Pohland was elected to the National Academy of Engineering in 1993 for advancing the theory of anaerobic treatment processes and applications to solid waste management. Committed to applying research to practice and disseminating vital information, Dr. Pohland founded and chaired International Water Association (IWA) Specialist Committees to bring together practitioners, researchers and educators. Fred Pohland was very dedicated to advancement of the profession of environmental engineering.
- c. Mr. Henifin announced Dr. Lakdawala has been selected to receive the National Association of Clean Water Agency (NACWA) 2019 National Environmental Achievement Award (NEAA) for Local Public Service. This award honors Dr. Lakdawala's transformative leadership, technical understand, focus on community engagement, and deep commitment to the environment as an HRSD Commissioner.

Attachment: None

Public Comment: None



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2. **CONSENT AGENDA**

Action: Remove Item a. for further discussion and approve Items b. through d. listed in the Consent Agenda.

Moved: Maurice Lynch **Ayes:** 7
Seconded: Stephen Rodriguez **Nays:** 0

- a. Approval of minutes from previous meeting.
- b. Contract Awards
 - 1. [Customer Care and Billing \(CC&B\) Managed Services](#) \$422,473
 - 2. [Enterprise Resource Planning \(ERP\) Software Support Renewal](#) \$326,665
 - 3. [Long-Term Management and Modeling of Groundwater Supplies Research Study](#) \$900,000
 - 4. [SWIFT Laboratory Analysis and Testing Services](#) \$3,049,200
- c. Sole Source
 - 1. [Agseptence Group](#)
[AirVac[®] Sewage and Vacuum Pump Packages](#)
 - 2. [AST Corporation](#)
[AST Grants Analytics Software](#)
 - 3. [Heyward Incorporated](#)
[Boerger[®] Pumps and Parts](#)
 - 4. [Wood Equipment Service Company](#)
[Netzsch Replacement Pump Parts](#)



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Item Removed for Discussion: Item a. Approval of the Minutes

Brief: The draft FY-2018 Comprehensive Annual Financial Report (CAFR) was presented at the October 23, 2018 meeting. The presentation and draft CAFR were included in the minutes. Subsequent to that meeting, several changes were necessary due to the new GASB 75 OPEB rule related to the VRS Health Insurance Credit and Group Life Insurance. In addition, there were a few changes made that impacted the financial statements. A [summary](#) of the changes is attached. To keep the numbers consistent, the minutes including all attachments from the October 23, 2018 meeting were revised to reflect the final CAFR changes.

Action: Approve minutes of the October 23, 2018 meeting, as amended.

<u>Moved:</u>	Stephen Rodriguez	<u>Ayes:</u>	7
<u>Seconded:</u>	Maurice Lynch	<u>Nays:</u>	0

Attachment #1: [Consent Agenda](#)

Public Comment: None



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3. **MODEL 3 BILLING SERVICES AGREEMENT WITH THE CITY OF SUFFOLK**

Action: Authorize the General Manager to execute the Model 3 Billing Services Agreement with the City of Suffolk, substantially as presented, together with such changes, modifications and deletions as the General Manager may deem necessary.

Moved: Stephen Rodriguez

Ayes: 7

Seconded: Vishnu Lakdawala

Nays: 0

Brief: HRSD provides billing services to our Localities which allows for economies of scale. There are four different billing models available based on Locality preferences. The Model 3 billing model is the most integrated version. This model allows Localities to use HRSD's Customer Care and Billing (CC&B) software as their billing system. Customers receive a combined Hampton Roads Utility Billing Service (HRUBS) bill with both Locality and HRSD charges. HRSD sends the bills to our print/mail/e-bill vendor for combined HRUBS bills. HRSD receives customer payments and allocates them between HRSD and the jurisdiction.

Staff is working on developing billing services agreements with each Locality that define roles and responsibilities for each party. This includes billing and payment services, delinquencies, fund transfers, and security. The agreement with the [City of Suffolk](#) will be the first agreement to be executed. The City of Suffolk approved this agreement at their October 17, 2018 meeting. The other Model 3 Locality is James City County and this will serve as a template for their agreement.

The Agreement was reviewed by legal counsel.

Attachment #2: [Agreement](#)

Public Comment: None



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4. **CAPITAL PROGRAM MANAGEMENT IMPROVEMENTS PHASE I
INITIAL APPROPRIATION AND CONTRACT AWARD (>\$200,000)**

Actions:

- a. **Appropriate total project funding in the amount of \$2,640,000.**
- b. **Award a contract to Enstoa, Inc. in the amount of \$2,214,051 for capital program management improvements.**

Moved: Ann Templeman **Ayes:** 7
Seconded: Stephen Rodriguez **Nays:** 0

CIP Project: AD012400

Type of Procurement: Competitive Negotiation

Proposers	Technical Points	Recommended Selection Ranking
Enstoa, Inc.	84	1
GAEA Global Technologies, Inc.	71	2
Oracle America, Inc.	60	3

HRSD Estimate: \$1,995,000

Contract Description: This contract is for project management and technical implementation of improvements to capital project delivery and capital program management. A Public Notice was issued on July 23, 2018. Three firms submitted proposals on August 24, 2018 and all firms were determined to be responsive and deemed fully qualified, responsible and suitable to the requirements in the Request for Proposals. Three firms were technically ranked. The proposal submitted by Enstoa, Inc. was ranked by technical points to be the highest qualified.

Enstoa’s proposal was deemed superior based on their clear and thorough understanding of the project. They proposed a good strategy and identified issues and provided recommendations. The qualifications and experience of the firm and the proposed staff far exceeded our minimum requirements.

Project Description: This project will provide funding for improvements to capital project development, execution, management and controls. This project will be conducted in six phases over 18 months. The major areas of improvement that this project will cover are: evaluation of a revised integration platform for project management data, evaluation and implementation of a project scheduling application, consultant services to build out portfolio



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cash flow, consultant services to evaluate and implement a project risk management structure, leverage data to construct KPIs, dashboards and reports. This project will also provide change management activities and training.

Analysis of Cost: The cost proposed by Enstoa was compared to past and current contracts for similar type of services and determined to be fair and reasonable.

<u>Schedule:</u>	PER	July 2018
	Design	December 2018
	Bid	January 2020
	Construction	January 2020
	Project Completion	June 2020

Attachment: None

Public Comment: None



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5. DEEP CREEK INTERCEPTOR FORCE MAIN REPLACEMENT EASEMENT ACQUISITION

Actions:

- a. Approve the purchase of a 6,035 square foot easement in accordance with the terms and conditions of the Agreement of Sale of Easement and forthcoming Deed with Classics 3 Group, LLC (Landowner) for \$87,130.
- b. Authorize the General Manager to execute the same, substantially as presented, together with such changes, modifications, and deletions as the General Manager may deem necessary.

<u>Moved:</u>	Stephen Rodriguez	<u>Ayes:</u>	7
<u>Seconded:</u>	Maurice Lynch	<u>Nays:</u>	0

CIP Project: NP012600

Budget:	\$6,233,000
Previous Expenditures and Encumbrances:	<u>\$1,033,322</u>
Available Balance:	\$5,199,678

Project Description: This project will replace approximately 3,000 linear feet of 24-inch ductile iron pipe that runs along Canal Drive from the intersection of Shell Road and Canal Drive to the north side of Military Highway. Wall thickness testing and corrosive soils analysis during the Condition Assessment Program indicated that this pipe is at material risk of failure. The project also incorporates construction of an interconnect between the force main along Baugher Avenue and the force main along Military Highway in order to eliminate the portion of SF-141 that runs parallel to Military Highway on the north side. As part of the project, HRSD will require a 6,035 square foot permanent utility easement from 2104 Iowa Street, a residential parcel in Chesapeake currently owned by Classics 3 Group, LLC. This acquisition was previously presented to the Commission on October 23, 2018 to initiate condemnation proceedings, but the owner and HRSD have reached an agreement which both parties consider fair.

Agreement Description: The attached [Agreement of Sale](#) and forthcoming Deed of Easement have been reviewed by HRSD staff and legal counsel. An [acquisition plat](#) and [facilities orientation maps](#) are also provided for clarification purposes.

Analysis of Cost: The cost for the easement is based upon a professional appraisal by Valbridge Property Advisors, as well as a negotiated settlement with Classics 3 Group, LLC. As a part of the negotiated settlement, HRSD staff also considered the costs the owner incurred to revise development plans inclusive of the easement.

Attachment #3: [Agreement, Plat and Map](#)

Public Comment: None



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6. **JAMES CITY COUNTY CONVEYANCE OF FACILITIES TO HRSD AGREEMENT**

Action: Approve the terms and conditions of the Agreement for Conveyance of Pumping Station LS 1-1 and the Associated Sewer Force Main along Jamestown Road in James City County 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:	7
Seconded:	Vishnu Lakdawala	Nays:	0

Background: The Commission authorized the Surry County Hydraulic Improvements and Interceptor Force Main Capital Improvement Project with an initial appropriation in July 2017 and authorized use of alternate project delivery methods in March 2018. The project includes a series of pump stations and an interceptor force main across the James River to the existing sewer system in James City County. The interceptor force main will generally follow the alignment of Rolfe Highway (VA Route 31), cross the James River, through the installation of a horizontally drilled force main, and end at a James City Service Authority (JCSA) pump station at the Jamestown Visitor Station. Installation of new pumping facilities will be needed in Surry County and an equalization tank to limit the pumping of peak flows. This flow will ultimately be conveyed to the HRSD Williamsburg Treatment Plant. HRSD is under a consent order with the state to eliminate the Town of Surry Treatment Plant and this work must be completed by November 2020.

A critical component of this project is the ability to use facilities currently owned and operated by the James City Service Authority to convey the Surry flow from near the James River crossing to existing HRSD facilities along Route 199. The agreement with the James City Service Authority is a commitment to convey the required facilities to HRSD at no cost. HRSD will assume ownership, operation and maintenance and is committed to providing adequate capacity to meet James City County needs in this service area in the future.

Final transfer of ownership will be made upon completion of the design for the project and will require a public hearing. No opposition is anticipated as this transfer of ownership eliminates some long-term liabilities for JCSA while providing HRSD facilities that will make the project the most cost effective. The Board of Directors for the JCSA approved this [agreement](#) at their regular meeting on November 13, 2018.

Attachment #4: [Agreement](#)

Public Comment: None



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7. **WASHINGTON DISTRICT PUMP STATION AREA SANITARY SEWER IMPROVEMENTS
INITIAL APPROPRIATION**

Action: Appropriate total project funding in the amount of \$2,496,266.

Moved: Michael Glenn **Ayes:** 7
Seconded: Ann Templeman **Nays:** 0

CIP Project: AT013000

Project Description: This project will rehabilitate and/or replace 4,300 linear feet of [18-inch gravity pipeline](#) with associated manholes near the HRSD Washington Street Pump Station. The project will include the permanent abandonment of the inactive Washington District outfall. This project is included in the Inflow and Infiltration (I/I) Abatement Rehabilitation – Phase 2, which is part of the Federal Consent Decree to address sanitary sewer overflows in the region.

Funding Description: The initial appropriation is based on a Class 5 cost estimate with an estimated construction cost of \$1,856,304. The Preliminary Engineering Report (PER) for this project will be completed by Rummel Klepper and Kahl, LLP under the Interceptor Systems Projects Annual Services Contract.

Schedule:	PER	December 2018
	Design	July 2019
	Bid	October 2020
	Construction	February 2021
	Project Completion	January 2022

Attachment #5: [Map](#)

Public Comment: None



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8. **WILLARD AVENUE PUMP STATION REPLACEMENT
INITIAL APPROPRIATION**

Action: Appropriate total project funding in the amount of \$10,000,000.

Moved: Vishnu Lakdawala **Ayes:** 7
Seconded: Ann Templeman **Nays:** 0

CIP Project: BH013020

Project Description: This new project includes the replacement of the existing Willard Avenue Pump Station with a new pump station. The location of the new pump station will be within the vicinity of the existing station. Additionally, yard piping, new discharge force main, gravity sewer improvements and associated appurtenances will be included as part of this project. This project was originally planned as an upgrade to the existing pump station, but after a preliminary engineering study was completed, it was determined that replacement of the existing pump station was a better long-term solution.

Funding Description: The estimated total project cost is \$10,000,000. The estimated project cost is based on a construction cost estimate of \$8,000,000 combined with an engineering services estimate of \$1,500,000 and a 20 percent contingency allowance of \$500,000. Engineering services will be provided by Rummel, Klepper and Kahl, LLP and include preliminary engineering, design and construction phase services.

Schedule:

Pre-Planning	January 2019
PER	April 2019
Design	January 2020
Bid	September 2020
Construction	January 2021
Project Completion	July 2022

Attachment: None

Public Comment: None



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9. **WILLIAMSBURG TREATMENT PLANT LAND ACQUISITION
INITIAL APPROPRIATION**

Action: Appropriate total funding for a new project in the amount of \$1,500,000.

Moved:	Maurice Lynch	Ayes:	7
Seconded:	Willie Levenston	Nays:	0

CIP Project: GN016342

Project Description: This new project will support the acquisition of land adjacent to the [Williamsburg Treatment Plant](#) needed for full scale SWIFT facilities, additional buffer from adjacent property owners, full access to shoreline to protect existing outfall facilities and land to support future expansion of facilities as may be required to meet additional regulations in the future.

The appraised value was \$870,000 as of November 22, 2017. This funding request anticipates some adjustments to the final value will be made during the condemnation process and includes contingency for additional legal expenses.

Discussion Summary: The Commission discussed the negotiations with the landowner, which have stalled. Condemnation proceedings will begin next month with the filing of a quick-take, which will allow HRSD to access the property for surveying, soil boring and other design related needs by January 1, 2019, maintaining the overall schedule which requires ground breaking in 2020 to meet the 2030 completion proposed in the integrated plan.

Attachment #6: [Map](#)

Public Comment: None



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10. **UNFINISHED BUSINESS – None**

11. **NEW BUSINESS**

Mr. Henifin informed the Commission of a petition for declaratory judgment filed against HRSD and the City of Suffolk by a group of oystermen who are leaseholders of oyster grounds in the Nansemond River. This is an inverse condemnation action related to various harvesting oyster closures by the Virginia Department of Health's Division of Shellfish Sanitation. AquaLaw, legal counsel for HRSD, will work with Pender & Coward, legal counsel for the City of Suffolk, on this matter which has the potential for water quality precedence setting outcomes.

Mr. Henifin stated he continues to work with the U.S. EPA on the Integrated Plan and we are awaiting their approval. Also, as a condition of the Consent Decree, stipulated penalties may be assessed for sanitary sewer overflows. We have been negotiating the latest demand for stipulated penalties with the U.S. EPA, which may end up in a formal dispute resolution by the end of the year.

12. **COMMISSIONER COMMENTS – None**

13. **PUBLIC COMMENTS NOT RELATED TO AGENDA**

Mr. Tom Howard, Chair of the Tidewater Trails Alliance, requested permission for their non-profit group to open dialogue with HRSD to introduce a local project entitled "*The Birthplace of America Trail*." This project is a culmination of a three-year engineering and cost feasibility study conducted by the Hampton Roads Transportation Planning Organization (HRTPO) that was approved and submitted to VDOT in July of 2017. He stated this trail would present a unique opportunity to build a world class signature trail system that will serve the active transportation needs of our region. He further stated this concept, undertaken by the Utility with Trails, has been used successfully in other projects, bringing positive public relations opportunities to the utilities within the communities they serve, as well as enhanced operational access to the right of ways they own and on which the Trailways are built. Chairman Elofson thanked Mr. Howard for presenting this information. Staff will review the information provided by Mr. Howard.



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14. **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 #7: [Informational Items](#)

Public Comment: None

Next Commission Meeting Date: **December 18, 2018** at the HRSD South Shore Operations Complex, 1434 Air Rail Avenue, Virginia Beach, VA 23455

Meeting Adjourned: 9:34 a.m.

SUBMITTED:

Jennifer L. Cascio

Jennifer L. Cascio
Secretary

APPROVED:

Frederick N. Elofson

Frederick N. Elofson, CPA
Chair

HRSD COMMISSION MEETING MINUTES
NOVEMBER 27, 2018

ATTACHMENT #1

AGENDA ITEM 2. – Consent Agenda

- a. [Approval of Minutes – Memo with additional changes to CAFR and Presentation](#)
- b. [Contract Awards](#)
- c. [Sole Source](#)



INTEROFFICE MEMORANDUM

TO: Commissioner Steve Rodriguez, Finance Committee Chairman

FROM: Jay Bernas, Director of Finance

DATE: November 19, 2018

SUBJECT: CAFR changes since the October 23, 2018 Commission meeting

As discussed on November 16, 2018, staff made a few changes to the Comprehensive Annual Financial Report (CAFR) since the October meeting. Below is a short summary of the changes. Attached is a detailed [summary](#) of the changes.

Key changes:

- On October 26, 2018, after the October Commission meeting, HRSD received an OPEB actuarial analysis for the Retirement Health Insurance Credit (HIC) from the Virginia Retirement System (VRS) with instructions to include the HIC and the Group Life Insurance Plan (GLI) in the CAFR. VRS administers these plans, along with the pension plan, but under new governmental reporting requirements which went into effect this year the HIC and GLI must be included in HRSD's financial statements. We reviewed this with KPMG, our auditors, and they said they had other clients who were caught off-guard with this as well. This change impacted all of the financial statements and contributed to reducing our Total Net Position by \$2.7 million due to the increase in net OPEB liability on our balance sheet. Since this is the first year of the new GASB standard for OPEB, this should not happen again.
- Staff accounted for \$5 million in debt under Long-Term Liabilities, but it should have been under Current Liabilities, which are liabilities due within 12 months. This change only impacted the sub-totals under Current and Long-Term Liabilities.
- Staff accounted for a \$3.9 million capital project invoice as an expense, but about \$2.4 million was capitalizable as an asset, which was a favorable change. This increased our Income Before Capital Contributions, which caused our Total Debt Service Coverage Ratio to increase from 2.26x to 2.30x. Also, we included an additional \$1.3 million in capitalized interest, which was not previously accounted for. With both of these changes, the Net Investment in Capital Assets increased by \$3.8M

We would be happy to discuss any questions you may have. Please feel free to reach out any time.

OVERALL SUMMARY OF CHANGES SINCE OCTOBER 23, 2018 COMMISSION BRIEFING

Report date	Commission 10/23/2018 (millions) DRAFT	11/15/2018 DRAFT	change	
CURRENT ASSETS				
Other current assets	2,574	2,582	8	OPEB adjustment offset
NET PROPERTY, PLANT AND EQUIPMENT				
Treatment plants	1,239,796	1,242,191	2,395	A \$3.9 million project had both expense and asset components. We recorded the asset, reduced the expense and increased net position.
DEFERRED OUTFLOWS OF RESOURCES				
Change in proportion, OPEB plans	-	28	28	OPEB adjustments required by GASB 75 for VRS GLI & HIC
Contributions subsequent to the measurement date OPEB plans	-	354	354	OPEB adjustments required by GASB 75 for VRS GLI & HIC
TOTAL ASSETS AND DEFERRED OUTFLOWS OF RESOURCES	1,697,320	1,700,105	2,785	Other assets, Treatment plants and OPEB adjustments
CURRENT LIABILITIES				
Current portion of bonds payable	28,589	33,601	5,012	Current portion of subordinate bonds was in LT
LONG-TERM LIABILITIES				
Net OPEB liability	13,173	18,149	4,976	Additional OPEB adjustments for VRS GLI & HIC
Bonds payable	812,853	807,841	(5,012)	Current portion of subordinate bonds was in LT
DEFERRED INFLOWS OF RESOURCES				
Differences between expected and actual experience OPEB plans	-	87	87	OPEB adjustments required by GASB 75 for VRS GLI & HIC
Changes of assumptions OPEB plans	-	221	221	OPEB adjustments required by GASB 75 for VRS GLI & HIC
Net difference between projected and actual earnings on OPEB plans	692	867	175	OPEB adjustments required by GASB 75 for VRS GLI & HIC
NET POSITION				
Net investment in capital assets	508,634	512,398	3,764	Adjusted based on change in capital assets and reclassification of net investment in capital assets
Restricted for debt service	27,800	27,799	(1)	Rounding correction
Unrestricted	163,869	157,432	(6,437)	Unrestricted changes based on total net position less the net investment in capital assets and restricted for debt service components
TOTAL NET POSITION	700,303	697,629	(2,674)	Net amount of Net Position adjustments
TOTAL LIABILITIES, DEFERRED INFLOWS OF RESOURCES AND NET POSITION	1,697,320	1,700,105	2,785	Capital asset and OPEB adjustments
OPERATING EXPENSES				
Wastewater treatment	119,377	116,982	(2,395)	See Treatment Plants above
General and administrative	40,705	40,480	(225)	OPEB adjustments - \$210 GLI expense reduced, \$15 HIC expense reduced.
OPERATING INCOME	66,612	69,232	2,620	\$2,395 asset capitalized, \$210 GLI expense reduced, \$15 HIC expense reduced
CHANGE IN NET POSITION	60,915	63,535	2,620	\$2,395 asset capitalized, \$210 GLI expense reduced, \$15 HIC expense reduced
Opening adjustment of net position (Note 14)	(14,890)	(20,184)	(5,294)	Additional OPEB adjustments for VRS GLI & HIC
TOTAL NET POSITION - Ending	700,303	697,629	(2,674)	OPEB adjustments and the capitalized asset.
COVERAGE CALCULATIONS:				
DEBT SERVICE EXPENDITURES				
Senior debt	\$ 36,488	\$ 36,488		
Subordinate debt	\$ 20,633	\$ 20,633		
Senior Debt Service Coverage (GAAP)	3.52%	3.59%		
Subordinate Debt Service Coverage (GAAP)	6.23%	6.36%		
Total Debt Service Coverage (GAAP)	1.99%	2.03%		
Total Debt (Adjusted Cash Basis)	\$ 57,171	\$ 57,171		
Total Debt Service Coverage (Adjusted Cash Basis)	2.26%	2.30%		

Coverage improved as a result of capitalized asset and OPEB adjustments that decreased operating expenses

**HAMPTON ROADS SANITATION DISTRICT
STATEMENTS OF NET POSITION
AS OF JUNE 30, 2018 AND 2017**

ASSETS AND DEFERRED OUTFLOWS OF RESOURCES

(in thousands)	10/23/2018 DRAFT	11/15/2018 DRAFT	
CURRENT ASSETS			
Cash and cash equivalents	\$ 66,078	\$ 66,078	-
Cash and cash equivalents - Restricted	44,718	44,718	-
Investments	17,871	17,871	-
Accounts receivable, net	41,908	41,908	-
Accrued interest	447	447	-
Other current assets	2,574	2,582	8
TOTAL CURRENT ASSETS	173,596	173,604	8
NON-CURRENT ASSETS			
Cash and cash equivalents - Restricted	50,359	50,359	-
Investments	106,219	106,219	-
Inventory	27,517	27,517	-
	<u>184,095</u>	<u>184,095</u>	-
NET PROPERTY, PLANT AND EQUIPMENT			
Land	12,174	12,174	-
Treatment plants	1,239,796	1,242,191	2,395
Interceptor systems	609,416	609,416	-
Buildings	49,132	49,132	-
Small community facilities	25,549	25,549	-
Office equipment	44,613	44,613	-
Automotive	18,986	18,986	-
Other equipment	36,589	36,589	-
Software and intangible assets	39,749	39,749	-
	<u>2,076,004</u>	<u>2,078,399</u>	<u>2,395</u>
Less: Accumulated depreciation and amortization	979,038	979,038	-
	<u>1,096,966</u>	<u>1,099,361</u>	<u>2,395</u>
Construction in progress	222,283	222,283	-
NET PROPERTY, PLANT AND EQUIPMENT	1,319,249	1,321,644	2,395
	<u>1,503,344</u>	<u>1,505,739</u>	<u>2,395</u>
TOTAL ASSETS	1,676,940	1,679,343	2,403
			Total for Other assets and Treatment plants
DEFERRED OUTFLOWS OF RESOURCES			
Deferred loss on debt refunding, net	14,918	14,918	-
Differences between pension plan expected and actual experience	1,827	1,827	-
Change in proportion, OPEB plans	-	28	28
Contributions subsequent to the measurement date			
OPEB plans	-	354	354
Pension plan	3,635	3,635	-
TOTAL DEFERRED OUTFLOWS OF RESOURCES	20,380	20,762	382
TOTAL ASSETS AND DEFERRED OUTFLOWS OF RESOURCES	\$ 1,697,320	\$ 1,700,105	2,785
			Other assets, Treatment plants and OPEB adjustments

Key to abbreviations:

- GLI** - Group Life Insurance - a type of OPEB
- HIC** - Health Insurance Credit - a type of OPEB
- LT** - Long term - over one year before due or available
- NICA** - Net investment in capital assets
- NP** - Net Position
- OPEB** - Other PostEmployment Benefits
- RHP** - Retiree Health Plan - a type of OPEB
- VRS** - Virginia Retirement System

**HAMPTON ROADS SANITATION DISTRICT
STATEMENTS OF NET POSITION
AS OF JUNE 30, 2018 AND 2017**

LIABILITIES, DEFERRED INFLOWS OF RESOURCES AND NET POSITION

(in thousands)	10/23/2018 DRAFT	11/15/2018 DRAFT	
CURRENT LIABILITIES			
Trade and contracts payable	\$ 23,281	\$ 23,281	-
Contract retention	7,886	7,886	-
Accrued salaries and wages	2,476	2,476	-
Current portion of bonds payable	28,589	33,601	5,012
Variable rate demand bonds	50,000	50,000	-
Current portion of compensated absences	5,541	5,541	-
Debt interest payable	11,664	11,664	-
Other liabilities	5,465	5,465	-
TOTAL CURRENT LIABILITIES	134,902	139,914	5,012
LONG-TERM LIABILITIES			
Compensated absences	2,863	2,863	-
Net OPEB liability	13,173	18,149	4,976
Net pension liability	22,075	22,075	-
Bonds payable	812,853	807,841	(5,012)
TOTAL LONG-TERM LIABILITIES	850,964	850,928	(36)
TOTAL LIABILITIES	985,866	990,842	4,976
DEFERRED INFLOWS OF RESOURCES			
Differences between expected and actual experience			
OPEB plans		87	87
Pension plan	4,519	4,519	-
Changes of assumptions			
OPEB plans		221	221
Pension plan	3,113	3,113	-
Net difference between projected and actual earnings on:			
OPEB plan investments	692	867	175
Pension plan investments	2,827	2,827	-
TOTAL DEFERRED INFLOWS OF RESOURCES	11,151	11,634	483
NET POSITION			
Net investment in capital assets	508,634	512,398	3,764
Restricted for debt service	27,800	27,799	(1)
Unrestricted	163,869	157,432	(6,437)
TOTAL NET POSITION	700,303	697,629	(2,674)
TOTAL LIABILITIES, DEFERRED INFLOWS OF RESOURCES AND NET POSITION	\$ 1,697,320	\$ 1,700,105	2,785

Current portion of subordinate bonds was in LT.

OPEB adjustments for VRS GLI & HIC.

Current portion of subordinate bonds was in LT.

OPEB adjustments for VRS GLI & HIC.

OPEB adjustments for VRS GLI & HIC.

OPEB adjustments for VRS GLI & HIC.

We included the \$2.4 million asset and an expense reclassification of \$1.4 million to recalculate NICA.

Rounding correction.

Net amount of the adjustments is posted to the unrestricted portion of NP.

Net amount of Net Position adjustments

Capital asset and OPEB adjustments

Key to abbreviations:

GLI - Group Life Insurance - a type of OPEB

HIC - Health Insurance Credit - a type of OPEB

LT - Long term - over one year before due or available

NICA - Net investment in capital assets

NP - Net Position

OPEB - Other PostEmployment Benefits

RHP - Retiree Health Plan - a type of OPEB

VRS - Virginia Retirement System

HAMPTON ROADS SANITATION DISTRICT
STATEMENTS OF REVENUES, EXPENSES AND CHANGES IN NET POSITION
FOR THE FISCAL YEARS ENDED JUNE 30, 2018 and 2017

(in thousands)	10/23/2018 DRAFT	11/15/2018 DRAFT	
OPERATING REVENUES			
Wastewater treatment charges	\$ 275,539	\$ 275,539	-
Miscellaneous	3,504	3,504	-
TOTAL OPERATING REVENUES	279,043	279,043	-
OPERATING EXPENSES			
Wastewater treatment	119,377	116,982	(2,395) A \$3.9 million project had both expense and asset components. We recorded the \$2.4 million asset, reduced the expense and increased net position.
General and administrative	40,705	40,480	(225) OPEB adjustments - \$210 GLI expense reduced, \$15 HIC expense reduced.
Depreciation and amortization	52,349	52,349	-
TOTAL OPERATING EXPENSES	212,431	209,811	(2,620) \$2,395 asset capitalized, \$210 GLI expense reduced, \$15 HIC expense reduced.
OPERATING INCOME	66,612	69,232	2,620
NON-OPERATING REVENUES (EXPENSES)			
Wastewater facility charges	6,673	6,673	-
Investment income	3,654	3,654	-
Bond interest subsidy	2,330	2,330	-
Change in fair value of investments	(1,382)	(1,382)	-
Capital distributions to localities	(311)	(311)	-
Bond issuance costs	(1,061)	(1,061)	-
Interest expense	(20,226)	(20,226)	-
NET NON-OPERATING EXPENSES	(10,323)	(10,323)	-
INCOME BEFORE CAPITAL CONTRIBUTIONS	56,289	58,909	2,620
CAPITAL CONTRIBUTIONS			
State capital grants received	2,502	2,502	-
Other capital contributions	2,124	2,124	-
CAPITAL CONTRIBUTIONS	4,626	4,626	-
CHANGE IN NET POSITION	60,915	63,535	2,620 \$2,395 asset capitalized, \$210 GLI expense reduced, \$15 HIC expense reduced.
TOTAL NET POSITION - Beginning	654,278	654,278	-
Opening adjustment of net position (Note 14)	(14,890)	(20,184)	(5,294) OPEB adjustments for VRS GLI & HIC, only RHP was in 10/23/18.
TOTAL NET POSITION - Ending	\$ 700,303	\$ 697,629	(2,674) OPEB adjustments and the capitalized asset.

Key to abbreviations:

GLI - Group Life Insurance - a type of OPEB
HIC - Health Insurance Credit - a type of OPEB
LT - Long term - over one year before due or available
NICA - Net investment in capital assets
NP - Net Position
OPEB - Other PostEmployment Benefits
RHP - Retiree Health Plan - a type of OPEB
VRS - Virginia Retirement System

Report date	Commission	
	10/23/2018	11/15/2018
	(millions) DRAFT	DRAFT
COVERAGE CALCULATIONS:		
DEBT SERVICE EXPENDITURES		
Senior debt	\$ 36,488	\$ 36,488
Subordinate debt	\$ 20,633	\$ 20,633
Senior Debt Service Coverage (GAAP)	3.52%	3.59%
Subordinate Debt Service Coverage (GAAP)	6.23%	6.36%
Total Debt Service Coverage (GAAP)	1.99%	2.03%
Total Debt (Adjusted Cash Basis)	\$ 57,171	\$ 57,171
Total Debt Service Coverage (Adjusted Cash Basis)	2.26%	2.30%

Coverage improved as a result of capitalized asset and OPEB adjustments that decreased operating expenses

Key to abbreviations:

GLI - Group Life Insurance - a type of OPEB
HIC - Health Insurance Credit - a type of OPEB
LT - Long term - over one year before due or available
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OPEB - Other PostEmployment Benefits
RHP - Retiree Health Plan - a type of OPEB
VRS - Virginia Retirement System



Fiscal Year - 2018 Comprehensive Annual Financial Report (CAFR)

October 23, 2018

Revised November 20, 2018 (items noted in red font)

Acknowledgements

- Lee Acors - Chief of Accounting
- Kathy Stephanitsis - Accounting Manager
- Ramona Bradshaw - Accounting Manager
- Kassandra Pagan - Financial Analyst
- Helen Mayhue - Financial Analyst
- Donna Stinson - Business Analyst
- Anisea Burl - Accounts Payable Supervisor
- Charmaine Simmons - Accounts Payable Associate
- Ingrid Conde - Accounts Payable Associate
- Danielle Raleigh - Accounting Coordinator
- KPMG



35 Consecutive Years

- Fiscal Year 2018 CAFR
 - Bottom Line Up Front (BLUF)
 - Retiree Health Trust (OPEB)
 - Key Financial Policy Indicators
- Conclusion

Bottom Line Up Front (BLUF)

- VRS Pension Funded Ratio Up = 90%
- OPEB Funded Ratio Down = 78%
- Water consumption almost flat YOY (Year over Year)
- Revenues exceeded Expenses **YOY** by **\$15M**
- Total Debt Service Coverage = **2.30x**
- Days Cash on Hand = 434
- Yield Optimization Strategy = up 210% YOY
- Two bond deals in FY18
 1. \$84M refunded, saving \$6M NPV or \$860k per year
 2. First competitive deal, \$75M in proceeds
- Moody's Rating Upgrade = Aa1 (one notch below AAA)

Retiree Health Plan (RHP) Trust
Other Post-Employment Benefits (OPEB)

Retirement Health Plan (RHP) Net Liability and Funded Ratio

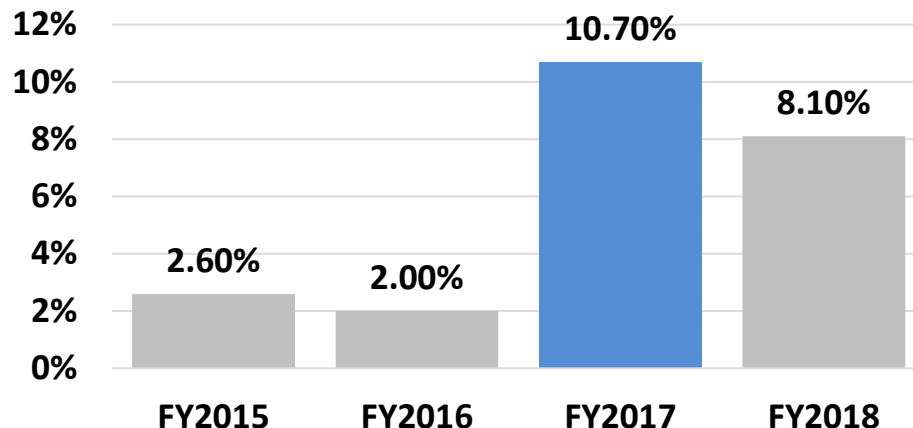
Total **RHP** Liability = \$60.3 million
– Investment Value (Assets) = \$47.1 million

Net RHP Liability = \$13.2 million*

FY2018 Funded Ratio = 78.2%

HRSD assumed rate of return = 6.0%

RHP Annual Investment Returns



Projected Unit Credit Funding Method
FY17 OLD = 86.1%

Entry Age Normal Funding Method
FY17 NEW = 74.1%

*HRSD's total Net OPEB Liability is \$18,149,000, which includes the RHP and two OPEB plans administered by the Virginia Retirement System, the Group Life Insurance Plan and the Political Subdivision Health Insurance Credit Plan.

EXAMPLE - Difference related to Discount Rate and Attrition

Projected Unit Credit (FY17)

PV of Benefit	\$90,000
Service at retirement	30 yrs
Normal Cost	\$3,000
Service at valuation date	10 yrs
Year 1 - Liability	\$30,000
Year 2 - Liability	\$33,000

Entry Age Normal (FY18)

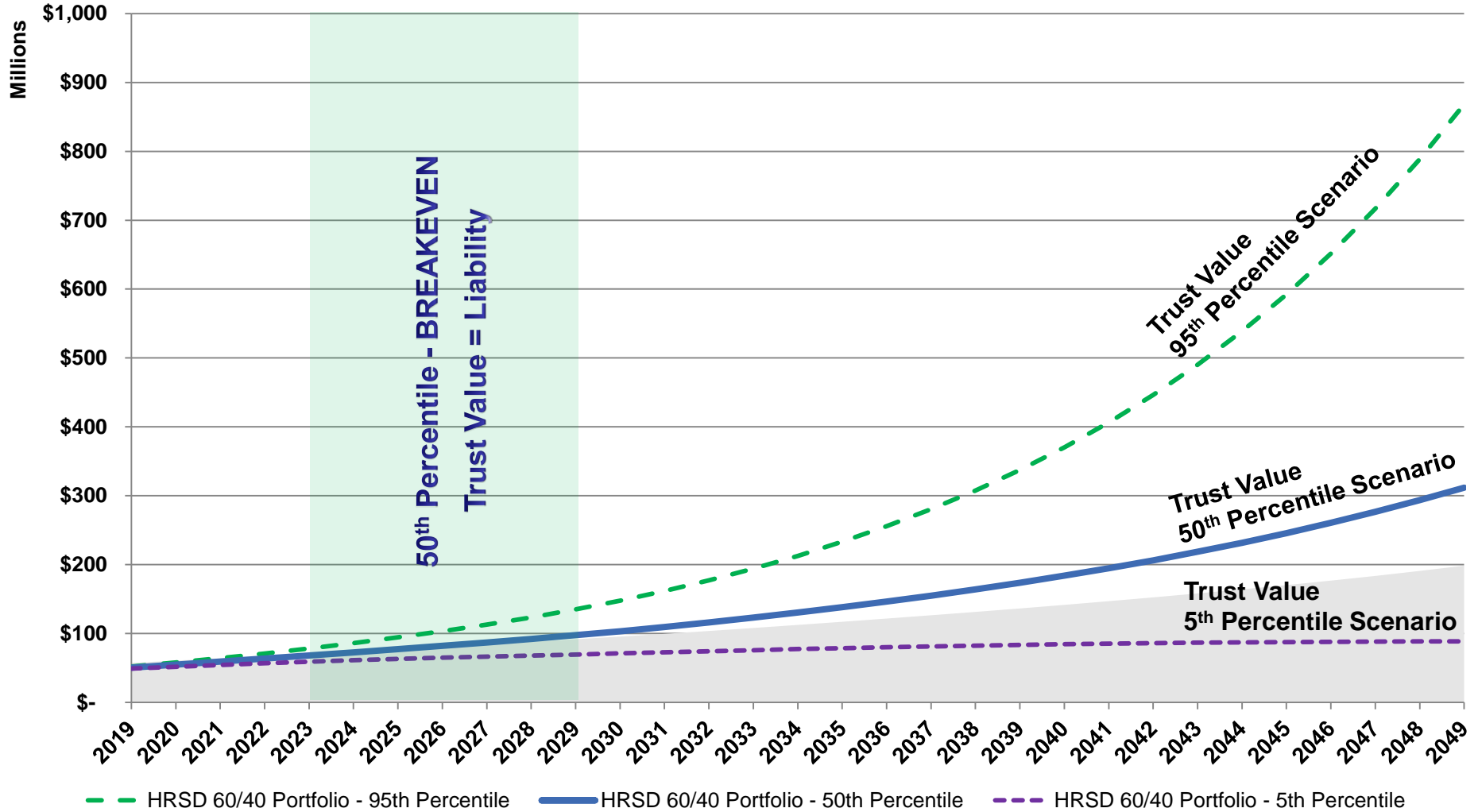
PV of Benefit	\$90,000
Discount Rate	7.0%
Probability of Attrition	5.0%
PV of Benefit	\$101,115
Service at retirement	30 yrs
Normal Cost	\$3,339
Service at valuation date	10 yrs
Year 1 - Liability	\$33,705
Year 2 - Liability	\$37,076

Year 2 = PV of Benefit x Service at valuation date (11 yrs) divided by Service at Retirement (30 yrs)

FY17 Funded Ratio - Difference in Liability Calculation

	GASB45 Accounting Standard	GASB75 Accounting Standard
Actuarial Funding Method	Projected Unit Credit (,000s)	Entry Age Normal (,000s)
Retired Liability	18,452	18,452
Employee Liability	30,851	38,965
Total Liability	49,383	57,417
Market Value of Assets	-	42,526
Actuarial Assets	42,468	n/a
Assets Used	42,468	42,526
Funded Percentage	86.1%	74.1%

Projection – Trust Value vs Liability (Risk Analysis)



Key Financial Policy Indicators

$$\text{Debt Service Coverage Ratio} = \frac{\text{REVENUES} - \text{EXPENSES}}{\text{Principal} + \text{Interest}}$$

- *How much income will you generate to pay Debt Service (principal + interest)?*
- *Will bond investors get paid back?*
- *Higher is better*

Debt Service = Think about a loan payment

2.0 means that you have **two times more money available** to pay for your loan payment

Target = 2.0x
Policy = 1.4x

Debt Service Coverage Ratio (DSCR) by Trust Agreement

SENIOR TRUST AGREEMENT

Senior Debt Service Coverage Requirement FY 2018

Senior Debt Service Coverage Ratio – Max Annual Debt Svc* **3.59x**

Financial Policy Requirement (Adjusted Cash Basis)  1.50x
 Legal Requirement 1.20x

Total Debt Service Coverage Requirement FY 2018

Total Debt Service Coverage Ratio – Max Annual Debt Svc* **2.03x**

Legal Coverage Requirement  1.00x
 Debt Service Reserve Fund Test 1.35x

Fitch 2018 Medians	DSCR
AAA	2.8
AA	2.1
A	1.7
All	2.1
Large	1.9

SUBORDINATE TRUST AGREEMENT/FINANCIAL POLICY

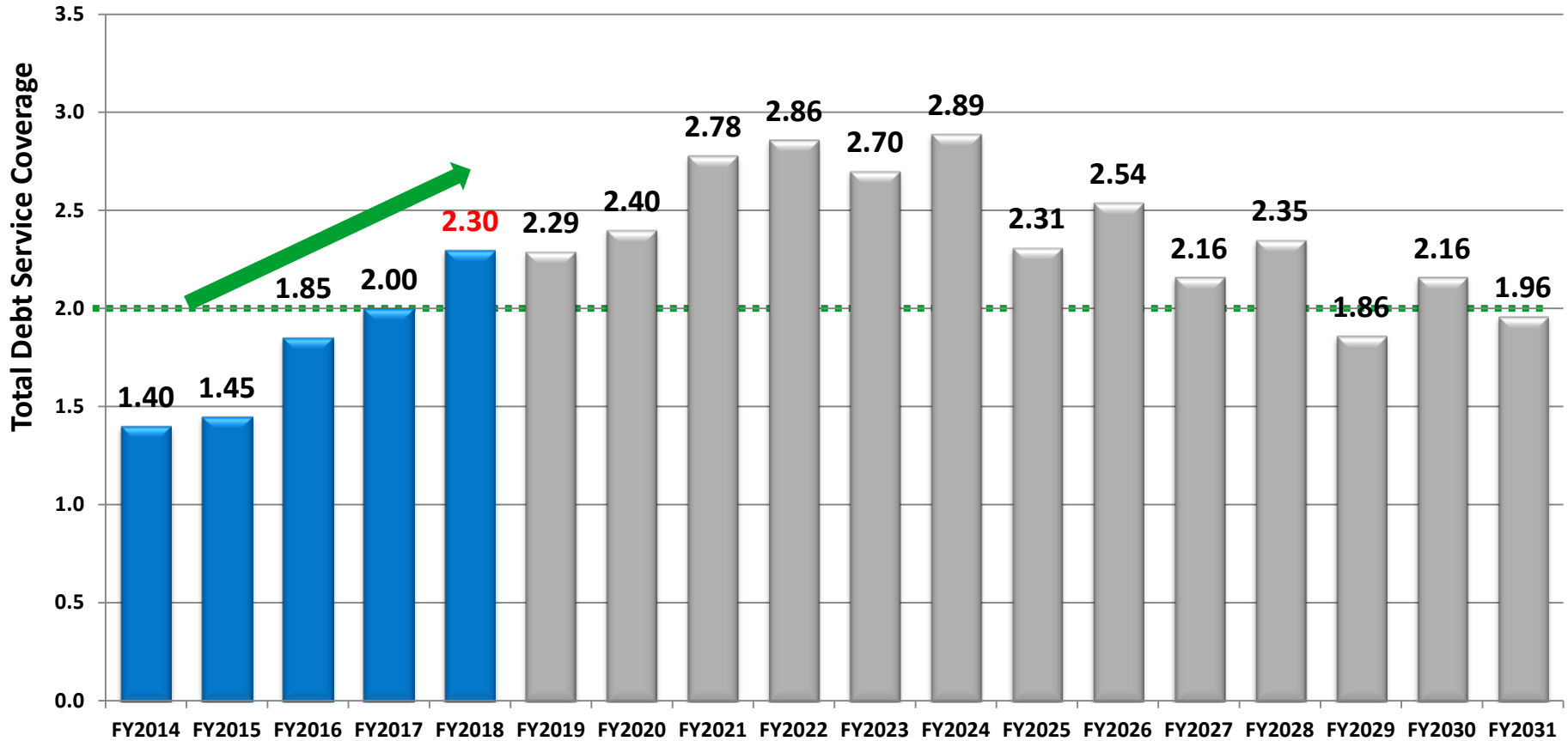
Total Debt Service Coverage Requirement FY 2018

Total Debt Service Coverage Ratio – GAAP **2.30x**

Total Debt Service Coverage Ratio – Adjusted Cash Basis **2.30x**

Financial Policy Requirement  1.40x
 Legal Coverage Requirement 1.20x

Total Debt Service Coverage (GAAP) Trend



Liquidity (HRSD's Unrestricted Savings Account)

- Liquidity indicates financial flexibility to pay near-term obligations and margin of safety
- Days Cash on Hand (DCOH)
- How many days can you operate with available cash if no revenue is coming in?
- Includes Capital Reserve funds

$$\text{DCOH} = \frac{\text{Unrestricted Cash and Investments}}{\text{Operating Expenses} \div 365 \text{ days}}$$

HRSD POLICY

Min = 270 DCOH, FY17 = \$113M

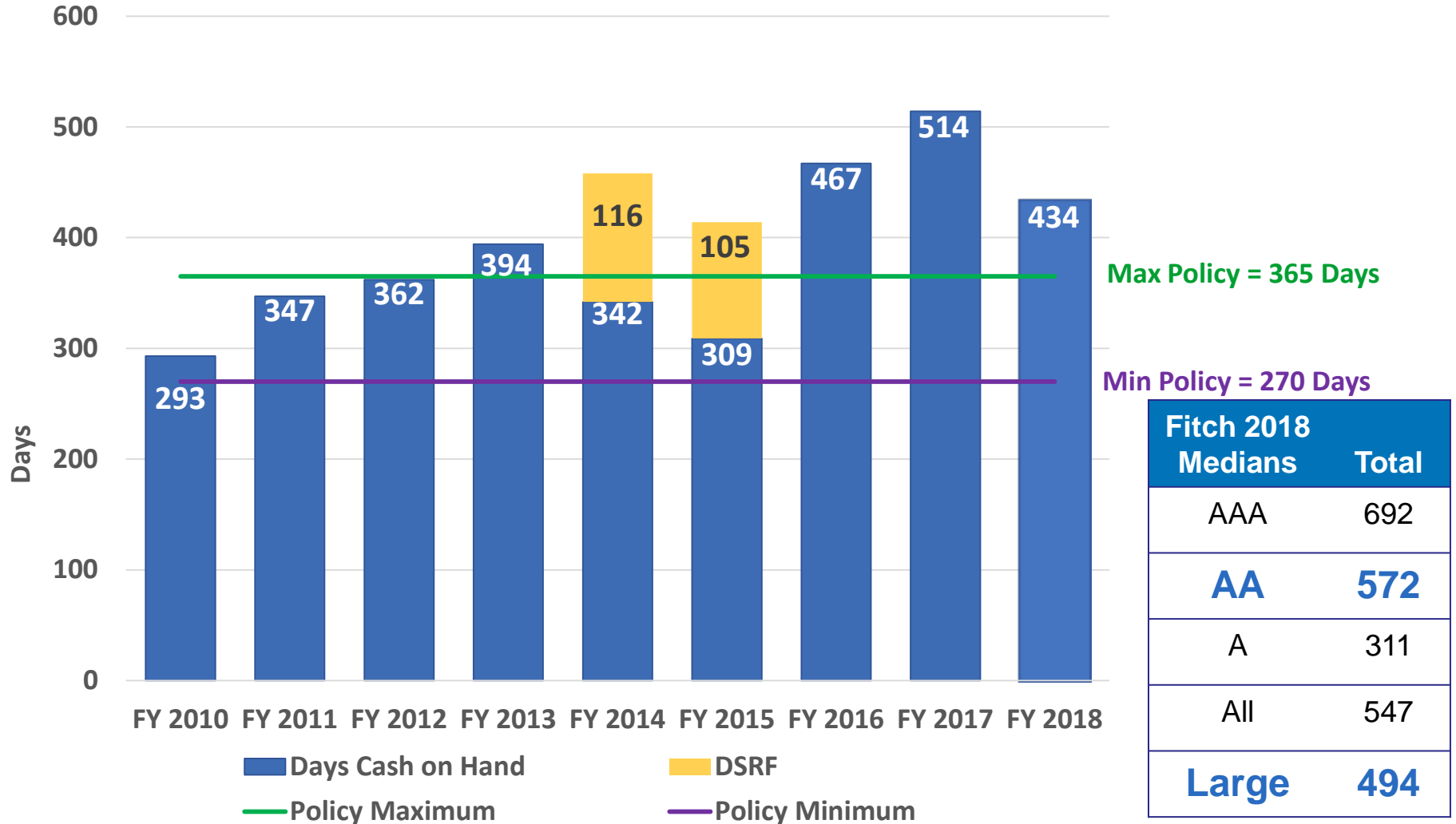
Max = 365 DCOH, FY17 = \$153M

2017 Fitch Medians

AAA = 518 DCOH, FY17 = \$218M

AA = 499 DCOH, FY17 = \$210M

Total Days Cash on Hand (DCOH) = days



- Financial health is sound
 - Achieved target rating agency medians
 - Expenses are stable, but healthcare is volatile
 - Debt Service Coverage is increasing
 - Pension and Retiree Health plans are stable
- Expect Final Auditor's Opinion in November

Questions?



Comprehensive Annual Financial Report

FOR THE FISCAL YEARS ENDED JUNE 30, 2018 AND 2017

*Hampton Roads Sanitation District
(A Component Unit of the Commonwealth of Virginia)*

HRSD
Ensuring future generations inherit clean waterways

HRSD

Cleaning wastewater every day for a better Bay.

HAMPTON ROADS SANITATION DISTRICT

(A Component Unit of the Commonwealth of Virginia)

COMPREHENSIVE ANNUAL FINANCIAL REPORT

For the fiscal years ended

June 30, 2018 and 2017

**Prepared by:
Finance Department**

HAMPTON ROADS SANITATION DISTRICT

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Introductory Section



November 27, 2018

HRSD Commission
Virginia Beach, Virginia

Dear Commissioners:

Political subdivisions of the Commonwealth of Virginia are required to publish a complete set of audited financial statements. This report fulfills that requirement for the fiscal year ended June 30, 2018.

HRSD's management assumes full responsibility for the completeness and reliability of information contained in this report, based on a comprehensive framework of internal control it has established for this purpose. Because the cost of internal control should not exceed anticipated benefits, the objective is to provide reasonable, rather than absolute, assurance that the financial statements are free of material misstatements.

KPMG LLP, Certified Public Accountants, has issued an unmodified ("clean") opinion on HRSD's financial statements for the year ended June 30, 2018. The independent auditors' report is located at the front of the financial section of this report.

Management's Discussion and Analysis (MD&A) immediately follows the independent auditors' report and provides a narrative introduction, overview and analysis of the basic financial statements. The MD&A, which complements this letter of transmittal, should be read in conjunction with it.

PROFILE OF HRSD

HRSD is an independent political subdivision of the Commonwealth of Virginia (the Commonwealth) created by referendum on November 5, 1940. HRSD was established to abate water pollution in the Hampton Roads area by providing a system of interceptor mains and wastewater treatment plants.

Approximately 1.7 million individuals, more than one-fifth of Virginia's population, reside in HRSD's service area, which is located in the southeastern corner of the Commonwealth. HRSD's territory of approximately 3,100 square miles encompasses nine cities, nine counties and several large military facilities. A brief history of HRSD is provided on page 8. HRSD is required by its enabling act to meet its obligations by charging user fees for its wastewater treatment services; no taxing authority is authorized by the enabling act. Currently, HRSD provides service and bills to approximately 473,000 service connections.

A board of eight commissioners (the Commission), appointed by the Governor of Virginia, governs HRSD. Commission members, who serve four-year staggered terms, can be reappointed without limitation and may be suspended or removed by the Governor at his pleasure. The Commission appoints a General Manager, who appoints the senior staff.

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 • Stephen C. Rodriguez • Willie Levenston, Jr. • Ann W. Templeman • Elizabeth A. Taraski, PhD
www.hrsd.com

HRSD owns and operates 16 treatment plants. The nine major plants in Hampton Roads have design capacities ranging in size from 15 to 54 million gallons per day (MGD). Five of the major plants are located south of the James River and four are north of the James River (see map on page 7). The combined capacity of these nine plants is approximately 249 MGD. HRSD's seven small rural treatment plants have a combined capacity of almost one MGD.

HRSD maintains 540 miles of pipelines ranging from six inches to 66 inches in diameter. Interceptor pipelines, along with 89 pump stations in Hampton Roads, interconnect into two independent systems, one south of the James River and one north of the James River. The system allows some flow diversions to provide for maintenance or emergency work. HRSD owns and maintains 34 pump stations on the Middle Peninsula.

LOCAL ECONOMY

HRSD's service area includes nearly all of the Virginia Beach-Norfolk-Newport News Metropolitan Statistical Area (MSA). It is the ninth largest MSA in the southeastern United States and the thirty-seventh largest in the nation. Unlike many metropolitan areas, Hampton Roads' population nucleus is not confined to one central city. Instead, the approximately 1.7 million residents are spread among several cities and counties. Virginia Beach is the most populous city in the Commonwealth, with Norfolk and Chesapeake second and third, respectively. Suffolk is the largest city by land area. Unemployment rates remain below national averages in the region, which has a civilian labor force of 867,800 as of June 2018.

The regional economy is supported by one of the highest military concentrations in the nation, diverse manufacturing and service sectors, shipbuilding and repair work, international port activities and tourism. Several state and private colleges and a large healthcare infrastructure also lend stability to the region.

A diverse customer base allows HRSD to maintain stable revenues. The ten largest customers account for only 9.5 percent of wastewater revenues for fiscal year 2018. In addition, HRSD's 2018 revenues contained only limited reliance (2.3 percent) on new customer connections.

LONG-TERM FINANCIAL PLANNING

HRSD's Financial Policy helps it maintain its solid fiscal health. Budgetary principles include using ongoing revenues to pay for ongoing expenses, and establishing annual cash contribution goals of at least 15 percent of budgeted capital costs. Under the Financial Policy, senior debt service coverage and total adjusted debt service coverage ratios should not be less than 1.5 and 1.4 times annual debt service, respectively with a goal of maintaining 2.0. Operating and ten-year capital improvement budgets are adopted annually. Included in the operating budget is a long-range financial forecast, which is guided by projections of operating and capital needs and the aforementioned Financial Policy requirements.

MAJOR INITIATIVES

HRSD continues its ambitious \$2.5 billion, ten-year Capital Improvement Program. Regulatory requirements to reduce nutrient discharges, initiatives to ensure appropriate wet weather capacity exists within the regional sanitary sewer system, major plant upgrades and replacements of interceptor pipelines drive the capital program. Major projects are currently under construction at the Army Base Treatment Plant and the Virginia Initiative Plant.

To minimize the impacts of its capital investments on ratepayers, HRSD continues to pursue grant opportunities when available. In 2018, HRSD received approximately \$4.6 million in grant reimbursements for improvements to several of its treatment plants.


AWARDS AND ACKNOWLEDGMENTS

The Government Finance Officers Association (GFOA) awarded a Certificate of Achievement for Excellence in Financial Reporting to HRSD for its comprehensive annual financial report (CAFR) for the fiscal year ended June 30, 2017. This was the 35th consecutive year that HRSD has received this prestigious award. In order to be awarded a Certificate of Achievement, HRSD must publish an easily readable and efficiently organized CAFR that satisfies both generally accepted accounting principles and applicable legal requirements.

A Certificate of Achievement is valid for a period of one year only. We believe our current CAFR continues to meet the Certificate of Achievement Program's requirements, and we are submitting it to the GFOA to determine its eligibility for another certificate.

The preparation of this CAFR was made possible by the dedicated service of the entire Department of Finance staff. All members of the department have our sincere appreciation for their contributions to the preparation of this report. Credit must also be given to the Commission for their support for maintaining the highest standard of professionalism in the management of HRSD's finances.

Respectfully submitted,



Edward Henifin, P.E.
General Manager



Jay A. Bernas, P.E.
Director of Finance



Carroll L. Acors, CPA
Chief of Accounting



Government Finance Officers Association

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**Hampton Roads Sanitation District
Virginia**

For its Comprehensive Annual
Financial Report
for the Fiscal Year Ended

June 30, 2017

Christopher P. Morill

Executive Director/CEO

Principal Officials

June 30, 2018

COMMISSIONERS

Frederick N. Elofson, CPA, Chair

Maurice P. Lynch, PhD, Vice-Chair

Michael E. Glenn

Vishnu K. Lakdawala, PhD

Willie Levenston, Jr.

Stephen C. Rodriguez

Elizabeth A. Taraski, PhD

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. Hesselbee, PE
Director of Engineering

James J. Pletl, PhD
Director of Water Quality

Leila E. Rice, APR
Director of
Communications

COUNSEL

Kellam, Pickrell, Cox & Anderson, PC
General Counsel

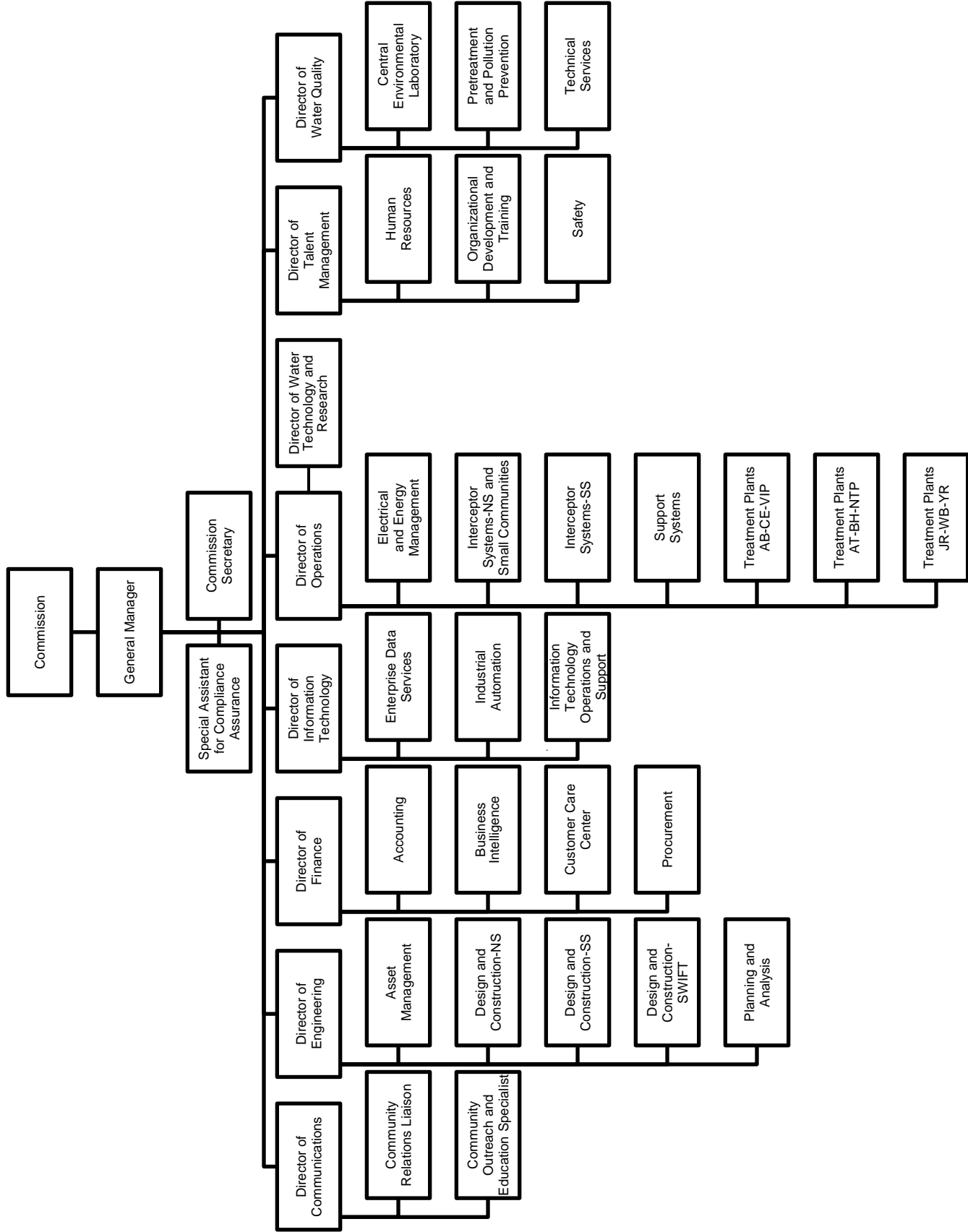
Jones, Blechman, Woltz & Kelly, PC
Associate Counsel

AquaLaw, PLC
Special Counsel

Norton Rose Fulbright US, LLP
Bond Counsel

HRSD Organization Chart

July 1, 2018

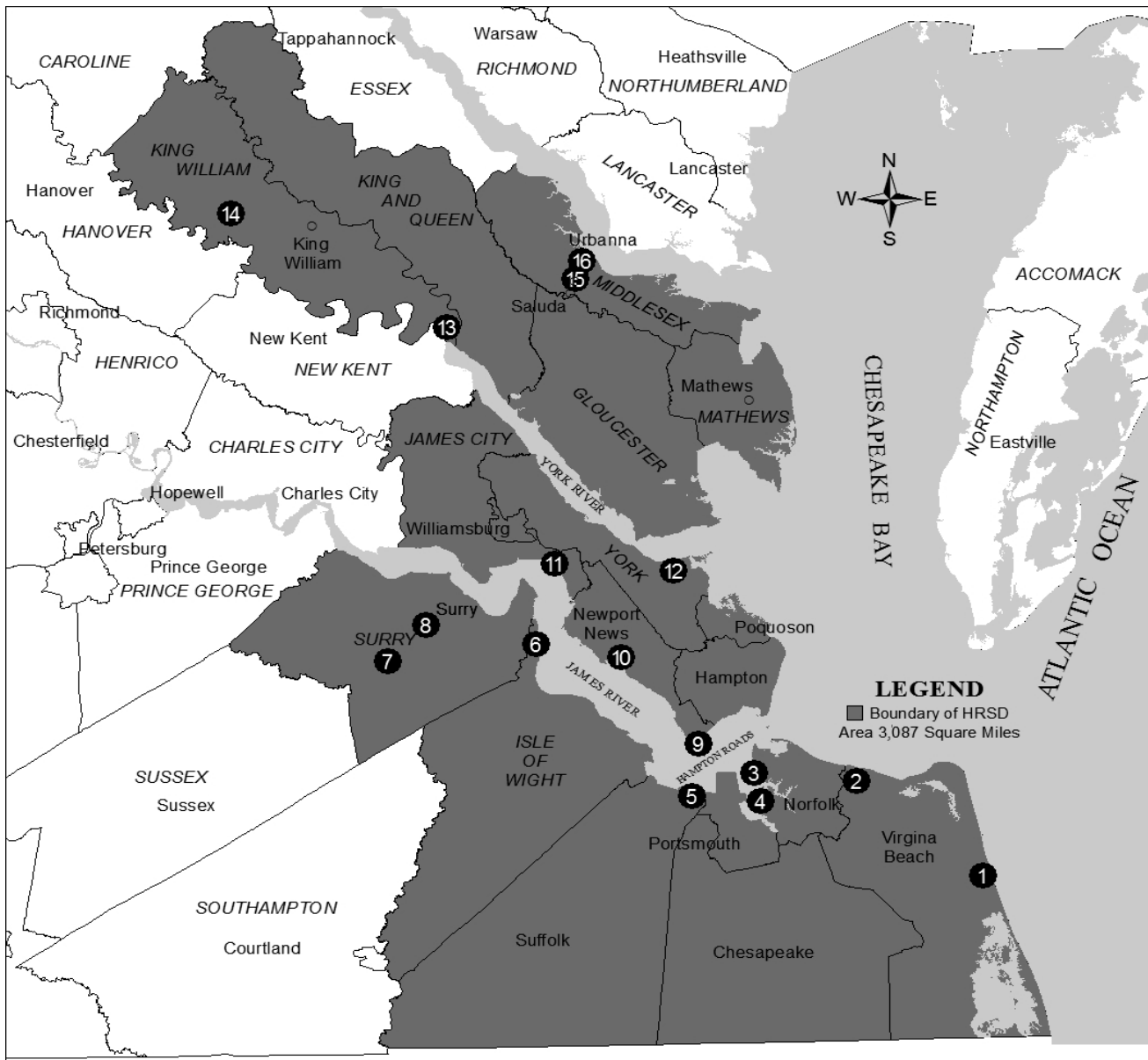


HRSD Service Area

A Political Subdivision of the Commonwealth of Virginia

Facilities include the following:

- | | | |
|------------------------------------|---|--|
| 1. Atlantic, Virginia Beach | 9. Boat Harbor, Newport News | 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 |
| 2. Chesapeake-Elizabeth, Va. Beach | 10. James River, Newport News | |
| 3. Army Base, Norfolk | 11. Williamsburg, James City County | |
| 4. Virginia Initiative, Norfolk | 12. York River, York County | |
| 5. Nansemond, Suffolk | 13. West Point, King William County | |
| 6. Lawnes Point, Smithfield | 14. King William, King William County | |
| 7. County of Surry | 15. Central Middlesex, Middlesex County | |
| 8. Town of Surry | 16. Urbanna, Middlesex County | |



History of HRSD

June 30, 2018

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 2017.

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 for outstanding compliance with National Pollutant Discharge Elimination System (NPDES) permits to every HRSD treatment plant during calendar year 2017. The major treatment plants received the following awards in recognition of their outstanding permit compliance status: Atlantic—Gold, Boat Harbor—Platinum (16 consecutive years), Chesapeake-Elizabeth—Silver, James River—Gold, Nansemond—Platinum (16 consecutive years), Virginia Initiative Plant—Platinum (22 consecutive years), Williamsburg—Platinum (23 consecutive years) and York River—Platinum (10 consecutive years). Three treatment plants in the Small Communities Division, Central Middlesex, King William and Urbanna, earned Silver Awards while West Point received a Gold Award.

Highlighting 2018, HRSD's SWIFT (Sustainable Water Initiative for Tomorrow) Program was awarded the U.S. Water Prize for the public sector by the U.S. Water Alliance. HRSD's other honors received in 2018 include the NACWA National Achievement Award - Workforce Development Award for the HRSD Apprenticeship Program and the NACWA National Achievement Award - Operations & Environmental Performance Award for the HRSD Pump Station Architectural Guidelines. HRSD also earned a National Award from the American Council of Engineering Companies (ACEC) for the HRSD Norchester Pump Station. And, HRSD was recognized by the Elizabeth River Project as a Sustained Distinguished Performance Model Level River Stars Business.

Sustainable
Water Initiative
for Tomorrow

Financial Section

Leonardo da Vinci
Water is the
driving force
of all nature.

Dr Louis van Vuuren

Water should not
be judged by its





KPMG LLP
Suite 1900
440 Monticello Avenue
Norfolk, VA 23510

Independent Auditors' Report

The Commissioners
Hampton Roads Sanitation District:

We have audited the accompanying financial statements of the Hampton Roads Sanitation District (HRSD), a component unit of the Commonwealth of Virginia, as of and for the years ended June 30, 2018 and 2017, and the related notes to the financial statements, which collectively comprise HRSD's basic financial statements for the years then ended as listed in the table of contents.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with U.S. generally accepted accounting principles; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditors' Responsibility

Our responsibility is to express an opinion on these financial statements based on our audits. We conducted our audits in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditors' judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of HRSD as of June 30, 2018 and 2017, and the changes in financial position and cash flows for the years then ended in accordance with U.S. generally accepted accounting principles.

Emphasis of a Matter

As discussed in Note 2 to the financial statements, in 2018, HRSD adopted new accounting guidance described in Governmental Accounting Standards Board No. 75: *Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions*. Our opinion is not modified with respect to this matter.



Other Matters

Required Supplementary Information

U.S. generally accepted accounting principles require that Management's Discussion and Analysis on pages 11 through 15, the Schedule of Changes in Net Pension Liability and Related Ratios on page 51, the Schedule of Employer Pension Contributions on page 52, the Schedule of Changes in Net RHP OPEB Liability and Related Ratios and Notes to Required Supplementary Information on page 53, the Schedule of RHP OPEB Contributions and Related Ratios on page 54, and the Schedule of RHP Funding Progress on page 55, the Schedule of Employer's Share of Net GLI OPEB Liability and Related Ratios on page 56, the Schedule of Employer Group Life Insurance Contributions and Notes to the Required Supplemental Information on page 57, the Schedule of Changes in Net HIC OPEB Liability and Related Ratios on page 58, and the Schedule of Employer Health Insurance Credit Contributions and Notes to the Required Supplemental Information on page 59 be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audits of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Supplementary and Other Information

Our audits were conducted for the purpose of forming an opinion on the financial statements that collectively comprise HRSD's basic financial statements. The Introductory Section, Statistical Section and Other Supplemental Section are presented for purposes of additional analysis and are not a required part of the basic financial statements.

The Schedule of Operating Expenses, Net Position by Component, and Debt Service Expenditures on pages 64 through 65 is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the basic financial statements. Such information has been subjected to the auditing procedures applied in the audit of the basic financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the basic financial statements or to the basic financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the Schedule of Operating Expenses, Net Position by Component, and Debt Service Expenditures is fairly stated in all material respects in relation to the basic financial statements taken as a whole.

The Introductory Section, the remaining schedules in the Statistical Section, and the Other Supplemental Section have not been subjected to the auditing procedures applied in the audit of the basic financial statements, and accordingly, we do not express an opinion or provide any assurance on them.

KPMG LLP

November 27, 2018
Norfolk, Virginia

MANAGEMENT'S DISCUSSION AND ANALYSIS (Unaudited)

This narrative overview and analysis of the financial activities of the Hampton Roads Sanitation District (HRSD) for the fiscal year ended June 30, 2018 is provided by HRSD's management. Readers of the accompanying financial statements are encouraged to consider this information in conjunction with that furnished in the letter of transmittal, which can be found on pages 1 through 3 of this report.

FINANCIAL HIGHLIGHTS

- Total net position increased \$43.4 million, or 6.6 percent, in 2018 as a result of this year's operations after adjusting the opening net position by \$20.2 million to record other postemployment benefits (OPEB) as required under new reporting rules.
- Total revenues increased \$20.7 million, or 7.7 percent. This increase is primarily attributable to wastewater revenue rate increases.
- Operating expenses increased \$7.1 million, or 3.5 percent, principally due to a \$3.2 million increase in contractual services and a \$3.0 million increase in depreciation expense, due to the completion of major expansions of treatment plants and interceptor systems in 2017 and 2018. Healthcare expense increased by \$3.5 million due to an unexpected increase in large medical claims.
- Non-operating expenses decreased \$1.2 million, or 5.3 percent, primarily due to a \$2.4 million decrease in interest expense as a result of higher amortization of bond issue premiums and more interest being capitalized into construction in progress.
- HRSD received \$4.6 million in capital grants in 2018, including \$2.5 million from the Commonwealth of Virginia, to help finance its capital improvement program.
- Restricted cash and cash equivalents increased \$72.4 million, or 318.8 percent, primarily due to new bonds issued for capital construction activity. Unrestricted cash and cash equivalents and investments decreased \$25.6 million, or 11.9 percent, primarily due to increases in debt service levels and bond construction funds.
- Net Property, Plant and Equipment increased \$65.7 million, or 5.2 percent, primarily due to expansion of treatment plants and interceptor systems.

OVERVIEW OF FINANCIAL STATEMENTS

HRSD's Basic Financial Statements are comprised of the financial statements and the notes to the financial statements. This report also contains required supplementary information and other supplementary information in addition to the Basic Financial Statements.

The Basic Financial Statements, found on pages 16 through 19 of this report, are designed to provide readers with a broad overview of HRSD's finances in a manner similar to a private sector business.

The Statements of Net Position, found on pages 16 and 17 of this report, present information on all of HRSD's assets, deferred outflows of resources, liabilities, and deferred inflows of resources; the difference between these components is reported as net position. Over time, changes in net position may serve as a useful indicator of whether the financial position of HRSD is improving or deteriorating.

The Statements of Revenues, Expenses and Changes in Net Position, found on page 18 of this report, present all of HRSD's revenues and expenses, showing how HRSD's net position changed during the year. All changes in net position are reported as soon as the underlying event takes place, thus giving rise to the changes, regardless of the timing of the cash flows. Thus, revenues and expenses are reported for some items that will only result in cash flows in future fiscal periods.

The Notes to Financial Statements, found on pages 20 through 50 of this report, provide additional information that is essential to a full understanding of the data provided in the financial statements.

In addition to the basic financial statements and the related notes, this report also presents certain required supplementary information concerning HRSD's progress in funding its obligations to provide pension and other postemployment benefits to its employees.

Required Supplementary Information can be found beginning on page 51 of this report.

FINANCIAL ANALYSIS

As noted earlier, net position may serve over time as a useful indicator of HRSD's financial position. Assets exceeded liabilities by \$697.6 million at June 30, 2018 and by \$654.3 million at June 30, 2017.

By far, the largest portion of HRSD's net position (73.4 percent and 65.5 percent at June 30, 2018 and 2017, respectively) reflects its net investment in capital assets (e.g. land, buildings, machinery and equipment) less any related debt used to acquire those assets still outstanding, net of unspent bond proceeds. HRSD uses these capital assets to provide services to its customers; consequently, these assets are not available for future spending. Although HRSD's net investment in its capital assets is reported net of related debt, it should be noted that the resources needed to repay this debt must be provided from other sources, because the capital assets themselves cannot be liquidated to reduce these liabilities.

HRSD's net position is summarized in the following condensed Statements of Net Position as of June 30:

HRSD's Condensed Statements of Net Position

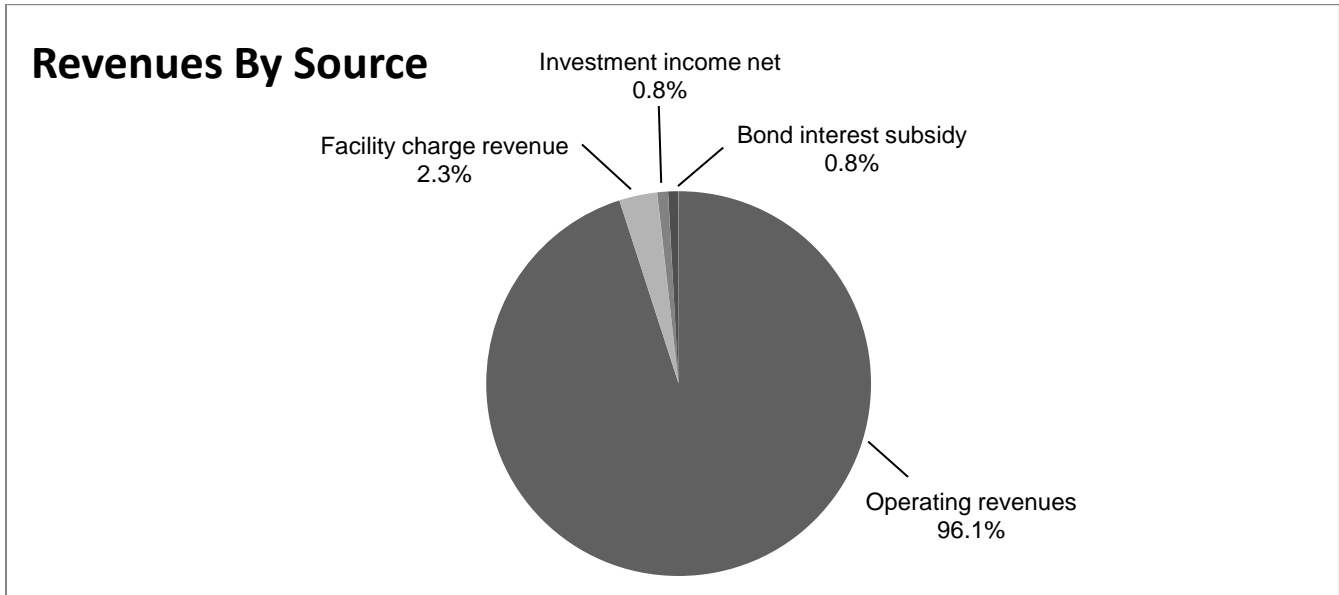
(in thousands)	2018	2017	2016	2018 vs. 2017	
				Dollars	Percent
Capital assets	\$ 1,321,644	\$ 1,255,952	\$ 1,200,404	\$ 65,692	5.2%
Current assets and noncurrent assets	357,699	310,534	357,804	47,165	15.2%
Total assets	\$ 1,679,343	\$ 1,566,486	\$ 1,558,208	\$ 112,857	7.2%
Deferred outflows of resources	20,762	30,822	25,638	(10,060)	-32.6%
Long-term liabilities	\$ 850,928	\$ 805,685	\$ 826,393	\$ 45,243	5.6%
Current liabilities	139,914	134,353	147,339	5,561	4.1%
Total liabilities	\$ 990,842	\$ 940,038	\$ 973,732	\$ 50,804	5.4%
Deferred inflows of resources	11,634	2,992	8,510	8,642	288.8%
Net investment in capital assets	\$ 512,398	\$ 428,670	\$ 410,287	\$ 83,728	19.5%
Restricted for debt service	27,799	22,701	23,798	5,098	22.5%
Unrestricted	157,432	202,907	167,519	(45,475)	-22.4%
Total net position	\$ 697,629	\$ 654,278	\$ 601,604	\$ 43,351	6.6%

At June 30, 2018 HRSD retained \$67.3 million of unspent bond proceeds and at June 30, 2017 had no unspent bond proceeds. The increase in capital assets and the corresponding changes in current assets and noncurrent investments from 2016 through 2018 are primarily the result of issuing bonds in 2016, 2017 and 2018 and using these proceeds to fund capital improvements.

The changes in HRSD's net position can be determined by reviewing the following condensed Statements of Revenues, Expenses and Changes in Net Position:

HRSD's Condensed Statements of Revenues, Expenses and Changes in Net Position

(in thousands)	2018	2017	2016	2018 vs. 2017	
				Dollars	Percent
Operating revenues	\$ 279,043	\$ 258,630	\$ 237,881	\$ 20,413	7.9%
Facility charge revenues	6,673	7,511	6,699	(838)	-11.2%
Investment income, net	2,272	1,168	2,313	1,104	94.5%
Bond interest subsidy	2,330	2,275	2,399	55	2.4%
Total revenues	290,318	269,584	249,292	20,734	7.7%
Operating expenses:					
Wastewater treatment	116,982	113,100	106,575	3,882	3.4%
General and administrative	40,480	40,287	40,026	193	0.5%
Depreciation and amortization	52,349	49,311	45,670	3,038	6.2%
Total operating expenses	209,811	202,698	192,271	7,113	3.5%
Non-operating expenses:					
Bond issuance costs	1,061	42	1,713	1,019	2426.2%
Capital distributions to localities	311	138	3,287	173	125.4%
Interest expense	20,226	22,630	21,631	(2,404)	-10.6%
Total non-operating expenses	21,598	22,810	26,631	(1,212)	-5.3%
Total expenses	231,409	225,508	218,902	5,901	2.6%
Income before capital contributions	58,909	44,076	30,390	14,833	33.7%
Capital contributions	4,626	8,598	14,389	(3,972)	-46.2%
Change in net position	63,535	52,674	44,779	10,861	20.6%
Total net position - beginning, as restated	634,094	601,604	556,825	32,490	5.4%
Total net position - ending	\$ 697,629	\$ 654,278	\$ 601,604	\$ 43,351	6.6%



Operating revenues increased 7.9 percent in 2018 and 8.7 percent in 2017. The majority of these increases are attributable to various rate increases in metered public wastewater services. Facility charge revenues decreased \$0.8 million, or 11.2 percent, in 2018 after increasing \$0.8 million, or 12.1 percent, in 2017, due to a decrease in new construction activity across the region.

Operating expenses increased 3.5 percent in 2018 and increased 5.4 percent in 2017. Increases in 2018 were principally due to a \$3.1 million increase in contractual services, a \$3.5 million increase in healthcare expense and a \$3.0 million increase in depreciation expense. Increases in 2017 were principally due to a \$5.4 million increase in contractual services and a \$3.6 million increase in depreciation expense.

In 2018 and 2017, HRSD received \$4.6 million and \$8.6 million, respectively, in capital grants to help finance its capital improvement program.

CAPITAL ASSETS AND DEBT ADMINISTRATION

Capital Assets

At the end of both 2018 and 2017, HRSD had approximately \$1.3 billion invested in a broad range of capital assets, including wastewater treatment plants, interceptor mains, pump stations, automotive, administrative and maintenance buildings, and office and computer software and equipment. These amounts represent a net increase of \$65.7 million, or 5.2 percent, in 2018 and \$55.5 million, or 4.6 percent, in 2017.

The following summarizes HRSD's capital assets, net of accumulated depreciation, as of June 30:

HRSD's Capital Assets

(in thousands)	2018	2017	2016
Land	\$ 12,174	\$ 12,174	\$ 12,174
Treatment plants	572,942	543,616	557,145
Interceptor systems	442,376	368,666	351,828
Buildings	31,186	32,345	30,428
Small community facilities	17,718	18,288	18,649
Office equipment	2,555	3,774	5,314
Automotive	2,092	2,070	1,935
Other equipment	8,171	10,344	11,002
Software and intangible assets	10,147	16,616	21,108
	1,099,361	1,007,893	1,009,583
Construction in progress	222,283	248,049	190,821
Net property, plant and equipment	\$ 1,321,644	\$ 1,255,942	\$ 1,200,404

The following summarizes the changes in capital assets for the years ended June 30:

(in thousands)	2018	2017	2016
Balance at beginning of year	\$ 1,255,952	\$ 1,200,404	\$ 1,101,351
Additions	143,807	47,631	183,283
Depreciation and amortization	(52,349)	(49,311)	(45,670)
Net increase (decrease) in construction in progress	(25,766)	57,228	(38,560)
Balance at end of year	\$ 1,321,644	\$ 1,255,952	\$ 1,200,404

The largest increase in capital assets in the past two years has been in treatment plant construction and interceptor system construction, which includes pipeline replacements, pump station rehabilitations and other improvements to the infrastructure. During 2018, HRSD invested significant funds in improvements to the York River treatment plant, the Boat Harbor, James River, and Virginia Initiative interceptor systems, and the SWIFT Research Center. During 2017, HRSD invested significant funds in improvements to the Virginia Initiative and York River treatment plants, the Nansemond interceptor system, and the SWIFT Research facility.

Long-Term Debt

At June 30, 2018, HRSD had a total of \$891.4 million in revenue bonds outstanding versus \$846.8 million in 2017, an increase of 5.3 percent. This increase is related to new revenue bonds, in the par amount of \$63.2 million, to fund capital improvement projects, and new subordinate wastewater revenue refunding bonds, in the par amount of \$83.5 million, to refund existing senior and subordinate debt. This increase is partially offset by payments on and refunds of existing senior and subordinate debt.

The following summarizes HRSD's outstanding debt principal at June 30:

HRSD's Outstanding Debt

(in thousands, net of premium)	2018	2017	2016
Senior revenue bonds	\$ 332,141	\$ 429,165	\$ 444,616
Subordinate revenue bonds	485,468	350,347	361,463
Total outstanding debt	\$ 817,609	\$ 779,512	\$ 806,079

HRSD's financial strengths are reflected in its high credit ratings. In 2018, HRSD was upgraded one notch by Moody's Investors Service:

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	Aa1	Aa2	n/a

The development of HRSD's Capital Improvement Program and its related debt programs are governed by revenue Trust Agreements. The Senior Trust agreement requires the senior debt coverage to be 1.2 times maximum annual debt service and total debt service coverage of 1.0 times maximum annual debt service both on a GAAP basis. The Amended and Subordinate Trust agreement was amended in 2016 to account for future Consent Decree expenses related to Locality wet weather improvements that HRSD will not own. In the Amended Trust, Operating Expenses were redefined as shown below for the purposes of calculating an "Adjusted" debt service coverage on a cash basis:

"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 of 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.

The Amended and Subordinate Trust agreement requires total debt service coverage to be 1.2 times current year debt service on an Adjusted basis. HRSD's Financial Policy and operating and capital improvement plans were developed with the intent to maintain coverage ratios in excess of these requirements. HRSD's Financial Policy requires senior debt service coverage to be 1.5 times and total debt service coverage to be 1.4 times.

	Senior Debt Service Coverage		Total Debt Service Coverage	
	GAAP	Adjusted	GAAP	Adjusted
Senior Trust Agreement	1.20x (MADS)	None	1.00x (MADS)	None
Amended Subordinate Trust Agreement	None	None	None	1.20x (Current Year)
Financial Policy	None	1.50x (Current Year)	None	1.40x (Current Year)

More detailed information regarding HRSD's capital assets and long-term debt is presented in Notes 5 and 9, respectively.

ECONOMIC FACTORS AND RATES

The five-year rolling average billed consumption has decreased over the last three fiscal years from approximately 113 million gallons per day (MGD) to approximately 111 MGD. HRSD's experience, primarily resulting from water conservation efforts throughout the region, is consistent with national trends.

In 2018, wastewater revenues increased as a result of planned rate increases needed, in large part, to fund HRSD's capital improvement program. Facility charge revenues decreased \$0.8 million, or 11.2 percent, in 2018 after increasing \$0.8 million, or 12.1 percent, in 2017, due to a decrease in new construction activity across the region. Facility charge revenues comprised only 2.3 and 2.8 percent, respectively, of HRSD's total revenues in 2018 and 2017.

Wastewater treatment rates for the 2018 fiscal year were increased by approximately 9 percent at the beginning of the year for the vast majority of HRSD customers. The increases are necessary to meet growing capital improvement needs and the increased cost of treatment operations.

It is anticipated that the average residential customer bill will rise by less than 10 cents per day in fiscal year 2019.

CONTACTING HRSD'S FINANCIAL MANAGEMENT

This financial report is designed to provide a general overview of HRSD's finances for all those with an interest. Questions concerning the information provided in this report or any requests for additional information should be addressed to the Director of Finance, 1434 Air Rail Avenue, Virginia Beach, Virginia 23455.

**HAMPTON ROADS SANITATION DISTRICT
STATEMENTS OF NET POSITION
AS OF JUNE 30, 2018 AND 2017**

ASSETS AND DEFERRED OUTFLOWS OF RESOURCES

(in thousands)

	2018	2017
CURRENT ASSETS		
Cash and cash equivalents	\$ 66,078	\$ 92,076
Cash and cash equivalents - Restricted	44,718	22,701
Investments	17,871	14,260
Accounts receivable, net	41,908	39,627
Accrued interest	447	447
Other current assets	2,582	3,644
TOTAL CURRENT ASSETS	173,604	172,755
NON-CURRENT ASSETS		
Cash and cash equivalents - Restricted	50,359	-
Investments	106,219	109,427
Inventory	27,517	28,352
	184,095	137,779
NET PROPERTY, PLANT AND EQUIPMENT		
Land	12,174	12,174
Treatment plants	1,242,191	1,184,198
Interceptor systems	609,416	525,473
Buildings	49,132	48,735
Small community facilities	25,549	25,529
Office equipment	44,613	44,613
Automotive	18,986	18,180
Other equipment	36,589	36,066
Software and intangible assets	39,749	39,624
	2,078,399	1,934,592
Less: Accumulated depreciation and amortization	979,038	926,689
	1,099,361	1,007,903
Construction in progress	222,283	248,049
NET PROPERTY, PLANT AND EQUIPMENT	1,321,644	1,255,952
TOTAL NON-CURRENT ASSETS	1,505,739	1,393,731
TOTAL ASSETS	1,679,343	1,566,486
DEFERRED OUTFLOWS OF RESOURCES		
Deferred loss on debt refunding, net	14,918	19,501
Differences between pension plan expected and actual experience	1,827	2,404
Net difference between pension plan projected and actual earnings on pension plan investments	-	4,591
Change in proportion, OPEB plans	28	-
Contributions subsequent to the measurement date		
OPEB plans	354	-
Pension plan	3,635	4,326
TOTAL DEFERRED OUTFLOWS OF RESOURCES	20,762	30,822
TOTAL ASSETS AND DEFERRED OUTFLOWS OF RESOURCES	\$ 1,700,105	\$ 1,597,308

(continued)

See Accompanying Notes to Financial Statements

**HAMPTON ROADS SANITATION DISTRICT
STATEMENTS OF NET POSITION
AS OF JUNE 30, 2018 AND 2017**

LIABILITIES, DEFERRED INFLOWS OF RESOURCES AND NET POSITION

(in thousands)

	2018	2017
CURRENT LIABILITIES		
Trade and contracts payable	\$ 23,281	\$ 21,573
Contract retention	7,886	6,527
Accrued salaries and wages	2,476	2,211
Current portion of bonds payable	33,601	31,895
Variable rate demand bonds	50,000	50,000
Current portion of compensated absences	5,541	5,279
Debt interest payable	11,664	11,803
Other liabilities	5,465	5,065
TOTAL CURRENT LIABILITIES	139,914	134,353
LONG-TERM LIABILITIES		
Compensated absences	2,863	3,124
Net OPEB liability	18,149	-
Net pension liability	22,075	37,673
Bonds payable	807,841	764,888
TOTAL LONG-TERM LIABILITIES	850,928	805,685
TOTAL LIABILITIES	990,842	940,038
DEFERRED INFLOWS OF RESOURCES		
Differences between expected and actual experience		
OPEB plans	87	-
Pension plan	4,519	2,992
Changes of assumptions		
OPEB plans	221	-
Pension plan	3,113	-
Net difference between projected and actual earnings on:		
OPEB plan investments	867	-
Pension plan investments	2,827	-
TOTAL DEFERRED INFLOWS OF RESOURCES	11,634	2,992
NET POSITION		
Net investment in capital assets	512,398	428,670
Restricted for debt service	27,799	22,701
Unrestricted	157,432	202,907
TOTAL NET POSITION	697,629	654,278
TOTAL LIABILITIES, DEFERRED INFLOWS OF RESOURCES AND NET POSITION	\$ 1,700,105	\$ 1,597,308

See Accompanying Notes to Financial Statements

HAMPTON ROADS SANITATION DISTRICT
STATEMENTS OF REVENUES, EXPENSES AND CHANGES IN NET POSITION
FOR THE FISCAL YEARS ENDED JUNE 30, 2018 and 2017

(in thousands)	2018	2017
OPERATING REVENUES		
Wastewater treatment charges	\$ 275,539	\$ 254,961
Miscellaneous	3,504	3,669
TOTAL OPERATING REVENUES	279,043	258,630
 OPERATING EXPENSES		
Wastewater treatment	116,982	113,100
General and administrative	40,480	40,287
Depreciation and amortization	52,349	49,311
TOTAL OPERATING EXPENSES	209,811	202,698
 OPERATING INCOME	69,232	55,932
 NON-OPERATING REVENUES (EXPENSES)		
Wastewater facility charges	6,673	7,511
Investment income	3,654	2,287
Bond interest subsidy	2,330	2,275
Change in fair value of investments	(1,382)	(1,119)
Capital distributions to localities	(311)	(138)
Bond issuance costs	(1,061)	(42)
Interest expense	(20,226)	(22,630)
NET NON-OPERATING EXPENSES	(10,323)	(11,856)
INCOME BEFORE CAPITAL CONTRIBUTIONS	58,909	44,076
 CAPITAL CONTRIBUTIONS		
State capital grants received	2,502	7,462
Other capital contributions	2,124	1,136
CAPITAL CONTRIBUTIONS	4,626	8,598
 CHANGE IN NET POSITION	63,535	52,674
 TOTAL NET POSITION - Beginning	654,278	601,604
Opening adjustment of net position (Note 14)	(20,184)	-
 TOTAL NET POSITION - Ending	\$ 697,629	\$ 654,278

See Accompanying Notes to Financial Statements

**HAMPTON ROADS SANITATION DISTRICT
STATEMENTS OF CASH FLOWS
FOR THE FISCAL YEARS ENDED JUNE 30, 2018 and 2017**

(in thousands)	2018	2017
CASH FLOWS FROM OPERATING ACTIVITIES		
Cash received from customers	\$ 274,994	\$ 256,532
Other operating revenues	3,504	3,669
Cash payments to suppliers for goods and services	(107,556)	(105,998)
Cash payments to employees for services	(54,894)	(52,768)
Net cash provided by operating activities	<u>116,048</u>	<u>101,435</u>
CASH FLOWS FROM NONCAPITAL FINANCING ACTIVITIES		
Capital distributions to localities	<u>(311)</u>	<u>(138)</u>
CASH FLOWS FROM CAPITAL AND RELATED FINANCING ACTIVITIES		
Wastewater facility charges	6,673	7,511
Acquisition and construction of property, plant and equipment	(105,864)	(110,822)
Proceeds from capital debt	78,465	-
Bond interest subsidy	2,330	2,275
Principal paid on capital debt	(25,962)	(26,568)
State capital grants	3,275	10,658
Other capital contributions	2,124	1,136
Bond issuance costs	(1,061)	(42)
Interest paid on capital debt	(31,208)	(31,416)
Net cash used in capital and related financing activities	<u>(71,228)</u>	<u>(147,268)</u>
CASH FLOWS FROM INVESTING ACTIVITIES		
Purchases of investments	(70,584)	(97,549)
Sales and maturities of investments	68,799	96,296
Interest and dividends on investments	3,654	2,128
Net cash provided by investing activities	<u>1,869</u>	<u>875</u>
NET INCREASE/(DECREASE) IN CASH AND CASH EQUIVALENTS AND CASH AND CASH EQUIVALENTS - RESTRICTED	46,378	(45,096)
CASH AND CASH EQUIVALENTS, AND CASH AND CASH EQUIVALENTS - RESTRICTED, AT BEGINNING OF YEAR	<u>114,777</u>	<u>159,873</u>
CASH AND CASH EQUIVALENTS, AND CASH AND CASH EQUIVALENTS - RESTRICTED, AT END OF YEAR	<u>\$ 161,155</u>	<u>\$ 114,777</u>

Reconciliation of Operating Income to Net Cash Provided by Operating Activities

(in thousands)		
Operating income	\$ 69,232	\$ 55,932
Adjustments to reconcile operating income to net cash provided by operating activities		
Depreciation and amortization	52,349	49,311
(Increase) decrease in operating assets		
Accounts receivable	(2,281)	(831)
Inventory	835	(246)
Net change in other current assets	289	348
Increase (decrease) in operating liabilities		
Trade and contracts payable	(1,529)	(654)
Accrued salaries and wages	265	305
Compensated absences	1	328
Net change in other liabilities	400	(1,997)
OPEB liabilities	(1,242)	-
Pension liabilities	(2,271)	(1,061)
NET CASH PROVIDED BY OPERATING ACTIVITIES	<u>\$ 116,048</u>	<u>\$ 101,435</u>
Noncash Capital and Related Financing Activities:		
Proceeds of refunding debt principal	\$ 86,075	\$ -
Refunding of debt principal	(86,075)	-
Accrual for capital expenditures	4,596	(10,491)
Amortization of premium	(6,716)	(5,943)
Amortization of deferred loss on bond refunding	(1,542)	(1,915)

See Accompanying Notes to Financial Statements

**HAMPTON ROADS SANITATION DISTRICT
NOTES TO FINANCIAL STATEMENTS
JUNE 30, 2018 and 2017**

NOTE 1 - GENERAL INFORMATION

Organization and Administration

The Hampton Roads Sanitation District (HRSD) was created by the Virginia General Assembly in 1940, as a political subdivision of the Commonwealth of Virginia (the Commonwealth), to construct, maintain, and operate a wastewater treatment system in the Hampton Roads area. The Hampton Roads Sanitation District Commission (the Commission) is HRSD's governing body and consists of eight members, appointed by the Governor. The Commission's functions were updated by Chapter 66 of the Acts of the Assembly of Virginia of 1960, as amended. The administration of HRSD is under the direction of a General Manager, supported by seven department directors.

Regulatory Oversight

HRSD's operations are subject to regulations established by the United States Environmental Protection Agency and the Virginia Department of Environmental Quality. HRSD currently meets all of its permit requirements. Changes in these regulations could require HRSD to modify its treatment processes and require additional capital investment and/ or incur additional costs.

Purpose of HRSD

HRSD was created for the specific purpose of abating pollution in the Hampton Roads area through the interception of wastewater outfalls, installation of interception service into new areas as necessary and providing treatment facilities. HRSD provides points of interception throughout the region. The responsibility of providing lateral sewers and subtrunk facilities to carry sewage from industries, residences and businesses is generally the responsibility of the local municipal governments.

Corporate Limits of HRSD

The geographical limits of HRSD include:

City of Chesapeake	City of Suffolk	King and Queen County
City of Hampton	City of Virginia Beach	King William County
City of Newport News	City of Williamsburg	Mathews County
City of Norfolk	Gloucester County	Middlesex County
City of Poquoson	Isle of Wight County	Surry County*
City of Portsmouth	James City County	York County

*Excluding the Town of Claremont

NOTE 2 – SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Reporting Entity

HRSD is a political subdivision of the Commonwealth and a government instrumentality. The Commission is granted corporate powers by the *Code of Virginia*. The Governor of the Commonwealth appoints the Commission members, who serve at his pleasure. HRSD is reported in the Commonwealth's Comprehensive Annual Financial Report as a discretely presented component unit. The Commonwealth is not obligated to repay HRSD's debt. HRSD derives its revenues primarily from charges for wastewater treatment services. HRSD has no taxing authority.

Basis of Accounting

The accompanying financial statements report the financial position and results of operations of HRSD in accordance with U.S. generally accepted accounting principles (GAAP). Because HRSD is a political subdivision of the Commonwealth, the preparation of HRSD's financial statements are governed by the pronouncements of the Governmental Accounting Standards Board (GASB). These statements are prepared on an enterprise fund basis and present HRSD's operating revenues and expenses in a manner similar to a private business, where the costs, including depreciation, of providing services to the general public on a continuing basis are financed or recovered primarily through user charges.

An enterprise fund, a proprietary fund type, is accounted for on an economic resources measurement focus. All assets and liabilities, whether current or noncurrent, associated with its activities are included on its statements of net position. Proprietary fund type operating statements present increases (revenues) and decreases (expenses) in fund equity. The financial statements are presented using the accrual basis of accounting, whereby revenues are recognized when earned and expenses are recognized when incurred.

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. The Capital Budget represents a ten-year plan. Funds for the Capital Budget are appropriated 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.

Cash Equivalents

All short-term investments that are highly liquid are considered to be cash equivalents. Cash equivalents are readily convertible to cash, and at the day of purchase, have an original maturity date of no longer than three months. Current restricted cash and cash equivalents are revenue bond proceeds held for construction of assets within the next 12 months, as well as cash restricted for debt service payments payable within the next year. Money market investments include accounts that are invested in government securities and are valued at net asset value (NAV) and in the Commonwealth of Virginia Local Government Investment Pool (LGIP), which is measured at amortized cost. See Note 3 and Note 13 for additional discussion of cash and cash equivalent and investment valuations. Noncurrent restricted cash and cash equivalents are revenue bond proceeds held for the construction of noncurrent assets expected to be spent after 12 months (see Note 3).

Investments

Investments, which consist of U.S. government obligations including agencies, FDIC-guaranteed corporate notes, other corporate notes and bonds, and municipal bonds, are reported at fair value. HRSD's investment practices are governed by its formal investment policy.

Allowance for Uncollectible Accounts

HRSD provides an allowance for estimated uncollectible accounts receivable based on its bad debt experience. The balance in the allowance for uncollectible accounts is considered by management to be sufficient to cover anticipated losses on reported receivable balances.

Inventory

Inventory is carried at the lower of cost or market value and consists primarily of operating and maintenance materials.

Property, Plant and Equipment

HRSD funds its capital improvement program through the issuance of debt and its own resources. The proceeds of debt are reported as restricted assets. 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.

Property, plant and equipment purchased or constructed are reported at cost, including interest cost on funds borrowed to finance the construction of major capital additions. The capitalization threshold is \$5,000. Donated assets are reported at acquisition value at the date of donation. Property, plant and equipment are depreciated using the straight-line method over the following estimated useful lives:

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

Depreciation and amortization recognized on property, plant and equipment is an operating expense.

Deferred Outflows and Inflows of Resources

In addition to assets, the statements of net position reports a separate section for deferred outflows of resources. This separate financial statement element, deferred outflows of resources, represents a consumption of net position that applies to future periods and so will not be recognized as an outflow of resources (expenses) until then. HRSD has five items that qualify for reporting in this category. The first is the deferred charge on refunding reported in the statements of net position. A deferred charge on refunding results from the difference in the carrying value of refunded debt and its reacquisition price. This amount is deferred and amortized over the shorter of the life of the refunded or refunding debt. The second through fourth amounts are differences between expected and actual experience on the OPEB and pension plans; the net differences between projected and actual earnings on OPEB and pension plan investments; and the change in proportion for OPEB plans. These differences will be recognized in pension expense in future reporting periods. The fifth deferred charge is for OPEB and pension contributions to the Virginia Retirement System made subsequent to the measurement dates of June 30, 2017 and 2016. These contributions will be recognized as a reduction of the Net Pension Liability during the years ended June 30, 2019 and 2018, respectively.

In addition to liabilities, the statements of net position reports a separate section for deferred inflows of resources. This separate financial statement element, deferred inflows of resources, represents an acquisition of net position that applies to a future period and so will not be recognized as an inflow of resources (revenue) until that time. The three types of these items that HRSD has for the OPEB and pension plans are the differences between expected and actual experience, the changes of OPEB and pension assumptions, and the net difference between projected and actual earnings on OPEB and pension plan investments, which will be recognized in pension expense in future reporting periods.

Revenue Recognition

Generally, wastewater treatment charges are computed based on a user's water consumption. These charges are recognized as revenue when billed. Revenues earned but unbilled through June 30 of each fiscal year are accrued at year-end. Wastewater facility charges are computed based on a new connection's water meter size and potential for high strength pollutant discharges, and are recognized as revenue prior to the issuance of a building or operating permit.

Operating and Non-operating Revenues and Expenses Recognition

HRSD distinguishes operating revenues and expenses from non-operating items. Operating revenues and expenses result from providing services and producing and delivering goods in connection with HRSD's principal service of providing wastewater treatment. The majority of operating revenues are from wastewater treatment, but other associated miscellaneous income from other related services and charges are also included. Revenues and expenses not meeting the operating definition are reported as non-operating. These consist mainly of wastewater facility charges, investment income, capital contributions and interest expense.

Compensated Absences

All permanent employees earn leave upon starting a full-time position. The amount and type of leave earned is based upon the employee's date of hire and years of service and is expensed as employees earn the right to these benefits.

Permanent employees hired prior to January 1, 2014 earn from 15 to 27 days of annual leave per year. The maximum annual leave an employee may accumulate at year-end varies by the years of service, with the maximum being 54 days. An employee has a vested right to their annual leave when earned. These employees also earn eight hours per month of sick leave regardless of the number of years of service. The amount of sick leave that may be accumulated is unlimited. After five years of service with HRSD, an employee has vested rights to 35 percent of accumulated sick leave to a maximum of \$10,000. For these employees, long-term disability (LTD) insurance is an optional employee paid benefit that replaces part of their income if the employee suffers a serious illness or injury and can't work for an extended period of time.

Permanent employees hired after January 1, 2014 earn 8 hours of paid time off for each two-week pay period. Employees may use accumulated paid time off for any type of absence from work, subject to supervisor approval. The maximum paid time off an employee may accumulate at year-end is 208 hours. After five years of service with HRSD, an employee has vested rights to 50 percent of their accumulated paid time off at separation. For these employees, HRSD also provides a state mandated long-term disability (LTD) benefit since these employees are not eligible for disability retirement benefits through Virginia Retirement System. The long-term disability benefit provides income replacement for employees who become disabled and unable to work for an extended period of time due to a non work-related or work-related condition (as determined under the Virginia Workers' Compensation Act). Long-

term disability benefits begin at the expiration of an additional state mandated employer paid short-term disability (STD) benefit period of 125 days.

Postemployment Benefits Other Than Pensions (OPEB)

HRSD employees participate in three postemployment benefits other than pensions (other postemployment benefits or OPEB) plans:

The HRSD Retiree Health Plan (RHP) is a single employer, defined benefit plan that provides health and dental benefit plans for eligible members through a self-funded plan administered by a third-party vendor. HRSD administers the Plan through the Hampton Roads Sanitation District Retiree Health Trust. For purposes of measuring the net OPEB liability, deferred outflows of resources and deferred inflows of resources related to OPEB, and OPEB expense, information about the fiduciary net position of the RHP and additions to/deductions from the plan's fiduciary net position have been determined on the same basis as they are reported by the RHP. For this purpose, the RHP recognizes benefit payments when due and payable in accordance with the benefit terms.

The Virginia Retirement System (VRS) Political Subdivision Health Insurance Credit Program (HIC) is a multiple-employer, agent defined benefit plan that provides a credit toward the cost of health insurance coverage for retired political subdivision employees of participating employers. The Political Subdivision Health Insurance Credit Program was established pursuant to §51.1-1400 et seq. of the Code of Virginia, as amended, and which provides the authority under which benefit terms are established or may be amended. For purposes of measuring the net HIC OPEB liability, deferred outflows of resources and deferred inflows of resources related to the HIC OPEB, and the HIC OPEB expense, information about the fiduciary net position of the VRS HIC; and the additions to/deductions from the VRS HIC's fiduciary net position have been determined on the same basis as they were reported by VRS. For this purpose, benefit payments are recognized when due and payable in accordance with the benefit terms. Investments are reported at fair value.

The VRS Group Life Insurance Program is a multiple employer, costsharing plan, that provides coverage to state employees, teachers, and employees of participating political subdivisions. The Group Life Insurance Program was established pursuant to §51.1-500 et seq. of the Code of Virginia, as amended, and which provides the authority under which benefit terms are established or may be amended. The Group Life Insurance Program is a defined benefit plan that provides a basic group life insurance benefit for employees of participating employers. For purposes of measuring the net Group Life Insurance Program OPEB liability, deferred outflows of resources and deferred inflows of resources related to the Group Life Insurance Program OPEB, and Group Life Insurance Program OPEB expense, information about the fiduciary net position of the Virginia Retirement System (VRS) Group Life Insurance program OPEB and the additions to/deductions from the VRS Group Life Insurance Program OPEB's fiduciary net position have been determined on the same basis as they were reported by VRS. In addition, benefit payments are recognized when due and payable in accordance with the benefit terms. Investments are reported at fair value.

Pensions

HRSD employees participate in an agent multiple-employer defined benefit pension plan administered by the VRS, which acts as a common investment and administrative agent for political subdivisions in the Commonwealth. For purposes of measuring the net pension liability, deferred outflows of resources and deferred inflows of resources related to pensions, and pension expense, information about the fiduciary net position of HRSD's Retirement Plan and the additions to or deductions from HRSD's Retirement Plan's net fiduciary position have been determined on the same basis as they were reported to HRSD by VRS. For this purpose, benefit payments (including refunds of employee contributions) are recognized when due and payable in accordance with the benefit terms.

Use of Estimates

The preparation of these financial statements requires management to make estimates and assumptions. These estimates affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results may differ from management's estimates.

New Accounting Pronouncement

During the fiscal year ended June 30, 2018, HRSD adopted GASB Statement No. 75, *Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions*. This statement replaces the requirements of GASB Statement No. 45, *Accounting and Financial Reporting by Employers for Postemployment Benefits Other Than*

Pensions, as amended; and GASB Statement No. 57, *OPEB Measurements by Agent Employers and Agent Multiple-Employer Plans*. The objective of Statement No. 75 is to improve the usefulness of information for decisions made by the various users of the general purpose external financial reports (financial reports) of governments whose employees, both active employees and inactive employees, are provided with postemployment benefits other than pensions. As a result of the adoption of Statement No. 75, HRSD has made an adjustment to net position as of July 1, 2017, to recognize the cumulative effect of the change in accounting for pensions as further discussed in Note 14.

The financial statements as of and for the year ended June 30, 2017, presented for comparative purposes, reflect the requirements of Statement No. 45 and Statement No. 57.

NOTE 3 - DEPOSITS AND INVESTMENTS

Deposits

Custodial Credit Risk. This risk is associated with the inability of a governmental entity to recover deposits from a financial institution in the event of a failure. At June 30, 2018 and 2017, the carrying values of HRSD's deposits were \$24,753,000 and \$21,904,000, respectively, and the bank balances were \$27,446,000 and \$25,325,000, respectively. All of the bank balances at June 30, 2018 were covered by federal depository insurance or collateralized in accordance with the Virginia Security for Public Deposits Act (the Act). In accordance with the Act, the depository institution pledged collateral in the form of federal obligations with a fair value equal to 110 percent of HRSD's deposits with a third party trustee in the name of the Treasurer of the Commonwealth. In the event that the banking institution fails, the Treasurer will take possession of the collateral, liquidate it and reimburse HRSD up to the value of its deposits. The State Treasury Board is responsible for monitoring compliance with the collateralization and reporting requirements of the Act and for notifying local governments of compliance by banks.

Credit Risk. HRSD invests overnight in money market accounts that are invested in government securities and the PFM Funds Prime Series – SNAP Fund Class (SNAP) and in the Commonwealth of Virginia Local Government Investment Pool (LGIP), for which oversight is provided by the Treasury Board of Virginia. As of June 30, 2018 and 2017, HRSD had deposits in Merrill Lynch's FFI Government Fund and Fidelity's Government Money Market Fund that were rated AAAM by Standard & Poor's. HRSD's investment in the LGIP was rated AAAM by Standard & Poor's.

Investments

As of June 30, HRSD had the following investments and maturities:

(in thousands)

Investment Maturities (in years)

As of June 30, 2018	<u>Fair Value</u>	<u>Less Than 1</u>	<u>1-3</u>
<u>Investment Type</u>			
U.S. Treasury Securities	\$ 53,627	\$ 2,998	\$ 50,629
Federal Agency Notes / Bonds	26,918	3,611	23,307
Certificates of Deposit	7,324	2,439	4,885
Commercial Paper	4,921	4,921	-
Corporate Notes / Bonds	20,633	3,902	16,731
Municipal Bonds	1,452	-	1,452
Supranationals	9,215	-	9,215
Total	\$ 124,090	\$ 17,871	\$ 106,219
As of June 30, 2017	<u>Fair Value</u>	<u>Less Than 1</u>	<u>1-3</u>
<u>Investment Type</u>			
U.S. Treasury Securities	\$ 38,809	\$ -	\$ 38,809
Federal Agency Notes / Bonds	33,688	-	33,688
Certificates of Deposit	12,110	7,207	4,903
Commercial Paper	2,424	2,424	-
Corporate Notes / Bonds	24,913	3,503	21,410
Municipal Bonds	2,166	-	2,166
Supranationals	9,577	1,126	8,451
Total	\$ 123,687	\$ 14,260	\$ 109,427

Interest Rate Risk. In accordance with its investment policy, HRSD manages its exposure to declines in fair values by limiting the weighted average maturity of various portfolios in a manner that meets HRSD's liquidity needs.

Custodial Credit Risk. For an investment, custodial credit risk is the risk that, in the event of the failure of the counterparty, HRSD will not be able to recover the value of its investments or collateral securities that are in the possession of an outside party. HRSD's policy is to utilize its Trustees for its investments, the Bank of New York Trust Department and the US Bank Trust Department, as recipients of all investment transactions on a delivery versus pay basis. The Trustees may not be a counterparty to the investment transaction. At June 30, 2018 and 2017, the Trust Department of the Bank of New York held approximately \$67,278,000 and \$123,687,000, respectively, in investments in the Trustee's name for HRSD and at June 30, 2018, the Trust Department of US Bank held approximately \$124,090,000 in investments in the Trustee's name for HRSD.

Credit Risk. HRSD's Trust Agreement permits HRSD to invest in investment instruments that are authorized by the Commonwealth. HRSD's investment securities using the Standard & Poor's credit quality ratings scale are presented below:

As of June 30, 2018		Standard & Poor's Credit Rating by Investment Type						
(in thousands)	AAA	AA+	AA	AA-	A+	A-1+	A-1	Total
<u>Investments</u>								
U.S. Treasury Securities	\$ -	\$ 53,627	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 53,627
Federal Agency Notes / Bonds	-	26,918	-	-	-	-	-	26,918
Certificates of Deposit	-	-	-	4,885	-	2,439	-	7,324
Commercial Paper	-	-	-	-	-	-	4,921	4,921
Corporate Notes / Bonds	1,318	5,218	2,731	11,366	-	-	-	20,633
Municipal Bonds	-	-	-	1,452	-	-	-	1,452
Supranationals	9,215	-	-	-	-	-	-	9,215
Total Investments	\$ 10,533	\$ 85,763	\$ 2,731	\$ 17,703	\$ -	\$ 2,439	\$ 4,921	\$ 124,090

As of June 30, 2017		Standard & Poor's Credit Rating by Investment Type						
(in thousands)	AAA	AA+	AA	AA-	A+	A-1+	A-1	Total
<u>Investments</u>								
U.S. Treasury Securities	\$ -	\$ 38,809	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 38,809
Federal Agency Notes / Bonds	-	33,688	-	-	-	-	-	33,688
Certificates of Deposit	-	-	-	9,608	-	2,502	-	12,110
Commercial Paper	-	-	-	-	-	-	2,424	2,424
Corporate Notes / Bonds	3,015	5,245	1,867	12,581	2,205	-	-	24,913
Municipal Bonds	-	-	-	-	2,166	-	-	2,166
Supranationals	9,577	-	-	-	-	-	-	9,577
Total Investments	\$ 12,592	\$ 77,742	\$ 1,867	\$ 22,189	\$ 4,371	\$ 2,502	\$ 2,424	\$ 123,687

Concentration of Credit Risk. HRSD's investment policy includes a maximum exposure for each individual issuer for its permitted investment categories. U.S. Treasury obligations, collateralized bank deposits, money market funds and local government investment pools, however, are not subject to these issuer limits. Federal agency obligations and repurchase agreements are limited to 35 percent per issuer. Municipal obligations, commercial paper, and bankers acceptances are limited to 5 percent per issuer. Corporate notes and negotiable certificates of deposit are limited to 3 percent per issuer.

The change in fair value for the years ended June 30:

(in thousands)	<u>2018</u>	<u>2017</u>
Fair value of investments, end of year	\$ 124,090	\$ 123,687
Add: Proceeds of investments sold or maturing during the year	68,799	96,296
Less: Cost of investments purchased during the year	(70,584)	(97,549)
Less: Fair value of investments, beginning of year	<u>(123,687)</u>	<u>(123,553)</u>
Change in fair value of investments	<u>\$ (1,382)</u>	<u>\$ (1,119)</u>

The components of restricted cash and cash equivalents and investments at June 30 are as follows:

(in thousands)	<u>2018</u>	<u>2017</u>
Debt service	\$ 27,799	\$ 22,701
Revenue bond construction funds - current	16,919	-
Revenue bond construction funds - noncurrent	50,359	-
Total cash and cash equivalents - restricted	<u>\$ 95,077</u>	<u>\$ 22,701</u>

HRSD OPEB Trust Investments

The HRSD OPEB Trust has investments in mutual funds, cash, and cash equivalents on deposit with its trustee, US Bank. Investments are reported at fair value. HRSD's OPEB investment practices are governed by its formal investment policy.

As of June 30, 2018, the plan had the following investments and maturities:

(in thousands)		
Domestic equity		\$ 19,546
International equity		10,301
Fixed income		17,227
Money market		29
	Total Investments	<u>\$ 47,103</u>

Fixed income investments have an average maturity of 6.9 years and an average credit quality of A. Other investments do not have a stated maturity or credit rating.

Custodial Credit Risk. For an investment, custodial credit risk is the risk that, in the event of the failure of the counterparty, HRSD will not be able to recover the value of its investments or collateral securities that are in the possession of an outside party. HRSD's policy is to utilize its Trustee for its investments the US Bank Trust Department, as recipient of all investment transactions on a delivery versus pay basis. The Trustees may not be a counterparty to the investment transaction. At June 30, 2018, the Trust Department of the US Bank held approximately \$47,103,000 in investments in the Trustee's name for HRSD.

NOTE 4 - ALLOWANCE FOR UNCOLLECTIBLE ACCOUNTS

An analysis of the allowance for uncollectible accounts for the years ended June 30:

(in thousands)	<u>2018</u>	<u>2017</u>
Balance, beginning of year	\$ 2,445	\$ 2,282
Add: Current provision for uncollectible accounts	1,736	2,402
Less: Charge-off of uncollectible accounts	<u>(2,001)</u>	<u>(2,239)</u>
Balance, end of year	<u>\$ 2,180</u>	<u>\$ 2,445</u>

HRSD's collection ratios for the years ended June 30, 2018 and 2017 were 99.3 and 99.1 percent, respectively.

NOTE 5 - PROPERTY, PLANT AND EQUIPMENT

Property, plant and equipment activity for the years ended June 30:

(in thousands)	Balance			Balance			Balance		
	6/30/16	Additions	Transfers/ Retirements	6/30/17	Additions	Transfers/ Retirements	6/30/18		
Non-Depreciable Capital Assets									
Land	\$ 12,174	\$ -	\$ -	\$ 12,174	\$ -	\$ -	\$ 12,174		
Construction in progress	190,821	101,957	(44,729)	248,049	115,647	(141,413)	222,283		
Depreciable Capital Assets									
Treatment plants	1,170,180	14,018	-	1,184,198	57,993	-	1,242,191		
Interceptor systems	498,952	26,521	-	525,473	83,943	-	609,416		
Buildings	45,359	3,376	-	48,735	397	-	49,132		
Small community facilities	25,305	224	-	25,529	20	-	25,549		
Office equipment	44,612	1	-	44,613	-	-	44,613		
Automotive	17,342	838	-	18,180	806	-	18,986		
Other equipment	34,011	2,055	-	36,066	523	-	36,589		
Software and intangible assets	39,027	598	(1)	39,624	125	-	39,749		
Total	\$ 2,077,783	\$ 149,588	\$ (44,730)	\$ 2,182,641	\$ 259,454	\$ (141,413)	\$ 2,300,682		
Less accumulated depreciation and amortization									
Treatment plants	(613,035)	(27,547)	-	(640,582)	(28,667)	-	(669,249)		
Interceptor systems	(147,125)	(9,683)	-	(156,808)	(10,232)	-	(167,040)		
Buildings	(14,930)	(1,451)	-	(16,381)	(1,565)	-	(17,946)		
Small community facilities	(6,656)	(585)	-	(7,241)	(590)	-	(7,831)		
Office equipment	(39,298)	(1,541)	-	(40,839)	(1,219)	-	(42,058)		
Automotive	(15,407)	(703)	-	(16,110)	(784)	-	(16,894)		
Other equipment	(23,009)	(2,712)	-	(25,721)	(2,697)	-	(28,418)		
Software and intangible assets -amortization	(17,919)	(5,089)	1	(23,007)	(6,595)	-	(29,602)		
Total	(877,379)	(49,311)	1	(926,689)	(52,349)	-	(979,038)		
Net property, plant and equipment	\$ 1,200,404	\$ 100,277	\$ (44,729)	\$ 1,255,952	\$ 207,105	\$ (141,413)	\$ 1,321,644		

Additions include \$7,581,000 and \$5,743,000 of capitalized interest during the years ended June 30, 2018 and 2017, respectively.

NOTE 6 - COMPENSATED ABSENCES

The liability for vested annual, sick, paid time off and compensatory leave at June 30:

(in thousands)	Balance			Balance			Balance		
	6/30/16	Earned	Taken	6/30/17	Earned	Taken	6/30/18		
Annual leave	\$ 4,994	\$ 3,384	\$ (3,326)	\$ 5,052	\$ 3,191	\$ (3,354)	\$ 4,889		
Sick leave	2,711	1,416	(1,348)	2,779	1,422	(1,372)	2,829		
Paid time off	370	807	(605)	572	929	(815)	686		
Total	8,075	\$ 5,607	\$ (5,279)	8,403	\$ 5,542	\$ (5,541)	8,404		
Less: Current liability	4,672			5,279			5,541		
Long-term liability	\$ 3,403			\$ 3,124			\$ 2,863		

NOTE 7 – POSTEMPLOYMENT BENEFITS OTHER THAN PENSIONS (OPEB)

Plan Description

As discussed in Note 2, HRSD provides postemployment benefits other than pensions (OPEB) for its employees through three OPEB plans: the Hampton Roads Sanitation District Retiree Health Plan (RHP), a single employer defined benefit plan, and two plans administered by the Virginia Retirement System, the Group Life Insurance Plan (GLI), a multiple employer cost sharing plan, and the Political Subdivision Health Insurance Credit Plan (HIC), a multiple-employer, agent defined benefit plan.

RHP

The RHP was established and may be amended by the Commission. HRSD administers the RHP through the Hampton Roads Sanitation District Retiree Health Trust (the Trust), an irrevocable trust to be used solely for providing benefits to eligible retired employees and their beneficiaries (members) in the RHP. HRSD's contributions to the Trust are dedicated irrevocably to providing post-retirement health benefits, the RHP assets are exclusively dedicated to providing benefits to members, and the RHP assets of the Trust are not subject to the claims of HRSD creditors or the Plan administrator. Employer contributions are recorded in the year they are made. Investments are reported at market value based on published prices and quotations. The RHP does not issue stand-alone financial statements.

Eligible Employees

HRSD employees are eligible for benefits upon retirement provided the employee has 15 years of service with HRSD or 10 years of service with HRSD plus 10 years of service with another Virginia Retirement System (VRS) employer with a retiree health plan; are qualified for unreduced retirement benefits from VRS; and are enrolled in the HRSD Health Insurance Plan prior to retirement. Participating beneficiaries may continue coverage under the plan after the death of the retiree. Medicare eligible participants are required to enroll in both Medicare Part A and Part B, and may participate in a Medicare supplement plan. Members not eligible for Medicare may participate in a high deductible health plan.

Benefits provided

The RHP health plan provides medical and prescription services using both in network and out of network providers through a self-funded plan administered by a third-party vendor. HRSD purchases stop-loss insurance to limit its exposure to catastrophic medical costs. Members may elect to purchase dental and vision benefit plans at their own expense.

GLI

All full-time, salaried permanent employees of participating political subdivisions are automatically covered by the VRS GLI upon employment. This plan is administered by the VRS, along with pensions and other OBEB plans, for public employer groups in the Commonwealth of Virginia.

In addition to the Basic Group Life Insurance benefit, members are also eligible to elect additional coverage for themselves as well as a spouse or dependent children through the Optional Group Life Insurance Program. For members who elect the optional group life insurance coverage, the insurer bills employers directly for the premiums. Employers deduct these premiums from members' paychecks and pay the premiums to the insurer. Since this is a separate and fully insured program, it is not included as part of the Group Life Insurance Program OPEB.

The specific information for Group Life Insurance Program OPEB, including eligibility, coverage and benefits follows:

Eligible Employees

The Group Life Insurance Program was established July 1, 1960, for state employees, teachers and employees of political subdivisions that elect the program. Basic group life insurance coverage is automatic upon employment. Coverage ends for employees who leave their position before retirement eligibility or who take a refund of their member contributions and accrued interest.

Benefit Amounts

The benefits payable under the Group Life Insurance Program have several components.

- Natural Death Benefit – The natural death benefit is equal to the employee's covered compensation rounded to the next highest thousand and then doubled.
- Accidental Death Benefit – The accidental death benefit is double the natural death benefit.
- Other Benefit Provisions – In addition to the basic natural and accidental death benefits, the program provides additional benefits provided under specific circumstances. These include:
 - Accidental dismemberment benefit

- Safety belt benefit
- Repatriation benefit
- Felonious assault benefit
- Accelerated death benefit option

Reduction in Benefit Amounts

The benefit amounts provided to members covered under the Group Life Insurance Program are subject to a reduction factor. The benefit amount reduces by 25% on January 1 following one calendar year of separation. The benefit amount reduces by an additional 25% on each subsequent January 1 until it reaches 25% of its original value.

Minimum Benefit Amount and Cost-of-Living Adjustment (COLA)

For covered members with at least 30 years of creditable service, there is a minimum benefit payable under the Group Life Insurance Program. The minimum benefit was set at \$8,000 by statute. This amount is increased annually based on the VRS Plan 2 cost-of-living adjustment and is currently \$8,111.

HIC

All full-time, salaried permanent employees of participating political subdivisions are automatically covered by the VRS Political Subdivision Health Insurance Credit Program upon employment. This plan is administered by the VRS, along with pension and other OPEB plans, for public employer groups in the Commonwealth of Virginia. Members earn one month of service credit toward the benefit for each month they are employed and for which their employer pays contributions to VRS. The health insurance credit is a tax-free reimbursement in an amount set by the General Assembly for each year of service credit against qualified health insurance premiums retirees pay for single coverage, excluding any portion covering the spouse or dependents. The credit cannot exceed the amount of the premiums and ends upon the retiree's death.

The specific information about the Political Subdivision Health Insurance Credit Program OPEB, including eligibility, coverage and benefits follows:

Eligible Employees

The Political Subdivision Retiree Health Insurance Credit Program was established July 1, 1993 for retired political subdivision employees of employers who elect the benefit and who retire with at least 15 years of service credit. Eligible employees of participating political subdivisions are enrolled automatically upon employment. They include full-time permanent salaried employees of the participating political subdivision who are covered under the VRS pension plan.

Benefit Amounts

The political subdivision's Retiree Health Insurance Credit Program provides the following benefits for eligible employees:

- At Retirement – For employees who retire, the monthly benefit is \$1.50 per year of service per month with a maximum benefit of \$45.00 per month.
- Disability Retirement – For employees who retire on disability or go on long-term disability under the Virginia Local Disability Program (VLDP), the monthly benefit is \$45.00 per month.

Health Insurance Credit Program Notes:

- The monthly Health Insurance Credit benefit cannot exceed the individual premium amount.
- No health insurance credit for premiums paid and qualified under the VRS Line of Duty Act Program (LODA), however, the employee may receive the credit for premiums paid for other qualified health plans.
- Employees who retire after being on long-term disability under VLDP must have at least 15 year of service credit to qualify for the health insurance credit as a retiree.

Employees Covered by Benefit Terms

As of the June 30, 2017 actuarial valuation date the following employees were covered by the benefit terms of the RHP:

Beneficiaries currently receiving benefit payments	152
Active employees	<u>708</u>
Total	<u><u>860</u></u>

There are no inactive employees entitled to but not yet receiving plan benefits.

As of the June 30, 2016 actuarial valuation date the following employees were covered by the benefit terms of the HIC:

Inactive members or their beneficiaries currently receiving benefit payments	218
Vested	<u>7</u>
Total Inactive Members	<u>225</u>
Active employees	<u>781</u>
Total	<u><u>1,006</u></u>

Contributions

RHP contribution requirements are actuarially determined. Funding is subject to approval by the Commission. Medicare-eligible members contribute \$45 per month for retiree-only coverage and from \$442 to \$460 per month for retiree and dependent coverage. Members not eligible for Medicare contribute \$120 per month for retiree-only coverage and from \$517 to \$535 per month for retiree and dependent coverage. HRSD funds the cost of coverage under the RHP by paying the difference between the contributions it requires retirees to make and the actuarially determined contribution (ADC). The current employer contribution rate is approximately 5 percent of annual covered payroll. HRSD contributed \$2,729,000, and Retirees contributed \$303,000, to the RHP for the year ended June 30, 2018.

The GLI contribution requirements for the Group Life Insurance Program are governed by §51.1-506 and §51.1-508 of the Code of Virginia, as amended, but may be impacted as a result of funding provided to state agencies and school divisions by the Virginia General Assembly. The total rate for the Group Life Insurance Program was 1.31% of covered employee compensation. This was allocated into an employee and an employer component using a 60/40 split. The employee component was 0.79% (1.31% X 60%) and the employer component was 0.52% (1.31% X 40%). Employers may elect to pay all or part of the employee contribution, however the employer must pay all of the employer contribution. Each employer's contractually required employer contribution rate for the year ended June 30, 2018 was 0.52% of covered employee compensation. This rate was based on an actuarially determined rate from an actuarial valuation as of June 30, 2015. The actuarially determined rate, when combined with employee contributions, was expected to finance the costs of benefits payable during the year, with an additional amount to finance any unfunded accrued liability. Contributions to the Group Life Insurance Program from the entity were \$259,000 and \$250,000 for the years ended June 30, 2018 and June 30, 2017, respectively.

The HIC contribution requirement for active employees is governed by §51.1-1402(E) of the Code of Virginia, as amended, but may be impacted as a result of funding options provided to political subdivisions by the Virginia General Assembly. HRSD's contractually required employer contribution rate for the year ended June 30, 2018 was 0.19% of covered employee compensation. This rate was based on an actuarially determined rate from an actuarial valuation as of June 30, 2015. The actuarially determined rate was expected to finance the costs of benefits earned by employees during the year, with an additional amount to finance any unfunded accrued liability. Contributions from HRSD to the Political Subdivision Health Insurance Credit Program were \$95,000 and \$91,000 for the years ended June 30, 2018 and June 30, 2017, respectively.

RHP OPEB Expenses and Deferred Outflows of Resources Related to RHP OPEB

HRSD recognized RHP OPEB expense of \$2,007,000 for the year ended June 30, 2018. At June 30, 2018, HRSD reported deferred inflows of resources related to OPEB from the following sources:

	<u>Deferred Inflows of Resources</u> (in thousands)
Year ended June 30, 2018:	
Net difference between projected and actual earnings on plan investments	\$ 692

HRSD's measurement date is its fiscal year end so there are no deferred outflows of resources resulting from contributions subsequent to the measurement date. Other amounts reported as deferred outflows and inflows of resources related to OPEB will be recognized in OPEB expense in future reporting periods as follows:

Year ended June 30, 2018:	(in thousands)
2019	\$ (173)
2020	(173)
2021	(173)
2022	(173)
2023	-
Thereafter	-

GLI OPEB Liabilities, GLI OPEB Expense, and Deferred Outflows of Resources and Deferred Inflows of Resources Related to the Group Life Insurance Program OPEB

At June 30, 2018, HRSD reported a liability of \$3,915,000 for its proportionate share of the Net GLI OPEB Liability. The Net GLI OPEB Liability was measured as of June 30, 2017 and the total GLI OPEB liability used to calculate the Net GLI OPEB Liability was determined by an actuarial valuation as of that date. The covered employer's proportion of the Net GLI OPEB Liability was based on HRSD's actuarially determined employer contributions to the Group Life Insurance Program for the year ended June 30, 2017 relative to the total of the actuarially determined employer contributions for all participating employers. At June 30, 2017, HRSD's proportion was 0.26016% as compared to 0.25830% at June 30, 2016. For the year ended June 30, 2018, HRSD recognized GLI OPEB expense of \$49,000. Since there was a change in proportionate share between measurement dates, a portion of the GLI OPEB expense was related to deferred amounts from changes in proportion.

At June 30, 2018, HRSD reported deferred outflows of resources and deferred inflows of resources related to the GLI OPEB from the following sources:

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual experience	\$ -	\$ 87
Net difference between projected and actual earnings on GLI OPEB program investments	-	147
Change in assumptions	-	202
Changes in proportion	28	-
Employer contributions subsequent to the measurement date	259	-
Total	<u>\$ 287</u>	<u>\$ 436</u>

\$259,000 reported as deferred outflows of resources related to the GLI OPEB resulting from the HRSD's contributions subsequent to the measurement date will be recognized as a reduction of the Net GLI OPEB Liability in the Fiscal Year ending June 30, 2019. Other amounts reported as deferred outflows of resources and deferred inflows of resources related to the GLI OPEB will be recognized in the GLI OPEB expense in future reporting periods as follows:

Year ended June 30	(in thousands)
2019	\$ (85)
2020	(85)
2021	(85)
2022	(85)
2023	(48)
Thereafter	(20)

HIC OPEB Expense, and Deferred Outflows of Resources and Deferred Inflows of Resources Related to HIC OPEB

For the year ended June 30, 2018, HRSD recognized Health Insurance Credit Program OPEB expense of \$88,000. At June 30, 2018, HRSD reported deferred outflows of resources and deferred inflows of resources related to the Political Subdivision Health Insurance Credit Program from the following sources:

	Deferred Outflows of Resources	Deferred Inflows of Resources
Net difference between projected and actual earnings on HIC OPEB program investments	\$ -	\$ 28
Change in assumptions	-	19
Employer contributions subsequent to the measurement date	95	-
Total	<u>\$ 95</u>	<u>\$ 47</u>

\$95,000 reported as deferred outflows of resources related to the HIC OPEB resulting from HRSD's contributions subsequent to the measurement date will be recognized as a reduction of the Net HIC OPEB Liability in the Fiscal Year ending June 30, 2019. Other amounts reported as deferred outflows of resources and deferred inflows of resources related to the HIC OPEB will be recognized in the HIC OPEB expense in future reporting periods as follows:

Year ended June 30	(in thousands)
2019	\$ (10)
2020	(10)
2021	(10)
2022	(10)
2023	(4)
Thereafter	(3)

Actuarial Methods and Assumptions

Projections of benefits for financial reporting purposes for the RHP are based on the substantive plan (the plan as understood by HRSD and the plan members) and include the types of benefits provided at the time of each valuation and the historical pattern of sharing of benefit costs between the employer and plan members to that point. The actuarial methods and assumptions used include techniques that are designed to reduce short-term volatility in actuarial accrued liabilities and the actuarial value of assets, consistent with the long-term perspective of the calculations.

The information presented in the required supplemental schedules was determined as part of the actuarial valuations at the dates indicated. As of June 30, 2018 the actuarial value of RHP assets is \$46,271,000 and the market value is \$47,103,000.

Additional information for the RHP at June 30, 2017, using the June 30, 2017 valuation, which has been rolled forward to the Net OPEB Liability measurement date of June 30, 2018, follows:

Actuarial cost method	Projected unit credit method
Amortization method	Level percent of pay, closed
Amortization period	An experience gain/loss base is created each year and amortized over a 15 year period
Asset valuation	Smoothed market value with phase-in, using a 5-year smoothing period
Actuarial assumptions:	
Discount Rate	6%
Medical cost trend:	
Pre Medicare	5.3%, stable at 5.3% after 3 years and decreasing to 3.6% after 53 years
Post Medicare	5.3%, stable at 5.3% after 3 years and decreasing to 3.4% after 53 years
Assumed rate of inflation	2.2%

Mortality rates for the RHP are as follows:

Healthy	RP-2014 Mortality Table, Fully Generational, Projected with Scale MP-2014.
Disabled	RP-2014 Mortality Table, Fully Generational, Projected with Scale MP-2014.

The total GLI and HIC OPEB liabilities were based on an actuarial valuation as of June 30, 2016, using the Entry Age Normal actuarial cost method and the following assumptions, applied to all periods included in the measurement and rolled forward to the measurement date of June 30, 2017.

Inflation	2.5 percent
Salary increases, including inflation	3.5 percent - 5.35 percent
Investment rate of return	7.0 percent, net of investment expenses, including inflation*

* Administrative expenses as a percent of the market value of assets for the last experience study were found to be approximately 0.06% of the market assets for all of the VRS plans. This would provide an assumed investment return rate for GASB purposes of slightly more than the assumed 7.0%. However, since the difference was minimal, and a more conservative 7.0% investment return assumption provided a projected plan net position that exceeded the projected benefit payments, the long-term expected rate of return on investments was assumed to be 7.0% to simplify preparation of the OPEB liabilities.

Mortality tables and assumptions for GLI and HIC are as follows:

Pre-Retirement:

RP-2014 Employee Rates to age 80, Healthy Annuitant Rates to 81 and older projected with Scale BB to 2020; males 95% of rates; females 105% of rates.

Post-Retirement:

RP-2014 Employee Rates to age 49, Healthy Annuitant Rates at ages 50 and older projected with Scale BB to 2020; males set forward 3 years; females 1.0% increase compounded from ages 70 to 90.

Post-Disablement:

RP-2014 Disability Life Mortality Table projected with scale BB to 2020; males set forward 2 years, 110% of rates; females 125% of rates.

The actuarial assumptions used in the June 30, 2016 valuation were based on the results of an actuarial experience study for the period from July 1, 2012 through June 30, 2016. Changes to the actuarial assumptions as a result of the experience study are as follows:

Mortality Rates (Pre-retirement, postretirement healthy, and disabled)	Updated to a more current mortality table – RP2014 projected to 2020
Retirement Rates	Lowered retirement rates at older ages and extended final retirement age from 70 to 75.
Withdrawal Rates	Adjusted termination rates to better fit experience at each age and service year
Disability Rates	Lowered disability rates
Salary Scale	No change
Line of Duty Disability	Increased rate from 14% to 15%

Long-Term Expected Rate of Return

The long-term expected rate of return on RHP investments was determined using an economic building block approach that projects economic and corporate profit growth and takes into consideration the fundamental factors driving long-term real economic growth, our expectation for inflation, productivity, and labor force growth. The returns presented here are geometric return projections based on long-term capital market assumptions. The asset target allocations are governed by its formal investment policy. The best estimate of arithmetic real rates of return for each major asset class are summarized in the following table:

Asset Class (Strategy)	Target Allocation	Arithmetic Long-Term Expected Rate of Return	Weighted Average Long-Term Expected Rate of Return
Domestic Equity	39.00%	5.20%	2.03%
International Developed Equity	15.00%	5.20%	0.78%
International Emerging Markets Equity	6.00%	5.20%	0.31%
Core Fixed	20.00%	3.00%	0.60%
Investment Grade Corporate Debt	10.00%	3.75%	0.38%
Emerging Markets Debt	5.00%	4.75%	0.24%
High Yield	5.00%	4.25%	0.21%
Total	<u>100.00%</u>		<u>4.55%</u>
		Inflation	<u>2.50%</u>
	* Expected arithmetic nominal return		<u>7.05%</u>

* The above allocation provides a one-year return of 7.05%. However, one-year returns do not take into account the volatility present in each of the asset classes so a rate of 6.0% is used.

The long-term expected rate of return on the GLI and HIC investments was determined using a log-normal distribution analysis in which best-estimate ranges of expected future real rates of return (expected returns, net of System's investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. The target asset allocation and best estimate of arithmetic real rates of return for each major asset class are summarized in the following table:

Asset Class (Strategy)	Target Allocation	Arithmetic Long-Term Expected Rate of Return	Weighted Average Long-Term Expected Rate of Return
Public Equity	40.00%	4.54%	1.82%
Fixed Income	15.00%	0.69%	0.10%
Credit Strategies	15.00%	3.96%	0.59%
Real Assets	15.00%	5.76%	0.86%
Private Equity	15.00%	9.53%	1.43%
Total	<u>100.00%</u>		<u>4.80%</u>
		Inflation	<u>2.50%</u>
	* Expected arithmetic nominal return		<u>7.30%</u>

* The above allocation provides a one-year return of 7.30%. However, one-year returns do not take into account the volatility present in each of the asset classes. In setting the long-term expected return for the system, stochastic projections are employed to model future returns under various economic conditions. The results provide a range of returns over various time periods that ultimately provide a median return of 6.83%, including expected inflation of 2.50%.

Discount Rates

The discount rate used to measure the total pension liability for the RHP, as of June 30, 2018, was 6.0%. The projection of cash flows used to determine the discount rate assumes that HRSD contributions will be made in accordance with the funding plan established by an independent actuarial review.

The discount rate used to measure the total GLI and HIC liability was 7.00%. The projection of cash flows used to determine the discount rate assumed that member contributions will be made per the VRS guidance and the employer contributions will be made in accordance with the VRS funding policy at rates equal to the difference between actuarially determined contribution rates adopted by the VRS Board of Trustees and the member rate. Through the fiscal year ending June 30, 2019, the rate contributed by the entity for the GLI and HIC will be subject to the portion of the VRS Board-certified rates that are funded by the Virginia General Assembly. From July 1, 2019 on, employers are assumed to contribute 100% of the actuarially determined contribution rates. Based on those assumptions, the GLI and HIC fiduciary net position was projected to be available to make all projected future benefit payments of eligible employees. Therefore the long-term expected rate of return was applied to all periods of projected benefit payments to determine the total GLI and HIC liability.

Change in Net OPEB Liability

HRSD's Net OPEB Liability (NOL) as of June 30, 2018 for the RHP was measured as of June 30, 2018 using a June 30, 2017 valuation, which has been rolled forward to the June 30, 2018 measurement date.

RHP	Total OPEB Liability	Plan Fiduciary Net Position	Net OPEB Liability
(in thousands)	(a)	(b)	(a) - (b)
Balances at June 30, 2016	\$ 57,416	\$ 42,526	\$ 14,890
Changes for the year - Increase (Decrease):			
Service cost	1,260	-	1,260
Interest	3,391	-	3,391
Contributions - employer	-	2,729	(2,729)
Contributions - employee	-	303	(303)
Net investment income	-	3,450	(3,450)
Benefit payments, including refunds of employee contributions	(1,791)	(1,791)	-
Administrative expense	-	(114)	114
Net changes	<u>2,860</u>	<u>4,577</u>	<u>(1,717)</u>
Balances at June 30, 2017	<u>\$ 60,276</u>	<u>\$ 47,103</u>	<u>\$ 13,173</u>

HRSD's net Health Insurance Credit OPEB liability was measured as of June 30, 2017. The total Health Insurance Credit OPEB liability was determined by an actuarial valuation performed as of June 30, 2016, using updated actuarial assumptions, applied to all periods included in the measurement and rolled forward to the measurement date of June 30, 2017.

HIC (in thousands)	Total OPEB Liability (a)	Plan Fiduciary Net Position (b)	Net OPEB Liability (a) - (b)
Balances at June 30, 2016	\$ 1,891	\$ 780	\$ 1,111
Changes for the year - Increase (Decrease):			
Service cost	27	-	27
Interest	129	-	129
Changes of assumptions	(22)		(22)
Difference between expected and actual experience	-	-	-
Contributions - employer	-	91	(91)
Net investment income	-	90	(90)
Benefit payments, including refunds of employee contributions	(94)	(94)	-
Administrative expense	-	(1)	1
Other changes	-	4	(4)
Net changes	40	90	(50)
Balances at June 30, 2017	\$ 1,931	\$ 870	\$ 1,061

The NOL for the GLI represents the program's total OPEB liability determined in accordance with GASB Statement No. 74, less the associated GLI plan fiduciary net position. As of June 30, 2017, NOL amounts for the GLI Plan as a whole are as follows:

(in thousands)	Total OPEB Liability (a)	Plan Fiduciary Net Position (b)	Net OPEB Liability (a)-(b)
Balance as of June 30, 2017 for FYE 2018	\$ 2,942,426	\$ 1,437,586	\$ 1,504,840
Plan Fiduciary Net Position as a Percentage of the Total GLI OPEB Liability		48.86%	

The total GLI OPEB liability is calculated by the VRS's actuary, and each plan's fiduciary net position is reported in the VRS's financial statements. The net GLI OPEB liability is disclosed in accordance with the requirements of GASB Statement No. 74 in the VRS's notes to the financial statements and required supplementary information.

Sensitivity of the Net OPEB Liabilities to Changes in the Discount Rate and Healthcare Cost Trend Rate

The following table presents the net RHP OPEB liability if it is calculated using a discount rate that is one percentage point lower (5.0%) or one percentage point higher (7.0%) than the current discount rate:

Discount Rate	1% Decrease (5.0%)	Current Discount Rate (6.0%)	1% Increase (7.0%)
Net RHP OPEB Liability (in thousands)	\$ 24,210	\$ 13,173	\$ 4,419

The following table presents the net RHP OPEB liability if it is calculated using a healthcare cost trend rate that is one percentage point lower (2.2%) or one percentage point higher (4.2%) than the current healthcare cost trend rate:

Ultimate Trend	1% Decrease (2.2%)	Healthcare Cost Trend Rate (3.2%)	1% Increase (4.2%)
Net RHP OPEB Liability (in thousands)	\$ 3,173	\$ 13,173	\$ 26,116

The following presents the net GLI OPEB liability using the discount rate of 7.00%, as well as what the net GLI OPEB liability would be if it were calculated using a discount rate that is one percentage point lower (6.00%) or one percentage point higher (8.00%) than the current rate:

Discount Rate	1% Decrease (6.0%)	Current Discount Rate (7.0%)	1% Increase (8.0%)
GLI Net OPEB Liability (in thousands)	\$ 5,064	\$ 3,915	\$ 2,984

The following presents the net HIC OPEB liability using the discount rate of 7.00%, as well as what the net HIC OPEB liability would be if it were calculated using a discount rate that is one percentage point lower (6.00%) or one percentage point higher (8.00%) than the current rate:

Discount Rate	1% Decrease (6.0%)	Current Discount Rate (7.0%)	1% Increase (8.0%)
HIC Net OPEB Liability (in thousands)	\$ 1,263	\$ 1,061	\$ 887

GLI Fiduciary Net Position and HIC Plan Data

GLI Fiduciary Net Position and HIC Plan Data is available in the separately issued VRS 2017 Comprehensive Annual Financial Report (CAFR). A copy of the 2017 VRS CAFR may be downloaded from the VRS website at <http://www.varetire.org/Pdf/Publications/2017-annual-report.pdf>, or by writing to the System's Chief Financial Officer at P.O. Box 2500, Richmond, VA, 23218-2500.

Other disclosures related to OPEB for the fiscal year ended June 30, 2017

As described in Note 2, during the fiscal year ended June 30, 2018, HRSD adopted GASB Statement No. 75, *Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions*. Information related to OPEB for the fiscal year ended June 30, 2017 was not restated, so the following information presents information required by GASB Statements No. 45, *Accounting and Financial Reporting by Employers for Postemployment Benefits Other Than Pensions*, as amended, and No. 57, *OPEB Measurements by Agent Employers and Agent Multiple-Employer Plans*.

Annual OPEB Cost

HRSD's annual OPEB cost is calculated based on an actuarially determined ARC. The ARC represents a level of funding that, if paid on an ongoing basis, is projected to cover normal cost each year and to amortize any unfunded actuarial liabilities (or funding excess) over a period not to exceed 30 years. Information related to the HRSD's annual OPEB cost, ARC, actual contributions, and changes to the net OPEB obligation is as follows:

(in thousands) Fiscal Year Ended	ARC	Actuarial Adjustment	Annual OPEB Cost	Percentage of Annual ARC Contributed	Net OPEB Obligation
2017	\$ 2,558	\$ -	\$ 2,558	100%	\$ -
2016	\$ 2,178	\$ -	\$ 2,178	100%	\$ -

Funded Status and Funding Progress

The funded status of the plan as of June 30, 2017 was as follows:
(in thousands)

	<u>2017</u>
Actuarial accrued liability (AAL)	\$ 49,303
Actuarial value of plan assets	42,468
Unfunded actuarial accrued liability (UAAL)	<u>\$ 6,835</u>
Funded ratio (actuarial value of plan assets/AAL)	86.1%
Annual covered payroll (active plan members)	\$ 49,286
UAAL as a percentage of covered payroll	13.9%

Actuarial valuations involve estimates of the value of reported amounts and assumptions about the possibility of occurrence of events far into the future. Examples include assumptions about future employment, investment returns, mortality and healthcare cost trends. Amounts determined regarding the funded status of the plan and the annual required contributions of the employer are subject to continual revision as actual results are compared with past expectations and new estimates are made about the future.

The schedule of funding progress, presented as required supplementary information following the notes to the financial statements, presents multi-year trend information that shows whether the actuarial value of plan assets is increasing or decreasing over time relative to the actuarial accrued liabilities for benefits.

NOTE 8 – DEFINED BENEFIT PENSION PLAN

Plan Description

HRSD employees participate in an agent multiple-employer defined benefit pension plan administered by the Virginia Retirement System (VRS). All full-time, salaried permanent employees of HRSD are automatically covered by the Plan upon employment. Members earn one month of service credit for each month they are employed and for which they and their employer pay contributions to VRS. Members are eligible to purchase prior service, based on specific criteria as defined in the *Code of Virginia*, as amended. Eligible prior service that may be purchased includes prior public service, active military service, certain periods of leave and previously refunded service.

VRS administers three different benefit structures for covered employees – Plan 1, Plan 2 and the Hybrid Retirement Plan (HRP). The specific information for each plan is set out below:

- Plan 1 is a defined benefit plan. The retirement benefit is based on a member's age, creditable service and average final compensation at retirement using a formula. Employees are eligible for Plan 1 if their membership date is before July 1, 2010 and they were vested as of January 1, 2013. Non-hazardous duty members are eligible for an unreduced retirement benefit beginning at age 65 with at least five years of service credit or at age 55 with at least 30 years of service credit. They may retire with a reduced benefit as early as age 55 with at least five years of service credit or age 50 with at least 10 years of service credit.
- Plan 2 is a defined benefit plan. The retirement benefit is based on a member's age, creditable service and average final compensation at retirement using a formula. Employees are eligible for Plan 2 if their membership date is on or after July 1, 2010, and they were not vested as of January 1, 2013. Non-hazardous duty members are eligible for an unreduced benefit beginning at their normal Social Security retirement age with at least five years of service credit or when the sum of their age and service equals 90. They may retire with a reduced benefit as early as age 60 with at least five years of service credit.
- The Hybrid Retirement Plan (HRP) combines the features of a defined benefit plan and a defined contribution plan. Most members hired on or after January 1, 2014 are in this plan, as well as Plan 1 and Plan 2 members who were eligible and opted into the plan during a special election window from January 1 through April 30, 2014. The employee's retirement benefit is funded through mandatory and voluntary contributions made by the employee and HRSD to both the defined benefit and the defined contribution components of the plan. Non-hazardous duty members are eligible for an unreduced benefit beginning at their normal Social Security retirement age with at least five years of service credit or when the sum of their age and service equals 90. They may retire with a reduced benefit as early as age 60 with at least five years of service credit.

Members in Plan 1 and Plan 2 contribute 5% of their compensation each month to their member contribution account through a pre-tax salary reduction. HRSD makes a separate actuarially determined contribution to VRS for all covered employees. The retirement benefit for members in the HRP is funded through mandatory and voluntary contributions made by the member and HRSD to both the defined benefit and the defined contribution components of the plan. Mandatory contributions are based on a percentage of the employee's creditable compensation and are required from both the member and the employer. Additionally, members may choose to make voluntary contributions to the defined contribution component of the plan, and the employer is required to match those voluntary contributions according to specified percentages.

Members in Plan 1 and Plan 2 earn creditable service for each month they are employed in a covered position, and vest when they have at least five years (60 months) of creditable service. Members in the HRP earn one month of service credit for each month they are employed in a covered position for the defined benefit component, and service credits are used to determine vesting for the employer contribution portion of the plan. HRP members are always 100% vested in the defined contributions they make, and upon retirement or leaving covered employment are eligible to withdraw employer contributions of 50%, 75%, or 100% after two, three, or four years of service, respectively.

The VRS Basic Benefit for Plan 1 and Plan 2 members, and the defined benefit component for HRP members, is a lifetime monthly benefit based on a retirement multiplier as a percentage of the member's average final compensation multiplied by the member's total service credit. Under Plan 1, average final compensation is the average of the member's 36 consecutive months of highest compensation. Under Plan 2 and the HRP, average final compensation is the average of the member's 60 consecutive months of highest compensation. The retirement multiplier for non-hazardous duty members in Plan 1 is 1.7%; in Plan 2 the multiplier is 1.7% for service earned, purchased or granted prior to January 1, 2013 and 1.65% after that date. The multiplier is 1% for members in the HRP. At retirement, members can elect the Basic Benefit, the Survivor Option, a Partial Lump-Sum Option Payment (PLOP) or the Advance Pension Option. A retirement reduction factor is applied to the Basic Benefit amount for members electing the Survivor Option, PLOP or Advance Pension Option or those retiring with a reduced benefit.

Retirees are eligible for an annual cost-of-living adjustment (COLA) effective July 1 of the second calendar year of retirement. Under Plan 1, the COLA cannot exceed 5%; under Plan 2 and for the HRP defined benefit component, the COLA cannot exceed 3%. During years of no inflation or deflation there is no COLA adjustment. The VRS also provides death and disability benefits.

VRS issues a publically available comprehensive annual financial report that includes financial statements and required supplementary information for VRS. A copy of that report may be downloaded from their website at <http://www.varetire.org/publications/index.asap> or obtained by writing to VRS at P.O. Box 2500, Richmond, Virginia 23218-2500.

Employees Covered by Benefit Terms

As of the June 30, 2016 and 2015 actuarial valuation dates, the following employees were covered by the benefit terms of the pension plan:

	2016	2015
Inactive Members or Their Beneficiaries Currently Receiving Benefits	355	343
Inactive Members		
Vested	105	107
Non-Vested	147	141
Active Elsewhere in VRS	76	77
Total Inactive Members	328	325
Active Members	781	752
Total	1,464	1,420

Contributions

The contribution requirement for active employees is governed by Section 51.1-145 of the Code of Virginia, as amended, but may be impacted as a result of funding options provided to political subdivisions by the Virginia General Assembly. Employees are required to contribute 5% of their compensation toward their retirement. Prior to July 1, 2012, all or part of the 5% member contribution may have been assumed by the employer. Beginning July 1,

2012, new employees were required to pay the 5% member contribution. In addition, for existing employees, employers were required to begin making the employee pay the 5% member contribution. This could be phased in over a period of up to 5 years and the employer is required to provide a salary increase equal to the amount of the increase in the employee-paid member contribution. HRSD's contractually required contribution rate for the years ended June 30, 2018 and 2017 was 7.70% of covered compensation. These rates are based on actuarially determined rates from actuarial valuations as of June 30, 2016 and 2015.

These rates, when combined with employee contributions, are expected to finance the costs of benefits earned by employees during the year, with an additional amount to finance any unfunded accrued liability. Employer contributions to the pension plan were \$3,635,000 and \$4,326,000 for the years ended June 30, 2018 and 2017, respectively.

Net Pension Liability

HRSD's net pension liability as of June 30, 2018 and 2017 was measured as of June 30, 2017 and 2016, respectively. The total pension liability used to calculate the net pension liability was determined by an actuarial valuation performed as of June 30, 2016 and 2015, using updated actuarial assumptions, applied to all periods included in the measurement and rolled forward to the measurement dates of June 30, 2017 and 2016.

Actuarial Assumptions

The total pension liability as of June 30, 2018 and 2017 for employees in HRSD's retirement plan was based on actuarial valuations as of June 30, 2016 and 2015, using the Entry Age Normal actuarial cost method and the following assumptions, applied to all periods included in the measurement and rolled forward to the measurement dates of June 30, 2017 and 2016, respectively. The actuarial valuations as of June 30, 2016 and 2015 use the following assumptions:

Inflation	2.5%
Salary increases, including inflation	3.5% to 5.35%
Investment rate of return	7%, net of pension plan investment expenses, including inflation*
Cost of living adjustments	2.25% to 2.50%

* Administrative expenses as a percent of the market value of assets for the last experience study were found to be approximately 0.06% of the market assets for all of the VRS plans. This would provide an assumed return rate for GASB purposes of slightly more than the assumed 7.0%. However, since the difference was minimal, and a more conservative 7.0% investment return assumption provided a projected plan net position that exceeded the projected benefit payments, the long-term expected rate of return on investments was assumed to be 7.0% to simplify preparation of pension liabilities.

The actuarial valuation as of June 30, 2016 uses the following mortality assumptions:

Mortality rates: 15% of deaths are assumed to be service related.

Pre Retirement, RP-2014 Employee Rates to age 80, Healthy Annuitant Rates at ages 81 and older projected with Scale BB to 2020; males 95% of rates; females 105% of rates.

Post Retirement, RP-2014 Employee Rates to age 49, Healthy Annuitant Rates at ages 50 and older projected with Scale BB to 2020; males set forward 3 years; females 1.0% increase compounded from ages 70 to 90.

Post Disablement, RP-2014 Disability Mortality Rates projected with Scale BB to 2020; males set forward 2 years, 110% of rates; females 125% of rates.

The actuarial valuation as of June 30, 2015 uses the following mortality assumptions:

Mortality rates: 14% of deaths are assumed to be service related.

Pre Retirement, RP-2000 Employee Mortality Table Projected with Scale AA to 2020 with males set forward 4 years and females set back 2 years.

Post Retirement, RP-2000 Employee Mortality Table Projected with Scale AA to 2020 with males set forward 1 year.

Post Disablement, RP-2000 Employee Mortality Table Projected with Scale AA to 2020 with males set back 3 years and no provision for future mortality improvement.

The actuarial assumptions used in the June 30, 2016 valuations were based on the results of an actuarial experience study for the period July 1, 2012 through June 30, 2016. Changes to the actuarial assumptions as a result of the experience study are as follows:

- Mortality rates – Updated to a more current mortality table – RP-2014 projected to 2020.
- Retirement rates – Lowered rates at older ages and changed final retirement from 70 to 75.
- Withdrawal rates – Adjusted rates to better fit experience at each year age and service through 9 years of service.
- Disability rates – Lowered rates.
- Salary scale – No change.
- Line of duty disability – Increase rate from 14% to 15%.

The actuarial assumptions used in the June 30, 2015 valuations were based on the results of an actuarial experience study for the period July 1, 2008 through June 30, 2012. Changes to the actuarial assumptions as a result of the experience study are as follows:

- Updated mortality table.
- Decrease in rates of service retirement.
- Decrease in rates of disability retirement.
- Reduce rates of salary increase by 0.25% per year

Long-Term Expected Rate of Return

The long-term expected rate of return on pension system investments was determined using a log-normal distribution analysis in which best-estimate ranges of expected real rates of return (expected returns, net of pension system investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation.

The asset target allocation and best estimate of arithmetic real rates of return for each major asset class are summarized in the following table:

Asset Class (Strategy)	Target Allocation	Arithmetic Long-Term Expected Rate of Return	Weighted Average Long-Term Expected Rate of Return
Public equity	40.00%	4.54%	1.82%
Fixed income	15.00%	0.69%	0.10%
Credit strategies	15.00%	3.96%	0.59%
Real assets	15.00%	5.76%	0.86%
Private equity	15.00%	9.53%	1.43%
Total	<u>100.00%</u>		<u>4.80%</u>
		Inflation	<u>2.50%</u>
		* Expected arithmetic nominal return	<u>7.30%</u>

* The above allocation provides a one-year return of 7.30%. However, one-year returns do not take into account the volatility present in each of the asset classes. In setting the long-term expected return for the system, stochastic projections are employed to model future returns under various economic conditions. The results provide a range of returns over various time periods that ultimately provide a median return of 6.83%, including expected inflation of 2.50%.

Discount Rate

The discount rate used to measure the total pension liability, as of June 30, 2017 and 2016, was 7.0%. The projection of cash flows used to determine the discount rate assumed that VRS member contributions will be made per the VRS statutes and the employer contributions will be made in accordance with the VRS funding policy at rates equal to the difference between actuarially determined contribution rates adopted by the VRS Board of Trustees and the member rate. Through the fiscal year ending June 30, 2018, the rate contributed by the HRSD for the retirement plan will be subject to the portion of the VRS Board-certified rates that are funded by the Virginia General Assembly. From July 1, 2019 on, participating employers are assumed to contribute 100% of the actuarially determined contribution rates. Based on those assumptions, the pension plan's fiduciary net position was projected to be available to make all projected future benefit payments of current active and inactive employees. Therefore, the long-term expected rate of return was applied to all periods of projected benefit payments to determine the total pension liability.

Changes in Net Pension Liability

(in thousands)	Total Pension Liability (a)	Plan Fiduciary Net Position (b)	Net Pension Liability (a) - (b)
Balances at June 30, 2015	\$ 202,246	\$ 176,129	\$ 26,117
Changes for the year - Increase (Decrease):			
Service cost	4,025	-	4,025
Interest	13,872	-	13,872
Difference between expected and actual experience	2,980	-	2,980
Contributions - employer	-	4,083	(4,083)
Contributions - employee	-	2,286	(2,286)
Net investment income	-	3,062	(3,062)
Benefit payments, including refunds of employee contributions	(8,161)	(8,161)	-
Administrative expense	-	(109)	109
Other changes	-	(1)	1
Net changes	<u>12,716</u>	<u>1,160</u>	<u>11,556</u>
Balances at June 30, 2016	<u>214,962</u>	<u>177,289</u>	<u>37,673</u>
Changes for the year - Increase (Decrease):			
Service cost	4,145	-	4,145
Interest	14,750	-	14,750
Changes of assumptions	(3,975)	-	(3,975)
Difference between expected and actual experience	(3,175)	-	(3,175)
Contributions - employer	-	3,609	(3,609)
Contributions - employee	-	2,351	(2,351)
Net investment income	-	21,526	(21,526)
Benefit payments, including refunds of employee contributions	(8,475)	(8,475)	-
Administrative expense	-	(124)	124
Other changes	-	(19)	19
Net changes	<u>3,270</u>	<u>18,868</u>	<u>(15,598)</u>
Balances at June 30, 2017	<u>\$ 218,232</u>	<u>\$ 196,157</u>	<u>\$ 22,075</u>

Sensitivity of the Net Pension Liability to Changes in the Discount Rate

Net Pension Liability (in thousands)	1% Decrease (6.00%)	Current Discount Rate (7.00%)	1% Increase (8.00%)
June 30, 2017	\$ 52,017	\$ 22,075	\$ (2,722)
June 30, 2016	\$ 67,989	\$ 37,673	\$ 12,576

Pension Expenses and Deferred Outflows of Resources and Deferred Inflows of Resources Related to Pensions

HRSD recognized pension expense of \$645,000 and \$3,126,000 for the years ended June 30, 2018 and 2017, respectively. At June 30, 2018 and 2017, HRSD reported deferred outflows of resources and deferred inflows of resources related to pensions from the following sources:

	Deferred Outflows of Resources	Deferred Inflows of Resources
	(in thousands)	
Year ended June 30, 2018:		
Differences between expected and actual experience	\$ 1,827	\$ 4,519
Changes of assumptions	-	3,113
Net difference between projected and actual earnings on plan investments	-	2,827
Employer contributions subsequent to the measurement date	3,635	-
	<u>\$ 5,462</u>	<u>\$ 10,459</u>
Year ended June 30, 2017:		
Differences between expected and actual experience	\$ 2,404	\$ 2,992
Net difference between projected and actual earnings on plan investments	4,591	-
Employer contributions subsequent to the measurement date	4,326	-
	<u>\$ 11,321</u>	<u>\$ 2,992</u>

HRSD reported \$3,635,000 and \$4,326,000 as of June 30, 2018 and 2017, respectively, as deferred outflows of resources resulting from HRSD's contributions subsequent to the measurement date, which will be recognized as reductions of the Net Pension Liability in the years ended June 30, 2018 and 2017, respectively. Other amounts reported as deferred outflows and inflows of resources related to pensions will be recognized in pension expense in future reporting periods as follows:

	Increase (Decrease) in Pension Expense
	(in thousands)
Year ended June 30, 2018:	
2019	\$ (3,725)
2020	(1,125)
2021	(1,092)
2022	(2,690)
2023	-
Thereafter	-
Year ended June 30, 2017:	
2018	\$ (332)
2019	(332)
2020	2,268
2021	2,301
2022	98
Thereafter	-

NOTE 9 – LONG-TERM DEBT

HRSD issues revenue bonds for various capital improvements including but not limited to wastewater treatment plants and interceptor system improvements. In addition to HRSD's publicly issued revenue bonds, HRSD is indebted for bond issues payable to the Virginia Resources Authority (VRA) as administrator of the Virginia Water Facilities Fund. HRSD is required to adhere to and is in compliance with the rebate and reporting requirements of the federal regulations pertaining to arbitrage.

In fiscal year 2018, HRSD issued \$63.2 million in subordinate wastewater revenue bonds, Series 2018A, to fund capital improvement projects. The new bond provided a premium of \$11,817,000.

In fiscal year 2018, HRSD issued \$83.5 million in subordinate wastewater revenue refunding bonds, Series 2017A, to fund capital improvement projects and to refund \$86,075,000 of the HRSD Series 2012A and 2016A wastewater revenue bonds. The refunding provided a premium of \$12,009,000, resulted in a reduction of total debt service payments of \$9,642,000, created an economic gain (difference between the present values of the debt service payments on the old and new debt) of \$6,655,000 and resulted in a deferred gain on the bond refunding of \$3,041,000, which is being amortized over 27 years.

HRSD has \$50 million outstanding in subordinate variable rate demand bonds, Series 2016B, to partially finance its capital improvement plan. The bonds bear interest in either a Weekly Period or a Long-term Period, as defined. The bonds were initially issued in a Weekly Interest Period and bear interest at a varying interest rate until, at HRSD's option, they are converted to the Long-term Period. Liquidity to pay the purchase price of the bonds that

are tendered and not remarketed is provided by HRSD. Maturities of the principal and interest for these bonds are shown in the following table as if held to maturity. The bonds are subject to optional redemption by HRSD prior to their maturity. Through June 30, 2018, the bonds have been successfully remarketed by the Remarketing Agent. The interest rate for the bonds at June 30, 2018 and 2017 was 1.20% and 0.82%, respectively. The 2018 rate was used to calculate interest maturity amounts shown below.

All bonds are secured by the revenues of HRSD and are payable over the duration of that issue. A summary of activity for the years ended June 30:

(in thousands)	Balance at			Balance at			Balance at	Due within
	6/30/2016	Additions	Deductions	6/30/2017	Additions	Deductions	6/30/2018	One year
Series-2018A	\$ -	\$ -	\$ -	\$ -	\$ 63,185	-	\$ 63,185	\$ 470
Series-2017A	-	-	-	-	83,485	-	83,485	-
Series-2016A	246,845	-	(3,525)	243,320	-	(9,830)	233,490	2,520
Series-2016B VR	50,000	-	-	50,000	-	-	50,000	50,000
Series-2014	111,345	-	-	111,345	-	-	111,345	5,500
Series-2012 A	92,155	-	(2,480)	89,675	-	(81,225)	8,450	2,680
Series-2012 Subordinate	4,030	-	(2,825)	1,205	-	(300)	905	305
Series-2011FR	5,760	-	(1,360)	4,400	-	(1,410)	2,990	1,465
Series-2009B	131,220	-	(3,590)	127,630	-	(3,690)	123,940	3,800
Series-2008	8,465	-	(3,000)	5,465	-	(5,465)	-	-
Virginia Resources Authority								
Senior bonds	95,671	-	(5,021)	90,650	-	(5,234)	85,416	5,356
Subordinate bonds	60,588	-	(4,767)	55,821	3,465	(4,883)	54,403	5,012
	806,079	-	(26,568)	779,511	150,135	(112,037)	817,609	77,108
Unamortized bond premiums	73,215	-	(5,943)	67,272	23,826	(17,265)	73,833	6,493
Total Bonds Outstanding	<u>\$ 879,294</u>	<u>\$ -</u>	<u>\$ (32,511)</u>	<u>\$ 846,783</u>	<u>\$ 173,961</u>	<u>\$ (129,302)</u>	<u>\$ 891,442</u>	<u>\$ 83,601</u>

Senior bonds outstanding at June 30, 2018:

(in thousands)	Issue Amount	Principal Outstanding			Interest to Maturity	Interest Rates	Duration of Issue	Final Maturity
		Total	Current	Long-Term				
Series 2014	\$ 111,345	\$ 111,345	\$ 5,500	\$ 105,845	\$ 35,840	5.00%	15 years	July 1, 2029
Series 2012A	130,480	8,450	2,680	5,770	859	4.00% - 5.00%	9 years	January 1, 2021
Series-2011FR	45,705	2,990	1,465	1,525	121	4.00%	8 years	November 1, 2019
Series-2009B	134,725	123,940	3,800	120,140	89,784	4.61% - 5.11%	30 years	November 1, 2039
VRA - Metering	9,989	7,294	477	6,817	1,376	2.65%	20 years	March 1, 2031
VRA - WTP	5,727	4,197	285	3,912	606	2.05%	20 years	March 1, 2031
VRA - NTP	19,395	14,125	923	13,202	2,665	2.65%	20 years	March 1, 2031
VRA - JRTP	13,431	9,625	659	8,966	1,745	2.65%	20 years	September 1, 2030
VRA - ABTP	50,000	39,448	2,362	37,086	6,353	2.05%	20 years	September 1, 2032
VRA - BHTP	7,584	5,610	365	5,245	840	2.05%	20 years	September 1, 2031
VRA - ATP	6,318	5,117	285	4,832	1,054	2.51%	20 years	February 1, 2033
Total		<u>\$ 332,141</u>	<u>\$ 18,801</u>	<u>\$ 313,340</u>	<u>\$ 141,243</u>			

Maturities of senior bond principal and interest as of June 30, 2018:

(in thousands)		
June 30,	Principal	Interest
2019	\$ 18,801	\$ 14,791
2020	19,520	14,011
2021	18,682	13,227
2022	17,977	12,396
2023	22,001	11,556
2024-2028	110,852	42,866
2029-2033	73,453	21,506
2034-2038	34,925	9,947
2039-2043	15,930	943
	<u>\$ 332,141</u>	<u>\$ 141,243</u>

Subordinate revenue bonds outstanding at June 30, 2018:

(in thousands)	Issue Amount	Principal Outstanding			Interest to Maturity	Interest Rates	Duration of Issue	Final Maturity
		Total	Current	Long-term				
Series-2018A	\$ 63,185	\$ 63,185	\$ 470	\$ 62,715	\$ 59,704	5.00%	30 years	October 1, 2047
Series-2017A	83,485	83,485	-	83,485	61,838	3.50% - 5.00%	26 years	October 1, 2043
Series-2016A	246,845	233,490	2,520	230,970	156,648	3.00% - 5.00%	27 years	August 1, 2043
Series-2012 Sub	22,680	905	305	600	24	1.57% - 1.92%	8 years	October 1, 2020
Disinfection	6,490	885	435	450	39	3.50%	20 years	March 1, 2020
BH Odor	2,380	545	149	396	39	3.50%	20 years	September 1, 2021
York River Reuse	2,476	669	144	525	29	1.70%	20 years	September 1, 2022
AB Aeration	1,759	502	108	394	22	1.70%	20 years	October 1, 2022
Ches-Eliz Off Gas	1,070	334	62	272	35	3.75%	20 years	March 1, 2023
AB Generator	1,235	581	68	513	51	2.00%	20 years	April 1, 2026
Atlantic Expansion	7,340	3,856	394	3,462	396	2.10%	20 years	February 1, 2027
Ches-Eliz Expansion	40,330	21,077	2,151	18,926	2,165	2.10%	20 years	June 1, 2027
Williamsburg PS	1,605	882	85	797	95	2.10%	20 years	July 1, 2027
York River Expansion	29,683	21,608	1,406	20,202	4,190	2.72%	20 years	March 1, 2031
Atlantic	-	2,625	-	2,625	1,014	2.25%		
Ferguson	-	817	10	807	369	2.70%		
Lucas	-	22	-	22	10	2.65%		
		435,468	8,307	427,161	286,668			
Series-2016B VR	50,000	50,000	50,000	-	14,257	Variable (1.20% at June 30, 2018)	30 years	August 1, 2046
Total		<u>\$ 485,468</u>	<u>\$ 58,307</u>	<u>\$ 427,161</u>	<u>\$ 300,925</u>			

The VRA bonds that do not show an issue amount have not closed as of June 30, 2018, therefore the principal amounts reflected represent draws through that date. The total amount available on the Subordinate VRA bonds is \$62,575,000, of which \$59,111,000 is available at June 30, 2018.

Maturities of subordinate bond principal and interest as of June 30, 2018:

(in thousands)		
June 30,	Principal	Interest
2019	\$ 58,307	\$ 19,830
2020	9,090	19,131
2021	10,290	18,749
2022	11,839	18,359
2023	9,033	17,937
2024-2028	58,070	84,134
2029-2033	106,459	66,839
2034-2038	132,171	36,766
2039-2043	59,508	15,899
2044-2048	30,701	3,281
	<u>\$ 485,468</u>	<u>\$ 300,925</u>

HRSD defeased certain revenue bonds by placing the proceeds of new bonds in an irrevocable trust to provide for all future debt service payments on the old bonds. Accordingly, the trust account assets and the liability for the defeased bonds are not included in the fund's financial statements. At June 30, 2018, the following defeased bonds from advance refunding are still outstanding:

Defeased In	Original Issue	Amount	Redemption
2014	Series 2011 FR	\$ 9,142,000	11/1/2019
2014	Series 2012A	14,888,000	1/1/2021
2016	Series 2011 FR	26,751,000	11/1/2019
2016	Series 2012A	18,253,000	1/1/2021
2017	Series 2012A	83,432,000	1/1/2021
2017	Series 2016A	8,956,000	8/1/2026
		<u>\$ 161,422,000</u>	

NOTE 10 – NET POSITION

Restricted Portion of Net Position

Restricted for debt service. HRSD's Trust Agreement requires that funds be set aside for its revenue bond debt service. At June 30, 2018 and 2017, \$27,799,000 and \$22,701,000, respectively, was contained in the unrestricted net position.

Unrestricted Portion of Net Position

Reserved for Improvement. HRSD's Master Trust Agreement requires a reserve for improvements. There is no specific funding mechanism established by the Trust Agreement. At June 30, 2018 and 2017, \$367,000 and \$902,000, respectively, was contained in the unrestricted net position. HRSD was in compliance with all funding requirements of this reserve during the fiscal years ended June 30, 2018 and 2017.

Reserved for Construction. A reserve for the construction program is based on funds designated by HRSD's Commission for such purposes. At June 30, 2018 and 2017, \$8,596,000 and \$37,452,000, respectively, was contained in the unrestricted net position.

NOTE 11 - RISK MANAGEMENT

HRSD is exposed to various risks of loss related to torts; theft of, damage to and destruction of assets; employee dishonesty; injuries to employees; and natural disasters. HRSD purchases commercial insurance for specific types of coverage including property, liability, auto, crime, public officials and worker's compensation. There were no significant reductions in insurance coverage from the prior year. Claim settlements and judgments not covered by commercial insurance are covered by operating resources. The amount of settlements did not exceed insurance coverage for each of the past three years. Claim expenditures and liabilities are reported when it is probable that a loss has occurred and the amount of the loss can be reasonably estimated.

HRSD has a self-insured health, dental and vision care benefits program for all employees. Certain health claims expenses paid on behalf of each employee during a single policy year are covered by excess loss insurance with a specific stop-loss limit of \$250,000. HRSD also maintains an aggregate insurance policy whereby total medical claims costs in excess of 125 percent of expected costs are subject to reimbursement. Claims processing and payments for all health care claims are made through third-party administrators. HRSD uses the information provided by the third-party administrators and a health care benefits consultant to aid in the determination of self-insurance reserves.

Changes in HRSD's claims liability for fiscal years 2017 through 2018 are as follows:

(in thousands)	Beginning of Fiscal Year	Estimated Claims Incurred	Claims Paid	End of Fiscal Year
2017	\$ 3,996	\$ 9,704	\$ (10,345)	\$ 3,355
2018	\$ 3,355	\$ 13,332	\$ (12,471)	\$ 4,216

NOTE 12 – COMMITMENTS AND CONTINGENCIES

HRSD is party to a federal consent decree with the federal and state governments (the Consent Decree), which requires HRSD to evaluate the wet weather capacity of the regional sewer system, including collection systems owned by 14 of the localities which HRSD serves in the Hampton Roads area. Based upon that evaluation, HRSD, in consultation with the localities, has developed a Regional Wet Weather Management Plan (RWWMP) for submittal to the federal and state environmental agencies for their approval. The recommended plan includes an implementation schedule, identifies the attainable level of wet weather capacity in individual areas of the region and/or on a region-wide basis, and summarizes the major projects and programs that must be implemented in order to achieve the specified level of regional wet weather capacity.

HRSD and the localities believe that addressing wet weather capacity issues from a regional perspective will result in the most affordable and cost-effective approach for ratepayers throughout the region. Toward that end, HRSD and the localities entered into a legally binding Memorandum of Agreement in March of 2014 (the MOA). The MOA commits HRSD to (1) develop the RWWMP in consultation with the localities, (2) fund the approved plan through a regional rate imposed on all regional ratepayers, (3) design and construct the necessary improvements, and (4) assume responsibility for wet weather capacity throughout the region in each area once the RWWMP is implemented. In exchange, the localities have agreed to (1) cooperate with HRSD, (2) facilitate the construction of and accept ownership of any improvements which HRSD may need to construct in the localities' systems, and (3) maintain the integrity of their systems to industry standards. This agreement is currently under revision. The revision will have HRSD taking responsibility for Regional Sanitary Sewer Overflows upon the approval of the Consent Decree from U.S. EPA/DEQ.

HRSD has also developed an Integrated Management Plan (IMP) and Adaptive Regional Plan (ARP) which was submitted in September 2017. The IMP and ARP include a combination of projects that will improve water quality of the Chesapeake Bay. The first project will be the Sustainable Water Initiative for Tomorrow (SWIFT), which will allow HRSD to reduce nitrogen, phosphorus and total suspended solids to the Chesapeake Bay watershed. This program is estimated to cost \$1 billion and may take approximately 10 years to implement. During this time HRSD will be investing approximately \$200 million in additional wet weather capacity-related sewer overflow controls between now and 2030. Beginning in 2028-2030 HRSD will perform flow monitoring per the ARP and modify the RWWMP as needed. After 2030, the ARP commits HRSD to submit a Final Remediation Plan which may call for full implementation of the RWWMP, a subset of priority projects from the scenario with the greatest environmental benefits, investments in emerging environmental issues including sea level rise adaptation, or some combination of these or other regional environmental priorities. While speculative at this time, those needs could cost upwards of \$1 billion over a 20-25 year period (through 2055). HRSD has submitted the IMP and ARP to the federal and state governments for approval.

During FY-2018 HRSD paid \$15 million for a non-revocable option to purchase a parcel of land to construct one of the SWIFT facilities. The option must be exercised no earlier than January 1, 2023 and no later than December 31, 2023. An additional payment of \$15 million, adjusted from the date of the agreement to the date of settlement by the Consumer Price Index for All Urban Consumers, will be due at that time. Failure to exercise the option will result in forfeiture of the option fee.

The Consent Decree and MOA also contemplate that the localities' obligation to maintain the integrity of their sewer systems to industry standards was embodied in a State Administrative Order. Management currently believes that HRSD is on schedule to complete these projects.

HRSD has a major capital improvement and expansion program funded through the issuance of debt and its own resources. At June 30, 2018, HRSD has outstanding commitments for contracts in progress of approximately \$106,230,000.

NOTE 13 – FAIR VALUE MEASUREMENTS

HRSD categorizes its fair value measurements within the fair value hierarchy established by generally accepted accounting principles. The hierarchy is based on valuation inputs used to measure the fair value of the asset. Level 1 inputs are quoted prices in active markets for identical assets. Level 2 inputs are significant other observable inputs. Level 3 inputs are significant unobservable inputs.

Debt securities reported as investments are classified in Level 2 of the fair value hierarchy and are valued using the following approaches:

- U.S. Treasury securities are valued using quoted prices for identical or similar securities.

- All other investments are valued based on matrix pricing using observable data of securities with similar attributes.

Investments reported as cash and cash equivalents are not included of the fair value hierarchy and are valued using the following approaches:

- SNAP Fund – money market mutual funds. HRSD’s holdings of the PFM Prime Series (SNAP) fund units are valued at NAV, which is used as a practical expedient for fair value. There are no imposed redemption restrictions and the plan does not have any contractual obligations to further invest in the fund. The underlying investments of the fund are primarily short-term, high quality debt instruments including U.S. Treasuries, U.S. Agencies, U.S. Municipals, and repurchase agreements secured by U.S. Government Obligations. Underlying investments are measured at amortized cost, which approximates fair value.
- Local Government Investment Pool (LGIP) – HRSD holdings of the Virginia LGIP fund units are valued at amortized cost based on their qualification under GASB 79 as being managed as a “2a-7 like” investment. The fund does not have any limitations or restrictions on withdrawals such as redemption notice periods, maximum transaction amounts, or liquidity fees or redemption gates. The underlying investments of the fund are primarily short-term, high quality debt instruments including U.S. Treasuries, U.S. Agencies, U.S. Municipals, and repurchase agreements secured by U.S. Government Obligations. Underlying investments are measured at amortized cost, which approximates fair value. HRSD’s total investment in the LGIP was \$68,984,000 and \$92,714,000 as of June 30, 2018 and 2017, respectively.

Balance at June 30, 2018 (in thousands)

	<u>Fair Value</u>	<u>Level 1</u>	<u>Level 2</u>	<u>Level 3</u>
<u>Investments by Fair Value Level</u>				
U.S. Treasury Securities	\$ 53,627	\$ -	\$ 53,627	\$ -
Federal Agency Notes / Bonds	26,918	-	26,918	-
Corporate Notes / Bonds	20,633	-	20,633	-
Commercial Paper	4,921	-	4,921	-
Certificates of Deposit	7,325	-	7,325	-
Municipal Bonds	1,451	-	1,451	-
Supranationals	9,215	-	9,215	-
Total Investments by Fair Value Level	<u>\$ 124,090</u>	<u>\$ -</u>	<u>\$ 124,090</u>	<u>\$ -</u>

Cash Equivalents Measured at Net Asset Value

Fidelity	\$ 139
SNAP	67,278
	<u>\$ 67,417</u>

Balance at June 30, 2017 (in thousands)

	<u>Fair Value</u>	<u>Level 1</u>	<u>Level 2</u>	<u>Level 3</u>
<u>Investments by Fair Value Level</u>				
U.S. Treasury Securities	\$ 38,809	\$ -	\$ 38,809	\$ -
Federal Agency Notes / Bonds	33,688	-	33,688	-
Corporate Notes / Bonds	24,913	-	24,913	-
Commercial Paper	2,424	-	2,424	-
Certificates of Deposit	12,110	-	12,110	-
Municipal Bonds	2,166	-	2,166	-
Supranationals	9,577	-	9,577	-
Total Investments by Fair Value Level	<u>\$ 123,687</u>	<u>\$ -</u>	<u>\$ 123,687</u>	<u>\$ -</u>

Cash Equivalents Measured at Net Asset Value

Fidelity	<u>\$ 157</u>
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HRSD OPEB Trust Investments

The HRSD OPEB Trust has investments in mutual funds, cash, and cash equivalents on deposit with its trustee, USBank. HRSD categorizes its fair value measurements within the fair value hierarchy consistent with the approach described above.

<u>Balance at June 30, 2018 (in thousands)</u>	<u>Fair Value</u>	<u>Level 1</u>	<u>Level 2</u>	<u>Level 3</u>
<u>Investments by Fair Value Level</u>				
Mutual Funds - Equity	\$ 29,847	\$ 1,939	\$ 27,908	\$ -
Mutual Funds - Fixed Income	17,227	-	17,227	-
Total Investments by Fair Value Level	\$ 47,074	\$ 1,939	\$ 45,135	\$ -
<u>Cash Equivalents Measured at Net Asset Value</u>				
First American Government Obligation	\$ 29			
<u>Fiduciary Net Position of HRSD's OPEB</u>				
Plan as of June 30, 2018	\$ 47,103			

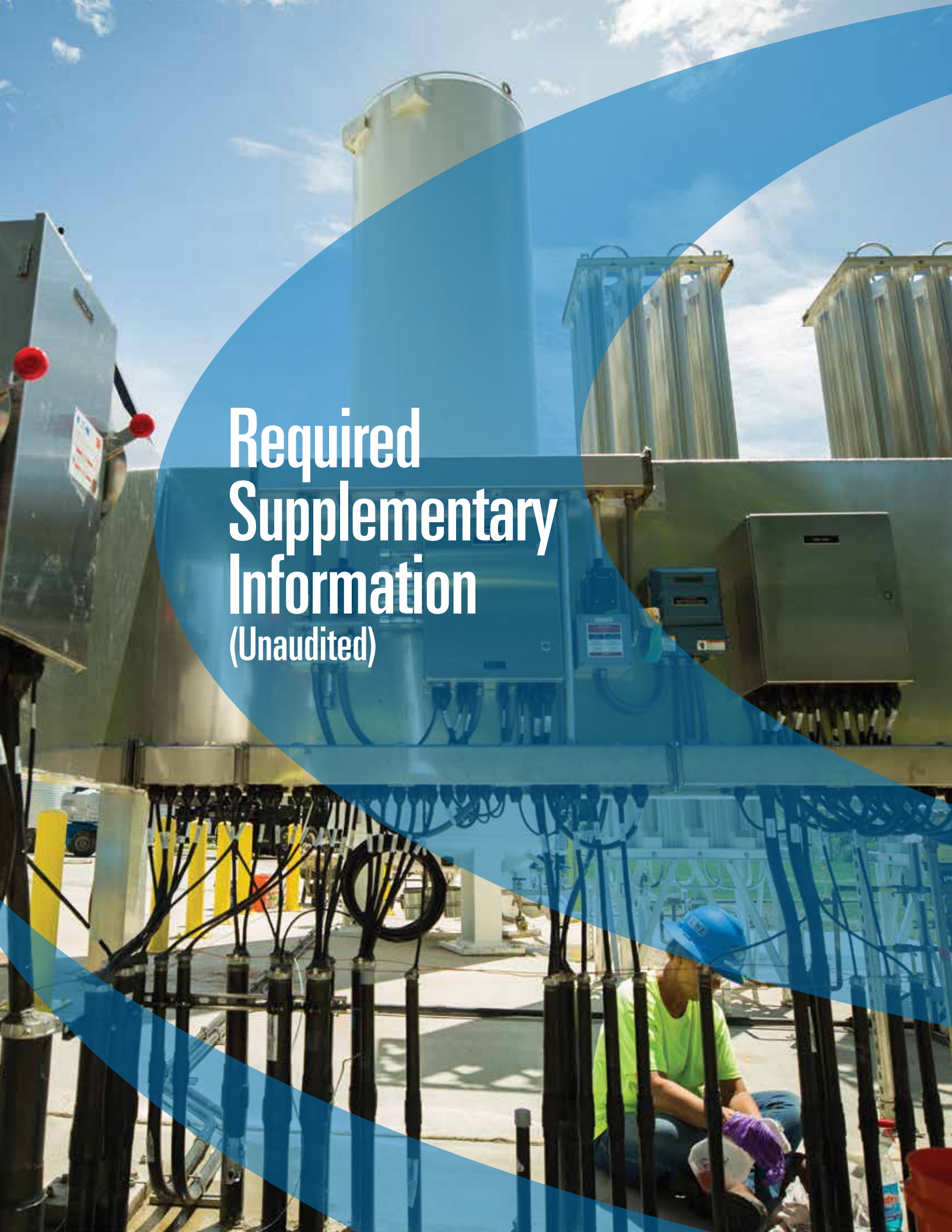
Additional information about HRSD's OPEB Plan is in Note 7.

Note 14 - Change in Accounting Principle

As discussed in Note 2, HRSD adopted GASB Statement No. 75, *Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions*, effective July 1, 2017. HRSD implemented the provisions of GASB No. 75 in fiscal year 2018 by adjusting the July 1, 2017 net position, establishing an other postemployment benefits (OPEB) liability, recording deferred inflows and outflows of resources related to OPEB activity, and adjusting OPEB expenses in the accompanying financial statements. The following reflects the adjustment to net position as of July 1, 2017 as a result of implementing GASB Statement No. 75 in FY18:

(in thousands)	
Adjustment for net OPEB liability	\$ (20,520)
Adjustment for contributions made subsequent to the measurement date	336
Adjustment to net position at July 1, 2017	<u>\$ (20,184)</u>

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A photograph of an electrical substation. In the foreground, a worker wearing a blue hard hat and a bright green safety vest is kneeling on the ground, working with a bundle of purple cables. The background features several large, cylindrical metal transformers and a tall, white cylindrical tank. The sky is blue with some clouds. A large, semi-transparent blue circle is overlaid on the right side of the image, containing the text.

Required Supplementary Information (Unaudited)

**HAMPTON ROADS SANITATION DISTRICT
SCHEDULE OF CHANGES IN
NET PENSION LIABILITY AND RELATED RATIOS**

	(in thousands)	2017	2016	2015	2014
Total pension liability					
Service cost		\$ 4,145	\$ 4,025	\$ 4,115	\$ 3,943
Interest		14,750	13,872	13,559	12,907
Changes of benefit terms		-	-	-	-
Changes in assumptions		(3,975)	-	-	-
Differences between expected and actual experience		(3,175)	2,980	(4,910)	-
Benefit payments, including refunds of employee contributions		(8,475)	(8,161)	(8,446)	(6,607)
Net change in total pension liability		3,270	12,716	4,318	10,243
Total pension liability - beginning		214,962	202,246	197,928	187,686
Total pension liability - ending (a)		<u>\$ 218,232</u>	<u>\$ 214,962</u>	<u>\$ 202,246</u>	<u>\$ 197,929</u>
Plan fiduciary net position					
Contributions - employer		\$ 3,609	\$ 4,083	\$ 4,099	\$ 4,114
Contributions - employee		2,351	2,286	2,314	2,267
Net investment income		21,526	3,062	7,807	23,313
Benefit payments, including refunds of employee contributions		(8,475)	(8,161)	(8,446)	(6,607)
Administrative expense		(124)	(109)	(107)	(125)
Other		(19)	(1)	(2)	1
Net change in plan fiduciary net position		18,868	1,160	5,665	22,963
Plan fiduciary net position - beginning		177,289	176,129	170,464	147,501
Plan fiduciary net position - ending (b)		<u>\$ 196,157</u>	<u>\$ 177,289</u>	<u>\$ 176,129</u>	<u>\$ 170,464</u>
Net pension liability - ending (a) - (b)		\$ 22,075	\$ 37,673	\$ 26,117	\$ 27,465
Plan fiduciary net position as a percentage of the total pension liability (b)/(a)		89.88%	82.47%	87.09%	86.12%
Covered-employee payroll (c)		\$ 50,874	\$ 49,286	\$ 47,838	\$ 47,674
Net pension liability as a percentage of the covered-employee payroll ((a)-(b))/(c)		43.39%	76.44%	54.59%	57.61%

This schedule is presented to show information for 10 years. However, until a full ten-year trend is compiled, HRSD will present information for those years for which information is available.

**HAMPTON ROADS SANITATION DISTRICT
SCHEDULE OF EMPLOYER PENSION CONTRIBUTIONS
FOR THE YEARS ENDED JUNE 30, 2009 THROUGH 2018**

Date	Contractually Required Contribution	Contributions in Relation to Contractually Required Contribution	Contribution Deficiency (Excess)	Employer's Covered Payroll	Contributions as a % of Covered Payroll
2018	\$ 3,635,000	\$ 3,635,000	\$ -	\$ 50,874,000	7.15%
2017	4,326,000	4,326,000	-	49,286,000	8.78%
2016	4,222,000	4,222,000	-	47,838,000	8.83%
2015	4,207,000	4,207,000	-	47,674,000	8.82%
2014	4,107,000	4,107,000	-	46,096,000	8.91%
2013	4,075,000	4,075,000	-	45,044,000	9.05%
2012	4,580,000	4,580,000	-	42,166,000	10.86%
2011	4,438,000	4,438,000	-	40,462,000	10.97%
2010	3,900,000	3,900,000	-	39,407,000	9.90%
2009	3,699,000	3,699,000	-	37,608,000	9.84%

Changes of benefit terms - There have been no actuarially material changes to the VRS benefit provisions since the prior actuarial valuation. The 2014 valuation includes Hybrid Retirement Plan members for the first time. The hybrid plan applies to most new employees hired on or after January 1, 2014 and not covered by enhanced hazardous duty benefits. Because this is a fairly new benefit and the number of participants was relatively small, the impact on the liabilities as of the measurement date of June 30, 2017 are not material.

Changes of assumptions - The following changes in actuarial assumptions were made effective June 30, 2016 based on the most recent experience study of the retirement system for the four-year period ended June 30, 2016:

Mortality Rates (Pre-retirement, post-retirement healthy, and disabled)	Updated to a more current mortality table - RP-2014 projected to 2020
Retirement Rates	Lowered rates at older ages and changed final retirement from 70 to 75 retirement
Withdrawal Rates	Adjusted rates to better fit experience at each year age and service through 9 years of service
Disability Rates	Lowered rates
Salary Scale	No change
Line of Duty Disability	Increase rate from 14% to 15%

Information pertaining to Pensions can be found in Notes 2 and 8 to the financial statements.

**HAMPTON ROADS SANITATION DISTRICT
SCHEDULE OF CHANGES IN
NET RHP OPEB LIABILITY AND RELATED RATIOS**

	(in thousands)	2018
Total OPEB liability		
Service cost		\$ 1,260
Interest		3,391
Benefit payments, including refunds of employee contributions		(1,791)
Net change in total OPEB liability		2,860
Total OPEB liability - beginning		57,416
Total OPEB liability - ending (a)		\$ 60,276
 Plan fiduciary net position		
Contributions - employer		\$ 2,729
Contributions - retirees		303
Net investment income		3,450
Benefit payments, including refunds of employee contributions		(1,791)
Administrative expense		(114)
Net change in plan fiduciary net position		4,577
Plan fiduciary net position - beginning		42,526
Plan fiduciary net position - ending (b)		\$ 47,103
 Net OPEB liability - ending (a) - (b)		\$ 13,173
 Plan fiduciary net position as a percentage of the total OPEB liability (b)/(a)		78.15%
 Covered-employee payroll (c)		\$ 50,874
 Net OPEB liability as a percentage of the covered-employee payroll ((a)-(b))/(c)		25.89%

This schedule is intended to show information for 10 years. However, until a full ten-year trend is compiled, HRSD will present information for those years for which information is available. Information for FY2016 and earlier is not available.

Notes to Required Supplementary Information For the Year Ended June 30, 2018:

Benefit changes:	None	
Changes of assumptions:	None	
Discount rate:	6/30/2017	6.00%

Unaudited – See accompanying independent auditors' report and notes to required supplementary information

**HAMPTON ROADS SANITATION DISTRICT
SCHEDULE OF RHP OPEB CONTRIBUTIONS AND RELATED RATIOS**

	(in thousands) <u>2018</u>
Actuarially Determined Contribution	\$ 2,729
Contributions in Relation to the Actuarially Determined Contribution	<u>(2,729)</u>
Contribution Deficiency (Excess)	<u>\$ -</u>
Covered-employee payroll (c)	\$ 50,874
 Contributions as a percentage of Covered-employee payroll	 5.36%

Actuarial cost method	Projected unit credit method
Amortization method	Level percent of pay, closed
Amortization period	An experience gain/loss base is created each year and amortized over a 15 year period
Asset valuation	Smoothed market value with phase-in, using a 5-year smoothing period
Assumed rate of inflation	2.20%
Medical cost trend :	
Pre Medicare	5.3%, stable at 5.3% after 3 years and decreasing to 3.6% after 53 years
Post Medicare	5.3%, stable at 5.3% after 3 years and decreasing to 3.4% after 53 years
Salary increase rate	2.50%
Investments rate of return	6.00%
Mortality rates:	
Healthy	RP-2014 Mortality Table, Fully Generational, Projected with Scale MP-2014
Disabled	RP-2014 Mortality Table, Fully Generational, Projected with Scale MP-2014

Unaudited – See accompanying independent auditors' report and notes to required supplementary information

**HAMPTON ROADS SANITATION DISTRICT
SCHEDULE OF RHP FUNDING PROGRESS
FOR THE YEARS ENDED JUNE 30, 2014 THROUGH 2017**

The table below provides detail on the funding progress for the Post-Retirement Health Benefit Plan for HRSD.

Valuation as of	Actuarial Value of Assets	Actuarial Accrued Liability (AAL)	Unfunded AAL (UAAL) (2) - (1)	Funded Ratio Assets as % of AAL (1) / (2)	Annual Covered Payroll	UAAL as a % of Covered Payroll (3) / (5)
(in thousands)	(1)	(2)	(3)	(4)	(5)	(6)
6/30/2017	\$42,468	\$49,303	\$6,835	86.1%	\$49,286	13.9%
6/30/2016	\$39,272	\$45,337	\$6,065	86.6%	\$47,838	12.7%
6/30/2015	\$37,008	\$42,017	\$5,009	88.1%	\$47,674	10.5%
6/30/2014	\$34,115	\$39,422	\$5,307	86.5%	\$46,096	11.5%

Other disclosures related to OPEB for the fiscal year ended June 30, 2017

As described in Note 2, during the fiscal year ended June 30, 2018, HRSD adopted GASB Statement No. 75, *Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions*. Information related to OPEB for the fiscal year ended June 30, 2017 was not restated, so the following information presents information required by GASB Statements No. 45, *Accounting and Financial Reporting by Employers for Postemployment Benefits Other Than Pensions*, as amended; and No. 57, *OPEB Measurements by Agent Employers and Agent Multiple-Employer Plans*.

Unaudited – See accompanying independent auditors' report

**HAMPTON ROADS SANITATION DISTRICT
SCHEDULE OF EMPLOYER'S SHARE OF
NET GLI OPEB LIABILITY AND RELATED RATIOS
FOR THE YEAR ENDED JUNE 30, 2018***

Employer's Proportion of the Net GLI OPEB Liability (Asset)	0.26016%
Employer's Proportionate Share of the Net GLI OPEB Liability (Asset)	\$ 3,915,000
Employer's Covered Payroll	47,987,000
Employer's Proportionate Share of the Net GLI OPEB Liability (Asset) as a Percentage [Calculation: Line 2 of its Covered Payroll]	8.16%
Plan Fiduciary Net Position as a Percentage of the Total GLI OPEB Liability	48.86%

This schedule is intended to show information for 10 years. However, until a full ten-year trend is compiled, HRSD will present information for those years for which information is available.

* The amounts presented have a measurement date of the previous fiscal year end.

Unaudited – See accompanying independent auditors' report and notes to required supplementary information

**HAMPTON ROADS SANITATION DISTRICT
SCHEDULE OF EMPLOYER GROUP LIFE INSURANCE CONTRIBUTIONS
FOR THE YEARS ENDED JUNE 30, 2009 THROUGH 2018**

Date	Contractually Required Contribution	Contributions in Relation to Contractually Required Contribution	Contribution Deficiency (Excess)	Employer's Covered Payroll	Contributions as a % of Covered Payroll
2018	\$ 259,000	\$ 259,000	\$ -	\$ 49,846,000	0.52%
2017	250,000	250,000	-	47,987,000	0.52%
2016	246,000	223,000	23,000	46,417,000	0.53%
2015	244,000	221,000	23,000	46,082,000	0.53%
2014	240,000	217,000	23,000	45,283,000	0.53%
2013	238,000	215,000	23,000	44,839,000	0.53%
2012	183,000	117,000	66,000	41,681,000	0.44%
2011	177,000	113,000	64,000	40,252,000	0.44%
2010	139,000	78,000	61,000	28,890,000	0.48%
2009	132,000	99,000	33,000	36,731,000	0.36%

Notes to Required Supplementary Information For the Year Ended June 30, 2018:

Changes of benefit terms - There have been no actuarially material changes to the VRS benefit provisions

Changes of assumptions - The actuarial assumptions used in the June 30, 2016 valuation were based on the results of an actuarial experience study for the period from July 1, 2012 through June 30, 2016. Changes to the actuarial assumptions as a result of the experience study are as follows:

Mortality Rates (Pre-retirement, post-retirement healthy, and disabled)	Updated to a more current mortality table - RP-2014 projected to 2020
Retirement Rates	Lowered retirement rates at older ages and extended final retirement age from 70 to 75.
Withdrawal Rates	Adjusted termination rates to better fit experience at each age and service year
Disability Rates	Lowered disability rates
Salary Scale	No change
Line of Duty Disability	Increased rate from 14 to 15%

Information pertaining to OPEB can be found in Notes 2 and 7 to the financial statements.

**HAMPTON ROADS SANITATION DISTRICT
SCHEDULE OF CHANGES IN
NET HIC OPEB LIABILITY AND RELATED RATIOS**

	(in thousands) <u>2017</u>
Total OPEB liability	
Service cost	\$ 27
Interest	129
Changes in assumptions	(22)
Benefit payments, including refunds of employee contributions	<u>(94)</u>
Net change in total OPEB liability	40
Total OPEB liability - beginning	1,891
Total OPEB liability - ending (a)	<u><u>\$ 1,931</u></u>
Plan fiduciary net position	
Contributions - employer	\$ 91
Net investment income	90
Benefit payments, including refunds of employee contributions	(94)
Administrative expense	(1)
Other	<u>4</u>
Net change in plan fiduciary net position	90
Plan fiduciary net position - beginning	780
Plan fiduciary net position - ending (b)	<u><u>\$ 870</u></u>
Net OPEB liability - ending (a) - (b)	\$ 1,061
Plan fiduciary net position as a percentage of the total OPEB liability (b)/(a)	45.05%
Covered-employee payroll (c)	\$47,987
Net OPEB liability as a percentage of the covered-employee payroll ((a)-(b))/(c)	2.21%

This schedule is intended to show information for 10 years. However, until a full ten-year trend is compiled, HRSD will present information for those years for which information is available.

Unaudited – See accompanying independent auditors’ report and notes to required supplementary information

**HAMPTON ROADS SANITATION DISTRICT
SCHEDULE OF EMPLOYER HEALTH INSURANCE CREDIT CONTRIBUTIONS
FOR THE YEARS ENDED JUNE 30, 2009 THROUGH 2018**

Date	Contractually Required Contribution	Contributions in Relation to Contractually Required Contribution	Contribution Deficiency (Excess)	Employer's Covered Payroll	Contributions as a % of Covered Payroll
2018	\$ 95,000	\$ 95,000	\$ -	\$ 49,821,000	0.19%
2017	91,000	91,000	-	47,987,000	0.19%
2016	74,000	74,000	-	46,417,000	0.16%
2015	74,000	74,000	-	46,076,000	0.16%
2014	86,000	86,000	-	45,283,000	0.19%
2013	85,000	85,000	-	44,835,000	0.19%
2012	100,000	100,000	-	41,634,000	0.24%
2011	97,000	97,000	-	40,282,000	0.24%
2010	147,000	147,000	-	38,675,000	0.38%
2009	139,000	139,000	-	36,640,000	0.38%

Notes to Required Supplementary Information For the Year Ended June 30, 2018:

Changes of benefit terms - There have been no actuarially material changes to the VRS benefit provisions since the prior actuarial valuation.

Changes of assumptions - The following changes in actuarial assumptions were made effective June 30, 2016 based on the most recent experience study of the retirement system for the four-year period ended June 30, 2016:

Mortality Rates (Pre-retirement, post-retirement healthy, and disabled)	Updated to a more current mortality table - RP-2014 projected to 2020
Retirement Rates	Lowered retirement rates at older ages and extended final retirement age from 70 to 75.
Withdrawal Rates	Adjusted termination rates to better fit experience at each age and service year
Disability Rates	Lowered disability rates
Salary Scale	No change
Line of Duty Disability	Increased rate from 14 to 15%

Information pertaining to OPEB can be found in Notes 2 and 7 to the financial statements.

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A photograph of a water treatment facility. In the foreground, there are two large, white, cylindrical vertical pumps or filters mounted on concrete bases. They are connected to a network of blue and purple pipes. In the background, there is a large, modern industrial building with a grey facade and a large open bay door. A yellow forklift is visible near the bay door. The sky is blue with some white clouds. A large, semi-transparent blue circle is overlaid on the right side of the image, containing the text.

Statistical Section (Unaudited)

HAMPTON ROADS SANITATION DISTRICT STATISTICAL SECTION (UNAUDITED)

This section of HRSD's comprehensive annual financial report presents detailed information as a context for understanding what the information in the financial statements, note disclosures and required supplementary information says about HRSD's overall financial health.

Contents	Page(s)
Demographic and Economic Information This schedule offers demographic and economic indicators to help the reader understand the environment within which HRSD's financial activities take place and to help make comparisons over time and with other governments.	63
Financial Trends These schedules contain trend information to help the reader understand how HRSD's financial performance and well-being have changed over time.	64-66
Debt Capacity This schedule presents information to help the reader assess the affordability of HRSD's current levels of outstanding debt and HRSD's ability to issue additional debt in the future.	67
Revenue Capacity These schedules contain information to help the reader assess the factors affecting HRSD's ability to generate revenue from rate payers.	68-69 72-74
Operating Information These schedules contain information about the HRSD's operations and resources to help the reader understand how the HRSD's financial information relates to the services HRSD provides and the activities it performs.	70-71 75

Sources: Unless otherwise noted the information in these schedules is derived from the comprehensive annual financial reports and accounting records for the relevant year.

Unaudited – See accompanying independent auditors' report

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**HAMPTON ROADS SANITATION DISTRICT
DEMOGRAPHIC AND OTHER MISCELLANEOUS STATISTICS
JUNE 30, 2018**

	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
Date of Incorporation - 1940	3,087	3,087	2,808	2,808	2,808	2,808	2,808	2,808	2,808	2,808
Area in Square Miles (1)	758	758	672	672	672	672	672	672	672	672
Present Service Area in Square Miles (1)	9	9	9	9	9	9	9	9	9	9
Treatment Plants (Major)	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0
Plant Capacity (Millions of Gallons per Day)	54.0	54.0	54.0	54.0	54.0	54.0	54.0	54.0	54.0	54.0
Army Base Plant, Norfolk	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
Atlantic Plant, Virginia Beach	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0
Boat Harbor Plant, Newport News	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Chesapeake-Elizabeth Plant, Virginia Beach	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
James River Plant, Newport News	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0
Nansemond Plant, Suffolk	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Virginia Initiative Plant, Norfolk	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
Williamsburg Plant, James City County	248.5	248.5	248.5	248.5	248.5	248.5	248.5	248.5	248.5	248.5
York River Plant, York County	7	5	4	4	4	4	5	5	4	4
Total Treatment Plants (Major) Capacity	0.025	0.025	0.025	0.025	0.025	0.025	0.030	0.030	-	-
Small Communities Treatment Plants	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100
Central Middlesex, Middlesex County	0.050	0.050	-	-	-	-	-	-	-	-
King William Plant, King William County	-	-	-	-	-	-	-	-	-	-
Lawnes Point, Isle of Wight County (2)	0.065	-	-	-	-	-	-	-	-	-
Mathews Plant, Mathews County (3)	0.060	-	-	-	-	-	-	-	-	-
Surry County (4)	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100
Town of Surry (4)	0.600	0.600	0.600	0.600	0.600	0.600	0.600	0.600	0.600	0.600
Urbanna Plant, Middlesex County	1	0.875	0.825	0.825	0.83	0.83	0.93	0.93	0.90	0.90
West Point Plant, King William County	542	540	536	532	531	531	532	528	483	483
Total Small Communities Treatment Plants Capacity	88	89	88	83	83	83	83	82	81	82
Miles of Interceptor Systems (5)	34	38	33	33	33	29	29	29	25	20
Interceptor Pump Stations	2	2	2	2	2	2	2	2	2	2
Small Communities Pump Stations (5)	473	470	467	465	462	460	458	457	455	452
Maintenance Facilities	145	153	155	152	154	158	147	144	171	151
Number of Service Connections (in thousands)										
Daily Average Treatment in Millions of Gallons										
Bond Ratings										
Moody's Investors Service	Aa1	Aa2	Aa2	Aa2	Aa2	Aa2	Aa2	Aa2	Aa2	Aa3
Senior	Aa2	-	-	-	-	-	-	-	-	-
Subordinate Long-term	AA+	AA+	AA+	AA+	AAA	AAA	AAA	AAA	AAA	AA+
Standard & Poor's	AA	AA	AA	AA	AA+	AA+	AA+	-	-	-
Subordinate Long-term	A-1+	A-1+	A-1+	A-1+	A-1+	A-1+	A-1+	-	-	-
Subordinate Short-term	AA+	AA+	AA+	AA+	AA+	AA+	AA+	AA+	AA+	AA
Fitch	AA	AA	AA	AA	AA	AA	AA	AA	AA	-
Subordinate Long-term	F1+	F1+	F1+	F1+	F1+	F1+	F1+	-	-	-
Subordinate Short-term										

(1) HRSD added additional service areas in the counties of Isle of Wight and Surry
(2) Lawnes Point was acquired during the year ended June 30, 2017.
(3) The Mathews Treatment Plant has been closed. Wastewater from the area is now handled by the York River Treatment Plant.
(4) The Surry Plants were acquired during the year ended June 30, 2018.
(5) HRSD conducted evaluations of the system during the years ended June 30, 2009 and 2011 and revised the miles of pipes and the number of small community pump stations.

HAMPTON ROADS SANITATION DISTRICT
SCHEDULE OF OPERATING EXPENSES, NET POSITION BY COMPONENT
AND DEBT SERVICE EXPENDITURES LAST TEN FISCAL YEARS

(in thousands)

	2018	2017	2016	2015	(adjusted) 2014
OPERATING REVENUES					
Wastewater treatment charges	\$ 275,539	\$ 254,961	\$ 234,020	\$ 221,626	\$ 211,538
Miscellaneous	3,504	3,669	3,861	3,935	3,643
TOTAL OPERATING REVENUES	<u>279,043</u>	<u>258,630</u>	<u>237,881</u>	<u>225,561</u>	<u>215,181</u>
OPERATING EXPENSES					
Wastewater treatment	116,982	113,100	106,575	114,137	109,149
General and administrative	40,480	40,287	40,026	38,678	33,012
Depreciation	52,349	49,311	45,670	41,871	42,761
TOTAL OPERATING EXPENSES	<u>209,811</u>	<u>202,698</u>	<u>192,271</u>	<u>194,686</u>	<u>184,922</u>
OPERATING INCOME	69,232	55,932	45,610	30,875	30,259
NON-OPERATING REVENUES (EXPENSES)					
Wastewater facility charges	6,673	7,511	6,699	7,428	6,640
Investment income	3,654	2,287	1,563	1,695	1,872
Bond interest subsidy	2,330	2,275	2,399	2,444	2,364
Change in fair value of investments	(1,382)	(1,119)	750	(286)	(422)
Capital distributions to localities	(311)	(138)	(3,287)	-	-
Bond issuance costs	(1,061)	(42)	(1,713)	(768)	-
Disposal of capital assets	-	-	-	-	-
Interest expense	(20,226)	(22,630)	(21,631)	(22,958)	(25,650)
NET NON-OPERATING REVENUES (EXPENSES)	<u>(10,323)</u>	<u>(11,856)</u>	<u>(15,220)</u>	<u>(12,445)</u>	<u>(15,196)</u>
INCOME (LOSS) BEFORE CONTRIBUTIONS	58,909	44,076	30,390	18,430	15,063
CAPITAL CONTRIBUTIONS					
State capital grants	2,502	7,462	14,389	16,519	13,888
Other capital contributions	2,124	1,136	-	3,000	-
CHANGE IN NET POSITION	<u>\$ 63,535</u>	<u>\$ 52,674</u>	<u>\$ 44,779</u>	<u>\$ 37,949</u>	<u>\$ 28,951</u>
NET POSITION					
Net Investment in capital assets	\$ 512,398	\$ 428,670	\$ 410,287	\$ 385,597	\$ 351,191
Restricted for debt service	27,799	22,701	23,798	22,070	24,064
Restricted for debt service reserve fund	-	-	-	44,118	45,207
Unrestricted	157,432	202,907	167,519	105,040	134,485
TOTAL NET POSITION	<u>\$ 697,629</u>	<u>\$ 654,278</u>	<u>\$ 601,604</u>	<u>\$ 556,825</u>	<u>\$ 554,947</u>
DEBT SERVICE EXPENDITURES					
Senior debt	\$ 36,488	\$ 35,837	\$ 38,198	\$ 43,842	\$ 47,331
Subordinate debt	\$ 20,633	\$ 23,603	\$ 17,068	\$ 13,091	\$ 14,112
Senior Debt Service Coverage (GAAP)	3.59	3.10	2.56	1.90	1.76
Subordinate Debt Service Coverage (GAAP)	6.36	5.09	5.72	6.36	5.92
Total Debt Service Coverage (GAAP)	2.03	1.93	1.77	1.46	1.36
Total Debt (Adjusted Cash Basis)	\$ 57,171	\$ 57,988	\$ 54,643	-	-
Total Debt Service Coverage (Adjusted Cash Basis)	2.30	2.00	1.85	-	-

Notes:

FY2013 - HRSD implemented GASB Statement 65 effective July 1, 2012, which requires expensing bond issuance costs in the year incurred.

FY2013 - HRSD adjusted the financial records to include inventory assets.

FY2014 - HRSD implemented GASB Statements 68 and 71 effective July 1, 2014, which requires recording net pension assets or liabilities and related deferred outflows and inflows of resources.

FY2016 - HRSD is showing Debt Service Coverage on both a GAAP basis and an Adjusted Cash basis to account for distributions to localities in accordance with its Amended Subordinate Trust Agreement Section 705(a) enacted in March 2016.

FY2018 - HRSD implemented GASB Statement 75 effective July 1, 2017, which requires recording net OPEB assets or liabilities and related deferred outflows and inflows of resources.

(Continued)

Unaudited – See accompanying independent auditors' report

HAMPTON ROADS SANITATION DISTRICT
SCHEDULE OF OPERATING EXPENSES, NET POSITION BY COMPONENT
AND DEBT SERVICE EXPENDITURES LAST TEN FISCAL YEARS

(in thousands)	(adjusted) 2013	(adjusted) 2012	2011	2010	2009
OPERATING REVENUES					
Wastewater treatment charges	\$ 199,318	\$ 194,817	\$ 183,526	\$ 167,807	\$ 156,642
Miscellaneous	3,297	2,996	3,890	3,645	3,088
TOTAL OPERATING REVENUES	<u>202,615</u>	<u>197,813</u>	<u>187,416</u>	<u>171,452</u>	<u>159,730</u>
OPERATING EXPENSES					
Wastewater treatment	86,973	110,783	103,225	98,022	86,850
General and administrative	31,410	31,163	28,622	29,435	28,853
Depreciation	45,414	41,250	36,191	30,441	28,414
TOTAL OPERATING EXPENSES	<u>163,797</u>	<u>183,196</u>	<u>168,038</u>	<u>157,898</u>	<u>144,117</u>
OPERATING INCOME	38,818	14,617	19,378	13,554	15,613
NON-OPERATING REVENUES (EXPENSES)					
Wastewater facility charges	5,851	6,276	5,083	5,754	5,086
Investment income	1,705	1,681	1,699	1,541	3,998
Bond interest subsidy	2,602	2,602	2,602	1,655	-
Change in fair value of investments	(714)	(224)	(19)	40	162
Capital distributions to localities	-	-	-	-	-
Bond issuance costs	(658)	(2,206)	-	-	-
Disposal of capital assets	(1,649)	-	-	-	-
Interest expense	(24,330)	(22,760)	(20,516)	(19,973)	(15,263)
NET NON-OPERATING REVENUES (EXPENSES)	<u>(17,193)</u>	<u>(14,631)</u>	<u>(11,151)</u>	<u>(10,983)</u>	<u>(6,017)</u>
INCOME (LOSS) BEFORE CONTRIBUTIONS	21,625	(14)	8,227	2,571	9,596
CAPITAL CONTRIBUTIONS					
State capital grants	10,172	14,806	16,097	41,606	16,678
Other capital contributions	-	-	-	-	-
CHANGE IN NET POSITION	<u>\$ 31,797</u>	<u>\$ 14,792</u>	<u>\$ 24,324</u>	<u>\$ 44,177</u>	<u>\$ 26,274</u>
NET POSITION					
Net Investment in capital assets	\$ 337,342	\$ 348,407	\$ 351,618	\$ 348,572	\$ 319,594
Restricted for debt service	23,843	15,736	14,896	12,253	7,542
Restricted for debt service reserve fund	-	-	-	-	-
Unrestricted	164,811	130,056	110,688	92,053	81,565
TOTAL NET POSITION	<u>\$ 525,996</u>	<u>\$ 494,199</u>	<u>\$ 477,202</u>	<u>\$ 452,878</u>	<u>\$ 408,701</u>
DEBT SERVICE EXPENDITURES					
Senior debt	\$ 37,574	\$ 33,023	\$ 28,257	\$ 21,081	\$ 17,453
Subordinate debt	\$ 11,243	\$ 13,694	\$ 10,640	\$ 10,695	\$ 10,694
Senior Debt Service Coverage (GAAP)	2.48	1.94	2.30	2.51	3.05
Subordinate Debt Service Coverage (GAAP)	8.27	4.67	6.10	4.95	4.98
Total Debt Service Coverage (GAAP)	1.91	1.37	1.67	1.67	1.89
Total Debt (Adjusted Cash Basis)	-	-	-	-	-
Total Debt Service Coverage (Adjusted Cash Basis)	-	-	-	-	-

Unaudited – See accompanying independent auditors' report

**HAMPTON ROADS SANITATION DISTRICT
OBJECTIVE CLASSIFICATION OF DEPARTMENTAL EXPENDITURES
FOR OPERATIONS - LAST TEN FISCAL YEARS**

(in thousands)	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
Personal Services	\$ 55,160	\$ 53,401	\$ 51,801	\$ 52,357	\$ 50,538	\$ 49,361	\$ 47,319	\$ 44,284	\$ 42,529	\$ 40,840
Fringe Benefits	20,275	19,106	17,974	18,249	20,170	20,039	17,800	17,692	15,217	12,410
Repairs and Maintenance (1)	16,763	19,933	22,824	31,451	22,320	23,075	26,057	21,234	23,445	14,176
Materials and Supplies	8,865	8,310	7,843	4,343	5,764	5,700	6,143	8,381	6,284	5,715
Transportation	1,271	1,386	1,537	1,297	1,417	1,376	1,319	1,196	1,009	972
Utilities	11,968	11,523	11,249	10,503	11,126	12,295	12,027	11,026	10,755	13,218
Chemicals	8,750	8,020	7,512	7,119	7,752	7,892	8,587	8,084	7,571	8,342
Contractual Services	30,165	26,977	21,573	15,127	14,222	13,993	12,312	11,118	10,333	8,642
Miscellaneous	2,509	2,329	1,842	2,880	1,274	1,172	1,324	1,148	1,049	1,028
General (2)	1,736	2,402	2,446	9,489	7,578	6,487	6,852	7,684	9,265	10,360
Subtotal, Expense before Depreciation	157,462	153,387	146,601	152,815	142,161	141,390	139,740	131,847	127,457	115,703
Depreciation	52,349	49,311	45,670	41,871	42,761	45,414	41,250	36,191	30,441	28,414
Total Operating Expenses	\$ 209,811	\$ 202,698	\$ 192,271	\$ 194,686	\$ 184,922	\$ 186,804	\$ 180,990	\$ 168,038	\$ 157,898	\$ 144,117

- (1) Excludes capital distributions to localities
- (2) Includes bad debt expense

Unaudited – See accompanying independent auditors' report

**HAMPTON ROADS SANITATION DISTRICT
RATIOS OF OUTSTANDING DEBT BY TYPE
JUNE 30, 2018**

As of June 30,	No. Of Service Connections	(in thousands)			Debt Per Service Connection
		Senior Revenue Bonds	Subordinate Revenue Bonds	Total Outstanding Debt	
2018	473,000	\$ 349,313	\$ 542,129	\$ 891,442	\$ 1,885
2017	470,000	458,255	388,529	846,784	1,802
2016	467,000	476,734	402,560	879,294	1,883
2015	465,000	649,202	99,195	748,397	1,609
2014	462,000	656,503	109,850	766,353	1,659
2013	460,000	670,272	120,231	790,503	1,718
2012	458,000	510,951	128,335	639,286	1,396
2011	457,000	450,335	110,661	560,996	1,228
2010	455,000	395,215	152,103	547,318	1,203
2009	452,000	250,165	109,971	360,136	797

Note: Unamortized bond premiums are included in both senior and subordinate revenue bonds.

Unaudited – See accompanying independent auditors' report

**HAMPTON ROADS SANITATION DISTRICT
RATE SCHEDULE
WASTEWATER TREATMENT CHARGES
LAST TEN FISCAL YEARS**

	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
<u>Residential - Metered</u>										
Per CCF * (single step)	\$ 4.92	\$ 4.51	\$ 4.13	\$ 3.83	\$ 3.55	\$ 3.29	\$ 3.05	\$ 2.82	\$ 2.52	-
First 30 CCF* per 30-day period	-	-	-	-	-	-	-	-	-	\$ 2.28
In excess of 30 CCF* per 30-day period	-	-	-	-	-	-	-	-	-	2.06
Minimum Charges										
Per day	0.30	0.30	0.25	0.25	0.25	0.25	0.25	0.25	0.25	-
2 CCF* or less per 30-day period	-	-	-	-	-	-	-	-	-	6.50
<u>Residential - Unmetered per 30-day period</u>										
Fiat rate accounts	31.98	29.32	26.32	26.32	26.32	26.32	24.40	22.56	20.16	-
First toilet	-	-	-	-	-	-	-	-	-	10.25
Second toilet	-	-	-	-	-	-	-	-	-	6.83
Additional, each	-	-	-	-	-	-	-	-	-	3.42
<u>Non-Residential - Special Category</u>										
Biochemical Oxygen Demand (BOD)										
Excess over 282 mg/liter	0.000091	0.000206	0.000485	0.000612	0.001558	0.002451	46.77	39.71	-	-
Per mg/liter per CCF	-	-	-	-	-	-	-	-	-	-
Per Hundred Pounds	-	-	-	-	-	-	36.70	34.73	30.25	28.54
Total Suspended Solids (TSS)										
Excess over 261 mg/liter	0.000520	0.000454	0.000448	0.000417	0.001244	0.001865	-	-	-	-
Per mg/liter per CCF	-	-	-	-	-	-	-	-	-	-
Per Hundred Pounds	-	-	-	-	-	-	300.57	300.57	293.41	283.10
Total Phosphorus (TP)										
Excess over 6 mg/liter	0.011569	0.011642	0.004361	0.004344	0.011714	0.012790	-	-	-	-
Per mg/liter per CCF	-	-	-	-	-	-	-	-	-	-
Per Hundred Pounds	-	-	-	-	-	-	74.51	63.39	61.88	59.73
Total Kjeldahl Nitrogen (TKN)										
Excess over 47 mg/liter	0.003156	0.001660	0.000917	0.000756	0.001752	0.002085	-	-	-	-
Per mg/liter per CCF	-	-	-	-	-	-	-	-	-	-
Per Hundred Pounds	-	-	-	-	-	-	48.57	44.46	38.51	35.84
Unusual wastes not covered by this schedule may be assigned a special rate.										
<u>Septic Tank Waste</u>										
Per gallon	0.1300	0.1366	0.1362	0.1267	0.1258	0.1146	-	-	-	-
Per each 500 gallons or part thereof	-	-	-	-	-	-	48.57	44.46	38.51	35.84

*CCF = 100 Cubic Feet (Approx. 748 gallons)

Note: Rates can be adjusted by the Commission.

Unaudited – See accompanying independent auditors' report

**HAMPTON ROADS SANITATION DISTRICT
RATE SCHEDULE
WASTEWATER FACILITY CHARGES
LAST TEN FISCAL YEARS**

	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
	\$ 1,895	\$ 1,895	\$ 1,895	\$ 1,895	\$ 1,895	\$ 1,895	\$ 1,895	\$ 1,715	\$ 1,715	\$ 1,655
Residential										
Commercial/Industrial										
Volume based facility charges:										
5/8" Meter	\$ 1,895	\$ 1,895	\$ 1,895	\$ 1,895	\$ 1,895	\$ 1,895	\$ 1,895	\$ 1,715	\$ 1,715	\$ 1,655
3/4" Meter	4,830	4,830	4,830	4,830	4,830	4,510	2,885	2,605	2,605	2,515
1" Meter	8,170	8,170	8,170	8,170	8,170	7,630	5,370	4,850	4,850	4,685
1 1/2" Meter	17,260	17,260	17,260	17,260	17,260	16,130	13,035	11,780	11,780	11,365
2" Meter	30,510	30,510	29,420	29,420	29,420	27,490	24,420	22,065	22,065	21,290
3" Meter	70,800	70,800	67,350	63,600	62,270	58,180	59,140	53,440	53,440	51,565
4" Meter	128,660	128,660	122,400	115,580	106,060	99,110	110,860	100,175	100,175	96,660
6" Meter	298,610	298,610	284,070	268,250	224,650	209,920	268,675	242,780	242,780	234,260
8" Meter	542,680	542,680	516,260	487,510	382,670	357,580	503,350	454,835	454,835	438,875
10" Meter	862,550	862,550	820,560	774,860	587,820	540,610	819,310	740,340	740,340	714,355
12" Meter	1,259,520	1,259,520	1,198,210	1,131,490	-	-	-	-	-	-
14" Meter	1,734,700	1,734,700	1,650,250	1,558,360	-	-	-	-	-	-
16" Meter	2,289,010	2,289,010	2,177,580	2,056,330	-	-	-	-	-	-
Strength based facility charges: (per permitted pound)										
Biochemical Oxygen Demand (BOD) Excess over 250 mg/liter	-	-	-	\$ 728	\$ 987	\$ 928	-	-	-	-
Total Suspended Solids (TSS) Excess over 250 mg/liter	-	-	-	424	624	587	-	-	-	-
Total Phosphorus (TP) Excess over 6 mg/liter	-	-	-	8,420	5,846	5,502	-	-	-	-
Total Kjeldahl Nitrogen (TKN) Excess over 35 mg/liter	-	-	-	3,812	1,313	1,235	-	-	-	-

Notes:
One charge per connection.
HRSD eliminated strength based facility charges effective 7/1/2015.

Unaudited – See accompanying independent auditors' report

**HAMPTON ROADS SANITATION DISTRICT
TREATMENT PLANT OPERATING SUMMARY
LAST TEN FISCAL YEARS
(Average Quantity per Day)**

	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
District Total										
Flow (MGD)	145.2	152.9	155.1	152.2	154.0	157.9	147.1	144.4	170.9	151.4
Influent (1,000 lbs.)										
BOD	285.1	288.2	282.5	286.0	288.6	274.4	254.6	273.1	275.2	300.9
TSS	215.8	215.9	228.8	198.6	204.7	198.1	200.3	205.9	210.7	203.6
TP	6.8	7.0	6.9	8.6	6.8	6.6	6.7	7.0	7.4	7.8
TKN	47.2	46.4	45.7	45.8	47.9	48.9	48.3	49.8	48.2	49.0
Effluent (1,000 lbs.)										
BOD	7.5	8.9	9.8	9.9	9.6	9.3	7.5	9.3	11.5	8.7
TSS	6.7	9.4	9.3	8.9	9.1	9.3	10.5	9.2	13.1	10.5
TP	0.7	0.9	0.9	1.0	1.1	1.0	1.1	1.0	1.0	1.0
TKN	7.3	7.7	8.0	9.8	11.2	12.0	10.1	12.3	14.9	13.3
Army Base Plant										
Flow (MGD)	10.0	9.5	9.6	9.9	10.7	11.8	10.2	10.0	12.6	10.4
Influent (1,000 lbs.)										
BOD	16.3	13.2	13.3	16.4	19.0	18.5	17.4	16.9	17.0	18.1
TSS	14.0	11.7	13.3	12.5	14.2	14.4	13.7	12.9	13.5	12.9
TP	0.4	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4
TKN	3.1	2.7	2.7	2.9	3.5	3.7	3.5	3.2	3.2	3.1
Effluent (1,000 lbs.)										
BOD	0.2	0.3	0.3	0.8	0.8	0.8	0.9	0.8	1.0	0.8
TSS	0.3	0.4	0.5	0.6	0.8	0.9	0.8	1.0	1.1	0.8
TP	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
TKN	0.1	0.1	0.1	2.1	2.6	2.8	2.5	2.3	2.3	2.3
Atlantic Plant										
Flow (MGD)	26.1	28.2	27.2	30.9	25.7	26.7	29.0	29.7	30.4	26.6
Influent (1,000 lbs.)										
BOD	56.7	53.2	55.6	66.6	52.7	51.3	56.0	58.6	55.1	52.0
TSS	36.6	38.7	38.5	42.9	37.3	36.4	43.8	46.9	43.3	40.2
TP	1.3	1.4	1.4	1.5	1.3	1.3	1.5	1.8	1.8	1.9
TKN	11.2	11.0	10.9	11.4	10.4	10.5	11.7	12.3	11.3	10.5
Effluent (1,000 lbs.)										
BOD	2.4	2.3	2.7	3.0	2.2	2.6	2.0	3.0	2.3	1.8
TSS	1.6	1.9	1.9	2.4	2.0	1.9	1.8	2.0	2.9	2.2
Boat Harbor Plant										
Flow (MGD)	14.2	13.9	15.6	14.4	14.9	15.5	13.6	12.6	16.7	13.0
Influent (1,000 lbs.)										
BOD	19.2	17.4	18.3	20.0	19.2	19.3	19.9	19.4	19.9	19.9
TSS	16.6	15.7	18.1	16.3	16.7	16.0	16.9	15.6	17.5	15.2
TP	0.5	0.5	0.5	0.5	0.4	0.4	0.5	0.5	0.5	0.5
TKN	3.9	3.8	3.8	3.6	3.7	3.7	3.7	3.8	3.7	3.6
Effluent (1,000 lbs.)										
BOD	0.6	0.6	1.0	0.7	0.7	0.7	0.6	0.6	1.1	0.6
TSS	0.7	0.7	0.9	0.6	0.8	0.8	0.9	0.7	1.3	0.7
TP	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
TKN	1.3	1.2	1.8	2.2	2.4	2.9	3.0	2.8	2.8	2.6
Chesapeake-Elizabeth Plant										
Flow (MGD)	17.6	18.7	18.0	16.3	19.1	18.4	15.2	16.3	20.1	19.5
Influent (1,000 lbs.)										
BOD	37.2	35.4	35.2	30.2	38.7	32.1	24.8	30.1	32.7	36.0
TSS	26.8	26.6	26.1	22.9	26.6	25.1	21.0	22.6	26.9	27.1
TP	0.8	0.8	0.8	2.7	0.8	0.8	0.7	0.7	0.8	0.9
TKN	6.8	6.6	6.4	5.1	6.7	6.4	5.4	6.1	6.2	6.9
Effluent (1,000 lbs.)										
BOD	2.0	2.8	2.3	2.0	2.5	2.2	1.5	1.8	2.2	2.1
TSS	1.9	3.2	2.3	1.8	1.9	2.1	1.8	1.9	2.2	2.2
TP	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.2
TKN	4.1	4.5	4.1	3.6	4.5	4.2	3.2	3.9	3.9	4.2

Unaudited – See accompanying independent auditors' report

**HAMPTON ROADS SANITATION DISTRICT
TREATMENT PLANT OPERATING SUMMARY
LAST TEN FISCAL YEARS
(Average Quantity per Day)**

	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
James River Plant										
Flow (MGD)	13.0	12.3	13.2	12.7	13.6	14.3	12.9	12.2	14.9	12.3
Influent (1,000 lbs.)										
BOD	26.8	25.5	24.4	25.7	27.5	25.5	25.3	26.2	24.7	23.0
TSS	19.3	17.4	17.8	18.0	19.4	19.2	19.0	19.8	19.9	17.6
TP	0.6	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6
TKN	4.8	4.3	4.2	4.0	4.2	4.4	4.4	4.4	4.3	4.2
Effluent (1,000 lbs.)										
BOD	0.3	0.4	0.4	0.3	0.5	0.7	0.7	0.9	1.2	0.8
TSS	0.4	0.4	0.5	0.4	0.6	0.8	0.8	0.9	1.8	1.4
TP	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
TKN	0.4	0.5	0.4	0.4	0.2	0.6	0.5	2.3	2.6	1.2
Nansemond Plant										
Flow (MGD)	17.5	18.8	18.5	16.6	16.9	17.1	16.2	15.9	18.0	17.1
Influent (1,000 lbs.)										
BOD	31.9	40.7	35.8	28.5	29.0	27.0	23.7	27.9	30.2	31.6
TSS	33.4	40.3	38.4	21.9	23.1	22.9	22.6	22.6	24.5	23.1
TP	1.2	1.5	1.5	1.1	1.1	1.1	1.0	1.0	1.1	1.1
TKN	7.1	7.4	7.0	5.6	5.8	5.9	6.0	6.1	6.0	6.2
Effluent (1,000 lbs.)										
BOD	0.7	0.8	0.7	0.8	0.9	0.6	0.6	0.8	1.2	0.7
TSS	0.7	0.8	0.9	0.9	1.1	0.8	0.9	1.1	1.3	1.0
TP	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2
TKN	0.4	0.5	0.5	0.6	0.5	0.3	0.3	0.5	2.3	1.3
Virginia Initiative Plant										
Flow (MGD)	26.7	30.9	31.7	30.5	30.7	31.9	29.8	28.5	35.7	29.9
Influent (1,000 lbs.)										
BOD	47.5	50.1	50.4	47.5	45.8	45.8	42.3	42.8	43.0	46.9
TSS	30.0	31.3	32.0	30.2	30.6	31.6	32.3	31.8	31.7	31.1
TP	1.0	1.0	1.0	1.1	1.2	1.1	1.1	1.1	1.2	1.3
TKN	7.0	7.3	7.4	7.1	7.4	7.5	7.6	7.3	7.2	7.5
Effluent (1,000 lbs.)										
BOD	0.8	1.2	1.7	1.9	1.4	0.9	0.8	0.7	1.7	1.3
TSS	0.7	1.4	1.9	1.6	1.7	1.4	1.5	1.1	1.7	1.5
TP	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.1
TKN	0.6	0.4	0.7	0.8	0.6	0.5	0.5	0.4	0.8	1.5
Williamsburg Plant										
Flow (MGD)	7.7	8.0	8.6	8.4	9.2	8.9	9.1	8.6	10.0	12.0
Influent (1,000 lbs.)										
BOD	32.6	36.1	33.2	34.7	40.4	37.7	33.5	37.5	37.9	59.9
TSS	24.1	19.1	27.9	16.2	19.9	16.8	16.7	19.0	19.6	23.4
TP	0.5	0.5	0.5	0.5	0.6	0.5	0.5	0.6	0.6	0.8
TKN	3.5	3.3	3.6	3.2	3.3	3.3	3.4	3.5	3.5	4.3
Effluent (1,000 lbs.)										
BOD	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3
TSS	0.2	0.2	0.3	0.3	0.3	0.4	0.6	0.3	0.4	0.3
TP	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
TKN	0.1	0.1	0.1	0.1	0.2	0.3	0.2	0.2	0.2	0.3
York River Plant										
Flow (MGD)	12.6	12.6	12.7	12.6	13.2	13.3	11.2	10.8	12.5	10.7
Influent (1,000 lbs.)										
BOD	16.8	16.7	16.3	18.2	17.9	17.2	13.3	15.5	16.3	15.5
TSS	15.0	15.1	16.7	16.9	16.4	15.7	14.1	14.3	14.0	12.6
TP	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
TKN	3.6	3.6	3.5	3.5	3.6	3.5	3.2	3.6	3.3	3.3
Effluent (1,000 lbs.)										
BOD	0.3	0.3	0.4	0.4	0.4	0.5	0.2	0.5	0.4	0.4
TSS	0.2	0.2	0.1	0.2	0.1	0.2	0.1	0.3	0.5	0.5
TP	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
TKN	0.2	0.2	0.3	0.3	0.3	0.4	0.1	0.1	0.2	0.3

Note: HRSD implemented a surcharge for Total Kjeldahl Nitrogen (TKN) on July 1, 2007.

**HAMPTON ROADS SANITATION DISTRICT
TEN LARGEST CUSTOMERS
CURRENT YEAR AND NINE YEARS AGO**

(in thousands)

<u>Customer</u>	<u>Type</u>	<u>2018</u>		<u>#</u>	<u>2009</u>	
		<u>Amount</u>	<u>Percent</u>		<u>Amount</u>	<u>Percent</u>
U.S. Navy - Norfolk Naval Base	Military Facility	\$ 5,971	2.2%	\$	2,519	1.6%
Smithfield Foods	Meat Processor	4,799	1.7%		2,349	1.5%
Anheuser - Busch, Inc.	Brewery	2,832	1.0%		5,530	3.5%
Norfolk Redevelopment & Housing Authority	Housing Authority	2,200	0.8%		966	0.6%
Norfolk Naval Shipyard	Military Ship Repair	2,102	0.8%		-	-
City of Norfolk	Municipality	1,948	0.7%		1,448	0.9%
Huntington Ingalls Industries (formerly Northrop Grumman Newport News/ Newport News Shipbuilding and Drydock)	Shipbuilding	1,732	0.6%		1,069	0.7%
Oceana Naval Air Station / Dam Neck	Military Facility	1,622	0.6%		-	-
Joint Expeditionary Base Little Creek - Fort Story (formerly U.S. Navy - Little Creek Amphibious Base)	Military Facility	1,609	0.6%		617	0.4%
City of Virginia Beach	Municipality	1,455	0.5%		580	0.4%
U.S. Army - Fort Eustis	Military Facility	-	-		790	0.5%
U.S. Air Force - Langley Air Force Base	Military Facility	-	-		777	0.5%
Total		<u>\$ 26,270</u>	<u>9.5%</u>		<u>\$ 16,645</u>	<u>10.6%</u>

Unaudited – See accompanying independent auditors' report

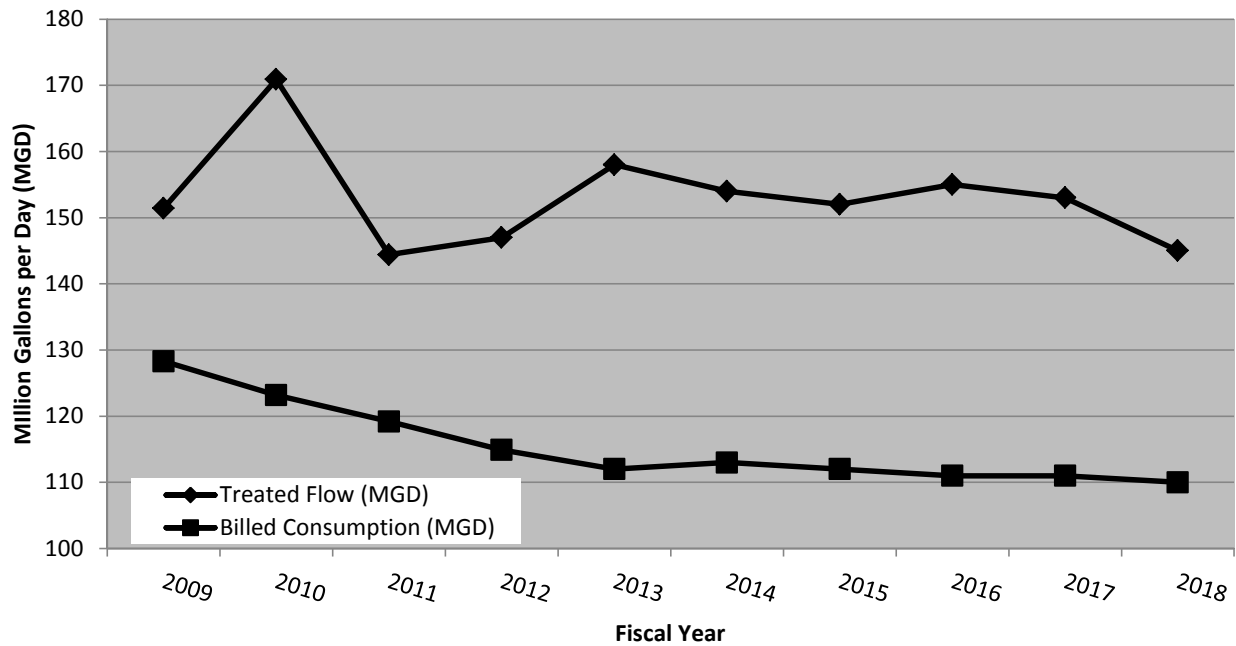
**HAMPTON ROADS SANITATION DISTRICT
WASTEWATER TREATMENT CHARGES
TEN LARGEST EMPLOYERS
CURRENT YEAR AND NINE YEARS AGO**

<u>Employer</u>	<u>Type</u>	<u>2018</u>			<u>2009</u>		
		<u>Number of Employees</u>	<u>Rank</u>	<u>Percent of Regional Employment</u>	<u>Number of Employees</u>	<u>Rank</u>	<u>Percent of Regional Employment</u>
Naval Station Norfolk	Military Facility	75,803	1	8.0%	66,000	1	7.5%
Huntington Ingalls Industries	Shipbuilding and Repair	23,000	2	2.4%	19,000	3	2.2%
Sentara Healthcare	Health Care Network	22,000	3	2.3%	17,000	4	1.9%
Joint Expeditionary Base Little Creek - Fort Story	Military Facility	19,788	4	2.1%	17,211	5	2.0%
Joint Base Langley-Eustis	Military Facility	19,624	5	2.1%	24,238	2	2.8%
Oceana Naval Air Station	Military Facility	17,366	6	1.8%	16,261	6	1.8%
Norfolk Naval Shipyard	Military Ship Repair	12,906	7	1.4%	8,871	8	1.0%
Naval Support Activity/ Naval Medical Center	Military Facility	11,424	8	1.2%	-	-	-
Virginia Beach Public Schools	Public Schools	10,329	9	1.1%	10,527	7	1.2%
Riverside Health System	Health Care Network	7,000	10	0.7%	7,050	9	0.8%
Norfolk City Public Schools	Public Schools	-	-	-	6,917	10	0.8%
Total		<u>219,240</u>		<u>23.1%</u>	<u>193,075</u>		<u>22.0%</u>

Sources:

Hampton Roads Economic Development Alliance
Hampton Roads Statistical Digest
Confirmation with employers

**HAMPTON ROADS SANITATION DISTRICT
COMPARISON OF TREATED FLOW TO BILLED FLOW
LAST TEN FISCAL YEARS**



Year ended June 30,	Treated Flow (MGD)	Billed Consumption (MGD)
2009	151	128
2010	171	123
2011	144	119
2012	147	115
2013	158	112
2014	154	113
2015	152	112
2016	155	111
2017	153	111
2018	145	110


Unaudited – See accompanying independent auditors' report

**HAMPTON ROADS SANITATION DISTRICT
NUMBER OF EMPLOYEES BY IDENTIFIABLE ACTIVITY
LAST TEN FISCAL YEARS**

	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
<u>General Management</u>										
General Manager	2	3	3	3	3	3	4	4	4	4
Support Staff	1	1	1	1	1	1	1	1	1	1
Total General Management	3	4	4	4	4	4	5	5	5	5
<u>Communications</u>										
Communications	1	-	-	-	-	-	-	-	-	-
Support Staff	1	-	-	-	-	-	-	-	-	-
Total Communications	2	-	-	-	-	-	-	-	-	-
<u>Talent Management</u>										
Human Resources	6	6	5	5	5	5	5	6	6	5
Safety	3	3	3	-	-	-	-	-	-	-
Training	2	2	2	2	2	2	2	2	2	2
Support Staff	4	4	4	3	3	3	3	3	3	3
Total Talent Management	15	15	14	10	10	10	10	11	11	10
<u>Finance</u>										
Accounting & Finance	11	10	10	10	10	10	10	10	10	10
Customer Care Center	77	77	77	69	69	68	69	69	69	63
Procurement	10	10	10	9	9	9	7	7	8	8
Support Staff	3	3	2	3	3	3	3	3	3	3
Total Finance	101	100	99	91	91	90	89	89	90	84
<u>Information Technology</u>										
Information Technology	48	47	45	39	35	35	33	33	33	21
Support Staff	2	1	1	1	1	1	2	2	2	3
Total Information Technology	50	48	46	40	36	36	35	35	35	24
<u>Operations</u>										
Army Base Treatment Plant	34	34	31	32	32	32	32	32	32	32
Atlantic Base Treatment Plant	35	35	32	33	33	33	32	32	32	33
Boat Harbor Treatment Plant	35	35	32	33	33	33	33	33	34	34
Chesapeake-Elizabeth Treatment Plant	32	32	31	32	32	32	32	32	32	32
Interceptor System Maintenance	118	117	115	120	120	120	121	122	122	106
James River Treatment Plant	22	22	20	21	21	21	21	21	21	21
Maintenance Shops	71	70	83	86	86	86	86	86	86	81
Nansemond Treatment Plant	32	32	30	31	31	31	30	30	30	30
Virginia Initiative Plant	33	33	30	31	31	31	31	31	31	31
Williamsburg Treatment Plant	29	29	28	29	29	29	31	31	31	31
York River Treatment Plant	24	24	22	23	23	23	23	23	23	23
Small Communities Division	23	23	21	17	17	17	17	17	15	15
Support Staff	23	23	24	25	25	25	24	24	24	24
Total - Operations	511	509	499	513	513	513	513	514	513	493
<u>Engineering</u>										
Design and Construction	26	25	25	21	19	19	17	15	15	15
Support Staff	13	14	14	14	14	14	14	14	14	14
Total Engineering	39	39	39	35	33	33	31	29	29	29
<u>Water Quality</u>										
Pretreatment & Pollution Prevention	27	26	26	25	24	24	24	24	24	24
Technical Services	31	29	28	25	23	21	21	21	20	20
Laboratory	46	45	42	40	38	38	38	38	38	38
Support Staff	5	6	6	6	6	6	3	3	3	3
Total Water Quality	109	106	102	96	91	89	86	86	85	85
Total Employees	830	821	803	789	778	775	769	769	768	730

Unaudited – See accompanying independent auditors' report

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**Other
Supplemental
Section** (Unaudited)

**HAMPTON ROADS SANITATION DISTRICT
SUMMARY OF PRIMARY BONDED DEBT SERVICE
JUNE 30, 2018**

(in thousands)

As of June 30,	Senior Bonds			Subordinate Bonds	Total Debt
	Principal	Interest	Debt Service	Debt Service	Service
2019	\$ 18,801	\$ 14,791	\$ 33,592	\$ 28,137	\$ 61,729
2020	19,520	14,011	33,531	28,221	61,752
2021	18,682	13,227	31,909	29,039	60,948
2022	17,977	12,396	30,373	30,198	60,571
2023	22,001	11,556	33,557	26,970	60,527
2024	22,882	10,592	33,474	26,760	60,234
2025	23,821	9,567	33,388	26,763	60,151
2026	24,134	8,499	32,633	27,173	59,806
2027	19,625	7,537	27,162	32,475	59,637
2028	20,390	6,671	27,061	29,033	56,094
2029	21,183	5,769	26,952	28,988	55,940
2030	22,010	4,829	26,839	28,983	55,822
2031	12,369	4,098	16,467	39,772	56,239
2032	9,705	3,622	13,327	37,777	51,104
2033	8,186	3,188	11,374	37,778	49,152
2034	6,465	2,793	9,258	37,782	47,040
2035	6,715	2,406	9,121	37,524	46,645
2036	6,975	2,005	8,980	34,582	43,562
2037	7,245	1,588	8,833	34,752	43,585
2038	7,525	1,155	8,680	34,632	43,312
2039	7,815	705	8,520	19,972	28,492
2040	8,115	238	8,353	17,493	25,846
2041	-	-	-	17,519	17,519
2042	-	-	-	17,544	17,544
2043	-	-	-	17,544	17,544
2044	-	-	-	17,548	17,548
2045	-	-	-	12,442	12,442
2046	-	-	-	12,493	12,493
2047	-	-	-	12,406	12,406
2048	-	-	-	4,093	4,093
Totals	<u>\$ 332,141</u>	<u>\$ 141,243</u>	<u>\$ 473,384</u>	<u>\$ 786,393</u>	<u>\$ 1,259,777</u>

Unaudited – See accompanying independent auditors' report

**HAMPTON ROADS SANITATION DISTRICT
BUDGETARY COMPARISON SCHEDULE
JUNE 30, 2018**

(in thousands)

	<u>Budgeted Amounts</u>		Actual Amounts	Variance under	Percent Variance
	<u>Original</u>	<u>Final</u>		Final Budget	
OPERATING BUDGET EXPENSES					
General Management	\$ 681	\$ 734	\$ 709	\$ 25	3.4%
Communications	471	470	449	21	4.5%
Finance	13,593	14,086	13,618	468	3.3%
Information Technology	16,229	16,963	13,024	3,939	23.2%
Talent Management	2,280	2,340	2,198	142	6.1%
Operations	94,103	101,301	93,792	7,509	7.4%
Engineering	5,732	6,795	6,348	447	6.6%
Water Quality	14,206	14,505	13,856	649	4.5%
General	3,928	6,775	2,596	4,179	61.7%
Debt Service	<u>60,849</u>	<u>58,214</u>	<u>58,232</u>	<u>(18)</u>	0.0%
TOTAL	<u>212,072</u>	<u>222,183</u>	<u>204,822</u>	<u>\$ 17,361</u>	7.8%
Transfer to CIP	58,802	58,802			
Transfer to General Reserve	14,419	14,419			
Transfer to Risk Management	260	260			
	<u>\$ 285,553</u>	<u>\$ 295,664</u>			
Add:					
Unbudgeted Depreciation			52,349		
Unbudgeted Bad Debt Expense			1,736		
Capital Improvement Program Items Expensed			11,088		
Less:					
Capitalized Assets			1,641		
Debt Service			58,232		
Capital Distributions to Localities			311		
TOTAL OPERATING EXPENSES			<u>\$ 209,811</u>		

Unaudited – See accompanying independent auditors' report

**HAMPTON ROADS SANITATION DISTRICT
NOTES TO BUDGETARY COMPARISON SCHEDULE
JUNE 30, 2018**

BUDGETARY HIGHLIGHTS

HRSD's Commission adopts an Annual Operating Budget that contains the day-to-day operating expenses of the District. The Operating Budget as adopted for FY-2018 was \$212,072,085 and contains personnel costs, fringe benefits, material and supplies, electricity, chemicals, insurance, contractual services, debt service and other miscellaneous expenses. There were several modifications to the Operating Budget during the year to reflect changes in spending patterns. Transfers totaling \$9,760,286 for major repairs and equipment replacements plus \$350,000 transfer from General Reserve resulted in a final budget of \$222,182,371. All adjustments to the Annual Budget were approved from surplus fund balances or from transfers within or among departments.

NOTE 1 – BUDGETARY ACCOUNTING AND CONTROL

Budget Preparation

HRSD prepares its Annual Budget under the provisions of its enabling legislation, used to establish rates, fees and other charges, and of Section 3.12 of the Master Trust Indenture, dated December 1, 1993, and the 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 and Improvement Budgets by March 1 for the General Manager's review.

The HRSD Commission appoints a Finance Committee consisting of two Commissioners. The two Commissioners meet in early April to review the Budgets, which are presented by staff at the April Commission meeting. HRSD's Commission reviews these budgets at that 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. All rate adjustments must be publically advertised four consecutive weeks before they can take effect.

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

The 2008 Trust Agreement requires Debt Service Coverage of 1.20 times for senior and 1.00 times for total debt based on maximum annual debt service. The 2008 Subordinate Trust Agreement was amended in 2016 to account for Consent Decree expenses related to Locality wet weather improvements that HRSD will not own and requires total debt service coverage to be 1.2 times on an adjusted cash basis. The HRSD Commission has a policy of providing senior revenue and total revenue bonded debt service coverage ratios of not less than 1.5 and 1.4 times annual debt service on an adjusted cash basis, respectively.

Budget Accounting

The Annual Budget is prepared on a basis of accounting consistent with accounting principles generally accepted in the United States of America. No provision is provided, however, for non-cash items such as depreciation and bad debt expense. The FY-2018 Annual Budget consists of two parts: an operating budget that covers day-to-day operations and a capital budget that identifies all major capital project requirements over the next ten years. All operating budget amounts lapse at year-end. The Commission annually adopts only the first year of the capital budget. HRSD's Commission separately approves all contracts that are awarded under the capital budget.

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**HAMPTON ROADS SANITATION DISTRICT
SCHEDULE OF REVENUES , EXPENDITURES AND
DEBT SERVICE FOR OPERATIONS - ACTUAL TO BUDGET
FOR THE FISCAL YEAR ENDED JUNE 30, 2018**

(in thousands)

	<u>Actual</u>	<u>Amended Budget</u>	<u>Variance Favorable/ (Unfavorable)</u>	<u>Budget Variance Percentage</u>
OPERATING REVENUE				
Wastewater Treatment Charges	\$ 275,539	\$ 273,088	\$ 2,451	1%
Miscellaneous	3,504	2,265	1,239	55%
TOTAL OPERATING REVENUE	<u>279,043</u>	<u>275,353</u>	<u>3,690</u>	1%
CURRENT EXPENDITURES				
General Management	709	734	25	3%
Communications	449	470	21	4%
Finance	13,618	14,086	468	3%
Information Technology	13,024	16,963	3,939	23%
Talent Management	2,198	2,340	142	6%
Operations	93,792	101,301	7,509	7%
Engineering	6,348	6,795	447	7%
Water Quality	13,856	14,505	649	4%
General	2,596	6,775	4,179	62%
TOTAL CURENT EXPENDITURES	<u>146,590</u>	<u>163,969</u>	<u>17,379</u>	11%
EXCESS OF OPERATING REVENUES OVER EXPENDITURES	<u>132,453</u>	<u>111,384</u>	<u>21,069</u>	19%
NON-OPERATING REVENUE (EXPENSE)				
Wastewater Facility Charge	6,673	6,000	673	11%
Interest Income	2,272	1,800	472	26%
Bond Interest Subsidy	2,330	2,400	(70)	-3%
TOTAL NON-OPERATING REVENUE	<u>11,275</u>	<u>10,200</u>	<u>1,075</u>	11%
INCOME BEFORE CAPITAL CONTRIBUTIONS	143,728	121,584	22,144	18%
CAPITAL CONTRIBUTIONS				
State Capital Grants	4,626	-	4,626	100%
AMOUNT AVAILABLE FOR DEBT	148,354	121,584	26,770	22%
DEBT EXPENDITURES				
Principal & Interest	57,171	57,314	143	0%
Cost of Issuance	1,061	900	(161)	-18%
TOTAL DEBT EXPENDITURES	<u>58,232</u>	<u>58,214</u>	<u>(18)</u>	0%
AMOUNT AVAILABLE TO REINVEST	<u>\$ 90,122</u>	<u>\$ 63,370</u>	<u>\$ 26,752</u>	42%

Unaudited – See accompanying independent auditors' report

**HAMPTON ROADS SANITATION DISTRICT
OBJECTIVE CLASSIFICATION OF DEPARTMENTAL EXPENDITURES
FOR OPERATIONS - ACTUAL TO BUDGET
FOR THE FISCAL YEAR ENDED JUNE 30, 2018**

(in thousands)

	General Management	Communications	Finance	Information Technology	Talent Management	Operations
Personal Services	\$ 502	\$ 257	\$ 5,652	\$ 4,177	\$ 1,314	\$ 32,366
Fringe Benefits	136	103	2,580	1,596	556	15,344
Materials & Supplies	6	45	116	867	58	6,338
Transportation	12	7	9	6	21	1,201
Utilities	-	-	249	1,225	-	9,992
Chemical Purchases	-	-	-	-	-	8,750
Contractual Services	13	16	4,786	4,846	35	12,344
Major Repairs	-	-	-	143	-	5,623
Capital Assets	-	-	-	-	-	1,030
Miscellaneous Expense	40	21	226	164	214	804
	<u>\$ 709</u>	<u>\$ 449</u>	<u>\$ 13,618</u>	<u>\$ 13,024</u>	<u>\$ 2,198</u>	<u>\$ 93,792</u>

Unaudited – See accompanying independent auditors' report

**HAMPTON ROADS SANITATION DISTRICT
OBJECTIVE CLASSIFICATION OF DEPARTMENTAL EXPENDITURES
FOR OPERATIONS - ACTUAL TO BUDGET
FOR THE FISCAL YEAR ENDED JUNE 30, 2018**

(in thousands)

	Engineering	Water Quality	General	Total	Percent of Total	FY-2018 Budget	Variance Favorable/ (Unfavorable)
Personal Services	\$ 3,493	\$ 7,135	\$ 264	\$ 55,160	27%	\$ 55,261	\$ 101
Fringe Benefits	1,396	3,095	(4,531)	20,275	10%	25,600	5,325
Materials & Supplies	19	1,389	27	8,865	4%	7,914	(951)
Transportation	10	26	(21)	1,271	1%	1,437	166
Utilities	-	2	500	11,968	6%	11,973	5
Chemical Purchases	-	-	-	8,750	4%	9,219	469
Contractual Services	1,293	1,306	5,526	30,165	15%	37,524	7,359
Major Repairs	-	220	-	5,986	3%	10,821	4,835
Capital Assets	-	338	273	1,641	1%	1,716	75
Miscellaneous Expense	137	345	558	2,509	1%	2,504	(5)
	<u>\$ 6,348</u>	<u>\$ 13,856</u>	<u>\$ 2,596</u>	<u>\$ 146,590</u>	<u>72%</u>	<u>\$ 163,969</u>	<u>\$ 17,379</u>
Debt Service				57,171	28%	57,314	143
Cost of Issuance				1,061	1%	900	(161)
Total Debt Expenditures				<u>58,232</u>	<u>28%</u>	<u>58,214</u>	<u>(18)</u>
Total Department and Debt Expenditures				<u>\$ 204,822</u>	<u>100%</u>	<u>\$ 222,183</u>	<u>\$ 17,361</u>

Unaudited – See accompanying independent auditors' report

**HAMPTON ROADS SANITATION DISTRICT
DEPARTMENT SUMMARY OF EXPENDITURES
ACTUAL TO BUDGET
FOR THE FISCAL YEAR ENDED JUNE 30, 2018**

(in thousands)

	Actual	Amended Budget	Variance Favorable/ (Unfavorable)
General Management			
Personal Services	\$ 502	\$ 520	\$ 18
Fringe Benefits	136	135	(1)
Materials & Supplies	6	10	4
Transportation	12	14	2
Contractual Services	13	22	9
Miscellaneous Expense	40	33	(7)
	<u>709</u>	<u>734</u>	<u>25</u>
Communications			
Personal Services	257	278	21
Fringe Benefits	103	87	(16)
Materials & Supplies	45	45	-
Transportation	7	3	(4)
Contractual Services	16	35	19
Miscellaneous Expense	21	22	1
	<u>449</u>	<u>470</u>	<u>21</u>
Finance			
Personal Services	5,652	6,069	417
Fringe Benefits	2,580	2,722	142
Materials & Supplies	116	95	(21)
Transportation	9	14	5
Utilities	249	255	6
Contractual Services	4,786	4,669	(117)
Miscellaneous Expense	226	262	36
	<u>13,618</u>	<u>14,086</u>	<u>468</u>
Information Technology			
Personal Services	4,177	4,390	213
Fringe Benefits	1,596	1,679	83
Materials & Supplies	867	975	108
Transportation	6	87	81
Utilities	1,225	1,524	299
Contractual Services	4,846	6,951	2,105
Major Repairs	143	978	835
Capital Assets	-	103	103
Miscellaneous Expense	164	276	112
	<u>13,024</u>	<u>16,963</u>	<u>3,939</u>

(Continued)

Unaudited – See accompanying independent auditors' report

**HAMPTON ROADS SANITATION DISTRICT
DEPARTMENT SUMMARY OF EXPENDITURES
ACTUAL TO BUDGET
FOR THE FISCAL YEAR ENDED JUNE 30, 2018**

(in thousands)

	Actual	Amended Budget	Variance Favorable/ (Unfavorable)
Talent Management			
Personal Services	\$ 1,314	\$ 1,356	\$ 42
Fringe Benefits	556	542	(14)
Materials & Supplies	58	66	8
Transportation	21	28	7
Contractual Services	35	64	29
Miscellaneous Expense	214	284	70
	<u>2,198</u>	<u>2,340</u>	<u>142</u>
Operations			
Personal Services	32,366	32,429	63
Fringe Benefits	15,344	15,407	63
Materials & Supplies	6,338	5,021	(1,317)
Transportation	1,201	1,223	22
Utilities	9,992	9,747	(245)
Chemical Purchases	8,750	9,219	469
Contractual Services	12,344	16,384	4,040
Major Repairs	5,623	9,580	3,957
Capital Assets	1,030	1,509	479
Miscellaneous Expense	804	782	(22)
	<u>93,792</u>	<u>101,301</u>	<u>7,509</u>
Engineering			
Personal Services	3,493	3,465	(28)
Fringe Benefits	1,396	1,352	(44)
Materials & Supplies	19	30	11
Transportation	10	17	7
Contractual Services	1,293	1,766	473
Major Repairs	-	9	9
Miscellaneous Expense	137	156	19
	<u>6,348</u>	<u>6,795</u>	<u>447</u>
Water Quality			
Personal Services	7,135	7,304	169
Fringe Benefits	3,095	3,162	67
Materials & Supplies	1,389	1,342	(47)
Transportation	26	51	25
Utilities	2	-	(2)
Contractual Services	1,306	1,780	474
Major Repairs	220	254	34
Capital Assets	338	104	(234)
Miscellaneous Expense	345	508	163
	<u>13,856</u>	<u>14,505</u>	<u>649</u>
General			
Personal Services	264	(550)	(814)
Fringe Benefits	(4,531)	514	5,045
Materials & Supplies	27	330	303
Transportation	(21)	-	21
Utilities	500	447	(53)
Contractual Services	5,526	5,853	327
Capital Assets	273	-	(273)
Miscellaneous Expense	558	181	(377)
	<u>2,596</u>	<u>6,775</u>	<u>4,179</u>
TOTAL DEPARTMENTAL EXPENDITURES	<u>\$ 146,590</u>	<u>\$ 163,969</u>	<u>\$ 17,379</u>

Unaudited – See accompanying independent auditors' report

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HRSD

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

CONSENT AGENDA ITEM 2.b.1. – November 27, 2018

Subject: Customer Care and Billing (CC&B) Managed Services
Contract Award (>\$200,000)

Recommended Action: Award a contract for Customer Care and Billing (CC&B) Managed Services to Blue Heron Consulting in the estimated amount of \$75,000 for year one with four annual renewal options and an estimated cumulative value in the amount of \$422,473.

Type of Procurement: Competitive Negotiation

Proposers	Technical Points	Recommended Selection Ranking
Blue Heron Consulting	88	1
Emtec	82	2
Prithibi Consulting	69	3
Oracle America Inc.	66	4

HRSD Estimate:

\$1,400,000

Contract Description: This contract is an agreement for services to manage the Oracle CC&B billing system and related applications and interfaces. A Public Notice was issued on September 29, 2018. Four firms submitted proposals on October 17, 2018 and all firms were determined to be responsive and deemed fully qualified, responsible and suitable to the requirements in the Request for Proposals. Two firms were shortlisted and technically ranked. The proposal submitted by Blue Heron Consulting was ranked by technical points to be the highest qualified.

Blue Heron Consulting currently follows Oracle's best practices and they do not use any third party contractors. They also have a great philosophy on training HRSD employees during a transition into a production environment. Blue Heron Consulting also created templates that HRSD is able to utilize along with strong documentation, showing their depth of knowledge.

Analysis of Cost: HRSD Estimate is based on previous contract term spend on exact services. HRSD was able to save on average \$2,800 a year from Blue Heron Consulting's negotiated best and final offer on their billing rates.

CONSENT AGENDA ITEM 2.b.2. – November 27, 2018

Subject: Enterprise Resource Planning (ERP) Software Support Renewal Contract Award (>\$200,000)

Recommended Action: Award a contract for ERP Software and Support renewal to Mythics, Inc. in the estimated amount of \$326,665 for year one with four annual renewal options and an estimated cumulative value in the amount of \$1,769,325.

Type of Procurement: Competitive Bid

Bidder	Bid Amount
Mythics	\$326,665

HRSD Estimate: \$320,103

Contract Description: This contract is an agreement for ERP Software License Support renewal. One firm submitted a bid on October 31, 2018 and they were determined to be responsive and deemed fully qualified, responsible and suitable to the requirements in the Invitation for Bid. HRSD solicited multiple Oracle support providers, with Mythics being the only response.

Analysis of Cost: Costs were compared to past purchase history and costs were determined to be fair and reasonable.

CONSENT AGENDA ITEM 2.b.3. – November 27, 2018

Subject: Long-Term Management and Modeling of Groundwater Supplies
Research Study
Contract Award (>\$200,000)

Recommended Action: Award a contract for long-term management and modeling of groundwater supplies study to United States Geological Survey (USGS) in the estimated amount of \$100,000 for year two with eight annual renewal options and an estimated cumulative value in the amount of \$900,000.

Contract Description: This contract is an agreement for administering a well monitoring network located at the Nansemond Extensometer Research Station to characterize the groundwater response to the recharge of SWIFT water and support the development of a geochemical transport model per the attached proposal.

Project Description: The multi-year study will be performed in two phases. Phase I, completed at no cost to HRSD in 2017, gathered baseline water quality data from five monitoring wells in the surficial and Piney Point aquifers and at three different depths of the Potomac aquifer. Phase II, beginning with year two, will characterize the response of the aquifers to the recharge and migration of SWIFT Water. A [scope of work](#) prepared by USGS is attached.

**SCIENCE TO FACILITATE LONG-TERM MANAGEMENT OF
GROUNDWATER SUPPLIES
Scope of Work and Budget**

Prepared For:



Hampton Roads Sanitation District
1434 Air Rail Avenue
Virginia Beach, VA 23455

Prepared By:



Kurt J. McCoy
Nathaniel P. Chien
David L. Nelms
US Geological Survey

Virginia-West Virginia Water Science Center
1730 East Parham Rd
Richmond, VA 23228
Phone: (804) 261-2656
Email: kjmccoy@usgs.gov

September 2018

PROPOSAL FOR WATER-QUALITY DATA COLLECTION AT HRSD SWIFT INJECTION WELL SITES TO SUPPORT GEOCHEMICAL TRANSPORT MODELING

Proposed Duration of Project:

Phase I: Nansemond Extensometer Research Station baseline well sampling (COMPLETE)

Phase II: Nansemond annual well sampling (YEARS 2-10)

Estimated Project Costs:

Phase I – no costs

Phase II – \$100,000/yr

Summary:

The Hampton Roads Sanitation District (HRSD) Sustainable Water Initiative for Tomorrow (SWIFT) project is injecting highly treated water into the Potomac aquifer, the primary source of groundwater in eastern Virginia. The aquifer system is expected to have beneficial results including model forecasted increases in pressure in the Potomac aquifer across most of eastern Virginia following 50-yrs of injection¹. Less certain are forecasts of the extent and magnitude of change in water quality in the Potomac aquifer attributed to injection. A network to monitor water-quality changes will support management of SWIFT injection well activities and continued operation of existing water supply wells throughout the region.

¹ "The Potomac Aquifer: A diminishing resource" accessed at <http://swiftva.com/wp-content/uploads/2016/09/Potomac-Aquifer-Fact-Sheet.2.pdf> on 12/06/2017

Objective:

To collect groundwater-quality data at the Nansemond Extensometer Research Station to support SWIFT injection well operation and modeling of injection water.

Plan:

Phase I: Nansemond Extensometer Research Station baseline well sampling (Completed)

The Nansemond Extensometer Research Station includes 5 monitoring wells that are completed in the surficial aquifer, Piney Point aquifer, and at three depths in the Potomac aquifer, respectively (**Fig. 1**). In May 2017, water-quality samples were collected from the 5 monitoring wells. Field parameters (pH, SC, DO, and temperature) monitored at the time of collection and major ion analysis of samples are available at:

Potomac Aquifer

https://nwis.waterdata.usgs.gov/nwis/inventory/?site_no=365337076251601&agency_cd=USGS

https://nwis.waterdata.usgs.gov/nwis/inventory/?site_no=365337076251602&agency_cd=USGS

https://nwis.waterdata.usgs.gov/nwis/inventory/?site_no=365337076251603&agency_cd=USGS

Piney Point Aquifer

https://nwis.waterdata.usgs.gov/nwis/inventory/?site_no=365337076251604&agency_cd=USGS

Surficial Aquifer

https://nwis.waterdata.usgs.gov/nwis/inventory/?site_no=365337076251607&agency_cd=USGS

An initial continuous vertical profile of water-quality using electromagnetic conduction (EM) geophysical logging of well 59D 34 was collected in September 2017. Geophysical logging provides the unique opportunity for high-resolution monitoring of vertical changes in water

quality (salinity) across the entire length of the borehole, greatly expanding the application of limited sampling data from screened intervals. The results of the initial logging will be uploaded to the publically-available USGS GeoLog Locator at <https://webapps.usgs.gov/GeoLogLocator/#/>.

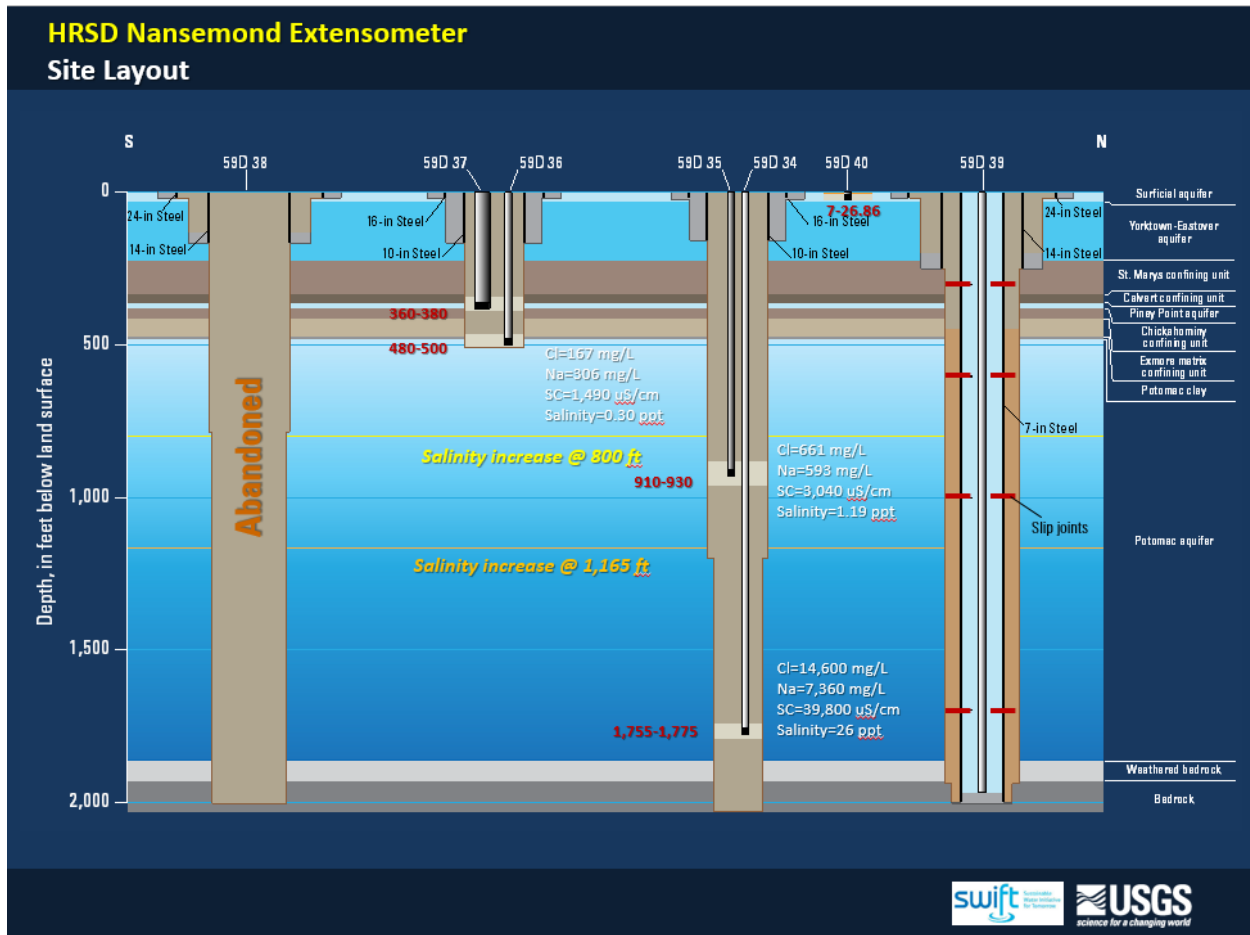


Figure 1. Sketch of wells and extensometer construction at the USGS Nansemond Extensometer Research Station.

Phase II: Long-term monitoring of ground-water quality at Nansemond Research Station (YEARS 2-10)

Task 1: Water-quality monitoring as part of Phase II is intended to characterize the response of the Potomac and overlying aquifers to the migration of SWIFT injected freshwater at the HRSD Nansemond Treatment Plant. The USGS proposes annual water quality sampling of 5 monitoring wells at the Nansemond Extensometer Research Station adjacent the SWIFT Research Center. Annual QA/QC discussions will provide for selection of wells for split sampling, duplicate analysis, and analysis of major ions by HRSD, VADEQ, Virginia Tech, and USGS labs. The USGS will sample for additional groundwater-age dating tracers to identify the presence of young water associated with injection, paleowaters recharged >10,000 years ago, and other constituents, such as radiologicals, as defined through discussions with HRSD SWIFT personnel (Table 1).

Table 1. Per sample costs by analyte				
Sample Type	Analyte	Lab	Analytical Cost	Total costs
<i>Major Ions + Trace</i>	ANC, Ar, B, Ca, Cl, F, Fe, Mg, Mn, lab alk, lab pH, K, Si, Na, lab SC, SO4, Br, Sr	USGS NWQL-Denver	\$ 267.80	
<i>Field Measurements</i>	Alk, HS, pH, DO, SC, Temp		\$ -	
<i>Nutrients (low level)</i>	TOC, NH3 (0.01mg/L), NH3 + organic nitrogen as N (0.07mg/L), NO2 as N (0.001mg/L), NO2 + NO3 as N (0.01mg/L)		\$ 196.49	\$ 464.29
<i>Radiologicals</i>	Uranium-234/235/238, Water, Filtered, by Alpha Spectrometry	ALS Radiochemistry and Environmental Laboratory**	\$ 143.22	
	Uranium, Water, Filtered, ICP-MS	USGS NWQL-Denver	\$ 7.53	
	Thorium-228/230/232, Water, Filtered, by Alpha Spectrometry	ALS Radiochemistry and Environmental Laboratory**	\$ 143.22	
	Radium-224/226, Water, Filtered, by Alpha Spectrometry	ALS Radiochemistry and Environmental Laboratory**	\$ 259.92	
	Radium-228, Water, Filtered, by Radiochemical separation and Beta counting	ALS Radiochemistry and Environmental Laboratory**	\$ 143.22	
	Radon-222, Water, Unfiltered, Liq Scint	USGS NWQL-Denver	\$ 81.05	
	Gross-Alpha (Th-230 curve)/Beta (Cs-137 curve), 72 hr and 30 day, Water, Filtered)	ALS Radiochemistry and Environmental Laboratory**	\$ 159.14	\$ 937.30
<i>Age-dating tracers</i>	C-14	Woods Hole Oceanographic Institution - National Ocean Sciences Accelerator Mass Spectrometry (NOSAMS)**	\$ 568.14	
	Tritium	USGS Menlo Park Tritium Laboratory	\$ 350.00	
	Noble Gases	USGS Noble Gas Laboratory	\$ 800.00	
	Dissolved Gas	USGS Reston Groundwater Dating Lab*	\$ 200.00	
	CFC	USGS Reston Groundwater Dating Lab*	\$ 220.00	
	SF6	USGS Reston Groundwater Dating Lab*	\$ 220.00	
	Cl-36	ALS Radiochemistry and Environmental Laboratory**	\$ 220.00	\$ 2,578.14
<i>Other tracers</i>	Stable Isotopes of water (O18/O16)	USGS Reston Stable Isotope Lab*	\$ 69.00	
	Strontium (87Sr/86Sr)	USGS Menlo Park Stable Isotope Lab	\$ 500.00	\$ 569.00
			Total Analytical Costs	4548.73
			Sampling Equipment	\$ 384.57
			Total per sample	\$ 4,933.30

*Contracts are available for external submission to USGS labs. External sample costs may differ from lab costs for USGS provided samples.

**External labs under contract with the USGS for lab analysis. External sample costs may differ from lab costs for USGS provided samples.

Sample collection of groundwater age-dating tracers will include analysis of chloroflourocarbons (CFCs), sulfur hexafluoride (SF6), tritium, helium (He), carbon-14 (C-14), chlorine-36 (I-36), stable isotopes, noble gas isotopes (helium-3, helium-4, neon-20, neon-21, neon-22, argon-36, argon-38, argon-40, kryton-84, krypton-86, xenon-103, and xenon-132), and dissolved gases (CH4, CO2, N2, O2, and Ar) (**Table 2**). Detailed explanation of the sampling and analytical methods is provided in Hunt (2015) and Nelms and Harlow (2003).

Tracer	Applicable Age Range
CFC	< 60 years
SF6	< 60 years
Tritium	< 60 years
C-14	<30,000 years
Cl-36	>60,000 to 1 million years

The intent of the current scope is to establish datasets that will provide insight into the displacement of ~40,000 year old groundwater (Nelms and others, 2003) and the migration of recently recharged (injected) young groundwater in the Potomac aquifer. Age-dating tracers in Table 2 will require interpretation using a multiple tracer approach whereby dissolved and noble gas data are also incorporated in TracerLPM (Jurgens and others, 2012). It should be noted that TracerLPM modeling is outside the scope of the current proposal. An estimate of age-dating modeling, USGS data release of non-NWIS data and model archive, and publication of USGS Scientific Investigation Report with interpretive ages is \$38,500.00.

Results of 2017 VADEQ sampling of well 59D 34 showed the presence of radiological constituents. Additional radiological samples as part of this proposal are intended to assess the mobility of those constituents in the presence of recently injected oxygenated waters and localized higher pressures in the aquifer. The USGS also plans to coordinate the sampling of 1,4-dioxane, pharmaceutical, and personal care products with SWIFT personnel using their laboratory facilities. Results from all water quality samples will be publically available through the USGS NWISweb portal (<https://waterdata.usgs.gov/nwis>).

Task 2: Continuous vertical profiles of water-quality using repeated annual geophysical logging of well 59D 34 (total 1775 ft) borehole will be conducted following the USGS methods outlined in Prinos and Valderrama (2016) describing data requirements for bulk aquifer conductivity evaluation at ± 2 millisiemens per meter accuracy. Vertical profiling with geophysical logging of well 59D 34 is proposed to continue for a minimum of 10 years.

Workplan: Field trip preparation, well purging, sample collection, data QA/QC, geophysical logging, and data archival will require a hydrologist for 160 hours and 100 hours of field assistance from a hydrologic technician. Sampling and geophysical logging will be conducted in the first half of federal fiscal year 2019 (Oct. 1, 2018-March 30, 2019).

Phase II budget: Total FY19 HRSD cost is \$100,000. Costs for years 2-10 will be adjusted 2% annually for inflation.

Federal Fiscal Year 2019 Budget	
Salary and Benefits	\$24,314.00
Lab Analytical Costs	\$30,567.00
Data Entry/QA/Verification	\$3,623.00
Travel	\$9,315.00
Equipment Rental	
<i>Geophysical log tools</i>	\$3,051.00
<i>Well tubing, pumps, meters</i>	\$650.00
Bottle sets, Standards, and Shipping	\$4,467.00
Contingency	\$6,500.00
Total Direct	\$82,487.00
Indirect Costs	\$17,513.00
Total	\$100,000.00

References:

- Hunt, A.G., 2015, Noble Gas Laboratory's standard operating procedures for the measurement of dissolved gas in water samples: U.S. Geological Survey Techniques and Methods, book 5, chap. A11, 22 p., <http://dx.doi.org/10.3133/tm5A11>.
- Jurgens, B.C., Böhlke, J.K., and Eberts, S.M., 2012, TracerLPM (Version 1): An Excel® workbook for interpreting groundwater age distributions from environmental tracer data: U.S. Geological Survey Techniques and Methods Report 4-F3, 60p. (Revised March 2014)
- Nelms, D.L., Harlow, G.E., Jr., Plummer, L.N., and Busenberg, E., 2003, Aquifer susceptibility in Virginia, 1998-2000: U. S. Geological Survey Water-Resources Investigations Report 03-4278, 58 p.
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CONSENT AGENDA ITEM 2.b.4. – November 27, 2018

Subject: SWIFT Laboratory Analysis and Testing Services
Contract Award (>\$200,000)

Recommended Action: Award a contract for laboratory analysis and testing services in support of SWIFT to Eurofins Eaton Analytical Inc. in the estimated amount of \$609,840 for year one with four annual renewal options and an estimated cumulative value in the amount of \$3,049,200.

Type of Procurement: Competitive Negotiation

Proposers	Technical Points	Recommended Selection Ranking
Eurofins Eaton Analytical	95	1

HRSD Estimate:

\$ 800,000

Contract Description: This contract is an agreement for Laboratory Analysis and Testing Services in support of SWIFT. Analytical support for the SWIFT program provides the necessary data to inform regulatory proposals, refine the groundwater modeling, and ensure protection of the region's groundwater supply. The service contract covers all analyses that are beyond the analytical scope of the Central Environmental Lab. A Public Notice was issued on August 16, 2018. One offeror submitted a proposal on September 19, 2018 and was determined to be responsive and deemed qualified, responsible and suitable to the requirements in the Request for Proposal. The Proposal submitted by Eurofins was technically ranked and was highly qualified.

Analysis of Cost: The Offerors cost is approximately 23 percent below amount budgeted annually for SWIFT testing service by the Central Environmental Laboratory. Cost is based on several testing and analysis parameters and the associated methods required to conduct analyses. No additional negotiated savings were available with Eurofins through a best and final offer.

CONSENT AGENDA ITEM 2.c.1. – November 27, 2018

Subject: Aqseptence Group
AirVac[®] Sewage and Vacuum Pump Packages
Sole Source (>\$10,000)

Recommended Action: Approve Aqseptence Group as the provider of AirVac[®] sewage and vacuum pump packages for use at Small Communities Division.

CIP Project: MP012500

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 sewage and vacuum pump packages to include startup services. The packages are part of a larger Capital Improvement Project for the Mathews Main Vacuum Pump Station Replacement. The new package pump system will convey all of the wastewater connected to the vacuum main in Mathews County to a central location and pump the wastewater to the Mathews transmission force main. These packages are fully compatible with all current equipment with in the Mathews collection system.

Aqseptence Group is the only authorized distributor for Virginia.

CONSENT AGENDA ITEM 2.c.2. – November 27, 2018

Subject: AST Corporation
AST Grants Analytics Software
Sole Source (>\$10,000)

Recommended Action: Approve AST Corporation as the provider of AST Grants Analytics Software for use in 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: This contract is for services to provide annual maintenance in support of this software. The grants analytical software is integrated into the Enterprise Resource Planning (ERP) system and used to track Capital project costs by identifying funding sources, approved budgets, expenditures and obligations in a comprehensive format that allows for timely decision making.

AST Corporation is the only authorized provider for Virginia.

CONSENT AGENDA ITEM 2.c.3. – November 27, 2018

Subject: Heyward Incorporated
Boerger® Pumps and Parts
Sole Source (>\$10,000)

Recommended Action: Approve Boerger® Rotary Lobe Pump Models PL300 and CL390 and replacement parts for use 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 a Boerger® Rotary Lobe Pump Models PL300 and CL390 and various replacement parts. James River Treatment Plant currently has one of each pump model in service. Boerger® Rotary Lobe Pumps are self-priming, valveless, positive displacement pumps used in the primary sludge thickening process. This replacement pump and parts allows for the reuse of the existing piping.

Heyward Incorporated is the only authorized distributor for Virginia.

The Commission previously approved limited sole source authority for Boerger® Rotary Lobe Pump PL300 and various replacement parts at York River Treatment Plant. This action supersedes previous actions and expands the scope to cover all HRSD applications of Boerger® Rotary Lobe Pump models PL300 and CL390 and various replacement parts.

CONSENT AGENDA ITEM 2.c.4. – November 27, 2018

Subject: Wood Equipment Service Company
Netzsch Replacement Pump Parts
Sole Source (>\$10,000)

Recommended Action: Approve Wood Equipment Service Company as the provider of Netzsch replacement pump parts for use 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 Netzsch pump parts for inventory. The replacement parts allow for the use of existing equipment and piping without modifications.

Wood Equipment Service Company is the only authorized distributor for Virginia.

HRSD COMMISSION MEETING MINUTES
NOVEMBER 27, 2018

ATTACHMENT #2

AGENDA ITEM 3. – Model 3 Billing Services Agreement with City of Suffolk

November 27, 2018

BILLING SERVICES AGREEMENT

Model 3

between

Hampton Roads Sanitation District

and

City of Suffolk

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BILLING SERVICES AGREEMENT
Model 3

THIS BILLING SERVICES AGREEMENT (this “Agreement”), effective as of November 27, 2018, is entered into between Hampton Roads Sanitation District (“HRSD”) and the City of Suffolk , Virginia (“Locality”), collectively the “Parties”, individually “Party,” each a political subdivision of the Commonwealth of Virginia.

RECITALS

A. HRSD provides centralized wastewater interception and treatment services within Hampton Roads and surrounding areas (Service Area), including such services for Locality.

B. Locality provides wastewater collection and other public services within its jurisdictional areas.

C. The Parties agree that centralized billing, collection and related services by HRSD for Locality’s wastewater Customers and other utility Customers provides efficiencies and is mutually beneficial to the Parties and is in the best interests of the Parties’ Customers. The Parties currently work together and participate in such a system for centralized billing and related services, and the Agreement reflects and memorializes those current practices, and establishes a more explicit framework therefor. Consistent with the above, the Parties’ intent is that the Parties will use their existing systems, unless inconsistent hereunder, and provide the services and functions accommodated thereunder.

E. Nothing in this Agreement alters or supersedes any rights or obligations of either Party under Virginia law or otherwise under their organizing documents. NOW, THEREFOR, for valuable consideration, the receipt and sufficiency of which is acknowledged, the Parties agree as follows.

Article I
Definitions

1.1 Authorized Employees shall mean employees who have a need to know or otherwise access Personal Information and data in the HRSD Billing System to enable the Party to perform its obligations under the Agreement.

1.2 Billing Data shall mean water and any other meter readings, including the readings for any HRSD-approved Customer water and/or sewer meters and connection information, Customer identifying information, and other data and information necessary for billing and collection and customer service purposes, including the opening of new Customer accounts, which may consist of new system connections requiring the collection of Facility Charges, and the closing of accounts.

1.3 Customer shall mean a person, corporation or other entity who is the recipient of water, sewer or other utility services by one or both of the Parties.

- 1.4 Effective Date shall mean the date first stated above.
- 1.5 Facility Charges shall mean HRSD 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. 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.
- 1.6 Highly Sensitive Personal Information shall mean Customer social security numbers, other government-issued identification numbers, passwords or PINs, credit card or debit or financial account numbers, credit report information, answers to security questions, and comparable information.
- 1.7 HRSD Billing System shall mean HRSD's information technology and other systems for utility services billings, collections and Customer service including the service and billing system that operates under the trade name Hampton Roads Utility Billing Service or "HRUBS."
- 1.8 HRSD Sewer Charges shall mean HRSD interception and treatment charges, Facility Charges, and Connection Fees where HRSD operates and maintains the collection system.
- 1.9 Locality Customer Account Information shall mean a Customer's identifying information, billing information and history, and information concerning the utility services affecting the Customer, including Personal Information.
- 1.10 Other Locality Charges shall mean Locality charges for water service and supply, wastewater collection, solid waste collection, stormwater and any other utility services or any Locality utility taxes for a Customer.
- 1.11 Personal Information shall mean information provided to a Party by or at the direction of a Customer in the course of the Parties' performance under this Agreement and the performance of the Parties' utility operations and functions that (a) identifies or can be used to identify an individual or entity, including without limitation names, signatures, addresses, telephone numbers, email addresses, and other unique identifiers, or (b) that can be used to authenticate an individual or entity, including without limitation Highly Sensitive Personal Information.
- 1.12 Security Breach shall mean any act or omission that materially compromises the security, confidentiality or integrity of (a) Personal Information, other information in the HRSD Billing System, or Locality Customer Account Information; or (b) the physical, technical, administrative or organizational safeguards put in place by a Party that relate to the protection of Personal Information, other information in the HRSD Billing System, or Locality Customer Account Information.
- 1.13 Security Officer shall mean each Party's primary security contact in regard to its obligations under the Agreement.

Article 2
Billing Services

2.1 Services Provided by HRSD. HRSD agrees to provide the following services.

- (a) Billing and collection for HRSD Sewer Charges.
- (b) Billing and collection for Other Locality Charges.
- (c) Operations of the HRUBS Customer service center.
- (d) Billing and collection of late payment charges for the Other Locality Charges.
- (e) Customer payment schedules for Other Locality Charges.
- (f) Arrangements for third-party collection efforts for delinquent Other Locality Charges for inactive accounts, and Commonwealth of Virginia state income tax refund intercept services therefor. Locality agrees to assist HRSD in debt collection efforts within the Locality's authority.
- (g) HRSD Billing System computers and associated maintenance. The computers will be limited to approximately one per 10,000 Locality customers and will be set-up to only perform billing system functions and may be remotely monitored and maintained.

2.2 Locality Billing Data.

- (a) The Billing Data shall be stored in the HRSD Billing System. Locality shall be responsible for all required readings of Locality owned water meters, Other Locality Charges and the development, recording and initial management of all other Billing Data necessary or convenient to allow HRSD to bill the Customers for all services in the manner provided in this Agreement.
- (b) The correction of Locality Customer Account Information and the response to and decisions concerning Customer exceptions and complaints concerning the Locality Billing Data shall be the responsibility of Locality.

2.3 HRSD Billing Functions.

- (a) HRSD shall develop the Customer bills in accordance with the meter read frequency established by the Locality. The bills shall include HRSD wastewater treatment charges, and may include Other Locality Charges as requested by the Locality. Locality's provision of data pursuant to section 2.2 shall be a prerequisite to HRSD's obligations under this subsection 2.4(a).
- (b) The Customer bills shall be provided monthly by U.S. Mail, or as otherwise provided below.

(c) HRSD's billing practices shall provide for special billings and special billing arrangements that differ from the billing that applies generally for Locality-provided utility services at the reasonable request of Locality, and to the extent consistent with HRSD's Billing System.

(d) Bills shall be payable directly to HRSD or HRUBS, except as provided below.

(e) The HRSD Billing System shall incorporate late payment charges as defined further herein, and shall apply such charges to Customer bills.

2.4 Electronic Billing (e-Bill).

(a) At the option of individual Customers, HRSD shall provide Customer bills by email, text or other electronic means through its e-Bill service. HRSD shall periodically notify Customers in its discretion of the Customers' option to elect e-Bill service. HRSD shall provide for Customer e-Bill sign up and withdrawal in a standard online format and through other means at the discretion of HRSD.

(b) For those Customers who elect e-Bill service, HRSD shall provide data and information concerning charges and such other information as provided in billings provided to Customers by mail. Such billing and other information shall be available for download and Customer printing.

(c) Past bills shall be available to Customers who elect to establish e-Bill accounts for a minimum of 12 months preceding the then-current billings.

(d) Online Customer access to their accounts shall be on a 24 hour a day, 365 days per year basis, with the exception of reasonable system maintenance periods and force majeure outages.

2.5 Auto Pay.

(a) HRSD's Billing System shall use and incorporate a Customer Auto Pay option, in which the Customer agrees to automatic payment of charges after an e-Bill notice period. Such automatic funds withdrawal shall be from the Customer's bank account, credit or debit card, or other source of funds acceptable to HRSD and its Billing System; and such funds withdrawal shall be performed unless the Customer responds within the stated e-Bill notice period and places a hold thereon.

(b) A Customer may terminate or modify their Auto Pay authorization at any time by notice properly provided in the manner specified by HRSD.

2.6 Modes of Payment. Acceptable modes of payment for utility billings, whether billings are by mail, online, telephone or in-person, shall be the following.

(a) Payment by mail by check or money order. Electronic payment online or telephone by Automated Clearing House (ACH), credit or debit card authorization. Walk-in payments by cash, check, money order, credit or debit card authorization.

(b) Walk in payment at one or more centralized HRSD Customer service offices or at locations provided by one or more third-party retail entities, if HRSD in its discretion provides for such third-party walk in payment options.

(c) Locality may in its discretion provide for walk in payments by its jurisdictional Customers at one or more centralized Locality Customer service offices or at locations provided by one or more third-party retail entities. Acceptable forms of payment shall be as specified by Locality.

(d) In the event of a Customer payment in the form of credit or debit card, HRSD may pay the credit/debit card company service charge for both HRSD and Other Locality Charges. HRSD reserves the right to administratively set a credit card convenience fee and/or a maximum consumption (volume) or monetary amount Customer may charge on a credit or debit card to pay a bill issued by HRSD or HRUBS

(e) Other payment options will be allowed if agreed upon by both parties. HRSD reserves the right to administratively set a convenience fee and/or a maximum consumption (volume) or monetary amount Customer may charge on the other payment option to pay a bill issued by HRSD or HRUBS.

2.7 Additional Charges. HRSD reserves the right to bill Customers directly for various service charges. These charges and their amount shall be determined and set no less than annually by the HRSD Commission. These charges may include, but are not limited to, delinquent bill charges, water service cutoff, water and wastewater restoration services, returned payment charges, and new wastewater connection services.

2.8 Late Payment Charges.

(a) Bills shall be defined as late and delinquent if not paid by the stated due date, irrespective of the manner in which such bill is provided to the Customer. In the case of any delinquent bill, notification thereof shall be provided to the Customer in the manner in which bills are provided. HRSD shall implement a system of escalated delinquent payment notification and warning notices .

(b) Late payment charges for HRSD's charges may be added to the remaining unpaid amounts from the previous Customer bill. The amount, calculation and rate shall be determined no less than annually by the HRSD Commission. The principal amount upon which such interest is calculated shall include any prior unpaid late payment charges.

(c) Late payment charges for Other Locality Charges may be imposed by Locality, and any such charges shall be identified to HRSD as provided in section 2.3e.

2.9 Allocation of Partial Payment by Customers.

(a) When a customer makes a partial payment on a bill, whether the payment is made directly to HRSD, HRUBS or to the Locality, the allocation of such partial payment shall be as follows. Such partial payments shall be credited first to fees and then pro rata with respect to the individual HRSD and Locality service components of the bill including any late payment charges included therein. By way of example, if a customer billing includes HRSD wastewater service charges as 30% of the total amount of the bill (including any late payment charges), 30% as Other Locality Charges for Locality service “A”(including any late payment charges), and 40% for Locality service “B” (including any late payment charges), the partial payment shall be allocated 30% to HRSD and 70% to Locality.

(b) Neither HRSD nor Locality shall permit a Customer to designate allocation of a partial payment in any way that conflicts with subsection (a) immediately above.

2.10 Customer Payment Schedules.

HRSD reserves the right to provide Customer payment schedules. If Locality wishes to provide for Customer payments schedules, and if HRSD agrees thereto, the Parties shall define by separate memorandum the conditions under which such payment schedules shall be, on a Customer’s request, offered to a Customer or declined for a Customer, and the terms of any such offered payment schedules.

2.11 Customer Appeal Procedures.

The design and use of any internal administrative appeal procedure shall be the responsibility of the individual Parties as to Customer charges billed for services provided by each Party.

2.12 Third Party Collections.

(a) HRSD may use an established third-party service provider for collections of delinquent Customer HRSD and HRUBS billings.

(b) HRSD may alternatively or in addition use the Commonwealth of Virginia’s Debt Set Off program for collections of delinquent Customer HRSD and HRUBS billings.

(c) If Locality has by ordinance provided for a lien on the real property served by water and any other authorized utility services provided by Locality and HRSD Sewer Charges, HRSD may also alternately or in addition utilize, perfect and recover thereon in accordance with Virginia law such liens for delinquent Customer HRSD and HRUBS billings.

(d) If Locality so chooses, HRSD shall refer delinquent Customer Locality billings to the same service provider for collections and/or use the Commonwealth of Virginia’s Debt Set Off program on behalf of Locality and the real property lien rights referred to immediately above at the time of referral of delinquent Customer HRSD and HRUBS billings. In any such case,

Locality shall be responsible for its *pro rata* share of third-party charges or any charges specific to its accounts.

The *pro rata* payment provisions of section 2.9 shall not apply in the event of third party collections where Locality does not authorize the collection efforts.

2.13 Write-offs of delinquent Customer accounts shall be addressed as follows.

- (a) Uncollected Customer account balances shall be written off for financial reporting purposes at one (1) year of age.
- (b) Notwithstanding subsection (a) immediately above, HRSD shall maintain delinquent accounts for a total of ten (10) years, and may continue third-party collection efforts.
- (c) Each Party shall absorb the loss for its unpaid bills in the event of a write-off. In the event of a partial write-off each Party shall absorb an amount for its unpaid bills *pro rata* in the proportion of its unpaid bills (including any late payment charges) to the total amount of the partial write-off.

2.14 Service Disconnections. Utility service disconnections shall be handled as follows.

- (a) Prior to making utility service disconnections, HRSD shall use its reasonable efforts to allow delinquent Customers to bring their accounts into full payment. The requirements for reasonable efforts by HRSD shall be deemed satisfied by at least two notices to the Customer of their payment delinquency and opportunity to bring the account into full payment, such notices delivered to their standard billing address, in the manner the Customer has elected for service of HRSD bills, or other methods approved by the Locality.
- (b) HRSD will be responsible for providing customer appropriate service disconnection notification as required by statute, prior to disconnection of service.
- (c) The physical disconnection of Customer water service for non-payment will be by the Locality within fourteen days of eligibility defined by statute.

2.15 Service Terminations at Request of Customer. Water and wastewater service terminations shall be handled by the Locality.

2.16 Service Restorations. In the event of restoration of water service after the Customer has paid the outstanding amounts for the delinquent HRSD and HRUBS billings, or made arrangements therefore acceptable pursuant to the protocols provided in the Agreement, the Locality shall make the service restoration as soon as practicable during normal business hours.

2.17 HRSD Call Center Hours of Operations.

- (a) The hours of HRSD's call center operations shall be no less than HRSD's normal business hours.
- (b) During the times specified in subsection (a) immediately above the call center shall handle billing inquiries and payment inquiries.
- (c) Notwithstanding the provisions of subsection (a) above, an answering service shall be available on a 24 hour, 365 day per year basis for emergency Utility service calls (with the exception of force majeure outages), which shall include at a minimum safety inquiries and safety emergencies relating to Utility services, wastewater spills and line breakages, and Utility service outages not the result of non-payment of Utility bills.

2.18 Performance Standard. In the performance of their respective duties under this Agreement the Parties shall conform to the following performance standards.

- (a) General. In their performance under the Agreement the Parties shall exercise due care, and accepted management practices, including but not limited to the selection, training and retention of their personnel who implement the Agreement.
- (b) Timeliness and Accuracy of Customer Data and Billing Data. In their performance under the Agreement the Parties shall exercise due care and accepted management practices to maintain the accuracy of Billing Data and Personal Information, and in the timeliness of their management thereof. Parties will designate specific contacts for timely response to inquiries between parties.
- (c) Timely Resolution of Disputes. Both Parties shall exercise accepted management practices to achieve the timely resolution of Customer complaints and disputes. They shall endeavor to resolve most typical Customer complaints and disputes on the initial phone call or exchange of correspondence relating thereto; provide for and identify for the Customer a specific contact individual; and endeavor to promptly follow up with the Customer in those cases where follow-up by the Party is needed. The Parties shall keep records adequate to evaluate their consistency with these standards.
- (d) Emergency and Weather Events. The Parties shall exercise accepted management practices in their handling of the functions addressed by this Agreement during and after emergency and extreme weather events. The Parties shall develop and implement emergency and disaster plans therefor in the handling of the functions addressed by this Agreement.

2.19 Correction of Billing Errors. Because the correction of Customer Billing Data and the response to and decisions concerning Customer exceptions and complaints concerning their Billing Data are the responsibility of Locality, HRSD shall inform Customers who state such issues and complaints that they should contact Locality directly for resolution, except for wastewater only customers solely served by HRSD or HRSD's high strength or unusual waste customers.

2.20 Funds Transfers Between Parties. Both Parties shall provide for and implement the timely and routine electronic transfer of funds to the other as their respective rights to such funds appear. For standard billing receipts such transfers shall occur no less frequently than daily Monday through Friday, and shall transfer no less than the amounts due to the receiving Party that have accrued to the sending Party. For Facility Charges such transfers shall occur no less frequently than weekly.

2.21 Disputed Amounts between Parties.

(a) Notwithstanding anything to the contrary herein, if a good faith dispute arises between the Parties concerning any billings or allocations of funds, that portion of the funds that are not in dispute shall be due and payable on the otherwise applicable due date; and when the dispute is resolved, the remaining portion of the payments if any shall be paid promptly with interest at a rate of one and one-half percent (1 ½ %) per month, compounded monthly, from the date that the amount should have been paid had there been no dispute.

(b) Moreover, if the resolution of any dispute determines that one Party has overpaid the other, then such overpaid amount shall be refunded promptly with interest accruing as provided in subsection (a) immediately above.

(c) In regard to this section, prompt payment shall mean payment within no more than 30 days of notice and substantiation of the matter for which payment is due.

(d) All billings and requests for payments between the Parties shall be conclusively presumed to be final and accurate unless objected to in writing within six (6) months after such billings and requests.

2.22 Report Generation from HRSD Billing System.

(a) The HRSD Billing System shall provide for direct Locality access to and generation of a standard package of reports on Locality billings, receipts and other data. That standard package defined in Appendix A shall be no less than the reports available on the Effective Date.

(b) Locality requests for reports outside of the standard reporting package shall be submitted in writing to HRSD. HRSD shall promptly respond with a determination of practicable available scope of additional reporting, and the cost therefor. If Locality elects to obtain such additional reporting, HRSD shall provide the additional reporting at the cost of Locality.

2.23 Systems Security. The Parties agree that information technology and facilities systems security is paramount in the proper implementation of the Agreement, and they agree that those systems shall be subject to routine upgrades as indicated by good business and information technology practices and the availability of additional security features and provisions. Not by way of limitation, the Parties agree that they shall:

- (a) Implement and maintain all appropriate technical, physical and organizational security and confidentiality measures to protect against unauthorized or unlawful access to data, but recognize that no system is impenetrable;
- (b) Implement and maintain all appropriate technical, physical and organizational security and confidentiality measures to guard against accidental or other loss, destruction, misuse or damage to data;
- (c) Take all reasonable steps to ensure the reliability of their Authorized Employees and other staff and agents;
- (d) Process data only as necessary to carry out the responsibilities of the Parties under this Agreement; and
- (e) Comply with all applicable law.

2.24 Procedures in the Event of a Security Breach.

- (a) Each Party shall provide the other Party with the name and contact information of its Security Officer and their backup who shall serve as the Party's primary security contact and who shall be available to assist the other Party in effecting and resolving obligations in the event of a Security Breach.
- (b) Each Party shall take reasonable steps and use best efforts to immediately remedy any Security Breach and prevent any further Security Breach at its own expense in accordance with applicable privacy rights, laws, regulations, and standards. Notwithstanding the above, each Party shall reimburse the other for actual, reasonable costs incurred by it in responding to, and mitigating damages caused by any Security Breach within the first Party's systems, including all costs of notice and/or remediation.
- (c) Both Parties agree that they shall not make any public release of information concerning any Security Breach without first coordinating a response to the Security Breach, except as may be required by federal or Virginia law. The Parties shall coordinate messaging and contents of any notice of a Security Breach, including the effects thereof on any Customers and the nature and extent of any remediation.
- (d) Both Parties agree to fully and reasonably cooperate with each other in any litigation or other formal action resulting from a Security Breach, including to protect their rights and obligations relating to the use, disclosure, protection and maintenance of Personal Information.

2.25 Security of Personal Information.

- (a) The Parties acknowledge and agree that, in the course of their performance under the Agreement, they will receive and have access to Personal Information. Each Party shall comply with the terms and conditions set forth in this Agreement in its collection, receipt, transmission, storage, disposal, use and disclosure of such Personal Information and shall be responsible for

the unauthorized collection, receipt, transmission, storage, disposal, use and disclosure of such Personal Information under its control or in the possession of its employees or agents. Each Party shall be responsible for and remain liable to the other Party for the actions and omissions of its employees and agents taken in the course of and in furtherance of their work responsibilities concerning the treatment of Personnel Information as if they were the Party's own actions or omissions.

(b) In recognition of the forgoing each Party agrees that it shall maintain its own privacy policy regarding Locality Customer Account Information.

(c) The Parties represent and warrant that their collection, access, use, storage, disposal and disclosure of Personal Information shall comply with all applicable federal and Virginia law.

(d) Without limiting the Parties' obligations under subsection (c) immediately above, each Party shall implement and require that its agents implement administrative, physical and technical safeguards to protect Personal Information that are consistent with accepted industry practices. Such safeguards shall include in regard to credit, debit and other payment cardholder information compliance with the Payment Card Industry Data Security Standard requirements.

(e) At a minimum, each Party's safeguards for the protection of Personal Information shall include (i) limiting access to Authorized Employees; (ii) securing information technology and business facilities, data centers, paper files, servers, backup systems and computing equipment, including mobile devices and other equipment with information storage capability; (iii) implementing security for the forgoing; (iv) implementing authentication and access controls; (v) encrypting Highly Sensitive Personal Information stored on any mobile media or transmitted over public or wireless networks; (vi) implementing appropriate personnel security and integrity procedures and practices, including without limitation conducting background checks consistent with applicable law; and (vii) providing appropriate privacy and information security training to its employees.

2.26 Return or Destruction of Personal Information. If at any time a Party requests that the other Party return or destroy Personal Information relating to any Customer or prior Customer of such Party which is no longer necessary for the purposes provided in this Agreement, the other Party shall promptly return all copies or records, whether in written, electronic or other form or media, of Personal Information in its possession, or securely dispose of all such copies or records in accordance with the Library of Virginia's Public Utilities record retention schedules, and certify in writing to the Party that such Personal Information has been returned or disposed of securely.

2.27 Authorized Employees.

(a) Each Party shall limit its Authorized Employees to only those employees who have a specific need to know or need to access Personal Information, and those employees with supervisory responsibilities over such employees.

- (b) Each Party shall implement within its personnel hiring and retention system appropriate personnel integrity and security procedures, which may include a process for evaluating new, promoted and reclassified employees and persons applying for such status, which may include criminal background checks.
- (c) Each Party shall at all times cause each of its Authorized Employees to strictly abide by the Party's obligations under the Agreement and the Party's policies and procedures implementing the Agreement.
- (d) The Parties further agree that each shall maintain and implement a disciplinary process to address any unauthorized access, use or disclosure of any Personal Information or data from or associated with the Customer billing systems and Customer data of either Party. On the request of a Party, the other Party shall provide the procedures and standards of its disciplinary process.
- (e) On a Party's written request, the other Party shall promptly identify in writing all of its Authorized Employees as of the date of the request.

Article 3 **Term**

3.1 Term: Termination.

- (a) Initial Term. The initial term of this Agreement shall be five (5) years from the Effective Date.
- (b) Extension Terms. After the initial term, this Agreement shall be automatically extended, unless a Party provides written notice to the other Party of its intent to not extend at least twelve (12) months prior to the termination date.

3.2 Termination for Convenience. Either Party may terminate the Agreement for its own convenience by giving the other Party no less than 24 months written notice prior to its desired termination date

3.3 Termination for Non-Performance.

- (a) In the event of any material failure of a Party to perform its obligations under this Agreement, the other Party may provide written notice to the non-performing Party, specifying with particularity the failures to perform. In any such event the non-performing Party shall be allowed a cure period of thirty (30) days to correct the non-performance, or if the non-performing party proceeds with diligence to cure but the cure will necessarily take longer than thirty (30) days, a maximum of ninety (90) days.

(b) In the event that the non-performing Party does not cure and resume acceptable performance by the end of the cure period provided in subsection (a) immediately above, the other Party may (but is not obligated to) by written notice terminate the Agreement.

3.4 Actions Upon Expiration or Termination. In the event of expiration or termination of the Agreement the Parties shall have no further obligations thereunder, except that obligations and liabilities that accrue prior to the expiration or termination shall survive, and the confidentiality and security obligations pursuant to sections 2.23 through 2.26 shall survive to each of the Parties in regard to retained data that concern the other Party.

3.5 Amendment. This Agreement may only be amended by a writing duly executed by both Parties.

Article 4 Representations

4.1 Representations. The Parties each represent and warrant as of the Effective Date as follows:

(a) Existence. It has the power and lawful authority to enter into and perform its obligations under this Agreement and any other documents required by this Agreement.

(b) Authorization. The execution, delivery, and performance by, of and under this Agreement and any related agreements have been duly authorized by all necessary action on its behalf, and do not and will not violate any provision of its organizational documents or result in a material breach of or constitute a material default under any agreement, indenture, or instrument of which it is a party or by which it or its properties may be bound or affected.

(c) Litigation. To the best of the Party's knowledge, there are no actions, suits, or proceedings pending or threatened against it or any of its properties before any court or governmental department, commission, board, bureau, agency, or instrumentality that, if determined adversely to it, would have a material adverse effect on the transactions contemplated by this Agreement.

(d) Execution. The Party has duly executed and delivered this Agreement, and (assuming due authorization, execution and delivery by the other Party) this Agreement constitutes a legal, valid and binding obligation of the Party enforceable against it in accordance with its terms.

4.2 Reliance and Survival. Each Party acknowledges that its representations and warranties as set forth above will be relied upon by the other in entering into and performing under this Agreement.

Article 5 General

5.1 Liabilities.

(a) The Parties understand and agree that each is responsible for and liable to the extent allowed by law in the event of damage to the other Party arising from the gross negligence or willful misconduct of the other Party in the discharge of their respective responsibilities and duties under the Agreement. The financial liability shall be limited to the annual billed Other Locality Charges.

(b) Nothing herein shall constitute a waiver of sovereign immunity by either Party.

5.2 Internal Control Audits.

(a) At least once every three (3) years HRSD, at its expense, shall cause a qualified third party to conduct an internal control audit (“Internal Control Audit”) of its Customer billing information technology and information security controls for all of its facilities used in complying with its obligations under this Agreement. Such Internal Control Audit shall be based on recognized industry best practices and shall consider infrastructure and operations security; identity and access management; vulnerability management; business continuity planning; disaster recovery planning; and training. Audit reports shall be provided to Locality, and Locality shall treat such audit reports as confidential information and not further release such reports to the extent allowable under law, including the Virginia Freedom of Information Act. Any exceptions noted in the audit report shall be promptly addressed by HRSD through the development and implementation of a corrective action plan.

(b) Locality may at any time request an Internal Control Audit by HRSD, which shall be performed by a qualified third party selected by Locality, and subject to the reasonable approval of HRSD. The cost of such audit shall be borne by Locality.

5.3 Inspection of Books & Records.

(a) During the term, and including any extension term(s), and for a period of three (3) years thereafter each Party shall keep and maintain complete and accurate records and all other data required by each of them for the purposes of proper administration of this Agreement.

(b) Subsection (a) immediately above shall not supersede other provisions herein establishing a specific retention period for Billing Data, Personal Information or other data.

(c) Each Party shall have the right, at its sole cost and expense during normal business hours, to examine the other Party’s records to the extent necessary to verify the accuracy of any matters pursuant to this Agreement.

5.4 Records Management.

(a) The Parties shall each develop and maintain procedures for the management of billing, payment, and Customer records which shall be adequate for its responsibilities under this Agreement, and which shall include records retention and disposition schedules.

(b) The Parties shall each comply with the Library of Virginia Regulations Governing the Destruction of Public Records Containing Social Security Numbers, 17 VAC 15-120.

5.5 Taxes. Each Party shall be solely responsible for any taxes imposed on its own activities related to or pursuant to this Agreement.

5.6 No Effect on Other Obligations. The Parties' obligations and rights under this Agreement shall have no effect on any utility or other obligations and rights not specifically addressed herein.

5.7 Insurance. The Parties shall each maintain all risk, general liability, employer's liability/workers compensation, automobile insurance, and any other insurance coverage adequate and customary in the business of utility services, and covering and applicable to its responsibilities under this Agreement.

5.8 Disputes; Governing Law; Jurisdiction; Venue.

(a) In the event of any dispute concerning this Agreement the Parties shall engage in non-binding and informal discussions in an effort to resolve the dispute.

(b) If the procedures of subsection (a) immediately above do not resolve the dispute, either Party may by written notice as provided in section 5.10 herein elevate the dispute to the level of the Chief Financial Officers or Directors of Utilities of the Parties who shall attempt to resolve the matter. The procedure of this subsection (b) shall be a mandatory prerequisite to further action by either Party concerning the dispute.

(c) In the event that the Parties do not resolve a dispute under the provisions immediately above, they shall retain all of their legal rights thereto.

(d) The Parties agree that any legal action between the Parties concerning the Agreement or their duties and responsibilities thereunder shall be in either Circuit Court for the City of Virginia Beach or the Circuit Court serving Locality. In any such legal action the Parties shall each bear their own attorney and other costs.

(e) The Parties acknowledge that any breach of this Agreement or failure to perform thereunder may cause the other Party irreparable harm for which monetary damages would not be adequate compensation. The Parties agree that in any such case they are entitled to seek equitable relief, including injunctive relief and specific performance, from the court. Such remedies shall not be deemed to be exclusive, but shall be in addition to all other remedies available at law or in equity. The financial liability shall be limited to any outstanding billed Other Locality Charges.

5.9 Force Majeure. Neither Party shall be liable to the other for delays or failures in performance resulting from causes beyond the reasonable control of the non-performing Party, including but not limited to acts of God, labor disputes or disturbances, material shortages or rationing, riots, acts of war, governmental regulations (other than those of the non-performing Party), or communications or utility failures (other than those of the non-performing Party).

5.10 Notices. All notices or other communications required or permitted under this Agreement shall be in writing and may be given by depositing the same in the United States mail, addressed to the Party to be notified, postage prepaid and registered or certified with return receipt requested, by overnight courier or by delivering the same in person to such Party. Notice shall be deemed given and effective the day personally delivered or the day after being sent by overnight courier, subject to signature verification. Any Party may change the address for notice by notifying the other Party of such change in accordance with this section. Such notice shall be addressed as follows:

If to HRSD:

If by U.S. Postal Service:

General Manager
P. O. Box 5911
Virginia Beach, VA 23471-0911
Telephone: (757) 460-4242
with a copy to:

Richard H. Sedgley, Esq.
AQUALAW PLC
6 South 5th Street
Richmond, VA 23219
Telephone: (804) 716-9021 ext.203

If by Overnight Mail:

General Manager
1434 Air Rail Avenue
Virginia Beach, VA 23455

If to Locality:

City of Suffolk
P.O. Box 1858
Suffolk, VA 23439
Attn: City Manager

with a copy to:

City Attorney
P.O. Box 1858
Suffolk, VA 23439

City of Suffolk
P.O. Box 1858
Suffolk, VA 23439
ATTN: Director of Public Utilities

5.11 Headings. Headings are for convenience and reference only, and shall not be used to define or modify the meaning of any term or provision.

5.12 No Waiver. Failure by either Party to enforce any provision of this Agreement shall not be deemed a waiver of future enforcement of that or any other provision. Any waiver, amendment, variation or other modification of any provision of this Agreement shall be effective only if in writing and signed by the Parties.

5.13 Counterparts. This Agreement may be executed by the Parties in counterparts, and any such execution shall constitute a complete and effective Agreement.

5.14 Severability. If any term or provision of this Agreement shall be held to be illegal or unenforceable by a court of competent jurisdiction, the remaining terms and provisions shall remain in full force and effect.

5.15 Complete Agreement. This Agreement is the complete agreement between the Parties concerning the subject matter of this Agreement and replaces any prior oral or written communications between the Parties. Notwithstanding Recital D, there are no conditions, understandings, agreements, representations or warranties expressed or implied that are not specified herein.

5.16 Compliance with Laws. The Parties agree to, in their implementation of this Agreement, comply with all applicable law.

5.17 Assignment; Subcontracting.

(a) Unless otherwise expressly provided under this Agreement, neither Party may assign this Agreement or assign its rights or delegate its obligations hereunder, either in whole or in part, whether by operation of law or otherwise, without the prior written consent of the other. Any attempted or purported assignment or delegation without the other Party's written consent shall be void.

(b) If a Party subcontracts any of its responsibilities under this Agreement, it shall notify the other Party of that subcontracting. In any such event the subcontracting Party's obligations hereunder shall remain unchanged. The subcontracting Party shall further ensure that its subcontractor maintains employee policies no less stringent than those of section 2.27.

5.18 Further Assurances. Both Parties agree to provide such further assurances, documents and documentation as may be reasonably necessary to assist the other Party in its implementation of the Agreement.

5.19 No Partnership. The Parties are independent governmental entities, their relationship hereunder is solely by contract, and there is no partnership or comparable legal relationship established by or under this Agreement.

5.20 No Third Party Beneficiaries. This Agreement is solely for the benefit of the specific Parties hereto, there are no third party beneficiaries, and no other person has a right to rely on any term or provision hereof.

5.21 Publicity; Freedom of Information.

(a) Neither party shall publish this Agreement or make any public statement concerning the Agreement other than to acknowledge its existence, without first notifying the other Party and conferring concerning the appropriate scope of publication and/or statement.

(b) The Parties acknowledge that they are subject to the Freedom of Information provisions of the Virginia Code. However, they confirm that Locality Customer Account Information, financial information, and Internal Control Audit reports may be exempt from Freedom of Information disclosure, and they agree to assert any reasonably available exemption and in the event of the applicability of an exemption not release such section, the text thereof, information or report except as may be ordered by a court of competent jurisdiction. In the event of any third party proceeding in court to obtain such sections or parts thereof, the Party to whom the request was submitted or against whom suit was filed shall notify the other Party as soon as practicable thereof. In any such event, the Party to whom the request was submitted or against whom suit was filed shall allow the other Party as much time as practicable to respond and shall not oppose such other Party's intervention in the suit.


IN WITNESS WHEREOF, HRSD and Locality have executed this Billing Services Agreement to be effective the last date that this Agreement is executed by either party.

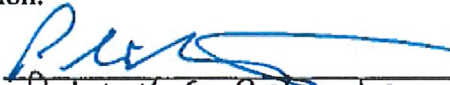
HRSD:

Locality:

Execution:

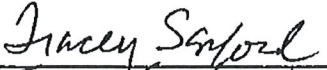
Execution:


By: 
Name: Edward G. Henifin, P.E.
Title: General Manager
Date Signed: NOV 27, 2018

By: 
Name: Patrick O. Roberts
Title: City manager
Date Signed: November 13, 2018

Attest:

Approved as to form:

By: 
Name: Tracey Sanford
Title: Deputy City Clerk
Date Signed: NOV 15, 2018

By: 
Name: Karla D. Carter
Title: Assistant City Attorney
Date Signed: Nov. 7, 2018

APPENDIX A

Standard Reports

Daily	Weekly	Monthly	Annual
Accounts Receivable Roll Forward	Leak Cancelled Not Rebilled	Detailed Aging Report	Fiscal Year Write Offs
Bill Exceptions	Return Check Report	Unoccupied Premise with Usage	Top 20 Water & Sewer Users by Bill Metered Consumption
Bill Seg Error			Total Billed Unmetered Dollars
Broken Pay Plan			Total Metered Consumption
Freezable Bill Segments			Total Number of Customers
General Ledger Transaction Listing			Total Un-Billed Quarterly Loans by Water/Sewer
Hi/Low Meter Read Reports			
Pending Bills without Freezable Segments			
Upload Staging Error			

HRSD COMMISSION MEETING MINUTES
NOVEMBER 27, 2018

ATTACHMENT #3

AGENDA ITEM 5. – Deep Creek Interceptor Force Main Replacement Easement Acquisition

- [Agreement of Sale](#)
- [Acquisition Plat](#)
- [Facilities Orientation Maps](#)

Dec 28, 2018 08:15 am

INST# 33470

This Instrument prepared by
 Kellam, Pickrell, Cox & Anderson, P.C.
 Tax Exempt--Sections 58.1-811(A)(3)
 Code of Virginia

DEED OF EASEMENT

This Deed of Easement, Made this 12 ^{December} day of ~~November~~, 2018, by and between CLASSICS 3 GROUP, LLC, a Virginia limited liability company (hereinafter called GRANTOR), and the HAMPTON ROADS SANITATION DISTRICT, a political subdivision of the Commonwealth of Virginia, (hereinafter called HRSD or GRANTEE), whose mailing address is Hampton Roads Sanitation District, Post Office Box 5911, Virginia Beach, Virginia 23471-0911.

WITNESSETH:

That for the sum of Ten Dollars (\$10.00) and other good and valuable consideration, the receipt of which is hereby acknowledged, GRANTOR does hereby grant and convey unto GRANTEE, its successors and assigns, the perpetual right, privilege, and Easement hereafter described, for the purpose of laying, erecting, constructing, operating, and maintaining underground wastewater and/or water reuse force mains and/or gravity mains together with above and/or below ground equipment, accessories, and appurtenances thereto, (hereinafter called "Facilities"), on the lands of the GRANTOR, said Easement (the "Easement", whether one or more) being further described as follows:

ALL THAT permanent utility easement labeled "30' HRSD Permanent Utility Easement", on a plat entitled "Plat Showing Easement to be Acquired from Classics 3 Group, LLC by Hampton Roads Sanitation District for Deep Creek Interceptor Force Main Replacement Chesapeake, Virginia" dated June 29, 2017, made by Precision Measurements, Inc., a copy of which plat is attached hereto and made a part hereof.

This Easement is subject to the following conditions and provisions:

A. The Facilities existing or constructed on or under the Easement and all replacements, substitutions, additions, repairs and improvements thereto, shall remain the property of GRANTEE. GRANTEE shall have the right to inspect, rebuild, remove, repair, improve, and make such changes, alterations, additions to or extensions of its Facilities within the boundaries of said Easement as are consistent with the purpose expressed herein. All construction, maintenance, equipment and Facilities shall comply with all applicable laws, ordinances, codes and regulations.

TAX PARCEL NO.: 0254012000352

Insured by: Unknown

Consideration: \$87,130.00

KELLAM, PICKRELL,
 COX & ANDERSON
 A PROFESSIONAL CORPORATION
 ATTORNEYS AT LAW

RECEIVED
 FOR RECORDING ONLY
 2018 DEC 27 PM 2:17
 CHESAPEAKE CIRCUIT COURT

B. Any disturbance of the premises by the **GRANTEE** or its contractor will be restored by the **GRANTEE** as nearly as practicable. This includes paving, fences, backfilling of trenches, grass, reseeding, replacing or replanting landscaping, and removal of trash and debris and removal of any equipment, accessories or appurtenances not consistent with the construction, maintenance or operation of the Facilities. Landscaping will be replaced with immature trees, shrubs, and ground cover. **GRANTEE** shall maintain the Easement and the Facilities in such repair as not to endanger or otherwise limit the enjoyment and use of adjacent properties.

C. **GRANTEE** shall have the right to trim, cut and remove trees, shrubbery or other obstructions which interfere with or threaten the efficient and safe operation, construction and maintenance of said Facilities. All trees and limbs cut by **GRANTEE** shall remain the property of **GRANTOR** if **GRANTOR**, in writing prior to removal, requests that they be left on the premises; otherwise all brush, branches, and other debris resulting from any cutting, trimming, or clearing of said right of way shall be removed from lands of **GRANTOR** for disposal.

D. **GRANTEE** shall have the right of ingress, egress and regress to, from and over the Easement and the right to use the adjoining land of **GRANTOR** where necessary, provided, however, that its right to use the adjoining lands shall be exercised only during periods of actual construction and/or maintenance. **GRANTEE** shall exercise such right in such manner as shall not occasion injury and inconvenience to **GRANTOR**. **GRANTEE** shall, at **GRANTEE'S** election, either pay for or repair any injury to any of **GRANTOR'S** land, crops, structures, roads, fences and other improvements caused by **GRANTEE**, its employees, agents or contractors.

E. **GRANTOR**, its successors and assigns, may use said Easement for any purpose not inconsistent with the rights hereby granted, provided such use does not interfere with the safe and efficient use, construction, operation or maintenance of the Easement and/or Facilities. **GRANTOR** shall not place any permanent improvements within the Easement without written permission of **GRANTEE**, or its successors, including but not limited to houses, buildings, pools, sheds, signs, or similar permanent structures. Subject to the foregoing, **GRANTOR** may install fences, driveways, pavement and landscaping (trees and shrubs shall be varieties that will not exceed 20 feet tall at maturity).

F. **GRANTEE** covenants and agrees that it will be responsible for any claims of injury to any persons or property resulting from its sole negligence in the installation, operation, maintenance, replacement, repair, removal or use of any of the Facilities and/or the Easement, or which result from **GRANTEE'S** exercise of any of the rights herein granted. Any contractor performing work for **GRANTEE** in the Easement shall be required to furnish a certificate of insurance satisfactory to **GRANTEE**.


WITNESS the following signatures and seals:

Classics 3 Group, LLC

By: 
Alan R. Gregor, Jr., Manager

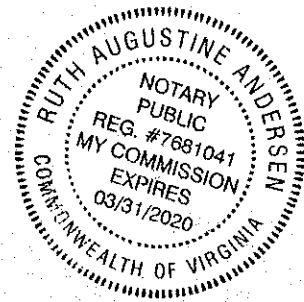
STATE OF VIRGINIA
CITY OF Virginia Beach, to-wit:

The foregoing instrument was acknowledged before me this 12 day of December, 2018 by Classics 3 Group, LLC by Alan R. Gregor, Jr., Manager.


Notary Public

My commission expires: 76810 03/31/2020 Registration No.: 7681041

HRSD\DEEDS\CLASSICS3GROUP,LLC TO HRSE DOE



AREA TABLE

30' H.R.S.D. PERMANENT UTILITY EASEMENT TO BE ACQUIRED	6,035 SQ. FT. OR 0.139 ACRES
--	------------------------------

N/F
 KENNETH M. BASS &
 KATHRYN S. BASS
 D.B. 2329, PG. 337
 M.B. 26, PG. 4
 TAX #0254012000590
 #2108 IOWA STREET

N/F
 TIMOTHY O. HARVEY
 D.B. 6702, PG. 290
 M.B. 25, PG. 23
 TAX #0254012000340
 #3008 S. MILITARY HIGHWAY

VIRGINIA STATE PLANE COORDINATE SYSTEM
 NAD83(94HARN), SOUTH ZONE

PROPERTY OF
CLASSICS 3 GROUP, LLC
 D.B. 9840, PG. 1320
 M.B. 26, PG. 4
 TAX #0254012000352
 #2104 IOWA STREET

N/F
 DOUBLE R, L.L.C.
 D.B. 9054, PG. 192
 M.B. 26, PG. 4
 TAX #0254012000351
 #3000 S. MILITARY HIGHWAY

IOWA STREET
 (VARIABLE WIDTH R/W)

S 87°00'22" W

N 09°11'38" W 201.18'



30' H.R.S.D. PERMANENT UTILITY EASEMENT

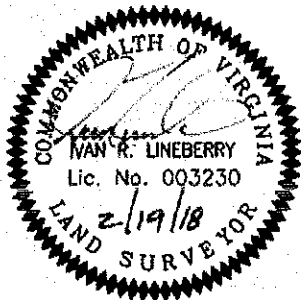
N 87°00'22" E

EXISTING R/W

S 09°11'38" E 201.18'


CANAL DRIVE
 (VARIABLE WIDTH R/W)

N:3,447,750.126
 E:12,120,115.252



HATCH & SYMBOL LEGEND

● IRON PIN FOUND

 DENOTES 30' H.R.S.D. PERMANENT UTILITY EASEMENT TO BE ACQUIRED

NOTES:

1. PROPERTY LINE AND RIGHT-OF-WAY INFORMATION SHOWN IS BASED ON PLATS, DEEDS OF RECORD AND ACTUAL FIELD MEASUREMENTS. THIS PLAT DOES NOT REPRESENT A CURRENT BOUNDARY SURVEY.
2. THIS SURVEY MAY NOT REFLECT ALL EASEMENTS OR RESTRICTIONS THAT AFFECT THE PROPERTY.
3. EASEMENT SHALL BE ACQUIRED BY DEED.



PLAT SHOWING EASEMENT
 TO BE ACQUIRED FROM
CLASSICS 3 GROUP, LLC

BY
 HAMPTON ROADS SANITATION DISTRICT
 FOR
 DEEP CREEK INTERCEPTOR
 FORCE MAIN REPLACEMENT
 CHESAPEAKE, VIRGINIA

SCALE: 1" = 50' JUNE 29, 2017

PRECISION MEASUREMENTS, INC.
 SURVEYORS • GPS • 3-D SCANNING • GIS • MAPPERS
 VIRGINIA BEACH-RICHMOND-NEWPORT NEWS-CHANTILLY-BALTIMORE
 629 PHOENIX DRIVE, SUITE 100
 VIRGINIA BEACH, VIRGINIA 23452
 TEL: (757) 368-0945

INSTRUMENT #180033470
RECORDED CHESAPEAKE CIRCUIT COURT CLERK'S OFFICE
Dec 28, 2018 AT 08:15 am
ALAN P. KRASNOFF, CLERK by MRW

BOOK 09977 PAGE 1332 - 01336

2104 Iowa Street, Chesapeake



© 2018 Pictometry

HRSD COMMISSION MEETING MINUTES
NOVEMBER 27, 2018

ATTACHMENT #4

Agenda Item 6. – James City County Conveyance of Facilities to HRSD Agreement

**AGREEMENT FOR CONVEYANCE OF PUMPING STATION LS 1-1 AND
THE ASSOCIATED SEWER FORCE MAIN ALONG JAMESTOWN ROAD
IN JAMES CITY COUNTY, VIRGINIA**

THIS AGREEMENT, between the JAMES CITY SERVICE AUTHORITY (JCSA) and the HAMPTON ROADS SANITATION DISTRICT (HRSD) entered this 13th day of November, 2018.

WITNESSETH:

WHEREAS, JCSA currently owns and operates a pumping station known as LS 1-1 in James City County located at 1861 Jamestown Road and further identified as JCC Tax Map Parcel ID No. 4640100005 (the "Property"), and an associated sewer force main pipe along Jamestown Road (the "Force Main"), collectively, the "New HRSD Facilities"; and

WHEREAS, HRSD has determined the most cost-effective method of conveying regional wastewater from Surry County to the Williamsburg Treatment Plant is by using the New HRSD Facilities to convey wastewater to existing HRSD facilities along Route 199 in James City County; and

WHEREAS, regional use of the New HRSD Facilities requires the operation and maintenance of these facilities to be paid for by the regional benefactors and as such becomes the responsibility of HRSD; and

WHEREAS, HRSD ownership of the New HRSD Facilities ensures regional funding of operation and maintenance as well as all required capital improvements, replacements, and upgrades now and to ensure future capacity and utility; and

WHEREAS, JCSA and HRSD have determined transfer of ownership of the New HRSD Facilities from JCSA to HRSD will serve the needs of James City County and the regional wastewater needs of HRSD most efficiently;

NOW, THEREFORE, it is mutually agreed between the parties as follows:

1. **Conveyance:** JCSA will convey fee simple title to LS 1-1 and the Property and assign all its rights, title, and interest in the Force Main from LS 1-1 to the HRSD facilities at Route 199 in their entirety "as is" along with any easements and or rights associated with the Force Main to HRSD at no cost to HRSD. HRSD shall prepare all required documents including plats, deeds, and easements as required at HRSD's cost. The exact date of conveyance to be mutually agreeable to both parties and operational responsibility will transfer from JCSA to HRSD on the agreed upon date.
2. **Title:** Fee simple title to the Property and LS 1-1 shall be conveyed to HRSD and, at the time of the such conveyance, shall be marketable and free and clear of all liens and encumbrances that, in the judgment of HRSD, would have a materially adverse effect on the title to the Property; however, the Property may be subject to easements and restrictions then of record. HRSD shall be responsible for the performance of a title examination to ascertain the condition of the title of the Property being acquired and shall further be responsible for obtaining owner's title insurance on the Property. The contemplated transfer shall include the real property constituting the Property in addition to the actual infrastructure and improvements thereon constituting the LS 1-1 pumping station to be necessary for current and future operational needs, to include maintenance, operations, anticipated expansion and any easement rights held by JCSA in the New HRSD Facilities. It shall be a condition precedent to HRSD's acceptance of the Property and facilities thereon that HRSD is able to obtain owner's title insurance on the Property through a company authorized to do business in the Commonwealth of Virginia at normal and typical rates.
3. **Parcel Size and Configuration:** The Property shall conform to all existing laws and ordinances and the Property shall be sized and configured to meet appropriate parcel size and setback requirements in effect in James City County at the time of conveyance and include all required utility and access easements as may be necessary for operation, maintenance and construction activities associated with a wastewater pumping station including access from a public road.
4. **Wastewater Capacity:** HRSD shall provide adequate wastewater capacity to serve all development and redevelopment within the LS 1-1 service area (including capacity improvements as required for the force main serving LS 1-1 to maintain appropriate operating pressures in the force main that might particularly impact other interconnected JCSA pump stations) in accordance with the James City County Comprehensive Plan as the plan exists today and as may be modified and amended from time to time in the future.
5. **Maintenance Standards:** HRSD strives to be a good neighbor and shall maintain the New HRSD Facilities and the entire parcel to meet JCSA's standards for grounds maintenance and general appearance.
6. **Required Future Relocation.** In the event HRSD is required or requested by JCSA

to remove or relocate any of the New HRSD Facilities on Jamestown Road (or any portion thereof), JCSA shall be solely responsible for any costs incurred in doing so. Relocation required due to capacity improvements or expansions in accordance with Section 4 shall not be considered "required or requested by JCSA" under this Section.

7. **Re-conveyance by HRSD.** At such times as HRSD shall determine in its sole discretion that any portion of the facilities it obtains under this Agreement are no longer useful in the performance by HRSD of its functions, HRSD shall offer to convey to JCSA, at no cost to JCSA, the real estate and the then-existing facilities "as is." If not accepted by JCSA, HRSD may abandon the facilities and dispose of the real property and any then-existing on-site facilities, installations, or improvements.

8. **Further Cooperation.** JCSA and HRSD agree to execute all documentation and take all necessary actions to effectuate this Agreement. Upon execution of this Agreement, HRSD and its agents, employees, engineers, and surveyors shall have access to the New HRSD Facilities in accordance with Section 9 of this agreement.

9. **Right of Entry.** HRSD shall have the right to enter the New HRSD Facilities for the purpose of making surveys, obtaining data, measurements and design data to ascertain such engineering data as may be necessary for the purposes of design, perform environmental tests, and soil tests provided such testing does not materially interfere with JCSA's use of the Property and the Force Main and further provided that said tests shall not be so exercised as to cause material damage to said Property or Force Main. All such testing is to be at the risk and expense of HRSD. In connection with this right to enter the New HRSD Facilities, HRSD agrees (i) to restore the New HRSD Facilities to their prior condition after the performance of any such survey or other investigation and (ii) to indemnify, defend and hold JCSA harmless from and against all costs, losses, damages, and expenses, including reasonable attorneys' fees, arising out of the activities of HRSD and/or its employees, agents and representatives in connection with the right of entry to the New HRSD Facilities. HRSD shall coordinate with JCSA prior to exercising its rights under this paragraph. JCSA shall have the right to be present during any entry to the New HRSD Facilities by HRSD.

10. **Notices.** All notices required pursuant to the terms of this Agreement shall be deemed effective when delivered by certified mail, return receipt requested, postage prepaid, to JCSA and to HRSD at the respective addresses herein shown, unless this Agreement is modified in writing to reflect other addresses:

General Manager	General Manager
JCSA	HRSD
119 Tewning Road	PO Box 5911
Williamsburg, VA 23188	Virginia Beach, VA 23471

11. **Entire Agreement.** This Agreement, and any exhibits or attachments made hereto, represent the full agreement and understanding of the parties hereto, there being no

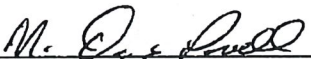
additional agreements written, oral or otherwise. This Agreement may be amended only by a writing signed by both parties.

12. **Authority.** JCSA and HRSD both warrant that they have permission and authority derived under their respective corporate Charters and Enabling Acts to execute and undertake this Agreement and that all necessary actions of JCSA's governing Board to allow execution of this Agreement have been completed, and that all necessary Resolutions and actions of the Commission of HRSD to allow execution of this Agreement have been completed.
13. **Compliance with Law.** Each party warrants that it has complied with all aspects of applicable federal, state, and local law in entering this Agreement and further warrants that it shall comply with all applicable federal, state, and local laws in the performance of this Agreement.
14. **No Violation.** The execution of this Agreement by the parties will not violate any covenant, condition, or contract to which the parties hereto are subject at the time of execution.
15. **Post-Execution Impact on Title.** Upon execution of this Agreement, JCSA shall not take any action with respect to the Property that would impact or affect the quality of title that will be conveyed to HRSD in accordance with paragraph 2 of this Agreement, with the exception of exercise of the JCSA's powers of eminent domain.
16. **Governing Law; Venue.** This Agreement shall be governed by the laws of the Commonwealth of Virginia, and the exclusive venue for any dispute arising between the parties under this Agreement shall be a court of competent jurisdiction located in James City County, Virginia.
17. **Waiver.** The failure of either party to enforce the terms of this Agreement shall not be considered a waiver as to the enforceability of such terms.
18. **Termination.** This agreement shall terminate upon HRSD providing written notice to JCSA, prior to settlement and conveyance of title, with full release of terms and obligations of both parties. HRSD shall only terminate should HRSD determine in its sole discretion that LS 1-1 will not meet HRSD's intended use or should HRSD fail to obtain the appropriate permits and approvals by local governments and regulatory agencies to construct the HRSD facilities necessitating HRSD's use of LS 1-1.
19. **Survival.** This Agreement shall survive settlement and conveyance of title.

[SIGNATURE PAGE FOLLOWS]

IN WITNESS WHEREOF, JCSA has caused this AGREEMENT to be signed by its General Manager on its behalf pursuant to the resolution adopted by the Board of the James City Service Authority on Nov. 13, 2018, and the Hampton Roads Sanitation District Commission has caused this AGREEMENT to be signed on its behalf by its General Manager in accordance with authorization granted at its regular meeting held on November 27, 2018.

JAMES CITY SERVICE AUTHORITY



General Manager

Hampton Roads Sanitation District



General Manager

Approved as to Form:

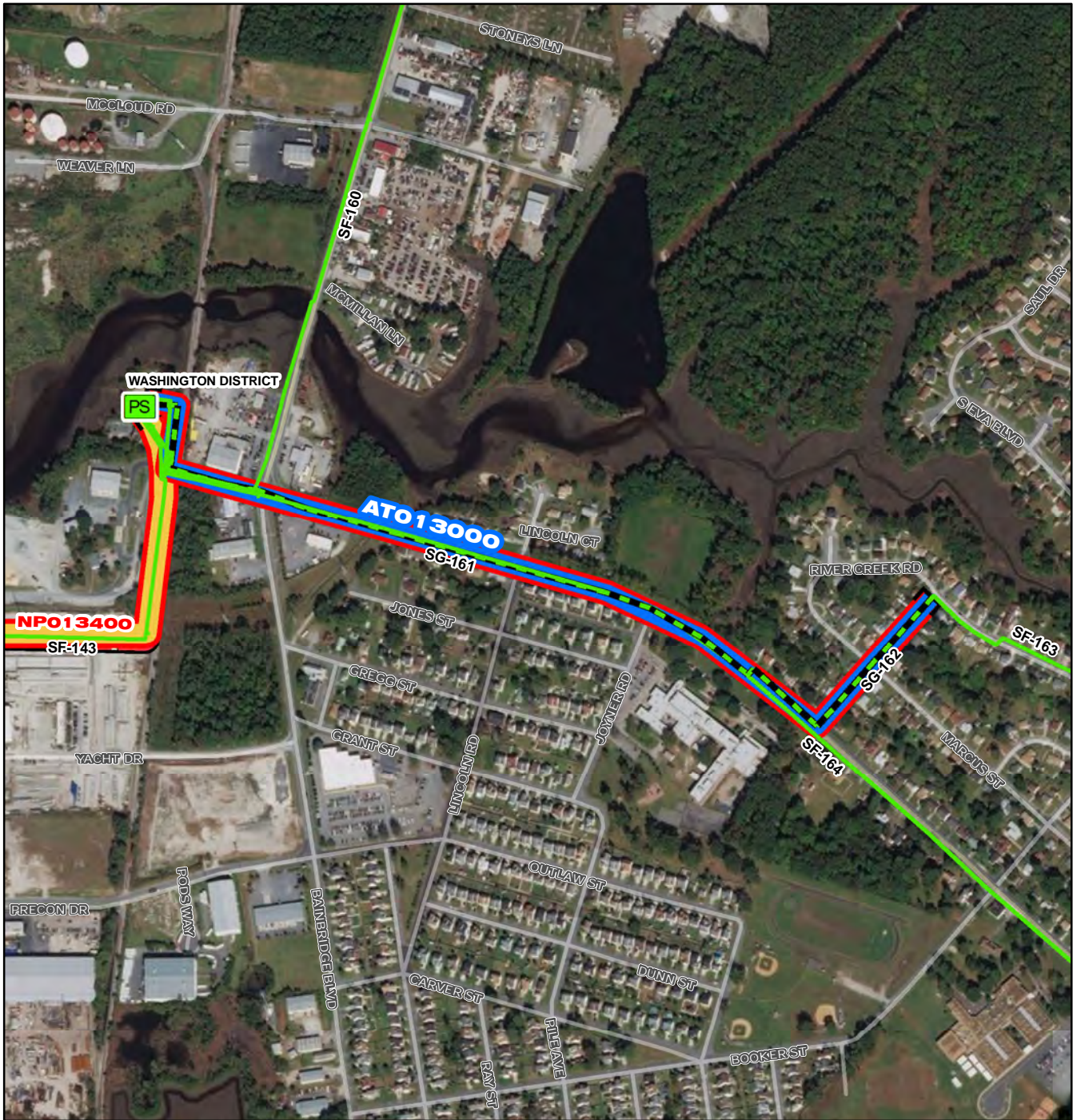


County Attorney

HRSD COMMISSION MEETING MINUTES
NOVEMBER 27, 2018

ATTACHMENT #5

Agenda Item 7. – Washington District Pump Station Area Sanitary Sewer Improvements

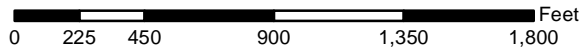


ATO 13000

- Project Interceptor Line
- Project Interceptor Point
- Project Pump Station Point
- Project Area

Legend

- CIP Interceptor Point
- CIP Pump Station Point
- CIP Interceptor Line
- CIP Abandonment
- CIP Project Area
- HRSD Interceptor Force Main
- HRSD Interceptor Gravity Main
- HRSD Treatment Plant
- HRSD Pressure Reducing Station
- HRSD Pump Station



ATO 13000

Washington District Pump Station Area Sanitary Sewer Improvements



CIP Location



Chesapeake

HRSD COMMISSION MEETING MINUTES
NOVEMBER 27, 2018

ATTACHMENT #6

Agenda Item 9. – Williamsburg Treatment Plant Land Acquisition

WB Proposed Parcel Acquisition



HRSD COMMISSION MEETING MINUTES
NOVEMBER 27, 2018

ATTACHMENT #7

Agenda Item 14. – Informational Items

a. Management Reports

- (1) [General Manager](#)
- (2) [Communications](#)
- (3) [Engineering](#)
- (4) [Finance](#)
- (5) [Information Technology](#)
- (6) [Operations](#)
- (7) [Talent Management](#)
- (8) [Water Quality](#)
- (9) [Report of Internal Audit Activities](#)
- (10) [Internal Audit – Treatment Plant Operations](#)

b. [Strategic Planning Metrics Summary](#)

c. [Effluent Summary](#)

d. [Air Summary](#)



November 19, 2018

Re: General Manager's Report

Dear Commissioners:

The below emails were received last month from a colleague that serves on the National Association of Clean Water Agencies (NACWA) Board of Directors with me:

“I wanted to let you know that I'm in Philly for the American Water Summit and I had the great pleasure to meet Dana and Raul Gonzalez of your staff. They were really terrific---extremely passionate about their work and very complimentary about your leadership (all this before I let on that I knew you). Just wanted to pass on how well your colleagues are representing Hampton Roads!” Andy Kricun, P.E., Executive Director/Chief Engineer, Camden County Municipal Utilities Authority, from email 10/25/2018

“You will be glad, but not surprised, to hear that they did a terrific job representing HRSD on Friday in the utility leaders of the future session. Very impressive! That is great that they are surrounded by nearly equally impressive colleagues. And with you as a leader, giving them the room and encouragement to do their best (this from Dana and Raul themselves), it is no wonder that HRSD is doing such a great job!” Andy Kricun, P.E., Executive Director/Chief Engineer, Camden County Municipal Utilities Authority, from email 10/28/2018

HRSD was asked to send young, bright representatives to the American Water Summit to participate in a program entitled, “What Does a Great Water Future Look Like?” The only criterion was they had to be 35 years old or younger. I asked Raul and Dana if they would be willing to participate as a team from HRSD and they readily agreed. They obviously provided a glimpse of a very bright future for the water industry and it was a terrific lift to receive these emails from a respected industry leader, recognizing and confirming what I biasedly already believe - our folks are incredible! In this season of Thanksgiving I am certainly thankful for the dedicated, talented and passionate people that surround me here at HRSD and I know you are as well.

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 • Stephen C. Rodriguez • Willie Levenston, Jr. • Ann W. Templeman • Elizabeth A. Taraski, PhD
www.hrsd.com

The highlights of October's activities are detailed in the attached monthly reports.

- A. **Treatment Compliance and System Operations:** The West Point Treatment Plant had an issue in October that resulted in missing the weekly average for Total Chlorine Residual (high value exceeded permitted maximum). There was one spill in the Small Communities in October related to a power outage. Details of these issues and the highlights of the month are included in the attached monthly reports.
- B. **Internal Communications:** I participated in the following meetings/activities with HRSD personnel:
1. One new employee orientation session
 2. A meeting to discuss property disposition
 3. A meeting to discuss the HRSD nutrient strategy
 4. A meeting to review the draft Comprehensive Annual Financial Report (CAFR)
 5. A meeting to review options related to a pump station in Urbanna
 6. The Safety Luncheon recognizing safety innovation
 7. Two length of service breakfast celebrations
 8. A meeting to review issues associated with the Atlantic Treatment Plant permit reissuance
 9. A meeting to review organizational risk planning
- C. **External Communications:** I participated in the following meetings/activities:
1. Attended WEFTEC and assisted in the development and delivery of the Public Officials Forum
 2. Participated in multiple conference calls as a member of the US EPA Environmental Financial Advisory Board
 3. Interviewed with Jay Bernas by US EPA as part of a full-cost pricing study
 4. Participated in several calls to prepare for the Mid-Atlantic Utility Conference
 5. Met with Troutman Sanders representatives regarding groundwater issues
 6. Met with consultants and staff to develop plan for Eastern Shore Force Main Study
 7. Attended Congressman Scott Taylor's Chesapeake Bay Advisory Board meeting
 8. Attended a meeting of the Regionalization Subcommittee of the US EPA Environmental Financial Advisory Board in Washington, D.C.
 9. Attended the NACWA Leadership Fall retreat

10. Participated in a meeting with HRSD staff and consultants to define scope of public access options adjacent to the James River Treatment Plant
11. A meeting with representatives of the owner of Carter's Grove to identify options related to additional property needs at Williamsburg Treatment Plant
12. A meeting with the Director of the Virginia Tech aquaculture research center regarding potential reuse of Chesapeake Elizabeth Treatment Plant
13. Participated on two panels at the Mid-Atlantic Utility Conference
14. Attended the final meeting of the James River Chlorophyll Study Regulatory Advisory Committee
15. A call with the Director of the Tidewater Regional Office of DEQ to discuss various issues
16. Met with David Paylor, Director of DEQ, to discuss various issues
17. A call with JCSA to finalize the agreement for transfer of ownership of JCSA facilities to support conveyance of Surry flow to Williamsburg

D. **Consent Decree Update:** Annual report was submitted as required on October 30, 2018. This was the final report to be prepared by Brown and Caldwell. Future reports will be prepared by HRSD staff.

The leadership and support you provide are the keys to our success as an organization. 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, November 27, 2018 in Virginia Beach.**

Respectfully submitted,

Ted Henifin

Ted Henifin, P.E.
General Manager

TO: General Manager
FROM: Director of Communications
SUBJECT: Monthly Report for October 2018
DATE: November 6, 2018

A. Publicity and Promotion

1. **Wastewater Research Project Facility Includes Safety Doors & Hatches** | October 1, 2018 | WWD Water & Waste Digest
<https://www.wwdmag.com/channel/casestudies/wastewater-research-project-facility-includes-safety-doors-hatches>
2. **New Tool Simplifies Analysis of Alternative Water Supply Options** | October 2, 2018 | Treatment Plant Operator (TPO) Magazine
https://www.tpomag.com/online_exclusives/2018/10/new-tool-simplifies-analysis-of-alternative-water-supply-options
3. **Northam: \$4.5M in VCI Funding for Albemarle and Middlesex Counties** | October 2, 2018 | WVIR TV, NBC 29
<http://www.nbc29.com/story/39213651/northam-45m-in-vibrant-community-initiative-funding-for-albemarle-middlesex-counties>
4. **Cooks Corner project gest \$2.25 million grant** | October 3, 2018 | Southside Sentinel
http://www.ssentinel.com/index.php/news/article/cooks_corner_project_get_s_225_million_grant/
5. **Sewage ‘detectives’ will search Fairview Beach’s waste problems** | October 7, 2018 | Fredericksburg.com (The Free Lance-Star)
https://www.fredericksburg.com/news/local/king_george/sewage-detectives-will-search-for-fairview-beach-s-waste-problems/article_29250c94-d7a9-5142-896a-392cd4f4619a.html
6. **Member Spotlight: Hampton Roads’ “Secret Sauce:” The HRSD Apprenticeship Program** | October 8, 2018 | NACWA.org
http://www.nacwa.org/about-us/member-spotlight/2018/10/10/hampton-roads'-secret-sauce-the-hrsd-apprenticeship-program?utm_source=Real%20Magnet&utm_medium=email&utm_campaign=132618036

7. **Jacobs Focuses on Resilient Future with Sustainable Solutions Across Water Cycle** | October 9, 2018 | ABC Fox Montana
<http://www.abcfoxmontana.com/story/39254234/jacobs-focuses-on-resilient-future-with-sustainable-solutions-across-water-cycle>
8. **Innovative Project In Virginia Changes Lens on Wastewater** | October 16, 2018 | Water Online <https://www.wateronline.com/doc/innovative-project-in-virginia-changes-lens-on-wastewater-0001>
9. **Best Water/Environment and Excellence in Safety Award of Merit: SWIFT Research Center** | October 16, 2018 | Engineering News Record (ENR) <https://www.enr.com/articles/45538-best-waterenvironment-and-excellence-in-safety-award-of-merit-swift-research-center>
10. **Land or water disposal; HRSD weighs options** | October 18, 2018 | Southside Sentinel
http://www.ssentinel.com/index.php/news/article/land_or_water_disposal_hrsd_weighs_options/
11. **Is your water bill “atrociously high”? Let’s break it down.** | October 28, 2018 | The Virginian Pilot
https://pilotonline.com/business/consumer/article_ef123070-d93a-11e8-aa24-c316499e5fda.html

B. Social Media and Online Engagement

1. Facebook: 13,101 post impressions
2. Twitter: 19,700 impressions
3. SWIFT website visits: 273
4. LinkedIn Impressions: 0
5. Construction Project Page Visits: 631 total (this number does not include direct visits from home page), broken down as follows:
 - a. 332 visits to construction status page
 - b. 299 visits to individual project pages
6. Next Door unique impressions: 0

C. News Releases, Advisories, Advertisements, Project Notices, Community Meetings and Project Websites

1. News Releases/Traffic Advisories/Construction Notices: 2
2. Advertisements: 0

3. Project Notices: 10
 - a. **Chesapeake:** Bowers Hill Road – variable message board
 - b. **Hampton:** Sewer Manhole Rehabilitation Project Task Order 2- variable message board deployed; Orcutt Avenue & Mercury Boulevard Manhole Rehabilitation
 - c. **James City County:** Williamsburg Carters Grove – direct stakeholder email to Kingsmill Resort and homeowners
 - d. **Newport News:** Warwick Thorncliff to Lucas Creek – door hangers to 40 residences/businesses
 - e. **Norfolk:** Sewer Manhole Rehabilitation Project Task Order 3 (1/Old Dominion University campus-wide text blast and 40 door hangers; Pump Station Wetwell Rehabilitation – one-on-one updates to neighboring homes and businesses; Gum Road – door hangers and variable message board
 - f. **Town of West Point in King William** – Lee Street closeout notice door hanger to 40 residents
 - g. **Virginia Beach:** Virginia Beach Boulevard Sewer Pipeline Survey Notice – one-on-one meetings with 12 residents/businesses
4. Project/Community Meetings: 0
5. New Project Web Pages/Blogs/Videos: 2
 - a. Web page: [Kirby and 10th Streets Sanitary Sewer Rehabilitation](#)
 - b. Blog: [The One Thing You Can't Live Without](#)

D. Special Projects and Highlights

1. Director attended the Public Relations Society of America (PRSA) International Conference in Austin, Texas which included a day-long crisis communications planning and preparation workshop for Public Affairs and government communicators. Other key sessions attended during the conference include: Social, Mobile and Emerging Media: New Issues and Opportunities for Public Relations; Cross-Generational Public Relations and Marketing; Copyright Trolls, Traps and Best Practices; How to Develop a Futurist Mindset to Enhance Your Strategic Communications, and How to Authentically Engage with Multicultural Audiences.
2. Director provided SWIFT Research Center tours to the following groups:
 - a. A group from NASA Langley Research Center
 - b. The local chapter of the Appalachian Trail Club

3. Director and staff assisted with the Apprenticeship Graduation dinner and celebration.
4. Community Relations Liaison attended WEFTEC 2018 in New Orleans.
5. Staff participated in the Virginia Association of Environmental Educators (VAEE) Conference Proposal Brainstorm meeting with Lynnhaven RiverNOW and also attended an askHRGreen Water Awareness meeting.
6. Community Education and Outreach Specialist took the EPA Water Reuse and Reclaimed Water training webinar.

E. Internal Communications

1. Director participated in the following internal meetings:
 - a. SWIFT website content update meeting
 - b. SWIFT Public Relations planning meeting with SWIFT Chief and Program manager
 - c. Cybersecurity Awareness Program Collaboration meeting
 - d. Planning meetings for the Apprenticeship Graduation Ceremony
 - e. Safety Innovation luncheon
 - f. Public Relations coordination workshop for the Providence Road Offline Storage Facility
 - g. Website continued improvement meeting to develop user subscription options
 - h. Solids Master Plan Alternatives Development workshop
 - i. Alternatives exploration workshops for Park and Ferebee pump stations
 - j. SWIFT QST, QST and DMR meetings
2. Director conducted bi-weekly communications department status meetings, monthly social media content development meetings and project update check-ins with staff.

F. Metrics

1. Educational and Outreach Activities: 12
 - a. 10/02/18 - SWIFT Research Center (SWIFT RC) Tour, Appalachian Trail Club (20 attendees)
 - b. 10/04/18 - SWIFT RC Tour, Hampton Master Gardeners (18 attendees)

- c. 10/04/18 – Classroom presentation/activity, Mack Benn Elementary, Suffolk (12 students)
- d. 10/04/18 – Girl Scout Water Presentation, Virginia Beach (12 children)
- e. 10/06/18 – Lynnhaven RiverNOW Festival, Virginia Beach – staffed informational/activity booth (approximately 400 attendees)
- f. 10/10/18 – SWIFT RC Tour, Measurement, Control and Automation Association (four attendees)
- g. 10/13/18 – Cooperating Hampton Roads Organizations for Minorities in Engineering, Inc.(CHROME) Club event, Norfolk - (30 attendees)
- h. 10/17/18 – SWIFT RC Tour, NASA Langley Research Center (NASA LaRC) - (15 attendees)
- i. 10/18/18 – STEM & M Night, Chesapeake (100 attendees)
- j. 10/22/18 – Classroom presentation, Booker T Elementary, Suffolk (8 children)
- k. 10/24/18 – SWIFT RC Tour, HRSD Underwriters (15 attendees)
- l. 10/25/18 – Believer’s Church Q-Commons event, informational booth, Suffolk (80 attendees)

2. Number of Community Partners: 6

- a. Suffolk Public Schools
- b. Girl Scouts of Colonial Coast
- c. Lynnhaven RiverNOW
- d. Norfolk State University
- e. NASA LaRC
- f. Chesapeake Public Schools

3. Additional Activities Coordinated by Communications Department:

- a. 10/06/18 – RiverFest, Portsmouth
- b. 10/07/18 – “Party in Chesapeake City Park” Touch-A-Truck
- c. 10/20 – VA Section, Virginia Water Environment Association, American Water Works Association (VWEA/VA AWWA) Model Tower Challenge exhibitor, Old Dominion University, Norfolk
- d. 10/27/18 Touch-A-Truck event, (Chesapeake)

4. Monthly Metrics Summary

Item #	Strategic Planning Measure	Unit	October 2018
M-1.4a	Total Training Hours per Full Time Employee (3) - Current Month	Hours / #FTE	16.5
M-1.4b	Total Training Hours per Full Time Employee (3) - Cumulative Fiscal Year-to-Date	Hours / #FTE	36
M-5.2	Educational and Outreach Events	Number	12
M-5.3	Number of Community Partners	Number	6

Respectfully,

Leila Rice, APR
Director of Communications

TO: General Manager
FROM: Director of Engineering
SUBJECT: Engineering Monthly Report for October 2018
DATE: November 13, 2018

A. General

1. Capital Improvement Program (CIP) spending for the third month of Fiscal Year (FY) 2019 was lower than the planned spending target.

CIP Spending (\$M):

	Current Period	FYTD
Actual	10.11	19.03
Plan	11.30	32.40

No Water Quality Improvement Fund Grant reimbursements were received in the month of October.

2. The Engineering Department held its Annual Planning Day on October 31. This year we used a “virtual brainstorming” technique that allowed staff to suggest ideas in advance of the session. We used the HRSD Strategic Planning focus areas of People, Infrastructure, Environmental Impact, Operations and Partnerships to organize our suggested improvement items. This format promoted suggestions for improvement that were in alignment with the long-term goals of HRSD. Twenty new initiatives and six action items were proposed to improve the Engineering Department. There were also thirteen improvement suggestions (Parking Board Items) for HRSD to consider as a result of the discussions held by the Engineering Department.

B. Asset Management Division

1. The Asset Management Program Communications Plan was expanded in October with the addition of the following items: Baseline Staff Awareness Survey, Asset Management Fact Sheet, updates to SharePoint site, clarifications between the asset management program and the Asset Management Division, and creation of the Asset Management Liaison Group. Each of these items is intended to make staff more aware of the ongoing efforts and to clarify misperceptions related to asset management.

2. Staff began the planning process for a Sewer System Evaluation Survey (SSES) for the Small Communities collection system. This work will be focused in West Point and possibly Surry. The SSES process will begin with a desktop analysis of flows in West Point to identify areas of greatest concern and to look at the Town of Surry and adjacent areas to determine if an SSES is necessary. The results of the desktop analysis will be used to build the necessary data set to determine next steps. Due to the relative small size of these systems compared to sewer collection systems in Hampton Roads, a more streamlined and focused approach will be used to balance cost and effort against the limited assets in these areas.

C. North Shore, South Shore and SWIFT Design & Construction Divisions

1. Final design is nearing completion for the Boat Harbor Treatment Plant Switchgear and Controls Replacement project. The final design review meeting has been held and the consultant is making the final revisions necessary to advertise this project for construction. The project should be advertised for construction in November with an award planned for early 2019.
2. Final design has begun for the Providence Road Offline Storage Facility project. This project is being delivered using a Design-Build method. The project team is focused on weekly design review meetings and coordination with both the City of Virginia Beach and Dominion Energy. The 60 percent design should be completed in November and a Guaranteed Maximum Price presented for Commission approval in early 2019.
3. A Groundwater & Recharge Well Workshop was held on October 30 with a number of internal and external project team members. The workshop was intended to provide background information to the Program Management Team and to discuss future efforts related to contracting, field inspection, design, and scheduling of the work. Recent well installation efforts and groundwater modeling were also highlighted. Future well installation contracting options were discussed and coordinating this effort with the SWIFT work was reviewed.

D. Planning & Analysis Division

1. Staff held an internal workshop to discuss an update to the Solids Handling Master Plan. This workshop included a number of internal staff members from various departments within HRSD. The previous plan was reviewed, as were recent changes caused by updated regulations and recent projects addressing solids handling needs at HRSD. The updated plan is targeted for completion in early 2019.

2. SC&H recently prepared an audit for a Business Continuity and Disaster Recovery Plan. This audit highlighted the many potential disasters that could negatively impact HRSD. The audit focused primarily on financial and information technology impacts that could result from a potential disaster. This audit affects numerous business processes within HRSD and a response to the recommendations will be coordinated with each department that has a lead role in planning, operating and recovering after a disaster.

E. Strategic Planning Metrics Summary

1. Educational and Outreach Events: 6
 - a. Staff made a technical presentation at WEFTEC 2018 entitled, “Collaborating to Save Rate Payer Dollars, No Good Deed Goes Unpunished,” on October 2.
 - b. Staff moderated a technical session at WEFTEC 2018 entitled, Leadership in Action: Driving Innovation,” on October 2.
 - c. Staff participated in the Lynnhaven River NOW Fall Festival held on October 6.
 - d. Staff made a presentation at the ASCE ODU Student Chapter Meeting entitled, “ Wastewater Infrastructure and Taking a Treatment Plant Offline,” on October 20.
 - e. Staff made a presentation at the Chesapeake Section American Waterworks Association (AWWA) Mid-Atlantic Utility Conference on October 23.
 - f. Staff taught a class on surveying and engineering to students at the Hampton Roads Public Works Academy (HRPWA) on October 24.
2. Number of Community Partners: 5
 - a. WEFTEC
 - b. Lynnhaven River NOW
 - c. ASCE - ODU Student Chapter
 - d. AWWA
 - e. HRPWA

3. Number of Research Partners: 0

4. Metrics Summary

Item #	Strategic Planning Measure	Unit	October 2018
M-1.4a	Total Training Hours per Full Time Employee (43) - Current Month	Hours / #FTE	3.00
M-1.4b	Total Training Hours per Full Time Employee (43) - Cumulative Fiscal Year-to-Date	Hours / #FTE	10.48
M-5.2	Educational and Outreach Events	Number	6
M-5.3	Number of Community Partners	Number	5
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 October 2018
DATE: November 14, 2018

A. General

1. At the October 12, 2018 Virginia Investment Pool's Annual Meeting, the Director of Finance was unanimously voted in by the membership to serve a four-year term on the Board of Trustees. The Board members are elected City Treasurers and Chief Investment Officers from across the Commonwealth that participate in the \$1.2 billion Virginia Investment Pool
2. On October 24, staff hosted a SWIFT Research Center tour for our municipal bond underwriters, Fitch Ratings Agency and T. Rowe Price, one of HRSD's largest bond holders. The attendees were extremely impressed with the project and the Research Center. This tour will help our underwriters sell our bonds the next time we are in the market. In addition, it will help Fitch understand the reasoning behind our major capital expenditures in the coming years.
3. Billed water consumption spiked in October relative to the previous months and resulted in Wastewater Revenues slightly above budget for the year. HRSD received its annual credit card rebate, which was over \$300,000 categorized in the Miscellaneous Operating Revenue line item. Overall, revenues are above budget and in-line with the previous year. Personal services and fringe benefit expenses are generally on budget at 35 percent and 33 percent, respectively, compared with the prior year's 35 percent and 34 percent. Since HRSD has twenty-six bi-weekly pay periods, expenses are higher during months like August that have three pay periods. We anticipate that as we return to months when there are two pay periods, the cumulative personnel services expense percentage will be back in line with budget. Fringe benefits aren't impacted as heavily since VRS is only paid twice a month regardless of the number of pay periods. Major repairs and capital assets expenses continue to be significantly lower than budget at this time, since many purchases in July related to prior year encumbrances. Debt service is recorded based on actual year to date payments, currently at 34 percent of budget, and we anticipate it being near budget at year end. Overall, expenses and transfers are on budget at 33 percent and continue to be controlled.
4. The Quarterly investment summary for [HRSD's Operating Cash Strategies and Retiree Health Trust \(OPEB\)](#) is attached. This version provides a snapshot view, but more detailed information can be made available upon request.

B. Interim Financial Report

1. Operating Budget for the Period Ended October 31, 2018

	Amended Budget	Current YTD	Current YTD as % of Budget (33% Budget to Date)	Prior YTD as % of Prior Year Budget
Operating Revenues				
Wastewater	\$ 289,967,000	\$ 102,822,055	35%	35%
Surcharge	1,425,000	520,065	36%	28%
Indirect Discharge	2,750,000	864,594	31%	37%
Fees	2,855,000	969,522	34%	32%
Municipal Assistance	875,000	230,501	26%	43%
Miscellaneous	595,000	516,495	87%	63%
Total Operating Revenue	298,467,000	105,923,232	35%	35%
Non Operating Revenues				
Facility Charge	6,075,000	2,192,455	36%	36%
Interest Income	2,500,000	1,644,545	66%	50%
Build America Bond Subsidy	2,400,000	1,145,118	48%	49%
Other	820,000	70,000	9%	86%
Total Non Operating Revenue	11,795,000	5,052,118	43%	45%
Total Revenues	310,262,000	110,975,350	36%	36%
Transfers from Reserves	8,847,824	2,949,275	33%	33%
Total Revenues and Transfers	\$ 319,109,824	\$ 113,924,625	36%	36%
Operating Expenses				
Personal Services	\$ 55,331,886	\$ 19,388,884	35%	35%
Fringe Benefits	24,321,670	7,913,745	33%	34%
Materials & Supplies	7,686,154	2,270,177	30%	33%
Transportation	1,446,906	438,462	30%	27%
Utilities	12,306,952	3,833,872	31%	28%
Chemical Purchases	10,894,183	2,772,588	25%	27%
Contractual Services	42,104,030	9,767,420	23%	26%
Major Repairs	10,315,534	1,609,748	16%	19%
Capital Assets	1,232,144	217,218	18%	39%
Miscellaneous Expense	2,945,304	1,001,633	34%	30%
Total Operating Expenses	168,584,763	49,213,747	29%	30%
Debt Service and Transfers				
Debt Service	62,811,000	26,748,747	43%	31%
Transfer to CIP	87,475,061	29,158,352	33%	33%
Transfer to General Reserve	-	-	0%	33%
Transfer to Risk management	239,000	79,668	33%	33%
Total Debt Service and Transfers	150,525,061	55,986,767	37%	32%
Total Expenses and Transfers	\$ 319,109,824	\$ 105,200,514	33%	31%

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 October 31, 2018

	General	Risk Management	Reserve	Capital
Beginning of Period - July 1, 2018	\$ 193,623,393	\$ 3,260,531	\$ 15,266,324	\$ 75,874,029
Add: Current Year Sources of Funds				
Cash Receipts	108,425,896			-
Capital Grants				-
VRA Draws				5,982,715
Bond Proceeds (includes interest)				426,568
Transfers In	-	79,668		29,158,352
Sources of Funds	108,425,896	79,668	-	35,567,635
Total Funds Available	\$ 302,049,289	\$ 3,340,199	\$ 15,266,324	\$ 111,441,664
Deduct: Current Year Uses of Funds				
Cash Disbursements	79,425,452			32,210,168
Transfers Out	29,238,020			-
Uses of Funds	108,663,472	-	-	32,210,168
End of Period - October 31, 2018	\$ 193,385,817	\$ 3,340,199	\$ 15,266,324	\$ 79,231,496

4. Capital Improvements Budget and Activity Summary for Active Projects for the Period Ended October 31, 2018

Classification/ Treatment Service Area	Amended Budget	Expenditures prior to 6/30/2018	Year to Date FY 2019 Expenditures	Total Expenditures	Outstanding Encumbrances	Available Balance
Administration	\$ 62,245,711	\$ 40,373,104	\$ 215,775	\$ 40,588,879	\$ 1,453,842	\$ 20,202,990
Army Base	158,584,000	124,056,439	102,690	124,159,129	2,478,978	31,945,893
Atlantic	124,917,320	56,021,560	8,519,619	64,541,179	39,529,681	20,846,460
Boat Harbor	118,380,436	55,186,498	783,466	55,969,964	10,597,300	51,813,172
Ches-Eliz	155,356,457	10,416,092	1,546,784	11,962,876	37,725,682	105,667,899
James River	89,151,802	55,333,203	1,384,857	56,718,060	2,102,264	30,331,478
Middle Peninsula	49,276,789	7,951,942	917,991	8,869,933	4,994,304	35,412,552
Nansemond	84,434,179	39,238,100	845,805	40,083,905	4,531,531	39,818,743
Surry	3,236,000	101,724	185,613	287,337	278,516	2,670,147
VIP	292,496,378	250,845,562	1,898,363	252,743,925	5,829,520	33,922,933
Williamsburg	17,768,032	10,079,627	89,953	10,169,580	1,006,544	6,591,908
York River	45,712,249	40,864,038	339,304	41,203,342	217,356	4,291,551
General	481,265,843	216,595,238	2,203,171	218,798,409	26,846,466	235,620,968
	<u>\$ 1,682,825,196</u>	<u>\$ 907,063,127</u>	<u>\$ 19,033,391</u>	<u>\$ 926,096,518</u>	<u>\$ 137,591,984</u>	<u>\$ 619,136,694</u>

5. Debt Management Overview

Debt Outstanding (\$000's)					
	Principal Sept 2018	Principal Payments	Principal Draws	Principal Oct 2018	Interest Payments
Fixed Rate					
Senior	\$ 323,978	\$ -	\$ -	\$ 323,978	\$ -
Subordinate	437,603	(863)	-	436,740	(3,923)
Variable Rate					
Subordinate	50,000	-	-	50,000	(55)
Line of Credit					
Total	<u>\$ 811,581</u>	<u>\$ (863)</u>	<u>\$ -</u>	<u>\$ 810,718</u>	<u>\$ (3,978)</u>

Series 2016 Variable Rate Interest Summary - Variable Rate Debt Benchmark (SIFMA) as of 11/02/18

	SIFMA Index	HRSD	Spread to SIFMA
Maximum	1.81%	1.81%	0.00%
Average	0.39%	0.38%	-0.01%
Minimum	0.01%	0.01%	0.00%
As of 11/02/18	1.61%	1.60%	-0.01%

* Since October 20, 2011 HRSD has averaged 38 basis points on Variable Rate Debt

6. Financial Performance Metrics for the Period Ended October 31, 2018

	Current YTD	Policy Minimum
Days Cash on Hand (Unrestricted)	457 days	270-365 days
Days Cash on Hand (Excl Reserve \$15m and Risk Mgmt \$3.3m)	417 days	270-365 days
Risk Management Reserve as % of Projected Claims Costs	25%	25%

HRSD - SOURCES OF FUNDS October 31, 2018

Primary Source	Beginning	YTD		YTD	Ending		Allocation of Funds	Credit Quality	Current Mo Avg Yield
	Market Value July 1, 2018	Contributions	Withdrawals	Income Earned	Market Value Oct 31, 2018				
BAML Corp Disbursement Account	10,669,597	229,747,794	229,628,915	17,576	10,806,052		10.7%	N/A	0.50%
VIP Stable NAV Liquidity Pool	-	116,000,000	26,000,000	475,757	90,475,757		89.3%	AAAm	2.30%
Va Local Government Investment Pool	68,984,048	5,000,000	74,115,221	131,173	-		0.0%	AAAm	2.29%
Total Primary Source	\$ 79,653,645	\$ 350,747,794	\$ 329,744,136	\$ 624,506	\$ 101,281,809		100.0%		

VIP Stable NAV Liquidity Pool out performed Va Local Government Investment Pool (the market benchmark) by 0.01% in the month of October.

Secondary Source	Beginning	YTD		YTD	Ending		YTD Mkt Adj	Yield to Maturity at Market
	Market Value July 1, 2018	Contributions	Withdrawals	Income Earned & Realized G/L	Market Value Oct 31, 2018	Ending Cost		
VIP 1-3 Year High Quality Bond Fund	-	124,728,039	1,005,451	780,870	124,248,579	124,503,459	(254,880)	2.89%
Total Secondary Source	\$ -	\$ 124,728,039	\$ 1,005,451	\$ 780,870	\$ 124,248,579	\$ 124,503,459	\$ (254,880)	

VIP 1-3 Year High Quality Bond Fund matched ICE BofA ML 1-3 yr AAA-AA Corp/Gov Index (the market benchmark) at 2.89% in the month of October.

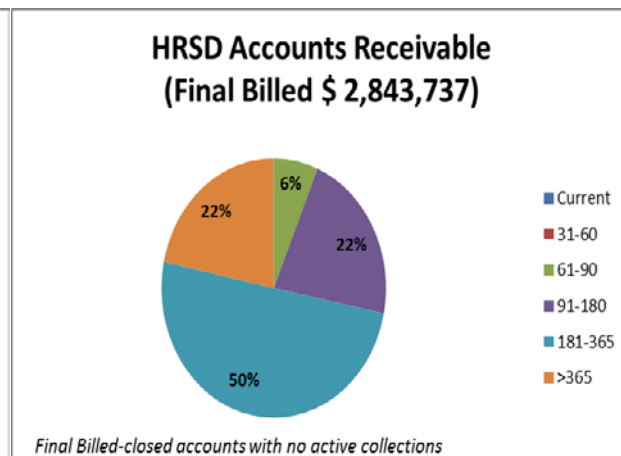
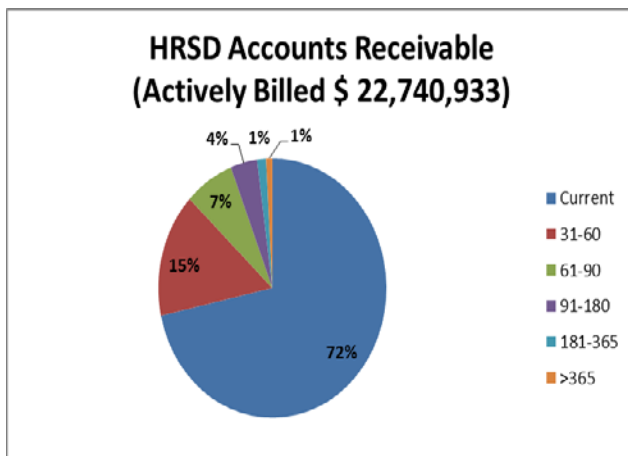
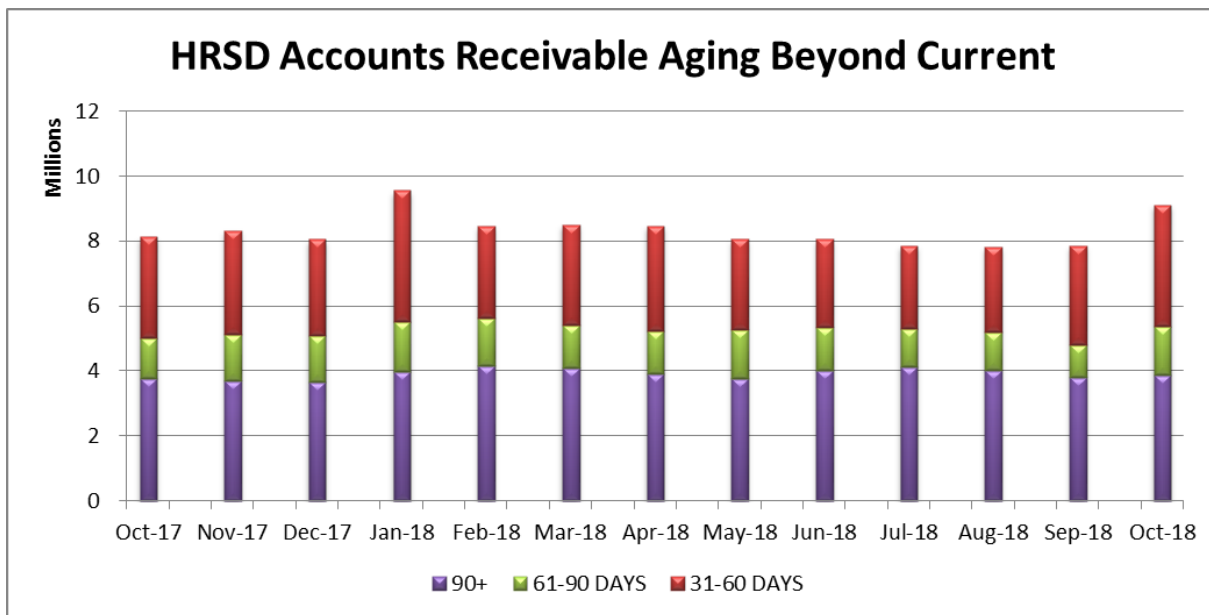
Total Primary Source	\$ 101,281,809	44.9%
Total Secondary Source	\$ 124,248,579	55.1%
TOTAL SOURCES	\$ 225,530,388	100.0%

7. Summary of Billed Consumption

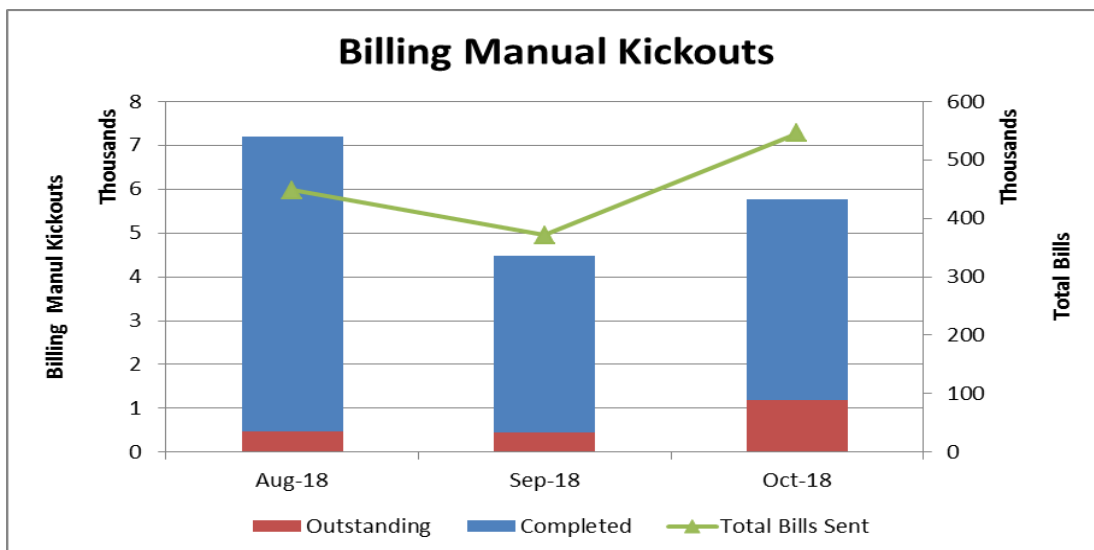
Summary of Billed Consumption (,000s ccf)							
Month	FY2019 Cumulative Budget Estimate	FY2019 Cumulative Actual	% Difference		% Difference		% Difference
			From Budget	Cumulative FY2018 Actual	From FY2018	Cumulative 3 Year Average	From 3 Year Average
July	4,737	5,175	9.3%	4,869	6.3%	4,821	7.3%
Aug	9,595	10,233	6.6%	9,939	3.0%	9,666	5.9%
Sept	14,442	14,294	-1.0%	14,632	-2.3%	14,383	-0.6%
Oct	18,768	19,087	1.7%	19,006	0.4%	18,999	0.5%
Nov	22,834	-	N/A	23,305	N/A	23,358	N/A
Dec	27,166	-	N/A	27,462	N/A	27,616	N/A
Jan	31,486	-	N/A	31,965	N/A	31,948	N/A
Feb	36,154	-	N/A	36,519	N/A	36,247	N/A
March	40,096	-	N/A	40,741	N/A	40,654	N/A
Apr	43,612	-	N/A	44,732	N/A	44,649	N/A
May	47,887	-	N/A	49,018	N/A	48,864	N/A
June	52,927	-	N/A	53,298	N/A	53,391	N/A

C. Customer Care Center

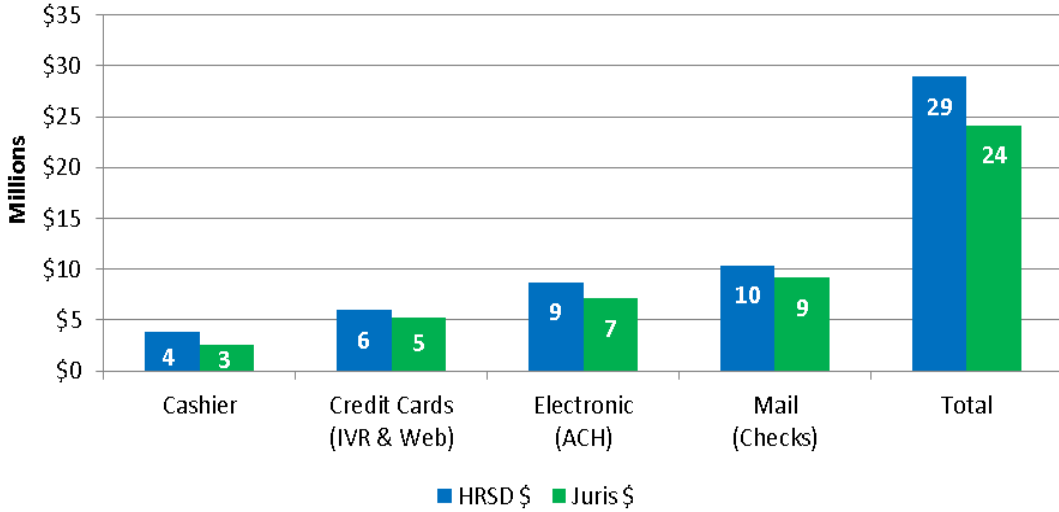
1. Accounts Receivable Overview



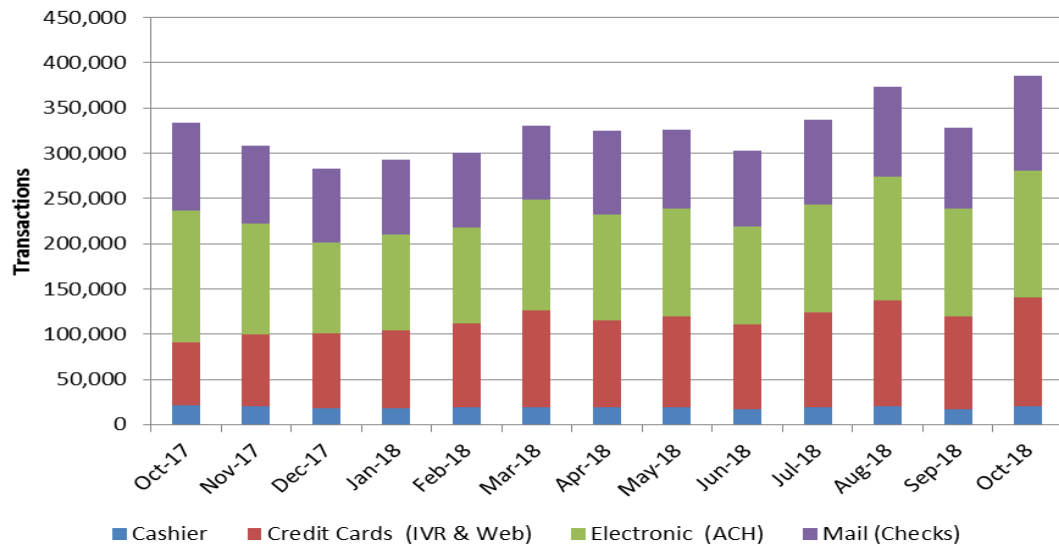
2. Customer Care Center Statistics



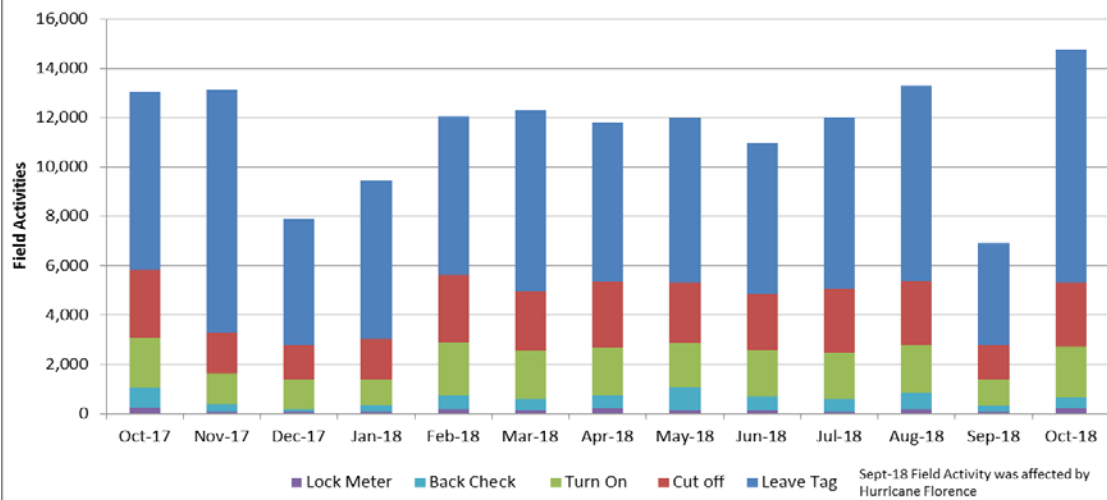
Payments Processed October 2018

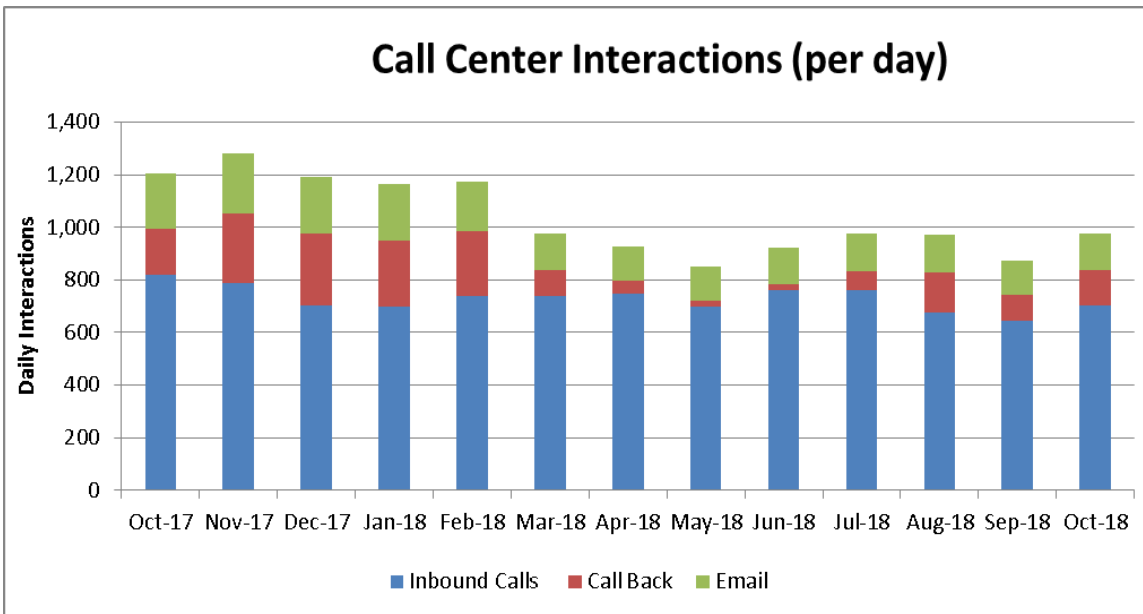
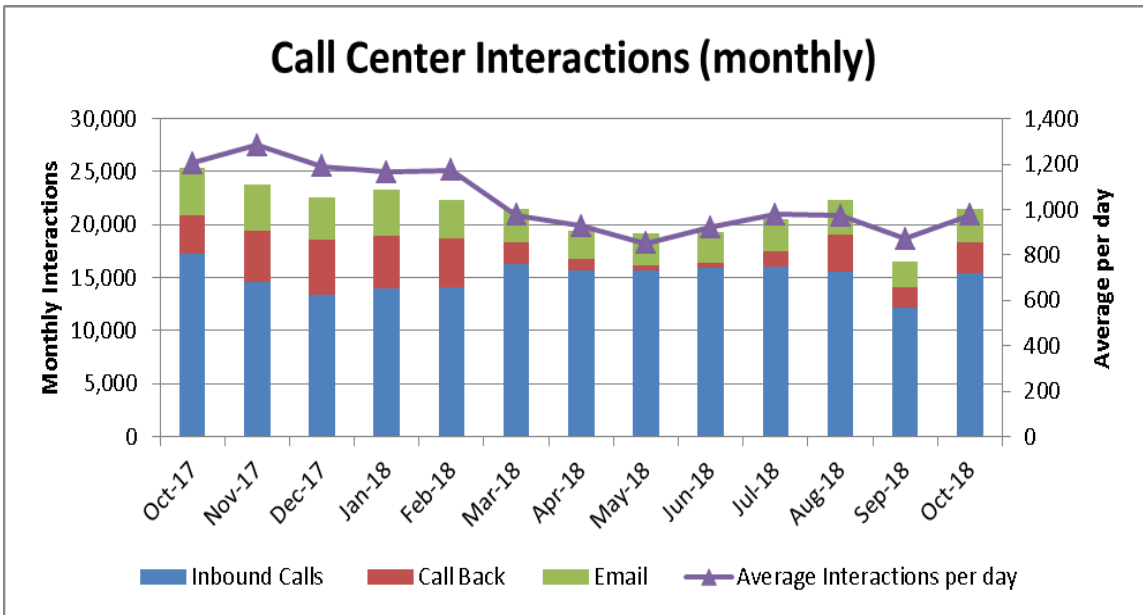
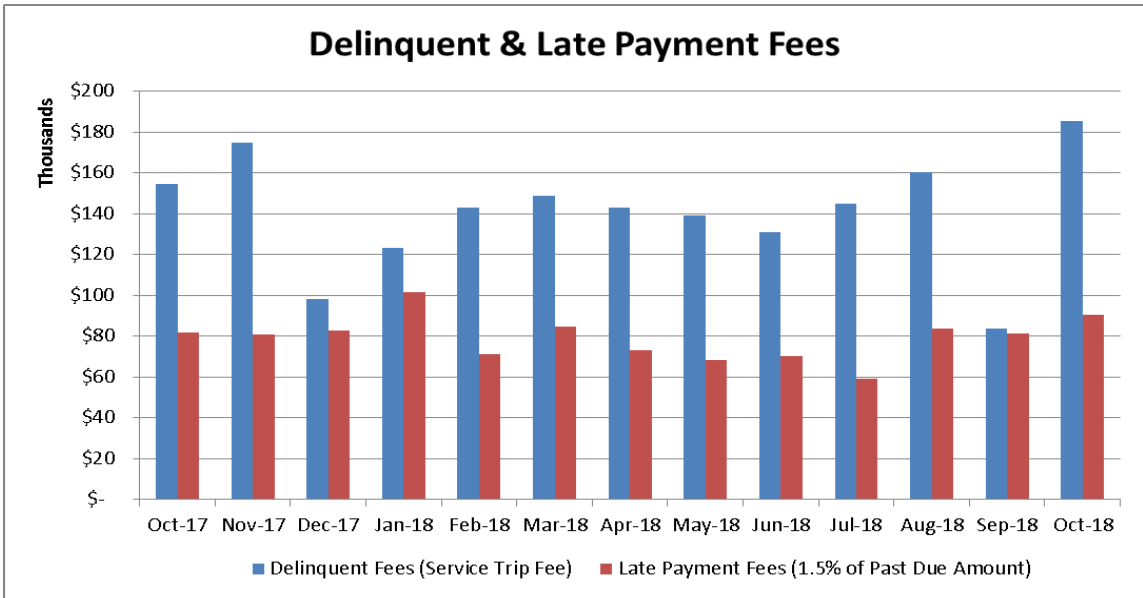


Payment Transactions



Field Activity

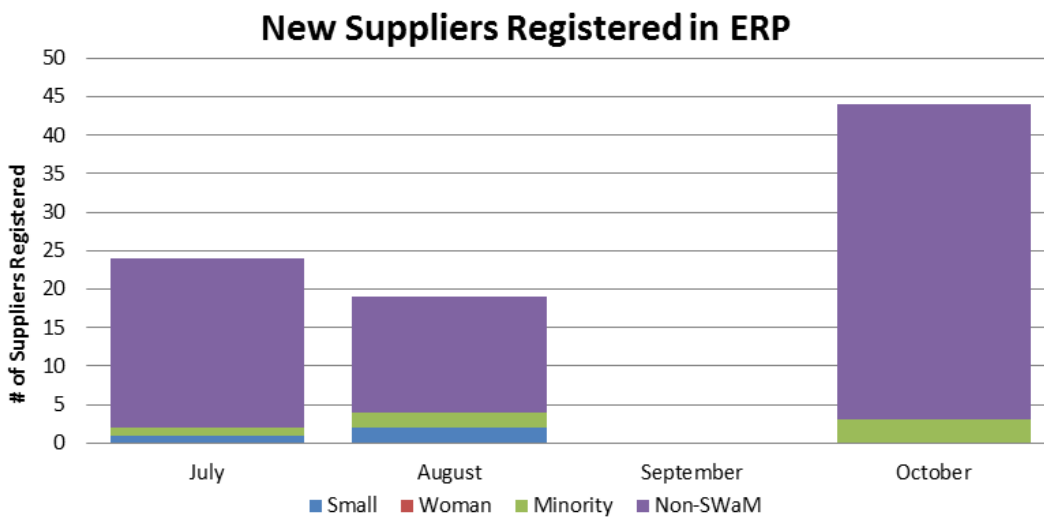




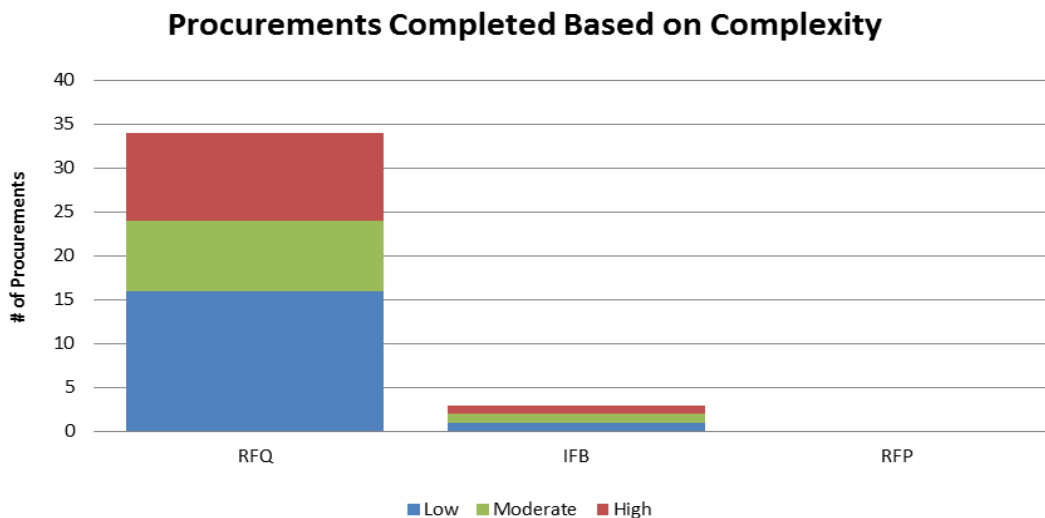
Customer Interaction Statistics	May	Jun	Jul	Aug	Sep	Oct
Calls Answered within 3 minutes	88%	87%	76%	56%	68%	61%
Average Wait Time (minutes)	1:06	1:09	2:17	4:22	3:02	3:52
Calls Abandoned	5%	6%	9%	14%	11%	14%

D. Procurement Statistics

Savings	Current Period	FYTD
Competitive Savings ¹	\$74,746	\$578,467
Negotiated Savings ²	\$41,670	\$89,913
Salvage Revenues	\$102,131	\$130,621
Corporate VISA Card - Estimated Rebate	\$18,717	\$76,459



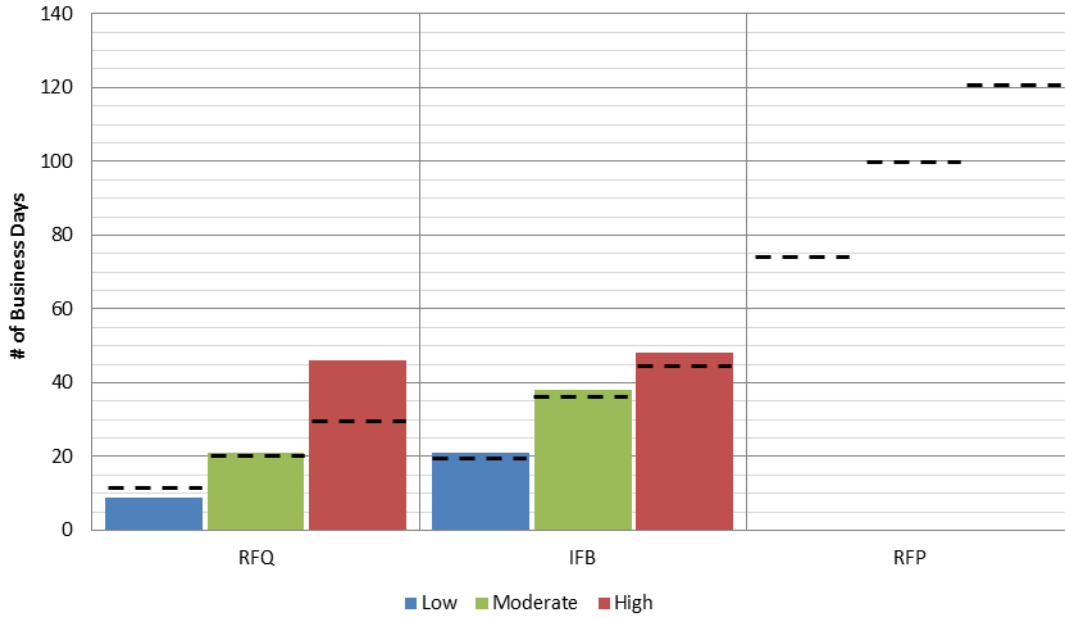
**Increased supplier registration due to supplier outreach at NIGP Forum 8/21/18, Water Jam 9/12/18, WEFTEC 10/2/18, VASCUPP@ SWaMFest 10/4/18, DGS Public Procurement Forum 10/23/18*



¹ Competitive savings are those savings obtained through the informal/formal bidding process. All bids received (except for the lowest responsive/responsible bid) added together and averaged. The average cost is subtracted from the apparent low responsive/responsible bidder.

² Negotiated savings are savings obtained during a Request for Proposal process, or if all bids received exceed the budgeted amount, or if only one bid is received.

Cycle Time per Method of Procurement and Complexity

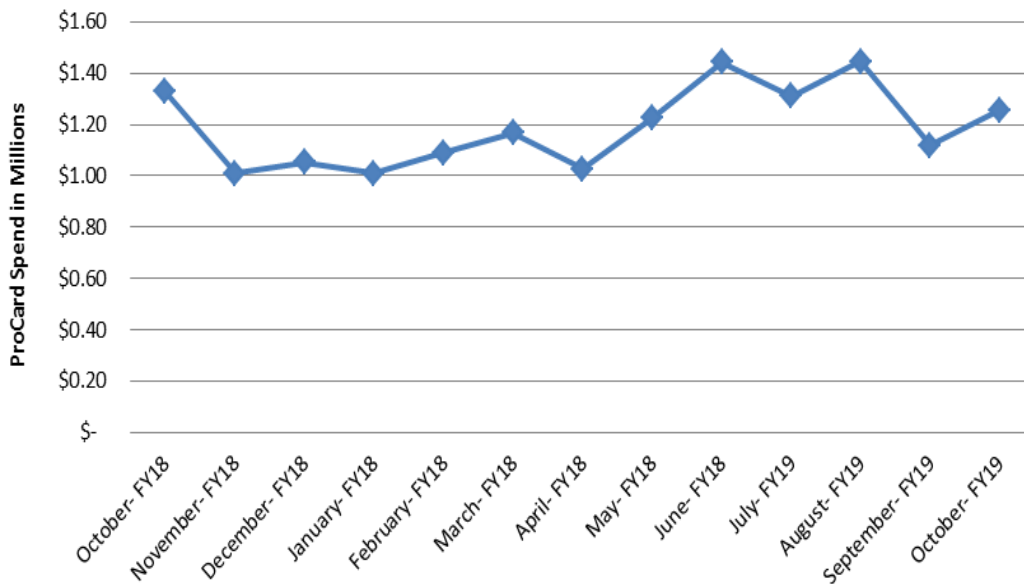


Dashed Line: Target Service Level Cycle Time

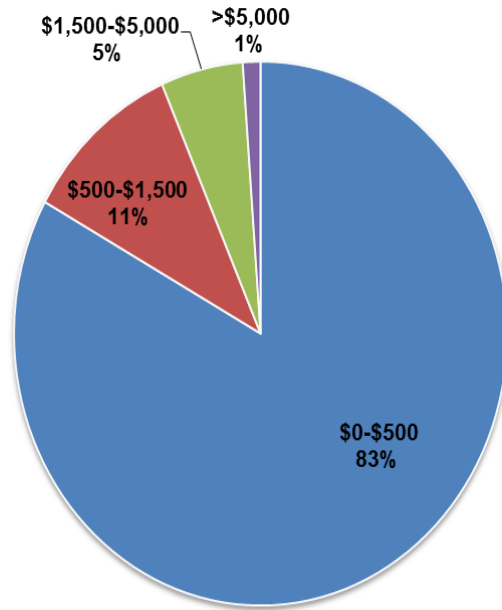
	Low	Moderate	High
RFQ	12	20	30
IFB	20	35	45
RFP	75	100	120

Low: Low technical, quick turnaround, **Moderate:** Technical, routine, **High:** Highly technical, time intensive,

ProCard Spend



ProCard Transaction Dollar Amounts



ProCard Fraud	External Fraud Transactions *	Comments
July	3	1 Caught by Cardholder; 2 Caught by Bank Immediately
August	0	n/a
September	3	1 Caught by Cardholder; 2 Caught by Bank Immediately
October	1	Caught by Cardholder
Total	7	

***External Fraud:** Fraud from outside HRSD (i.e.: a lost or stolen card, phishing, or identity theft)

Accidental Use, which is anything that is not purchased for use and ownership by HRSD, was at 2 transactions (0.06%) out of the 3,101 October ProCard transactions, with a combined total of \$100.63.

Procurement Client Training		
	Current Period	YTD
ProCard Policy and Process	2	13
Procurement Cycle	3	13
Total	5	26

E. Business Intelligence – Enterprise Resource Planning (ERP)

- ERP Helpdesk currently has 173 open work orders in the following statuses:

Escalated	2
In progress	50
On Hold	21
Open	96
Waiting on User	4

2. ERP Helpdesk received 318 work orders in October. In October, 405 work orders were closed and 86 were closed within one hour.
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: 3
 - a. WEFTEC on October 1-3
 - b. Public Procurement Forum on October 4
 - c. VASCUPP ® SWaMFest on October 23
2. Community Partners: 3
 - a. Water Environment Federation
 - b. Virginia Association of State College and University Purchasing Professionals
 - c. Virginia Department of General Services
3. Monthly Metrics

Item #	Strategic Planning Measure	Unit	October 2018
M-1.4a	Training During Work Hours Per Full Time Employee (101) – Current Month	Hours / #FTE	4.74
M-1.4b	Total Training During Work Hours Per Full Time Employee (101) – Cumulative Fiscal Year-to-Date	Hours / #FTE	11.82
M-5.2	Educational and Outreach Events	Number	3
M-5.3	Number of Community Partners	Number	3
	Wastewater Revenue	Percentage of budgeted	106%
	General Reserves	Percentage of Operating Budget less Depreciation	115%
	Liquidity	Days Cash on Hand	457 Days
	Accounts Receivable (HRSD)	Dollars	\$25,584,670
	Aging Accounts Receivable	Percentage of receivables greater than 90 days	16%

4. Annual Metrics

Item #	Strategic Planning Measure	Unit	FY-2018
M-2.4	Infrastructure Investment	Percentage of Total Cost of Infrastructure	5%
M-4.3	Labor Cost/MGD	Personal Services + Fringe Benefits/365/5-Year Average Daily Flow	\$1,423
M-4.4	Affordability	6.5 CCF Monthly Charge/Median Household Income ³	0.60%
M-4.5	Operating Cost/MGD	Total Operating Expense /365/5-Year Average Daily Flow	\$3,959
	Billed Flow	Percentage of Total Treated	76%
	Senior Debt Coverage	Cash Reserves/ Senior Annual Debt Service	3.59
	Total Debt Coverage		2.03

Respectfully,
Jay A. Bernas
 Jay A. Bernas, P.E.
 Director of Finance

Attachment:

[HRSD's Operating Cash Strategies and Retiree Health Trust \(OPEB\)](#)

³ Median Household Income is based on the American Community Survey (US Census) for Hampton Roads

Hampton Roads Sanitation District
Quarterly Performance Report
For the Quarter Ending September 30, 2018

Total Portfolio Summary

Operating Cash Strategies	September 30, 2018	June 30, 2018
Primary Source	\$ 96,943,914	\$ 79,653,645
Secondary Source	124,107,797	124,089,915 *
SNAP Investment	49,642,989	67,277,974
	\$ 270,694,701	\$ 271,021,534

* June 30, 2018 - Secondary Source was managed by PFM. Funds were transferred to VaCo/VML VIP 1-3 Year High Quality Bond Fund on July 13, 2018

Primary Source Summary

The Primary Source Portfolio consists of BAML Corp Disbursement Account \$11.6m and VaCo/VML VIP Stable NAV Liquidity Pool \$85.3m. BAML Corp Disbursement Account returned 0.50% for the quarter ending September 30, 2018. VaCo/VML VIP Stable NAV Liquidity Pool 30 Day Average Net Yield was 2.16% September 30, 2018, an increase from 2.03% at the beginning of the quarter. VaCo/VML VIP Stable NAV Liquidity Pool's weighted average credit rating was A-1 as of September 30, 2018.

Secondary Source Summary

The Secondary Source Portfolio consists of VaCo/VML VIP 1-3 Year High Quality Bond Fund. The gross book yield of the 1-3 Year portfolio was 2.25% as of September 30, 2018, an increase from 1.68% at the beginning of the quarter. The weighted average credit rating for VaCo/VML VIP 1-3 Year High Quality Bond Fund's portfolio is AA.

SNAP Investment (Bond Proceeds for CIP)

The SNAP Investments returns increased from 2.16% as of June 30 to 2.24% as of September 30, 2018.

Retirement Health Plan Trust	September 30, 2018	June 30, 2018
Investment Assets	49,091,465	47,081,121
Combined Assets	\$ 49,096,730	\$ 47,103,248

Retiree Health Plan Trust Summary

The Retiree Health Plan Trust Portfolio returned 3.30% (combined assets) for the quarter ending September 30, 2018, above the 2.91% return of the Blended Benchmark. The one-year trailing return for the Retiree Health Plan Trust portfolio was 7.79% compared to the Blended Benchmark return of 6.55%. The weighted average credit quality of fixed income holdings for the Retiree Health Plan Trust portfolio is A.

TO: General Manager

FROM: Director of Information Technology (IT)

SUBJECT: Information Technology Department Report for October 2018

DATE: November 13, 2018

A. General

1. The industrial automation programmers assisted in the Distributed Control System (DCS) integration of several new valves for the primary clarifiers at the Nansemond Treatment Plant (NTP).
2. Following a series of interviews and observations, consultants from Gartner developed an initial assessment report detailing current IT operations, processes and procedures at HRSD. Upon review and comment by staff, it will be finalized and will form the basis for a list of recommendations leading to the formulation of an IT governance plan and technology roadmap. The plan and accompanying roadmap will address such issues as risk management, business continuity, and the assessment and integration of new information technology within the organization.
3. The data retention and governance committee, with guidance from the Library of Virginia, is preparing a draft data management policy for review and comment by the QST.
4. As part of ITD's ongoing cybersecurity readiness initiative, the enterprise administrative console for antivirus and malware management was upgraded.

B. Strategic Planning Metrics Summary

1. Educational and Outreach Events: 0
2. Number of Community Partners: 0

C. Monthly Metrics

Item #	Strategic Planning Measure	Unit	October 2018
M-1.4a	Training During Work Hours Per Full Time Employee (51) – Current Month	Total Training Hours / # FTE	1.19
M-1.4b	Total Training During Work Hours Per Full Time Employee (51) – Cumulative Fiscal Year-to-Date	Total Training Hours / # FTE	6.24
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 October 2018
DATE: November 12, 2018

A. Interceptor Systems

1. North Shore (NS) Interceptor Systems

- a. A meeting was held at the NS Operations facility to promote better understanding and coordination between HRSD and the NS localities that we serve. Almost all of the localities we serve participated. The meeting was a success and will become an annual event.
- b. Although the region was again spared the brunt of recent hurricanes, staff spent a significant amount of time in response to the remnants of Hurricane Michael passing through our service area. The storm did not provide much precipitation in the area; the winds, however, did cause numerous power outages at our pump stations. Thirteen of 36 pump stations were on emergency generator power during and after the storm. Power outages continued for several days after the storm passed.
- c. Staff performed two pump-and-haul operations of the Town of Surry Treatment Plant, and three pump-and-haul operations of the Lawnes Point Treatment Plant.
- d. After implementation of a new control strategy in the Williamsburg System, a rain event provided an opportunity to analyze the system performance. It appears the new control strategy positively enhanced the hydraulic capacity in the Williamsburg interceptor system.

2. South Shore (SS) Interceptor Systems

- a. As a result of the remnants of Hurricane Michael, nine pump stations were on alternate power during and after the storm.
- b. On October 5, the Virginia Maritime Association (VMA) office staff contacted us about chemical odors in the building. The VMA's commercial building houses HRSD's Plume Street pump station.

Staff responded and identified the source of the odors as two freshly painted Virginia Natural Gas meters outside on the back of the building.

- c. There were six interceptor complaints reported this month. Staff responded and determined all were locality issues.
- d. There were 17 system alarms reported this month. Nine were due to power loss from Hurricane Michael. Staff responded and resolved all of the alarms.
- e. Staff assisted the Electrical and Energy Management division with interceptor vault inspections by providing traffic control.
- f. Staff supported NS Interceptor Operations by venting air on the force main in Smithfield to relieve pressure issues.
- g. Staff assisted the Boat Harbor Treatment Plant (BHTP) with a pump-and-haul of the onsite pump station so repairs could be made to a 12-inch valve.
- h. Staff assisted the Chesapeake Elizabeth Treatment Plant (CETP) by removing approximately seven yards of grease from the septic well and repairing a broken water service line.
- i. Staff assisted Tidewater Community College and the City of Suffolk with the repair of a force main that runs to the Nansemond Treatment Plant (NTP).

B. Major Treatment Plant Operations

1. Army Base Treatment Plant (ABTP)

- a. The nitrogen removal system continues to perform exceptionally well. The final effluent total nitrogen average for October was 3.41 mg/L.
- b. A contractor completed the installation of epoxy flooring in the Administration Building.
- c. Air permit emissions testing for Incinerator #2 occurred on October 30, 2018. The final test results are pending, but all indicators from the day of the test were in compliance.

- d. Staff replaced the locking pins that secure the mixers to the drive shaft on 12 mixers. Two of the mixer assemblies had slipped off of the drive shaft and were found lying on the bottom of the tank. Staff reattached the mixer assemblies and properly torqued the set screws that hold the locking pins in place.

2. Atlantic Treatment Plant (ATP)

- a. On October 19, contractors working on the Thermal Hydrolysis Process project hit a non-potable water (NPW) two-inch line. Staff secured the NPW supply and most of the spill was pumped back to the plant drain system. It was estimated that of the 1,000 gallons spilled, 975 gallons were recovered. The pipe was repaired and placed back on line.
- b. On October 25 the Combined Heat and Power (CHP) engine had a high hydrogen sulfide (H₂S) exhaust limit of over 50 parts per million. The problem occurred when the O₂ blower for the bio-scrubber shut down causing the H₂S to rise. The issue was corrected and the engine was placed back on line.
- c. Construction of the THP project continues. Gas lines upgrades to Digesters 3 and 4 were completed. The foundation to the pre-dewatering building was poured and walls are being formed.
- d. The new administration building is complete. Staff will begin moving into the building in the beginning of November.

3. BHTP

- a. Staff completed cleaning and inspection of Aeration Tank # 4, and performed the quarterly, semi-annual and annual preventive maintenance activity on the tank during this work.
- b. Staff transitioned from the excel-based data entry program to the Environmental Data Management System this month

4. Chesapeake Elizabeth Treatment Plant (CETP)

- a. Staff and contractors replaced the heat exchangers on the emergency generator to get the operating water temperature within a range that eliminates the probability of the generator shutting down due to high engine temperatures.

- b. Staff repaired the #2 septic pump.
- c. Staff replaced the scum pumps on two of the secondary clarifiers and repaired the scrubber fan on the aeration odor control system.

5. James River Treatment Plant (JRTP)

- a. There was one reportable wastewater event caused by a break in a NPW line resulting in approximately 1,000 gallons of NPW discharged. Approximately 50 gallons flowed through a plant storm drain and was not recovered.
- b. The plant was on emergency generator power for approximately 44 hours due to a loss of power from Hurricane Michael.
- c. Work to replace the outdated explosion-proof power distribution center in the digester basement continued.
- d. A contractor installed conduit for new ammonia probes that will be installed in the Integrated Fixed Film Activated Solids (IFAS) tanks.
- e. A contractor completed repairs on the fiberglass odor duct servicing the headworks and primary treatment section of the plant.

6. Nansemond Treatment Plant (NTP)

- a. Staff finished re-piping all of the sodium bisulfite storage tank lines and critical valves as a preventive maintenance project.
- b. Staff continues to work on the odor control scrubber H₂S monitoring upgrades. This project will stabilize odor scrubber operations and optimize the chemical usage for the system.
- c. Staff finished installing new safety handrails around each hatch on primary clarifiers 1 & 2.
- d. Staff repaired the flights in primary clarifier #1. Heavy solids caused the chain and flights to come off the sprockets and land in the bottom of the tank.

- e. Staff backwashed both granulated activated carbon (GAC) vessels at the Sustainable Water Initiative for Tomorrow Research Center (SWIFT RC) because of high water flow resistance (head loss). In an attempt to reduce the head loss, only one GAC vessel was returned to service. An increase in the total organic carbon (TOC) was noticed after switching to only one GAC vessel, indicating that we might need to return to parallel operations soon.
- f. Staff made some changes on the critical control points (CCPs) and critical controls (COPs) to assure proper control on operations at the SWIFT RC.

7. Virginia Initiative Plant (VIP)

- a. There was one reportable event for a short-term loss of effluent chlorination when a pump malfunctioned.
- b. Staff dedicated most of the month of October to the startup of the preliminary treatment facility (PTF). This new facility will provide improved screenings removal and compaction, along with increased wet-weather pumping abilities.
- c. Staff rebuilt and reinstalled a biosolids transfer pump, a thickened waste pump, a waste-activated solids pump and several deteriorated grit slurry lines. They also assisted contractors with the startup of new screening and influent pumping equipment.
- d. Staff assisted contractors with the installation of new pipes and valves for the classified selector pumping system. Contractors completed connections for plant process drains into the PTF wet well.
- e. Staff reconfigured the VIP process for three anaerobic/anoxic/aerobic trains and configured the versatile bioreactor (VBR) for one aerobic zone and three anoxic zones for improved nutrient removal. Operators are dosing methanol to the VBR zone in flow-paced mode. Because of construction modifications, this is the first time since November, 2017 that we had more than two VIP process trains available for use.
- f. Staff completed work with the Water Quality Department to determine the industrial source periodically causing process upsets.

8. Williamsburg Treatment Plant (WBTP)

- a. Staff completed repairs and coating work on the #2 primary clarifier effluent pipe and launders.
- b. The plant was on emergency generator power for approximately 48 hours due to a loss of power from Hurricane Michael.
- c. Staff replaced aluminum walls (used for nutrient removal enhancements) in aeration tank #4 with noncorrosive fiberglass and poly vinyl chloride (PVC) walls.

9. York River Treatment Plant (YRTP)

- a. The contractor completed coating work on concrete inside the digester and started coating of piping and piping supports inside the digester. We anticipate that the digester cover will be installed in November.
- b. Staff emptied and cleaned aeration tanks #3 and #4 to make additional modifications to improve nutrient removal. The new modifications include elevating the bubble mixers higher above the floor; installing a chimney mixer to better distribute the influent flow from the primary clarifiers, and installing valve actuators and controls.
- c. The plant was on emergency generator power for approximately 15 hours due to a loss of power from Hurricane Michael.

10. Incinerator Operations Events Summary

- a. Minor incinerator operations are summarized below:

Condition	Cause	ABTP	BHTP	CETP	VIP	WBTP
Use of emergency bypass stack	Power anomaly/loss	3	2		1	3
Pressure Drop	Power anomaly/loss	1		1		1

C. Small Communities

1. Middle Peninsula

a. SC Treatment

(1) Central Middlesex Treatment Plant (CMTP)

The Plant continues to experience excessive amounts of trash from the immediately adjacent jail facility. Staff is working with jail officials to find a resolution to the issue.

(2) King William Treatment Plant (KWTP)

An operator left a drain valve open on the zinc vessels which allowed the vessels to drain when not in use, thus expending the life of the media faster than normal. When corrected, the media stabilized. Operators were re-trained.

Clean-in-place filter operations were performed on both treatment trains this month. The magnesium hydroxide feed point was changed to the influent equalization tank in an effort to facilitate improved mixing and reduction in overall chemical use.

(3) Urbanna Treatment Plant (UBTP)

Treatment train #1 was re-seeded this month due to an operations error that took place while trying to unclog the return line from the clarifier. The return line could only be unclogged from the inside of the secondary clarifier, requiring it to be completely drained. Unfortunately, a substantial solids loss occurred when the clarifier was drained into an equalization basin and mixed with raw wastewater. Septic haulers assisted in pumping out the aeration and clarifier tanks and then hauling Return Activated Solids (RAS) from the YRTP. After the plant was re-seeded with the RAS, it responded very well and treatment returned to near normal. There were no permit exceedances.

(4) West Point Treatment Plant (WPTP)

On October 27, the plant experienced flows 2.5 times that of an average day. The sodium hypochlorite disinfection system responded accordingly to these increased flows, however the sodium bisulfite analyzer failed. Because of the analyzer failure, the sodium bisulfite system continued to feed at its normal minimum set point, resulting in a high Total Residual Chlorine (TRC) sample value of 3.32. Although, the analyzer was corrected and all subsequent TRCs were within normal operating values, the weekly TRC permit average of 0.093 mg/l was exceeded with a weekly average value of 0.155 mg/l. The monthly average was within permit limits.

b. SC Collections

(1) Matthews System

The remnants of Hurricane Michael caused a power loss at the Church Street Pump station resulting in approximately 200 gallons of sewage spilled from the wet well.

There was a complaint on October 1st from the Hardee's restaurant concerning odorous smells contained within the manager's office. Since our contractors recently completed the valve pit replacement at this location as part of a capital improvement project, staff investigated the issue. Very faint traces of H₂S levels were detected in the office area as well as the immediately adjacent restroom facilities. A CCTV investigation on the existing lateral revealed a break near the valve pit installation. The break was repaired. While repairing the break, the contractor also separated the grease interceptor effluent lateral and installed new lateral into the Air-Vac sewage sump to further mitigate any potential odors.

(2) Urbanna System

An extensive amount of cleaning was done in the collection system, including pump station wet wells, in preparation of the Urbanna Oyster Festival. Several bypass pumps were setup as temporary measures to accommodate the substantial amount of flow that occurs during that weekend.

2. Small Communities – Surry Systems

- a. Sussex Service Authority (SSA) continued contract operations of the Town of Surry TP and the Surry County TP.
- b. New diesel backup pumps were delivered and installed at pump stations 6 and 7 in the Town system.
- c. Staff installed sludge return pumps at the Town plant. The remaining sludge drain pump and Imhoff tank pump will be completed in November.
- d. Staff began raising the casting and lids on manholes that were buried over time within the Town of Surry collection systems. These manholes were identified as part of our initiative to GPS locate and survey the collection system.

3. Small Communities - Lawnes Point

Staff shutdown pond treatment operations on October 19, due to increasing total suspended solids (TSS) effluent levels. Staff plans to meet in early November to determine next steps in the operation of the plant.

D. Support Systems

1. Automotive

- a. Staff continues to install Fleetistics vehicle information devices on district fleet vehicles. 244 units have been installed to date.
- b. Staff performed load bank tests at Claremont Avenue, Lodge Road, Providence Road, Rodman Avenue, and Victoria Boulevard pump stations and at the NS and SS Main Operations Complexes. All generators operated as designed and were returned to service.

2. Condition Assessment

- a. Staff inspected 5,062 LF of gravity main and nine manholes through the use of Closed-Circuit Television (CCTV) during the month of October.
- b. Staff completed inspection assessments on the nitrogen enhancement (NEF) tanks at VIP and on the air piping in aeration

tank #3 at YRTP. Staff also performed inspections on the wet well rehabilitation work occurring at Rodman Pump Station.

- c. Rehabilitation of BHTP secondary clarifiers #1, 2, 3, and 6 continues. Contract work is 15 percent completed. Deteriorated steel was replaced on the rake arm and center shaft.
- d. Rehabilitation of secondary clarifier #5 at NTP is 65 percent complete.
- e. Coatings staff continues to work with the Engineering Department to replace the steel lid on YRTP's digester tank. Refurbishment of the concrete walls and piping is complete.

3. Facilities Maintenance

- a. Renovations of NTP's solids handling locker room began. Demolition of the existing space is 75 percent complete.
- b. Contract work began to replace the rooftop heating, ventilation, and air conditioning unit (RTU) in the administration building at JRTP. The new RTU is slated to be in operation the second week of November.
- c. Staff continues to work on the remodel of West Point office areas and on the construction of a printer workstation for the administration office at NTP. SS Carpentry staff completed pump station roof inspections among other routine maintenance work orders.
- d. Staff completed a total rebuild of the #2 pump at the Suffolk PS and the rebuild of a pump at BHTP. Staff fabricated two stub shafts for VIP and 11 for CETP, two mixer shafts for NTP, and three primary shafts for ABTP. Staff performed an emergency repair of an impeller at State Street PS and assisted CETP personnel in repairing a broken gate valve shaft and nut.

E. Electrical and Energy Management (EEM)

- 1. Emergency generators started, but failed to synchronize with each other to provide power to the Atlantic Treatment Plant (ATP) electrical system following a loss of utility power. Fuel/air problems shut the generators down. Staff manually restarted the generators, synchronized them and restarted the equipment. The manufacturer's technical representative is repairing the generator system.

2. Staff continues the installation of Switzer Electrical Laboratories (SEL) metering to track power quality in our treatment facilities. The team commissioned two SEL 735 meters for the CHP engine at ATP and four SEL 735 power quality meters at VIP. Both systems are online and recording data.
3. Staff continues work and research to design and construct a programmable logic controller (PLC) based analyzer platform that can be modified to measure a variety of chemicals at very low concentrations. Initial PLC communication challenges were solved and ladder logic program development continues.
4. Staff responded to high flow readings at Master Metering Program Site (MMPS)-061, Shared Hospital Services (SHS). Staff assisted SHS staff with troubleshooting and diagnosing flow meter installation and programming errors. SHS coordinated with their contractor to perform the needed repairs.
5. A contractor installed 200 feet of three-quarter-inch ridged conduit at ATP. The conduit is for power and controls to sensors on the scrubber system.
6. An electrical contractor worked with the EIS Project Team to complete two electrical projects at JRTP. One project involved a roadway excavation to repair a broken conduit and the other installed conduit for new ammonia and dissolved oxygen (DO) probes on the aeration tanks.
7. Staff performed medium voltage (MV) preventive maintenance (PM) on two large transformers. The work was accomplished by the five-year MV contractor.
8. Staff continues to work with consultants and contractors to support the major upgrade at VIP. All wastewater flow was redirected to the new Preliminary Treatment Facility (PTF)/Raw Wastewater Influent (RWI) Building. The new chemical scrubber is in service.
9. Staff completed 14 projects at the SWIFT RC.
10. Staff worked with the City of Suffolk to create electrical interface drawings for Suffolk PS 161. This is a new MMPS (MMPS-314), which is a force main (FM) end-of-line pressure monitoring site. EIS Project Team performed preliminary planning and engineering work.
11. Staff installed pressure data loggers in five PS's to monitor FM pressures for the NS Interceptor System (IS) in the Town of Smithfield.

12. Staff assisted infrared inspections at various plants.

F. Water Technology and Research

The first of the graduate students who have been involved with SWIFT-related topics is starting to wrap up and finish their work here at HRSD. Mack Pearce recently defended his Master of Science (MS) thesis entitled: “Evaluation of Bromate Formation and Control using Preformed Monochloramine in Ozonation for Indirect Potable Reuse.” Mack’s work materially impacted the design and operation of the SWIFT Research Center (SWIFT RC), and the coming upgrade at the SWIFT RC that will modify and move the ozone sidestream injector is a direct result of his work. Mack will remain with HRSD for a few more months to assist with pilot work to assess Williamsburg plant secondary effluent in the SWIFT pilot system, focusing on ozone demand and bromate formation and using secondary effluent transferred to the SWIFT RC in tank trucks.

Prarthana Pradhan recently defended her MS thesis entitled: “Evaluation of Soil Aquifer Treatment in a Lab Scale Soil Column Experiment.” Prarthana assisted with the planning and design of the soil column experiments, and she executed the entire work plan for Phase I including pathogen, disinfection byproduct, conventional contaminant, and emerging contaminant removal in replicate 3-day and 1-month soil columns. This work was proposed to the SWIFT regulatory stakeholder group and has emerged as a very important consideration. Pathogen removal credit, denitrification, and bromate removal through SAT have been demonstrated. Soil column work will continue to consider additional conventional and emerging contaminant removal with a 6-month travel time soil column system now being started at the SWIFT RC. Prarthana has assisted with the design and development of Phase II work.

H. Strategic Measurement Data

1. Education and Outreach Events: 29
 - a. Podium presentation at WEFTEC CE BNR Pilot – Ferguson
 - b. Podium presentation at WEFTEC CE BNR Pilot – Campolong
 - c. Podium presentation at WEFTEC CE BNR Pilot – Klaus
 - d. Podium presentation at WEFTEC Williamsburg Upgrade – Bott and Parsons
 - e. Podium presentation at WEFTEC sensor driven control – Zerihun Bekele
 - f. Podium presentation at WEFTEC on SWIFT – Peter Buehlmann and Mack Pearce
 - g. Podium presentation at WEFTEC on SWIFT – Prarthana Pradhan
 - h. Podium presentation at WEFTEC on SWIFT – Ramola Vaidya
 - i. Podium presentation at WEFTEC on Utility University Partnerships – Bott
 - j. Podium presentation at WEFTEC on Sidestream Bio-P – Klaus
 - k. Invited Seminar at University of Nevada at Reno on SWIFT – Bott
 - l. Invited Seminar at Truckee-Meadows Water Reclamation Facility on Sidestream Treatment
 - m. Invited Seminar at Chinese National Academy of Engineering Workshop on SWIFT – Bott
 - n. 10/01/18 - The NS Electrical Manager met with Newport News Public Schools administrators to discuss start-ups for new Cooperating Hampton Roads Organizations for Minorities in Engineering, Inc. (CHROME) clubs
 - o. 10/13/18 - The NS Electrical Manager attended the CHROME Sponsor Launch event at Norfolk State University (NSU)
 - p. 10/02/18 Tidewater Appalachian trail club (SWIFT tour)
 - q. 10/04/18 Hampton Master gardeners (SWIFT tour)
 - r. 10/10/18 Measurement and control& automation association (SWIFT tour)
 - s. 10/16/18 SWIFT introductions at research center for Gannett Fleming
 - t. 10/17/18 NASA Langley Research Center (SWIFT tour)
 - u. 10/19/18 Tetrattech (SWIFT tour)
 - v. 10/24/18 HRSD underwriters (SWIFT tour)
 - w. 10/29/18 Charles Bott conducted a SWIFT tour for former HRSD employees.
 - x. Participated in West Point Crab Carnival Parade

- y. 10/07/18 - Staff brought several large HRSD vehicles to the Touch-a-Truck event at Chesapeake City Park
- z. October 27 - Staff brought several large HRSD vehicles to the Trucks, Tractors, and Treats CHKD event at Sam's Club in Chesapeake
- aa. The NS Electrical Manager facilitated United Way Campaign meetings at YRTP on October 4, WTP on October 9 and BHTP on October 29.
- bb. The NS Material Operations Coordinator (MOC) attended United Way HRSD CARES Home Renovation Project meetings on October 4, 16 and 23.
- cc. Chesapeake Bay Foundation – oyster cage maintenance at BHTP for oyster gardening program

2. Community Partners: 5

- a. United Way – Williamsburg House
- b. VIMS
- c. ODU
- d. Chesapeake Bay Foundation
- e. CHROME

3. Monthly Metrics

Item #	Strategic Planning Measure	Unit	October 2018
M-1.4a	Training During Work Hours per Full Time Employee (FTE) (510) – Current Month	Hours / FTE	2.13
M-1.4b	Total Training During Work Hours per FTE (510) – Cumulative Year-to-Date	Hours / FTE	10.79
M-2.3a	Planned Maintenance Total Maintenance Hours	Total Recorded Maintenance Labor Hours	31,605.50
M-2.3b	Planned Maintenance – Preventive and Condition Based	% of Total Maintenance Hours	74%

Item #	Strategic Planning Measure	Unit	October 2018
M-2.3c	Planned Maintenance - Corrective Maintenance	% of Total Maintenance Hours	20%
M-2.3d	Planned Maintenance - Projects	% of Total Maintenance Hours	54%
M- 4.1a	Energy Use: Treatment *reported for October 2018	kWh/MG	2,146
M-4.1b	Energy Use: Pump Stations *reported for June 2018	kWh/MG	192
M-4.1c	Energy Use: Office Building *reported for June 2018	kWh/MG	101
M-5.2	Educational and Outreach Events	Number	29
M-5.3	Number of Community Partners	Number	5

Respectfully submitted,
Steve de Mik
 Director of Operations

TO: General Manager
FROM: Director of Talent Management (TM)
SUBJECT: Monthly Report for October 2018
DATE: November 14, 2018

A. Human Resources (HR)

1. Recruitment - Summary

New Recruitment Campaigns	13
Job Offers Accepted – Internal Selections	5
Job Offers Accepted – External Selections	7
Internal Applications	37
External Applications	259
Average Days to Fill Position	47

2. Enterprise Resource Planning (ERP)

a. HRSD worked with the Managed Services consultant on:

- (1) Benefit programs setup and updates
- (2) Benefit interface updates

b. Staff met with TM and Information Technology (IT) staff to identify learning management system needs and requirements.

3. Benefits and Compensation

a. Staff worked with the benefit consultant on:

- (1) 2019 Retiree Medicare Supplemental Plan renewal
- (2) Employee benefits survey
- (3) Cigna Annual Utilization meeting to review medical and pharmacy claims and cost trends to begin the annual renewal process

- b. Staff continued work with the consultant on the custom and market-based compensation study.
- c. HR sent a series of communications with resources and tips to help employees save and prepare for retirement throughout National Retirement Security Week.

4. Wellness

a. Participation Activities

Year Six Participation Activities	Unit	October 2018	Year to Date (March 2018–February 2019)
Biometric Screenings	Number	1	14
Preventive Health Exams	Number	7	34
Preventive Health Assessments	Number	40	224
Coaching Calls	Number	0	0
Online Health Improvement Programs	Number	150	411
Web-MD Online Health Tracking	Number	119	940
Challenges Completed	Number	0	0
Fit-Bit Promotion	Number	3	66

- b. The Wellness Specialist provided a healthy food demonstration at the Chesapeake Elizabeth Treatment Plant (TP).
- c. Fall Outdoor Bootcamp classes continued at the Air Rail complex.
- d. Sixteen onsite flu and tetanus clinics were provided with 334 flu and 64 tetanus vaccines provided.
- e. The Wellness Specialist developed supplemental materials for Wellness Wednesday communications.
- f. The Wellness Specialist worked with the online wellness challenge provider on set-up for the December Wellness challenge.

5. Workers Compensation

Three new cases were opened with seven cases remaining active.

6. Employee Relations

Staff continued partnering with work center supervisors and employees to support employee relations and address HR issues. Policy and procedure training was provided to several new supervisors.

7. General

a. HR and Accounting staff continued to meet to streamline and improve HR and payroll processes.

b. A meeting was held with IT and Communications staff on Cyber Security Awareness.

c. Reorganization of the HR file room and storage areas continued.

d. Staff participated in the following HRSD activities:

- (1) Facilitated Your Role in Quality Training
- (2) Facilitated several Work Center Planning Day meetings
- (3) Quality Facilitator Meeting
- (4) Leadership Forum
- (5) Senior Leadership Meeting

e. Staff participated in the following training:

- (1) WEFTEC 2018
- (2) Society of Human Resources Management's Diversity and Inclusion Conference
- (3) Virginia Corp Fall Hybrid disability Boot Camp

B. Organization Development and Training (OD&T)

1. Training

a. Work continued with HR and General Management staff to address HRSD Ethics Policy training based on internal audit recommendations. A draft e-learning course, training documentation and disclosure forms are in development.

- b. Work Center Planning Day meetings concluded, with the exception of one meeting postponed due to hurricane Florence. Work Center documentation is being finalized for upload onto SharePoint. A debrief meeting will be held in December to review the process for quality improvement. A Planning Day for HRSD's administrative staff was facilitated for the first time. The initiative was well received and the group generated actionable ideas to present to the QST.
- c. Staff continued to update and categorize training program procedures.
- d. Reorganization and clean-up of the Meekins building storage and training records continued. The team has scheduled a cleaning day in November.
- e. Staff continued to work with the Project Management (PM) Team to develop a course highlighting basic components which will provide practical PM skills to attendees.

2. Apprenticeship Program

- a. The 2018 Apprenticeship Graduation Ceremony was held at the Hampton Roads Convention Center. Twelve apprentices graduated from five trades. The event was well attended despite rescheduling due to Hurricane Florence. The feedback was positive and many suggestions will be incorporated into the 2019 Graduation.
- b. A team was convened with membership from HR, IT, OD&T and Safety to begin the process of identifying Learning Management System needs related to HRSD training programs.
- c. A Math Standardization Workshop was held to discuss curriculum revisions and implementation of a standardized math course based on Apprenticeship Committee recommendations.
- d. The Apprenticeship Committee met with Apprenticeship Representatives to obtain feedback for program improvements.
- e. Staff continued to enter historical training and program information into ERP and scan historical records.
- f. The Training Superintendent evaluated the Condition Assessment Technician Trade curriculum and On-the-Job Training books.

- g. An Apprentice Supervisor training session was held to assist work centers with guiding new apprentices and to review program administrative procedures.

3. General

- a. Work continued with Operations staff and consultants to develop the Operations' *Workforce of the Future Workshop*.
- b. Staff worked with Procurement on a ProCard Recertification e-learning project. A training course was deployed using *BizLibrary* as a Learning Management platform. Participant feedback received over the first week was positive.
- c. Staff participated in the following training:
 - (1) WEFTEC 2018 Conference
 - (2) Mentor Coach's *Executive Coaching*
 - (3) The OD&T Manager completed coursework and received the Institutue for Social and Emotional Intelligence - EQ-I 2.0/ EQ 360 certifications.

C. Safety

1. Mishaps and Work Related Injuries

- a. HRSD-Wide Injury Mishap Status to Date (OSHA Recordable)

	<u>2017</u>	<u>2018</u>
Mishaps	42	38
Lost Time Mishaps	10	6
<i>Numbers subject to change pending HR review of each case.</i>		

- b. MOM Program Year Performance Measure Work-Related Injuries

October 2018 Injuries For Operations	October 2018 Injuries for Other HRSD Departments	Total Lost Time Injuries Since July 2018	Total HRSD Injuries Since July 2018
3	1	2	16

- c. Follow-up investigations were performed on four reported work-related injuries and nine auto accidents.

2. HRSD Safety Training

Strategic Planning Measure	Unit	October 2018
Total Safety Training Hours per Full Time Employee (836) All HRSD – October 2018	656.83 Hours / 836 FTE	0.79
Total Safety Training Hours Per Full Time Employee (836) – Cumulative July 2018	1572.31 Hours / 836 FTE	1.88

3. In addition to regularly scheduled safety training and medical monitoring, the following sessions were conducted:

- a. Five external briefings for contractors working at treatment plants and pump stations
- b. Daily hot work permits for a Bridge Street Pump Station contractor and various hot work permits for contractors working at Shipp's Corner, Rodman and Willoughby Pump Stations
- c. Aerial Lift Safety Training for North Shore Electrical and Instrumentation employees
- d. Scaffolding Safety training for Boat Harbor TP employees
- e. Three sessions of Emergency Response training for Nansmond TP employees and one session for SWIFT Research Center (RC) employees
- f. Material Safety Data Sheet and updated Hazard Communication Plan training at the following work centers:
 - (1) Atlantic TP
 - (2) Boat Harbor TP
 - (3) Facilities Support
 - (4) James River TP
 - (5) North Shore Electrical and Instrumentation
 - (6) Small Communities

- (7) South Shore Electrical and Instrumentation
- (8) Virginia Initiative Plant
- (9) Williamsburg TP
- (10) York River TP

4. Safety Inspections, Testing and Monitoring

a. Weekly on-site inspections of the following construction sites:

- (1) Army Base TP
- (2) Atlantic TP
- (3) Bridge Street Pump Station
- (4) Newtown Road Pump Station
- (5) Rodman Pump Station
- (6) Shipps Corner Pump Station
- (7) VIP
- (8) Willoughby Avenue Pump Station
- (9) York River TP

b. Quarterly safety inspections of the following work centers:

- (1) Army Base TP
- (2) Boat Harbor TP
- (3) Nansemond TP
- (4) North Shore Automotive, Carpentry and Electrical Shops
- (5) North Shore Interceptors
- (6) North Shore Pretreatment and Pollution Prevention (P3)
- (7) SWIFT RC

c. Monitoring and testing for the following:

- (1) Monthly velocity tests on Central Environmental Lab (CEL), Technical Services and SWIFT RC lab hoods
- (2) Provided vendor oversight for Small Communities annual truck crane inspections
- (3) Conducted asbestos inspection and sampling of a HRSD property in Chesapeake
- (4) Conducted indoor air quality monitoring within the Customer Care Center
- (5) Performed an explosive gas evaluation of Army Base TP Methanol facility

- d. Safety walk-throughs and evaluations:
- (1) Escorted Marine Chemist's staff on an asbestos and lead inspection of the Town of Surry TP
 - (2) Escorted vendor on a fire extinguisher inspection for the SWIFT RC
 - (3) Evaluated cadmium tubing within a meter for the Electrical and Instrumentation Division
 - (4) Performed a safety evaluation of a contractor's excavation of pipeline following a break prior to repair by HRSD employees
 - (5) Escorted City of Norfolk's Fire Marshall on evaluations of VIP and Terminal Boulevard and State Street pump stations
 - (6) Escorted the City of Virginia Beach Fire Marshall on a walk-through of Air Rail Avenue Complex facilities

5. Safety Programs

- a. A Safety Innovation Award luncheon was held for Army Base TP and South Shore Carpentry Shop employees who were presented safety innovation awards earned during a work center competition held as part of National Safety Month in June.
- b. The Safety Manager met with the Systems Support Manager to review *Fleetistics* data in relation to several auto accidents.
- c. Staff worked with CEL staff to evaluate several glove types for handling acetone.
- d. Staff uploaded scanned historical Material Safety Data Sheets to provide access on SharePoint.
- e. Review of audiometric testing results and data entry continued as part of the Hearing Conservation and Protection Program.
- f. Safety and HR staff met to finalize the Medical Request for Proposal requirements for selection of an employee physicals and medical monitoring program provider.
- g. Prescription Safety Glasses program implementation continued. Order forms were distributed to interested employees.

- h. The following was performed for the Confined Space Entry Program:
 - (1) Calibrated confined space meters
 - (2) Reviewed completed confined space permits for North Shore and South Shore Interceptors
 - (3) Updated and created confined space permits for Chesapeake Elizabeth and Army Base TPs

6. General

- a. Two interns successfully completed summer internships, meeting Old Dominion University's Occupational Health and Safety Program requirements.
- b. The Safety Manager participated in a web meeting to provide information to a consultant on HRSD Safety Programs.
- c. 2016 and 2017 safety-related parking board items were reviewed and addressed.
- d. Input was provided on safety needs and expectations for HRSD's Asset Management Program document.
- e. The Safety Manager worked with Operations on chemical delivery procedures and signage.
- f. Industrial Hygienist met with IT and TM staff to provide input on learning management system needs for Safety Training programs.
- g. The Safety Manager reviewed contractor safety information for the Water Quality Services Building Request For Proposal (RFP).
- h. Design and Construction standards related to safety and Virginia Department of Transportation requirements were reviewed.
- i. Staff attended the following training:
 - (1) Safety Technician and Safety Intern attended Cardiopulmonary Resuscitation (CPR), First Aid and Automated External Defibrillator (AED) training
 - (2) Industrial Hygienist attended Liberty Mutual's Industrial Hygiene Institute training held in Dallas, Texas.

j. Staff participated in the following HRSD activities:

(1) Administrative Day of Planning

D. Monthly Strategic Planning Metrics Summary

1. Education and Outreach Events: (10)

- a. WEFTEC 2018 Operations Challenge Safety Event Judge October 1-2
- b. WEFTEC 2018 Young Professionals Career Fair October 1
- c. Norfolk State University's Fall Career Fair October 10
- d. Virginia Initiative for Employment and Welfare Fall Career Fair at the City of Norfolk's Workforce Development Center October 11
- e. City of Hampton Human Service's Job Fair October 15
- f. Old Dominion University's Fall Career Fair October 16
- g. Thomas Nelson Community College's Fall Career Fair October 17
- h. Hampton Roads Public Works Academy Meeting October 19
- i. Patrick Henry Mall Career Fair October 24
- j. City of Suffolk Local Emergency Planning Commission meeting on October 31

2. Community Partners: (7)

- a. Norfolk State University
- b. City of Norfolk's Workforce Development Center
- c. City of Hampton
- d. Old Dominion University
- e. Hampton Roads Public Works Academy

f. City of Suffolk Local Emergency Planning Commission

g. Thomas Nelson Community College

3. Monthly Metrics

Item #	Strategic Planning Measure	Unit	October 2018
M-1.1a	Employee Turnover Rate (Total)	Percentage	0.63
M-1.1b	Employee Turnover due to Service Retirements	Percentage	0.13
M-1.4a	Total Training Hours Per Full Time Employee (17) – Current Month	Total Training Hours/ FTE	9.06
M-1.4b	Total Training During Work Hours Per Full Time Employee (17) – Cumulative Fiscal Year-to-Date	Hours / FTE	21.77
M-5.2	Educational and Outreach Events	Number	10
M-5.3	Community Partners	Number	7

Respectfully submitted,

Paula A. Hogg

Director of Talent Management

TO: General Manager
FROM: Director of Water Quality (WQ)
SUBJECT: Monthly Report for October 2018
DATE: November 14, 2018

A. General

1. Pretreatment and Pollution Prevention (P3) division staff assessed one civil penalty this month.

Atlantic Heating & Cooling Services, Incorporated – Virginia Beach

An Enforcement Order was issued to Atlantic Heating & Cooling in September, 2018 for failure to follow requirements of the Regional Residuals Facility (RRF) Best Management Practice (BMP). The Order contained an invoice totaling \$1,000 in Civil Penalties.

An HRSD inspection revealed that Atlantic Heating & Cooling Service pumped two loads from a privately owned lift station and discharged them to HRSD's RRF. The permittee indicated that their representative believed the lift station being serviced was owned by the City of Portsmouth. The Enforcement Order was accepted and the Civil Penalty was paid in November, 2018.

2. The Director participated in the first meeting of the newly formed Water Research Foundation's (WRF) Research Advisory Council (RAC). The WRF RAC oversees WRF's research program on behalf of the WRF Board by providing recommendations and identifying objectives regarding research priorities important to subscribers. This program now includes, for the first time, source (potable) and surface waters (rivers, streams, lakes, bays) together to support a "One Water" approach like SWIFT. The purpose of this meeting was to familiarize all RAC members with the current research projects of WRF to facilitate discussions regarding how WRF's funds will be partitioned to different projects planned for the future.
3. The Chief of the Environmental Laboratory, Stacie Crandall, accepted an appointment to EPA's Federal Advisory Committee Act Environmental Laboratory Advisory Board representing Public Utility Laboratories.

B. Quality Improvement and Strategic Activities

1. The Sustainability Environment Advocacy Group (SEA) reported no activities for the month of October.
2. 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 Hanover County to support their Virginia Pollution Discharge Elimination System (VPDES) permit application processes and to the City of Virginia Beach to support their water quality monitoring program for Lake Trashmore.

D. Strategic Planning Metrics Summary

1. Educational and Outreach Events: 5
 - a. Dana Gonzalez and Raul Gonzalez spoke at the American Water Summit in Philadelphia as part of the Next Generation Leaders Forum on October 26th.
 - b. Staff of the Technical Services Division presented information at the RIVERFest Science Dome on October 6th.
 - c. P3 staff supported the RiverFest Community Outreach Event on October 6th.
 - d. P3 staff supported the Lynnhaven River Now Festival on October 6th.
 - e. P3 staff supported the Chesapeake Bay Schooner Race on October 13th.
2. Community Partners: 7
 - a. City of Norfolk
 - b. City of Suffolk
 - c. Elizabeth River Project
 - d. Hampton Roads Planning District Commission
 - e. United Way
 - f. Virginia Department of Environmental Quality
 - g. Virginia Department of Health Division of Shellfish Sanitation
3. Odor Complaints: 2
 - a. The Small Communities Division (SCD) and TSD responded to the Matthews, Virginia Hardees restaurant manager's complaint of sewer

odors in their building. The investigation on October 2, 2018 identified faint sewer odors and low hydrogen sulfide concentrations in the Manager's office. SCD further discovered that a lateral associated with the Hardees grease interceptor was broken. Repairs were made and HRSD's system was deemed completely intact upon completion of the investigation.

- b. On October 5, 2018 the office staff of the Virginia Maritime Association (VMA) contacted HRSD with a complaint of chemical odors in the building. The VMA's commercial building also houses HRSD's Plume Street pump station. HRSD Facility Maintenance personnel responded and identified the source of the odors as two freshly painted Virginia Natural Gas meters outside of the building.

4. IWD Related System Issues: 2

- a. On October 12, Oceana Naval Air Station reported a release of aqueous film forming foam (AFFF) from Hangar 56. The release occurred because of power fluctuations as a result of Tropical Storm Michael. Most of the AFFF was diverted to holding tanks onsite, but some was observed downlink from the hangar. A minimal amount of foaming was observed in the aeration tanks at the Atlantic Treatment Plant, but treatment was not affected. Recovery efforts were completed at Oceana and enforcement action was initiated.
- b. On October 9, P3 staff was notified by James City Service authority (JCSA) of a citizen complaint of a gasoline odor in a business's restroom facilities. P3 staff investigated the service area and noted no evidence of gasoline in down line JSCA pump station. The source was determined to be an unused oil/water separator at a gas station. The separator was cleaned out by an outside contractor the afternoon of October 9. Williamsburg Treatment Plant was not impacted. HRSD is seeking cost recovery from the gas station, and enforcement action was initiated.

5. Monthly Metrics

Item #	Strategic Planning Measure	Unit	October 2018
M-1.4a	Training During Work Hours Per Full Time Employee (109) (Current Month)	Total Hours / # FTE	2.39
M-1.4b	Total Training During Work Hours Per Full Time Employee (109) (Cumulative Fiscal Year-to-Date)	Total Hours / # FTE	11.83
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	1:20,293
M-3.2	Odor Complaints	#	2
M-3.4	Pollutant Removal	Total Pounds Removed	64,547,756
M-3.5	Pollutant Discharge	% Pounds Discharged/ Pounds Permitted	15%
M-5.2	Educational and Outreach Events	#	5
M-5.3	Community Partners	#	7
	Average Daily Flow	Total MGD for all Treatment Plants	132.31
	Industrial Waste Related System Issues	#	2

Respectfully submitted,
James Plett, PhD
 Director of Water Quality



The following Internal Audit Status document has been prepared by SC&H for the HRSD Commission. Below is a summary of projects in process, upcoming projects, and the status of current management action plan (MAP) monitoring.

I. *Projects in Process*

Treatment Plant Operations

- **Tasks Completed (October 2018)**
 - Worked with management to finalize management action plans
 - Submitted final report for Commission review

- **Upcoming Tasks (November 2018)**
 - This project has been completed; no additional tasks are necessary

Business Continuity and Disaster Recovery

- **Tasks Completed (October 2018)**
 - Finalized project documentation
 - Communicated draft final report to process owners

- **Upcoming Tasks (November 2018)**
 - Work with process owners to draft management action plans
 - Review and finalize report

Customer Care

- **Tasks Completed (October 2018)**
 - Performed audit entrance discussion
 - Communicated initial documentation requests
 - Scheduled walkthrough discussions
 - Reviewed documentation received

- **Upcoming Tasks (November 2018)**
 - Conduct walkthrough discussions (11/7-11/8)
 - Draft project flowchart documentation
 - Work with process owners to confirm documentation of understanding
 - Perform observation of control and process performance
 - Document and analyze process risks and controls

2018 Risk Assessment Refresh

- **Upcoming Tasks (November 2018)**
 - Contact risk assessment participants and provide background of project
 - Communicate risk assessment questionnaire
 - Schedule risk assessment discussions

II. *Upcoming Projects (FY2019)*

The 2018 Risk Assessment Refresh project will begin in November 2018.



III. Management Action Plan (MAP) Monitoring

SC&H is performing on-going MAP monitoring for internal audits previously conducted for HRSD. SC&H begins MAP follow-up approximately one year following the completion of each audit and will assess bi-annually.

For each recommendation noted in an audit report, SC&H gains an understanding of the steps performed to address the action plan and obtains evidence to confirm implementation, when available.

The following describes the current project monitoring status.

Audit	Report Date	Next Follow-up	Recommendations		
			Closed	Open	Total
D&C: CIP Project Management	5/11/2016	Dec-18	11	2	13
Biosolids Recycling	10/8/2016	Q4 2018- Pending Permit	7	1	8
HR Benefits	11/22/2016	Dec-18	15 (3 pending final verification)	0	15
Inventory	4/20/2017	In Process	1	4	5



Expertise that Works

Internal Audit

Treatment Plant Operations

Hampton Roads Sanitation District

October 15, 2018

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I. Executive Summary

Background

SC&H conducted an internal audit of treatment plant management procedures within the Hampton Roads Sanitation District's (HRSD) Operations Department (Operations).

The Operations Department is responsible for operating and maintaining all of HRSD's treatment plants, work centers, and operational equipment. This includes the daily functions of water treatment, preventative maintenance (PM), and corrective repairs. Operations manages more than 500 miles of pipe and more than 100 pump stations, serving approximately 1.7 million people in the Hampton Roads region.

Treatment operations are conducted at nine major plants and seven smaller plants. The nine major plants are separated into groups of three, with each group overseen by a Chief of Treatment. The four smaller plants are collectively referred to as Small Communities.

Budget

A fiscal year budget is prepared for each treatment plant within Operations. The budgeting process involves several individuals at each plant, including the Chief of Treatment, Plant Superintendent, and Lead Operator. These individuals work collaboratively to create and update the Operating Budget Worksheets, based on recent expenditures and data from the Finance Department. The Operating Budget Worksheets are comprised of several sub-sections including Major Repair and Replacement (MR&R), Chemical Usage, and additional general operating and personnel expenses (e.g. supplies, salaries). Following creation, budget data is entered into the Hyperion budgeting system. Budgets are reviewed and approved by the Chiefs of Treatment, Director of Operations, General Manager, and Commission prior to implementation. Budget projections and monitoring occur throughout the year on a quarterly basis and include budget to actual reviews based on performance to date.

Preventative Maintenance and Corrective Repairs

PM intervals are established for Operations assets within the computerized maintenance management system (CMMS), which is used for asset and inventory management. PM timing and performance instructions are found within the asset manufacturers operations and maintenance (O&M) manual. These instructions are entered into CMMS by a Maintenance Planner and the O&M manual is saved in the OTIS documentation system for reference. The Maintenance Planner releases PM tasks within CMMS based on performance intervals. The tasks are then administered by Operations personnel. In addition to PM, corrective repairs are performed by Operations. These repair work orders are assigned to the appropriate personnel in CMMS and notes regarding work performed, parts, and hours for completion are documented.

Communications

Communications within Operations between management and staff is continuous and dynamic. Depending on the nature and sensitivity of the information that needs to be communicated,

individuals at the work centers may use a variety of communication methods. These methods include operations meeting, Daily Pass-Down logs, E-mail, Phone/radio, Sit/Reps, and emergency communication methods.

Objectives

The following audit objectives were established based on the internal audit's planning procedures.

- A. Assess the efficiency and effectiveness of PM critical asset repair and maintenance, including timeliness, record retention, and systematic workflow.
- B. Assess the efficiency and effectiveness of non-PM critical asset repair and maintenance, including timeliness, record retention, and systematic workflow.
- C. Evaluate the efficiency and effectiveness of the budgeting process to ensure effective budget creation, review, and adoption throughout treatment plants and related facilities.
- D. Assess management communications within Operations to ensure effective delivery of information throughout treatment plants and related facilities.
- E. Review vendor chemical invoices and inventory tracking to ensure that chemicals are appropriately monitored and delivered.
- F. Examine the user access rights for Hyperion, CMMS, and DCS to ensure that they are current and appropriate.

Scope

The internal audit was initiated in February 2018 and fieldwork procedures completed in June 2018. The internal audit focused on the policies and procedures in place at the time of this review with samples selected from FY18 treatment plant operations within the department.

Methodology and Approach

In order to administer the audit procedures, SC&H performed the following:

Process Walkthrough and Flowchart Creation

SC&H obtained and reviewed current Operations process documentation from department contacts at the outset. SC&H then met with members of the Operations Department management teams to conduct detailed walkthrough discussions of their procedures. These discussions focused on process flow, required approval, inputs/ outputs, and risk and control points. Based on discussions and review of the procedural documentation, SC&H created summarized flowcharts and a supplemental process narrative to document our understanding of the process. The processes identified and documented include:

- **Treatment Plant Operations Flowcharts**
 - Major Repair and Replacement Budget
 - Chemical Usage
 - Creation Process
 - Budget Projections/Monitoring Process

- Budget Scheduling
- Work Order Creation – PM
- Work Order Creation – Non-PM
- Work Order Execution
- New Asset Entry
- **Process Narrative**
 - Communications Process Narrative

Audit Program Creation

Based upon the review of the processes, risks, and controls, SC&H developed an audit program to achieve the objectives described above. The audit program included detailed steps to address each objective with the goal of assessing risk and identifying opportunities for improvement, where necessary.

Audit Program Execution

SC&H executed the audit program by completing the following tasks:

- Reviewed a sample of PM (25) and Non-PM (25) work orders for timeliness, record retention, and systematic workflow
- Reviewed a sample of CMMS assets (25) for appropriate entry into system and PM schedule establishment
- Examined FY2018 budget documentation for Nansemond, James River, and Chesapeake Elizabeth
- Documented and analyzed current communications process
- Reviewed a sample chemical vendor invoices (25)
- Reviewed the user access rights in Hyperion, CMMS, and DCS for appropriateness

Summary of Work

After reviewing the processes in place and evaluating the current control environment, SC&H concludes that there are improvement opportunities within Treatment Plant Operations which can help reduce risk and increase process efficiency and effectiveness.

The following section provides detailed observations and recommendations regarding six separate topics.

We appreciate the assistance and cooperation of the management and staff involved in HRSD's Treatment Plant Operations processes. Please contact us if you have any questions or comments regarding any of the information contained in the internal audit report.

SC&H Group, Inc.



Matthew Simons, CPA, CIA, CGAP
Principal

II. Detailed Observations and Recommendations

Observation 1

There is not currently a process in place to review user access for DCS and CMMS, This has resulted in several users holding inappropriate access level.

Observation Detail

Current procedures to monitor user access to DCS (chemical management system) and CMMS (asset/ inventory management system) are not sufficient to restrict access to appropriate HRSD personnel. SC&H performed a review of user access for each system. SC&H obtained complete user access listings including user roles. These listings were then reviewed against the current HRSD Operations employee roster for appropriateness. We then discussed our findings with Operations management personnel. Following this discussion, we noted the following.

- **CMMS**: One person had access to CMMS but was no longer a member of the Operations department.
- **DCS**: HRSD has established a number of “generic” profiles to be accessed by an interchangeable group of people at the terminals throughout the day. Additionally, one employee had inappropriate access to the system.

Additionally, through the testing of work order performance, one employee inappropriately had the ability to open, complete, and close a work order in CMMS as a Maintenance Operations Assistant.

Risk

The absence of a formal user access review can result in inappropriate access being granted to, and maintained by, current and former HRSD personnel as well as contractors.

Inappropriate access to these systems include specific risks, such as:

- **CMMS**: Operational and financial risk with regard inaccurate inventory and work order tracking. Financial risks include inappropriate inventory valuation and expense tracking.
- **DCS**: Operational and permit related risks exist as inappropriate personnel may have access to alter chemical levels, impacting the treatment process. Additionally, the use of generic profiles at terminals increases the risk of inappropriate access and reduces the ability of HRSD to track changes made to the system.

Recommendation 1.1

Implement a formalized, periodic review of user access to CMMS and DCS. HRSD should consider providing the management of each work center with a listing of users with current

access to these system and request that they review for appropriateness. Following this review, access rights should be updated or removed, as needed.

Management's Action Plan and Implementation Date

We concur. We will work with the Departments of Engineering, Information Technology and Talent Management to establish an annual formal management review process of user access to both the CMMS and DCS systems. This review process will be established and in operation by the end of the current fiscal year.

Recommendation 1.2

Consider discontinuing the use of generic profiles to access DCS terminals and assigning each appropriate staff member with an individual login. While generic profiles may be convenient for operators as the work centers, it increases the risk of inappropriate access and reduces the ability to track system changes.

Management's Action Plan and Implementation Date

We concur. Generic account access to DCS terminal are already in the process of being eliminated via a centralized Windows Domain Controller within the control network that enables the utilization of individual accounts for DCS users. This configuration will also enable each individual to be assigned to a specific security group based upon the level of access that is required in accordance with their position.

We anticipate that all plant DCS sites will be connected to one centralized domain by the end of this fiscal year.

Observation 2

Current CMMS work order documentation review procedures are not operating to effectively prevent errors.

Observation Detail

SC&H identified incomplete work order entries in CMMS for two of the 50 reviewed entries. In these entries, the person who performed the work order did not enter actual hours for time worked. These hours are used to directly calculate the cost of completing a work order. All of these entries were subsequently reviewed and approved by a supervising person without correction.

Per discussion with HRSD Operations management, hours to complete a work order are a requirement for a complete entry in CMMS. These incomplete entries should be identified and corrected through supervisory review.

Risk

The absence of hours to perform a work order results in a decreased ability for management to track actual labor hours necessary to perform preventative and corrective maintenance. As a result, Operations may be less able to accurately budget labor expense for repairs and maintenance and assign cost to assets.

Per HRSD Operations, a reviewer must rely upon the information entered into the work order to determine appropriate completion. The lack of accurate CMMS entries results in insufficient information for Operations personnel who review work orders to determine whether jobs have been performed appropriately and timely. This may result in inaccurate work completion, impacting the repairs and maintenance of critical assets. This can increase the operational and safety risks of asset breakdowns as well as the financial risk of reduced asset useful lives.

Recommendation 2.1

Operations should update the maintenance standard operating procedures (SOPs) to specify the instructions for the reviewer's responsibility to ensure hours and comments have been documented. This should be reinforced with communication or training to Operations employees, as appropriate.

Management's Action Plan and Implementation Date

We concur; labor hours should be reported on a work order. That omission should've been discovered during the supervisor review and returned for correction.

Additionally, we will implement a procedure that requires staff to periodically review a system report that compares estimated versus actual hours and determine if adjustments are needed. The aforementioned procedure will be implemented and distributed by the end of the calendar year.

Recommendation 2.2

Consider designating certain lower risk preventative maintenance as not requiring supervisory review. In order to determine the assets that fall into this category, HRSD should establish clear guidelines for lower versus higher risk preventative maintenance based on asset criticality and impact to operations. This can aid in alleviating the volume of review required by supervisors, allowing them to focus on the more critical work orders.

To ensure that lower risk PM CMMS entries are appropriately completed, Operations should periodically perform a quality control review. This may include running a report of these entries to identify those with missing fields. Alternatively, a review of a random sample of entries may be performed.

Management's Action Plan and Implementation Date

Generally we concur and with the implementation of our Asset Management effort we are in the process of categorizing assets using a risk metric. This risk metric is part of our larger asset management implementation effort. We expect to have all work centers risk metric assessed in the next two years.

Unfortunately, the CMMS system will not allow a supervisor to bypass the closing process of a work order. Therefore, when a supervisor closes a preventive maintenance work order the "review" is generally an administrative function. A supervisor's closure of another work order type (i.e., corrective) should be more substantive in nature. We will ensure that the CMMS SOP and associated training reflects this concept. The SOP will be established and distributed by the end of this calendar year.

Observation 3

Preventative maintenance schedules are not established in CMMS for all assets.

Observation Detail

One asset of 25 reviewed assets did not have PM requirements noted in CMMS. Per discussion with HRSD Operations, assets entered in CMMS should have an established PM schedule in the system based on the manufacturer recommendation and HRSD usage. Upon inspection of available documentation, SC&H noted that the selected asset is currently receiving PM on manual, paper documentation and is not configured in the system to track or monitor maintenance.

Risk

As this asset is not in the system, Operations staff will not receive automated reminders that it is due for maintenance or have systematic access to detailed PM procedures. This can result in missed or inadequate preventative maintenance, increasing the risk of asset breakdown or a shortened useful life.

Additionally, not using CMMS to monitor PM will result in a decreased ability to track previous maintenance, comments, or labor hours. This reduces the ability of Operations staff to review previous PM results, potentially impacting the ability to adjust future maintenance procedures.

Further, electronic review and approval is not available outside of CMMS, which can cause the PM process to deviate from the expected standard procedures of HRSD Operations. This may result in insufficient review, increasing the risk of inadequate or inappropriate PM.

Recommendation 3.1

HRSD Operations should update procedural documentation, as necessary, to reflect the requirement that all assets that need PM have established PM schedules within CMMS and that paper documentation of these procedures is not permitted. This should be reinforced through training or communication. PM should be established for new assets at the time of entry into the system. Current assets with PM tracked and documented outside of CMMS should be identified and entered into the system.

Management's Action Plan and Implementation Date

We concur. All assets in the CMMS system that have inspection or PM requirements should be recorded and tracked within CMMS. Over the next 12 months, as part of our asset management implementation we will be conducting a comprehensive review of assets in the CMMS system and their related PM activities.

Observation 4

The established timeframes for PM work order completion may result in inappropriate performance frequency.

Observation Detail

PM work orders are released in groups at the beginning of the associated maintenance windows. The assigned personnel may complete the PM at any time within the window associated with the work order interval (e.g. annual allows one year, quarterly allows three months). These work orders may not be ready to be performed for an extended period of time, resulting in long standing open PM work orders. Of the 25 PM work orders reviewed, five annual work orders were open from 86 to 240 days. These were considered to be completed timely as they were performed within the yearly window allowed. Additionally, work orders are consistently released in the same time intervals without consideration of when the prior work was performed (e.g. annual work orders are released each July).

Further, per discussion with HRSD Operations, there is not currently a formalized process to set expectations for review of long-standing open work orders to follow-up on completion. Open work orders are tracked in CMMS, however requirements for timing to complete and close these work orders have not been established nor have follow-up intervals.

Risk

Releasing PM work orders consistently at the same time, rather than based on prior performance, and allowing for an extended window of performance, may result in the inappropriate PM frequency. For example, if an annual PM work order is released in July fiscal year (FY) 1 and performed in the same month, then performed in March of FY 2 it would result in 20 months between performance of a PM that should be performed annually. Alternatively, if an annual PM work order is performed in April of FY 1, and then performed in October of FY 2 (the same calendar year), the annual PM would have been performed eight months apart.

Intervals greater than required results in less frequent maintenance, potentially impacting the useful life of the assets. Intervals less than necessary result in more frequent PM, unnecessarily increasing maintenance expenses.

Recommendation 4.1

Consider reducing the windows to perform PM to ensure it is conducted in the expected intervals. This will reduce long-standing open PMs and lower the risk for inappropriate maintenance intervals.

Alternatively, consider restarting the PM interval window so that it will be released for performance in the appropriate timing after it was last closed. This will ensure PM is not performed more than necessary.

Management's Action Plan and Implementation Date

We concur. We will explore the usefulness and feasibility of the CMMS scheduling tool which better manages timing of work order and inspections. To ensure its effectiveness, we anticipate a one-year pilot of this tool before a district wide implementation.

Recommendation 4.2

Consider documenting a process for Lead Operators or others to monitor open work orders on a regular basis. This should include the method of monitoring and the expected close time.

Management's Action Plan and Implementation Date

The existing CMMS SOP requires all supervisors to ensure that work orders are completed in a timely manner. In addition to supervisor CMMS training on this matter, supervisors are provided reports that list all open work orders for their work center. Implementation of the scheduling tool will help alleviate the perception that these work orders were not closed timely.

Observation 5

Preventative maintenance instructions are not readily available to Operations personnel while performing work in the field.

Observation Detail

PM instructions are documented in CMMS for each asset based upon the O&M manual. These instructions provide detailed performance steps when conducting preventative maintenance. However, these instructions are not readily available to Operators during the performance of maintenance. In order to access the instructions, Operators must be at one of the computer terminals within the plant and be logged onto the CMMS system. Depending on the location of the asset being repaired, the Operator may not have readily available access to the instructions.

Risk

PM may not be performed as required. This may result in reduced asset life and increased safety or operational risk due to breakdown.

Recommendation 5.1

Consider implementing mobile access to CMMS for Operations personnel, allowing them the ability to reference instructions as needed in the field. This will help to ensure each necessary step is reviewed and performed as expected.

Management's Action Plan and Implementation Date

We concur. We are currently piloting a mobile tablet solution for CMMS for Operations personnel. There are a number of functionality challenges that we are currently working through before deployment would be effective. We plan to implement a mobile solution in the next fiscal year.

Observation 6

Employees have the ability to open, complete, and close CMMS work order entries, resulting in inappropriate segregation of duties.

Observation Detail

In 10 instances of 50 work orders reviewed, a work order was opened, completed, and closed by the same individual. Per discussion with HRSD Operations management, Superintendents and Lead Operators are granted these system rights to allow them to access, review, and update work order entries. Upon further discussion, Operations indicated that these staff members may also physically perform the work and self-review their work order entries.

Risk

Self-review increases the risk that work order entries are not completed accurately. The purpose of independent review is to identify omissions and edits to the work order entries and to consider whether the work was properly performed. This function is effectively not occurring when an individual independently opens a work order, performs the work, and closes the entry. This can result in incorrect CMMS information or insufficient work order completion. Financial risk is increased through the potential for inaccurate labor cost tracking and operational risk is increased as a result of possible incomplete work performance.

Recommendation 6.1

HRSD Operations should review CMMS access to separate work order abilities between individuals so that one person is unable to both complete and close a work order in the system. This will ensure a second person is reviewing the work order entry for accuracy and appropriateness.

Management's Action Plan and Implementation Date

We concur. We will implement procedures to ensure an appropriate segregation of duties. These procedures will be implemented and distributed by the end of this fiscal year.

Annual Metrics												
Item	Strategic Planning Measure	Unit	Target	FY-10	FY-11	FY-12	FY-13	FY-14	FY-15	FY-16	FY-17	FY-18
M-1.1a	Employee Turnover Rate (Total)	Percentage	< 8%	5.63%	4.09%	6.64%	7.62%	8.22%	9.97%	6.75%	6.66%	9.99%
M-1.1b	Employee Turnover Rate within Probationary Period		0%		2.22%	8.16%	14.58%	9.68%	0.66%	0.13%	0.90%	1.01%
M-1.2	Internal Employee Promotion Eligible	Percentage	100%		59%	80%	69.57%	71.43%	64.00%	69.00%	68.00%	85.00%
M-1.3	Average Time to Fill a Position	Calendar Days	< 30		70	60	52	43.76	51	56	67	67
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	48.4	41.1
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	5.5	5.7
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	1	1.1
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	2.8	2.8
M-2.1	CIP Delivery - Budget	Percentage			113%	96%	124%	149%	160%	151%	156%	160%
M-2.2	CIP Delivery - Schedule	Percentage			169%	169%	161%	150%	190%	172%	173%	167%
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	28,786	28,372
M-2.3b	Planned Maintenance	Percentage of Total Mtc Hours Monthly Avg			20%	27%	70%	73%	48%	41%	43%	44%
M-2.3c	Corrective Maintenance	Percentage of Total Mtc Hours Monthly Avg			63%	51%	12%	10%	18%	25%	25%	24%
M-2.3d	Projects	Percentage of Total Mtc Hours Monthly Avg			18%	22%	20%	18%	32%	34%	32%	32%
M-2.4	Infrastructure Investment	Percentage of Total Cost of Infrastructure	2%		8.18%	6%	6%	4%	7%	7%	5%	5%
M-3.3	Carbon Footprint	Tons per MG Annual Total			1.61	1.57	1.47	1.46	1.44	1.45	1.58	1.66
M-3.6	Alternate Energy	Total KWH			0	0	0	5,911,289	6,123,399	6,555,096	6,052,142	5,862,256
M-4.1a	Energy Use: Treatment	kWh/MG Monthly Avg			2,473	2,571	2,229	2,189	2,176	2,205	2,294	2,395
M-4.1b	Energy Use: Pump Stations	kWh/MG Monthly Avg			197	173	152	159	168	163	173	170
M-4.1c	Energy Use: Office Buildings	kWh/MG Monthly Avg			84	77	102	96	104	97	104	104
M-4.2	R&D Budget	Percentage of Total Revenue	> 0.5%		1.0%	1.4%	1.0%	1.3%	1.0%	0.8%	1.3%	*
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	\$1,285	\$1,423
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%	0.59%	0.60%
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	\$3,592	\$3,959
M-5.1	Name Recognition	Percentage (Survey Result)	100%	67%	71%	N/A	62%	N/A	60%	N/A	N/A	53%
M-5.4	Value of Research	Percentage - Total Value/HRSD Investment			129%	235%	177%	149%	181%	178%	143%	114%
M-5.5	Number of Research Partners	Annual Total Number			42	36	31	33	28	35	15	20
	Rolling 5 Year Average Daily Flow	MGD		157.8	155.3	152	154.36	155.2	151.51	153.09	154.24	152.8
	Rainfall	Annual Total Inches		66.9	44.21	56.21	46.65	46.52	51.95	54.14	66.66	49.24
	Billed Flow	Annual Percentage of Total Treated		71.9%	82.6%	78%	71%	73%	74%	73%	76%	76%
	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%	3.10%	3.59%
	Total Debt Coverage	Net Revenue/Total Annual Debt	>1.4	1.67%	1.67%	1.46%	1.45%	1.32%	1.46%	1.77%	1.93%	2.03%

Monthly Updated Metrics													FY-19	FY-19
Item	Strategic Planning Measure	Unit	Target	FY-10	FY-11	FY-12	FY-13	FY-14	FY-15	FY-16	FY-17	FY-18	Sep-18	Oct-18
	Average Daily Flow	MGD at the Plants	< 249		136	146.5	158.7	156.3	153.5	155.8	153.5	145.8	148.6	132.3
	Industrial Waste Related System Issues	Number	0		3	6	6	6	2	4	7	4	2	2
	Wastewater Revenue	Percentage of budgeted	100%		97%	96%	98%	107%	102%	104%	103%	103%	104%	106%
	General Reserves	Percentage of Operating and Improvement Budget	75% - 100%		72%	82%	84%	92%	94%	95%	104%	112%	111%	115%
	Accounts Receivable (HRSD)	Dollars (Monthly Avg)			\$17,013,784	\$17,359,488	\$18,795,475	\$20,524,316	\$20,758,439	\$22,444,273	\$22,572,788	\$22,243,447	\$25,444,864	\$25,584,670
	Aging Accounts Receivable	Percentage of receivables greater than 90 days			21%	20%	18%	19%	21%	20%	18%	18%	15%	16%
M-2.5	Capacity Related Overflows	Number within Level of Service	0		25	1	30	5	11	16	6	10	0	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	9:53236	9:58338	1:15220	1:20293
M-3.2	Odor Complaints	Number	0		6	2	7	11	5	9	7	6	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	189,765,922	190,536,910	49,908,551	64,547,756
M-3.5	Pollutant Discharge (% of permitted)	Pounds Discharged/Pounds Removed	< 40%		25%	22%	25%	22%	22%	20%	22%	17%	15%	15%
M-5.2	Educational and Outreach Events	Number			302	184	238	322	334	443	502	432	35	68
M-5.3	Number of Community Partners	Number			280	289	286	297	321	354	345	381	31	28

EFFLUENT SUMMARY FOR OCTOBER 2018

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	9.79	54%	1	1.7	3	1	0.58	0.62	3.4	4.7	NA	NA	14
ATLANTIC	24.25	45%	14	5.7	7	1	NA	NA	NA	NA	NA	NA	6
BOAT HARBOR	12.68	51%	7	6.0	5	1	0.86	0.59	25	15	NA	NA	2
CENT. MIDDLESEX	0.011	45%	<2	<1.0	<1	<1	NA	NA	NA	NA	0.89	0.02	NA
CHES-ELIZ	16.36	68%	13	12	12	2	1.6	0.91	31	30	NA	NA	7
JAMES RIVER	11.73	59%	3	2.4	1	<1	0.74	0.39	8.3	8.1	NA	NA	1
KING WILLIAM	0.060	60%	1	<1.0	NA	1	0.045	0.051	0.55	0.79	0.31	NA	NA
LAWNES POINT	0.057	114%	<2	3.7	<1	<1	0.013	0.015	0.31	0.41	NA	NA	NA
NANSEMOND	14.80	49%	4	4.2	1	1	0.65	1.0	4.9	4.3	NA	NA	12
SURRY, COUNTY	0.053	81%	3	<1.0	NA	1	NA	NA	NA	NA	<0.50	<0.10	0
SURRY, TOWN	0.058	96%	5	12	NA	23	NA	NA	NA	NA	0.60	0.13	NA
URBANNA	0.057	57%	5	10	8	3	4.4	4.5	6.7	24	NA	0.16	NA
VIP	22.49	56%	0	2.0	2	1	0.89	0.80	6.7	6.4	NA	NA	3
WEST POINT	0.478	80%	15	10	4	7	2.5	2.7	14	17	NA	7.08	0
WILLIAMSBURG	8.06	36%	2	2.2	7	4	0.72	0.60	2.9	3.0	NA	NA	3
YORK RIVER	11.39	76%	3	0.42	1	1	0.15	0.28	5.1	4.1	NA	NA	5
	<u>132.31</u>												

	% of Capacity
North Shore	53%
South Shore	53%
Small Communities	77%

	Tributary Summary					
	<u>Annual Total Nitrogen</u>			<u>Annual Total Phosphorus</u>		
	Discharged	Operational		Discharged	Operational	
	YTD	Projection CY18		YTD	Projection CY18	
Tributaries	%	Lbs	%	%	Lbs	%
James River	65%	3,690,336	81%	65%	271,888	85%
York River	54%	200,244	69%	62%	14,725	76%
Rappahannock	230%	NA	NA	633%	NA	NA

Permit Exceedances: Total Possible Exceedances, FY19 to Date: 1:20,293
Pounds of Pollutants Removed in FY19 to Date: 64,547,756
Pollutant Lbs Discharged/Permitted Discharge FY19 to Date: 15%

	Rainfall (inch)		
	<u>North Shore (PHF)</u>	<u>South Shore (ORF)</u>	<u>Small Communities (FYJ)</u>
Month	5.72"	2.27"	8.04"
Normal for Month	4.17"	3.80"	4.14"
Year to Date Total	46.89"	48.66"	52.30"
Normal for YTD	44.18"	43.79"	42.02"

AIR EMISSIONS SUMMARY FOR OCTOBER 2018

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	1	0	0	0	0	0	3	26	100	0
BOAT HARBOR	0	0	0	n/a	0	0	0	3	24	93	0
CHES-ELIZ	0	1	0	0	0	0	0	0	30	100	0
VIP	0	0	0	n/a	0	0	0	1	52	99	0
WILLIAMSBURG	0	0	0	n/a	0	0	0	3	10	93	0

ALL OPERATIONS

DEQ Reportable Air Incidents:	0
DEQ Request for Corrective Action (RCA):	0
DEQ Warning Letter:	2
DEQ Notice of Violation (NOV):	0
Other Air Permit Deviations:	1
Odor Complaints Received:	2
HRSD Odor Scrubber H2S Exceptions:	1