



COMMISSION MEETING MINUTES  
March 27, 2018

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Name	Title	Present for Item Nos.
Elofson, Frederick N.	Commission Chair	1-25
Lynch, Maurice P.	Commission Vice-Chair	Absent
Glenn, Michael E.	Commissioner	1-25
Lakdawala, Vishnu K.	Commissioner	1-25
Levenston, Jr., Willie	Commissioner	1-25
Rodriguez, Stephen C.	Commissioner	1-7
Taraski, Elizabeth	Commissioner	1-25
Templeman, Ann	Commissioner	1-25

1. **AWARDS AND RECOGNITION**

**Action:** No action required.

**Brief:** Mr. Henifin made the following introductions and announcements:

a. Promotion Announcement

- (1) Ms. Lauren Zuravnsky, Chief of Design & Construction for SWIFT – Lauren is a licensed Professional Engineer in the Commonwealth of Virginia and started with HRSD in January 2016 as an Engineering Project Manager, working for North Shore and South Shore Design and Construction divisions. Recently, Lauren was the Project Manager for the SWIFT Research Center project. Previously, Lauren was a consulting engineer for a national firm in Richmond. Lauren holds degrees from Villanova and Virginia Tech. She is active in VWEA and WEF and was honored to receive the 2016 WEF Outstanding Young Water Professional Award.
- (2) Ms. Jill Mergen, Customer Care Manager for Billing, Payments and the Mail Center – Jill joined HRSD in 2013 as our Payments Supervisor and has brought energy, enthusiasm and a positive attitude to our team. She has played a key role in numerous initiatives, our upgrade to the Customer Care & Billing System (CC&B 2.5) and our most recent transition to new vendors for Bill, Print and Mail. Jill earned her Bachelor’s Degree in Interdisciplinary Studies with a Concentration in Work and Professional Studies from Old Dominion University in May 2017.





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b. New Employee Introduction

Ms. Adrienne Derouen, Customer Care Manager for Call Center and Delinquent Accounts – Adrienne joined HRSD last month. Her background is in banking, call center operations, utilities, workforce management, and credit and collections. She holds a Master of Business Administration from Liberty University and Bachelor of Science in Psychology from Virginia State University.

c. Granted Patent - Method for Deammonification Process Control using pH, Specific Conductivity, or Ammonia (US 9,902,635)

HRSD is proud to recognize Stephanie Klaus, HRSD Water Technology and Research Intern and Virginia Tech PhD Candidate in Civil and Environmental Engineering, and Dr. Charles Bott, Director of Water Technology and Research, for a patent granted in the US concerning the development of a novel control system for the AnitaMox® process, which is specifically a sidestream centrate deammonification (partial nitrification + anammox) process that is arranged in either a moving bed biofilm reactor (MBBR) or integrated fixed film activated sludge (IFAS) configuration. HRSD installed the Kruger/Veolia AnitaMox® technology at the James River Treatment Plant (JRTP) in 2013, and we have been successfully operating this sidestream deammonification process since that time. As part of the original contract with Kruger/Veolia for the purchase of this technology, HRSD staff negotiated the terms of a joint development agreement such that process improvements developed jointly by HRSD and Kruger/Veolia staff or independently by HRSD staff could be patented and licensed back to Kruger/Veolia. Over the course of the first eight months of operation, Stephanie, working closely with the James River Treatment Plant and HRSD Industrial Automation staff, independently developed a new control system for the AnitaMox® process. A provisional patent application was submitted, followed 12 months later by a full non-provisional US patent application and a Patent Cooperation Treaty (PCT) international application. The full patent was granted in the US on February 27, 2018. According to the terms of the joint development agreement, HRSD was obligated to provide an opportunity to Kruger/Veolia to secure an exclusive license agreement for this technology. In June 2016, the HRSD Commission approved the execution of a license agreement with Kruger/Veolia and a Research Fund agreement with The Water Research Foundation.

**Public Comment:** None



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2. **CONSENT AGENDA**

**Action:** Approve the items listed in the Consent Agenda.

**Moved:** Stephen Rodriguez **Ayes:** 7  
**Seconded:** Willie Levenston **Nays:** 0

**Brief:**

- a. Approval of minutes from previous meeting.
- b. Contract Awards
  - 1. [Lawn Maintenance Services](#) \$1,252,951
  - 2. [Middlesex County Sewer Service Expansion Study](#) \$222,500
- c. Task Orders
  - 1. [Virginia Initiative Plant Nutrient Reduction Improvements – Contract B](#) \$380,258
- d. Change Orders
  - 1. [Nansemond Treatment Plant Digester Rehabilitation](#) \$135,875
- e. Sole Source
  - 1. [Organizational Development Supervisor Training Co-Facilitator](#)
  - 2. [Total Organic Carbon \(TOC\) Analyzer Parts and Preventive Maintenance](#)

**Item(s) Removed for Discussion:** None

**Attachment #1:** [Consent Agenda](#)

**Public Comment:** None



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3. **PUBLIC HEARING ON DETERMINATION OF PUBLIC NEED  
ACQUISITION OF EASEMENT – 600 SEVERN ROAD, NEWPORT NEWS, VA  
FORCE MAIN RELOCATION TO ACCOMMODATE THE NEWPORT NEWS  
TRANSPORTATION CENTER**

**Action: Conduct public hearing.**

**Project Description:** The City of Newport News is planning to construct a multi-modal transportation center within the Patrick Henry area of Newport News. Completion of the project will allow for increased passenger train ridership, decreased costs because AMTRAK will be able to turn and maintain trains on site, and CSX will have more main line track time available for cargo traffic because passenger trains will have less need to utilize the main lines. Transportation options will also increase through new inter-city bus service with local connections including HRT, airport shuttles and taxi service. The planned project will require relocation of two HRSD force mains. The acquisition of a 28,279 SF (+/-) temporary easement and a 4,934 SF (+/-) permanent easement at 600 Severn Road will allow for adequate relocation of HRSD facilities, ingress/egress capabilities and provide a lay down area for construction purposes.

The Commission approved a relocation agreement with the City of Newport News in December 2016 in which the City agreed to construct the relocation in accordance with HRSD standards and pay all costs associated with the relocation.

In December 2017, the Commission authorized the purchase of the entire parcel at 600 Severn Road to facilitate the relocation. Staff was unable to close that deal resulting in the potential need to condemn this easement and the requirement to hold this public hearing.

In accordance with Section 15.2-1903.B of the Code of Virginia, the Commission must hold a public hearing to determine public need prior to acquisition actions that may result in condemnation.

Staff provided a short [overview](#) for the Commission and the public immediately prior to the Public Hearing. A facilities orientation [map](#) was provided for clarification purposes.



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**Discussion Summary:** Staff explained the logistics and timing of construction under the railway and accessing the parcel. The City of Newport News will be administering the construction contracts. Commissioner Rodriguez expressed his concerns with liability. Staff said they will work closely with Counsel to address HRSD liability limitations in the agreements with the other parties.

Chair Elofson then opened the public hearing by asking if there was any member of the public who wished to address the Commission. No member of the public desired to address the Commission. The public hearing was closed.

**Attachment #2:** [Presentation and Map](#)

**Public Comment:** None



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4. **LEASE OF HRSD-OWNED PROPERTY  
2401 G AVENUE, NEWPORT NEWS, VA**

**Action:** Authorize the General Manager to negotiate and execute a market-based lease, with an initial term not to exceed five years, with Site One Landscape Supply for the HRSD-owned property at 2401 G Avenue, Newport News, VA.

**Moved:** Willie Levenston **Ayes:** 7  
**Seconded:** Stephen Rodriguez **Nays:** 0

**Project Description:** HRSD currently owns a facility at 2401 G Avenue (Property ID#: 121000201) which consists of approximately 17,500 SF of buildings and approximately 3 acres of land. The main building is currently vacant. Site One Landscape Supply, a wholesale landscape supply distributor specializing in lawn care supplies, nursery stock, irrigation, landscape supplies, and landscape lighting to green industry professionals, would like to enter into a five year lease of the property. Site One will be the tenants and responsible for all costs associated with occupancy (exclusive of structure and roof maintenance). They propose to begin tenancy June 1, 2018. Current market rate is estimated at approximately \$8,000 per month.

A facilities orientation [map](#) and an [exhibit](#) showing the proposed use is provided for clarification purposes.

**Analysis of Cost:** HRSD staff worked with its on-call Real Estate consultant JMT and CBRE, (a commercial real estate and investment firm) to determine market rent. The estimate of \$8,333.33 per month is before any adjustment for tenant constructed improvements.

**Discussion Summary:** All security, utilities, lawn care and maintenance will be Site One's responsibility. Staff agreed to provide a copy of the lease to the Commission for their information once it has been finalized.

**Attachment #3:** [Map and Proposed Use Exhibit](#)

**Public Comment:** None



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5. **OPTION TO PURCHASE REAL PROPERTY AGREEMENT  
LAMBERTS POINT – 4301 POWHATAN AVENUE, NORFOLK, VA**

**Action:** Approve the terms and conditions of the Option to Purchase Real Estate agreement from the City of Norfolk 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:** Michael Glenn **Ayes:** 7  
**Seconded:** Willie Levenston **Nays:** 0

**Background:** HRSD needs land to accommodate construction of SWIFT facilities adjacent to several existing treatment plants. The two HRSD treatment plants located within the City of Norfolk do not have adequate land to construct SWIFT facilities. Staff has held discussions with neighboring land owners and even the City of Portsmouth looking for a suitable location for SWIFT facilities. Through this process the land adjacent to the Virginia Initiative Plant (VIP), currently owned by the City of Norfolk and used as a municipal golf course, has been identified as the best option as the location for construction of SWIFT facilities to treat the combined flows from VIP and the Army Base Treatment Plant.

After months of negotiations, the City of Norfolk and HRSD staff have agreed on the terms for HRSD to purchase the required land with a non-revocable option. This option agreement allows HRSD to proceed with design of SWIFT facilities with the assurance that the land will be available for construction in the 2025 time frame. The option concept allows the City to continue to operate the golf course and maintain ownership should SWIFT not move forward for some unforeseen reason.

The attached [agreement](#) has been approved by Norfolk City Council at their meeting on March 13, 2018 and will be executed after the required 30-day period for ordinance adoption. Highlights of the terms of the agreement are:

- HRSD shall prepare a subdivision plat for the existing city owned parcel creating a parcel to be sold to HRSD, approximately 35 acres in size.
- HRSD will dedicate a public access/recreation easement 125 feet wide around the perimeter of the parcel.
- City shall be responsible for all improvements to the public access/recreation easement as well as maintenance of such improvements.



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- HRSD cannot exercise the option to purchase any earlier than January 1, 2023 and must execute by December 1, 2023.
- HRSD pays City \$15 million after approval of subdivision plat, rezoning and title work with a goal of closing this deal by June 30, 2018.
- HRSD pays an additional \$15 million upon closing on the property after exercising the option in 2023.

**Discussion Summary:** An agenda item for rezoning will be presented to Norfolk City Council for approval in June.

**Attachment #4:** [Agreement](#)

**Public Comment:** None



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6. **PARK AVENUE PUMP STATION REPLACEMENT  
ACQUISITION OF REAL PROPERTY  
1338 PORTER STREET (AND ADJACENT LOT), CHESAPEAKE, VIRGINIA**

**Actions:**

- a. **Approve the purchase of 1338 Porter Street and adjacent vacant lot in the amount not to exceed \$190,000 in accordance with the terms and conditions of the Residential Contract of Purchase with Jonathan Atkinson and Melissa Atkinson Hurt, owners of subject property in Chesapeake, Virginia.**
- b. **Authorize the General Manager to execute same, substantially as presented, together with such changes, modifications and deletions as the General Manager may deem necessary and further authorize the General Manager to execute the associated deed of bargain and sale upon approval of legal counsel.**

**Moved:** Michael Glenn **Ayes:** 7  
**Seconded:** Willie Levenston **Nays:** 0

**CIP Project:** VP018000 (previously VP011020)

**Project Description:** This project is to design and construct a replacement pump station for the existing station located at 1922 Park Avenue in Chesapeake. The project will include installation of an emergency generator/pump and address the replacement/rehabilitation of 50 linear feet of 24-inch gravity influent line. After a preliminary engineering, location, and cost evaluation, HRSD staff and engineering consultants selected three potential properties that were deemed to be suitable sites to relocate the existing Park Avenue Pump Station. HRSD reached out to the three property owners and the owners of 1338 Porter Street (Parcel IDs#: 1330000001301 and 1330000001072) were willing to sell. Because this site is immediately adjacent to the existing pump station, it was also determined to be the best option for the pump station replacement. The [Residential Contract](#) of Purchase is attached and was reviewed by HRSD staff and legal counsel. The deed of bargain and sale is forthcoming and will also be reviewed by HRSD staff and legal counsel before execution. A facilities orientation [map](#) is provided for clarification purposes.

**Analysis of Cost:** HRSD will purchase the property for the negotiated price of \$180,000, plus \$10,000 in relocation costs. The offer amount is reflective of sales of single family homes and current listings in the area.

**Attachment #5:** [Residential Contract and Map](#)

**Public Comment:** None







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City of Portsmouth has indicated their current employees and equipment are needed in other areas of the City. HRSD will need to hire approximately 58 employees for the day-to-day operational needs. It may be possible to coordinate some customer service and CCTV (closed circuit television) inspections by City of Portsmouth employees.

The rate schedule will be discussed in further detail in today's budget work session (agenda item 24).

**Attachment #7:** [Presentation](#)

**Public Comment:** None



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8. **NUTRIENT CREDIT OFFSET REQUEST  
JEFFERSON LAB**

**Action:** Provide guidance on potential policy clarifications.

**Background:** The Commission approved the [Nutrient Credit Offset Policy](#) in 2008 to guide nutrient credit trading between HRSD and other entities within the region. The Jefferson Lab has the potential need for a relatively small offset of Total Phosphorus (TP), Total Nitrogen (TN) and Total Suspended Solids (TSS) in the James River basin to meet the Jefferson Lab's required Chesapeake Bay Total Maximum Daily Load (TMDL) reductions under their stormwater permit.

The Jefferson Lab is an important regional employer. As a governmental entity, they are not-for-profit and the work accomplished there benefits all residents within HRSD's service area and far beyond. From this perspective, it appears they meet the intent of the policy.

The unresolved policy issue is the value of the offset and potential precedent this offset agreement may set for other governmental facilities. From a precedent perspective, few other facilities will impact two river basins and even fewer would be in the position of the Jefferson Lab with too little land in one of their basins to effectively construct stormwater best management practices (BMPs). Establishing the appropriate value (whether in dollars or other valuable consideration) will be necessary for any trading agreement that provides benefits beyond HRSD ratepayers.

Feedback from the Commission will be incorporated into an update to the Nutrient Offset Policy and brought back to the Commission for approval at a future meeting as well as guide negotiations with Jefferson Lab. Should HRSD reach an agreement with Jefferson Lab, the formalized agreement will be presented to the Commission for approval at a future meeting.

**Discussion Summary:** The Commission agreed with staff's recommendation to establish a value for nutrient credit offsets. A revised policy will be presented a future meeting for Commission approval.

**Attachment #6:** [Nutrient Credit Offset Policy](#)

**Public Comment:** None



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9. **POTOMAC AQUIFER MONITORING LABORATORY BRIEFING**

**Action:** Authorize the establishment of the Potomac Aquifer Monitoring Laboratory through a multi-party agreement.

**Moved:** Ann Templeman **Ayes:** 6  
**Seconded:** Willie Levenston **Nays:** 0

**Background:** The legislation introduced to create an oversight committee and monitoring lab for the Potomac Aquifer, modeled after the successful Occoquan program, stalled on the floor of the Senate and was passed by as the General Assembly battled over the budget.

There are several options moving forward:

- Re-introduce legislation in the 2019 General Assembly: There was no opposition to our bill which passed unanimously out of the House Agriculture, Chesapeake and Natural Resources Committee, the House floor and the Senate Agriculture, Conservation and Natural Resources Committee before stalling on the Senate floor. Based on this record, it is highly likely the bill would succeed in the 2019 session barring any other bizarre larger political issues.
- Work to establish the Potomac Aquifer Monitoring Lab through a multi-party agreement. The lab would be created with the duties and responsibilities as defined in the failed bill, but would not answer to an oversight committee. The parties could include Old Dominion University (ODU), Virginia Tech, HRSD and potentially Virginia Department of Health (VDH) and Virginia Department of Environmental Quality (DEQ). HRSD would fund the lab under this model and have control and approval of the lab budget. While this does undermine the independence, it would accomplish the goal of a third party monitoring group keeping a close technical watch of the Sustainable Water Initiative for Tomorrow's (SWIFT) impact on the aquifer. A multi-party agreement structure was one of the alternatives considered by the stakeholders that developed the oversight framework.
- Request DEQ begin a regulatory process to create the monitoring lab and oversight committee by regulation. This is a long and burdensome process but also one considered by the stakeholders during development of the oversight framework.
- Some combination of the above.



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Staff's recommendation is to establish the Potomac Aquifer Monitoring Lab through a multi-party agreement. To the extent practicable, include VDH and DEQ as signatories with the goal of including a VDH water engineering position as a shared resource with the monitoring lab and VDH Office of Water. While details will need to be worked through, the concept would continue to have the lab hosted at ODU and all funding provided on an annual basis per a budget approved by HRSD.

Additionally, reintroduce legislation to memorialize the monitoring lab and create the oversight committee to provide the needed independence.

**Attachment:** None

**Discussion Summary:** As a result of the discussion, the Commission agreed with staff's recommendation to establish the lab through a multi-party agreement and reintroduce the legislation in 2019.

**Public Comment:** None



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10. **InDENSE® PATENTS – LICENSE AGREEMENT COMMERCIALIZATION**

**Actions:** Approve the terms and conditions of the exclusive license agreement with ARA Consult GmbH for the commercialization of the inDENSE® line of technologies as developed through two families of patents shown in the agreement, 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:** Michael Glenn **Ayes:** 6  
**Seconded:** Willie Levenston **Nays:** 0

**Brief:** HRSD and DCWater have been working on various projects related to treatment process development and improvement. A previous [joint development agreement](#) was executed with DCWater which allows the joint ownership and mutual commercialization of the inDENSE® technology. This technology includes the use of an external gravimetric selector (e.g. a hydrocyclone) for biomass wasting as a means of improving mixed liquor settleability and enhancing biological phosphorus removal.

The inDENSE® technology was developed in part at the Chesapeake-Elizabeth Biological Nutrient Removal (BNR) Pilot Facility, and HRSD is now in the process of testing, developing, and further optimizing this technology at the James River and Urbanna Treatment Plants. Several other installations of this technology are in progress or pending around the world.

ARA Consult GmbH is authorized to develop partnerships to sublicense inDENSE® to a worldwide network of technology providers. For North America, the combined HRSD and DCWater portion of royalty payments and sublicensee consideration will be directed to The Water Research Foundation to support research efforts on topics relevant to HRSD and DCWater. For royalties and sublicensee consideration obtained from projects and technology providers outside of North America, respectively, the payments will be made directly to HRSD and DCWater. The [license agreement](#) has been developed working with the HRSD Intellectual Property attorneys and purposely does not obligate HRSD in any way. The agreements also shield HRSD from liability associated with the technology not performing as expected.

**Attachment #8:** [Joint Development and License Agreements](#)

**Public Comment:** None



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11. **MIDDLESEX COUNTY COST SHARING OF SEWER SYSTEM PROJECTS  
MEMORANDUM OF AGREEMENT FIRST AMENDMENT**

**Action:** Approve the terms and conditions of the first amendment to the agreement with Middlesex County for sewer system projects 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.

<b>Moved:</b>	Michael Glenn	<b>Ayes:</b>	6
<b>Seconded:</b>	Willie Levenston	<b>Nays:</b>	0

**Brief:** The Commission approved the original [agreement](#) with Middlesex County in February 2017. The county was concerned about the accuracy of cost estimates at the conceptual stage, upon which they would be making their decision as to whether to authorize the study and risking reimbursement should the project not move forward. This [amendment](#) addresses that concern by limiting the full reimbursement to projects where the estimate in the Preliminary Engineering Report (PER) is within 25 percent of the estimate provided at the conceptual stage. Should the PER estimate exceed the conceptual estimate by more than 25 percent, the cost of the study will be split equally between the County and HRSD should the County choose not to pursue the project to construction.

**Attachment #9:** [Agreement and Amendment](#)

**Public Comment:** None



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12. **SURRY COUNTY WATER SYSTEM – DENDRON WATER SYSTEM IMPROVEMENTS AGREEMENT**

**Action:** Approve the terms and conditions of the agreement with Surry County for reimbursement of water meter costs associated with the Dendron Water System Improvements 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.

<b>Moved:</b>	Michael Glenn	<b>Ayes:</b>	6
<b>Seconded:</b>	Willie Levenston	<b>Nays:</b>	0

**Project Description:** Water meters capable of being monitored remotely are to be installed with the Surry County Water System - Dendron Water System Improvements project. HRSD will reimburse Surry County for 50 percent of the material cost of the meters.

**Agreement Description:** The attached [agreement](#) between HRSD and Surry County provides reimbursement of 50 percent of the material cost for the remote monitored water meters. The agreement has been reviewed by HRSD legal counsel.

**Analysis of Cost:** The cost to be reimbursed will be based on actual meter bid costs received by Surry County as part of the Surry County Water Improvements - Dendron Water System Improvements construction project. The anticipated HRSD cost is approximately \$50,000 and will be appropriated from the Interceptor System Division operating budget.

**Attachment #10:** [Agreement](#)

**Public Comment:** None





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13. **SOUTHEASTERN PUBLIC SERVICE AUTHORITY (SPSA) LEACHATE FORCE MAIN COST SHARING AGREEMENT**

**Action:** Approve the terms and conditions of the cost sharing agreement for costs associated with design, construction and related land acquisition for a sanitary sewer force main to serve the SPSA regional landfill 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:** Willie Levenston **Ayes:** 6  
**Seconded:** Michael Glenn **Nays:** 0

**Background:** At the February 2018 meeting, the Commission authorized the General Manager to develop a cost sharing agreement with SPSA to construct a force main from the regional landfill to HRSD facilities that ultimately will be part of the Atlantic Treatment Plant service area. The General Manager briefed the SPSA Board on this concept at the February meeting of the SPSA Board. The SPSA Board authorized SPSA staff to pursue such an agreement with HRSD.

The attached [agreement](#) has been reviewed by SPSA. Highlights of the terms of the agreement are:

- HRSD designs and constructs and invoices SPSA upon completion
- SPSA provides land required at regional landfill required to construct and operate HRSD facilities
- SPSA cost share is limited to \$3 million (one-third of the first \$6 million and one-third of costs above \$8 million up to the total of \$3 million)
- No guarantees HRSD will accept leachate if characteristics and/or volume change from December 2017
- SPSA must continue to meet requirements of discharge permit with HRSD
- HRSD will begin design within 60 days of receiving executed agreement
- SPSA responsible for all costs associated with leachate disposal should HRSD cease to continue to accept leachate at Nansemond Treatment Plant prior to completion of the force main

**Attachment #11:** [Agreement](#)

**Public Comment:** None



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14. **SURRY COUNTY HYDRAULIC IMPROVEMENTS AND INTERCEPTOR FORCE MAIN  
SPSA LEACHATE FORCE MAIN  
ALTERNATIVE PROJECT DELIVERY**

**Action:** Approve the Design-Build project delivery method for the Surry County Hydraulic Improvements and Interceptor Force Main Project and the SPSA Leachate Force Main Project.

**Moved:** Vishnu Lakdawala **Ayes:** 6  
**Seconded:** Elizabeth Taraski **Nays:** 0

**CIP Projects:** SU010200 and AT01400

**Project Description:**

**Surry County Hydraulic Improvements and Interceptor Force Main:** This project will include 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.

**SPSA Leachate Force Main:** This project will include the required pump stations and a force main from the regional landfill to the HRSD facilities in the Bainbridge Boulevard area to move leachate out of the Nansemond Treatment Plant service area and ultimately to the Atlantic Treatment plant. The force main will generally follow an existing railroad right-of-way and cross the southern branch of the Elizabeth River through the installation of a horizontally drilled force main.

**Brief:** Based on a recently prepared Preliminary Engineering Report by Bowman Consulting and an internal study, a better long-term solution to the sewer collection and treatment needs in Surry County will be to construct a pipeline to the existing sewer system in James City County. 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. In addition, the crossing of the James River in this area will be a complex and challenging effort. The preliminary estimate for this effort is approximately \$20 million.



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The Commission was briefed on the SPSA Leachate Force Main at the February meeting. SPSA has agreed to cost share the design and construction of these facilities. Moving the leachate to a non-SWIFT treatment plant appears to be the best option to ensure efficient operation of SWIFT facilities and provides the greatest protection of public health. The estimate for this effort is approximately \$6 million.

While the design-competitive bid-build process is the preferred method of construction procurement for HRSD, this project delivery method will not be practical to meet the critical schedule requirements for these projects. A Design-Build delivery process is more advantageous than a competitive sealed bid contract for the following reasons:

1. Design-Build delivery method will allow for the overlap of a portion of the design phase and construction phase to reduce the overall delivery schedule for these projects.
2. Design-Build delivery method will allow for contractor input into the challenging crossing of the James River and the southern branch of the Elizabeth River.
3. Design-Build delivery method will allow for the close coordination between the designer and contractor. The close coordination will be needed to acquire the approvals and permits necessary to cross both the James River and Elizabeth River and adjacent sensitive environmental areas.

**Attachment:** None

**Public Comment:** None





COMMISSION MEETING MINUTES  
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16. ATLANTIC TREATMENT PLANT MOTOR CONTROL CENTER REPLACEMENTS  
INITIAL APPROPRIATION

**Action:** Appropriate total project funding in the amount of \$591,544.

**Moved:** Vishnu Lakdawala **Ayes:** 6  
**Seconded:** Elizabeth Taraski **Nays:** 0

**CIP Project:** AT013600

**Project Description:** The project replaces two return activated sludge (RAS) motor control centers (MCCs) that were installed in the early 1980s. The project includes the installation of variable frequency drives, motor feeders, breakers, transformers, conduits, lighting panels, controls and appurtenances.

**Funding Description:** The total estimated cost for this project is \$591,544, which is based on a contractor's estimate. HRSD's Electrical and Energy Management Division will procure the motor control centers and assist an electrical contractor with the installation.

<b>Schedule:</b>	Bid	May 2018
	Construction	October 2018
	Project Completion	April 2019

**Discussion Summary:** The equipment will be procured by competitive bid.

**Attachment:** None

**Public Comment:** None



COMMISSION MEETING MINUTES  
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17. **LARCHMONT SANITARY SEWER MASTER PLAN STUDY  
INITIAL APPROPRIATION**

**Action:** Appropriate total project funding in the amount of \$195,000.

<b>Moved:</b>	Willie Levenston	<b>Ayes:</b>	6
<b>Seconded:</b>	Michael Glenn	<b>Nays:</b>	0

**CIP Project:** VP015310

**Project Description:** This new project is to study the Larchmont Area of the City of Norfolk and to develop a comprehensive sewer master plan for infrastructure improvements. The study will investigate and assess from a holistic approach the alternative that best serves the collective interests of HRSD, the City of Norfolk, and the citizens within the studied area. The study will evaluate both conventional gravity collection systems and vacuum systems as viable alternatives. HRSD and the City of Norfolk have agreed to jointly conduct this initial study and enter into a 50-50 cost participation agreement.

**Funding Description:** The estimated HRSD 50 percent cost share for this study is approximately \$195,000. Hazen & Sawyer will be compensated for HRSD's portion of the study under the HRSD General Engineering Services annual contract.

<b>Schedule:</b>	Study	March 2018
	Study Completion	October 2018

**Attachment #12:** [Map](#)

**Public Comment:** None



COMMISSION MEETING MINUTES  
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18. **INTERCEPTOR SYSTEMS PUMP STATION CONTROL AND SCADA UPGRADES AND ENHANCEMENT  
ADDITIONAL APPROPRIATION AND TASK ORDER**

**Actions:**

- a. **Appropriate additional funding in the amount of \$3,184,608.**
- b. **Approve a task order for Jacobs CH2M for contract administration services in the amount of \$307,000.**

**Moved:** Vishnu Lakdawala

**Ayes:** 6

**Seconded:** Willie Levenston

**Nays:** 0

**CIP Project: GN012800**

Budget	\$24,849,471
Previous Expenditures and Encumbrances	(\$24,334,162)
Available Balance	\$515,309
Pending Change Order No. 2 to REW Corporation	(\$1,637,917)
Proposed Task Order to Jacobs CH2M	(\$307,000)
Proposed Contingency	(\$1,755,000)
Project Shortage/Requested Additional Funding	(\$3,184,608)
Revised Total Project Authorized Funding	\$28,034,079

**Project Description:** The Interceptor Supervisory Control and Data Acquisition (SCADA) system was implemented in the 1990s and has been maintained by HRSD staff since installation. This project will replace and improve the components of the existing system to ensure that compliance with regulatory requirements is maintained and that supervisory control is provided.

**Funding Description:** This action includes funding for Change Order 2 that provides an alternate communications network. A Verizon Long-Term Evolution communications network will be provided which replaces the microwave/Ultra-High Frequency network. The original communications network did not provide adequate bandwidth for transmission of the increased amount of data that developed as the project was being implemented. The negotiated cost for this work is \$1,637,937 and exceeds the balance available for this CIP project. In addition to this cost additional funding is required for engineering services to provide contract administration. This request also includes a \$1,755,000 contingency to cover unforeseen future changes and project delays.



COMMISSION MEETING MINUTES  
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**Analysis of Cost:** The costs were reviewed by the Engineer and Owner and discussed multiple times with the subcontractors and contractor involved in the project. This cost is a fair amount for the associated scope of work.

**Task Order Description:** This task order will provides additional funding for engineering contract administration services. A meeting was held to discuss the project and scope of services. A fee of \$307,000 was negotiated which will provide the required services.

<b><u>Schedule:</u></b>	PER	January 2009
	Design	July 2009
	Bid	December 2014
	Construction	April 2015
	Project Completion	December 2019

**Attachment:** None

**Public Comment:** None





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

20. **NEW BUSINESS**

Mr. Henifin discussed the details of a recent Virginia Freedom of Information Act (FOIA) request for customer information.

21. **COMMISSIONER COMMENTS**

Commissioner Elofson expressed his gratitude to staff for the tour of the Small Communities system provided to him and Commissioner Levenston. He commended staff in those work centers, acknowledging the level of talent needed to handle the variety of systems.

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

23. **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 #13:** [Informational Items](#)

**Public Comment:** None



COMMISSION MEETING MINUTES  
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24. **FISCAL YEAR 2018-2019 DRAFT ANNUAL BUDGET AND INTERNAL AUDIT REVIEW WORK SESSION**

**Action: No action is required.**

**Brief:** Staff presented the highlights and drivers of the draft Fiscal Year 2019 budget, including estimated revenues, proposed rate increase, significant expense increases and decreases, staffing requirements, and medical trends. An overview of the recent bond sales including the upgrade of HRSD's financial ratings, proposed minor updates to the Financial Policy, and internal audit review were also presented.

**Attachment #14:** [Presentation](#)

**Public Comment:** None

25. **ANNOUNCEMENTS**

- The Finance Committee will meet on March 30, 2018 to review the draft FY 2019-2028 Capital Improvement Plan.
- The Elizabeth River Project will host a ribbon cutting ceremony for the Paradise Creek Nature on April 3.
- The ribbon cutting ceremony for the SWIFT Research Center will be held on May 18, 2018. Additional details will be provided in the next couple of weeks.

**Next Commission Meeting Date: April 24, 2018** at the HRSD North Shore Operations Center, 2389 G. Avenue, Newport News, VA 23602

**Meeting Adjourned:** 12:15 pm

SUBMITTED:

***Jennifer L. Cascio***

\_\_\_\_\_  
Jennifer L. Cascio  
Secretary

APPROVED:

***Frederick N. Elofson***

\_\_\_\_\_  
Frederick N. Elofson, CPA  
Chair

HRSD COMMISSION MEETING MINUTES  
March 27, 2018

ATTACHMENT #1

AGENDA ITEM 2. – Consent Agenda

## CONSENT AGENDA ITEM 2.b.1. – March 27, 2018

**Subject:** Lawn Maintenance Services  
Contract Award (>\$200,000)

**Recommended Action:** Award a blanket purchase contract for lawn maintenance services for Treatment Facilities and the North and South Main Office Complex to Mckendree Services, Inc. in the estimated amount of \$235,999 for year one with four annual renewal options and an estimated cumulative value in the amount of \$1,252,951.

**Type of Procurement:** Competitive Bid

**All locations bid:**

Bidder	Bid Amount
Mckendree Services, Inc.	\$235,999
Green Alt LLC DBA Green Alternatives LLC	\$259,833
Jack Frost Enterprises	\$419,684
<b>HRSD Estimate:</b>	<b>\$239,591</b>

**Other (reference Analysis of Cost):**

Bidder	Bid Amount	Locations Bid
Williams Facility Services, Inc.	\$115,748	NS Locations Only
Lawn Beautician, Inc.	\$125,511	NS Locations Only
BrightView Landscape Services, Inc.	\$191,148	ATP & CETP Only
Virginia Landscape Management Incorporated DBA Lawnmaster Of Virginia	\$197,825	ATP, CETP & SS Complex Only
Carpe Diem of USA, Inc. Clau's Lawn Care	\$454,596	All SS Locations, BHTP, JRTP & NS OPS Complex Only
Greenworld Landscape, Inc.	Non-Responsive	SS Locations Only

**Contract Description:** This contract is an agreement for lawn maintenance services at seven HRSD Treatment Plants (Army Base, Atlantic, Boat Harbor, Chesapeake-Elizabeth, James River, Williamsburg and York River) and the North Shore and South Shore Main Office Complexes. Services include annual maintenance of sites (weekly cutting, edging, trimming), fence line maintenance (removal of vines, dead tree limbs and brush height), flower bed/mulch replenishment, retention pond maintenance and meadow management of HRSD sites. Services may vary at sites based on the needs at each location.

Nansemond was excluded from the solicitation since it was in the beginning of their existing contract. The Virginia Initiative Plant was also excluded due to current construction activities that include the contractor being responsible for lawn maintenance. This contract award will be structured to include these two locations at a future date as necessary.

**Analysis of Cost:** The solicitation was issued giving HRSD the discretion to award in whole or in part; however the ultimate intention of final evaluation and award was for one contractor to service all locations both on the North and South Shore. Only three bidders provided pricing on all locations as noted in the table above.

Bidders also submitted labor rate pricing for additional services if requested by plant. The savings was not advantageous to split the North Shore locations from the South Shore locations and administer two separate contracts. McKendree Services, Inc. currently holds the Nansemond and Lawnes Point Treatment Plant lawn maintenance contract providing exceptional levels of service.

Greenworld Landscape, Inc. was deemed non-responsive due to no submission of the pricing breakdown sheets as required to show calculation of total bid cost.

## CONSENT AGENDA ITEM 2.b.2. – March 27, 2018

**Subject:** Middlesex County Sewer Service Expansion Study  
Contract Award (>\$200,000)

**Recommended Action:** Award a contract to Bowman Consulting in the amount of \$222,500.

**CIP Project: MP013200**

Budget	\$250,000
Previous Expenditures and Encumbrances	(\$ 0)
Available Balance	\$250,000

**Project Description:** In April 2016, the Commission approved a sole source procurement to allow for the firm of Bowman Consulting to assist with services on the Middle Peninsula and Surry County. This project is to study six service areas identified in Middlesex County Comprehensive Plan as Strategic Growth Areas (SGA) to identify alternatives in providing sanitary sewer service. The study will focus primarily on decentralized systems to include collection, conveyance and treatment technologies. The study areas included in the study are the villages of Cook's Corner, Deltaville, Hartfield, Locust Hill, Saluda, and Topping. All six service areas are located to the east of Town of Urbanna along General Puller Highway and Grey's Point Road.

**Contract Description and Analysis of Cost:** This contract is an agreement for conducting the sewer studies as described above. The costs are in line with what was negotiated with Middlesex County and HRSD and in accordance to the Project Appropriations approved by the Commission in January of 2018.

**Schedule:**

Study	3/2018
Project Completion	10/2018

## CONSENT AGENDA ITEM 2.c.1. – March 27, 2018

**Subject:** Virginia Initiative Plant Nutrient Reduction Improvements – Contract B Task Order (>\$200,000)

**Recommended Action:** Approve a task order with HDR Engineering, Inc. in the amount of \$380,258.

**CIP Project: VIP016320**

Budget	\$135,284,000
Previous Expenditures and Encumbrances	(\$120,021,610)
Available Balance	\$15,262,390

<b>Contract Status:</b>	Amount
Original Contract with HDR Engineering	\$1,323,817
Total Value of Previous Task Orders	\$18,327,837
Requested Task Order	\$380,258
Total Value of All Task Orders	\$18,708,095
Revised Contract Value	\$20,031,912
Engineering Services as % of Construction	16%

**Project Description:** This project consists of furnishing labor, materials, equipment, and temporary facilities for the construction of Preliminary Treatment Facility, Versatile Bioreactor, Supplemental Carbon Storage and Feed Facility, Secondary Clarifier No. 6, Chlorine Contact Channel, Odor Control Facilities, Electrical Upgrades and other facility upgrades at the Virginia Initiative Plant.

**Task Order Description and Analysis of Cost:** The scope of work for the construction contract has increased and the contract duration has been extended. The cost for this task order is a lump sum based on a monthly fee for an additional eight months of contract administration services and a maximum authorization for extended contract administration beyond the June 26, 2018 substantial completion date. The monthly unit cost is close to what was originally negotiated when construction started in 2014.

**Schedule: Project Completion** October 2018

## CONSENT AGENDA ITEM 2.d.1. – March 27, 2018

**Subject:** Nansemond Treatment Plant Digester Rehabilitation  
Contract Change Order (>25% or \$50,000)

**Recommended Action:** Approve a change order with VAST Solutions of Virginia, LLC in the amount of \$135,875.

**CIP Project: NP013300**

Budget	\$1,504,800
Previous Expenditures and Encumbrances	(\$1,212,829)
Available Balance	\$291,971

<b>Contract Status:</b>	Amount	Cumulative % of Contract
Original Contract with VAST Solutions of Virginia, Inc.	\$758,326	
Total Value of Previous Change Orders	\$167,375	22%
Requested Change Order No. 3	\$135,875	
Total Value of All Change Orders	\$303,250	39%
Revised Contract Value	\$1,061,576	

Time (Additional Calendar Days)	0
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**Project Description:** This project is to rehabilitate the digester floating covers over a two year period. The rehabilitation activities include blasting and coating the internal and external surfaces of both digester covers and replaces all digester rollers and roller housings.

**Change Order Description:** This change order includes additional concrete rehabilitation to internal surfaces to complete the final work required on Digester #2.

<b>Schedule:</b>	PER	08/2015
	Design	08/2015
	Bid	08/2015
	Construction	04/2016
	Project Completion	10/2017



CONSENT AGENDA ITEM 2.e.1. – March 27, 2018

**Subject:** Organizational Development Supervisor Training Co-Facilitator  
Sole Source (>\$10,000)

**Recommended Action:** Approve James D. Gorski as a co-facilitator of Organizational Development Supervisor Training classes in use by Talent Management.

**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:** The Organizational Development and Training Division provides classes as part of quality training offered throughout HRSD. Services will include the preparation of material and co-facilitation of the Supervisor Training class offered to HRSD supervisors.

James D. Gorski is uniquely qualified to co-facilitate these classes and will be able to utilize his previous experience with EMA, Inc. He was instrumental in the development of the customized curriculum and has facilitated the HRSD Supervisor Training classes for over ten years. James has an understanding of specific HRSD organizational and supervisory culture and will provide continuity to HRSD supervisor training.

CONSENT AGENDA ITEM 2.e.2. – March 27, 2018

**Subject:** Total Organic Carbon (TOC) Analyzer Parts and Preventive Maintenance  
Sole Source (>\$10,000)

**Recommended Action:** Approve Suez WTS Analytical Instruments, Inc. (formerly known as GE Analytical Instruments, Inc.) as the provider of preventive maintenance and replacement parts for TOC Analyzers in use at the Central Environmental Laboratory.

**Sole Source Justification:**

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

**Details:** The TOC analyzers are used at the Central Environmental Laboratory for measuring total organic carbon in support of the Sustainable Water Initiative for Tomorrow. The maintenance contract includes in house trained service technicians to provide priority service and support and proprietary replacement parts. Timely preventative maintenance and routine service decrease the chances of system shutdown and resulting data interruption.

Suez WTS Analytical Instruments, Inc. is the sole provider of service, parts and support for the TOC analyzers which was previously under GE Analytical Instruments Inc.

HRSD COMMISSION MEETING MINUTES  
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ATTACHMENT #2

AGENDA ITEM 3 - Public Hearing on Determination of Public Need  
Acquisition of Easement – 600 Severn Road, Newport News, VA  
Force Main Relocation to Accommodate the Newport News  
Transportation Center



Acquisition of Easement  
600 Severn Road, Newport News, VA  
Force Main Relocation to  
Accommodate the Newport News  
Transportation Center  
Public Hearing

March 27, 2018

# Project Overview

- Purpose

- The Virginia Department of Rail and Public Transportation (DRPT) in conjunction with the City of Newport News will be providing enhanced Amtrak bus, taxi and future light rail service. The existing Amtrak Station on 9304 Warwick Boulevard will also be relocated and rebuilt as a multimodal facility known as the Newport News Transportation Center. This facility is to be located at Bland Boulevard on 31 acres owned by the City. The City partnering with Amtrak, DRPT, and CSX will be responsible for building the station. Construction of this \$42 million project will begin later this year with a planned completion date of Summer 2021.

- Project Description

- HRSD is evaluating property at 600 Severn Road for easement acquisition. This parcel is located on the east side of the CSX tracks and HRSD already has an easement on this property. HRSD will be relocating the existing 18" and 24" force mains to accommodate the new tracks to be installed by CSX and the need to pre-consolidate the subgrade for this installation. The pre-consolidation will cause the subgrade below the existing force main to settle up to 2 feet and this will cause severe damage to HRSD's infrastructure.

# James River System Map



# Existing Site

View Looking East

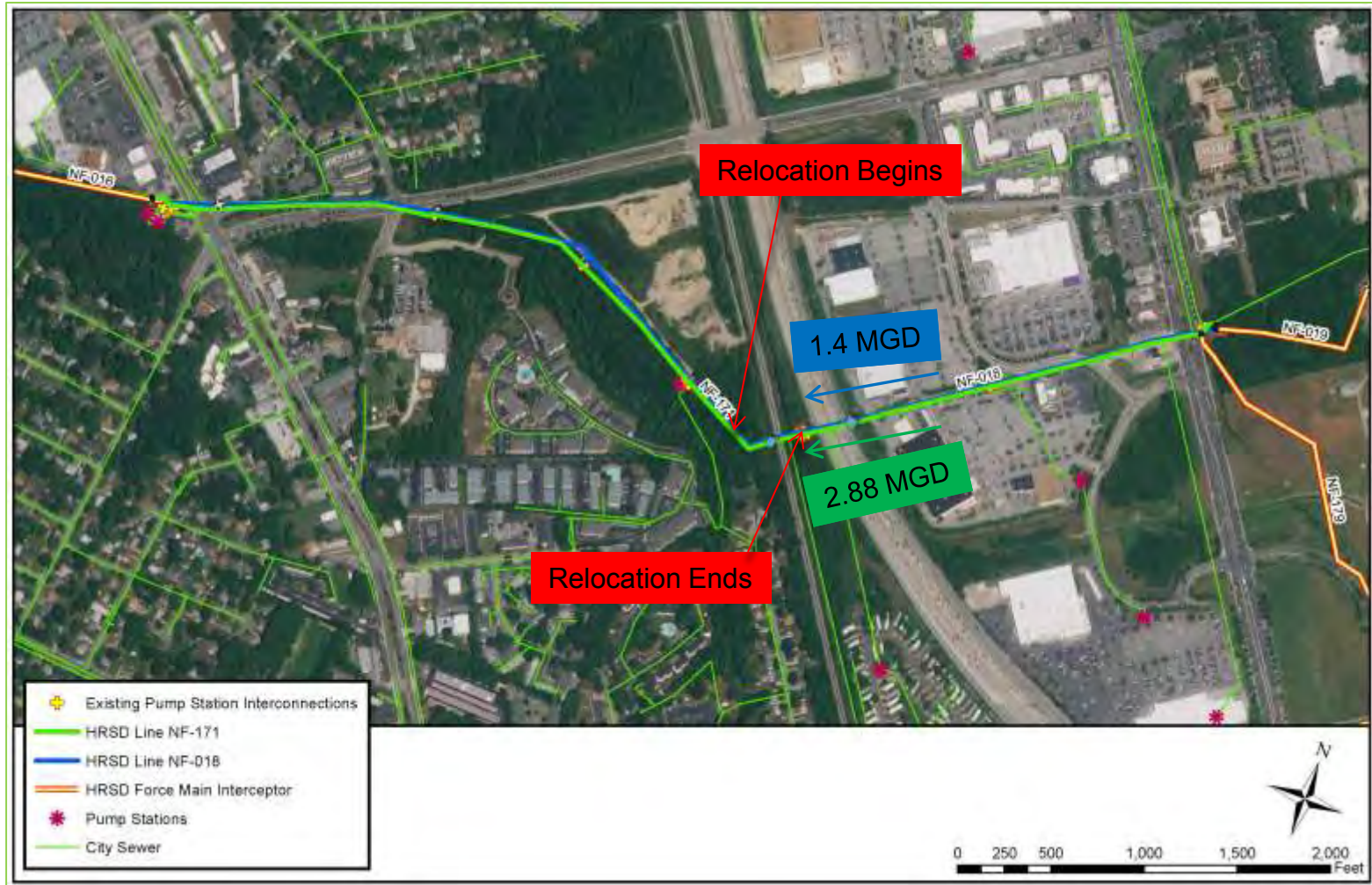


View Looking West



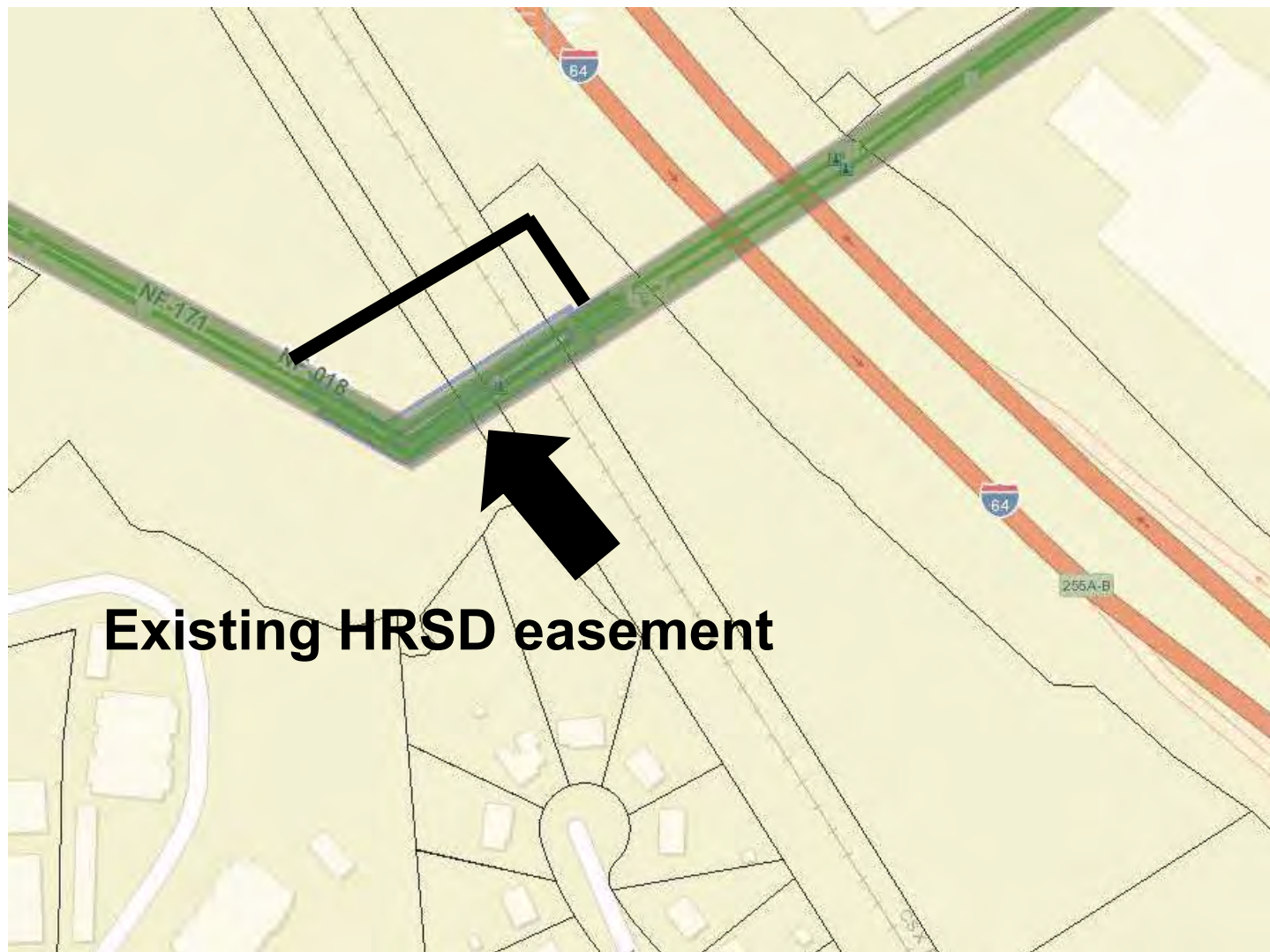


# Site Map





# Relocation Alignment



**Existing HRSD easement**





925



Lincoln Creek

Campbell

Patrick Henry

13380

13379

13378

13377

13376

13375

13372

13373

13368

13371

13366

13369

13364

600

Werwick Springs Dr

Severn Rd

108  
506 208  
506 304  
506 307  
506 306  
504  
503

508

560

558

556

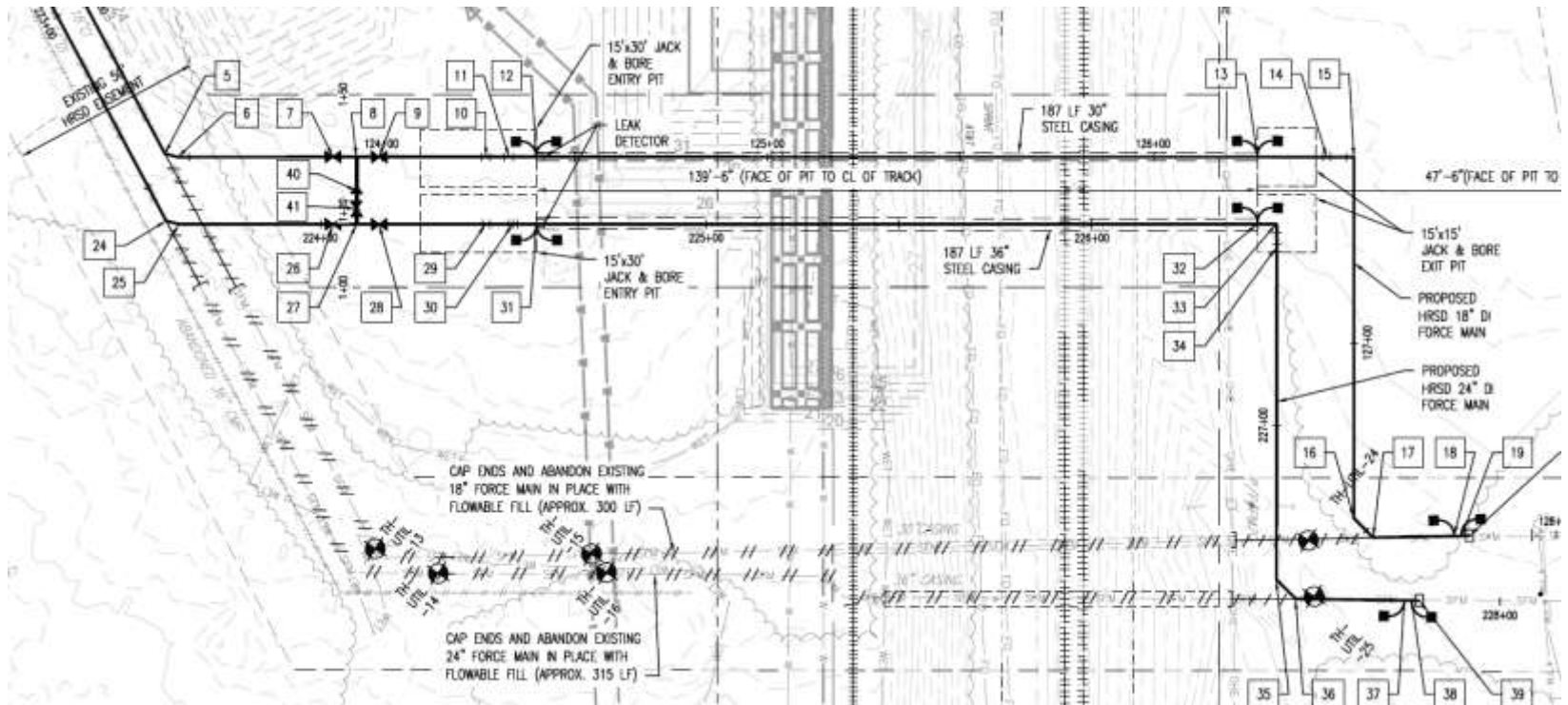
554

562

564



# Relocation Alignment



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Questions???

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HRSD COMMISSION MEETING MINUTES  
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ATTACHMENT #3

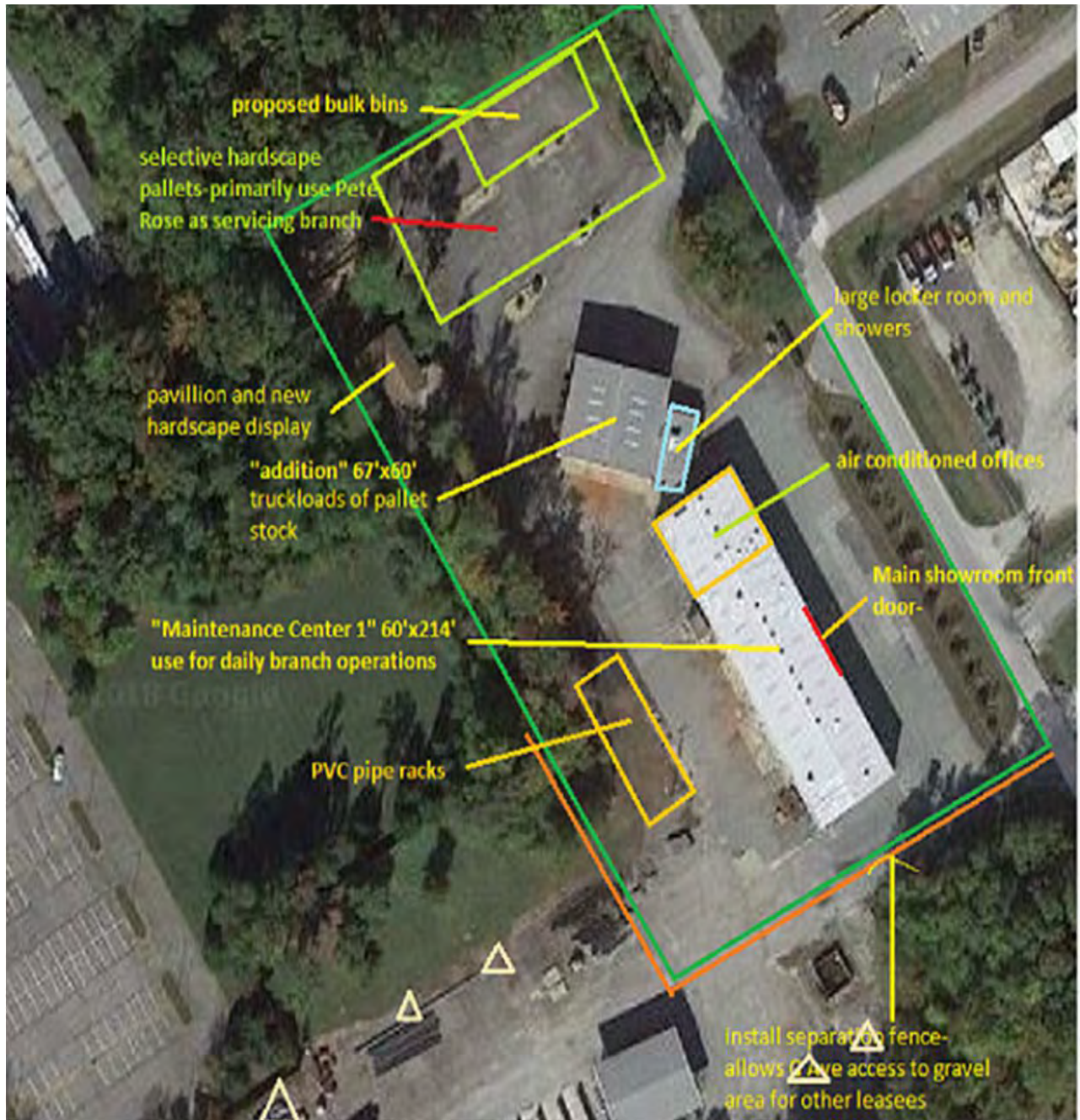
AGENDA ITEM 4. – Lease of HRSD-Owned Property 2401 G Avenue, Newport News



**G Avenue Property – Newport News, Virginia**

**Proposed Lease Area**





**2401 G Avenue – Proposed Use**  
**Site One Landscape Supply**

HRSD COMMISSION MEETING MINUTES  
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ATTACHMENT #4

AGENDA ITEM 5. – Option to Purchase Real Property Agreement  
Lamberts Point – 4301 Powhatan Avenue, Norfolk, VA



## OPTION TO PURCHASE REAL ESTATE

THIS OPTION TO PURCHASE REAL ESTATE (this "Agreement"), dated as of the 22<sup>nd</sup> day of April, 2018, is given by the **CITY OF NORFOLK**, a municipal corporation of the Commonwealth of Virginia (hereinafter called "City") to **HAMPTON ROADS SANITATION DISTRICT**, a political subdivision of the Commonwealth of Virginia (hereinafter called "HRSD").

### RECITALS

A. HRSD's Sustainable Water Initiative for Tomorrow ("SWIFT") Project was conceived with multiple benefits in mind for the Hampton Roads region. This innovative water purification project is designed to enhance the sustainability of the long-term groundwater supply and help address other environmental pressures such as sea level rise and saltwater intrusion. The SWIFT Project is intended to achieve these benefits by taking already-treated wastewater that would otherwise be discharged into the Chesapeake Bay watershed, purifying it through additional rounds of advanced water treatment to meet drinking water standards, and injecting the resulting drinking quality water into the Potomac aquifer deep underground. Most importantly, with respect to TMDL benefits, SWIFT will result in a significant reduction in the total volume of HRSD discharge to the Chesapeake Bay watershed, to achieve greater environmental benefits with corresponding significant reductions of TN, TP and TSS discharges to the Chesapeake Bay watershed.

B. HRSD and the City entered into the Hampton Roads Water Quality Credit Agreement for Chesapeake Bay Restoration ("Trading Agreement") on June 28, 2017. Pursuant to Virginia Code § 62.1-44.19:21 and § 62.1-44.19:21.1, the City may acquire and use TN, TP and TSS credits for purposes of compliance with the Chesapeake Bay TMDL loading reductions of its MS4 VSMP Permit, including credits generated by SWIFT. The Trading Agreement provides such credits for the City to meet its obligations to reduce TN, TP and TSS as required by its municipal separate stormwater sewer system ("MS4"). The MS4 is subject to the Chesapeake Bay TMDL as derived from the Virginia WIP and to a Virginia Stormwater Management Program (VSMP) Permit issued to the City by DEQ. As a result of the VSMP Permit, the City is required to develop and implement Chesapeake Bay and Local TMDL Action Plans. The credits provided by HRSD under the Trading Agreement will be used to assist the City with meeting the Chesapeake Bay TMDL pollutant reduction requirements for the Second and Third Bay TMDL Permit Cycle saving the City millions of dollars. The ability to generate TN, TP, and TSS credits through the SWIFT Project and apply those credits as progress under the Hampton Roads localities' MS4 Permits and associated TMDL Action Plans is a fundamental premise for the SWIFT Project. HRSD is proceeding with the SWIFT Project, and the City is supporting it, in large part in reliance on these critical water quality trading-based benefits.

C. SWIFT requires HRSD to construct advanced water treatment facilities to treat HRSD's highly treated wastewater effluent to meet drinking water standards prior to pumping that SWIFT Water into the ground. Ideally those facilities need to be in close proximity to existing HRSD facilities or centrally located to allow consolidation of advanced treatment of effluent from multiple HRSD facilities. HRSD does not have adequate land available at the following treatment plants: Williamsburg, Boat Harbor, Army Base, and the Virginia Initiative

Plant. Accordingly, HRSD is actively seeking appropriate sites for SWIFT facilities for these existing treatment plants.

D. HRSD has identified approximately thirty-five (35) acres of land adjacent to the Virginia Initiative Plant as a potential location for a consolidated SWIFT facility to provide advanced water treatment for the effluent from the two Norfolk HRSD facilities (Army Base and Virginia Initiative Plant). The consolidated facility may provide a more cost-effective long-term solution for SWIFT. The land is owned by the City and is currently used as a municipal golf course known as Lambert's Point Golf Course.

E. The City desires to sell and HRSD desires to purchase the land for the construction and operation of wastewater treatment and/or SWIFT related facilities and the associated easements through adjacent City owned property required for construction and utilities to serve the parcel (the "Property"). The Property is approximately as shown on Attachment A with the exact parcel and easements to be defined by a subdivision plat to be prepared by HRSD, at HRSD's expense, in coordination with the City. The expectation is that the subdivision plat can be obtained without requiring HRSD to commit substantial funds for capital improvements or additional acquisition of real estate other than the Property.

F. The City desires to maintain open space along the water for public recreation, and HRSD has agreed to provide an easement approximately 125 feet wide with exact dimensions to be defined by the subdivision plat described in E to the City for the portions of the Property along the waterfront for public recreation activities, including, without limitation, possible connections to the Elizabeth River Trail (the "Open Space Easement"). The City shall be responsible for all costs and risks associated with the Open Space Easement. HRSD shall have no obligation to modify the Open Space Easement in the event the shoreline changes due to erosion.

G. The City, at the City's option, may maintain the driving range as an amenity for its citizens. The existing golf course parcel shall be subdivided to keep as much space as possible for a reconfigured driving range on the portion to the property to be retained by the City of Norfolk. The driving range shall be configured so as not to unreasonably interfere with HRSD's Intended Use of the Property (defined below).

## **AGREEMENT**

NOW, THEREFORE, in consideration of the foregoing (hereby incorporated as if fully set forth herein), the mutual covenants and conditions herein, and other good and valuable consideration, the receipt and sufficiency of which HRSD and the City acknowledge, the Parties hereby agree as follows.

1. Option. The City hereby grants to HRSD an option to purchase the Property upon the terms and conditions set forth herein.

2. Due Diligence. The "Due Diligence Period" shall be a period of ninety (90) days running from the date this Agreement has been fully executed by the parties hereto. HRSD shall have the right to extend the Due Diligence Period for one (1) additional period of ninety (90)

days by giving the City written notice thereof prior to the expiration of the Due Diligence Period. During the Due Diligence Period, HRSD shall determine if the results of its inspections, investigations and the like are satisfactory to HRSD. The City and HRSD shall do the following during the Due Diligence Period:

(a) Subdivision. Within a reasonable time after the full execution of this Agreement by the parties hereto, the City and HRSD shall determine the boundary lines of the Property. HRSD, at its sole cost and expense, shall then cause the Property to be surveyed and a subdivision plat to be prepared that creates two parcels, one to be sold to HRSD for the Intended Use, as hereinafter defined, and the other to remain owned by the City. The subdivision plat shall vacate all existing property lines internal to the parcels created thereby. The subdivision plat shall also include any easements necessary for HRSD's Intended Use of the Property and the Open Space Easement. The City will process the subdivision plat in a timely manner and in accordance with established processes.

Failure of the parties to agree upon a subdivision plat or of the City to approve the Subdivision Plat, with terms and conditions to which HRSD approves, with the Property designated, contiguous to the existing HRSD Virginia Initiative Plant, approximately shaped as shown on Attachment A, and including the Open Space Easement, on or prior to June 30, 2018, or a mutually agreed upon alternate date, releases HRSD and the City from any and all obligations contained herein, including HRSD's obligation to pay the Option Fee but excluding any obligations of HRSD pursuant to the right of entry set forth in Section 3 below.

(b) Zoning. No later than thirty (30) days after the parties have agreed upon the boundary lines of the Property, HRSD shall submit a completed application to the City's Department of Planning and Community Development for rezoning of the Property to a zoning classification that permits the Intended Use, as hereinafter defined. The City shall sign the application as the property owner. HRSD has no obligation to accept any terms and conditions required by the City to obtain the required zoning. The parties shall work diligently to complete the rezoning process prior to the expiration of the Due Diligence Period. If the Property is not rezoned to a zoning classification that permits the Intended Use prior to the expiration of the Due Diligence Period as extended in accordance with the terms hereof, HRSD shall have the right to terminate this Agreement by written notice to the City.

(c) Environmental. HRSD acknowledges that the Property is a former incinerator site. HRSD shall cause any environmental studies that it deems necessary to be performed, at its sole cost and expense, during the Due Diligence Period. Except as expressly set forth in this Agreement, HRSD will accept the use and conveyance of the Property "as is", including, without limitation, the environmental condition of the Property. HRSD shall have no obligation to pay any consideration hereunder until it has completed its due diligence hereunder.

(d) Title.

(i) No later than ten (10) days after the latest of HRSD receiving a fully executed copy of this Agreement, a definitive plat of the Property and the ALTA survey, HRSD shall request a buyer's title commitment (the "Title Commitment") for the proposed Property issued by a reputable title insurance company in the amount of the estimated Purchase

Price, and within fifteen (15) days after HRSD's receipt of such commitment shall notify City of any matters reported in the Title Commitment that would make title to the Property unmarketable or uninsurable under an ALTA owner's title insurance policy or that would adversely affect the use of the Property for the Intended Use in the reasonable opinion of HRSD (such matters are referred to herein as the "Title Objections").

(ii) The City shall have a reasonable time to cure any Title Objections (but in no event greater than ninety (90) days), but City shall have the option of declining to cure any Title Objection by providing written notice thereof to HRSD within thirty (30) days after receipt of HRSD's written notice of such Title Objections, and if the City declines to cure any Title Objection or does not cure any Title Objections that it has agreed to cure prior to the expiration of the Due Diligence Period, the HRSD shall have the right either to waive its Title Objections in writing and to proceed with the Option subject to such Title Objections which shall be considered "Permitted Exceptions" or to terminate this Agreement prior to the Option Payment Deadline, provided, however, if any Title Objection is not capable of being cured within the ninety (90) day period, the City shall work diligently to cure such Title Objection prior to Closing.

3. Right of Entry. At all times prior to the expiration or sooner termination of this Agreement, but upon prior reasonable advance notice to the City and the tenant operating the driving range, HRSD shall have the right to enter onto the Property for the purpose of making surveys, environmental tests, and soil tests provided such testing does not materially interfere with City's use of the Property and further provided that said tests shall not be so exercised as to cause material damage to said Property. All such testing is to be at the risk and expense of HRSD. In connection with this right to enter upon the Property, HRSD agrees (i) to restore the Property to its prior condition after the performance of any such survey or other investigation and (ii) to indemnify, defend and hold the City 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 on the Property. The City shall have the right to be present during any entry upon the Property by HRSD.

4. Option Notice. On or prior to that date which is five (5) days after the expiration of the Due Diligence Period (the "Option Payment Deadline"), provided that HRSD does not terminate this Agreement in accordance with the terms hereof, HRSD shall pay, as additional consideration for the Option granted herein, Fifteen Million and 00/100 Dollars (\$15,000,000) (the "Option Fee"), which sum shall be non-refundable and shall be paid by HRSD to the City by wire transfer. If the Option Fee is not paid to the City in accordance with the terms hereof by the Option Payment Deadline, the City shall provide HRSD with written notice of its failure to pay and, absent such payment, this Agreement shall terminate automatically on that date which is thirty (30) days after the Option Payment Deadline. If the Option Fee is paid in accordance with the terms set forth herein, the Option shall then be non-revocable by the City and the Option Fee shall not be credited against the purchase price at settlement. In the event HRSD fails to exercise the Option granted hereunder and to close on the purchase of the Property prior to the expiration of the Option Term, the Option Fee shall continue to be the property of City and shall not be returned to HRSD.

5. Term. Provided that the Option Fee is paid by HRSD in accordance with the terms of this Agreement, the Option granted hereunder shall continue in effect until 5:00 p.m. on December 1, 2023 (the "Option Term").

6. Exercise of the Option. The Option granted hereunder shall be exercisable by HRSD by giving written notice to the City prior to the expiration of the Option Term in accordance with Section 14 below. HRSD may not exercise the option before January 1, 2023 without written consent of the City.

7. Purchase and Sale Agreement. If the Option is exercised by HRSD, this Agreement shall become a contract for the purchase and sale of the Property upon the following terms and conditions:

(a) The purchase price shall be Fifteen Million and 00/100 Dollars (\$15,000,000) escalated from the date of this Agreement to the date of settlement by the Consumer Price Index for All Urban Consumers (CPI-U) as published by the Bureau of Labor Statistics. The Purchase Price shall be paid to the City by wire transfer at the time of settlement.

(b) Closing shall occur as soon as reasonably possible after HRSD exercises the option in accordance with the terms herein but in no event later than March 31, 2024 (the "Outside Closing Date"). Closing shall be held in the office of HRSD's closing agent/attorney, on or before the Outside Closing Date; provided, however, all documents requiring execution on behalf of the City may be executed prior to settlement and delivered by the City to the closing agent/attorney in escrow. HRSD shall provide the City with at least thirty (30) days' prior written notice of its desired approximate Closing date.

(c) At closing, upon payment as above provided, City shall deliver to HRSD a special warranty deed conveying the Property to HRSD by reference to the Subdivision Plat and reserving the Open Space Easement. Title shall be good and marketable, free of liens and encumbrances except the Permitted Exceptions and the Open Space Easement. City shall also provide a standard owner's affidavit as customarily required by title companies pertaining to mechanic's liens and absence of tenants in occupancy of the Property and shall execute a settlement statement in a form that is mutually acceptable to both City and HRSD. Except as expressly set forth in this Agreement, HRSD will accept the use and conveyance of the Property "as is.", including, without limitation, the environmental condition of the Property.

(d) Real estate taxes and other public charges applicable to the Property, including charges for sewer and water, if any, shall be apportioned.

(e) The City is exempt from grantor's tax upon recordation of the deed. HRSD shall pay any other recording costs and state and local recordation taxes applicable to the recordation of the deed.

(f) City agrees that it will join, as the owner of the Property, with HRSD, at no cost or liability to City, in the signing of any applications for permits or licenses or in recording plats or in such other actions as may be necessary or required for HRSD's Intended Use of the Property.



(g) If HRSD exercises the Option hereunder but fails to deliver the Purchase Price to City at Closing as provided above, the City shall have the right to terminate this Agreement immediately upon written notice to HRSD and both parties' rights and obligations hereunder shall terminate, except for HRSD's obligations under Section 1 above and the City shall retain the Option Fee as its sole remedy for such breach.

(h) If HRSD exercises the Option hereunder but the City fails to deliver title to HRSD at Closing free and clear of all leases, tenancies, rights of occupancies or fails to meet its obligations as provided herein, HRSD shall have the right to terminate this Agreement immediately upon written notice to the City and both parties' rights and obligations hereunder shall terminate, and the City shall refund the Option Fee as HRSD's sole remedy for such breach.

(i) At closing, HRSD, in addition to any other documents required to be delivered under the terms of this Agreement, shall deliver the following to the City: a counterpart signed copy of the Settlement Statement; the Purchase Price by wire transfer; a written opinion of counsel of HRSD, in form commercially reasonable satisfactory to the City (assuming that all signatures are genuine, and further assuming that all documents presented to such counsel as copies conform with the originals), stating (1) that HRSD has the power to enter into the transactions contemplated by this Agreement (including, without limitation, entry into this Agreement); (2) that all actions by HRSD required to be authorized in the transaction contemplated by this Agreement have been duly authorized; and (3) that this Agreement and all documents required to effectuate the transactions contemplated hereby which are to be executed by HRSD (including, without limitation, all agreements and instruments to be executed by HRSD at Closing) have been duly executed and delivered by HRSD, and constitute binding obligations of HRSD, enforceable in accordance with their terms, except as enforceability may be limited by applicable bankruptcy, insolvency, reorganizations, moratoriums or similar laws affecting the enforcement of creditors' rights generally and by legal and equitable limitation on the enforceability of specific remedies; resolutions of the HRSD's Commissioners ("Commission"), authorizing HRSD to consummate the transactions contemplated herein, such resolutions to be in form and substance reasonably satisfactory to the City; and any other document or instrument required hereunder or reasonably requested by the City in order to consummate the transactions contemplated herein, which document or instrument will be in form and substance reasonably acceptable to the HRSD and the City.

(j) Possession of the Property shall be delivered to HRSD as of the date of Closing, free and clear of all leases, tenancies and rights of occupancy.

8. Leases. City warrants that there are no unrecorded leases or rights of tenants in possession to which the Property is subject and agrees in the event of a breach of this warranty, City shall refund the Option Fee to HRSD, except for the Golf Course Lease which shall be terminated prior to the Closing. Possession of the Property shall be delivered to HRSD as of the settlement date, free and clear of all leases, tenancies and rights of occupancy.

9. Intended Use/Permitted Use; Right of First Refusal. HRSD shall use the Property, solely for the construction and operation of an expanded wastewater treatment facility and/or SWIFT related facilities and uses incidental thereto (the "Intended Use"). In the event (a) the HRSD purchases the Property but fails to develop all of the Property for the Intended Use

and if HRSD desires to sell any portion of the Property, the City shall have the right of first refusal to purchase such undeveloped portion of the Property at the lower of (a) the sum of the prorated Purchase Price and the prorated Option Fee less the cost to demolish any structures placed on the Property to be repurchased by HRSD or (b) a bona fide third-party written offer to purchase. In the event the City elects to repurchase the undeveloped portion of the Property pursuant to this Section 9, City shall provide written notice of its intent to repurchase and shall have 180 days to close upon such repurchase. At or prior to closing on the repurchase, HRSD shall execute and deliver a special warranty deed to the City re-conveying such portion of the Property as well as all improvements thereon to the City free and clear and any encumbrances, except for the Permitted Exceptions, the City's Open Space Easement, and any new encumbrances which would be typical for development of the Property for the Intended Use. Notwithstanding any provision to the contrary, once the HRSD commences operations on any portion of the Property for the Intended Use, then City's right to repurchase such portion of the Property shall become void.

10. Approvals. HRSD is solely responsible for securing all governmental permits, licenses and other approvals including, but not limited to, site plan, subdivision plat, zoning, building permits, and environmental permits necessary for development of the Property for its Intended Use. HRSD acknowledges that the City approvals required for development of the Property, including, without limitation, the Subdivision Plat and zoning, are administrative functions of the City that are separate from and independent of this Agreement.

11. Utilities. HRSD shall be responsible for confirming the existing public utilities adjacent to or downstream of the Property are adequate to support the Intended Use. Any public utility upgrades necessary to support the Intended Use shall be designed and constructed by HRSD at HRSD's expense. HRSD shall be responsible for the relocation of any utilities which is necessitated by the construction on the Property and for connecting to public utility lines located in public rights of way, and all costs thereof shall be paid and borne by HRSD. Connection fees and tap fees for such public utilities serving the Property will be HRSD's responsibility. The cost of franchise utility services for the Property shall be the responsibility of HRSD.

12. Design Review Exemption. Pursuant to Norfolk City Code Section 32-70(b)(6), the Project shall be exempt from design review by the City's Architectural Review Board ("ARB"). Notwithstanding this exemption, if not previously delivered to the City, as part of HRSD's site plan approval process after exercising the Option, HRSD shall cause to be delivered to the City the information that would be included in an application for design review by the ARB if the project were not exempt.

13. Open Space Easement. HRSD shall be responsible for maintaining the shoreline of the Property in accordance with all applicable laws, including those portions of the Property that are within the Open Space Easement area. The City shall have the right, at its sole cost and expense, to cause improvements, including without limitation, a pathway, lighting (including the necessary electrical connections), benches, fitness equipment, playground equipment, and picnic shelters, to be constructed in the Open Space Easement area. HRSD shall grant any utility easements in the Open Space Easement area which are necessary to allow for such improvements provided such easements do not interfere with HRSD's Intended Use of the Property. The City

shall be responsible for maintenance of any such public improvements constructed by the City in the Open Space Easement area, including mowing in the areas around such improvements. The boundary line of the Open Space Easement shall be fixed by the recorded subdivision plat and will not change based on erosion or other changes in the shoreline. To the extent allowed by applicable law, the City shall indemnify and hold HRSD harmless from and against all claims or causes of action arising from the City's and the public's use of the Open Space Easement area.

14. Default; Remedies. The occurrence of any of the following shall be an event of default by HRSD under this Agreement:

(a) The filing by HRSD of a voluntary proceeding under present or future bankruptcy, insolvency, or other laws respecting debtors' rights.

(b) The consent by HRSD to an involuntary proceeding under present or future bankruptcy, insolvency, or other laws respecting debtor's rights.

(c) The entering of an order for relief against HRSD or the appointment of receiver, trustee, or custodian for all or a substantial part of the property or assets of HRSD in any involuntary proceeding, and the continuation of such order, judgment or decree unstayed for any period of thirty (30) consecutive days.

(d) The failure of HRSD to perform or to observe any covenant, obligation, condition or requirement of this Agreement not specifically named as a default in this Section 16, and the continuation of such failure for thirty (30) days after written notice from the City specifying the nature and extent of any such default, or, if such default cannot reasonably be cured within such thirty (30)-day period, the failure either (i) to commence to cure such default within such thirty (30)-day period and to diligently continue to pursue such effort to cure to completion, or (ii) to cure such default within a reasonable time after the expiration of the first thirty (30)-day period, in no event to exceed ninety (90) days after the written notice of default.

(e) Upon the occurrence and continuance of any event of default described in this Section 14 or any other breach of this Agreement, the City may elect to terminate this Agreement by giving written notice of such termination to HRSD, and this Agreement shall terminate as of the date specified in such notice (which date shall be on or after the date of the notice of termination). In addition to the remedies of termination described above and except as set forth in Section 7(g) and Section 7(h) above, a non-defaulting party shall have available to it all other rights and remedies provided in this Agreement or at law or in equity.

(f) In the event that termination by the City under this Section 14 occurs after Closing, the City shall have the right to repurchase the Property at for the sum of the Purchase Price and the Option Fee less the cost to demolish any structures placed on the Property by HRSD. At or prior to closing on the repurchase, HRSD shall execute and deliver a special warranty deed to the City re-conveying the Property as well as all improvements thereon to the City free and clear and any encumbrances, except for the Permitted Exceptions any new encumbrances which would be typical for development of the Property for the Intended Use.

(g) Except as set forth in Section 7(g) and Section 7(h), remedies under this Agreement shall be cumulative and not restrictive of other remedies.



15. Notices. All notices, requests or other communications under this Agreement shall be in writing and shall be delivered either in person (when delivered) or sent by registered or certified mail, return receipt requested, postage prepaid (three business days thereafter), or by overnight mail by a nationally recognized overnight carrier (one business day thereafter) addressed to the respective parties hereto as follows:

City: City Manager  
City of Norfolk  
810 Union Street  
1101 City Hall Building  
Norfolk, VA 23510

With a  
copy to: City Attorney  
City of Norfolk  
810 Union Street  
900 City Hall Building  
Norfolk, VA 23510

HRSD: General Manager  
Hampton Roads Sanitation District  
1434 Air Rail Avenue  
Virginia Beach, VA 23455

16. No Third-Party Beneficiaries. This Agreement is solely for the benefit of the Parties hereto and their permitted successors and assigns and shall not confer any rights or benefits on any other person or entity.

17. No Assignment. This Agreement, and the rights and obligations established hereunder, shall be binding upon and inure to the benefit of any successors of the Parties. However, no Party may transfer or assign this Agreement, or its rights or obligations hereunder, without the prior written consent of the other Party, which consent may be withheld in the parties' sole and absolute discretion.

18. Expenses; Commissions. Except as provided herein, each Party shall pay its own fees and expenses, including its own counsel fees, incurred in connection with this Agreement or any transaction contemplated hereby. The Parties represent and warrant to each other that they have not dealt with any business broker or agent who would be entitled to a brokerage commission or finder's fee as a result of this Agreement or any related transactions.

19. Governing Law; Venue; Severability. This Agreement shall be construed in accordance with and governed for all purposes by the laws of the Commonwealth of Virginia. This Agreement is a Virginia contract deemed executed and accepted in the City of Norfolk; and all questions with respect to any of its provisions shall be instituted, maintained, and contested in a state court of competent jurisdiction in the City of Norfolk, Virginia. If any word or provision of this Agreement as applied to any Party or to any circumstance is adjudged by a court to be

invalid or unenforceable, the same shall in no way affect any other circumstance or the validity or enforceability of any other word or provision.

20. No Waiver. Neither any failure to exercise or any delay in exercising any right, power or privilege under this Agreement by either Party shall operate as a waiver, nor shall any single or partial exercise of any right, power or privilege hereunder preclude the exercise of any other right, power or privilege. No waiver of any breach of any provision shall be deemed to be a waiver of any preceding or succeeding breach of the same or any other provision, nor shall any waiver be implied from any course of dealing.

21. Entire Agreement; Amendments. This Agreement contains the entire agreement between the Parties as to the subject matter hereof and supersedes all previous written and oral negotiations, commitments, proposals and writings. No amendments may be made to this Agreement except by a writing signed by both Parties.

22. Counterparts; Signatures; Copies. This Agreement may be executed in counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. A facsimile or scanned signature may substitute for and have the same legal effect as an original signature. Any copy of this executed Agreement made by photocopy, facsimile or scanner shall be considered the original for all purposes.

23. Recording. This Agreement or a mutually agreeable memorandum of this Agreement may be recorded by either party hereto at its cost and expense.

24. Authorization. Each Party represents that its execution, delivery and performance under this Agreement have been duly authorized by all necessary action on its behalf, and do not and will not violate any provision of its charter or enabling legislation 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.

**[SIGNATURES BEGIN ON NEXT PAGE]**

IN WITNESS WHEREOF, the Parties hereto have caused the execution of this Agreement as of the date first written above.

Witness the following signatures and seals:

**[SIGNATURE PAGE OF OPTION TO PURCHASE REAL ESTATE (Hampton Roads Sanitation District – City of Norfolk)]**

**HAMPTON ROADS SANITATION DISTRICT**

By:   
Name: Edward G Henifin, P.E.  
Title: General Manager

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

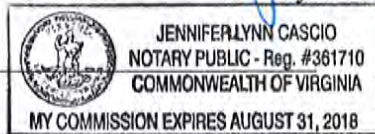
I, Jennifer L. Cascio, a Notary Public in and for the City of Virginia Beach, in the Commonwealth of Virginia, do hereby certify that Edward G. Henifin, General Manager of Hampton Roads Sanitation District, whose name as such is signed to the foregoing Option to Purchase Real Estate, has acknowledged the same before me in the City and Commonwealth aforesaid.

Given under my hand this 29<sup>th</sup> day of March, 20 18.

  
Notary Public

Registration Number: \_\_\_\_\_

My Commission Expires: \_\_\_\_\_



**[Signatures continue on next page]**

[CONTINUATION OF SIGNATURE PAGES TO OPTION TO PURCHASE REAL ESTATE (Hampton Roads Sanitation District – City of Norfolk)]

CITY OF NORFOLK

By: *Douglas L. Smith*  
Name: Douglas L. Smith  
Title: City Manager

ATTEST:  
*R. Breckenridge Daughtrey*  
City Clerk

Approved as to Form and Correctness:  
*Michelle G.*  
Assistant City Attorney

COMMONWEALTH OF VIRGINIA  
CITY OF NORFOLK, to-wit:

I, *Kimberly K. Markowski*, a Notary Public in and for the City of Norfolk, in the Commonwealth of Virginia, do hereby certify that Douglas L. Smith, City Manager, and R. Breckenridge Daughtrey, City Clerk, of the City of Norfolk, whose names as such are signed to the foregoing Option to Purchase Real Estate, have acknowledged the same before me in the City and Commonwealth aforesaid.

Given under my hand this 20<sup>th</sup> day of April, 2018

*Kimberly K. Markowski*  
Notary Public

Registration Number: 213345

My Commission Expires: 4/30/2020





**ATTACHMENT A**



HRSD COMMISSION MEETING MINUTES  
March 27, 2018

ATTACHMENT #5

AGENDA ITEM 6. – Park Avenue Pump Station Replacement  
Acquisition of Real Property  
1338 Porter Street (and adjacent lot), Chesapeake, Virginia

Parcel #: 1330000001301 and  
1330000001072

**RESIDENTIAL CONTRACT OF PURCHASE**

This Contract of Purchase (hereinafter "Contract") is made this 13<sup>th</sup> day of March, 2018, among **JONATHAN WILLIAM ATKINSON and MELISSA DAWN ATKINSON HURT**, whose mailing address is 2 Vacation Lane, Portsmouth, VA 23703 and owners of record of the Property sold herein (the "Seller", whether one or more), and **HAMPTON ROADS SANITATION DISTRICT**, a political subdivision of the Commonwealth of Virginia, located at 1434 Air Rail Avenue, Virginia Beach, Virginia 23455 (the "Purchaser"). Collectively, Purchaser and Seller shall be referred to as the "Parties."

**1. REAL PROPERTY.** Purchaser agrees to buy and Seller agrees to sell the land and all improvements thereon and appurtenances thereto which fronts upon a public street or has a recorded access easement to a public street (the "Property"), located in the City of Chesapeake, Virginia, and described as:

Street Address: 1338 Porter Street, Chesapeake, Virginia 23324  
(Parcel Identification: 1330000001301)

Legal Description: Pt Lots 35 & 37, Lot 39 Blk 30 EL & I Co.

Street Address: 0000 Porter Street, Chesapeake, Virginia 23324  
(Parcel Identification: 1330000001072)

Legal Description: Pt Lots 27, 29, 31 & 33 Blk 30 EL & I Co.

**2. PERSONAL PROPERTY.** The following personal property, which is free of all liens and encumbrances, is included in this sale: All personal items which are affixed to the real estate.

**3. EFFECTIVE DATE:** The "Effective Date" of this Contract shall be the date on which all parties have signed this Contract.

**4. PURCHASE PRICE FOR PROPERTY:** The purchase price ("Purchase Price") for the Property is **ONE HUNDRED, NINETY THOUSAND 00/100 DOLLARS (\$190,000.00)**; and shall be paid by HRSD to the Seller as follows:

\$ 10,000.00	Deposit with Contract/Relocation Assistance (the "Deposit/Relocation Assistance")
\$ 180,000.00	Remainder to be paid at Settlement by cash or certified funds
<b>\$190,000.00</b>	<b>Total Purchase Price</b>

Parcel #s: 1330000001301 and  
1330000001072

5. **SETTLEMENT/POSSESSION OF THE PROPERTY**: Settlement on the purchase of the Property by HRSD shall be made at a location selected by HRSD within sixty (60) days after full execution of Contract. Possession of the Property shall be given to HRSD at such Settlement and Seller shall execute and deliver to HRSD the following:
  - A. A duly executed General Warranty Deed conveying the Property to HRSD.
  - B. An owner's affidavit as customarily required by title companies pertaining to mechanic's liens and the absence of tenants in occupancy.
  - C. An owner's affidavit that is acceptable to the title company in order to provide standard "gap" coverage.
  - D. Seller's affidavit that Seller is not a foreign person for the purposes of Section 1445 of the Internal Revenue Code.
  - E. Such additional documents as HRSD or HRSD's title company may reasonably require in order to consummate this transaction and fully comply with this Contract.
  
6. **EXPENSES**: The Seller shall pay only the expense of preparing the deed, the recordation tax applicable to grantors and Seller's attorney's fees (if applicable). Except as otherwise agreed herein, all other expenses incurred by the Purchaser in connection with the Purchaser's purchase, including (without limitation), title examination, surveys, appraisal fees, preparation of deeds of trust and notes, title insurance premiums, recording costs and fees of the Purchaser's attorney, shall be borne by the Purchaser.
  
7. **ESCROW/PRORATION**: All taxes, storm water fees, utilities, insurance, and other periodic charges, if any, shall be prorated as of the date of settlement.
  
8. **TITLE**: At settlement, Seller shall convey marketable and insurable (at normal rates) fee simple title to the Property and a General Warranty Deed to the Purchaser, free of all encumbrances, tenancies, and liens (except the lien for current taxes), but subject to all covenants, restrictions, easements, and rights-of-way currently of record or apparent on the ground which do not render the title unmarketable. If the examination reveals a title defect of a character that can be remedied by legal action or otherwise within a reasonable time, the Purchaser shall give written notice of the same to the Seller. The Seller shall have the option to either (i) terminate this Contract, or (ii) take such action as is necessary to cure such defect. If the defect is not cured within sixty (60) days after the Seller receives notice of the defect, then either party may terminate this Contract at the expiration of such sixty (60) day period. In the event that the Contract is terminated under this paragraph, the Deposit/Relocation Assistance shall be refunded to HRSD and neither party shall have any further liability to the other. The parties agree that the date of Settlement shall be extended if necessary to enable the Seller to cure any title defect,



Parcel #: 1330000001301 and  
1330000001072

but not for more than sixty (60) days, unless extended by written consent of both the Seller and the Purchaser.

9. **MECHANICS LIENS**: The Seller shall deliver to the Purchaser at Settlement an affidavit signed by the Seller that no labor or materials have been furnished to the Property within the statutory period for the filing of mechanics' or materialmen's liens against the property
10. **RISK OF LOSS**: All risk of loss or damage to the Property by fire, windstorm, casualty, or other causes are assumed by the Seller until Settlement.
11. **CONDEMNATION**: If any authority having the right of eminent domain commences negotiations with the Seller or commences legal action against the Seller for the damaging, taking or acquiring of all or a material part of the property, either temporarily or permanently, by condemnation or by exercise of the right of eminent domain, the Seller shall immediately give notice of the same to the Purchaser, together with all information and documentation received by the Seller regarding the same. Upon the occurrence of any of the foregoing events, the Purchaser shall have the right, at its option, to terminate this Contract by giving notice thereof to the Seller on or before the date of Settlement, in which event the Deposit/Relocation Assistance shall be returned to HRSD and neither party shall have any further liability to the other party. If the Purchaser does not elect to terminate this Contract, the purchase price for the property shall be reduced by the total of any awards, settlement proceeds or other compensation received by the Seller at or prior to Settlement with respect to any damage, taking or acquisition. The risk of condemnation or eminent domain shall be borne by the Seller until Settlement. In the event of any negotiations with any authority regarding the payment of any awards or other sums or regarding any settlement on account of any damage, taking, or acquisition through condemnation or eminent domain, the Seller will inform the Purchaser of all such negotiations of which the Seller has notice and will permit the Purchaser to take part therein.
12. **FLOOD ZONE**: Purchaser is aware that the property it will purchase either partially or wholly may lie in a Flood Zone which may require the Purchaser to purchase flood insurance.
13. **ENVIRONMENTAL DISCLOSURE**: Purchaser is aware that the uses and development opportunities of the property it will purchase may be limited if such property is covered by the Chesapeake Bay Preservation Act, the Clean Water Act, the Virginia Water Control Act or any other federal, state, or local regulations concerning the environment.

Parcel #s: 1330000001301 and  
1330000001072

- 14. RELOCATION ASSISTANCE:** Buyer agrees to pay Seller **\$10,000.00 (ten thousand dollars and 00/100 cents)** upon signing this Agreement to assist with moving and relocation expenses. The parties acknowledge that this a one-time lump sum payment associated with the purchase of both parcels, Parcel 1330000001301 and 1330000001072. If closing does not occur due to Seller's fault or breach, Seller hereby agrees to refund and return to HRSD the Deposit/Relocation Assistance paid by HRSD. Upon closing, in accordance with this Agreement, Buyer shall be entitled to retain all funds received as relocation assistance. Seller acknowledges that the relocation expenses paid may also be reported as income for the Seller.
- 15. DEFAULT:** If either party defaults under this Contract, the non-defaulting party shall have the right to compel specific performance and shall have all additional rights and remedies available to the non-defaulting party and the non-defaulting party shall be entitled to recover its reasonable attorney's fees, expert fees, and costs.
- 16. SURVIVAL:** Unless otherwise indicated, the representations, warranties, covenants, and agreements contained in this Contract shall survive Settlement and delivery and recordation of the deeds provided for herein.
- 17. AGENTS AND BROKERS:** Purchaser and Seller authorize and direct the settlement agent to disburse to Listing Company from the settlement proceeds their respective portions of the brokerage fee payable as a result of this sale and closing under this Contract. Purchaser and Seller authorize and direct the settlement agent to provide to each of Seller, Purchaser, and Listing Company a copy of the settlement statement for the transaction.
- 18. NOTICES:** Any notice to be given to any party as herein provided shall be deemed to be given when hand delivered, one (1) day after being sent by national courier deliver service (e.g. Federal Express or United Parcel Service), or three (3) days after being duly posted by U.S. registered or certified mail, return receipt request, if sent to the addresses listed on the signature page of this Contract. Any party may change the place designated for the giving of such notices by written notice duly and timely given to all other parties.
- 19. ASSIGNMENT:** This Contract may only be assigned by a party upon the written consent of the other party, which consent shall not be unreasonably withheld, conditioned, or delayed. Within a reasonable time after such assignment, the name, address, and telephone number of the assignee shall be provided to the other party in writing. Furthermore, all provisions of this Contract shall be binding on a party's assignee as well as on the original assignor party.

Parcel #: 1330000001301 and  
1330000001072

20. **BINDING EFFECT**: All the provisions, conditions, and agreements of this Contract shall be binding upon and inure to the benefit of the legal representatives, heirs, successors, and assigns of the parties.
21. **CAPTIONS**: The headings appearing in each paragraph of this Contract are intended only for convenience or reference, and are not to be considered in construing this instrument or any paragraph hereof.
22. **GOVERNING LAW**: This Contract shall be governed, interpreted, and construed in accordance with the laws of the Commonwealth of Virginia.
23. **WAIVER**: If on any occasion either party waives any term or condition of this Contract such waiver must be in writing and shall not be construed as a continuing waiver.
24. **SEVERABILITY**: If any provision of this Contract or the application thereof to any person or circumstance is determined to be invalid or unenforceable to any extent, then the remainder of this Contract or the application of such provision to other persons or circumstances shall be and remain valid and enforceable to the fullest extent permitted by law.
25. **ATTORNEYS FEES AND COSTS**: In the event a dispute arises between the parties under this Contract, the non-prevailing party in such dispute shall pay the prevailing party's costs and expenses, including, but not limited to, its reasonable attorney's fees and expert fees.
26. **COUNTERPARTS AND FACSIMILES**: This Contract may be entered into in multiple counterparts, all of which taken together shall constitute one complete agreement. To facilitate execution and delivery of this Contract, the parties may execute and exchange counterparts of the Contract by facsimile, email or other electronic transmission (collectively "Electronic Signature"). All parties agree that Electronic Signatures shall have the same effect as original signatures and shall be considered legally binding upon the parties. The signature or Electronic Signature of any party to any counterpart may be appended to any other counterpart. All counterparts so executed shall collectively constitute one agreement, binding on all of the parties, notwithstanding the fact that all the parties have not signed the same original or the same counterpart.
27. **COMPLETE AGREEMENT**: This Contract constitutes the entire agreement and understanding between the parties; all prior negotiations between them have been merged with this Contract; there are no understandings, representations, warranties, or covenants,

Parcel #: 1330000001301 and  
1330000001072

either oral or written, other than those set forth in this Contract; and no provision of this Contract shall be amended, altered, or waived in any manner unless such amendment, alteration, or waiver is in writing and signed by all parties.

## **28. REQUIRED DISCLOSURES.**

(a) **Property Owners' Association Disclosure.** Seller represents that the Property (check as applicable)  is  is not located within a development that is subject to the Virginia Property Owners' Association Act ("Act") (Virginia Code § 55-508 through § 55-516). If the Property is within such a development, the Act requires Seller to obtain an association disclosure packet from the property owners' association and provide it to Purchaser.

(b) **Residential Property Disclosure.** The Virginia Residential Property Disclosure Act (Virginia Code § 55-517 through § 55-525) requires Seller of certain residential property to provide Purchaser, in a form provided by the Real Estate Board, with a property disclosure statement that states Seller makes no representations or warranties as to the condition of the Property or any improvements thereon, and that Purchaser will be receiving the Property "AS IS", that is, with all defects that may exist (if any) except as otherwise provided in this Contract. The parties to this agreement hereby agree that Purchaser will be receiving the Property "AS IS", "WHERE IS" and the parties agree that this shall fulfill the requirements of the Virginia Residential Property Disclosure Act.

(c) **Mechanic's and Materialmen's Liens.**

### **NOTICE**

**Virginia law (Virginia Code § 43-1, *et seq.*) permits persons who have performed labor or furnished materials for the construction, removal, repair or improvement of any building or structure to file a lien against the Property. This lien may be filed at any time after the work is commenced or the material is furnished, but not later than the earlier of (i) 90 days from the last day of the month in which the lienor last performed work or furnished materials, or (ii) 90 days from the time the construction, removal, repair or improvement is terminated. (See Standard Provision J on Exhibit A.)**

**AN EFFECTIVE LIEN FOR WORK PERFORMED PRIOR TO THE SETTLEMENT DATE MAY BE FILED AFTER SETTLEMENT. LEGAL COUNSEL SHOULD BE CONSULTED.**

(d) **Adjoining Property.** Seller makes no representations as to matters affecting adjacent parcels, and Purchaser should exercise whatever due diligence that Purchaser deems necessary with respect to adjacent parcels.

(e) **Title Insurance Notification.** Purchaser may wish, at Purchaser's expense, to purchase owner's title insurance. Depending on the particular circumstances of the transaction, such insurance could include affirmative coverage against possible mechanic's and materialmen's

Parcel #: 1330000001301 and  
1330000001072

liens for labor and materials performed prior to Settlement and which, though not recorded at the time of recordation of Purchaser's deed, could be subsequently recorded and would adversely affect Purchaser's title to the Property. The coverage afforded by such title insurance would be governed by the terms and conditions thereof and the premium for obtaining such title insurance coverage will be determined by its coverage.

(f) **Lead-Based Paint Disclosure.** The certification, required pursuant to the Lead-Based Paint Hazard Reduction Act of 1992, signed by Seller, Purchaser and applicable agents  is  is not attached hereto. All improvements on the Property [ were/  were not/ N/A] constructed after January 1, 1978. (*N/A - Seller does not know if all improvements were constructed after January 1, 1978*).

(g) **Notice of Principal Residence.** Purchaser  does  does not intend to occupy the Property as Purchaser's principal residence.

(h) **Choice of Settlement Agent:** You have the right to select a settlement agent to handle the closing of this transaction. The settlement agent's role in closing your transaction involves the coordination of numerous administrative and clerical functions relating to the collection of documents and the collection and disbursement of funds required to carry out the terms of the contract between the parties. If part of the purchase price is financed, your lender will instruct the settlement agent as to the signing and recording of loan documents and the disbursement of loan proceeds. No settlement agent can provide legal advice to any party to the transaction except a settlement agent who is engaged in the private practice of law in Virginia and who has been retained or engaged by a party to the transaction for the purpose of providing legal services to that party.

**Escrow, closing and settlement service guidelines:** The Virginia State Bar issues guidelines to help settlement agents avoid and prevent the unauthorized practice of law in connection with furnishing escrow, settlement or closing services. As a party to a real estate transaction, you are entitled to receive a copy of these guidelines from your settlement agent, upon request, in accordance with the provisions of the Real Estate Settlement Agents Act. Virginia Code § 55-525.16 to § 55-525.32.

**29. STANDARD PROVISIONS ON THE ATTACHED PAGES.** All of the Standard Provisions in Exhibit A are incorporated herein by reference, and shall apply to this Contract, except the following lettered Standard Provisions are hereby deleted: Paragraphs D., F., G., H., I., K.

**30. DEFAULT.** If either party defaults under this Contract, the non-defaulting party may pursue, in such party's discretion, all remedies available to the non-defaulting party at law or in equity. The defaulting party shall be liable to the non-defaulting party for all expenses, including reasonable attorney's fees.

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1330000001072

**31. COMPLETE AGREEMENT:** This Contract constitutes the entire agreement and understanding between the parties; all prior negotiations between them have been merged with this Contract; there are no understandings, representations, warranties, or covenants, either oral or written, other than those set forth in this Contract; and no provision of this Contract shall be amended, altered, or waived in any manner unless such amendment, alteration, or waiver is in writing and signed by all parties.

**32. LIMITATION OF OFFER:** This Contract shall terminate at 5:00 p.m. on the tenth (10<sup>th</sup>) day after the date of this Contract, if not executed by both parties and delivered to both parties prior to such date and time.

WITNESS THE FOLLOWING SIGNATURES AND SEALS. ALL PARTIES  
HEREBY ACKNOWLEDGE RECEIPT OF A COPY OF THIS CONTRACT.

**PURCHASER:**

**HAMPTON ROADS SANITATION DISTRICT (HRSD)**

By: Ayanra R. Williams, Real Estate Manager  
Date: 3/13/18

Name: Edward G. Henifin, P.E. / Ayanra R. Williams, Real Estate Manager  
Title: General Manager  
Contact Address: 1434 Air Rail Avenue, Virginia Beach, Virginia 23455

**SELLER(S):**

**JONATHAN WILLIAM ATKINSON**

Jonathan William Atkinson  
(Signature)  
Date: 3/13/18

**MELISSA DAWN ATKINSON HURT**

Melissa Dawn Atkinson Hurt  
(Signature)  
Date: 3/13/18

Receipt of deposit per paragraph 4 above is hereby acknowledged.  
/

Contact Address: 2 Vacation Lane, Portsmouth, Virginia 23703

Parcel #s: 1330000001301 and  
1330000001072

**EXHIBIT A**  
**STANDARD PROVISIONS**

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A. **DEPOSIT/RELOCATION ASSISTANCE.** In the event this Contract is terminated by Seller or Purchaser as provided herein, or in the event of a breach of this Contract by Seller, the Deposit/Relocation Assistance shall be returned to Purchaser, but such return shall not affect any other remedies available to Purchaser for Seller's breach. In the event Purchaser breaches this Contract, the Deposit shall be paid to Seller, but such payment shall not preclude any other remedies available to Seller for such breach.

The Deposit, if held by a licensed broker or agent, shall be held in conformity with the regulations of the Virginia Real Estate Board and other applicable law. If this Contract is not consummated and a dispute exists between Seller and Purchaser, the Deposit will be held in escrow by the Escrow Agent until Seller and Purchaser have agreed to the disposition thereof, or a court of competent jurisdiction orders disbursement.

B. **EXPENSES & PRORATIONS.** Seller agrees to pay the costs of preparing the deed, certificates for non-foreign status and state residency and the applicable IRS Form 1099, the recordation tax applicable to grantors, and the Seller's attorney fee or Settlement Agent's fee. Except as otherwise agreed herein, all other expenses incurred by Purchaser in connection with the Contract and the transaction set forth therein, including, without limitation, title examination costs, insurance premiums, survey costs, recording costs, loan document preparation costs and fees of Purchaser's attorney, shall be borne by Purchaser. All taxes, assessments, interest, rent and mortgage insurance, if any, shall be prorated as of Settlement.

C. **TITLE.** At Settlement, Seller shall convey to Purchaser good and marketable fee simple title to the Property by deed of general warranty containing English covenants of title, free of all liens, tenancies, defects and encumbrances, except as otherwise indicated herein, and subject only to such restrictions and easements as shall then be of record which do not affect the use of the Property for residential purposes or render the title unmarketable. If a defect is found which can be remedied by legal action within a reasonable time, Seller shall, at Seller's expense, promptly take such action as is necessary to cure the defect. If Seller, acting in good faith, is unable to have such defect corrected within 60 days after notice of such defect is given to Seller, then this Contract may be terminated by either Seller or Purchaser. Purchaser may extend the date for Settlement to the extent necessary for Seller to comply with this Paragraph, but not longer than 60 days.

D. **LAND USE ASSESSMENT.** In the event the Property is taxed under land use assessment and this sale results in disqualification from land use eligibility, Seller shall pay, when assessed, whether at or after Settlement, any rollback taxes assessed. If the Property continues to be eligible for land use assessment, Purchaser agrees to make application, at Purchaser's expense, for continuation under land use, and to pay any rollback taxes resulting from failure to file or to qualify.

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E. **RISK OF LOSS.** All risk of loss or damage to the Property by fire, windstorm, casualty or other cause, or taking by eminent domain, is assumed by Seller until Settlement. In the event of substantial loss or damage to the Property before Settlement, Purchaser shall have the option of either (i) terminating this Contract, or (ii) affirming this Contract with appropriate arrangements being made by Seller to repair the damage, in a manner acceptable to Purchaser, or Seller shall assign to Purchaser all of Seller's rights under any applicable policy or policies of insurance and any condemnation awards and shall pay over to Purchaser any sums received as a result of such loss or damage.

F. **EQUIPMENT CONDITION.** Purchaser agrees to accept the Property at Settlement or possession, whichever occurs last, in its present physical condition, except as otherwise provided herein. Seller warrants, even if a property Disclosure Statement has been provided to Purchaser (see paragraph 6(b), that the heating and cooling equipment, plumbing systems (including well and septic systems), and electric systems, will be in working order, and the roof and basement will be free of leaks, at Settlement or at Purchaser's occupancy, whichever occurs last. Seller agrees to deliver the Property in broom-clean condition with all trash and debris removed and to exercise reasonable and ordinary care in the maintenance and upkeep of the Property between the date this Contract is accepted and the Settlement Date or upon Purchaser's occupancy, whichever occurs first. Purchaser and his representatives shall have the right to make an inspection immediately before Settlement and possession should possession occur after Settlement.

G. **WELL & SEPTIC.** If the Property is served by an on site well and/or septic system, Seller agrees to furnish Purchaser, unless the Purchaser has elected to do its own inspection of the septic and water system as provided below, at Seller's expense, with a certificate dated not more than 30 days prior to the Settlement Date from the appropriate governmental authority, or a mutually acceptable private company, indicating that (a) well water contains no more than the acceptable level of coliform bacteria, and (b) the septic system is functioning satisfactorily. Purchaser, at its expense, shall have the right to make its own inspection of the water and septic system within 10 business days from the date of acceptance of this Contract by Seller, provided Purchaser has advised Seller at the time of Seller's acceptance of this Contract that Seller is relieved of its obligation to provide the above certifications and the Purchaser will be doing its own inspections. Such inspections must be complete within 15 days of the acceptance of the Contract by Seller and results forwarded to the Seller in writing within 5 days thereafter. If either system is found defective, Purchaser shall immediately notify the Seller. Seller shall have the right to agree to complete the repair by Closing at Seller's expense or to declare this Contract to be null and void. Purchaser shall have the right to waive the obligation of the Seller to repair the well and septic systems and accept them as is.

Effective July 1, 2005, home sellers must disclose information about their current septic systems. When the Seller has received or applied for a Board of Health waiver from current septic system requirements for the property, the Seller must disclose that a waiver is in effect and that the waiver is null and void upon the sale of the Property.



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Seller also represents that (check appropriate box):

- The Property is not served by an onsite septic system.
- The Property is served by an onsite septic system that is not subject to a waiver.
- The Property is served by an onsite septic system that has been granted a waiver which is not transferable to Purchaser.

H. **WOOD INFESTATION INSPECTION & REPORT.** Seller, at Seller's expense, shall deliver to Purchaser a report from a qualified licensed exterminator, dated not earlier than 30 days before Settlement, that  the principal dwelling is  all improvements on the Property are free of infestation and structural damage from termites and other wood destroying insects. If such insects are found, Seller shall, at Seller's expense, have the dwelling treated and damage repaired, unless Paragraph 8(i) of the Contract provides otherwise. The report shall also contain a certification that there exists no moisture problems/damages in the crawl space, if applicable. If moisture damage is found or conditions conducive to moisture problems, they shall be corrected at Seller's expense, subject to any limitations set forth in paragraph 8(i).

I. **HOMEBUYER'S INSPECTION.** Purchaser shall have \_\_\_ business days from the date of acceptance of this Contract to obtain, at Purchaser's expense, a satisfactory inspection of the physical improvement to Property.

- Purchaser desires a home inspection.
- Purchaser waives a home inspection.

N/A  
3/13/18

Purchaser shall have \_\_\_\_\_ business days from the date of acceptance of this contract to obtain an inspection and moisture test of the EIFS (Exterior Insulation and Finish System or synthetic stucco) at Purchaser's expense by a certified EIFS inspector provided that, in the event the property is a condominium, the right to inspect may be limited by rights of other unit owners or the condominium association.

- Purchaser desires an EIFS inspection.
- Purchaser waives an EIFS inspection.
- EIFS is not applicable.

If the results of such any inspections are unsatisfactory to Purchaser, Purchaser shall provide Seller, within 3 business days of receiving the results of the inspections, a copy of said report and a written statement stating why Purchaser is not satisfied with the report. In that event, Seller shall have the option to correct said condition(s) at Seller's expense or to terminate this Contract. Seller must notify Purchaser in writing of his decision within 3 business days of receiving said report from Purchaser. Failure of Purchaser to comply by the date indicated shall be deemed a waiver of this contingency. If Seller fails to respond or states Seller's intent not to correct the condition(s), Purchaser may terminate this Contract, in which event the Deposit shall be returned to Purchaser. If Seller elects to terminate this contract, Purchaser, within 3 business days after receiving notice of termination, shall have the right to reinstate the Contract by relieving Seller of any obligations to correct said condition(s).

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J. **AFFIDAVITS & CERTIFICATES.** Seller shall deliver to Purchaser an affidavit on a form acceptable to Purchaser's lender and title insurance provider, if applicable, signed by Seller, that no labor or materials have been furnished to the Property within the statutory period for the filing of mechanic's or materialmen's liens against the Property, or, if labor or materials have been furnished during the statutory period, that the costs thereof have been paid. Seller shall also deliver to Purchaser applicable non-foreign status and state residency certificates and applicable 1099 IRS certificates.

K. **VA/FHA LOAN.** If noted below, Purchaser's obligations under this Agreement are conditioned upon the applicable financing contingency: Check A, B or C, if applicable.

N/A  
2/13/18

    A. **VA FINANCING:** It is expressly agreed that, notwithstanding any of the provisions of this Agreement, Purchaser shall not incur any penalty by forfeiture of earnest money or otherwise be obligated to complete the purchase of the Property described by the Agreement if the agreed purchase price or cost exceeds the reasonable value of the Property established by the Veterans Administration. Purchaser shall, however, have the privilege and option of proceeding with the consummation of this Agreement without regard to the amount of the reasonable value established by the Veterans Administration. The Veteran Purchaser certifies that the Purchaser intends to occupy the Property as Purchaser's primary residence.

    B. **FHA FINANCING:** It is expressly agreed that, notwithstanding any other provisions of this Agreement, Purchaser shall not be obligated to complete the purchase of the Property described herein or to incur any penalty by forfeiture of earnest money deposits or otherwise unless Purchaser has been given in accordance with HUD/FHA or VA requirements a written statement issue by the Federal Housing Commissioner, Veterans Administration or a Direct Endorsement Lender setting forth the appraised value of the Property (excluding closing costs) of not less than \$\_\_\_\_\_. Purchaser shall, however, have the privilege and option of proceeding with consummation of this Agreement without regard to the amount of the appraised valuation. The appraised valuation is arrived at to determine the maximum mortgage the Department of Housing and Urban Development will insure.

    C. **CONVENTIONAL FINANCING (Optional):** It is expressly agreed that, notwithstanding any other provisions of this Agreement, Purchaser shall not incur any penalty by forfeiture of earnest money or otherwise be obligated to complete the purchase of the Property described herein, if the agreed purchase price exceeds the value established by the lender approved appraiser and Seller does not agree to reduce the purchase price to the appraised value. Purchaser shall have the privilege and option of proceeding with the valuation made by the lender approved appraiser. In the event purchase price exceeds the value established by the lender approved appraiser and Seller or Listing Firm notifies Purchaser and Selling Firm that Seller agrees to reduce the selling price to the established appraised value, then this Agreement will remain in force and settlement shall occur as specified in paragraph 7 of the Agreement.

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L. **MEGAN'S LAW DISCLOSURE.** Purchaser(s) should exercise whatever due diligence they deem necessary with respect to information on any sexual offenders registered under Chapter 23 (§ 19.2-387 *et seq.*) of Title 19.2 whether the owner proceeds under subdivision 1 or 2 of subsection A of §55-519. Such information may be obtained by contacting your local police department or the Department of State Police, Central Criminal Records Exchange, at (804) 674-2000 or <http://sex-offender.vsp.state.va.us>.

M. **ASSIGNABILITY.** This Contract may not be assigned by either Seller or Purchaser without the written consent of the other.

N. **MISCELLANEOUS.**

The parties to this Contract agree that it shall be binding upon them and their respective personal representatives, successors and assigns, and that its provisions shall survive Settlement and shall be merged into the deed delivered at Settlement, except for the provisions relating to rollback taxes in Paragraph D. This Contract contains the final agreement between the parties hereto, and they shall not be bound by any terms, conditions, oral statements, warranties or representations not herein contained. This Contract shall be construed under the laws of the Commonwealth of Virginia. No presumption as to authorship shall apply to this Contract.

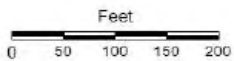
**END OF STANDARD PROVISIONS**

606218(v3)(10-30-17)

# City of Chesapeake, Virginia

## Legend

- Parcels
- City Boundary



**Title:**

1338 Porter Street and Adjacent Lot

**Date:** 3/16/2018

*DISCLAIMER: This drawing is neither a legally recorded map nor a survey and is not intended to be used as such. The information displayed is a compilation of records, information, and data obtained from various sources, and City of Chesapeake is not responsible for its accuracy or how current it may be.*

HRSD COMMISSION MEETING MINUTES  
March 27, 2018

ATTACHMENT #6

AGENDA ITEM 7. – CITY OF PORTSMOUTH COLLECTION SYSTEM TRANSFER  
OF OWNERSHIP PRESENTATION

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# City of Portsmouth Sanitary Sewer Evaluation

March 27, 2018

HDR



- Introduction
- Project Background
- Project Approach
- Overview of Portsmouth
- Functional Areas
- Staffing Plan
- Org Chart
- Financial Evaluation
- Rate Evaluation



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# Background

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## Project Background

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- 2013 Regionalization Study – funding, risk management benefits of wastewater collections under a single entity
  - Continued Locality ownership was consensus – but not unanimous - preference
- City of Portsmouth faced with chronic challenges to effective wastewater collections O&M
  - Under-staffed, unable to fill positions
  - Limited capital funding
- City considering transfer of the wastewater system to HRSD as potential solution to chronic challenges
- HRSD evaluation: can HRSD effectively operate and maintain the Portsmouth system at reasonable cost

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# Project Approach

# Project Approach



**1** Understanding the Infrastructure



**2** Understanding Current O&M

	A	
1	<b>List of Fuctional Areas</b>	
2	ID	Function
3	100	Electrical Equipment and System Maintenance
4	200	Lift Stations and Vacuum Sewer Facility O&M
5	300	SCADA System Maintenance and Repairs
6	400	Customer Service
7	500	Warehousing, Materials Management, Shipping
8	600	Cleaning and CCTV by HRSD D&C Crews
9	700	Condition Assessment

**3** Develop Functional Areas and Staffing Plan

O&M Expenses	
Wastewater Operations	
Customer Service and Accounting	
Administrative and General	
<b>Total O&amp;M Expenses</b>	
<b>Annual CCF Sales</b>	
<b>\$/CCF - Total O&amp;M Expenses</b>	

**4** Perform Financial Analysis

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# City of Portsmouth



Portsmouth



# Wastewater System

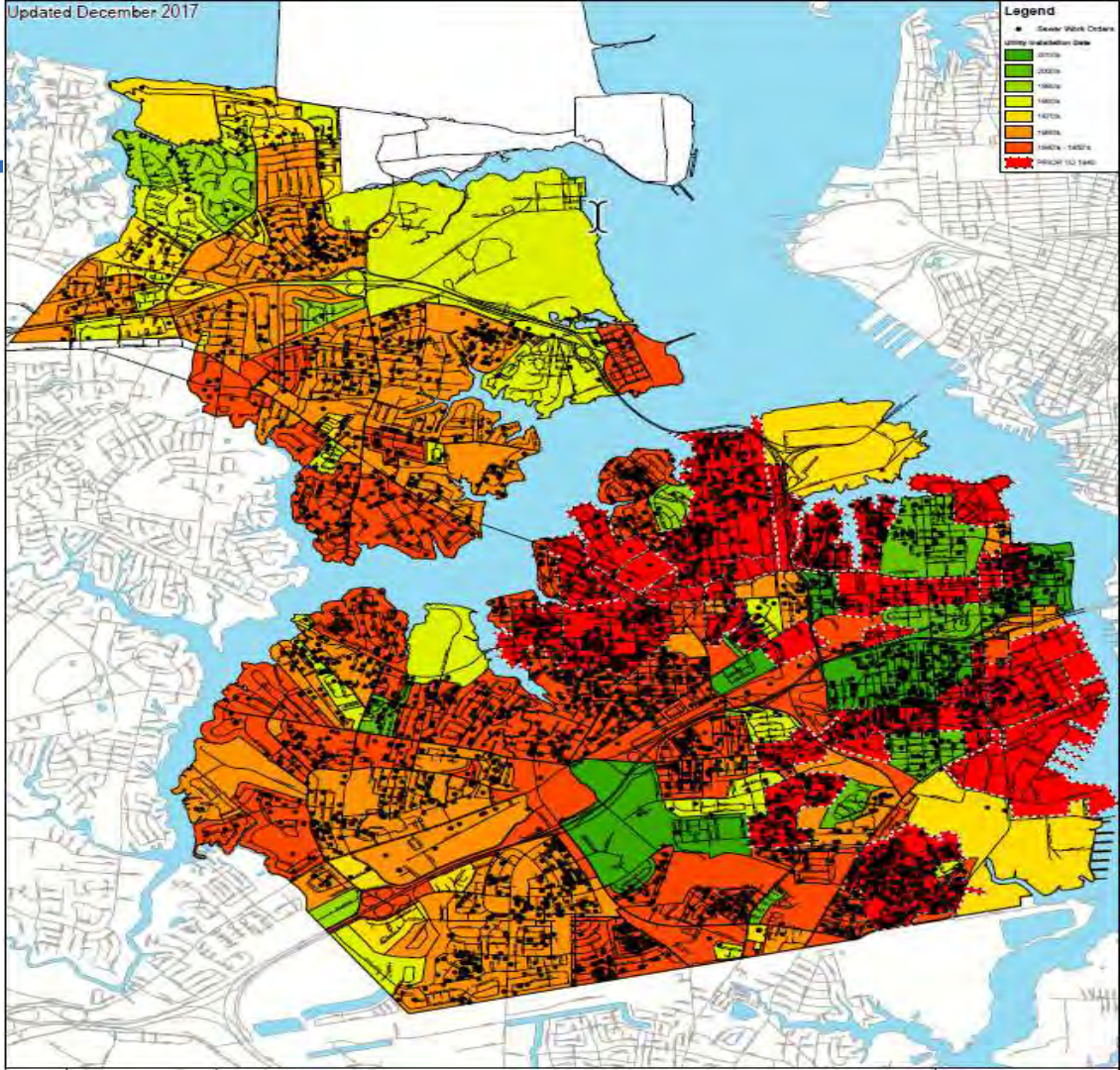
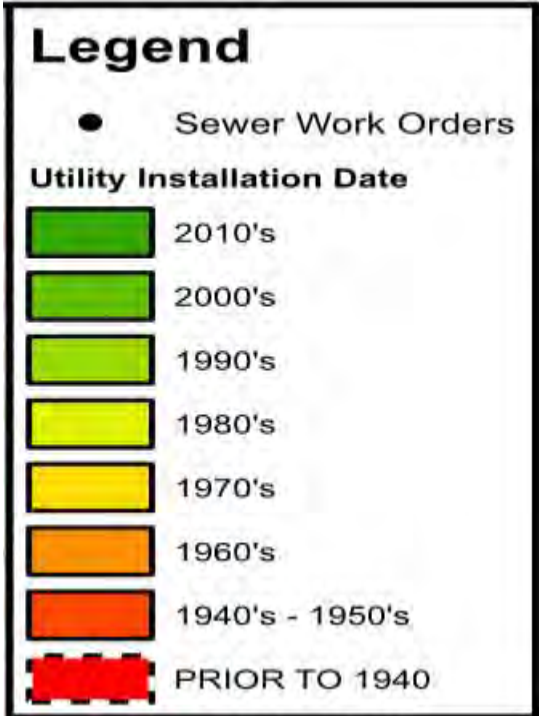


59 WW Pump Stations  
5 Vacuum Pump Stations  
1 HP to 50 HP



~450 Miles of Pipe  
4-IN to 48-IN





## Wastewater Infrastructure

Pump Station Age*	Number of Stations
Less than 20 years	4
20 to 40 years	17
41 to 60 years	33
Greater than 60 years	10

\*based on date of original construction

## Wastewater Infrastructure

<b>Sewer Defect and Repair</b>	<b>Number per Year*</b>
<b>Sewer cave-ins and repairs</b>	69
<b>Find-and-fix mainline defects and repairs</b>	40
<b>Lateral defects and repairs</b>	146
<b>* per City of Portsmouth FY 2012 Annual Report</b>	

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# Assumptions

- Portsmouth equipment will not transfer to HRSD.
- Portsmouth employees will not transfer to HRSD.
- Portsmouth existing debt service was excluded.
- HRSD is not paying Portsmouth for the infrastructure system.

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# Functional Areas and Staffing Plan

# Analyzed Work Activities by Functional Area

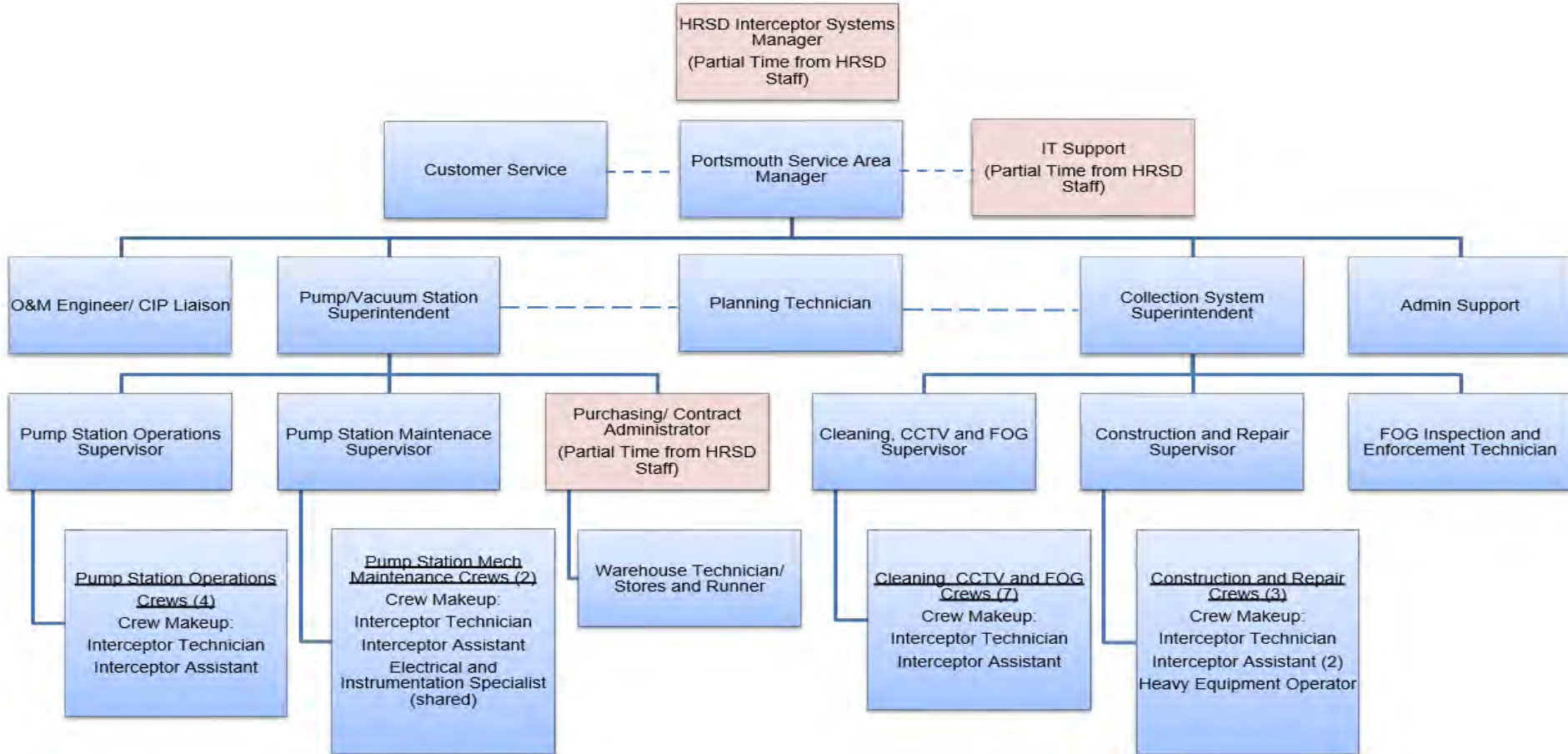
Item	Functional Area
1	Pump Station Mechanical Maintenance and Repairs
2	Pump Station Operations
3	Electrical/Instrumentation
4	Customer Service
5	Management, Support, and Administration
6	Sewer Cleaning, CCTV, and FOG
7	Sewer Construction and Repairs



# Projected Staffing Needs

Item	Functional Area	FTEs
1	Pump Station Mechanical Maintenance and Repairs	5
2	Pump Station Operations	9
3	Electrical/Instrumentation	1
4	Customer Service	5.5
5	Management, Support, and Administration	8
6	Sewer Cleaning, CCTV, and FOG	16
7	Sewer Construction and Repairs	13
	<b>Total FTEs</b>	<b>57.5</b>

# Proposed Organizational Structure



## Projected Facility and Equipment Needs

- Portsmouth Operations Center
  - 4 to 5 acre site
  - 20,000 SF office, warehouse, garage space
- Rolling stock and equipment
  - Supervisor, crew vehicles
  - Sewer cleaning vehicles
  - CCTV vans
  - Construction vehicles and equipment

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# Financial Evaluation

## Financial Evaluation Approach

**Staffing Plan**

**Up-Front Rolling Stock and  
Equipment Expense**

**Estimate Annual O&M Expense  
for Portsmouth**

- People
- Material and supplies
- Services

**Calculate \$/CCF for  
Portsmouth O&M**

$$\$/CCF = \frac{O\&M \text{ Expense}}{Water \text{ Consumption}}$$

**Evaluate HRSD Collection Rate  
for Portsmouth**

- Covers Portsmouth O&M?
- Supports capital spending?

# Rolling Stock and Equipment Expense

Description	Units	Initial Capital Cost Forecast/ Unit	Number of Units	Total Initial Capital Cost Forecast	Key Assumptions
Combination Sewer Cleaning Vehicles with Water Storage Tanks	Ea	\$ 600,000	5	\$ 3,000,000	Assumes one truck per cleaning and CCTV crew without a spare vehicle; purchasing used vehicles could reduce cost but will require replacement earlier
CCTV Vans	Ea	\$ 300,000	2	\$ 600,000	Includes climate controlled van area, cameras with spare parts, computer and software; initial cost could be reduced by utilizing contract services or by leasing vehicles (typical of all vehicles)
Sewer Response Crew Service Trucks	Ea	\$ 75,000	2	\$ 150,000	Short-bed medium-duty truck with 1,000 gal. water tank, tool/parts storage box. 1 per each of 2 dedicated complaint/service request response crews
Flat Bed Dump Truck for Construction Crews	Ea	\$ 100,000	3	\$ 300,000	Assumes 1 per 4-person construction crew
Backhoe Trailers for Construction Crews	Ea	\$ 50,000	3	\$ 150,000	Assumes 1 per 4-person construction crew
Rubber Tired Backhoes for Construction Crews	Ea	\$ 150,000	3	\$ 450,000	Assumes 1 per 4-person construction crew with spare parts, multiple buckets, hoe ram and other accessories
Construction Crew Service Trucks	Ea	\$ 120,000	3	\$ 360,000	King cab with tool/parts storage box, compressor, lift and miscellaneous air impact tools and hand tools; assumes 1 per 4-person crew
Pump Station Mechanical-Electrical-Instrumentation Crew Vans with Parts and Storage Racks	Ea	\$ 100,000	2	\$ 200,000	Includes Parts Storage Racks and Initial Supply of Parts
Superintendent/Supervisor Trucks	Ea	\$ 45,000	7	\$ 315,000	Pickup trucks; assumes that each superintendent and each supervisor has a vehicle
Trucks for Lift Station Operators	Ea	\$ 45,000	4	\$ 180,000	4 Lift Station Operator crews,
Trucks for Other Uses	Ea	\$ 45,000	3	\$ 135,000	FOG Inspector, Pool Vehicle, Warehouse Runner
Portable Generators for Emergency Lift Station Power	Ea	\$ 100,000	10	\$ 1,000,000	Assumes average cost per generator is \$100,000
Initial setup of Information Systems to manage the Portsmouth Service Area	Ea	\$ 600,000	1	\$ 600,000	Includes migration of GIS data to HRSD system, initial setup of CMMS for preventative maintenance, Customer Service System integration for Portsmouth and miscellaneous hardware/software costs; includes printing/copying equipment
Initial inventory of consumables, materials, parts, tools and light mechanical equipment	Ea	\$ 500,000	1	\$ 500,000	Includes initial stock for warehouse, parts, pipe, materials and initial stock of hand tools/light mechanical equipment including tampers, vibrating rolling compactor, etc.
<b>Total Rolling Stock and Equipment</b>				<b>\$ 7,940,000</b>	

- Projected \$7.9 million initial capital expense

# Projected Portsmouth System O&M Expense FY 2020

Expense	Projected Annual Cost (\$1,000)	
	2018 \$	2020 \$
<b>Wastewater Operations –</b>		
Salaries and Wages	\$2,282	\$2,421
Overtime	238	252
Fringe Benefits (Including Medical Benefits)	1,506	1,629
Operating Supplies/Small Tools/Minor Equip.	133	141
Professional Services	220	233
Utilities	180	195
Repairs and Maintenance	150	159
Misc. – Reg./Dues/Subscript./Training/Travel	16	17
Operations Facility Occupancy	220	233
Total Wastewater Operations Expenses	\$4,945	\$5,280
<b>Customer Service</b>		
Salaries and Wages	\$214	\$227
Medical Benefits	141	150
Total Customer Service	\$355	\$377
<b>Administrative and General Expenses –</b>		
Total Salaries/Wages and Benefits	\$621	\$659
Total Admin. and General Expenses	\$621	\$659
<b>Total Collection System O&amp;M Expenses (1)</b>	<b>\$5,921</b>	<b>\$6,316</b>

- \$6.3 million annual O&M
- \$1.71/CCF

(1) – O&M excludes depreciation expense.





## Comparison of Wastewater Collection \$/CCF

- Current Portsmouth rate = \$2.925/CCF
  - Includes debt service, limited capital funding, payments to General Fund
- Projected Portsmouth system O&M = \$1.71/CCF
  - Doesn't include debt service, capital funding, payments to Portsmouth
- HRSD regional collection rate = \$4.14/CCF

- \$1.71/CCF supports \$6.3 million O&M expense
- \$4.14/CCF HRSD collection rate ~ \$15.3 million annual revenue
- Potential up to \$9 million/yr for capital program funding

HRSD COMMISSION MEETING MINUTES  
March 27, 2018

ATTACHMENT #7

AGENDA ITEM 8. – Nutrient Credit Offset Policy

# COMMISSION ADOPTED POLICY



## Title: Nutrient Credit Offsets

Date of Adoption: August 26, 2008

Date of Revision:

Page 1 of 3

### 1.0 Purpose and Need

Point source dischargers that desire to build a new facility or expand one that existed before July 1, 2005, must document how they plan to comply with the waste load allocation assigned to their tributary. One option for ensuring compliance is to obtain nutrient credit offsets from another discharger located in the same river basin. HRSD, as a member of the Virginia Nutrient Credit Exchange Association, will participate in a market-based trading and offset program to help achieve nutrient reduction goals for the Chesapeake Bay. The Virginia Department of Environmental Quality has not yet promulgated rules and regulations to govern offset trading. This policy provides guidelines for HRSD's participation offset agreements until the rules and regulations have been adopted.

### 2.0 Definitions

*"Nutrient Credit Offset"* means the voluntary transfer of a discharger's waste load allocation or a portion of the allocation to a new or expanding facility located in the same Chesapeake Bay tributary.

*"Virginia Nutrient Credit Exchange Association, Inc. (Exchange)"* means the organization authorized by the Virginia General Assembly to manage a nutrient trading program.

*"Waste load allocation (WLA)"* means a limit or cap on the amount of nitrogen and phosphorus that public and private point sources such as wastewater facilities may discharge into the Chesapeake Bay watershed.

### 3.0 Guiding Principles

HRSD will consider entering into offset agreements if providing the allocation will not jeopardize its WLA compliance. The following factors will be considered when evaluating offset requests.

a. *Protection of HRSD's interests and preservation of its ability to meet future needs*

HRSD's WLAs must remain sufficient to satisfy the growth projected in its Development Plan. Any WLA reduction resulting from providing credit offsets shall not create an unacceptably greater risk of non-compliance for HRSD.

# COMMISSION ADOPTED POLICY



## Title: Nutrient Credit Offsets

Date of Adoption: August 26, 2008

Date of Revision:

Page 2 of 3

- b. *Regional benefits*  
Credit offset agreements should offer regional benefits (an impact across multiple jurisdictions) and/or support regional initiatives when possible.
- c. *Environmental stewardship*  
The recipient must have a strong record of environmental protection and compliance with all relevant regulations.
- d. *Cost to HRSD ratepayers*  
Offset agreements shall provide the region with maximum environmental benefit at the lowest net cost to our ratepayers.
- e. *Location*  
Jurisdictions within HRSD's service area shall have priority when multiple requests are received.
- f. *Magnitude*  
The number of credits provided shall be the minimum necessary to meet regulatory requirements.
- g. *Duration of offset*  
HRSD prefers temporary offsets. Offset agreements shall specify the duration of the offset and shall last only long enough for the recipient to locate other permanent offsets or for HRSD to provide wastewater conveyance and treatment. Such offset agreements shall include a provision for modification or termination in response to relevant regulatory changes.
- h. *Net environmental benefit*  
All other available options to minimize impact on the environment shall be evaluated by the requestor. This could include additional treatment, effluent reuse, discharge to HRSD for treatment or non-point source impact mitigation. For example, offsets will not be provided to increase nutrient loading to areas that may have limited assimilative capacity or may face greater nutrient discharge restrictions in the future.

### 4.0 Procedures

- a. Point source dischargers that wish to receive nutrient credit offsets from HRSD must make a request in writing to the General Manager.



# COMMISSION ADOPTED POLICY



## Title: Nutrient Credit Offsets

Date of Adoption: August 26, 2008

Date of Revision:


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- b. The request shall document the steps taken to obtain credits from other sources.
- c. HRSD staff will evaluate the merits of the request and make a recommendation to the HRSD Commission, which must approve all nutrient credit offset agreements.

### 5.0 Responsibility and Authority

- a. The HRSD Director of Water Quality shall be responsible for preparing a written evaluation of each request.
- b. The HRSD General Manager will review the evaluation and present a recommendation to the HRSD Commission.
- c. Any nutrient trading regulations promulgated by the Virginia Department of Environmental Quality and procedures established by the Exchange shall be followed by HRSD in the implementation of this policy.

Approved:

  
\_\_\_\_\_  
R. Tyler Bland, III  
Commission Chairman

  
\_\_\_\_\_  
Date

Attest:

  
\_\_\_\_\_  
Jennifer L. Heilman  
Commission Secretary

  
\_\_\_\_\_  
Date

HRSD COMMISSION MEETING MINUTES  
March 27, 2018

ATTACHMENT #8

AGENDA ITEM 10. – InDENSE® Patents – License Agreement Commercialization



## EXCLUSIVE PATENT LICENSE AGREEMENT

This Exclusive Patent License Agreement (“**Agreement**”) is dated March 26, 2018 (“**Effective Date**”) and entered into by and between ARA Consult GmbH (“**ARA**” or “**Licensee**”), located at Unterbergerstraße 1, A6020 Innsbruck, Austria, Hampton Roads Sanitation District (“**HRSD**”), a political subdivision of the Commonwealth of Virginia having a place of business at 1434 Air Rail Avenue, Virginia Beach, VA 23455, the District of Columbia Water and Sewer Authority (“**DC Water**”), an independent authority of the District of Columbia Government, located at 5000 Overlook Avenue, SW, Washington, DC 20032, Maureen O’Shaughnessy (“**O’Shaughnessy**”), an individual having an address at 12602 Denmark Drive, Herndon, VA 20171-2716, and Bernhard Wett (“**Wett**”), an individual having an address at Dorfgasse 46., A-6020 Innsbruck, Austria, (HRSD, DC Water, O’Shaughnessy, and Wett each are a “**Licensor**” and together are “**Licensors**”). ARA, HRSD, DC Water, O’Shaughnessy, and Wett each may be referred to in this Agreement individually as a “**Party**” and collectively as the “**Parties.**”

### RECITALS

**WHEREAS**, HRSD is a wastewater treatment utility and a political subdivision of the Commonwealth of Virginia that owns and operates wastewater treatment plants, and that provides wastewater treatment services to municipalities;

**WHEREAS**, DC Water is a wastewater treatment utility and an independent authority of the District of Columbia Government that operates the Blue Plains Advanced Wastewater Treatment Plant, and that provides water and wastewater treatment services to the District of Columbia and municipalities in Maryland and Virginia;

**WHEREAS**, Licensors co-own Patent Rights (as defined below) and desire to have the Patent Rights developed and commercialized to benefit the public and are willing to grant a license hereunder to the extent of the Field (as defined below) and the Territory (as defined below);

**WHEREAS**, HRSD and DC Water have integrated research programs, joint intellectual property, and mutual commercial interests defined in previous joint development agreements and many ongoing joint research projects, as memorialized in that certain Agreement between DC Water and HRSD, dated July 18, 2013, which is attached as Appendix C;

**WHEREAS**, HRSD and DC Water desire to serve their industry through services and technologies for the benefit of water quality, future technology development, and global utility financial and resource sustainability;

**WHEREAS**, HRSD and DC water have determined that sole sourcing marketing services of all jointly held intellectual property is the most efficient way to manage the full realization of the commercial value of such intellectual property;

**WHEREAS**, Bernhard Wett is a co-inventor of one or more claims in the patents and patent applications listed in Appendix A and co-owner with HRSD and DC Water of all right, title and interest in and to such patents and patent applications;

**WHEREAS**, Maureen O’Shaughnessy and Bernhard Wett are co-inventors of one or more claims in the patents and patent applications listed in Appendix B and co-owners with HRSD and DC Water of all right, title and interest in and to such patents and patent applications;

**WHEREAS**, ARA is a provider of certain services and goods relating to design, development, construction, and operation of water and wastewater treatment plants, and ARA has represented to Licensors, to induce Licensors to enter into this Agreement, that ARA shall commit itself to a thorough, vigorous and diligent program of exploiting the Patent Rights so that public and non-public utilization shall result therefrom; and

**WHEREAS**, ARA desires to obtain an exclusive license under the Patent Rights upon the terms and conditions set forth herein.

**NOW THEREFORE**, in consideration of the foregoing and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties, intending to be legally bound, hereby agree as follows:

**ARTICLE ONE  
DEFINITIONS**

1.1 Definitions. In this Agreement, the following terms have the meanings set forth below, which shall be equally applicable to both the singular and the plural form:

- |                         |   |
|-------------------------|---|
| <b>“Affiliate”</b>      | means, with respect to a Party, any corporation, firm, partnership or other entity that directly or indirectly controls, is controlled by, or is under common control with such Party. A business entity or Party shall be regarded as in control of another business entity if it owns, or directly or indirectly controls at least fifty percent (50%) (or such lesser percentage which is the maximum allowed to be owned by a foreign entity in a particular jurisdiction) of the voting stock or other ownership interest of the other entity, or if it directly or indirectly possesses the power to direct or cause the direction of the management and policies of the other entity by any lawful means whatsoever. |
| <b>“Agreement”</b>      | has the meaning set forth in the introductory paragraph, and includes all exhibits, attachments, schedules, addenda and other appendices (all of which are incorporated herein by reference) and any amendments to any of the foregoing made as provided herein or therein.   |
| <b>“ARA”</b>            | has the meaning set forth in the introductory paragraph.  |
| <b>“DC Water”</b>       | has the meaning set forth in the introductory paragraph.  |
| <b>“Effective Date”</b> | has the meaning set forth in the introductory paragraph.  |

**“ES Patent Rights”**

means: (a) the United States and international patents listed on Appendix A (titled “External Selection Patents”); (b) the United States and international patent applications and/or provisional applications listed on Appendix A and the resulting patents; (c) any patent applications resulting from the provisional applications listed on Appendix A, and any divisionals, continuations, continuation-in-part applications, and continued prosecution applications (and their relevant international equivalents) of the patent applications listed on Appendix A and of such patent applications that result from the provisional applications listed on Appendix A, to the extent the claims are directed to subject matter specifically described in the patent applications listed on Appendix A, and the resulting patents; and (d) any patents resulting from reissues, reexaminations, or extensions (and their relevant international equivalents) of the patents described in (a), (b), and (c).

**“ES Process”**

means any and all methods and processes that fall within the Field and the Territory and that are covered by, used in, or include subject matter that (a) but for the license granted pursuant to this Agreement, would constitute a misappropriation, or infringe, or contribute to or induce the infringement of a claim of any issued, unexpired patent under the ES Patent Rights, or (b) is covered by a claim in a pending patent application under the ES Patent Rights. **“Covered by a claim in a pending patent application”** means that use, practice, manufacture, sale, or offer for sale or import into the Territory of a method or process that would, but for the license granted pursuant to this Agreement, constitute infringement, contributory infringement, or inducement of infringement, of such claim if such claim were issued.

**“ES Product”**

means any and all articles, products, equipment, components, parts, and devices that fall within the Field and the Territory and that are covered by, used in, or include subject matter that (a) but for the license granted pursuant to this Agreement, would constitute a misappropriation, or infringe, or contribute to or induce the infringement of a claim of any issued, unexpired patent under the ES Patent Rights, or (b) is covered by a claim in a pending patent application under the ES Patent Rights. **“Covered by a claim in a pending patent application”** means that use, practice, manufacture, sale, or offer for sale or import into the Territory of an article, product, equipment, component, part, or device that would, but for the license granted pursuant to this Agreement, constitute infringement, contributory infringement, or inducement of infringement, of such claim if such claim were issued.

- “Field”** means water and wastewater treatment, including systems and processes for treating water and wastewater.
- “GS Patent Rights”** means: (a) the United States and international patents listed on Appendix B (titled “Gravimetric Selection Patents”); (b) the United States and international patent applications and/or provisional applications listed on Appendix B and the resulting patents; (c) any patent applications resulting from the provisional applications listed on Appendix B, and any divisionals, continuations, continuation-in-part applications, and continued prosecution applications (and their relevant international equivalents) of the patent applications listed on Appendix B and of such patent applications that result from the provisional applications listed on Appendix B, to the extent the claims are directed to subject matter specifically described in the patent applications listed on Appendix B, and the resulting patents; and (d) any patents resulting from reissues, reexaminations, or extensions (and their relevant international equivalents) of the patents described in (a), (b), and (c).
- “GS Process”** means any and all methods and processes that fall within the Field and the Territory and that are covered by, used in, or include subject matter that (a) but for the license granted pursuant to this Agreement, would constitute a misappropriation, or infringe, or contribute to or induce the infringement of a claim of any issued, unexpired patent under the GS Patent Rights, or (b) is covered by a claim in a pending patent application under the GS Patent Rights. “Covered by a claim in a pending patent application” has the meaning above with regard to the definition of “ES Process.”
- “GS Product”** means any and all articles, products, equipment, components, parts, and devices that fall within the Field and the Territory and that are covered by, used in, or include subject matter that (a) but for the license granted pursuant to this Agreement, would constitute a misappropriation, or infringe, or contribute to or induce the infringement of a claim of any issued, unexpired patent under the GS Patent Rights, or (b) is covered by a claim in a pending patent application under the GS Patent Rights. “Covered by a claim in a pending patent application” has the meaning above with regard to the definition of “ES Product.”
- “HRSD”** has the meaning set forth in the introductory paragraph.
- “Indemnitees”** has the meaning set forth in Section 8.1.
- “inDENSE Process”** means any and all methods and processes that, in whole or in part, include both an ES Process and a GS Process.

- “inDENSE Product”** means any and all articles, products, equipment, components, parts, and devices that, in whole or in part, include both an ES Product and a GS Product.
- “Introductory Project”** means a Project that is new to a geographic region, a Project that is solely for demonstration purposes, or a Project located in a geographic region that does not have any material experience with inDENSE Products or inDENSE Processes.
- “Licensed Process”** means ES Process and GS Process and inDENSE Process.
- “Licensed Product”** means ES Product and GS Product and inDENSE Product.
- “Licensee”** means ARA.
- “Licensor”** means HRSD or DC Water or O’Shaughnessy or Wett.
- “Licensors”** means HRSD and DC Water and O’Shaughnessy and Wett together.
- “Net Sales”** means the gross amount billed by Licensee, Licensee’s Affiliates or Sublicensees for Sales, distribution, consignment, lease, use, assembly, construction, of Licensed Products and Licensed Processes (collectively, **“Commercial Transactions”**), less the following: (a) customary trade, quantity, or cash discounts to the extent actually allowed and taken; (b) amounts repaid or credited by reason of rejection or return; (c) to the extent separately stated on purchase orders, invoices, or other documents of sale, any taxes or other governmental charges levied on the production, sale, transportation, delivery, or use of a Licensed Product or Licensed Process which is paid by or on behalf of Licensee, Licensee’s Affiliates or Sublicensees; and (d) outbound transportation costs prepaid or allowed and costs of insurance in transit. The Licensed Products includes the core-equipment, namely the external selectors (hydro-cyclones) and the associated manifold (holding structure and pipe-connectors).

No deductions shall be made for commissions paid to individuals whether they be with independent sales agencies or regularly employed by Licensee, Licensee’s Affiliates or Sublicensees and on its payroll, or for cost of collections. Net Sales shall occur on the date of billing for a Licensed Product or Licensed Process. If a Licensed Product or Licensed Process is distributed or provided at a discounted price that is substantially lower than the customary price charged by Licensee, Licensee’s Affiliates or Sublicensees, or distributed or provided for non-cash consideration (whether or not at a discount), Net Sales shall be calculated based on the non-discounted amount of the Licensed Product or Licensed Process

charged to an independent third party during the same Reporting Period or, in the absence of such sales, on the fair market value of the Licensed Product or Licensed Process. If the fair market value of Commercial Transactions is materially greater than the respective gross amount billed by Licensee, Licensee's Affiliates or Sublicensees, then Net Sales means the fair market value of Commercial Transactions.

Non-monetary consideration shall not be accepted by Licensee, Licensee's Affiliates or any Sublicensees for any Licensed Product or Licensed Process without the prior written consent of HRSD and DC Water.

- "North America"** means the United States and its territories and Canada.
- "Notice Date"** has the meaning set forth in Section 13.3.
- "O'Shaughnessy"** has the meaning set forth in the introductory paragraph.
- "Patent Challenge"** means a challenge to the validity, patentability, enforceability and/or non-infringement of any of the Patent Rights or otherwise opposing any of the Patent Rights.
- "Patent Rights"** means ES Patent Rights and GS Patent Rights.
- "Process Royalties"** has the meaning set forth in Appendix D, Section 4.3.
- "Project"** means, to the extent of the Field, a treatment plant, a treatment installation, a treatment system, and a treatment process or method.
- "Product Royalties"** has the meaning set forth in Appendix D, Section 4.3.
- "Reimbursable Expenses"** has the meaning set forth in Appendix D, Section 4.2.
- "Reporting Period"** means the period of time beginning on the first day of each calendar quarter and ending on the last day of such calendar quarter.
- "Royalties"** means any and all Process Royalties and Product Royalties and Sublicense Consideration.
- "Sell, Sale or Sold"** means any performance, service, maintenance, provision, transfer or other disposition of Licensed Product or Licensed Process for which consideration is received by Licensee, its Affiliates or Sublicensees. A Sale of Licensed Product or Licensed Process will be deemed completed at the time Licensee or its Affiliate or its Sublicensee receives such consideration.

- “Sublicense Agreement”** means any agreement or arrangement pursuant to which Licensee grants to any third party (including an Affiliate) any rights to use any of the Patent Rights or any other rights of Licensee under this Agreement.
- “Sublicensee Breach”** has the meaning set forth in Section 2.3(d).
- “Sublicense Consideration”** means any and all sublicense fees and other consideration payable by each Sublicensee in consideration for a Sublicense Agreement, excluding royalties paid by the Sublicensee for Sales of Licensed Products or Licensed Processes. If an equity investment is made in Licensee in connection with a Sublicense Agreement, any premium paid over the fair market value for such equity will be treated as Sublicense Consideration.
- “Sublicensee”** means any sublicensee of the rights granted Licensee under Section 2.1.
- “Term”** has the meaning set forth in Section 12.1.
- “Territory”** means worldwide.
- “Wett”** has the meaning set forth in the introductory paragraph.
- “WE&RF”** means the Water Environment & Reuse Foundation.
- “WE&RF Fund”** means that research fund or account established by Licensors and WE&RF pursuant to that certain Agreement between DC Water and HRSD, dated July 18, 2013, which is attached as Appendix C.

## ARTICLE TWO GRANT OF RIGHTS

2.1 License Grant. Subject to the terms of this Agreement, Licensors hereby grant to Licensee, to the extent of the Field and the Territory, a royalty-bearing license for the Term under the Patent Rights to (i) make, have made, use, sell, offer to sell, and import Licensed Products, (ii) sue for present and future damages, and (iii) collect damages for infringement of the Patent Rights. The license granted hereunder does not include the right to sue or collect for damages prior to the Effective Date.

2.2 Exclusivity. Except as otherwise provided for in this Agreement, the license granted to Licensee under Patent Rights in Section 2.1 is exclusive and nontransferable except to the extent permitted under Section 10.1.

2.3 Sublicenses. Licensee has the right to grant sublicenses and enter into Sublicense Agreements under the Patent Rights consistent with the terms of this Agreement, subject to the following:



- (a) In each Sublicense Agreement, Licensee shall incorporate terms and conditions sufficient to enable Licensee to comply with this Agreement. Licensee shall also include provisions in all Sublicense Agreements to provide that in the event that Sublicensee brings a Patent Challenge against HRSD or DC Water or any of their Affiliates, or relating in any way to the Patent Rights, or assists another party in bringing a Patent Challenge against HRSD or DC Water or any of their Affiliates, or relating in any way to the Patent Rights (except as required under a court order or subpoena) then Licensee may terminate the Sublicense Agreement.
- (b) In each Sublicense Agreement, the Licensee shall incorporate terms and conditions sufficient to enable the Licensee to comply with this Agreement. The Sublicensee will be prohibited from granting further sublicenses, without first obtaining written approval from HRSD and DC Water; provided, however, that in the event that such further sublicense is approved, any fee or other consideration paid to Sublicensee in consideration of such sub-sublicense will be treated as Sublicense Consideration as if the sub-sublicensee were a Sublicensee. Nevertheless, Licensee may set royalty or other payments at its discretion for its Sublicensees, as long as the applicable royalties or other payments of its Sublicensees are not more favorable to the Sublicensee than the corresponding terms of this Agreement.
- (c) Licensee will forward to HRSD and DC Water, within thirty (30) days following its execution, a fully executed, complete, and accurate copy written in the English language of each Sublicense Agreement granted under the Agreement. Receipt of such Sublicense Agreement by HRSD and DC Water will not constitute a waiver of any of Licensors' rights or Licensee's obligations under this Agreement.
- (d) Notwithstanding any such Sublicense Agreement, Licensee will remain primarily liable to Licensors for all of the Licensee's duties and obligations contained in this Agreement, and any act or omission of a Sublicensee that would be a breach of this Agreement if performed by Licensee will be deemed to be a breach by Licensee of this Agreement. Each Sublicense Agreement will contain a right of termination by Licensee in the event that the Sublicensee breaches the payment obligations affecting Licensors or any other material terms and conditions of the Sublicense Agreement that would constitute a breach of the terms and conditions of this Agreement if such acts were performed by Licensee (a "**Sublicensee Breach**"). In the event of a Sublicensee Breach, and if after a reasonable opportunity to cure as provided in any such Sublicense Agreement, such Sublicensee fails to cure such Sublicensee Breach, then the Licensee will terminate the Sublicense Agreement unless HRSD and DC Water agree in writing that such Sublicense Agreement need not be terminated.

- (e) Upon termination of this Agreement for any reason, all Sublicense Agreements will, at the option of HRSD and DC Water, be assigned to and assumed by Licensors.

2.4 Retained Rights. HRSD and DC Water reserve and retain the right (and the rights granted to Licensee in this Agreement shall be limited accordingly) under the Patent Rights to make, have made, import, and use Licensed Products and Licensed Processes (i) for operation of treatment plants belonging to, operated by, or operated under direct guidance of HRSD or DC Water and (ii) to grant royalty-free nonexclusive nontransferable nonassignable licenses to any of the foregoing rights to educational and non-profit institutions for educational and research purposes, including without limitation, any sponsored research performed for or on behalf of commercial entities and including publication and other communication of any research results and (iii) to grant royalty-free nonexclusive nontransferable nonassignable licenses to any of the foregoing rights to third parties under existing commitments by HRSD and/or DC Water that existed on the Effective Date. Licensee hereby grants HRSD and DC Water a nonexclusive fully-paid-up royalty-free license to use the trademark “inDENSE” on Licensed Products and Licensed Processes in the Territory, as well as on packaging, promotional and advertising material associated therewith. Except for Royalties received under this Agreement, HRSD and DC Water shall not receive any payment or consideration for any license granted under the Patent Rights. For the avoidance of doubt, O’Shaughnessy and Wett shall not have any right to (i) license, make, use, sell, offer to sell, or import any article, product, equipment, component, part, device, method or process under the Patent Rights, nor (ii) sue for past, present or future damages, nor (iii) collect damages for infringement of the Patent Rights.

2.5 Use of HRSD and DC Water Names. In publicizing anything made, used, offered for sale, sold, or imported under this Agreement, Licensee may disclose that part of the sales proceeds will go to the WE&RF Fund to be used in support of clean water initiatives. Any other use of the names of HRSD or DC Water and references to any organization related to HRSD or DC Water require the prior written approval of HRSD and DC Water.

2.6 No Additional Rights. Nothing in this Agreement shall be construed to confer any rights upon Licensee by implication, estoppel, or otherwise as to any intellectual property (including, patents, trademarks, copyrights, trade secrets and know-how) of Licensors or any other entity other than the Patent Rights, regardless of whether such technology or patent rights shall be dominant or subordinate to any Patent Rights.

### **ARTICLE THREE LICENSEE DILIGENCE OBLIGATIONS**

3.1 Diligence Requirements. Licensee shall use diligent efforts to develop and commercialize Licensed Products and Licensed Processes in the Field in the Territory. In order to induce Licensors to enter into this Agreement, Licensee represents and covenants to Licensors that it has the capacity and expertise to duly observe and perform its obligations under this Agreement. Licensee accepts its appointment as Licensors’ exclusive licensee and shall observe all the terms, conditions and provisions, and perform all its obligations contained in this Agreement, including all of the following:

- (a) Within three (3) months after the Effective Date, Licensee shall furnish HRSD and DC Water with a written commercialization plan describing the major tasks to be achieved in order to commercialize the Licensed Products, specifying the number of staff and other resources to be devoted to such commercialization plan.
- (b) Within sixty (60) days after the end of each calendar year, Licensee shall furnish HRSD and DC Water with a written report (consistent with Article Five) on the progress of its efforts during the immediately preceding calendar year to develop and commercialize Licensed Products and Licensed Processes in the Field in the Territory. The report shall also contain a discussion of intended efforts and sales projections for the year in which the report is submitted.
- (c) Licensee shall make three (3) commercial Sales of Licensed Product within twelve (12) months of the Effective Date.

In the event that HRSD and DC Water determine that Licensee has failed to fulfill any of its obligations under this Section 3.1, then Licensors may treat such failure as a material breach in accordance with Section 12.5(b) and terminate this Agreement pursuant to Section 12.5(b).

#### **ARTICLE FOUR SALES TARGET, ROYALTIES AND PAYMENT TERMS**

This Agreement includes Appendix D (Royalties and Payment Terms), which is hereby incorporated herein in its entirety in this Article Four. ARA, HRSD and DC Water shall meet within twelve (12) months of the Effective Date and annually thereafter to review and assess sales targets, royalty rates, royalty base(s), Base Fees, and royalty structure and to determine whether to modify this Agreement, including Appendix D.

#### **ARTICLE FIVE REPORTS AND RECORDS**

##### 5.1 Frequency of Reports.

- (a) Before First Commercial Sale. Prior to the first commercial Sale of any Licensed Product or Licensed Process, Licensee shall deliver reports to Licensors quarterly, within thirty (30) days of the end of each calendar quarter, containing information concerning the immediately preceding calendar quarter, as further described in Section 5.2.
- (b) Upon First Commercial Sale. Licensee shall report to Licensors the date of first commercial Sale of a Licensed Product or Licensed Process within thirty (30) days of occurrence in each country.
- (c) After First Commercial Sale. After the first commercial Sale of a Licensed Product or Licensed Process, Licensee shall deliver reports to

Licensors within thirty (30) days of the end of each Reporting Period, containing information concerning the immediately preceding Reporting Period, as further described in Section 5.2.

5.2 Content of Reports and Payments. Each report delivered by Licensee to Licensors shall contain at least the following information for the immediately preceding Reporting Period:

- (a) the number of Licensed Products and Licensed Processes Sold by Licensee, its Affiliates and Sublicensees to independent third parties in each country, and, if applicable, the number of Licensed Products and Licensed Processes used by Licensee, its Affiliates and Sublicensees in the provision of services in each country;
- (b) the gross price charged by Licensee and its Affiliates for each Licensed Product and Licensed Process and, if applicable, the gross price charged for each Licensed Product and Licensed Process used to provide services in each country;
- (c) the Net Sales of all Licensed Products and Licensed Processes for the applicable Reporting Period in each country, including a listing of all applicable deductions;
- (d) total Royalties payable on Net Sales for Licensed Products and Licensed Processes in U.S. dollars, together with the exchange rates used for conversion;
- (e) the amount of Sublicensee Consideration received by Licensee from each Sublicensee, including a description and breakdown of such Sublicensee Consideration; and
- (f) the number of Sublicense Agreements entered into for the Patent Right, Licensed Products, and Licensed Processes.

If no amounts are due to for any Reporting Period, the report shall so state.

5.3 Records. Licensee shall maintain, and shall cause its Affiliates and Sublicensees to maintain, complete and accurate records relating to the rights and obligations under this Agreement and any amounts payable to Licensors in relation to this Agreement, which records shall contain sufficient information to permit Licensors to confirm the accuracy of any reports delivered to Licensors and compliance in other respects with this Agreement. Licensee shall retain such records for at least five (5) years following the end of the calendar year to which they pertain, during which time any Licensor, or such Licensor's appointed agent(s), shall have the right, at such Licensor's expense, to inspect such records during normal business hours to verify any reports and payments made or compliance in other respects under this Agreement. In the event that any audit performed under this Section reveals an underpayment in excess of five percent (5%), Licensee shall bear the full cost of such audit and shall remit any amounts due to Licensors within thirty (30) days of receiving notice thereof from such Licensor.

## **ARTICLE SIX MANAGEMENT OF PATENT RIGHTS**

6.1 Prosecution of Patent Rights. HRSD and DC Water shall have the sole and exclusive right to file, prosecute, and maintain all of the Patent Rights and have the right to determine whether or not, and where, to file patent applications, to abandon the prosecution of any patents or patent applications, or to discontinue the maintenance of any patents or patent applications. HRSD and DC Water shall notify Licensee within sixty (60) days of any patent being granted that includes the Patent Rights. HRSD and DC Water shall notify Licensee sixty (60) days prior to abandoning any patent application in the Patent Rights or discontinuing the maintenance of any patent in the Patent Rights. Licensee may, at Licensee's sole option and expense, choose to assume responsibility for maintaining and paying all expenses (including, but not limited to, all professional fees and costs, all government fees and costs, and all administrative costs) associated with prosecuting and maintaining such patent application or patent for the remaining duration of this Agreement; provided that Licensee gives HRSD and DC Water written notice within fifteen (15) days of receiving notice of HRSD's and DC Water's intent to abandon such application or discontinue maintenance of such patent. All patent applications, patents and any future improvements associated with the Patent Rights will be held in the names of Licensors. HRSD and DC Water will have sole responsibility for retaining and instructing patent counsel.

6.2 Fees/Costs Related to Patent Rights. Unless otherwise agreed to in writing, HRSD and DC Water agree to pay patent counsel, including all reasonable expenses incurred in connection with searching, filing, prosecuting and maintaining U.S. and foreign patent applications and patents defined as Patent Rights, as well as continuations, divisional, reissues, or substituted applications thereof. HRSD and DC Water shall pay all patent expenses associated with the Patent Rights, for those territories which Licensors have determined are economically reasonable to pursue patent protection, for as long as this Agreement is effective, and regardless of whether such expenses are incurred with U.S. or with foreign patent filings.

## **ARTICLE SEVEN INFRINGEMENT**

7.1 Notification of Infringement. Each Party agrees to provide written notice to the other parties promptly after becoming aware of any infringement of the Patent Rights in the Field in the Territory.

7.2 Right to Prosecute Infringements.

- (a) Licensee's Right to Prosecute. So long as Licensee is the exclusive licensee of the Patent Rights in the Field in the Territory, Licensee, to the extent permitted by law, shall have the right, under its own control and at its own expense, to prosecute any third party infringement of the Patent Rights in the Field in the Territory, subject to Section 7.4. For the avoidance of doubt, for purposes of this Article Seven, the retention or exercise of rights by HRSD and DC Water pursuant to Section 2.4 shall not preclude Licensee from being considered an exclusive licensee. If

required by law, Licensors may permit any action under this Section to be brought in their names, including being joined as party-plaintiffs, provided that Licensee shall hold Licensors harmless from, and indemnify Licensors against, any costs, expenses, or liability that Licensors incur in connection with such action. Licensee's selection of counsel (to represent Licensee and Licensors in such an action) shall be subject to Licensors' approval, which shall not be unreasonably withheld.

Prior to commencing any such action, Licensee shall consult with HRSD and DC Water and shall consider the views of HRSD and DC Water regarding the advisability of the proposed action and its effect on the public interest. Licensee shall not enter into any settlement, consent judgment, or other voluntary final disposition of any infringement action under this Section without the prior written consent of HRSD and DC Water.

- (b) Licensors' Right to Prosecute. In the event that Licensee is unsuccessful in persuading the alleged infringer to desist or fails to have initiated an infringement action within six (6) months after Licensee first becomes aware of the basis for such action, HRSD and DC Water shall have the right, and the Parties shall grant, convey and assign all right, title and interest to HRSD and DC Water that are necessary to, at their sole discretion, prosecute such infringement under their sole control and at their sole expense, and any recovery obtained shall belong to solely to HRSD and DC Water.

7.3 Declaratory Judgment Actions. In the event that a Patent Challenge is brought against Licensors, Licensors' Affiliates or Licensee, or relating in any way to the Patent Rights, by a third party, Licensors, at their option, shall have the right within twenty (20) days after commencement of such action to take over the sole defense of the action at their own expense. If Licensors do not exercise this right, Licensee may take over the sole defense of the action at Licensee's sole expense, subject to Section 7.4.

7.4 Recovery. Any recovery obtained in an action brought by Licensee under Sections 7.2 or 7.3 shall be distributed as follows: (i) each Party shall be reimbursed for any expenses incurred in the action, (ii) as to ordinary damages, Licensee shall receive an amount equal to its lost profits or a reasonable royalty on the infringing sales, or whichever measure of damages the court shall have applied, and Licensee shall pay to Licensors based upon such amount a reasonable approximation of the Royalties and other amounts that Licensee would have paid under this Agreement if Licensee had sold the infringing products, processes and services rather than the infringer, and (iii) as to special or punitive damages, the Parties shall share in any award according to the percentages set forth in the royalty distribution in Appendix D, Section 4.5.

7.5 Cooperation. For any action under this Article that is controlled by HRSD and DC Water, the Parties agree to cooperate in such action, provided that HRSD and DC Water reimburse the other parties promptly for any costs and expenses incurred by the other parties in

connection with providing such assistance. For any action under this Article that is controlled by Licensee, Licensors agree to cooperate with Licensee in such action, provided Licensee reimburses Licensors promptly for any costs and expenses incurred by Licensors with providing such assistance.

7.6 Right to Sublicense. So long as Licensee is the exclusive licensee of the Patent Rights in the Field in the Territory, Licensee shall have the sole right to sublicense any alleged infringer in the Field in the Territory for future use of the Patent Rights in accordance with the terms and conditions of this Agreement relating to sublicenses. Any upfront fees and other revenues to Licensee pursuant to such sublicense shall be treated as Sublicensee Consideration under Article Four.

## **ARTICLE EIGHT INDEMNIFICATION**

8.1 Indemnification by Licensee. Licensee shall indemnify, defend, and hold harmless Licensors and their officers, directors, agents, employees and Affiliates (the “**Indemnitees**”) at Licensee’s expense, from and against any and all claims, demands, actions, costs, expenses, liabilities, judgments, causes of action, proceedings, suits, losses and damages of any nature, which are threatened or brought against, or are suffered or incurred by, Licensors or any such person resulting from any acts or omissions of Licensee, Licensee’s Affiliates or Sublicensees relating to this Agreement.

8.2 Procedures. Licensors agree to provide Licensee with prompt written notice of any claim, suit, action, demand, or judgment for which indemnification is sought under this Agreement. Licensee agrees, at its own expense, to provide attorneys reasonably acceptable to Licensors to defend against any such claim. The Indemnitees shall cooperate fully with Licensee in such defense and will permit Licensee to conduct and control such defense and the disposition of such claim, suit, or action (including all decisions relative to litigation, appeal, and settlement); provided, however, that any Indemnitee shall have the right to retain its own counsel, at the expense of Licensee, if representation of such Indemnitee by the counsel retained by Licensee would be inappropriate because of actual or potential differences in the interests of such Indemnitee and any other party represented by such counsel. Licensee agrees to keep Licensors informed of the progress in the defense and disposition of such claim and to consult with Licensors with regard to any proposed settlement.

## **ARTICLE NINE REPRESENTATIONS AND WARRANTIES**

9.1 LICENSORS MAKE NO REPRESENTATIONS OR WARRANTIES OF ANY KIND CONCERNING THE PATENT RIGHTS OR THE LICENSED PRODUCTS OR THE LICENSED PROCESSES, AND HEREBY DISCLAIM ALL REPRESENTATIONS AND WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, NONINFRINGEMENT OF INTELLECTUAL PROPERTY RIGHTS OF LICENSORS OR THIRD PARTIES, VALIDITY, ENFORCEABILITY AND SCOPE OF PATENT RIGHTS,



WHETHER ISSUED OR PENDING, AND THE ABSENCE OF LATENT OR OTHER DEFECTS, WHETHER OR NOT DISCOVERABLE.

9.2 IN NO EVENT SHALL LICENSORS, THEIR OFFICERS, DIRECTORS, AGENTS, EMPLOYEES, AND AFFILIATES BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND, INCLUDING ECONOMIC DAMAGES OR INJURY TO PROPERTY AND LOST PROFITS, REGARDLESS OF WHETHER LICENSORS SHALL BE ADVISED, SHALL HAVE OTHER REASON TO KNOW, OR IN FACT SHALL KNOW OF THE POSSIBILITY OF THE FOREGOING.

## ARTICLE TEN ASSIGNMENT

10.1 This Agreement is personal to Licensee and no rights or obligations may be assigned by Licensee without the prior written consent of HRSD and DC Water. HRSD and DC Water shall have the right to terminate this Agreement immediately upon written notice to Licensee upon a purchase of a majority of Licensee's outstanding voting securities in a single transaction by a third party without the prior written consent of HRSD and DC Water.

## ARTICLE ELEVEN GENERAL COMPLIANCE WITH LAWS

11.1 Compliance with Laws. Licensee shall use reasonable commercial efforts to comply with all commercially material local, state, federal, and international laws and regulations relating to the development, manufacture, use, and sale of Licensed Products and Licensed Processes.

11.2 Patent Marking. To the extent commercially feasible and consistent with prevailing business practices, Licensee shall mark, and shall cause its Affiliates and Sublicensees to mark, all Licensed Products that are manufactured or sold under this Agreement with the number of each issued patent under the Patent Rights that applies to such Licensed Product.

11.3 Governmental Approval or Registration. If this Agreement or any associated transaction is required by the law of any nation to be either approved or registered with any governmental agency, Licensee will assume all legal obligations to do so. Licensee will notify Licensors if Licensee becomes aware that this Agreement is subject to a United States or foreign government reporting or approval requirement. Licensee will make all necessary filings and pay all costs, including fees, penalties, and all other out-of-pocket costs, associated with such reporting or approval process.

## ARTICLE TWELVE TERM AND TERMINATION

12.1 Term. This Agreement shall be effective on the Effective Date and shall continue and remain in effect until the expiration or abandonment of all issued patents and filed patent applications within the Patent Rights, unless earlier terminated in accordance with the provisions of this Agreement (the "Term").

12.2 Voluntary Termination by Licensee or Licensor. Licensee or Licensors shall have the right to terminate this Agreement, for any reason, (i) upon at least six (6) months prior written notice to Licensors or Licensee, respectively, such notice to state the date at least six (6) months in the future upon which termination is to be effective, and (ii) upon payment of all amounts due to Licensors through such termination effective date.

12.3 Cessation of Business. If Licensee ceases to carry on its business related to this Agreement, HRSD and DC Water shall have the right to terminate this Agreement immediately upon written notice to Licensee.

12.4 Termination upon Bankruptcy. Upon the filing of a petition in bankruptcy, insolvency or reorganization against or by Licensee, or Licensee making an assignment for the benefit of its creditors, or Licensee going into receivership or otherwise becoming insolvent, this Agreement may be terminated by HRSD and DC Water by giving written notice of termination to Licensee, such termination immediately effective upon the giving of such notice of termination.

12.5 Termination for Default.

- (a) Nonpayment. In the event Licensee fails to pay any amounts due and payable to Licensors hereunder, and fails to make such payments within thirty (30) days after receiving written notice of such failure, HRSD and DC Water may terminate this Agreement immediately upon written notice to Licensee.
- (b) Material Breach. In the event Licensee commits material breach of its obligations under this Agreement, except for breach as described in Section 12.6(a), and fails to cure that breach within thirty (30) days after receiving written notice thereof, HRSD and DC Water may terminate this Agreement immediately upon written notice to Licensee.

12.6 Termination as a Consequence of Patent Challenge.

- (a) By Licensee. If Licensee or any of its Affiliates brings a Patent Challenge against HRSD, DC Water, or any of their Affiliates, or relating in any way to the Patent Rights, or assists others in bringing a Patent Challenge against HRSD, DC Water, or any of their Affiliates, or relating in any way to the Patent Rights (except as required under a court order or subpoena), then HRSD and DC Water may immediately terminate this Agreement.
- (b) By Sublicensee. If a Sublicensee brings a Patent Challenge against HRSD, DC Water, or any of their Affiliates, or relating in any way to the Patent Rights, or assists another party in bringing a Patent Challenge against HRSD, DC Water, or any of their Affiliates, or relating in any way to the Patent Rights (except as required under a court order or subpoena), then HRSD and DC Water may send a written demand to Licensee to terminate such sublicense. If Licensee fails to so terminate such

sublicense within thirty (30) days after HRSD and DC Water's demand, HRSD and DC Water may immediately terminate this Agreement.

12.7 Disputes regarding Termination. If Licensee disputes any termination by HRSD and DC Water under this Article Twelve, it must notify Licensors of the nature of such dispute and the proposed manner in which to resolve the dispute within (10) days of receipt of notification of breach or notification of termination by HRSD and DC Water, whichever is sooner. If the Parties do not resolve such dispute within ten (10) days of such notification, then Licensee shall be required to initiate the dispute resolution procedures outlined in Section 13.3 immediately. If it does not do so, Licensee shall be considered to have waived its rights to dispute the termination.

12.8 Effect of Termination.

- (a) Survival. The following provisions shall survive the expiration or termination of this Agreement:
- Article 1 ("Definitions");
  - Article 8 ("Indemnification");
  - Article 9 ("Representations and Warranties");
  - Article 13 ("Dispute Resolution");
  - Article 14 ("Miscellaneous");
  - Section 5.2 ("Content of Reports and Payments");
  - Section 5.3 ("Records");
  - Section 11.1 ("Compliance With Laws");
  - Section 12.7 ("Disputes regarding Termination"); and
  - Section 12.8 ("Effect of Termination").
- (b) Pre-termination Obligations. In no event shall termination of this Agreement release Licensee, its Affiliates or Sublicensees from the obligation to pay any amounts that became due on or before the effective date of termination.
- (c) Reversion of rights. In case of termination of this Agreement the Patent Rights will revert to the Licensors.

**ARTICLE THIRTEEN  
DISPUTE RESOLUTION**

13.1 Mandatory Procedures. Any dispute arising out of or relating to this Agreement shall be resolved solely by means of the procedures set forth in this Article, and such procedures constitute legally binding obligations on the Parties. If any party fails to observe the procedures of this Article, as may be modified by their written agreement, the other parties may bring an action for specific performance of these procedures in any court of competent jurisdiction.

13.2 Equitable Remedies. Although the procedures specified in this Article are the sole and exclusive procedures for the resolution of disputes arising out of or relating to this Agreement, a Party may seek a preliminary injunction or other provisional equitable relief if, in its reasonable judgment, such action is necessary to avoid irreparable harm to itself or to preserve its rights under this Agreement.

13.3 Dispute Resolution Procedures.

- (a) Mediation. In the event of any dispute arising out of or relating to this Agreement, any Party may initiate mediation upon written notice to the other parties (“**Notice Date**”), whereupon all Parties shall be obligated to engage in a mediation proceeding. The mediation shall commence within forty-five (45) days of the Notice Date. The mediation shall be conducted by a single mediator in Richmond, Virginia. The Party requesting mediation shall designate two (2) or more nominees for mediator in its notice. The other parties may accept one of the nominees or may designate their own nominees by notice addressed to the American Arbitration Association (AAA) and copied to the requesting party. If within, fifteen (15) days following the request for mediation, the Parties have not selected an unanimously acceptable mediator, a mediator shall be appointed by the AAA according to the Commercial Mediation Rules. The mediator shall attempt to facilitate a negotiated settlement of the dispute, but shall have no authority to impose any settlement terms on the Parties. The expenses of the mediation shall be borne equally by all Parties, but each Party shall be responsible for its own counsel fees and expenses.
- (b) Good Faith Efforts to Resolve Disputes. Upon the appointment of mediator, the Parties shall make good faith efforts to resolve any claim, dispute or controversy between the Parties arising out of or relating to this Agreement, including but not limited to those arising out of or related to the breach, termination, or invalidity of this Agreement.
- (c) Trial Without Jury. If the dispute is not resolved by mediation within forty-five (45) days after commencement of mediation, each Party shall have the right to pursue any other remedies legally available to resolve the dispute, provided, however, that the Parties expressly waive any right to a jury trial in any legal proceeding under this Article.

13.4 Performance to Continue. Each Party shall continue to perform its undisputed obligations under this Agreement pending final resolution of any dispute arising out of or relating to this Agreement; provided, however, that a Party may suspend performance of its undisputed obligations during any period in which the other parties fail or refuse to perform their undisputed obligations. Nothing in this Article is intended to relieve Licensee from its obligation to make undisputed payments pursuant to this Agreement.

13.5 Statute of Limitations. The Parties agree that all applicable statutes of limitation and time-based defenses (including, but not limited to, estoppel and laches) shall be tolled while the procedures set forth in Sections 13.3(a) are pending. The Parties shall cooperate in taking any actions necessary to achieve this result.

**ARTICLE FOURTEEN  
MISCELLANEOUS**

14.1 Notice. Any notices required or permitted under this Agreement shall be in writing, shall specifically refer to this Agreement, and shall be sent by hand, recognized national overnight courier, confirmed facsimile transmission, confirmed electronic mail, or registered or certified mail, postage prepaid, return receipt requested, to the following addresses or facsimile numbers of the Parties:

If to ARA (Licensee):	ARA Consult GmbH Unterbergerstr.1, A-6020 Innsbruck Attn: Bernhard Wett, CEO Email: <a href="mailto:Bernhard.wett@araconsult.at">Bernhard.wett@araconsult.at</a>
If to HRSD (Licensor):	Hampton Roads Sanitation District 1434 Air Rail Avenue Virginia Beach, VA 23455 Attn: Edward G. Henifin, General Manager Email: <a href="mailto:EHenifin@hrsd.com">EHenifin@hrsd.com</a> Facsimile: (757) 363-7189
If to DC Water (Licensor):	District of Columbia Water and Sewer Authority 5000 Overlook Avenue, S.W. Washington, DC 20032 Attn: Biju George, Chief Operating Officer Email: <a href="mailto:biju.george@dcwater.com">biju.george@dcwater.com</a> Facsimile: _____
If to O'Shaughnessy (Licensor):	Maureen O'Shaughnessy 12602 Denmark Drive Herndon, VA 20171-2716 Email: <a href="mailto:maureen@oshaughnessywater.com">maureen@oshaughnessywater.com</a>
If to Wett (Licensor):	Bernhard Wett Dorfgasse 46 A-6020 Innsbruck Austria Email: <a href="mailto:wett@araconsult.at">wett@araconsult.at</a>

All such notices, consents, waivers and other communications will (i) if delivered personally in the manner and to the address provided in this Section, be deemed given upon delivery, (ii) if delivered by facsimile transmission or electronic mail in the manner and to the facsimile number

or e-mail address provided in this Section, be deemed given on the earlier of receipt or the first business day after transmission, (iii) if delivered by mail in the manner, and to the address provided in this Section, be deemed given on the earlier of the fourth business day following mailing or upon receipt, and (iv) if delivered by overnight courier in the manner and to the address provided in this Section, be deemed given on the earlier of receipt or the first business day following the date sent by such overnight courier.

14.2 Governing Law; Venue. The Parties hereto agree that this Agreement, and any controversy arising pursuant to this Agreement, shall be governed by the laws of the Commonwealth of Virginia. Subject to Article Thirteen (Dispute Resolution), the Parties hereto irrevocably and unconditionally submit to the exclusive jurisdiction of the federal or state courts in Virginia. The Parties hereto irrevocably and unconditionally waive any objection to the laying of venue of any such suit, action or proceeding brought in any such court and any claim that such suit, action or proceeding brought in any such court has been brought in an inconvenient forum.

14.3 Force Majeure. No Party shall be liable to the other parties for delays in any performance or failure to render any performance when such delay or failure is beyond the reasonable control of, and without intentional wrongdoing or bad faith of, the Party asserting the claim of force majeure, including but not limited to acts of God, strikes, terrorist attacks, lockouts or other labor disputes, industrial or civil disturbances, material shortages, and acts, directives or binding orders of any court or government authority or agencies.

14.4 Waiver. Any waiver of any rights or failure to act in a specific instance shall relate only to such instance and shall not be construed as an agreement to waive any rights or fail to act in any other instance, whether or not similar. Except as provided in this Agreement, no delay or failure on the part of a Party in exercising any right, power, or privilege hereunder shall operate as a waiver thereof, nor shall any waiver on the part of any Party of any such right, power, or privilege, nor any single or partial exercise thereof, preclude any other or further exercise thereof or the exercise of any other right, power, or privilege hereunder.

14.5 Severability. In the event that any provision of this Agreement shall be held invalid or unenforceable for any reason, such invalidity or unenforceability shall not affect any other provision of this Agreement, and the Parties shall negotiate in good faith to modify this Agreement to preserve (to the extent possible) their original intent. If the Parties fail to reach a modified agreement within thirty (30) days after the relevant provision is held invalid or unenforceable, then the dispute shall be resolved in accordance with the procedures set forth in Article Thirteen (Dispute Resolution). While the dispute is pending resolution, this Agreement shall be construed as if such provision were deleted by agreement of the Parties.

14.6 Binding Effect. This Agreement shall be binding upon and inure to the benefit of the Parties and their respective permitted successors and assigns.

14.7 Entire Agreement. This Agreement constitutes and contains the complete and final understanding and agreement of the Parties relating to the subject matter of this Agreement. Any and all prior negotiations, correspondence, understandings and agreements, whether oral or written, between the Parties respecting the subject matter hereof shall henceforth not be binding on any Party except to the extent expressly set forth in this Agreement. Nothing in this

Agreement, express or implied, is intended to confer upon any party, other than the Parties and their respective successors and assigns, any rights, remedies, obligations or liabilities under or by reason of this Agreement, except as expressly provided in this Agreement. This Agreement may not be amended, modified or supplemented except by a writing executed by all Parties.

14.8 Further Assurances. The Parties hereto shall do and perform or cause to be done and performed all such further acts and things and shall execute and deliver all such other documents as any Party may reasonably request from time to time in order to carry out the intent and purpose of this Agreement contemplated hereby. No Party shall voluntarily undertake any course of action inconsistent with satisfaction of the requirements applicable to them set forth in this Agreement and each Party shall promptly do all such acts and take all such measures as may be appropriate to enable them to perform as early as practicable the obligations herein required to be performed by them.

14.9 Facsimile; Counterparts. This Agreement may be executed in one or more counterpart copies, each of which will be deemed to be an original copy of this Agreement and all of which, when taken together, will be deemed to constitute one and the same agreement. The exchange of copies of this Agreement and of signature pages by facsimile, email, or other electronic transmission shall constitute effective execution and delivery of this Agreement as to the Parties and may be used in lieu of the original Agreement for all purposes. Signatures of the parties transmitted by facsimile or electronic transmission shall be deemed to be their original signatures for all purposes.

14.10 Relationship of Parties. Nothing in this Agreement shall be deemed to constitute any Party a partner, joint venturer, co-owner or employee of the other parties. No Party is, or shall represent itself to be, an agent or legal representative of any of the other parties. No Party shall have the authority to bind the other parties or to assume or create any liability or obligation, express or implied, on behalf of the other parties.

14.11 Captions; Rules of Construction. The titles to the Articles and Sections of this Agreement are solely for the convenience of the Parties and shall not be used to explain, modify, simplify or aid in the interpretation of the provisions of this Agreement. Any reference in this Agreement to any Article or Section refers to the corresponding Article or Section of this Agreement. Any reference in this Agreement to any Appendix refers to the corresponding Appendix attached to this Agreement and all such Appendices are incorporated herein by reference. The word "including" in this Agreement means "including without limitation." This Agreement shall be construed as if drafted by all of the Parties and no presumption or burden of proof shall arise favoring or disfavoring any Party by virtue of the authorship of any provision in this Agreement.

[Signature Page Follows]



IN WITNESS WHEREOF, the Parties have caused this Agreement to be executed by their duly authorized representatives as of the Effective Date.

**LICENSEE:**

**ARA CONSULT GmbH**


By:   
Name: Bernhard Wett  
Title: CEO

**LICENSORS:**

**HAMPTON ROADS SANITATION DISTRICT**

By:   
Name: Edward G. Henifin  
Title: General Manager


**DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY (DC WATER)**

By:   
Name: Henderson Brown  
Title: Interim CEO and General Manager

**MAUREEN O'SHAUGHNESSY**

By:   
Name: Maureen O'Shaughnessy

**BERNHARD WETT**

By:   
Name: Bernhard Wett

*Signature Page to Licensee License Agreement*

**APPENDIX A****EXTERNAL SELECTION PATENTS**

Country	Application No.	Filing Date	Title	Patent / Publication No.	Issue / Pub. Date
United States	62019,210	30-Jun-14	Method and Apparatus for Wastewater Treatment Using External Selection	N/A	N/A
PCT	PCT/US2015/038620	30-Jun-15		WO 2016/004082	7-Jan-16
United States	14/788,039	30-Jun-15		9,670,083	6-Jun-17
Australia	2015284175	30-Jun-15			
Brazil	BR112016030233-8	30-Jun-15		BR112016030233-8	22-Aug-17
Canada	2,949,546	30-Jun-15		2,949,546	7-Jan-16
China	201580035343.40	30-Jun-15			
Europe	15814999.7	30-Jun-15		3160911	3-May-17
Hong Kong	18100878.7	22-Jan-18			
Israel	249843	30-Jun-15			
India	201617040213.00	30-Jun-15		201617040213.00	31-Mar-17
Japan	2016-575761	30-Jun-15		P2017-519630A	20-Jul-17
Korea	10-2017-7001919	30-Jun-15			
Mexico	MX/a.2016/015351	30-Jun-15			
Russia	2017102738	30-Jun-15			
Singapore	11201609624X	30-Jun-15		11201609624X	24-Nov-17
South Africa	2016/08044	30-Jun-15			
Vietnam	1-2016-05041	30-Jun-15		51791	25-Apr-17
Thailand	1601007418	30-Jun-15			
Philippines	1-2016-502593	30-Jun-15			
Malaysia	PI 2016002146	30-Jun-15			
Columbia	NC2016.0004354	30-Jun-15	NC2016/0004354	10-May-17	
New Zealand	9-Nov-87	30-Jun-15			

**APPENDIX B****GRAVIMETRIC SELECTION PATENTS**

Country	Application No.	Filing Date	Title	Patent / Publication No.	Issue / Publication Date
United States	61 730.196	30-Jun-14	Method and Apparatus for Wastewater Treatment Using Gravimetric Selection	N A	N A
PC1	PC1 US2013 072345	27-Nov-13		WO2014085662	5-Jun-14
Korea	10-2015-7017314	27-Nov-13			
United States	14 092.499	27-Nov-13		9,242,882	26-Jan-16
Australia	2013352135	27-Nov-13		2013352135	12-Jan-17
Brazil	BR112015012248-5	27-Nov-13		BR112015012248-5	11-Jul-17
Canada	2,892,761	27-Nov-13		2,892,761	5-Jun-14
China	201380071506.50	27-Nov-13		105980313	28-Sep-16
Europe	13858077.4	27-Nov-13		2925676	7-Oct-15
Israel	239044	27-Nov-13		239044	30-Jul-15
Japan	2015-545455	27-Nov-13		P2016-504185A	12-Feb-16
Mexico	Mx a 2015 006714	27-Nov-13		347655	8-May-17
Russia	2015125485	27-Nov-13			
Singapore	11201504159P	27-Nov-13		11201504159P	28-Oct-16
South Africa	2015 04671	27-Nov-13		2015 04671	26-Oct-16
India	5612 DEI.NP 2015	27-Nov-13		5612 DEI.NP 2015	22-Jan-16
United States	15 003.491	21-Jan-16		US-2016-0137537-A1	19-May-16
Hong Kong	17102111.1	27-Feb-17		1228366A	3-Nov-17

**APPENDIX C**

**EXECUTED AGREEMENT BETWEEN DC WATER AND HRSD  
DATED JULY 18, 2013**

**AGREEMENT**  
**BETWEEN**  
**THE DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY**  
**AND**  
**HAMPTON ROADS SANITATION DISTRICT**

This Agreement ("**Agreement**") is dated July 18, 2013 ("**Effective Date**") and is by and between Hampton Roads Sanitation District ("**HRSD**"), a political subdivision of the Commonwealth of Virginia having a place of business at 1434 Air Rail Avenue, Virginia Beach, VA 23455 and District of Columbia Water and Sewer Authority ("**DC Water**"), an independent authority of the District of Columbia having a place of business at 5000 Overlook Avenue, S.W., Washington, DC 20032. (HRSD and DC Water are referred to singularly as "**Party**", and collectively as "**Parties**").

**BACKGROUND**

This Agreement sets forth the terms for the collaborative development and commercialization of technologies related to wastewater collection and treatment, pursuant to which the Parties will further develop and commercialize the Collaborative IP (as defined herein) and the intellectual property that results (or has resulted) from the activities of the Parties pursuant to this Agreement, including all priorities, privileges, rights, titles and interests arising therefrom or therein ("**Collaborative IP**") through licensing of the Collaborative IP to third parties. The Parties will grant an exclusive license (subject to the rights retained by the Parties set forth in Section 3.4.3) in and to Material Collaborative IP (as defined herein) in the Territory to a single independent entity ("**Exclusive Licensee**") selected and agreed upon in writing by the Parties, including the exclusive right to make, to use, to sell, to offer to sell, to import into the United States and its territories, to sue for past, present and future damages, and to collect damages for infringement or misappropriation of the Material Collaborative IP. As a condition of the exclusive license, the Exclusive Licensee shall be required to use all commercially reasonable efforts to commercialize the Material Collaborative IP and to deposit all resulting royalties and payments, less any payments to inventors, into a restricted research fund held and maintained by the Water Environmental Research Foundation ("**WERF**") or to a third-party agreed to by the Parties. The restricted fund will be used to fund research identified by the Parties, within the mission of WERF, to assist the Parties in meeting their NPDES Permit requirements, improve the quality of biosolids produced, and improve the overall operation of their respective facilities and benefit the wastewater industry.

This Agreement is intended to facilitate ongoing collaborative efforts in developing and commercializing Material Collaborative IP as well as mutual enquiries and negotiations between the Parties. This Agreement is binding and is intended to create legal relationships between the Parties.

**NOW, THEREFORE**, in consideration of the mutual covenants contained in this Agreement and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties agree as follows:

**1. DEFINITIONS**

**1.1. "Affiliate"** of any Person will be defined to mean an individual, a university, a corporation, a partnership, an association, a limited liability company, a labor union, a trust or any other entity or organization, including a government, a governmental or judicial or regulatory organization or body, a political subdivision or an agency or instrumentality thereof ("**Person**") that directly or indirectly through one or more intermediaries controls, is controlled by, or is under common control with, the first Person. For purposes of this definition, the term "control", "controlled by" or "under common control with" will be defined to mean the power, direct or indirect, to direct or cause the direction of the management and policies of a Person, whether through the ownership of voting shares of capital stock, by contract, as trustee or executor, or otherwise.

**1.2. "Intellectual Property"** (or "**IP**") means all copyrights, trade secrets, know-how, inventions, and all patents and patent applications, including divisionals, continuations, continuations-in-part, renewals, reissues, reexaminations, substitutes, continuing prosecution, and extensions of the foregoing. Intellectual Property does not include any trademarks, trade names, Internet domain names or other indicia of origin.

**1.3. "Material Collaborative IP"** means Collaborative IP that is determined by the Parties to have potential benefits to or impact on the wastewater industry or that may have significant value in licensing, which is estimated to exceed the costs associated with procuring and maintaining a patent. Material Collaborative IP includes the NICITA, AVN and Gravimetric Selection Inventions, but excludes all Background IP.

**1.4. "Territory"** is worldwide.

**2. DEVELOPMENT AND FUNDING**

**2.1. Development activities.** The Parties will use all commercially reasonable efforts to materially and equally contribute to the continued development of Collaborative IP and the commercialization of Material Collaborative IP, including providing sufficient staffing, funding, materials and equipment to laboratory-scale, pilot-scale, and full-scale testing of Material Collaborative IP. For each development project undertaken by the Parties, the Parties shall enter into a separate, written statement of work detailing the contributions of each Party to the development project (and the agreed upon value thereof) and the responsibilities of each Party with respect to the development project.

**2.2. Research Fund.** The Parties agree to establish (or have established on the Parties' behalf) a restricted fund or account ("**Research Fund**") that will be used solely to fund research identified by the Parties, which research shall be within the mission of WERF, to assist the Parties in meeting their NPDES Permit discharge requirements, improve the

quality of biosolids produced, improve the overall operation of their respective facilities and benefit of the wastewater industry.

**2.2.1. WERF fund (or account).** The Parties agree to work in good faith with WERF to establish the Research Fund within one-hundred-twenty (120) days of the Effective Date that will be held and maintained by WERF. The WERF fund shall be managed by a committee of no less than five (5) members comprising at least two (2) representatives from each Party, and one (1) representative from WERF (the "Committee"). The representatives of DC Water will include (i) the Manager, Clean Water Quality and Technology or other equivalent position, and (ii) the Assistant General Manager for Wastewater Treatment. The representatives of HRSD will include (i) the Chief of Special Projects or other equivalent position, and (ii) the Director of Operations. Unanimous written agreement of the Committee will be required to secure the release of any funds from the Research Fund. WERF shall have final determination of whether the research purposes fit within WERF's mission.

**2.2.2. Joint fund (or account).** If (and only if) the Parties are unable to establish a Research Fund held and maintained by WERF as set forth in Section 2.2.1 after exhausting all commercially reasonable efforts in good faith, then the Parties shall establish the Research Fund within one-hundred-eighty (180) days of the Agreement Date with an independent third party, which will hold and maintain the Research Fund for the mutual benefit of the Parties. Unanimous written agreement of the Committee will be required to secure the release of any funds from the Research Fund.

**2.2.3. Administrative fee.** Any and all administrative fees due for maintaining and managing the Research Fund shall be paid out from the Research Fund, and, if the Research Fund has insufficient funds to pay the administrative fees, the Parties shall pay the shortage in equal share. If the Research Fund is maintained by WERF, then the administrative fee will be equal to the administrative fee reported on IRS Form 990 by WERF. The annual fee is expected to be in the range of about 6% to about 8% of the monthly average account balance in the Research Fund.

**2.2.4. Disbursements from Research Fund.** Subject to Sections 2.2.1 and 2.2.2, funds may be disbursed from the Research Fund to fund research identified by the Parties in accordance with Section 2.2.

**2.2.5. Research Fund after Termination.** Upon termination of this Agreement, any amounts remaining in the Research Fund as of the date of termination shall be divided equally between the Parties and shall be paid to the Parties within sixty (60) days after termination. In the event third parties are required to pay money into the Research Fund, the Parties shall maintain the Research Fund or an alternative account for purposes of receiving such money and any money within such account shall be divided equally between the Parties and paid to the Parties on a quarterly basis. The Research Fund or alternative account shall be closed when third parties are no longer required to pay money into the Research Fund and all money in the



Research Fund or alternative account has been paid to the Parties as set forth in this Section.

**2.3. No Guarantees; Assumption of Risk.** Each Party recognizes and assumes the risk that the goals and objectives set forth in this Agreement may not be obtainable. Therefore, the provisions of this Agreement will not constitute a guarantee of the successful development, implementation, or licensing of the Material Collaborative IP.

**2.4. Access to data, materials and information.** Each Party may provide access to data, materials and information generated by it or through third parties engaged by it in present collaborative efforts between the Parties, and the other Party may use such data, materials and information solely to perform its obligations pursuant to this Agreement and subject to Section 5.

### **3. COLLABORATIVE IP AND HANDLING THEREOF**

#### **3.1. Current applications.**

**3.1.1. NICITA patent application.** The Parties will jointly own all rights, title and interest in U.S. Patent Application Nos. 61/700,717 filed 9/13/2012, including all subject matter disclosed therein ("**NICITA Inventions**").

**3.1.2. AVN patent application.** The Parties will jointly own all rights, title and interest in U.S. Patent Application No. 61/708,498, filed 10/01/2012, including all subject matter disclosed therein ("**AVN Invention**").

**3.1.3. Gravimetric Selection patent application.** The Parties will jointly own all rights, title and interest in U.S. Patent Application No. 61/730,196, filed 11/27/2012, including all subject matter disclosed therein ("**Gravimetric Selection Invention**").

#### **3.2. Ownership.**

**3.2.1. Background IP.** Each Party will retain ownership of all Intellectual Property (i) that it owns, either partially or wholly, has a license to/for, or otherwise controls as of the Effective Date, and (ii) all Intellectual Property that it acquires ownership of, either partially or wholly, outside the scope of this Agreement (collectively "**Background IP**").

**3.2.2. Collaborative IP ownership.** The Parties will jointly own all Collaborative IP, including Material Collaborative IP.

**3.2.3. DC Water discretionary inventor compensation.** If DC Water chooses to pay a portion of Royalties received by the Exclusive Licensee to an inventor who is a DC Water employee, non-employee or agent, the portion paid shall be paid, subject to written unanimous approval by both Parties, including at least two non-inventor representatives from each Party. The Exclusive Licensee shall pay the DC Water employee, non-employee or agent inventor directly, and the Royalties to the Research Fund shall be reduced by the amount of the portion paid to the inventor(s).

HRSD shall not authorize the payment of any portion of Royalties to HRSD employee-inventors.

**3.3. Licenses to Background IP.** Each Party hereby grants to the other Party a fully-paid up, non-exclusive, world-wide, non-transferable, sub-licensable license to use, make, and import the Party's Background IP solely as necessary for a Party to perform its obligations pursuant to this Agreement during the Term. Nothing contained herein, or in the other Party's use of the Background IP, will grant the other Party any rights in or to the Background IP, or any portion thereof, other than the rights expressly licensed pursuant to this Agreement, even if such Background IP is required for the use of any Collaborative IP. Such license will automatically terminate upon the termination of this Agreement. Any additional license to a Party's Background IP shall only be pursuant to a separate written agreement.

**3.4. Licensing of Collaborative IP.**

**3.4.1. Licensing program.** Parties agree to use best, good faith efforts to identify and select an Exclusive Licensee to license the Material Collaborative IP to third parties. As a condition of the exclusive license, Exclusive Licensee shall be required to use all commercially reasonable efforts to commercialize licensed Material Collaborative IP and to deposit Royalties into a Research Fund held and maintained by WERF, subject to 2.2 and 3.2.3. The exclusive license shall include milestones mutually agreed upon by the Parties that if unmet by the Exclusive Licensee shall terminate the exclusive license. The Research Fund will be used to fund research identified by the Parties, within the mission of WERF, to assist the Parties in meeting their NPDES Permit requirements, improve the quality of biosolids produced, and improve the overall operation of their respective facilities and benefit the wastewater industry.

**3.4.2. Commercial activities.** The Parties agree to use best, good faith efforts to cooperate with and assist Exclusive Licensee to develop a licensing program pursuant to which Exclusive Licensee will license the Material Collaborative IP to third parties subject to the provisions of this Agreement. The Parties will equally share in the costs for assisting in administering the licensing program, including personnel and expenses and may equally share in providing technical input to third party licensees or prospective licensees, including technical input related to the development, deployment, and/or marketing of Material Collaborative IP.

**3.4.3. License to Material Collaborative IP.** The Parties agree that their intent is to license Material Collaborative IP to the Exclusive Licensee in order to generate revenue in the Research Fund to support the research activities of the Parties. Accordingly, unless otherwise agreed in writing, the Parties shall grant an exclusive license of the Material Collaborative IP in the Territory to the Exclusive Licensee upon terms mutually agreed to by the Parties. Any such exclusive license shall include the exclusive rights to make, use, sell, offer to sell and import, and to sue and collect damages for infringement or misappropriation of the licensed Material Collaborative IP, including the right to seek injunction or any other available

remedy pursuant to legal action. Any such exclusive license shall further include a grant of non-exclusive rights (without rights to sublicense) to the Parties to use the Material Collaborative IP for their own benefit. The Parties envisage that they will, to the extent legally permissible, update annually any exclusive license of Material Collaborative IP to Exclusive Licensee to include all granted patents that contain at least one claim for Material Collaborative IP. Any exclusive license agreement with Exclusive Licensee shall include a provision that explicitly states that the intellectual property is licensed "AS IS" without any representations or warranties, except that the Parties may represent or warrant: (i) with respect to the Material Collaborative IP, that they own rights, title and interests in the intellectual property; and (ii) that they have the authority and power to grant such license.

**3.4.4. License payments and royalties.** Exclusive Licensee shall be required to deposit a percentage of all revenue received by it (as determined by the Parties) pursuant to any third party license agreement ("**Royalties**") directly into the Research Fund, subject to Section 3.2.3. Royalties may also include a lump sum agreed upon by the Parties that is deposited into the Research Fund by Exclusive Licensee as a condition of the exclusive license.

#### **4. PROSECUTION AND ENFORCEMENT OF INTELLECTUAL PROPERTY**

**4.1. Disclosure of Collaborative IP.** Each Party shall disclose to the other Party, in writing, what it reasonably believes to be Collaborative IP within sixty (60) days after the creation or conception of the Collaborative IP. The disclosure shall describe the Collaborative IP and the circumstances of its creation or conception. The Parties shall review and evaluate the disclosed Collaborative IP to mutually agree upon its classification as Material Collaborative IP and determine the procedure for protection of any Collaborative IP in accordance with this Section. In the event that the Parties disagree concerning the classification of Collaborative IP, then the Committee shall meet within fourteen (14) days of such disagreement to facilitate agreement.

#### **4.2. Collaborative IP.**

**4.2.1. Election to Participate.** For Material Collaborative IP, the Parties will determine the countries where both Parties desire to file a patent application ("**Mutual Application**"). Should a Party ("**Non-Filing Party**") not agree to file an application within a particular country, the other Party ("**Filing Party**") will have the right to file such application in such country (a "**Non-Mutual Application**") at its own cost.

**4.2.2. Procedure for Mutual Applications.** For all Mutual Applications, (a) the Parties shall use commercially reasonable efforts to select a mutually agreeable law firm to handle the filing and prosecution of the Mutual Application and (b) unless otherwise agreed, both Parties will share equally in the costs and expenses associated with the filing, prosecution and maintenance of any Mutual Application. Any decisions requiring action for the filing, prosecution, issuance, or maintenance of a Mutual Application will be jointly agreed upon by both Parties. If the Parties are unable to

agree upon a mutual course of action, then the Committee shall determine the course of action within the time frame required for such decision.

**4.2.3. Procedure for Non-Mutual Applications.** Any decision concerning the prosecution, issuance, maintenance, or commercialization of a Non-Mutual Application shall be within the sole discretion of the Filing Party, subject to Section 4.3. The Non-Filing Party shall not have rights to license, sublicense or otherwise provide rights in the Non-Mutual Application to any third party without the Filing Party's written consent.

**4.2.4. Assignment and Cooperation.** Unless otherwise agreed each of the Parties shall require its respective employees, non-employees and agents to: (i) assign all of their rights and ownership in such Material Collaborative IP jointly to both Parties; and (ii) assist without further compensation (except for reimbursement for reasonable and necessary expenses) a requesting Party in preparing and prosecuting patent applications on such Material Collaborative IP throughout the world, and in transferring rights to the Parties (including executing documents) to patents and patent applications for the Material Collaborative IP.

**4.3. Abandonment of Collaborative IP.** Should a Party no longer wish to file, prosecute and/or maintain any patent application or patent directed to any Material Collaborative IP (whether a Mutual Application or a Non-Mutual Application), such Party shall (i) provide the other Party with written notice of its wish no later than sixty (60) days before the patent or patent application would otherwise become abandoned or the right to file such application will lapse, (ii) give the other Party the right, at the other Party's election and sole expense, to file, prosecute and/or maintain such patent or patent application, and (iii) offer reasonable assistance to the other Party in connection with such filing, prosecution and/or maintenance at no cost to the other Party except for reimbursement of reasonable out-of-pocket expenses incurred by such Party in rendering such assistance. If the other Party chooses to pursue such patent application or patent, it shall become (or remain) a Non-Mutual Application subject to Subsection 4.2.3 and such other Party shall become the Filing Party.

**4.4. Assignment and Cooperation.** The Parties will ensure to have in place within 120 days of the Effective Date, such proprietary information and assignment agreements as are necessary for them to comply with the assignment obligations and the confidentiality obligations hereunder. For any Collaborative IP, each Party shall require its respective employees to: (i) assign all of their rights and ownership in such Collaborative IP to the Parties; and (ii) assist without further compensation (except for reimbursement for reasonable and necessary expenses) the Parties in preparing and prosecuting patent applications on such Collaborative IP throughout the world, and in transferring rights to the Parties (including executing documents) to patents and patent applications for such Collaborative IP.

**4.5. Enforcement of Collaborative IP.** The Parties agree that they intend that the Exclusive Licensee shall have all rights to enforce the Material Collaborative IP licensed to it at its own cost and expense. Until such time the parties have entered into an exclusive license

with the Exclusive Licensee, or in the event such exclusive license later expires or terminates, the Parties shall mutually agree to any action taken to enforce any Material Collaborative IP. If at any time during the term of this Agreement, either Party learns of any infringement by a third party of the Material Collaborative IP, the Party learning of the infringement shall give written notice of such infringement to the other Party and the Exclusive Licensee. Neither Party shall be required to join or be joined without its consent as a party in any infringement action brought by the other Party or the Exclusive Licensee against any third party.

## 5. CONFIDENTIALITY

**5.1. General Definition of Confidential Information.** For purposes of this Agreement, “**Confidential Information**” means all non-public and/or proprietary information disclosed by one Party (the “**Disclosing Party**”) to the other (the “**Receiving Party**”) in the course of, or to which the Receiving Party gains access to as a result of, activity pursuant to this Agreement, provided that such information is: (i) in the case of a written disclosure, there is affixed to the document an appropriate legend, such as “Proprietary” or “Confidential;” (ii) in the case of an oral or visual disclosure, the disclosing Party makes a contemporaneous oral statement and delivers to the recipient a written statement within thirty (30) days to the effect that such disclosure is confidential or the like; or (iii) notwithstanding (i) or (ii) of this Section 5.1, is otherwise learned or viewed by the Receiving Party during a visit to the Disclosing Party’s premises and the Receiving Party should reasonably know that such information is confidential or proprietary. Notwithstanding the foregoing, “**Confidential Information**” does not include information that (i) is known by the Receiving Party prior to the time of disclosure by the Disclosing Party; (ii) is publicly available through no act or omission on the Receiving Party’s part; (iii) is developed by the Receiving Party independent of any Confidential Information it receives from the Disclosing Party; or (iv) the Receiving Party receives from a third party free to make such disclosure without breach of any legal obligation.

**5.2. Confidentiality Obligations.** The Parties agree to use Confidential Information belonging to the other Party only for the purpose of performing their obligations pursuant to this Agreement. Neither Party shall disclose, discuss or use any of the other Party’s Confidential Information, directly or indirectly, for any other purpose, except as may be necessary (i) pursuant to applicable law or a valid order of a court or authorized government agency, provided that the recipient has given the other Party an opportunity to defend, limit or protect such disclosure; or (ii) in connection with the commercially reasonable exercise of its license to Intellectual Property granted in this Agreement. The Parties shall hold each other’s Confidential Information in confidence for so long as it remains non-public and/or proprietary, using such measures as the Party uses to protect the confidentiality of its own Confidential Information of like importance, but in no event using less than reasonable care.

**5.3. Return of Confidential Information.** Upon written request, and in any event upon termination or expiration of this Agreement is executed, the Definitive Agreement, each Party shall promptly return to the other all Confidential Information belonging to the

other Party, including all materials the Party may have created that reveal or are based in any way on any Confidential Information of the other Party, and all copies of the foregoing, in whatever form, except as may be necessary to give effect to either Party's rights under this Agreement.

**5.4. Equitable Relief.** Each Party acknowledges that the other would suffer immediate and irreparable harm for which monetary damages would be an inadequate remedy if it were to breach its obligations under this Section. Each Party expressly agrees that the other may obtain equitable relief, including injunctive relief, to protect its intellectual property rights and interests under this Agreement, in addition to such other remedies as may be available at law or in equity.

**5.5. Publicity.** All notices to third parties and all other publicity concerning this Agreement or its subject matter shall be jointly planned and coordinated between the Parties. Neither Party shall act unilaterally in this regard without the prior written approval of the other Party, which approval shall not be unreasonably withheld, and which shall be deemed to be given when disclosure is specifically required by law.

**6. REPRESENTATIONS; WARRANTIES; LIABILITY.**

**6.1. Mutual Representations and Warranties.** Each Party hereto represents and warrants to the other that: (i) such Party is validly existing under the laws of the jurisdiction in which it is organized, with full power and authority to carry on its business as it is now being conducted; (ii) the execution, delivery and performance of this Agreement has been duly authorized by such Party, and no other action or other proceeding on the part of such Party or its governing body is necessary to authorize this Agreement; and (iii) entering into this Agreement does not and will not violate any contract or obligation existing between such Party and any third party.

**6.2. DISCLAIMER.** EACH PARTY DISCLAIMS ALL WARRANTIES, EITHER EXPRESS OR IMPLIED, AS TO THE ACCURACY, SUITABILITY, RELIABILITY, COMPLETENESS, SUFFICIENCY, SAFETY OR UTILITY OF ANY OF ITS INTELLECTUAL PROPERTY EXISTING BEFORE THIS AGREEMENT OR DEVELOPED UNDER THIS AGREEMENT. WITHOUT LIMITING THE FOREGOING, ALL WARRANTIES OF MERCHANTABILITY, NON-INFRINGEMENT AND FITNESS FOR A PARTICULAR PURPOSE, EXPRESS OR IMPLIED, ARE DISCLAIMED. ANY RIGHTS, INFORMATION AND MATERIALS PROVIDED AS DESCRIBED IN THIS AGREEMENT ARE PROVIDED ON AN "AS IS" BASIS FOR USE BY EACH PARTY AS SO DESCRIBED, AT THE USING PARTY'S SOLE RISK AND RESPONSIBILITY. EXPRESS OR IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY, NON-INFRINGEMENT AND FITNESS FOR A PARTICULAR PURPOSE, ARE DISCLAIMED AND EXCLUDED HEREUNDER. NEITHER PARTY MAKES ANY WARRANTY, EXPRESS OR IMPLIED, AS TO THE ACCURACY, SUITABILITY, RELIABILITY, COMPLETENESS, SUFFICIENCY, UTILITY OR SAFETY OF ANY

INTELLECTUAL PROPERTY PROVIDED OR COLLABORATIVE IP DEVELOPED UNDER THIS AGREEMENT.

**6.3. LIMITATION OF LIABILITY.** IN NO EVENT SHALL EITHER PARTY BE LIABLE TO THE OTHER PARTY OR TO ANY OTHER PERSON OR ENTITY UNDER ANY EQUITY, COMMON LAW, TORT, CONTRACT, ESTOPPEL, NEGLIGENCE, STRICT LIABILITY, OR OTHER THEORY, FOR ANY SPECIAL, INDIRECT, INCIDENTAL, PUNITIVE, CONSEQUENTIAL OR CONTINGENT DAMAGES, OR ANY DAMAGES RESULTING FROM LOSS OF SALE, BUSINESS, PROFITS, DATA, OPPORTUNITY OR GOODWILL, EVEN IF THE REMEDIES PROVIDED FOR IN THIS AGREEMENT FAIL OF THEIR ESSENTIAL PURPOSE, AND EVEN IF THE PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

**7. TERM; TERMINATION**

**7.1. Term.** This Agreement shall commence on the Effective Date and shall be in force until terminated in accordance with Section 7.2 (the "*Term*").

**7.2. Termination.** This Agreement may be terminated prior to expiration of the term: (i) by mutual Agreement of the Parties; (ii) by either Party without cause upon ninety (90) days' advance written notice; or (iii) by either Party in the event of the other Party's material breach of any representation, warranty, covenant or obligation under this Agreement, provided that the terminating Party shall have notified the other Party of the breach and such other Party shall have failed to cure such breach within thirty (30) days of the giving of such notice.

**7.3. Survival.** Notwithstanding the termination of this Agreement, the provisions of Sections 1, 2.2.5, 2.4, 3.1, 3.2, 3.4, 4, 5, 6, 7.3 and 8 shall remain in full force and effect in accordance with their respective provisions or until specifically terminated by the mutual written agreement of the Parties.

**8. GENERAL**

**8.1. Dispute resolution.** Any controversy, dispute or claim between the Parties arising out of or relating to this Agreement that cannot be amicably resolved by the Parties shall be conducted in Delaware. This Agreement will be interpreted and construed in accordance with the laws of Delaware, excluding any choice of law rules that would direct the application of the laws of another jurisdiction and without regard to which Party drafted particular provisions of this Agreement.

**8.2. No Agency.** Each Party shall be deemed to be an independent contractor and not an agent, joint venturer, or representative of the other Party and neither Party may create any obligations or responsibilities on behalf of or in the name of the other Party. Under no circumstances may either Party hold itself out to be a partner, employee, franchisee, representative, servant or agent of the other Party. Each Party also agrees not to make false or misleading statements, claims or representations about the other Party, or the relationship of the Parties.

- 8.3. Amendment; Waiver.** This Agreement may not be amended, modified or supplemented by the Parties in any manner, except by an instrument in writing signed by authorized representatives of the Parties. Any provision of this Agreement may be waived by the Party entitled to the benefit thereof, except that neither Party shall be deemed, by any act or omission, to have waived any of its rights or remedies hereunder unless such waiver is in writing and signed by an authorized representative of such Party and then only to the extent specifically set forth in such writing. A waiver with reference to one event shall not be construed as continuing or as a bar to or waiver of any right or remedy as to a subsequent event.
- 8.4. Assignment.** Neither Party may assign or transfer this Agreement or any rights hereunder (whether expressly, by implication or by operation of law, including any merger or sale of assets or business), or delegate its performance under this Agreement, to any third party, without obtaining the prior written consent of the other Party. Any purported transfer, assignment or delegation without the appropriate prior written consent shall be null and void when attempted and of no force or effect. Subject to the foregoing, this Agreement shall bind and inure to the benefit of the successors and permitted assigns of the Parties.
- 8.5. Notices.** Notices required or given hereunder shall be addressed as set forth in the signature blocks below and delivered (as elected by the Party giving notice): (i) personally; (ii) by postage prepaid registered or certified airmail, return receipt requested; (iii) by internationally recognized express courier; or (iv) by facsimile. Notices shall be deemed to have been duly given on: (a) the date of receipt (or if delivery is refused, the date of such refusal) if delivered personally, by mail or by express courier; or (b) if sent by facsimile, upon confirmation of receipt. Either Party may change its address for purposes hereof on not less than three (3) days' prior notice to the other Party.
- 8.6. Severability.** If the application of any provision or provisions of this Agreement to any particular facts or circumstances is held to be invalid or unenforceable by any court of competent jurisdiction, then: (i) the validity and enforceability of such provision or provisions as applied to any other particular facts or circumstances and the validity of other provisions of this Agreement shall not in any way be affected or impaired thereby; and (ii) such provision or provisions shall be reformed without further action by the Parties hereto and only to the extent necessary to make such provision or provisions valid and enforceable when applied to such particular facts and circumstances.
- 8.7. Counterparts; Headings.** This Agreement may be executed in counterparts with the same force and effect as if each of the signatories had executed the same instrument. The headings in this Agreement are inserted merely for the purpose of convenience and shall not affect the meaning or interpretation of this Agreement.

*[The remainder of this page has been intentionally left blank.]*



(This signature page is a part of the Agreement between HRSD and District of Columbia Water and Sewer Authority.)

IN WITNESS WHEREOF, the Parties hereby have executed this Agreement, as of the date first above written.

**District of Columbia Water and Sewer Authority:**

**Hampton Roads Sanitation District:**

By: \_\_\_\_\_  
Name:  
Title:

By:  \_\_\_\_\_  
Edward G. Henifin  
General Manager

Address:  
5000 Overlook Avenue, S.W.  
Washington, DC 20032  
Attention:

Address:  
1434 Air Rail Avenue  
Virginia Beach, VA 23455

Fax:

(This signature page is part of the Agreement between HRSD and District of Columbia Water and Sewer Authority)

IN WITNESS WHEREOF, the Parties hereby have executed this Agreement, as of the date first above written.

**District of Columbia Water and Sewer Authority:**

By:



George S. Hawkins  
General Manager

Address:

5000 Overlook Avenue, S.W.  
Washington, DC 20032  
Attention:

**Hampton Roads Sanitation District:**

By: \_\_\_\_\_

Name:  
Title:

Address:

1434 Air Rail Avenue  
Virginia Beach, VA 23455  
Attention:

Fax:

HRSD COMMISSION MEETING MINUTES  
March 27, 2018

ATTACHMENT #9

AGENDA ITEM 11. – Middlesex County Cost Sharing of Sewer System Projects  
Memorandum of Agreement First Amendment

- [Original Agreement](#)
- [Amendment](#)

**MEMORANDUM OF AGREEMENT  
BETWEEN  
THE HAMPTON ROADS SANITATION DISTRICT  
AND  
MIDDLESEX COUNTY  
FOR  
COST SHARING OF SEWER SYSTEM PROJECTS**

This Memorandum of Agreement for Cost Sharing of Sewer Collection System Projects defines the responsibilities of the Hampton Roads Sanitation District (HRSD) and Middlesex County (the COUNTY) related to study, design and construction of sanitary sewer collection systems within Middlesex County to be connected to HRSD interceptor and treatment facilities.

**BACKGROUND**

1. HRSD is a political subdivision of the Commonwealth responsible for the effective treatment and disposal of wastewater in the communities that are within the HRSD service area to protect public health and the waters of the Commonwealth. HRSD is responsible for treatment capacity and piping to "intercept" local collection systems and convey those flows to the HRSD treatment facilities. HRSD owns and operates one treatment facility in Middlesex County that serves the Courthouse and County jail facilities.
2. Middlesex County is within the territory that has been legislatively and court ordered to be within the Hampton Roads Sanitation District. Middlesex County is responsible for determining where sewer service will be provided within the COUNTY and land use designations that determine the potential sewage flow from each area so designated. There are currently no sanitary sewer collection systems within the COUNTY connected to the HRSD system with the exception of the independent Town of Urbanna.
3. The COUNTY is interested in providing sewer service to other areas of the COUNTY. The COUNTY would like to take advantage of the expertise of HRSD to help determine feasibility, design and construct collection systems within the COUNTY.
4. HRSD has previously funded studies that have investigated the feasibility of adding sewer facilities to various parts of the COUNTY. These studies have been accomplished at HRSD's cost and have demonstrated that construction of collection system facilities within the COUNTY was cost prohibitive at that time. As a result the COUNTY has not moved forward on any specific project to date.

**FEASIBILITY STUDIES**

- 5. At the request of the COUNTY with appropriate approvals and in consultation with HRSD, HRSD will commission and conduct sewer feasibility studies up to and including development of a Preliminary Engineering Report (PER). Such studies shall be funded by HRSD (subject to funds availability) upon authorization by the COUNTY and completed accordance mutually agreed upon terms, cost and time schedules. Should a project not move forward within 24 months of completion of a study requested and authorized by the COUNTY, the COUNTY shall reimburse HRSD for the agreed cost of the study authorized by the County.

**Project Design**

- 6. If upon completion of a feasibility study and PER, the COUNTY desires to move a project through to detailed design and preparation of contract documents, HRSD shall fund (subject to funds availability) and manage that work on behalf of the COUNTY. All costs incurred by HRSD related to the collection system of any such project shall be reimbursed by the project funds once financing is secured by the COUNTY for construction of the collection system. Costs associated with interceptors and treatment facilities shall be HRSD's responsibility.

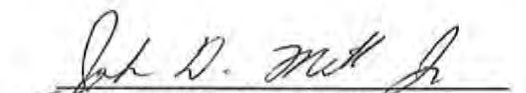
**Construction**


- 7. HRSD will manage the bidding process and construction on behalf of the COUNTY for any sanitary sewer project, including collection system projects. All costs associated with construction, inspection and administration related to the collection system portion of the project shall be included in the project cost and reimbursed to HRSD by the County. HRSD shall be responsible for all costs associated with transmission force mains, interceptors and treatment to be provided per HRSD policy.

**Reimbursement**

- 8. All payments due under this agreement shall be made within 60 days of demand. HRSD shall provide access to all records and support all payment requests with appropriate documentation (contracts, internal time accounting and hourly rates, etc.) HRSD labor will be reimbursed at the fully burdened labor rate established by HRSD during the applicable fiscal year. Should HRSD terminate the study prior to completion, HRSD forfeits all claims for reimbursement.

**Signatures**

  
\_\_\_\_\_  
John D. Miller, Jr., Chairman  
Middlesex County Board of Supervisors  
Date: 9/11/17

  
\_\_\_\_\_  
Ted Henifin  
Hampton Roads Sanitation District  
Date: 7/21/2017

**FIRST AMENDMENT TO MEMORANDUM OF AGREEMENT BETWEEN THE  
HAMPTON ROADS SANITATION DISTRICT AND MIDDLESEX COUNTY FOR  
COST SHARING OF SEWER SYSTEM PROJECTS**

This First Amendment to Memorandum of Agreement Between the Hampton Roads Sanitation District and Middlesex County For Cost Sharing of Sewer System Projects (hereinafter "MOU"), which was fully executed on July 21, 2017, is effective as of the latter signature date hereof by and between The Board of Supervisors of Middlesex County, Virginia (County) and Hampton Roads Sanitation District (HRSD), sometimes collectively referred herein as "the parties".

**WHEREAS**, the parties desire to amend the MOU as set forth in this First Amendment.

**NOW THEREFORE**, in consideration of the foregoing recitals and mutual covenants set forth herein and other good and valuable consideration, the parties hereby agree as follows:

1. The following sentence shall be added to the end of paragraph 5, entitled Feasibility Studies:

However, if the estimated project costs as determined by the Preliminary Engineering Report (PER) (based on the original scope as defined in the task order) are twenty-five (25%) percent higher or more than the initial concept project estimates provided to the County by Bowman Consulting, and if the County decides not to proceed with such project(s), then the parties shall split equally the costs of said studies.

2. All of the other terms and conditions of the MOU not in conflict with the provisions of this First Amendment shall remain in full force and effect.

Signatures:

Middlesex County Board of Supervisors

Date: 3/15/18

By: 

Name: Mark E. Holt III

Title: Chairman of Middlesex County  
Board of Supervisors

HRSD

Date: 3/15/2018

By: 

Name: Ted Henifin

Title:

Approved as to form:

  
County Attorney

HRSD COMMISSION MEETING MINUTES  
March 27, 2018

ATTACHMENT #10

AGENDA ITEM 12. – Surry County Water System – Dendron Water System  
Improvements Agreement

**AGREEMENT FOR COST SHARING**  
**OF THE**  
**HAMPTON ROADS SANITATION DISTRICT**  
**Surry County Water System - Dendron Water System Improvements**  
**AND**  
**SURRY COUNTY**  
**Surry County Water System - Dendron Water System Improvements**

THIS AGREEMENT FOR COST SHARING (the "Agreement"), between Surry County, Virginia (the "COUNTY") and the HAMPTON ROADS SANITATION DISTRICT, a political subdivision of the Commonwealth of Virginia ("HRSD"), is entered into this 6th day of April, 2018 (the "Effective Date").

**RECITALS**

- R:1.** HRSD has initiated billing for sewer and water services in Surry County; and
- R:2.** The COUNTY is constructing its own Surry County Water System – Dendron Water System Improvements as shown on **Exhibit 1** (the "COUNTY Facilities"); and
- R:3.** The design and construction of the COUNTY Facilities (the "Improvements") will necessitate the replacement of existing water meters with new remote monitoring water meters; and
- R:4.** HRSD and the COUNTY agree that it is in the best interest of the parties to install a remote monitoring water meter system for each connection; and
- R:5.** HRSD agrees to pay for the additional engineering design services associated with the remote monitoring water meters; and
- R:6.** HRSD agrees to reimburse the COUNTY for fifty percent (50%) of the costs of the materials associated with the remote monitoring water meter system under the terms and conditions set forth herein.



**TERMS**

NOW THEREFORE, in consideration of the above provisions and agreements set forth herein, and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties agree as follows:

**I. DESIGN OF IMPROVEMENTS**

**A. Plans and Specifications**

1. HRSD will employ Bowman Consulting to modify and incorporate new water meters with remote monitoring capabilities into the plans and specifications for the Surry County Water System - Dendron Water System Improvements project. A location map of the COUNTY Facilities is shown on Exhibit 1.
2. Bowman Consulting, along with HRSD and the COUNTY, will meet to coordinate, review and approve a set of final construction documents (the "Final Plans and Specifications") for the Improvements.

**B. Payment of the Design Costs**

HRSD will compensate Bowman Consulting for all engineering design costs associated with the design modifications required to incorporate water meters with remote monitoring capabilities into the plans and specifications for the Surry County Water System - Dendron Water System Improvements.

**C. Compliance**

Any changes to the Final Plans and Specifications with regard to the remote monitoring water meter system shall be approved by HRSD and the COUNTY.

**II. CONSTRUCTION OF IMPROVEMENTS**

**A. Cost of Construction**

1. The total cost of the Improvements, as more particularly defined by the Final Plans and Specifications prepared by Bowman Consulting for HRSD and the COUNTY (the "Improvements Costs") shall include:
  - a. Cost of construction of the Improvements;
  - b. Cost of advertising for bids;

- c. Cost of approvals and permits required for the construction of the Improvements;
  - d. Costs for construction contract administration and inspection;
  - e. Costs of services rendered by Bowman Consulting;
  - f. Costs for all temporary or permanent easements and fee simple land acquisitions; and
  - g. Any related miscellaneous essential expenses.
2. The current estimated cost of the materials associated with the remote monitoring water meter system is \$100,000.00. HRSD agrees to reimburse the COUNTY for fifty percent (50%) of the actual costs of the materials associated with the remote monitoring water meter system under the terms and conditions set forth herein.

**B. Approval of Final Plans and Specifications; Contractors; Change Orders**

1. HRSD and the COUNTY agree that before any construction work is to begin under this Agreement, HRSD and the COUNTY will jointly review and approve the Final Plans and Specifications. This approval shall be in writing.
2. HRSD and the COUNTY shall review and agree upon the qualifications prior to bidding the project and confirm that the construction contract is awarded to a firm that meets the stated requirements.
3. The contracting firm receiving the award shall be responsible for all necessary permits and approvals necessary for the Improvements.
4. Bowman Consulting, HRSD, and the COUNTY will review and approve shop drawings related to the remote monitoring water meter system.

**C. Payment of Improvement Costs**

1. The Improvement Costs shall be apportioned among the parties as follows:
  - a. HRSD will be responsible for fifty percent (50%) of the material costs associated with the remote monitoring water meters.

- b. The COUNTY will be responsible for fifty percent (50%) of the material costs for the remote monitoring water meters and 100% of the cost of installation of the COUNTY Facilities.
- c. Costs associated with any change to the initial material costs for the remote monitoring water meter system ("Change Order") shall be as follows:
  - (1) HRSD shall be solely responsible for costs due to a Change Order requested by HRSD; and
  - (2) The COUNTY shall be responsible for costs due to a Change Order requested by the COUNTY.
  - (3) Both HRSD and the COUNTY will equally fund fifty percent (50%) of costs due to a Change Order for an unknown or unforeseen condition with respect to material costs associated with the remote monitoring water meters.

- 2. In conjunction with the above, and for additional clarity, it is agreed that HRSD shall pay its share of the material costs to the COUNTY in one lump sum payment upon completion of construction (as determined by HRSD). The COUNTY shall provide HRSD with an invoice detailing HRSD's share of the material costs. Within sixty (60) days of its receipt of such invoice, HRSD shall reimburse the COUNTY for HRSD's share of the material costs as detailed in the invoice.

D. Operation and Maintenance of the Improvements during and after Construction

The COUNTY shall be responsible for operation and maintenance of the COUNTY Facilities during and after construction.

III. SCHEDULE

The construction of the COUNTY Facilities is anticipated to begin by June 28, 2018 and be complete by August 1, 2019. If the construction dates listed herein are substantially delayed, HRSD reserves the right to terminate this Agreement.

IV. OBLIGATIONS OF HRSD AND THE COUNTY

A. Bidding of the Improvements

1. The COUNTY agrees to issue bidding documents for construction of the Improvements. The COUNTY agrees to provide administrative support during the bidding phase.
2. The COUNTY will receive bids for construction of the Improvements. All bids received will be reviewed and approved by the COUNTY and HRSD prior to award of the construction contract. The COUNTY and HRSD shall negotiate in good faith to resolve financial matters with regards to bidding the Improvements. The bidding procedure shall be conducted in accordance with the Virginia Public Procurement Act and the HRSD Procurement Policy.

B. Administration

The COUNTY shall provide contract administration for the Improvements.

C. Inspection

The COUNTY shall provide inspection for the Improvements. The inspector(s) shall have the authority to assure the Improvements are constructed in accordance with the Final Plans and Specifications.

D. Correction of Construction Defects in the Improvements

The COUNTY shall require the any contractors performing work on the COUNTY Facilities to provide a performance and payment bond for the full amount of the construction of the Improvements. The construction contract shall also provide for a warranty of any contractor's work against construction defects in the Improvements and shall require the contractor to correct such defects that are reported by HRSD or the COUNTY within one (1) year of the final acceptance of the Improvements.

E. Construction Record Drawings

Bowman Consulting shall provide HRSD and the COUNTY approved construction record drawings in accordance with the COUNTY's Utility Policy and HRSD Design and Construction Standards.

V. GOVERNING LAW

This Agreement shall be governed as to all matters whether of validity, interpretations, obligations, performance or otherwise exclusively by the laws of the Commonwealth of Virginia, and all questions arising with respect thereto shall be determined in accordance with such laws. Regardless of where actually delivered and accepted, this contract shall be deemed to have been delivered and accepted by the parties in the Commonwealth of Virginia.

VI. TERMINATION

Anything herein or elsewhere to the contrary notwithstanding, this Agreement and the obligations of the parties hereunder may be terminated by the COUNTY or HRSD in the event that the other party breaches or violates any material provision of this Agreement or fails to perform any material covenant or agreement to be performed by either party under the terms of this Agreement and such breach, violation or failure is not cured within sixty (60) days of the defaulting party's receipt of written notice of such breach from the non-defaulting party; or by mutual agreement of the COUNTY and HRSD.

VII. NOTICE

Any notice, communication or request under this Agreement shall be provided in writing by either (a) certified mail, return receipt requested, postage prepaid, or (b) a nationally recognized overnight delivery service (next business day service), or (c) hand-delivery, if the receipt of the same is evidenced by the signature of the addressee or authorized agent, and addressed to the following:

For: HRSD

If by U.S. Postal Service:  
General Manager  
P. O. Box 5911  
Virginia Beach, VA 23471-0911  
Telephone: (757) 460-4242

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

With Copy to:

Conway H. Shield, III, Esq.  
Matthew D. Meadows, Esq.  
Jones, Blechman, Woltz and Kelly, P.C.  
701 Town Center Drive, Suite 80000  
Newport News, VA 23606

For: SURRY COUNTY, VIRGINIA  
Tyrone W. Franklin, County Administrator  
Surry County  
45 School Street  
Surry, Virginia 22883  
Telephone: 757-294-5271

With Copy to:  
William Hefty, ESQ  
Hefty Wiley & Gore, P.C.  
100 W. Franklin Street, Suite 300  
Richmond, VA 23220  
Telephone: 804-780-3143

VIII. ASSIGNMENT

No party may assign its rights in this Agreement without the prior written consent of the other party.

IX. AMENDMENT

This Agreement may be amended only by a written instrument duly executed by the parties.

X. SEVERABILITY

If any provision of this Agreement or the application thereof to any circumstance shall be determined to be invalid, illegal or unenforceable to any extent, the remainder of this Agreement and the application thereof shall not be affected and shall continue to be valid, in effect and enforceable to the fullest extent permitted by law.

XI. DAMAGES

If by omission that constitutes negligence or willful misconduct or failure to abide by engineering standards or failure to abide by the Final Plans and Specifications described herein, the negligent party shall be responsible for the payments for damages to any other party to this Agreement.

XII. INSURANCE

HRSD and the COUNTY have the right to review and approve insurance coverage in the various insurance categories that HRSD and the COUNTY deem necessary to be carried by any contractor performing work on the COUNTY Facilities or any

other parties to this Agreement. Proof of insurance shall be provided at the request of HRSD or the COUNTY and the insurance coverage shall be maintained during the term of this Agreement.

**XIII. TERM OF AGREEMENT**

The term of the Agreement will commence on the date the Agreement is entered into and be completed when each party has completely performed its obligations hereunder.

**XIV. FORCE MAJEURE**

In the event of enforced delay in the performance of such obligations due to unforeseeable causes beyond the control of the COUNTY or HRSD or the any contractor performing work on the COUNTY Facilities and without their fault or negligence, including, but not restricted to, acts of God or of the public enemy, acts of the government, fires, floods, epidemics, quarantine restrictions, strikes, freight embargos, and unusually severe weather or delays of subcontractors due to such causes; it being the purpose and intent of this provision that in the event of the occurrence of any such enforced delay, the time or times for performance of the obligations of the parties shall be extended for the period of the enforced delay.

**XV. INDEPENDENT CONTRACTOR**

If any contractor(s) performing work on the COUNTY Facilities hire subcontractors or independent contractors, HRSD and the COUNTY have the right to approve them by reviewing their requisite experience and knowledge to complete the work assigned.

**XVI. SUBCONTRACTOR**

If any contractors or subcontractors are selected by any party to this Agreement for completion of the work contemplated herein, HRSD has the right to approve the same.

**XVII. WAIVER**

No waiver of breach of any term or provision of this Agreement shall be construed to be, or shall constitute, a waiver of any other breach of this Agreement. No waiver shall be binding unless in writing and signed by the parties waiving the breach.

The failure of any party to seek redress for violation of or to insist upon the strict performance of any covenant or condition of this Agreement shall not

prevent a subsequent act, which would have originally constituted a violation, from having the effect of an original violation.

The rights and remedies provided by this Agreement are cumulative and the use of any one right or remedy by any party shall not preclude or waive the right to use any or all other remedies. Such rights and remedies are given in addition to any other rights the parties may have by law, statute, ordinance or otherwise.

**XVIII. INTEGRATION**

This Agreement constitutes the entire understanding among the parties. No provision of this Agreement may be waived, modified or amended except by an instrument signed by the party against whom the enforcement of such waiver, modification or amendment is sought. No waiver by either party of any failure or refusal by the other party to comply with its obligations hereunder shall be deemed a waiver of any other or subsequent failure or refusal to comply.

*Signature pages follow.*



Agreement for Cost Sharing of the Surry County Water System - Dendron Water System Improvements

**IN WITNESS WHEREOF**, the Hampton Roads Sanitation District (HRSD) 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 March 27, 2018.

**HAMPTON ROADS SANITATION DISTRICT**

By   
Edward G. Henifin, P.E., General Manager

Agreement for Cost Sharing of the Surry County Water System - Dendron Water System Improvements

**IN WITNESS WHEREOF**, Surry County has caused this Agreement to be signed by the County Administrator on its behalf pursuant to Resolution adopted by the Board of Supervisors on April 6, 2018.

**SURRY COUNTY, VIRGINIA**

By: \_\_\_\_\_

*Tyrone W. Franklin*  
Tyrone W. Franklin  
County Administrator and  
Clerk of the Board of Supervisors

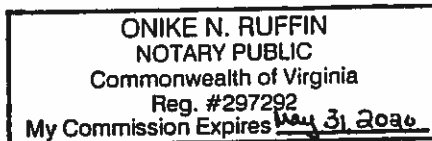
COMMONWEALTH OF VIRGINIA,  
CITY or COUNTY OF Surry, to-wit:

The foregoing Agreement was acknowledged before me this 18<sup>th</sup> day of June, 2018, by Tyrone Franklin, County Administrator, Surry County, Virginia.

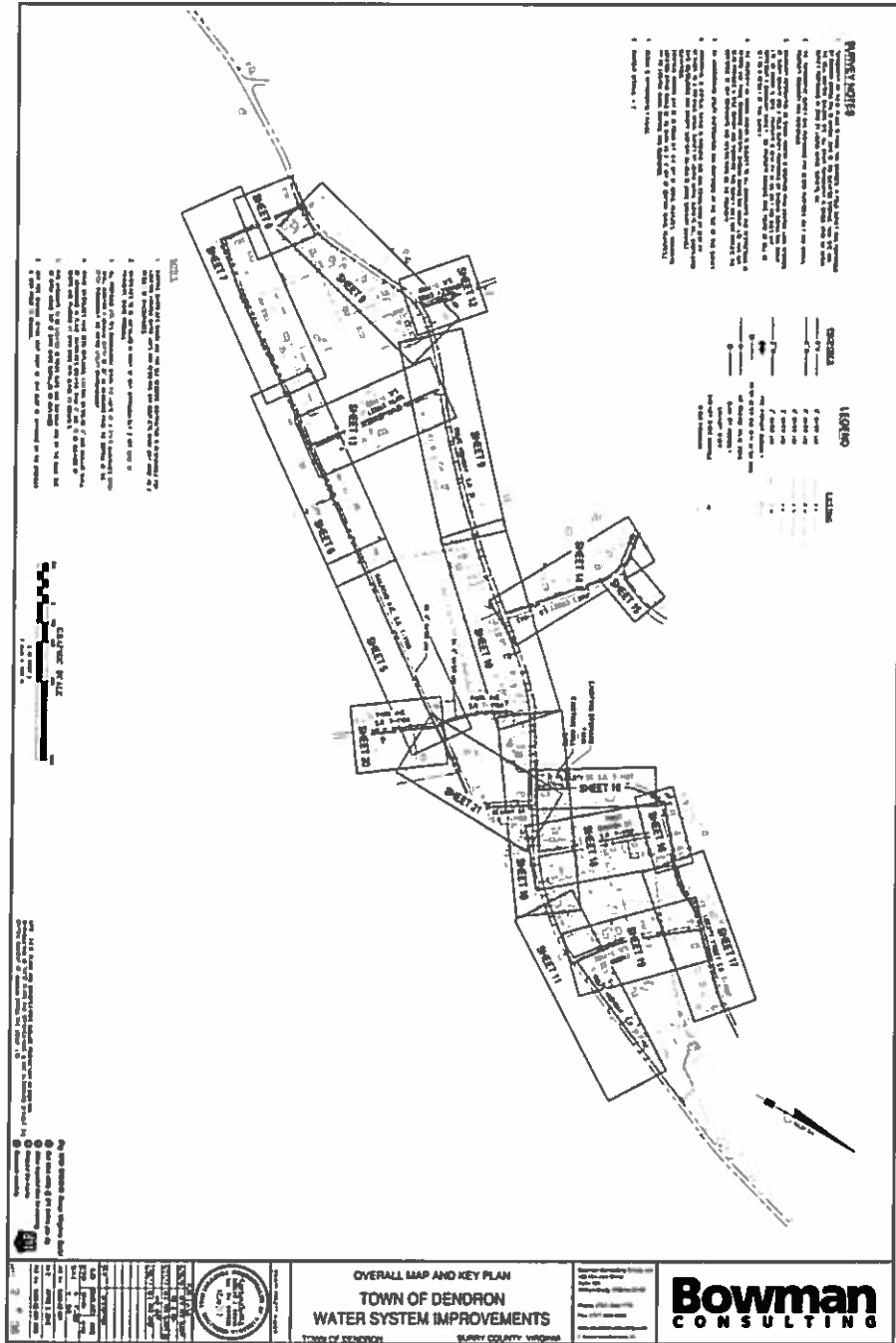
*Onike N. Ruffin*  
\_\_\_\_\_  
Notary Public

My commission expires: May 31, 2020

Registration No.: 297292



### Exhibit 1 County Facilities



HRSD COMMISSION MEETING MINUTES  
March 27, 2018

ATTACHMENT #11

AGENDA ITEM 13. – Southeastern Public Service Authority (SPSA) Leachate Force  
Main Cost Sharing Agreement

**COST SHARING AGREEMENT FOR COST ASSOCIATED WITH DESIGN,  
CONSTRUCTION AND RELATED LAND ACQUISITION FOR A SANITARY SEWER  
FORCE MAIN TO SERVE THE SPSA REGIONAL LANDFILL**

THIS AGREEMENT, between the SOUTHEASTERN PUBLIC SERVICE AUTHORITY OF VIRGINIA (SPSA), a public body politic and corporate of the Commonwealth of Virginia, and the HAMPTON ROADS SANITATION DISTRICT (HRSD), a political subdivision of the Commonwealth of Virginia, entered this 28<sup>th</sup> day March, 2018.

WHEREAS, SPSA's regional landfill at 1 Bob Foeller Drive, Suffolk, Virginia (Regional Landfill) supports their member communities, which include approximately two-thirds of HRSD's customers, with safe and effective disposal of solid waste; and

WHEREAS, the Regional Landfill generates leachate that requires treatment prior to releasing into the environment; and

WHEREAS, HRSD was created for the welfare of the Commonwealth and its inhabitants and has been granted authority to compel industrial dischargers to the sewerage system (including SPSA) to treat such sewage in a manner as shall be specified by HRSD or prohibit discharge altogether; and

WHEREAS, HRSD has determined that the leachate from the Regional Landfill cannot be effectively and reliably treated at HRSD's Nansemond Treatment Plant (Nansemond Treatment Plant) as it is proposed to be operated in the future; and,

WHEREAS, pre-treatment of leachate by SPSA has been determined to not be cost effective and/or beyond SPSA's current expertise; and

WHEREAS, HRSD has determined that the leachate from the Regional Landfill (closely matching the characteristics as existed in 2017) and at quantities within the range of historical discharges from SPSA (prior to 2016), can be treated effectively and reliably at HRSD's Atlantic Treatment Plant (Atlantic Treatment Plant); and

WHEREAS, HRSD and SPSA agree it is in the best interest of the parties to share in the cost to extend the HRSD sewerage system serving the Atlantic Treatment Plant to the Regional Landfill to convey leachate from the Regional Landfill to the Atlantic Treatment Plant; and,

Now, therefore, for and in consideration of the mutual promises set forth herein and other good and valuable consideration, the receipt of sufficiency of which are hereby acknowledged, SPSA and HRSD agree as follows:

1. DESCRIPTION OF FACILITIES

The FACILITIES are defined as the extension of the sewerage system from the Regional Landfill (expressly including the portion of the system constructed on SPSA's property)

to the Atlantic Treatment Plant's service area and shall include all pumping stations, valves, air vents, piping, manholes, and other appurtenances reasonably necessary for conveying leachate in the quantities contemplated.

2. DESIGN AND CONSTRUCTION OF FACILITIES

HRSD shall design and construct the FACILITIES in accordance with HRSD standards and local laws and regulations, and in a financially responsible manner. HRSD at its expense shall maintain the FACILITIES.

3. OWNERSHIP OF FACILITIES:

SPSA shall provide adequate easements at the Regional Landfill for construction maintenance, repair and replacement of the FACILITIES. The FACILITIES will remain the property of HRSD, and the easements conveyed by SPSA to HRSD will have clear title and unimpeded access. SPSA in its sole discretion shall have the right to approve the location and connection of FACILITIES on SPSA's property.

4. COST SHARING:

- A. HRSD shall pay all external costs associated with engineering, design, right-of-way acquisition, construction, inspection, and all associated permitting fees to build the FACILITIES as described herein (Costs), it being understood that HRSD's costs or allocations for review, coordination and overhead shall not be included in Costs. Upon completion, defined herein as when FACILITIES begin conveying leachate to the Atlantic Treatment Plant, HRSD shall invoice SPSA for its share of the Costs. HRSD shall use reasonable efforts to notify SPSA four (4) months before completion of the FACILITIES.
- B. SPSA shall reimburse HRSD one-third of the Costs, not to exceed \$2 million, within 60 days after receipt of the invoice therefor from HRSD in accordance with payment instructions included with the invoice.
- C. If the Costs exceed \$8 million, the Costs in excess of \$8 million shall be shared between the parties with SPSA paying one-third of those Costs in addition to the \$2 million share from 4.B above. However, in no event shall SPSA be obligated to reimburse HRSD more than \$3 million under this Agreement.
- D. HRSD agrees that the rates HRSD will charge SPSA in the future for handling and treating the leachate shall be the published rates for all industrial discharge customers and not be uniquely surcharged for the sole purpose of compensating or reimbursing HRSD for expenses incurred in connection with construction or maintenance of the FACILITIES.

5. SCHEDULE:

HRSD shall commence engineering of the FACILITIES within 60 days of receipt of a duly executed copy of this Agreement and proceed as expeditiously as possible, in accordance with Virginia procurement laws and HRSD policies, to complete design and construction. . HRSD acknowledges that time is of the essence and will prosecute the work as rapidly as practicable. SPSA is solely responsible for all costs associated with disposal of leachate should HRSD cease accepting SPSA leachate at the Nansemond Treatment Plant prior to completion of the FACILITIES. HRSD acknowledges that SPSA can meet those responsibilities only by hauling leachate under SPSA's HRSD permit.

6. LIMITATIONS:

Nothing in this Agreement guarantees acceptance of leachate from the Regional Landfill to the sewerage system or at HRSD treatment plants should the characteristics of the leachate materially change from leachate as discharged to the sewerage system in December 2017 or should Federal or Virginia environmental laws or regulations materially change such that HRSD can no longer meet regulatory permit limits reliably and/or cost effectively with SPSA leachate as a component of the influent to any HRSD wastewater treatment facility . All industrial waste discharge permit requirements as issued by HRSD to SPSA must be met at all times.

7. NOTICES

All notices given between parties shall be in writing and shall be considered properly sent by postage prepaid United States Mail or Country of Origin Mail to the persons identified below, with delivery deemed to have occurred on the immediately succeeding business day after sending:

To HRSD:

If By U.S. Postal Service:  
General Manager  
P. O. Box 5911  
Virginia Beach, VA 23471-0911  
Telephone: (757) 460-4242

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

To SPSA (by Overnight or U.S. Postal Service)

Executive Director  
Southeastern Public Service Authority  
723 Woodlake Drive  
Chesapeake, VA 23320

8. GENERAL

A. Applicable Law and Venue

This Agreement is made in and shall be governed by the laws of the Commonwealth of Virginia. In the event of litigation, venue shall be in the Circuit Court of the City of Virginia Beach, Virginia.

B. Severability

If any provisions of this Agreement are held to be unenforceable, this Agreement shall be construed without such provisions.

C. Waiver

The failure by a party to exercise any right hereunder shall not operate as a waiver of such party's right to exercise such right or any other right in the future.

D. Changes

This Agreement may only be amended by a written document executed by a duly authorized representative of each of the parties. This Agreement may not be assigned.

IN WITNESS WHEREOF, the Hampton Roads Sanitation District has caused this AGREEMENT to be signed in its behalf by its General Manager in accordance with authorization granted at its regular meeting held on March 27, 2018, and the Southeastern Public Service Authority of Virginia has caused this AGREEMENT to be signed on its behalf by its Executive Director in accordance with authorization granted at its regular meeting held on March 28, 2018.

HRSD

By 

Edward G. Henifin, P.E., General Manager

SPSA

By 

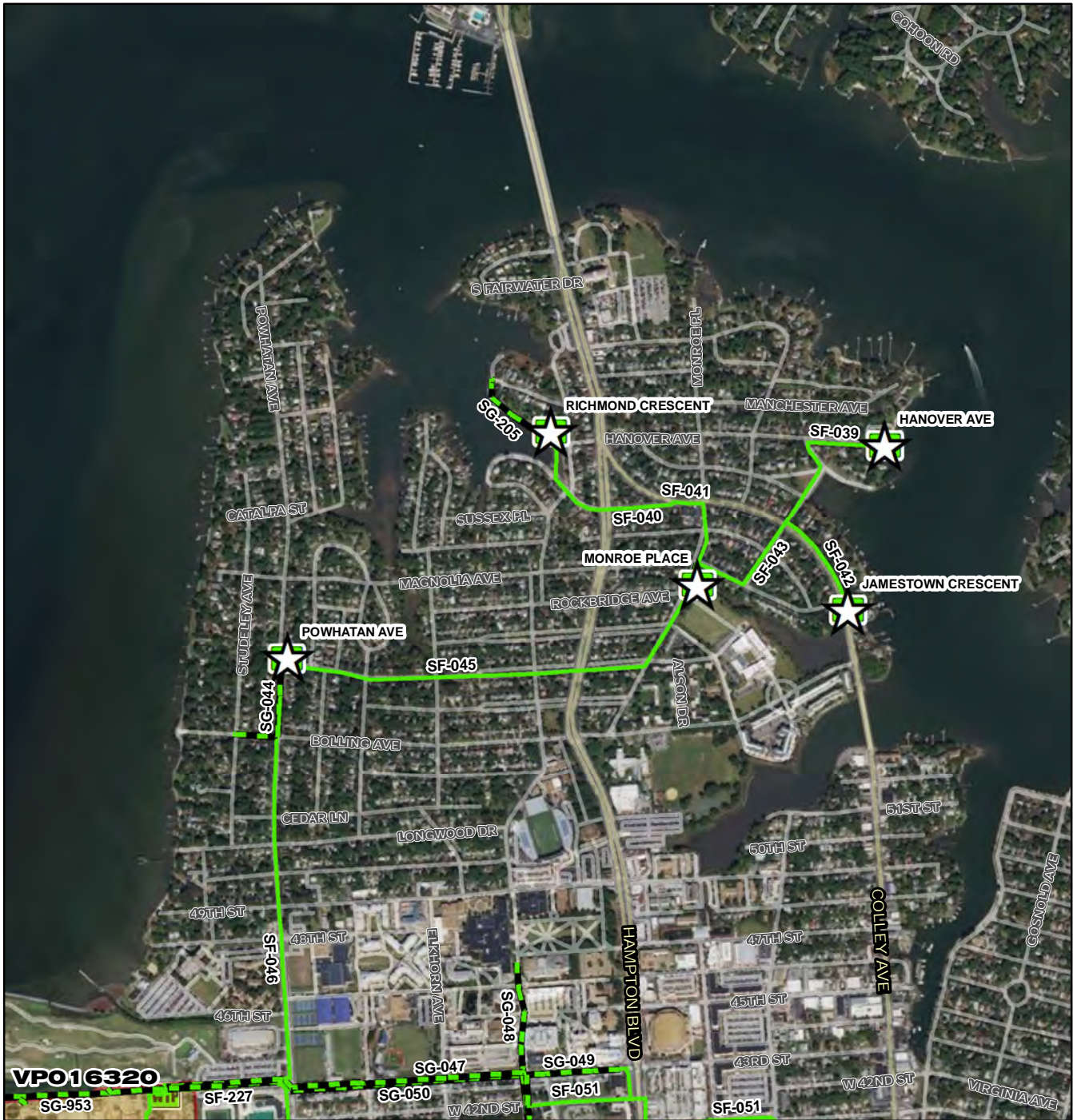
Liesl DeVary, Executive Director



HRSD COMMISSION MEETING MINUTES  
March 27, 2018

ATTACHMENT #12

AGENDA ITEM 17. – LARCHMONT SANITARY SEWER MASTER PLAN STUDY  
MAP



**VPO15310**

- 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

Feet

0    445    890    1,780    2,670    3,560

## VPO 15310

### Larchmont Sanitary Sewer Master Plan Study

**CIP Location**

Norfolk

HRSD COMMISSION MEETING MINUTES  
March 27, 2018

ATTACHMENT #13

AGENDA ITEM 23. – Informational Items

- a. Management Reports
  - (1) [General Manager](#)
  - (2) [Communications](#)
  - (3) [Engineering](#)
  - (4) [Finance](#)
  - (5) [Information Technology](#)
  - (6) [Operations](#)
  - (7) [Special Assistant for Compliance Assurance](#)
  - (8) [Talent Management](#)
  - (9) [Water Quality](#)
  - (10) [Report of Internal Audit Activities](#)
- b. [Strategic Planning Metrics Summary](#)
- c. [Effluent Summary](#)
- d. [Air Summary](#)



March 20, 2018

Re: General Manager's Report

Dear Commissioners:

The ability to operate our furnaces within the much more challenging tolerances required by the Clean Water Act Section 129 Sewage Sludge Incineration (SSI) rule is becoming more routine, as evident in this month's Air Emissions Summary. Immediately after the new requirements went into effect our operators wrestled with keeping the furnaces running without deviations. In recent months, we have experienced few deviations as our operators have gained experience and confidence. The challenging new operating requirements avoided a more than \$50 million capital investment in our furnaces. This success highlights HRSD's biggest asset - our highly capable people.

Another example can be found in the work the Operations staff has been doing at the Town of Surry Plant. When we took over operations in October, the plant struggled to approach permit in many areas. Through the efforts of our creative and talented staff, the plant only missed two permit parameters in February, a significant improvement over previous months. While we are fortunate to have such great people, it is not by pure chance. We invest heavily in our people, providing training and the tools and equipment needed to be successful. We invest in our people and they invest in HRSD. It is a great relationship and a simple formula for success that is not very common in today's world.

The highlights of February's activities are detailed in the attached monthly reports.

- A. **Treatment Compliance and System Operations:** All treatment plants met permit requirements with the exception of the Town of Surry plant. While operations continue to improve at the Town of Surry plant, the plant remains unable to meet all permit requirements, but only failed to meet two permit requirements. Details of these and other issues are included in the Operations Director's report.

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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](http://www.hrsd.com)

**B. Internal Communications:** I participated in the following meetings/activities with HRSD personnel:

1. One new employee orientation session
2. A retreat for the Senior Leadership team
3. Several conference calls to discuss response to U.S. Department of Justice (DOJ)/Environmental Protection Agency (EPA) request for additional information
4. Multiple meetings reviewing and revising Fiscal Year 2019 budget proposals
5. The quarterly meeting of the HRSD facilitators
6. Reviews of the educational elements for the SWIFT Research Center
7. Discussions regarding property requirements to support SWIFT at the Williamsburg Treatment Plant
8. Planning meeting for the Ribbon Cutting at the SWIFT Research Center
9. A length of service breakfast celebration
10. A meeting to discuss actions to support acquisition of property from the City of Norfolk and potentially from the City of Portsmouth
11. A meeting to discuss the sewer service expansion preliminary engineering reports (PERs) for Middlesex County

**C. External Communications:** I participated in the following meetings/activities:

1. The February 27 meeting of the Norfolk City Council
2. The February meeting of the Southeastern Public Service Authority board
3. A meeting with staff from several foundations pursuing investments in communities through water utilities
4. The quarterly board meeting of the National Association of Clean Water Agencies (NACWA) and the winter conference
5. The Water Environment Federation (WEF) Utility Management Conference
6. The quarterly board meeting of *Virginiaforever*
7. A meeting with senior leadership from CDM Smith
8. A meeting with staff from the Elizabeth River Project regarding septic systems in the Eastern Branch watershed
9. The legislative reception hosted by McGuire Consulting
10. Toured the SWIFT Research Center with David Sample, a professor at Virginia Tech leading the Extension Service Research Center on Diamond Springs Road
11. A discussion with the Digital Utility Group to review HRSD's joining
12. A follow-up conference call for the joint association Utility of the Future Today award program

13. A conference call with Water NOW focused on potential revisions to a Governmental Accounting Standards Board (GASB) standard
14. A meeting with Water Environment Federation Technical Exhibition and Conference (WEFTEC) planners regarding the Utility Leaders Forum for WEFTEC 2019

The legislative process is fraught with uncertainty. Unfortunately, our bill to create the SWIFT oversight committee and monitoring lab got caught in a budget crossfire and died a quiet death on the floor of the Senate as it was passed by on the last day without a floor vote. Staff will discuss potential paths forward at the March meeting next week.

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, March 27 in Virginia Beach.**

Respectfully submitted,

*Ted Henifin*

Ted Henifin, P.E.  
General Manager

TO: General Manager  
FROM: Director of Communications  
SUBJECT: Monthly Report for February 2018  
DATE: March 15, 2018

A. Publicity and Promotion

1. **“Improving Drainage”** | February 21, 2018 | Gloucester-Mathews Gazette-Journal  
[http://www.gazettejournal.net/index.php/news/news\\_article/improving\\_drainage](http://www.gazettejournal.net/index.php/news/news_article/improving_drainage)

B. Social Media and Online Engagement

1. Facebook Reach: 4,655 (up significantly from January’s 2,937)
2. Twitter: 9,392 impressions
3. SWIFT website visits: 488
4. LinkedIn: 2,065 impressions
5. Construction Project Page Hits: 6,172

C. News Releases, Advisories, Advertisements, Project Notices, Community Meetings and Project Websites

1. News Releases/Traffic Advisories: 1
2. Advertisements: 0
3. Project Notices: 13
  - a. Hampton: Kecoughtan Road (2); Chesapeake Avenue; Bridge Street
  - b. Suffolk: Holland Road (2); Pughsville Road (2)
  - c. Portsmouth: Elm Avenue
  - d. Newport News: Center Avenue Demolition; New Project Introductory Notice – Warwick/Thornclyff to Lucas Creek
  - e. Norfolk: Pump Station Wet Well Rehabilitations
  - f. City of Williamsburg: Williamsburg Sanitary Sewer Replacement



4. Project/Community Meetings: 0
5. New Project Web Pages/Blogs/Videos: 1

[Canal Drive Sanitary Sewer Pipeline Replacement](#) (Chesapeake)

D. Special Projects and Highlights

1. The Director of Communications attended the well water testing results review meeting on February 22. Approximately 49 residents relying upon wells for their drinking water participated in a well water testing clinic in partnership with Virginia Tech and the Virginia Cooperative Extension office. The results will help provide baseline information ahead of aquifer replenishment at the Sustainable Water Initiative for Tomorrow (SWIFT) Research Center.
2. Director participated in the National Association of Clean Water Agencies (NACWA) monthly Communications and Public Affairs Committee meeting.
3. Director attended Freedom of Information (FOIA) training workshop.
4. Director attended a Public Relations Society of America (PRSA) professional development workshop on reducing stress and motivating and engaging staff.

E. Internal Communications

1. The Director of Communications and staff continued weekly meetings with web designers, advancing the redesign of the HRSD.com website and prepared for a March update presentation to the Quality Steering Team (QST). New website launch is tentatively expected for late April/early May 2018.
2. Director also participated in the following internal meetings:
  - a. Asset Management communications plan implementation
  - b. Energy Efficiency Meeting to review Strategic Energy Plan
  - c. Senior Leadership retreat
  - d. New employee orientation meetings



- e. Engineering Week planning meeting
  - f. SWIFT interpretive element review and coordination meetings
  - g. Biosolids communication plan coordination
3. Director participated in additional round of design review for SWIFT Research Center interpretive educational elements and interior design finishes.
  4. Director conducted bi-weekly communications department status meetings, monthly social media content development and strategy meetings and project update meetings with staff.
  5. Director participated in Budget and ERP refresher training sessions.

F. Metrics

1. Educational and Outreach Activities: 2
  - a. Sandpiper Montessori School, 2/21
  - b. Scout Day for Engineering Week, 2/24
2. Number of Community Partners: 3
  - a. Sandpiper Montessori School
  - b. Girl Scouts of the Colonial Coast
  - c. Boy Scouts of America, Tidewater Council
3. Additional Activities Coordinated by Department: 3
  - a. Prepared materials for Electrician outreach at Crittenden Middle School, Newport News, 2/5
  - b. Volunteer coordination for Career Day at Kings Fork Middle School, Suffolk, 2/22
  - c. Coordinated combo tour of Chesapeake-Elizabeth Treatment Plant and Central Environmental Laboratory, 2/23

#### 4. Metrics Summary

<b>Item #</b>	<b>Strategic Planning Measure</b>	<b>Unit</b>	<b>February 2018</b>
M-1.4a	Total Training Hours per Full Time Employee (2) - Current Month	Hours / #FTE	2.5
M-1.4b	Total Training Hours per Full Time Employee (2) - Cumulative Fiscal Year-to-Date	Hours / #FTE	47.0
M-5.2	Educational and Outreach Events	Number	2
M-5.3	Number of Community Partners	Number	3

Respectfully,

Leila Rice, APR

Director of Communications

TO: General Manager  
FROM: Director of Engineering  
SUBJECT: Engineering Monthly Report for February 2018  
DATE: March 13, 2018

A. General

1. Capital Improvement Program (CIP) spending for the seventh month of Fiscal Year (FY) 2018 continues to lag behind planned spending. CIP project spending has increased in recent months and should continue to increase through the rest of the fiscal year.

CIP Spending (\$M):

	Current Period	FYTD
Actual	6.63	57.92
Plan	10.19	99.57

A Water Quality Improvement Fund (WQIF) Grant reimbursement totaling \$327,492 was received in February for the Virginia Initiative Plant Nutrient Reduction Improvement Contact B project.

2. The Engineering Department coordinated a number of activities for National Engineers Week, February 19-24. The week began with a game of "Family Feud," which allowed five teams to compete answering questions about the Engineering Department and basic science facts. The Egg Drop Competition was a fun event which included eight contestants this year. Each entrant was required to create a design to protect an egg from a 20-foot fall. The entry that protected the egg and weighed the least was the winner. The week concluded with an Open House for Scouts here at HRSD. The 40 boys and girls participating in the half-day event learned about engineering, STEM careers, water and wastewater systems and sustainability.
3. The Engineering Department spent much of the month preparing the Operating Budget for FY 2019. In addition to the normal needs of the department, organizational requirements for the various consulting services contracts were developed. In FY 2019, five new annual services contracts will be added. These contracts include:
  - Condition Assessment
  - Construction Inspection

- Force Main Field Services
- Gravity Flow Monitoring
- Hydraulic Modeling

## B. Asset Management Division

1. Implementation of the Asset Management (AM) Communications Strategy began in February with an e-mail message from the General Manager to all of HRSD. The e-mail highlighted the importance of asset management to the organization and shared upcoming efforts to improve the systems we use to manage our assets. A video production effort was also begun with three of the directors discussing some of the details of the program and reinforcing the General Manager's e-mail message. This video will be shared with staff in March.
2. A workshop was held in February, facilitated by the AM Program consultant, as a start to developing HRSD's Risk Management Procedures. Organizational risk management procedures include the risk policy, governance (roles and responsibilities), risk criteria (likelihood and consequence of failure), levels of risk tolerance and the risk management process. These procedures will be shared with staff in the coming months.

## C. North Shore and South Shore Design & Construction Divisions

1. Construction efforts continue on the Bridge Street Pump Station Replacement project in Hampton. Installation of the roofing, electrical systems and piping continues within the building. The 30-inch force main connection in Bridge Street was completed. Multiple meetings were held during the month to review the project schedule, outstanding items impacting the budget, and efforts to complete the work. The project is currently planned for completion in May with a regulatory completion deadline of June 30, 2018.
2. Progress continues on construction of the Atlantic Treatment Plant Thermal Hydrolysis Process (THP) and Fats, Oils and Grease (FOG) Receiving Station project. Construction efforts include work to facilitate the new THP equipment at the plant. Relocation of existing utilities continues to clear the area for the new facilities associated with the THP vessels and associated piping systems. The equipment from the manufacturer was received on March 2 and will be sent to a temporary storage facility in Chesapeake after inspections are complete.

## D. Planning & Analysis Division

1. Preparation of the FY 2019 CIP continues. The first CIP Review Meeting was held on March 1 with the second CIP Review Meeting scheduled for March 30. There are 18 new CIP projects proposed this year. Quality Assurance/Quality Control (QA/QC) of project data is underway and each CIP project has been given an initial prioritization score. Revisions and updates to project information as a result of the first review meeting are underway and work to balance the projected spending is under review. Based on initial estimates, there is approximately \$21 million of spending that exceeds financial targets in the first three years of the program.
2. Staff is working with the City of Norfolk to prepare a joint study of the sanitary sewer system in the Larchmont Service Area. This study will determine which City/HRSD assets should be improved and the best long-term solution for ownership of these assets in this area. Much of the existing sewer infrastructure in this area is quite old and is subject to flooding on a regular basis. An agreement will be prepared that will define the scope, schedule and cost-sharing terms for this work with the City of Norfolk. This agreement will be submitted to the Commission for approval in the next few months.

## E. Strategic Planning Metrics Summary

1. Educational and Outreach Events: 4
  - a. Staff made a presentation at the Sea Level Rise Forum on February 23.
  - b. Staff made a technical presentation entitled, "Performance Measures to Improve Your Capital Improvement Program," at the Utility Management Conference on February 23.
  - c. Staff coordinated an Open House as part of Engineer's Week and provided Boy and Girl Scouts with information about HRSD and Engineering on February 24.
  - d. Staff attended a Table Top Exercise on Emergency Planning as part of the Virginia WARN Program on February 27.
2. Number of Community Partners: 0
3. Number of Research Partners: 0

<b>Item #</b>	<b>Strategic Planning Measure</b>	<b>Unit</b>	<b>February 2018</b>
M-1.4a	Total Training Hours per Full Time Employee (40) - Current Month	Hours / #FTE	1.61
M-1.4b	Total Training Hours per Full Time Employee (40) - Cumulative Fiscal Year-to-Date	Hours / #FTE	19.28
M-5.2	Educational and Outreach Events	Number	4
M-5.3	Number of Community Partners	Number	0
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 February 2018  
DATE: March 14, 2018

A. General

1. In February, the Customer Interaction Center continued to field calls about the November implementation and experienced a significant amount of calls from customers related to larger bill amounts. The two inclement weather events in January affected the jurisdictions' abilities to read meters. Some jurisdictions estimated meter readings and others delayed meter readings until the snow melted. The City of Virginia Beach estimated 53,000 customer bills in January. The estimates for the City of Virginia Beach were challenging due to historical data (prior to July 2017, the City of Virginia Beach was on a bimonthly billing period). Staff expects to continue receiving calls through March related to estimated and corrected bills.
2. Revenues are tracking higher than budget as water consumption is 0.7 percent higher compared to this same point last year. More detailed trend analysis will be presented during the budget process. Facility charges are higher compared to this same point last year. As we head into the summer building season, we are optimistic that the strong regional economy will result in higher than budgeted revenues for this line item. Interest Income continues to outperform as interest rates continue to rise, but this will be offset in the Comprehensive Annual Financial Report (CAFR) as our asset values have declined (higher yields = lower bond prices). Expenses are generally at or below budget. Since this report is cash based, contractual services and Major Repairs do not show encumbered amounts. We expect expenses to end the fiscal year closer to budget.
3. Staff met with the administrators of the Virginia Investment Pool (VIP), which was developed in 2013 by local Treasurers and investment officers under the sponsorship of the Virginia Association of Counties and the VML. The VIP provides political subdivisions of the Commonwealth of Virginia an investment vehicle to pool their funds and to invest such funds into one or more investment portfolios under the direction and daily supervision of a professional fund manager. VML/VACo Finance is a non-profit organization that acts as the administrator of the VIP. Staff is considering moving our investments into the VIP and is in the process of performing due diligence to ensure that there would be a fee savings for similar investment performance.

B. Interim Financial Report

1. Operating Budget for the Period Ended February 28, 2018

	Amended Budget	Current YTD	Current YTD as % of Budget (67% Budget to Date)	Prior YTD as % of Prior Year Budget
Wastewater	\$ 265,662,693	\$ 182,426,430	69%	68%
Surcharge	1,900,000	989,428	52%	83%
Indirect Discharge	2,500,000	1,771,512	71%	71%
Norfolk Sludge	90,000	46,920	52%	56%
Fees	2,935,000	1,884,751	64%	69%
Municipal Assistance	700,000	465,498	66%	48%
Miscellaneous	720,000	665,641	92%	74%
<b>Total Operating Revenue</b>	<b>274,507,693</b>	<b>188,250,180</b>	<b>69%</b>	<b>69%</b>
<b>Non Operating Revenues</b>				
Facility Charge	6,000,000	4,445,670	74%	65%
Interest Income	1,800,000	1,928,313	107%	28%
Build America Bond Subsidy	2,400,000	1,168,524	49%	50%
Other	845,000	908,309	107%	55%
<b>Total Non Operating Revenue</b>	<b>11,045,000</b>	<b>8,450,816</b>	<b>77%</b>	<b>56%</b>
<b>Total Revenues</b>	<b>285,552,693</b>	<b>196,700,996</b>	<b>69%</b>	<b>68%</b>
Transfers from Reserves	9,760,286	6,506,857	67%	67%
<b>Total Revenues and Transfers</b>	<b>\$ 295,312,979</b>	<b>\$ 203,207,853</b>	<b>69%</b>	<b>68%</b>
<b>Operating Expenses</b>				
Personal Services	\$ 53,773,327	\$ 35,746,682	66%	65%
Fringe Benefits	24,700,569	16,678,766	68%	66%
Materials & Supplies	7,399,704	4,750,770	64%	63%
Transportation	1,423,974	792,308	56%	60%
Utilities	11,973,115	7,423,162	62%	60%
Chemical Purchases	10,620,594	5,131,505	48%	55%
Contractual Services	36,900,038	19,696,650	53%	52%
Major Repairs	10,429,168	3,878,187	37%	39%
Capital Assets	1,716,528	1,170,218	68%	50%
Miscellaneous Expense	2,396,234	1,565,628	65%	63%
<b>Total Operating Expenses</b>	<b>161,333,251</b>	<b>96,833,876</b>	<b>60%</b>	<b>59%</b>
<b>Debt Service and Transfers</b>				
Debt Service	59,949,120	40,515,057	68%	72%
Cost of Issuance Bonds	900,000	830,353	92%	0%
Transfer to CIP	58,802,000	39,201,334	67%	67%
Transfer to General Reserve	14,068,608	9,379,072	67%	0%
Transfer to Risk management	260,000	173,341	67%	67%
<b>Total Debt Service and Transfers</b>	<b>133,979,728</b>	<b>90,099,157</b>	<b>67%</b>	<b>69%</b>
<b>Total Expenses and Transfers</b>	<b>\$ 295,312,979</b>	<b>\$ 186,933,033</b>	<b>63%</b>	<b>64%</b>



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 February 28, 2018

	General	Risk Management	Reserve	Capital
<b>Beginning of Period - July 1, 2017</b>	\$ 169,127,728	\$ 3,000,520	\$ 30,760,330	\$ 37,452,225
<b>Add: Current Year Sources of Funds</b>				
Cash Receipts	193,484,053			273,602
Capital Grants				2,946,739
VRA Draws				3,220,061
Bond Proceeds (includes interest)				74,941,779
Transfers In	494,006	173,341		39,201,334
<b>Sources of Funds</b>	<u>193,978,059</u>	<u>173,341</u>	-	<u>120,583,515</u>
<b>Total Funds Available</b>	<u>\$ 363,105,787</u>	<u>\$ 3,173,861</u>	<u>\$ 30,760,330</u>	<u>\$ 158,035,740</u>
<b>Deduct: Current Year Uses of Funds</b>				
Cash Disbursements	143,058,378			70,199,210
Transfers Out	39,374,675		494,006	-
<b>Uses of Funds</b>	<u>182,433,053</u>	-	<u>494,006</u>	<u>70,199,210</u>
<b>End of Period - February 28, 2018</b>	<u>\$ 180,672,734</u>	<u>\$ 3,173,861</u>	<u>\$ 30,266,324</u>	<u>\$ 87,836,530</u>

4. Capital Improvements Budget and Activity Summary for Active Projects for the Period Ended February 28, 2018

Classification/ Treatment Service Area	Expenditures		Year to Date FY		Outstanding Encumbrances	Available Balance
	Budget	prior to June 30, 2017	2018 Expenditures	Total Expenditures		
Administration	\$ 55,245,711	\$ 39,641,464	\$ 319,388	\$ 39,960,852	\$ 863,087	\$ 14,421,772
Army Base	158,584,000	120,527,300	1,628,108	122,155,408	5,426,638	31,001,954
Atlantic	119,731,914	42,154,292	5,479,263	47,633,555	50,020,602	22,077,757
Boat Harbor	102,951,544	42,142,558	6,745,286	48,887,844	7,394,273	46,669,427
Ches-Eliz	148,955,317	6,729,890	1,746,794	8,476,684	7,034,755	133,443,878
James River	89,506,802	50,821,444	2,663,814	53,485,258	5,111,161	30,910,383
Middle Peninsula	48,732,269	6,398,032	1,020,373	7,418,405	3,883,941	37,429,923
Nansemond	78,546,570	33,846,838	2,215,670	36,062,508	3,652,424	38,831,638
Surry	3,236,000	-	58,289	58,289	12,893	3,164,818
VIP	272,689,561	229,739,637	13,493,310	243,232,947	12,248,975	17,207,639
Williamsburg	16,156,843	8,937,934	(203,193)	8,734,741	983,449	6,438,653
York River	45,537,761	39,366,402	243,618	39,610,020	2,141,267	3,786,474
General	245,663,307	166,626,066	22,858,949	189,485,015	23,659,105	32,519,187
	<u>\$ 1,385,537,599</u>	<u>\$ 786,931,857</u>	<u>\$ 58,269,669</u>	<u>\$ 845,201,526</u>	<u>\$ 122,432,570</u>	<u>\$ 417,903,503</u>

5. Debt Management Overview

	Debt Outstanding (\$000's)					
	Principal Jan 2018	Principal Payments	Principal Draws	Principal FY18 Bonds	Principal Feb 2018	Interest Payments
<b>Fixed Rate</b>						
Senior	\$ 340,238	\$ (140)	\$ -	\$ -	\$ 340,098	\$ (67)
Subordinate	371,234	(193)	3,219	63,185	437,445	(5,408)
<b>Variable Rate</b>						
Subordinate	50,000	-	-	-	50,000	(52)
<b>Line of Credit</b>	-	-	-	-	-	-
<b>Total</b>	<u>\$ 761,472</u>	<u>\$ (333)</u>	<u>\$ 3,219</u>	<u>\$ 63,185</u>	<u>\$ 827,543</u>	<u>\$ (5,527)</u>

Series 2016 Variable Rate Interest Summary - Variable Rate Debt Benchmark (SIFMA) as of 3/2/18

	SIFMA Index	HRSD	Spread to SIFMA
Maximum	1.71%	1.63%	-0.08%
Average	0.29%	0.28%	-0.01%
Minimum	0.01%	0.01%	0.00%
As of 3/2/18	1.09%	1.03%	-0.06%

\* Since October 20, 2011 HRSD has averaged 28 basis points on Variable Rate Debt

6. Financial Performance Metrics for the Period Ended February 28, 2018

	Current YTD	Policy Minimum
Days Cash on Hand	468 days	270-365 days
Days Cash on Hand (Excl Reserve \$30.3m and Risk Mgmt \$3)	401 days	270-365 days
Risk Management Reserve as % of Projected Claims Costs	25%	25%

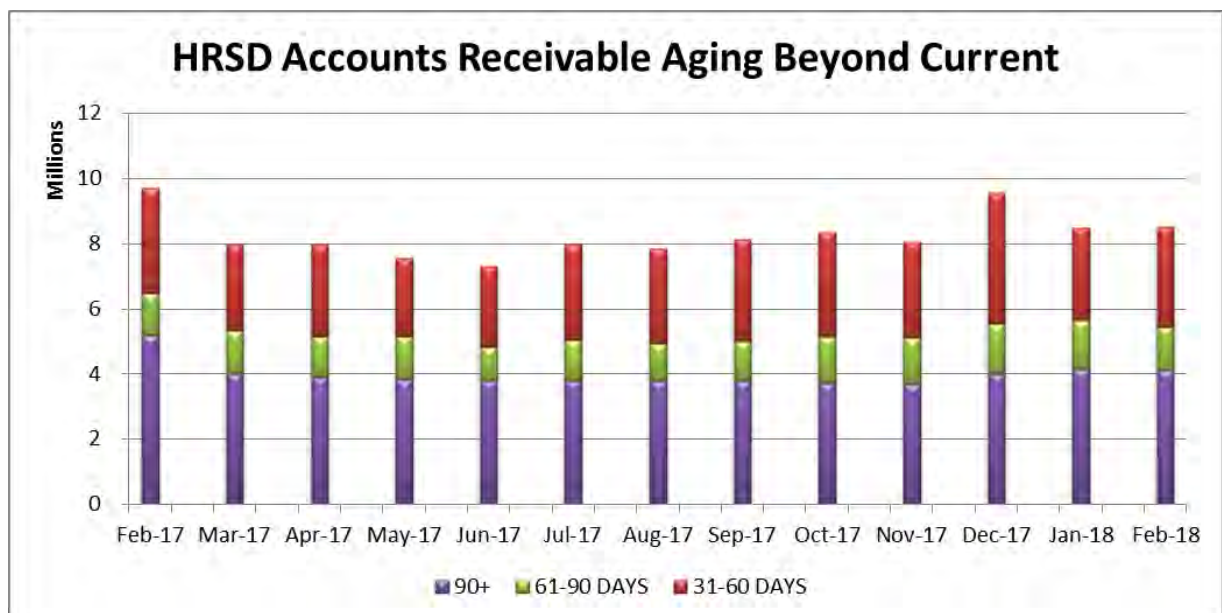
Total Return Strategy					
	Market Value June 30, 2017	YTD Buy/Sell	YTD Change in Market Value	YTD Adjustments	Market Value February 28, 2018
Investment Activity	\$ 123,687,020	\$ 1,252,700	\$ (1,364,074)	\$ -	\$ 123,575,647
Investment Cash	\$ 157,418	\$ (23,293)			\$ 134,124
Unrestricted Reserve Fund	30,760,330			(494,006)	30,266,324
	\$ 154,604,768	\$ 1,229,407	\$ (1,364,074)	\$ (494,006)	\$ 153,976,095

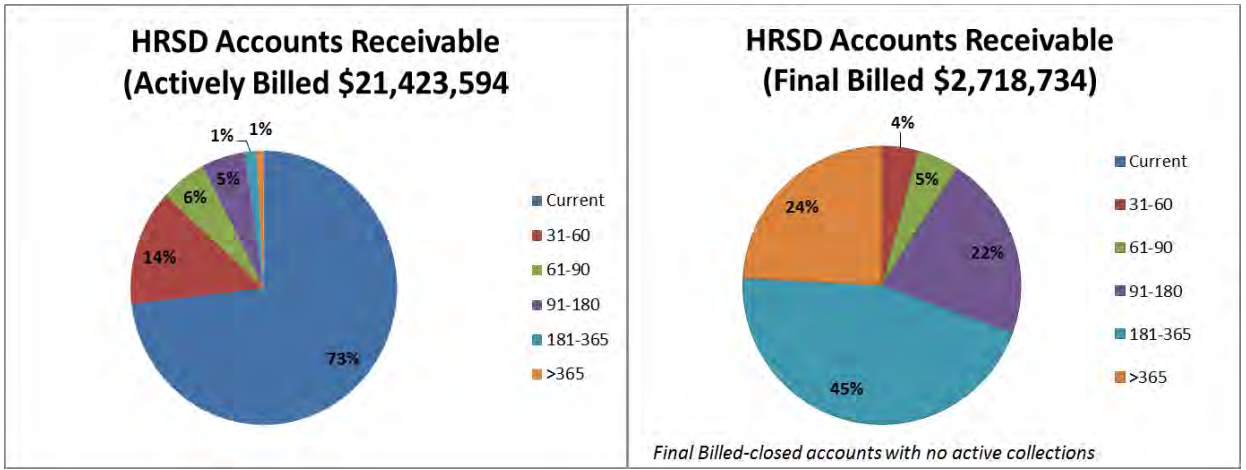
## 7. Summary of Billed Consumption

Summary of Billed Consumption (,000s ccf)							
Month	2018 Cumulative Budget Estimate	2018 Cumulative Actual	% Difference		% Difference		% Difference
			From Budget	Cumulative 2017 Actual	From 2017	Cumulative 3 Year Average	From 3 Year Average
July	4,427	4,869	10.0%	4,776	1.9%	4,798	1.5%
Aug	8,850	9,939	12.3%	9,275	7.2%	9,525	4.3%
Sept	13,271	14,632	10.3%	14,227	2.8%	14,215	2.9%
Oct	17,689	19,006	7.4%	19,017	-0.1%	18,999	0.0%
Nov	22,104	23,305	5.4%	23,282	0.1%	23,223	0.4%
Dec	26,516	27,462	3.6%	27,761	-1.1%	27,583	-0.4%
Jan	30,925	31,965	3.4%	32,036	-0.2%	31,959	0.0%
Feb	35,331	36,519	3.4%	36,263	0.7%	35,878	1.8%
March	39,734	-	N/A	40,516	N/A	40,678	N/A
Apr	44,135	-	N/A	44,383	N/A	44,834	N/A
May	48,532	-	N/A	48,553	N/A	49,058	N/A
June	52,927	-	N/A	53,373	N/A	53,644	N/A

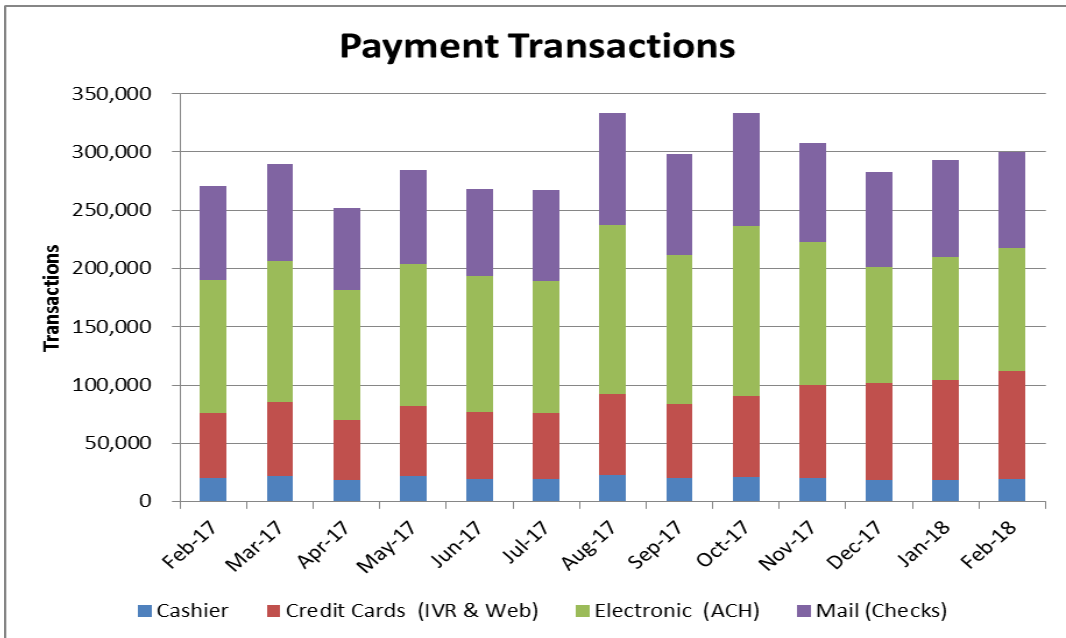
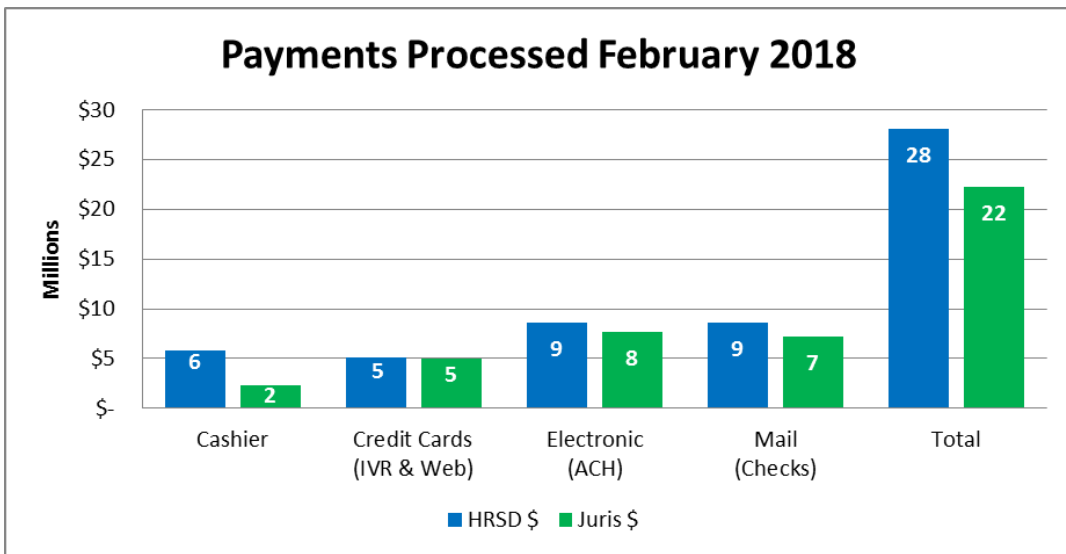
## C. Customer Care Center

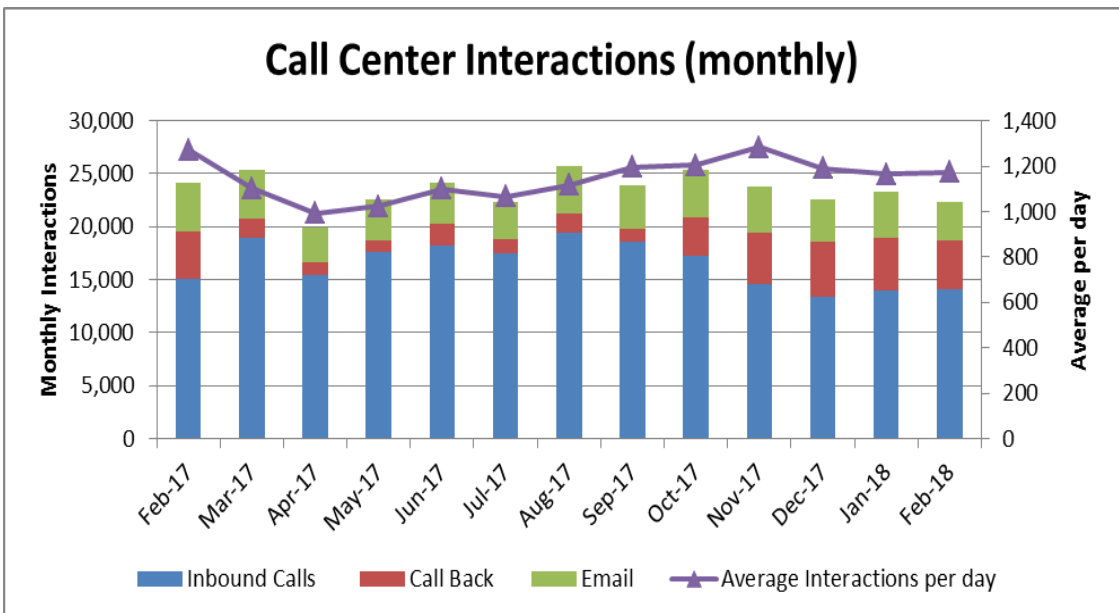
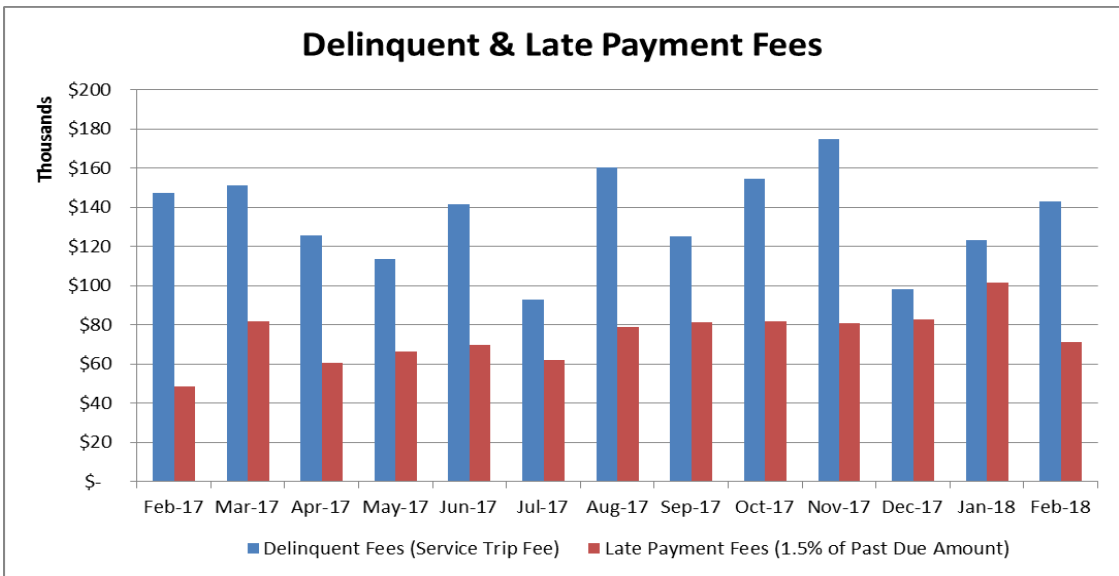
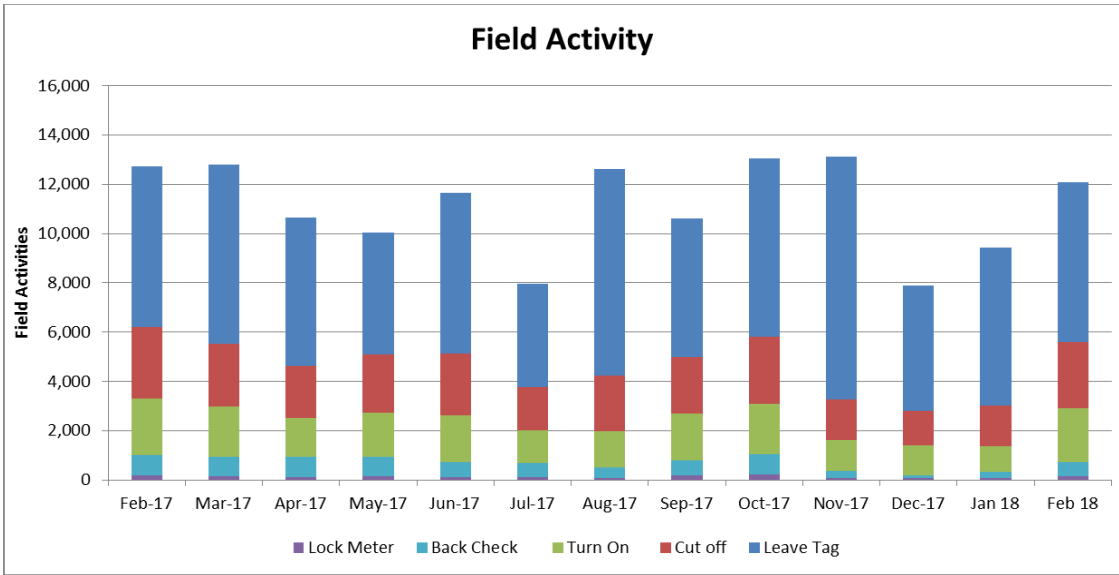
### 1. Accounts Receivable Overview

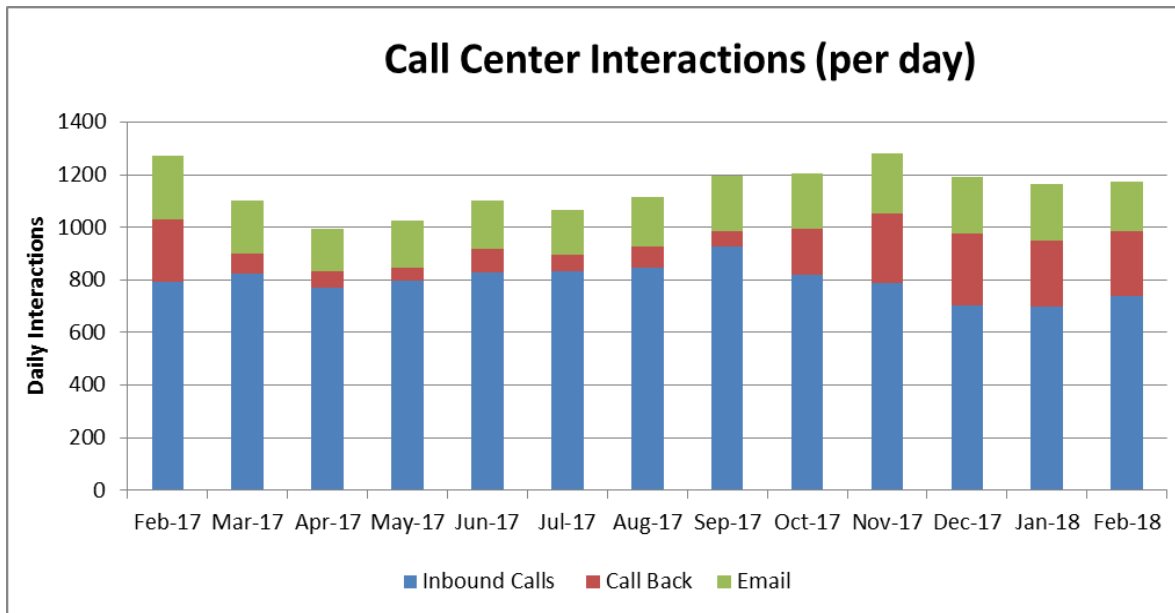




2. Customer Care Center Statistics







Customer Interaction Statistics	Sep	Oct	Nov	Dec	Jan	Feb
Calls Answered within 3 minutes	81%	58%	45%	45%	49%	48%
Average Wait Time (minutes)	1:33	3:51	5:50	6:39	5:41	5:31
Calls Abandoned	7%	13%	18%	18%	17%	16%

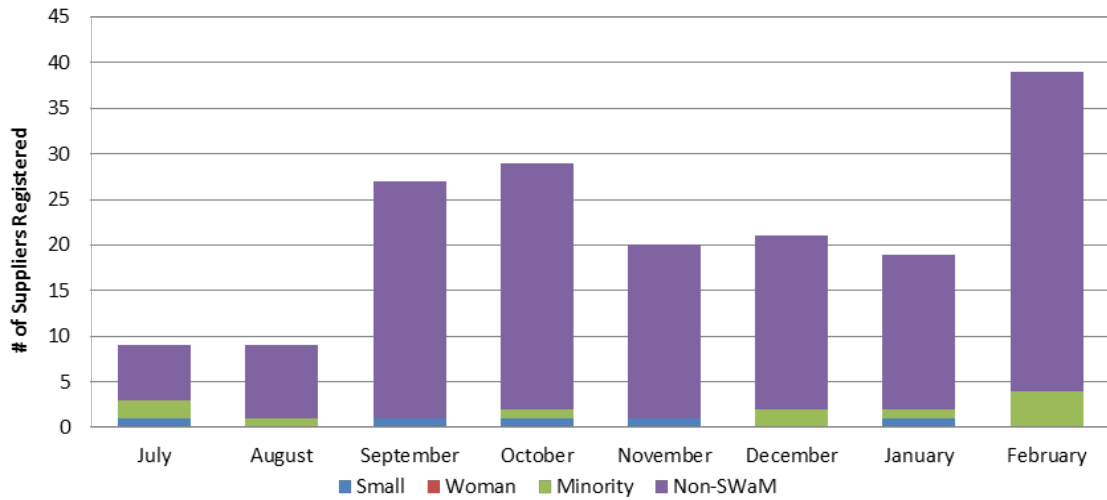
D. Procurement Statistics

Savings	Current Period	FYTD
Competitive Savings <sup>1</sup>	\$54,368	\$738,907
Negotiated Savings <sup>2</sup>	\$343	\$2,107,889
Salvage Revenues	\$7,412	\$47,326
Corporate VISA Card - Estimated Rebate	\$16,236	\$144,197

<sup>1</sup> 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.

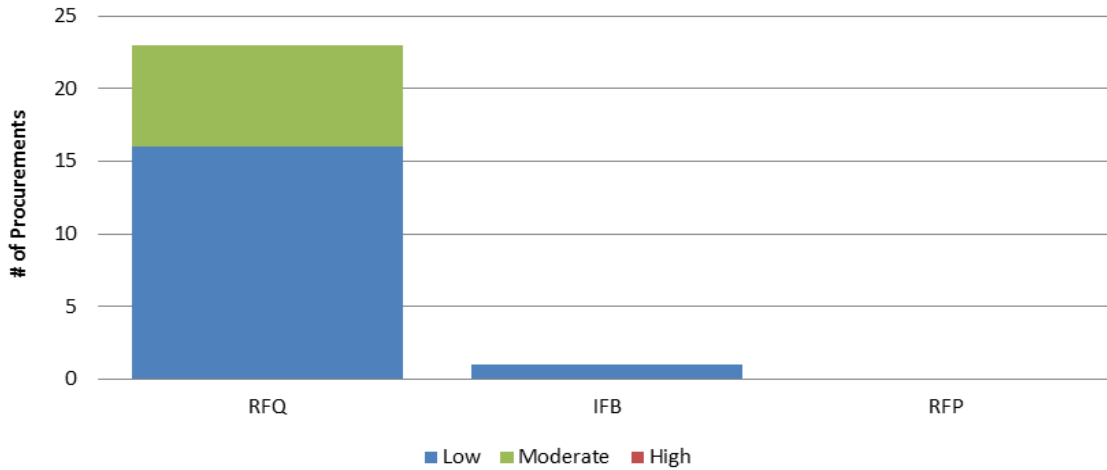
<sup>2</sup> Negotiated savings are savings obtained during a Request for Proposal process, or if all bids received exceed the budgeted amount, or if only one bid is received.

## New Suppliers Registered in ERP

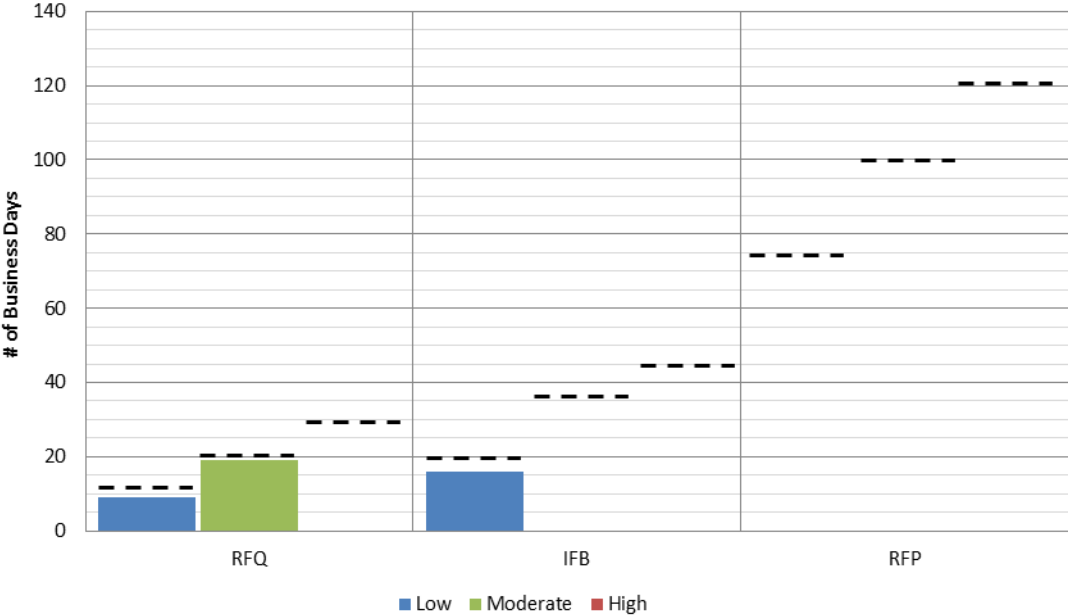


*\*Increased supplier registration due to supplier outreach at NIGP Forum 8/29/17, Water Jam 9/13/17, VASCUPP® SWaMFest 10/4/17, City of Richmond OMBD and CVMSSDC, Procure Your Business Conference 10/18/17, Virginia Beach Minority Business Council Conference and Expo 11/2/17, CNU SWaM Fair 11/9/17, DGS Forum 11/14/17, CVMSSDC Supplier Development 1/30/18*

## Procurements Completed Based on Complexity



### Cycle Time per Method of Procurement and Complexity

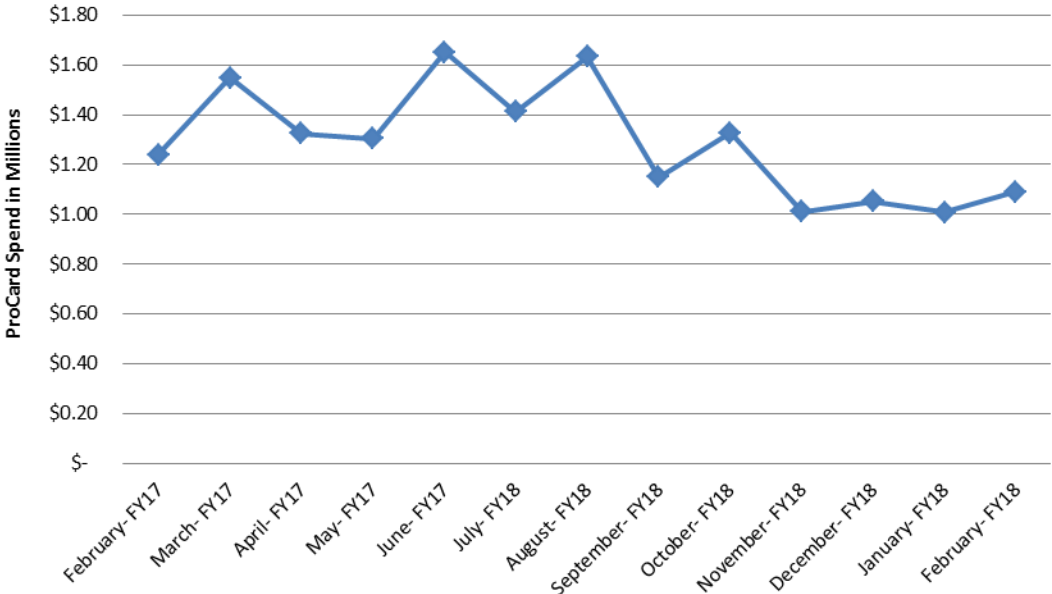


**Dashed Line:** Target Service Level Cycle Time

	Low	Moderate	High
RFQ	12	20	30
IFB	20	35	45
RFP	75	100	120

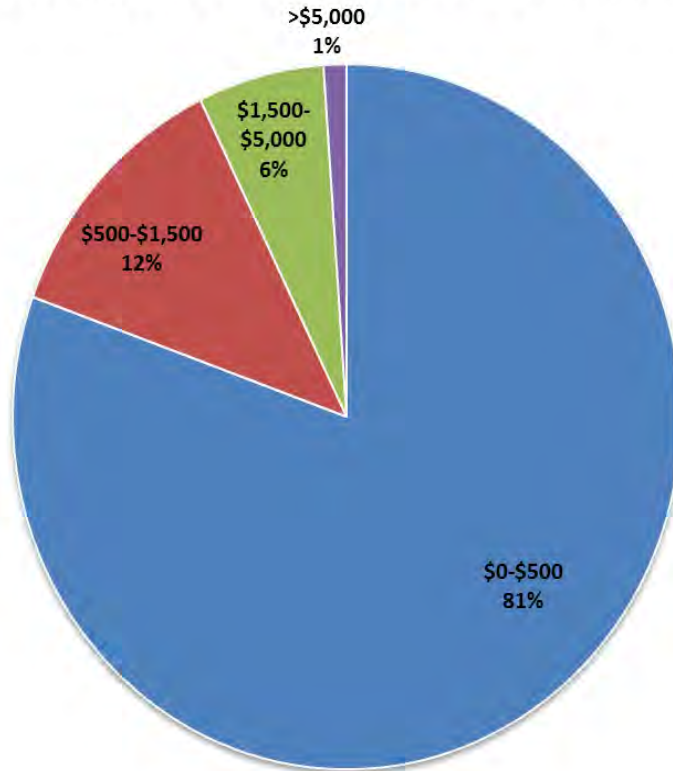
**Low:** Low technical, quick turnaround, **Moderate:** Technical, routine, **High:** Highly technical, time intensive,

### ProCard Spend





## February ProCard Transaction Dollar Amounts



ProCard Fraud	External Fraud Transactions *	Comments
July	4	Caught by Bank immediately
August	6	Caught by Bank immediately
September	2	One caught by cardholder immediately, one caught by Bank immediately
October	0	
November	0	
December	4	Three caught by cardholders immediately, one caught by Bank immediately
January	0	
February	1	Caught by Bank immediately
<b>Total</b>	<b>17</b>	

\***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 0% of February's ProCard transactions.

Procurement Client Training		
	Current Period	YTD
ProCard Policy and Process	3	39
Procurement Cycle	3	13
Additional Training Provided	0	0
<b>Total</b>	<b>6</b>	<b>52</b>

E. Business Intelligence – Enterprise Resource Planning (ERP)

1. ERP Helpdesk currently has 260 open work orders in the following statuses: 4 escalated, 64 in progress, 17 on hold, 173 open, 2 waiting on user. ERP Helpdesk received 180 work orders in February. In February, 184 work orders were closed and 52 were closed within one hour.
2. ERP staff continues to work with consultants on functionality and improvements to the system.

F. Strategic Planning Metrics Summary

1. Educational and Outreach Events: 0
2. Community Partners: 0
3. Monthly Metrics

<b>Item #</b>	<b>Strategic Planning Measure</b>	<b>Unit</b>	<b>February 2018</b>
M-1.4a	Training During Work Hours Per Full Time Employee (101) – Current Month	Hours / #FTE	2.68
M-1.4b	Total Training During Work Hours Per Full Time Employee (101) – Cumulative Fiscal Year-to-Date	Hours / #FTE	30.90
M-5.2	Educational and Outreach Events	Number	0
M-5.3	Number of Community Partners	Number	0
	Wastewater Revenue	Percentage of budgeted	103%
	General Reserves	Percentage of Operating Budget less Depreciation	112%
	Liquidity	Days Cash on Hand	462 Days
	Accounts Receivable (HRSD)	Dollars	\$24,142,328
	Aging Accounts Receivable	Percentage of receivables greater than 90 days	17%

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

TO: General Manager

FROM: Director of Information Technology (IT)

SUBJECT: Information Technology Department Report for February 2017

DATE: March 14, 2018

A. General

1. Testing of the cellular 4G secure communications circuits for the new Supervisory Control and Data Acquisition (SCADA) platform is going well as the project team nears completion of the installation schedule.
2. IT engineering and industrial control staff continue configuring and testing network and process control systems at the Sustainable Water Initiative for Tomorrow (SWIFT) Research Center. Testing is going well and remains on schedule.
3. Staff is conducting a capacity audit of HRSD's storage infrastructure to identify and remediate unnecessary instances of data duplication (multiple copies of the same data/files being stored). Once complete, the owners of the data will be engaged to develop and implement a data storage schema which minimizes such duplication.
4. Testing of the virtual desktop platform is progressing. Once complete, users will have access to a virtual version of their desktops via any device they choose (iPad, smart phone, laptop, etc.). Testing and validation is an extremely involved process, requiring the setup and testing of all software applications across all end user devices.
5. The HRSD web site redesign is complete. A demonstration will be given to the QST early next month and go-live in April.

B. Strategic Planning Metrics Summary

1. Educational and Outreach Events: 0
2. Number of Community Partners: 0

C. Monthly Metrics

<b>Item #</b>	<b>Strategic Planning Measure</b>	<b>Unit</b>	<b>February 2018</b>
M-1.4a	Training During Work Hours Per Full Time Employee (50) – Current Month	Total Training Hours / # FTE	3.01
M-1.4b	Total Training During Work Hours Per Full Time Employee (50) – Cumulative Fiscal Year-to-Date	Total Training Hours / # FTE	26.76
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 February 2018  
DATE: March 8, 2018

A. Interceptor Systems

1. North Shore (NS) Interceptor Systems

- a. There were two interceptor complaints and four system alarms during the month. The alarms and complaints were fully resolved.
- b. Staff supported multiple Capital Improvement Project (CIP) efforts throughout the month. Of particular interest was the line stop operation support to tie-in the new force main as part of the Bridge Street Pump Station (PS) project.
- c. Staff began planning efforts to resolve a valve failure in York County. The location of the valve failure is in a highly congested area at the intersection of Big Bethel and Magruder Boulevard. Because of the congestion, we will focus on a new technology involving an inserta-valve in lieu of traditional line-stop activities. It is anticipated that construction activities will take place in April.

2. South Shore (SS) Interceptor Systems

- a. Staff replaced an inoperable 18-inch HRSD valve and a 14-inch Navy valve at the Little Creek Amphibious Base in Norfolk. Instead of using line stops that are costly, time intensive, and require a contractor to isolate the flow, staff successfully used a bag stop. Where possible, staff hopes to utilize bag stops on future repairs which do not require pouring concrete pipe reinforcements.
- b. Staff completed the final air vent replacement in the South Shore Interceptors Air Vent Rehabilitation project by the February Consent Decree deadline. Since 2014, staff managed the replacement of over 330 air vents throughout the South Shore Interceptor System; 50 of the air vents were replaced by staff with the remainder replaced by a contractor.

- c. Staff supported a contractor in completing the Pughsville Pressure Reducing Station Upgrades in Suffolk by the February Consent Decree deadline.
- d. Staff supported a contractor and the City of Suffolk on a critical tie-in for the Holland Road 24-Inch Interceptor Force Main – Section A Phase I project. Staff identified several complications with the tie-in because the section of force main was not only the end of the line but also a low spot where there would be a large accumulation of debris and grit. Staff was able to clean approximately 100-feet of pipe and remove several yards of debris. The tie-in activates 3.5 miles of new 24-inch force main.
- e. Staff assisted in cleaning the Regional Residuals Facility at the Nansemond Treatment Plant (NTP).

## B. Major Treatment Plant Operations

### 1. Army Base Treatment Plant (ABTP)

- a. On February 1, there was an air permit deviation for the use of the emergency bypass stack for 13 minutes. The air compressor shut down due to faulty a control module. A new control module has been ordered.
- b. On February 23, there was an air permit deviation when the average pressure dropped below the minimum level permitted. A broken bolt inside the Venturi damper caused the deviation; staff repaired the damper.
- c. On February 5, the plant experienced a catastrophic failure of an odor control fan when an operator inadvertently closed the bypass damper. The operator thought that he had opened the damper, but because the indicator on the bypass damper was broken, he actually closed it. Prior to the incident, a contractor was tasked with installing instrumentation on the fan that would have prevented this failure. Staff is pursuing the installation of the required instrumentation on the other fan. This is the third catastrophic failure since the system was brought online in 2015. We are developing in-depth procedures and training requirements for system maintenance and operation.
- d. The new methanol tank was delivered and set in place on February 15. The plan is to resume methanol operations the first week of April.
- e. Staff completed the installation and programming of mechanically actuated spray water valves on the influent screens.

- f. Staff completed the overhaul of Non-Potable Water strainer #2.

## 2. Atlantic Treatment Plant (ATP)

- a. Construction of the Thermal Hydrolysis Process (THP) project continues. Contractors finished removing the tanks in the old Dissolved Air Flotation (DAF) room in preparation for the new Disinfected non-potable water (DNPW) facility. Contractors also continued work on the yard piping.
- b. Construction of the new administration building is underway with substantial completion planned for July of 2018. The brick work is complete and the roof and windows are expected to be finished by mid-March.
- c. Staff overhauled Barscreen #2. Parts replaced include 160 side plates, back supports, upper and lower side seals and a new foot brush. This was the first of the three screens to be completed in order to improve screenings removal.
- d. Contractors finished the coating work on Secondary Clarifier #6, which completes the coatings project for all six clarifiers.
- e. Work continues on the primary motor control center replacement. This project should be completed in March.

## 3. Boat Harbor Treatment Plant (BHTP)

- a. On February 6 there was an air permit deviation when the ID fan failed, causing a nine-minute use of the bypass stack. Staff could not determine the cause of the ID fan failure. A second air permit deviation occurred on February 14 when the off gas scrubber flow was interrupted, causing the ID fan to fail resulting in a four-minute use of the bypass stack. A failure of an electrical breaker caused the loss of flow. Staff corrected the problem by switching to a backup water pump.
- b. On February 21, a blocked drain line caused an overflow of non-potable water (NPW). Approximately 4,000 gallons were released. To contain the spill, staff blocked the storm drains with sandbags and used sump pumps to recover 3,890 gallons.
- c. Despite seasonally low temperatures, staff continues to optimize nitrification efforts in order to support the lower James River bubble permit. The larger blower was utilized to maintain nitrification, resulting in higher than normal energy demand. Maintaining and troubleshooting the instrumentation and controls for the aeration process responsible for

nitrification and denitrification has required significant time.

- d. Contractors completed modifications in the #2 Incinerator to convert it to Zero Hearth Afterburner (ZHA) operation. They also completed the required refractory repairs.
- e. Contractors completed replacement of the deteriorating #2 odor scrubber fan base with one fabricated from stainless steel.
- f. Staff completed installation of a new centrifugal Chopper pump in the scum processing system.
- g. Staff replaced one conveyor screw in the grit processing system when it failed.

4. Chesapeake-Elizabeth Treatment Plant (CETP)

- a. On February 18 a power anomaly caused an air permit deviation when the minimum average pressure dropped below acceptable levels.
- b. Plant staff modified the waste mixed liquor system and the return activated sludge system to allow for higher flow rates based on process needs.

5. James River Treatment Plant (JRTP)

- a. Sodium bisulfite feed for de-chlorination was lost during a planned power outage to perform transformer maintenance. The operator started the emergency bisulfite feed, but the potable water line feeding the inductor broke. Power was restored and the bisulfite feed resumed. Staff repaired the broken water line. As a backup to this system, staff installed a dedicated bisulfite feed pump that can be connected to a portable generator.
- b. During the same power outage, the odor control system was offline.
- c. Staff completed the rebuild of #2 grit cyclone and classifier. Work shifted to repairs and modifications to the grit slurry feed piping that feeds all three units. Staff also installed new weirs on the #1 gravity thickener and replaced the front and rear bearings on the #3 centrifuge.
- d. Preventing struvite accumulation on the centrate pipeline transporting centrate from the centrate wet well to the two centrate equalization tanks moved from testing of the HydroFlow unit to operating a lobe pump. Staff completed installation of a lobe pump that should create



less turbulence when pumping struvite. Turbulent environments tend to promote struvite formation.

- e. In the area of research, feed piping to the cyclone units were modified to provide higher flow rates. On the magnesium hydroxide feed project, work began on the piping from the magnesium hydroxide injection and mix tank to the centrifuge feed pumps.
- f. A contractor continued work on coating steel and concrete on the grit tanks. Work focused on coating and installing an influent channel cover at the #3 and #4 grit tanks.

## 6. Nansemond Treatment Plant (NTP)

- a. Staff completed the installation of the new cabinets as the final step in the administration building kitchen renovation. The lunch room can now accommodate the entire plant staff.
- b. The #2 Anaerobic Digester coating work continues with an estimated completion in April.
- c. Staff is rebuilding the hot water spray system for the scum screens. This work will significantly improve the plant's ability to remove scum from the plant process and coincides with work to improve scum removal in the primary clarifiers.
- d. Staff is installing the new polymer system for solids dewatering, which should result in a chemical savings due to the way in which the system blends the polymer.
- e. A contractor is replacing the corroded hydraulic lines for the dewatering cake solids hoppers.

## 7. Virginia Initiative Plant (VIP)

- a. When installing an upgrade to a digital control unit (DCU), a corrupted file caused the DCU to fail. When the DCU failed, the non-potable water pumps shut down, causing the furnace bypass damper to open.
- b. A partially blocked process drain line overflowed on February 8. Staff contained most of the overflow, but approximately 100 gallons were lost into a nearby storm drain. Contractors cleared the blocked line.

- c. Staff started up Incinerator 1 and shut down Incinerator 2 for repairs. Emissions testing for Incinerator 1 will occur in March.
- d. Contractors completed installation of the off-gas scrubber access platform and high-capacity air compressor.

8. Williamsburg Treatment Plant (WBTP)

- a. One reportable air event occurred when the incinerator ID fan was off for some time during a loss of power.
- b. Staff prepared for stack testing of the #2 incinerator. Several test runs were performed before official stack testing on February 27. Preliminary stack test results look promising.
- c. Staff repaired casted components on the #1 incinerator.

9. York River Treatment Plant (YRTP)

- a. There were two reportable odor events. The first odor event was a one hour shutdown of the odor control station while staff performed maintenance activities on a transformer. The second odor event occurred when the odor control station was shut down for several hours while repair work was performed on a transformer transfer switch.
- b. Distributive Control System upgrades were coordinated and completed by staff and a contractor.
- c. Installation of new cameras was coordinated and completed by staff and a contractor.

C. Small Communities

1. Small Communities Division – Middle Peninsula

- a. SC Treatment:

Urbanna Treatment Plant (UBTP)

Installation of a new fine bubble diffuser is nearing completion for Process Train #2. Additionally, the new lab construction is nearing completion. This construction work is being done in-house by staff.

b. SC Collections:

1) King William System

Bush-hogging is complete for FY18. The main station is still utilizing the bypass pump as the main station pump while we wait for the new engineered pump to arrive.

2) Urbanna System

The Cross Street PS rehabilitation project will be moving forward with construction towards the end of March and is anticipated for completion by the end of April.

2. Small Communities – Surry Systems

Staff began the process of GPS locating and recording all appurtenances and infrastructure for the Town of Surry and Surry County. These activities uncovered a number of conditional issues that will need to be corrected over time.

a. Town of Surry

1) Sussex Service Authority (SSA) began contract operations of the Town of Surry TP this month.

2) The following exceedances for the month of February were reported:

	Limit Type	Unit	Permit Limit	Reported Value	Number of Exceedances
TSS	Monthly average	MG/L	10	13	1
		G/Day	2300	2706	1
				Total	2

3) One of the two drum filters was repaired and placed back in service at the Town of Surry TP. Additional work on the backwashing cycle will need to be performed to get the filter working properly. The second drum filter will also need to be completely rebuilt in the future.

b. County of Surry

Operations of the County TP continued without issue during the month.

## D. Support Systems

### 1. Automotive

- a. Staff took the ATP #1 combined heat and power (CHP) generator out of service. The engine was found to be unstable when the electrical load was increased. A contractor replaced a faulty coil pack and discovered a significant oil leak at the base of the turbocharger. With the turbocharger removed and inspected, damage could be seen on the compressor vanes. Unit #1 is still out of service. The turbocharger was sent to New Jersey to be refurbished and should be back in service within 2 weeks.
- b. Staff performed load bank tests at Atlantic and Shippo's Corner Pressure Reducing Stations (PRS) and at Copeland Park, Freeman Drive, Fort Eustis, Luxembourg, Newtown Road, Route 337, and Steamboat Creek PS. All generators operated as designed and were returned to service.
- c. A cross-departmental team was assembled to discuss needs and expectations for the deployment of the Fleetistics Fleet Management System.

### 2. Condition Assessment

- a. Condition Assessment (CA), through use of Closed-Circuit Television (CCTV), inspected 3,611.9 linear feet (LF) of gravity force main, completing the inspection of line SG-078, SG-079, and SG-108. Staff oversaw the emergency repair of the manhole at the intersection of Big Bethel Road and West Mercury Boulevard (MH-NG-057-1850).
- b. Staff completed final walkthrough inspections of Nansemond Treatment Plant's (NTP) aeration tanks and ATP's #1-6 secondary clarifier rake arm assembly rehabilitation projects. Both projects are complete.
- c. Staff made necessary repairs to the JRTP administration building.
- d. The rehabilitation of JRTP's grit tanks, rake arm assemblies, and channels continues, with routine inspections occurring throughout the month. Concrete work on tank #4 is complete.
- e. The coatings work on the interior walls and ceiling of NTP's #2 digester continues. The roof and walls of the digester are severely deteriorated.
- f. Coatings work began on the Bayshore Avenue PS wet well.

### 3. Facilities Maintenance

- a. Staff began work to replace the heating, ventilation, and air conditioning (HVAC) system in the Motor Control Center (MCC) at Greensprings PS. Both HVAC units are non-operational. A new 3-ton unit will be installed mid-March.
- b. Staff fabricated a new exhaust hood canopy for one of the labs in the Central Environmental Laboratory. Staff also installed a new reverse osmosis (RO) constant pressure supply pump, a new high purity water system, and fabricated safety attachments for instruments in a lab.
- c. Staff continues with the construction of a new office area within the main office building for the Small Communities Division (SCD) and the relocation of a new lab at Urbanna Treatment Plant. Staff started fabricating and installing cabinets in a truck for the Water Quality Department.
- d. Staff rebuilt a micro-screen filter for YRTP, fabricated a new mixer stand for the pilot study project at CETP, made six plates and installed the plates in pelican boxes for SS Interceptor Systems, completed a pump sleeve and valve operator on the #2 pump at the Washington PS, rebuilt the #1 pump and fabricated base and nose rings for the Kingsmill PS, and rebuilt a grit pump for the WBTP.

### E. Electrical and Energy Management (EEM)

1. The main breaker at the Luxembourg PS failed. The PS generator and bypass pumping provided power and services to the station until a new main breaker was secured and replaced. Staff coordinated with Dominion Energy (DE) to remove utility power from the station until the new 600 amp breaker was installed and tested. The PS was returned to service.
2. Staff began installing power monitoring equipment at ABTP this month. The monitoring equipment will capture power anomalies (sags, swells, spikes) and allow staff to better understand the anomalies and mitigate them. The equipment will be installed on the plant's incoming utility service and the Solids Handling (SH) Building Motor Control Center (MCC).
3. Staff continues to review submittals and verify installation of equipment for the SWIFT demonstration facility at NTP. The team continued input/output (I/O) checks for the distributed control system (DCS) this month.
4. The instrument air compressor at VIP failed. A rented compressor provided temporary air while staff installed a new compressor and controls on a new

skid, which required additional conduit, wire and splicing to restore the system. The system was tested and returned to service.

5. Staff prepared drawings and supervised an electrical contractor who installed 500 feet of three-quarter inch ridged conduit for outdoor lighting at various buildings around ATP. The team completed the wiring and controls for the new lighting.
6. The Medium Voltage Preventive Maintenance (PM) contractor visited ATP and CETP to evaluate medium voltage equipment and make recommendations for improvement.
7. Collecting transformer oil for analyses and monitoring transformer nitrogen blankets inside the transformers are part of the PM's performed on HRSD's oil filled transformers. Staff collected electrical transformer oil samples at four treatment plants for analysis. At VIP, the team found a nitrogen blanket did not meet specifications. Staff shut the transformer down until the nitrogen blanket was restored to proper pressure.
8. The thermographic inspection of the Reuse Filter Building substation breaker at YRTP revealed a bad connection on the breaker. Staff worked with a contractor to repair the connection and return the breaker to service.
9. Staff worked with a contractor to install temporary pressure transmitters, flow meters and alarms for station bypass during the main line valve replacement at Pughsville PRS. Once the main line valve was placed, staff returned the PRS to service.
10. Staff continues work at the Town of Surry TP, including completion of the drum filter, pressure transmitter and rain gauge installations as well as alarm testing.
11. Staff discovered a collapsed conduit with damaged conductors on a 24-inch valve actuator problem at Williamsburg Pressure Control Valve (PCV). The team installed new conduit and wires, tested the system and returned the PCV to service.
12. Staff was involved in a number of projects this month, including research for a carbon regeneration facility, training and assistance to Technical Services Division (TSD) regarding installation of the new Continuous Emissions Monitoring System (CEMS) at VIP and WTP and continuing assistance to upgrade from Royce to Insite dissolved oxygen (DO) probes and the redesign of the scrubber hydrogen sulfide (H<sub>2</sub>S) analyzer sampling system at NTP.

13. Staff continues to coordinate Black Start generator training for all EIS staff. Training was conducted at ABTP and ATP this month.
14. Staff continues to hold ControlWave<sup>®</sup> training for EIS staff.
15. Staff worked with the Information Technology Department to successfully upgrade HRSD's C-CURE Security System to the latest software level.

F. Water Technology and Research

The Director of Water Technology and Research participated in two separate potable reuse-focused meetings in Southern California this month. The first meeting was an independent review panel for the National Water Research Institute (NWRI) of five separate direct potable reuse projects in Southern California that are all at the feasibility stage. The Director was invited to serve on this panel to provide technical input to the state of California and the five utilities being considered as California prepares to develop regulations for direct potable reuse (DPR). The second meeting was the annual planning meeting for The Water Research Foundation Issue Area Team on water reuse. The Water Research Foundation recently received a large grant from the state of California to consider various research needs related to DPR. This funding, combined with that from the foundation itself and utility contributions represents an approximate \$7M research program in potable reuse over the next two to three years. The purpose of the meeting was to prioritize the most important topics for research and development and to set the research project agenda over the next few years.

G. MOM Reporting numbers

MOM Reporting #	Measure Name	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June
2.7	# of PS Annual PMs Performed (NS)	2	4	4	2	2	1	9	3				
2.7	# of PS Annual PMs Performed (SS)	5	5	6	5	3	2	3	3				
2.7	# of Backup Generator PMs Performed (Target is 4.6)	9	10	10	12	7	9	12	11				
2.8	# of FM Air Release Valve PMs Performed (NS)	108	36	186	204	256	203	130	36				
2.8	# of FM Air Release Valve PMs Performed (SS)	79	153	115	409	140	210	153	271				
2.9	# of Linear Feet of Gravity Clean (NS) (Target is 2,417 for HRSD)	11,560	5,608	3,872	3,807	1,837	4,294	1,198	2,732				
2.9	# of Linear Feet of Gravity Clean (SS) (Target is 2,417 for HRSD)	5,838	8,330	3,354	0	12,580	5,071	0	1,987				
2.9	# of Linear Feet of Gravity CCTV Inspection (HRSD Target 3,300 LF)	9,186	5,796	4,017	2,717	2,019	655	1,057	3,611.9				



## H. Strategic Measurement Data

### 1. Education and Outreach Events: 12

- a. Charles Bott provided a SWIFT Overview to the National Water Research Institute Direct Potable Reuse Panel Review in Los Angeles
- b. Charles Bott provided an ABAC Presentation by Webinar to the Department of Energy
- c. Charles Bott provided an ABAC overview for Clean Water Services
- d. Chris Wilson provided a SWIFT Podium Presentation at AWWA Potable Reuse Seminar
- e. Charles Bott was a guest lecturer in Mark Widdowson and Kurt Stephenson's class at Virginia Tech
- f. CETP Tour for Naval Station Norfolk – Air Quality Students
- g. NTP Plant Tour for North Carolina State
- h. NTP Plant Tour for Thomas Nelson Community College Science Engineering and Technology
- i. The NS Electrical Manager spoke about engineering to students in the Cooperating Hampton Roads Organization for Minorities in Engineering (CHROME) at Fairlawn Elementary School in Norfolk on February 21. He also facilitated a hands-on electrical activity.
- j. Tidewater Area Fleet Managers Association
- k. Hampton Roads Public Works Academy – FM Superintendent taught two classes on physical plant maintenance - 2

### 2. Community Partners: 7

- a. Chesapeake Bay Foundation – oyster cage maintenance at BHTP for oyster gardening program
- b. Virginia Institute of Marine Science
- c. Old Dominion University
- d. Naval Station Norfolk
- e. CHROME
- f. Tidewater Area Fleet Managers Association
- g. Hampton Roads Public Works Academy – Virginia Beach Technical and Career Education Center

Item #	Strategic Planning Measure	Unit	February 2018
M-1.4a	Training During Work Hours per Full Time Employee (FTE) (510) – Current Month	Hours / FTE	4.28
M-1.4b	Total Training During Work Hours per FTE (510) – Cumulative Year-to-Date	Hours / FTE	26.1
M-2.3a	Planned Maintenance Total Maintenance Hours	Total Recorded Maintenance Labor Hours	27,523
M-2.3b	Planned Maintenance – Preventive and Condition Based	% of Total Maintenance Hours	41.55
M-2.3c	Planned Maintenance - Corrective Maintenance	% of Total Maintenance Hours	27.49
M-2.3d	Planned Maintenance - Projects	% of Total Maintenance Hours	30.96
M- 4.1a	Energy Use: Treatment *reported for January 2018	kWh/MG	2,219
M-4.1b	Energy Use: Pump Stations *reported for January 2018	kWh/MG	149
M-4.1c	Energy Use: Office Building *reported for January 2018	kWh/MG	102
M-5.2	Educational and Outreach Events	Number	12
M-5.3	Number of Community Partners	Number	7

Respectfully submitted,

Steve de Mik  
Director of Operations

TO: General Manager  
FROM: Special Assistant for Compliance Assurance  
SUBJECT: Monthly Report for February 2018  
DATE: March 7, 2018

A. Submittals Completed in February 2018 – None required in February.

B. Activities

1. **Phase 6 – Rehabilitation Plan.** Ongoing system rehabilitation work associated with Prompt Repairs or other items in the Sewer Repair (SR) contract is as follows:
  - SR 037 – Bayshore Lane: Addressing manhole repair issues prior to closing out project.
  - SR 040 – Woodland Avenue: Construction underway to replace sections of gravity sewer and rehabilitate manholes.
  - SR 055 – Hampton University: Work order development in progress to repair influent gravity to HRSD pump station.
  - SR 069 – Powhatan Manhole: Work being scheduled for construction.
2. **Phase 7 – Regional Wet Weather Management Plan.** Comments and a request for additional information were received from the EPA on the Integrated Plan/Regional Wet Weather Management Plan. A response was provided on December 16. Additional questions were received in mid-January regarding HRSD's financial capability and a response was provided on **February 15**.
3. **Phase 8 – EPA Consent Decree Services.** HRSD continues sharing information with the localities through the regional SharePoint site and flow, pressure and rainfall data portal. A Capacity Team sub-workgroup called New Development Flows Workgroup held meetings on **February 12 and 26**.

4. **Phase 9 – Supplemental Services.** The Quarterly Compliance Program Review meeting was held on **February 7**.

The deadline of February 23 for completion of all Consent Decree Interim System Improvement (ISI) projects (except Bridge Street PS and VIP Improvements due later this year) was achieved.

Management, Operations and Maintenance (MOM) Program elements are ongoing, including the Hydrogen Sulfide (H<sub>2</sub>S) Monitoring Program and implementation of a Business Intelligence (BI) system for the Small Communities Division (SCD). This includes a MOM update manual guidance document for use on the next major update. The 2018 MOM Refresh Kick-Off meeting was held on **February 7** with North and South Shore staff. MOM sections were issued for review on **February 14**.

The Flow, Pressure and Rainfall (FPR) monitoring program continued in February with data collection and analysis being performed as part of the MOM Program.

Condition assessment work under Phase II of the Force Main Condition Assessment (FMP2) program progressed in February. Force main inspection work order status is as follows:

- FMP2 039 Bowers Hill: Work is in progress to inspect the force main.
- FMP2 049 Shore Drive (Reservoir Group): Work order under development. Initial ground penetrating radar (GPR) work will begin in early March.
- FMP2 050 Laskin Road: Follow-up potholing based on GPR results is planned to more precisely identify location of high spots.
- FMP2 051 Independence Blvd: Follow-up potholing based on GPR results is planned to more precisely identify location of high spots.

Field work planning continued in February under the Gravity Sewer Inspection Phase II Program. The gravity inspection work order status is as follows:

- Draft Work Order GMP2 056 Jefferson Avenue Closed Circuit Television (CCTV) is currently under review.

- The following Small Communities Division (SCD) work orders in King William have been signed and work in this area is anticipated to start in FY19:
  - GMP2 SCD 026 Main Pump Station
  - GMP2 SCD 027 Commerce Pump Station
  - GMP2 SCD 028 Central Crossing
  - GMP2 SCD 029 McCauley Park Pump Station
  - GMP2 SCD 030 Kennington Pump Station
  - GMP2 SCD 033 School Pump Station
  
- Additional work orders are under development
  - GMP2 059 NS Siphons FY18
  - GMP2 060 SS Siphon FY18
  - GMP2 SCD 031 Urbanna Manholes
  - GMP2 SCD 032 King William Manholes
  - GMP2 SCD 034 Matthews

Work continued on the Fiscal Year 2017 Condition Assessment Annual Report.

C. Next Submittals

1. Sanitary Sewer Overflow Response Plan – April 2018
2. Semi-Annual Report – May 1, 2018

D. Program Budget Status

The overall program budget is \$130,151,133, excluding the Master Metering Program. A summary of appropriations and expenses is attached.

E. Strategic Planning Metrics Summary

1. Educational and Outreach Events: 1
  - a. Monthly calls continue with the three co-chairs, Kyle Logue (Brown and Caldwell), Steve Motley (Virginia Beach Public Utilities), and Phil Hubbard (HRSD), coordinating the national VWEA/WEF Collections Specialty Conference, which will be at the Virginia Beach Convention Center, April 8-11, 2018. A social event will be held at the Virginia Aquarium located at 717 General Booth Boulevard.
2. Number of Community Partners: 0

<b>Item #</b>	<b>Strategic Planning Measure</b>	<b>Unit</b>	<b>February 2017</b>
M-1.4a	Total Training Hours Per Full Time Employee (1) – Current Month	Total Training Hours / # FTE	0
M-1.4b	Total Training Hours Per Full Time Employee (1) – Cumulative Fiscal Year to Date	Total Training Hours / # FTE	40
M-5.2	Educational and Outreach Events	Number	1
M-5.3	Number of Community Partners	Number	0

Respectfully submitted,

*Phil Hubbard, P.E.*

Attachments: [Consent Order State & EPA Expenditures](#)

## Consent Order State & EPA Expenditures

	<b>Total Appropriation</b>	<b>February 2018 Obligations</b>	<b>Available Balance</b>
<b>Regional Consent Order and Other Consent Order Requirements</b>			
Regional Hydraulic Model	\$109,436,497	\$108,371,676	\$1,064,821
Locality System Monitoring and Condition Assessment	\$20,714,636	\$20,282,625	\$432,011
Subtotal - In progress	\$130,151,133	\$128,654,301	\$1,496,832

### Completed Work

Regional Consent Order and Other Consent Order Requirements	(Included in subtotal above)
Master Metering Program III	\$2,005,140
Master Metering Program IV	\$13,628,635
<b>Total</b>	<b>\$144,288,076</b>

TO: General Manager  
FROM: Director of Talent Management  
SUBJECT: Monthly Report for February 2018  
DATE: March 14, 2018

A. Human Resources (HR)

1. Recruitment Summary

New Recruitment Campaigns	7
Job Offers Accepted – Internal Selections	3
Job Offers Accepted – External Selections	10
Internal Applications	26
External Applications	114
Average Days to Fill Position	90

2. Enterprise Resource Planning (ERP)

- a. HRSD worked with the Managed Services consultant on the following:
- (1) Benefit program setup
  - (2) Benefit interface updates
- b. Accounting, Talent Management and Information Technology staff met to address 2017 Internal Revenue Service Affordable Care Act mandatory reporting requirements and to continue data validation.
- c. Several ERP refresher training sessions were held at work centers and the main office.

3. Benefits and Compensation

- a. HR and Finance staff participated in an introductory meeting with HRSD's new benefit consultant to review health-related benefits, programs and plans and to discuss the medical renewal process, annual schedule, reporting requirements, future cost savings strategies and overall expectations.



- b. HR continued to work with Finance on administrative issues with the long-term disability benefits provider.
- c. The Classification and Compensation team reviewed one Finance Department position.

4. Wellness

a. Participation Activities

<b>Year 3 Participation Activities</b>	<b>Unit</b>	<b>February 2018</b>	<b>Year to Date (March 2017–February 2018)</b>
Biometric Screenings	Number	450	543
Preventive Health Exams	Number	188	299
Preventive Health Assessments	Number	248	660
Coaching Calls	Number	0	0
On-Line Health Improvement Programs	Number	600	1654
Web-MD Online Health Tracking	Number	318	2055
Challenges Completed	Number	0	0
Fit-Bit Promotion	Number	7	108

- b. Remaining onsite biometric screenings were held with 367 screenings completed in February.
- c. Requested blood pressure and waist measurement rechecks were performed for participants at several work centers.
- d. The Wellness Specialist coordinated with program participants throughout the month to encourage submittal of required information prior to the end of the wellness year.
- e. The Wellness Specialist began work on the 2<sup>nd</sup> quarter wellness newsletter.

## 5. Workers Compensation

- a. Two new cases were opened with 16 cases remaining active.
- b. The annual claims review meeting was held with HR and Finance staff and insurance representatives to review claims status, communication procedures and process improvements.

## 6. Employee Relations

- a. Staff continued to partner with work center supervisors and employees to support employee relations, address HR issues, and assist with job descriptions and interview processes. HR Specialists participated in Engineering and Finance Department interview processes.
- b. Training on HR policies, recruitment, ERP Manager self-service, workers compensation and first report of injury procedures, and Apprenticeship program was provided to several new supervisors.
- c. Meetings with HR, Accounting and Payroll staff continued to identify roles and outline HR and Payroll procedures for overlapping work processes such as short-term disability, workers' compensation, and retroactive changes in ERP.

## 7. General

- a. Staff participated in the following HRSD activities:
  - (1) HRSD Fleetistics team
  - (2) Senior Leadership Retreat
- b. Staff participated in the following training:
  - (1) Water Environment Federation/ American Waterworks Association's (WEF/AWWA) Utility Management Conference
  - (2) WEF/AWWA Workforce Skills of the Future Workshop
  - (3) International Public Management Association's (IPMA) *Sexual Harassment Prevention* webinar
  - (4) IPMA's *HR 2018 Government Affairs Update*
  - (5) Mercer's webinar on *Meeting the Needs of Different Generations*
  - (6) HRSD's *Effective Collaborative Meetings* workshop
  - (7) ERP Refresher training

## B. Organization Development and Training (OD&T)

1. The Leadership Facilitators continued to revamp the Leadership and Management Program (LAMP) to further engage learners based on feedback and observations made during previous LAMP sessions.
2. The OD&T Manager continued working with Operations on an abridged Supervisor Workshop for Lead Operators.
3. The *Effective Collaborative Meeting* pilot was held and received exceptional participant feedback. Pilot class recommendations will be incorporated and the revised workshop presented to the QST.
4. The Project Management workshop team continued to make progress and is gathering information to create relevant training examples.
5. Staff continued cross-training to improve e-learning software skills.
6. Apprenticeship Program
  - a. The Training Superintendent and Apprenticeship Committee met to discuss and approve apprenticeship manual revisions in order to streamline and align with current practices and procedures.
  - b. OD&T met with Process Engineering and Research staff to discuss potential implications of SWIFT to the Apprenticeship program. A plan was developed to analyze potential curriculum changes and methods to integrate applicable material.
  - c. Staff continued to enter historical training and apprenticeship program information into ERP and began scanning historical records.
  - d. Apprenticeship Graduation planning efforts continued. The 35<sup>th</sup> apprenticeship class will graduate in September.
  - e. The Training Superintendent attended the City of Hampton's and City of Norfolk's Technical Education Center career fairs.
  - f. The Training Superintendent and Coordinator conducted supervisor training on Apprentice Program procedures, including documenting On-the-Jobs Skills Training (OJT) and processing training increases.
  - d. The Training Superintendent performed the following in relation to Apprenticeship courses:

- (1) Evaluated *Wastewater Analysis and Wastewater Laboratory* course for conversion to an online format and revision of the laboratory component to align with Plant Operator functions
- (2) Revisions to *Disinfection* curriculum
- (3) Revisions to *Collection System Maintenance* curriculum

7. General - Staff participated in the following training:

- a. Sacramento State Office of Water Program's Online wastewater treatment training
- b. Articulate Storyline e-Learning Certificate
- c. Coaching Ethics and Risk Management
- d. OpenStax's Chemistry Webinar

C. Safety

1. Mishaps and Work Related Injuries

a. HRSD-Wide Injury Mishap Status to Date (OSHA Recordable)

	<u>2017</u>	<u>2018</u>
<b>Mishaps</b>	42	3
<b>Lost Time Mishaps</b>	10	0
<i>Numbers subject to change pending HR review of each case.</i>		

b. MOM Program Year Performance Measure Work Related Injuries

<b>February 2018 Injuries For Operations</b>	<b>February 2018 Injuries for Other HRSD Departments</b>	<b>Total Lost Time Injuries Since July 2017</b>	<b>Total HRSD Injuries Since July 2017</b>
2	0	6	25

c. A follow-up investigation was performed on three work-related injuries and four auto and/or property damage incidents.

2. HRSD Safety Training

<b>Strategic Planning Measure</b>	<b>Unit</b>	<b>February 2018</b>
Total Safety Training Hours per Full Time Employee (830) All HRSD – January 2018	210.96 Hours / 830 FTE	0.25
Total Safety Training Hours Per Full Time Employee (830) – Cumulative July 2017	2663.33 Hours / 830 FTE	3.20

3. In addition to regularly scheduled safety training and medical monitoring, the following sessions were conducted:

- a. Eight external briefings for contractors working at treatment plants (TP) and pump stations
- b. Chemical Hygiene Plan training for Technical Services employees
- c. Virginia Department of Transportation Flagging training for North Shore Pretreatment and Pollution Prevention (P3) employees
- d. A new employee safety orientation for Engineering interns
- e. Respirator fit testing for a York River TP employee

4. Safety Inspections, Testing and Monitoring

- a. Weekly on-site inspections of the following construction sites:
  - (1) Army Base TP
  - (2) Atlantic TP
  - (3) James River TP
  - (4) SWIFT Research Center at Nansemond TP
  - (5) Virginia Initiative Plant (VIP)
- b. Quarterly safety inspections of the following work centers:
  - (1) Air Rail Avenue Complex
  - (2) Central Environmental Lab
  - (3) South Shore P3
  - (4) Technical Services Lab

- (5) VIP
- (6) York River TP

c. Monitoring and testing for the following:

- (1) Monthly hood velocity tests on Central Environmental Laboratory and Technical Services lab hoods
- (2) Air sampling within the Nansemond TP Administration building
- (3) Air sampling within the South Shore P3 Administrative offices
- (4) Air sampling during hazardous waste collection for Water Quality

d. Safety walk-throughs and evaluations

- (1) Escorted consultant on Nansemond TP adjacent property for a property survey
- (2) Evaluated a HRSD property in Chesapeake in preparation for demolition and to coordinate asbestos sampling.

5. Safety Programs

- a. Finalized information and submitted Superfund Amendments and Reauthorization Act (SARA) Title III reports for HRSD facilities prior to the deadline. Information was entered electronically for facilities located in Virginia Beach and Norfolk.
- b. The following was performed for the hearing conservation program:
  - (1) Continued to review and input audiometric testing results
  - (2) Conducted employee audiometric testing
- c. Met with the Chesapeake-Elizabeth TP manager to discuss Hazard Communication Program updates to incorporate the online Material Safety Data Sheet (MSDS) program.
- d. Met with Army Base TP supervisors to provide input for safety procedures related to start-up and shut down of the preliminary treatment facility scrubber system.
- e. Staff met with a vendor regarding a chemical to be used at the SWIFT facility.
- f. The Safety Coordinator continued maintaining the Operations Safety Accident Tracking report.

## 6. General

- a. Procurement staff and selection team members met to discuss the Request for Proposal (RFP) process for the Prescription Safety Glasses program.
- b. Work continued with HR to develop the respiratory protection program and employment-related physicals RFP.
- d. Staff participated in the following HRSD activities:
  - (1) HRSD Safety Team
  - (2) HRSD Uniform Committee
  - (3) HRSD Innovation team
  - (4) HRSD SharePoint Governance team
  - (5) HRSD Strategic Planning team
- e. Staff attended the following training
  - (1) Potomac Environmental Resource Conservation and Recovery Act training
  - (2) HRSD Risk Management workshop

## D. Monthly Strategic Planning Metrics Summary

1. Education and Outreach Events: 9
  - a. City of Suffolk Local Emergency Planning Commission (LEPC)
  - b. City of Virginia Beach Regional Organizational Development and Training meeting
  - c. Hampton University Spring Career Fair
  - d. Hampton City Schools *My Future My Journey* Career Fair
  - e. Huntington High School *Megagenesis* Career Fair
  - f. Ocean Lake High School Career Day
  - g. Phoebus High School Career Fair

- h. City of Suffolk Career and Technical Education Center Non-traditional Extravaganza
  - i. City of Norfolk Technical Education Center Annual Career and College Fair.
2. Community Partners: 6
- a. City of Newport News Schools
  - b. City of Norfolk Schools
  - c. City of Suffolk
  - d. City of Virginia Beach Schools
  - d. Hampton City Schools
  - e. Hampton University
3. Monthly Metrics

<b>Item #</b>	<b>Strategic Planning Measure</b>	<b>Unit</b>	<b>February 2018</b>
M-1.1a	Employee Turnover Rate (Total)	Percentage	0.25
M-1.1b	Employee Turnover due to Service Retirements	Percentage	0.50
M-1.4a	Total Training Hours Per Full Time Employee (15) – Current Month	Total Training Hours/ FTE	6.47
M-1.4b	Total Training Hours Per FTE (15) Cumulative Fiscal Year-to-Date	Total Training Hours/ FTE	28.95
M-5.2	Educational and Outreach Events	Number	9
M-5.3	Community Partners	Number	6

Respectfully submitted,  
**Paula A. Hogg**  
 Director of Talent Management



TO: General Manager

FROM: Director of Water Quality (WQ)

SUBJECT: Monthly Report for February 2018

DATE: March 14, 2018

A. General

1. Pretreatment and Pollution Prevention (P3) division staff assessed no civil penalties this month.
2. The Director attended the National Association of Clean Water Agencies (NACWA) winter meeting in Napa, California and led the Association's Water Quality Committee meeting as its Chairman. This conference focused on "Exploring Net Environmental Benefit: Balancing Science & Cost." The Director was invited to lead a panel session titled, "Does Science Drive Policy or Policy Drive Science?" which proved to be a thought-provoking opportunity for the panelists and attendees. There seems to be consensus that science informs policy but a perception by the public and press that when policy changes, this change is independent (or contrary) to the science. The reality is that policy has often been formed independent of scientific fact due to uncertainties in the ability of science to accurately predict outcomes from management decisions. The result is conservatism in policy which, when changed to less conservative policies, seems as though science has been ignored. Less conservatism could have been applied previously; it simply was not chosen as a path for environmental protection in this country in the 1970s. This choice was likely in response to the level of impact occurring at this time. The level of protection embedded in US environmental policy today was established over 45+ years of Clean Water Act implementation. Any change in this policy will appear to defy science, but it may only reflect new knowledge gained over time through science. However, it is also possible for policy to change independent of science, but dependent upon the will and intent of those responsible for developing policy.
3. The Director attended a recent meeting of the Virginia Department of Environmental Quality's (DEQ) James River Chlorophyll Regulatory Advisory Panel (RAP). DEQ presented its most recent findings which included attainment of draft criteria given different scenarios and a draft attainment procedure. Unfortunately the calibration of the model being used to perform this exercise is in question, yielding results that cannot reliably be used to draw conclusions. DEQ will continue to work on the calibration as well as other RAP questions and will plan another meeting with the RAP in the next couple of months.

B. Quality Improvement and Strategic Activities

1. The Sustainability Advocacy Group (SAG) did not report activity for the month of February.
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 and Spotsylvania Counties and the City of Fredericksburg to support their Virginia Pollution Discharge Elimination System (VPDES) permit application processes.

D. Strategic Planning Metrics Summary

1. Educational and Outreach Events: 7
  - a. TSD staff provided a presentation on SWIFT to the Women's Club of Suffolk.
  - b. TSD staff presented "A Career in Water Quality" for Christopher Newport University (CNU) students as part of their Wednesdays4Work program.
  - c. TSD staff conducted two James River Plant tours for CNU microbiology classes.
  - d. CEL staff conducted a laboratory tour for Old Dominion University Environmental Health students.
  - e. CEL staff conducted a laboratory tour for Virginia Tech Extension Service Laboratory staff.
  - f. CEL staff conducted a laboratory tour for US Navy Air Quality Apprenticeship students.
  - g. P3 staff participated in the Kings Fork Middle School Career Day Fair.
2. Community Partners: 14
  - a. City of Norfolk
  - b. City of Newport News
  - c. Virginia Department of Health Division of Shellfish Sanitation
  - d. Virginia Department of Environmental Quality
  - e. Occoquan Laboratory
  - f. City of Suffolk
  - g. Elizabeth River Project
  - h. Virginia Department of Health Office of Epidemiology
  - i. Lynnhaven River Now
  - j. Virginia Polytechnic Institute

- k. City of Virginia Beach
- l. Gloucester High School
- m. United Way
- n. Hampton Roads Planning District Commission

<b>Item #</b>	<b>Strategic Planning Measure</b>	<b>Unit</b>	<b>February 2018</b>
M-1.4a	Training During Work Hours Per Full Time Employee (109) (Current Month)	Total Hours / # FTE	2.81
M-1.4b	Total Training During Work Hours Per Full Time Employee (109) (Cumulative Fiscal Year-to-Date)	Total Hours / # FTE	32.98
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	9:38,588
M-3.2	Odor Complaints	#	0
M-3.4	Pollutant Removal	Total Pounds Removed	125,287,756
M-3.5	Pollutant Discharge	% Pounds Discharged/Pounds Permitted	18%
M-5.2	Educational and Outreach Events	#	7
M-5.3	Community Partners	#	14
	Average Daily Flow	Total MGD for all Treatment Plants	155.59
	Industrial Waste Related System Issues	#	0

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***

### **Engineering Procurement Process Review**

- **Tasks Completed (February 2018)**
  - Completed testing- SC&H performed review procedures of the real estate documentation provided on February 8<sup>th</sup>
  - Updated report to reflect real estate testing results
  - Communicated final report to Engineering management for review and response
  
- **Upcoming Tasks (March 2018)**
  - Review management action plans and finalize report

### **IT: Network Security/ Cybersecurity**

- **Tasks Completed (February 2018)**
  - Determined communication method of report
  
- **Upcoming Tasks (March 2018)**
  - Present final report

### **Corporate Governance: Ethics Function**

- **Tasks Completed (February 2018)**
  - No additional tasks were performed in the month of February as management reviewed and prepared responses to the Ethics report
  
- **Upcoming Tasks (March 2018)**
  - Review management action plan responses
  - Finalize report

### **Risk Assessment: Year 3 Refresh**

- **Tasks Completed (February 2018)**
  - Finalized risk assessment documentation
  - Revised audit plans
  - Prepared results presentation
  
- **Upcoming Tasks (March 2018)**
  - Discuss results with HRSD management and present to Commission



**Treatment Plant Operations**

- **Tasks Completed (February 2018)**
  - Conducted entrance meeting
  - Identified focus areas and key process owners
  - Conducted initial walkthrough discussion
  - Schedule remaining walkthrough discussions
  - Began preparation of process documentation
  
- **Upcoming Tasks (March 2018)**
  - Prepare audit plan
  - Perform fieldwork
  - Begin drafting audit report

***II. Upcoming Projects (FY2018)***

The following projects are scheduled to be performed during FY2018 based upon the risk assessment previously performed by SC&H.

- Q4- Finance and Accounting: Customer Care: Assessment and Test of Design

***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 and upcoming monitoring timeframes.

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	Aug-18	7	1	8
HR Benefits	11/22/2016	May-18	12	3	15

Annual Metrics											
Item	Strategic Planning Measure	Unit	Target	FY-10	FY-11	FY-12	FY-13	FY-14	FY-15	FY-16	FY-17
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%
M-1.1b	Employee Turnover Rate within Probationary Period		0%		2.22%	8.16%	14.58%	9.68%	0.66%	0.13%	0.90%
M-1.2	Internal Employee Promotion Eligible	Percentage	100%		59%	80%	69.57%	71.43%	64.00%	69.00%	68.00%
M-1.3	Average Time to Fill a Position	Calendar Days	< 30		70	60	52	43.76	51	56	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
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
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
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
M-2.1	CIP Delivery - Budget	Percentage			113%	96%	124%	149%	160%	151%	156%
M-2.2	CIP Delivery - Schedule	Percentage			169%	169%	161%	150%	190%	172%	173%
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
M-2.3b	Planned Maintenance	Percentage of Total Mtc Hours Monthly Avg			20%	27%	70%	73%	48%	41%	43%
M-2.3c	Corrective Maintenance	Percentage of Total Mtc Hours Monthly Avg			63%	51%	12%	10%	18%	25%	25%
M-2.3d	Projects	Percentage of Total Mtc Hours Monthly Avg			18%	22%	20%	18%	32%	34%	32%
M-2.4	Infrastructure Investment	Percentage of Total Cost of Infrastructure	2%		8.18%	6%	6%	4%	7%	7%	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
M-3.6	Alternate Energy	Total KWH			0	0	0	5,911,289	6,123,399	6,555,096	6,052,142
M-4.1a	Energy Use: Treatment	kWh/MG Monthly Avg			2,473	2,571	2,229	2,189	2,176	2,205	2,294
M-4.1b	Energy Use: Pump Stations	kWh/MG Monthly Avg			197	173	152	159	168	163	173
M-4.1c	Energy Use: Office Buildings	kWh/MG Monthly Avg			84	77	102	96	104	97	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
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%
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
M-5.1	Name Recognition	Percentage (Survey Result)	100%	67%	71%	N/A	62%	N/A	60%	N/A	N/A
M-5.4	Value of Research	Percentage - Total Value/HRSD Investment			129%	235%	177%	149%	181%	178%	143%
M-5.5	Number of Research Partners	Annual Total Number			42	36	31	33	28	35	15
	Rolling 5 Year Average Daily Flow	MGD		157.8	155.3	152	154.36	155.2	151.51	153.09	154.24
	Rainfall	Annual Total Inches		66.9	44.21	56.21	46.65	46.52	51.95	54.14	66.66
	Billed Flow	Annual Percentage of Total Treated		71.9%	82.6%	78%	71%	73%	74%	72%	73%
	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%
	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%

\* To be reported upon completion of the annual financial statements.

Monthly Updated Metrics												FY-18	
Item	Strategic Planning Measure	Unit	Target	FY-10	FY-11	FY-12	FY-13	FY-14	FY-15	FY-16	FY-17	Jan-18	Feb-18
	Average Daily Flow	MGD at the Plants	< 249		136	146.5	158.7	156.3	153.5	155.8	153.5	148.1	155.6
	Industrial Waste Related System Issues	Number	0		3	6	6	6	2	4	7	0	0
	Wastewater Revenue	Percentage of budgeted	100%		97%	96%	98%	107%	102%	104%	103%	103%	103%
	General Reserves	Percentage of Operating and Improvement Budget	75% - 100%		72%	82%	84%	92%	94%	95%	104%	112%	112%
	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	\$24,202,666	\$24,142,328
	Aging Accounts Receivable	Percentage of receivables greater than 90 days			21%	20%	18%	19%	21%	20%	18%	17%	17%
M-2.5	Capacity Related Overflows	Number within Level of Service	0		25	1	30	5	11	16	6	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	9:33765	9:38588
M-3.2	Odor Complaints	Number	0		6	2	7	11	5	9	7	0	0
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	110,900,205	125,287,756
M-3.5	Pollutant Discharge (% of permitted)	Pounds Discharged/Pounds Removed	< 40%		25%	22%	25%	22%	22%	20%	22%	17%	18%
M-5.2	Educational and Outreach Events	Number			302	184	238	322	334	443	502	28	37
M-5.3	Number of Community Partners	Number			280	289	286	297	321	354	345	34	30

**EFFLUENT SUMMARY FOR FEBRUARY 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	10.53	58%	3	4.7	2	1	0.41	0.73	8.1	8.1	NA	NA	10
ATLANTIC	26.81	50%	12	8.1	1	<1	NA	NA	NA	NA	NA	NA	4
BOAT HARBOR	16.53	66%	6	6.8	1	1	0.32	0.44	13	14	NA	NA	3
CENT. MIDDLESEX	0.010	39%	2	6.8	<1	3	NA	NA	NA	NA	NA	NA	NA
CHES-ELIZ	18.04	75%	18	15	19	5	0.88	0.89	30	30	NA	NA	2
JAMES RIVER	14.50	73%	4	6.3	1	<1	0.23	0.37	8.7	9.0	NA	NA	0
KING WILLIAM	0.040	40%	1	<1.0	NA	<1	0.03	0.02	0.85	1.8	0.78	NA	NA
NANSEMOND	17.61	59%	4	3.9	1	1	0.79	1.7	4.8	5.2	NA	NA	2
SURRY, COUNTY	0.062	95%	1	1.5	NA	1	NA	NA	NA	NA	<0.50	<0.10	0
SURRY, TOWN	0.052	87%	6	13	NA	7	NA	NA	NA	NA	2.1	0.26	NA
URBANNA	0.035	35%	5	8.7	2	2	3.4	3.4	25	28	NA	0.05	NA
VIP	28.39	71%	6	3.6	2	1	0.23	0.43	8.7	9.0	NA	NA	2
WEST POINT	0.466	78%	22	18	1	<1	2.4	2.7	17	19	NA	6.8	0
WILLIAMSBURG	7.83	35%	5	6.2	6	1	0.35	0.35	3.2	3.5	NA	NA	0
YORK RIVER	14.69	98%	3	1.3	1	1	0.23	0.21	2.0	3.3	NA	NA	1
	<u>155.59</u>												

	% of Capacity
North Shore	65%
South Shore	61%
Small Communities	67%

Tributaries	Tributary Summary					
	Annual Total Nitrogen			Annual Total Phosphorus		
	Discharged	Operational		Discharged	Operational	
	YTD	Projection CY18		YTD	Projection CY18	
	%	Lbs	%	%	Lbs	%
James River	15%	4,036,997	89%	12%	283,596	89%
York River	9%	244,820	85%	10%	15,498	80%
Rappahannock	38%	NA	NA	66%	NA	NA

Permit Exceedances: Total Possible Exceedances, FY18 to Date: 9:38,588  
Pounds of Pollutants Removed in FY18 to Date: 125,287,756  
Pollutant Lbs Discharged/Permitted Discharge FY18 to Date: 18%

	Rainfall (inch)		
	<u>North Shore (PHF)</u>	<u>South Shore (ORF)</u>	<u>Small Communities (FYJ)</u>
Month	2.43"	1.73"	2.39"
Normal for Month	2.69"	2.61"	2.53"
Year to Date Total	6.98"	5.24"	5.79"
Normal for YTD	6.06"	5.62"	5.93"

**AIR EMISSIONS SUMMARY FOR FEBRUARY 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	12 hr ave	12 hr ave	12 hr ave	12 hr ave	12 hr ave	pH	Bypass	Mo. Ave	DC	Daily Ave
(F)	(in. WC)	(GPM)	(GPM)	(GPM)	(GPM)	(GPM)	3 hr ave	Stack Use	(PPM)	(%)	Days >Max
ARMY BASE	0	1	0	0	0	0	0	1	30	100	0
BOAT HARBOR	0	0	0	n/a	0	0	0	2	5	100	0
CHES-ELIZ	0	0	0	0	0	0	0	0	29	100	0
VIP	0	0	0	n/a	0	0	0	1	65	100	0
WILLIAMSBURG	0	0	0	n/a	0	0	0	1	10	99	0

**ALL OPERATIONS**

DEQ Reportable Air Incidents:	0
DEQ Request for Corrective Action (RCA):	0
DEQ Warning Letter:	0
DEQ Notice of Violation (NOV):	0
Other Air Permit Deviations:	0
Odor Complaints Received:	0
Odor Scrubber HRSD Exception Events:	1



HRSD COMMISSION MEETING MINUTES  
March 27, 2018

ATTACHMENT #14

AGENDA ITEM 24. – Fiscal Year 2018-2019 Annual Budget and Internal Audit Update  
Work Session

- [Internal Audit Presentation](#)
- [Budget Presentation](#)



*Expertise that Works*

# Hampton Roads Sanitation District Internal Audit Status

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**March 27, 2018**





Expertise that Works

# Internal Audit Team Present

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## SC&H Team

**Matthew Simons, CPA, CIA, CGAP**  
Engagement Principal

**Anthony DiGiulian, CISA**  
IT Audit Principal

**Ryan Kohan, CPA**  
Manager, Team Lead

**Sam Fitzgerald, ITIL, CISA, CISM**  
IT Audit Manager

# SC&H Internal Audit Progress: Agenda

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## Meeting Topics

- Internal Audit Impact
- FY2018 Internal Audit Status: Completed, Current, and Planned
- Internal Audit Project Summaries
- Discussion and Questions

## Supplemental Information

- Management Action Plan Progress
- Audit In Process
- Upcoming Internal Audit Plans
- Risk Assessment Process and Results

# Internal Audit Impact

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## Statistics

- **3** risk assessment exercises performed
- **14** audits through FY2019 to be completed
- **18** audits through FY2020 to be completed
- Through FY2020, **17** of **27** high risk functions to be assessed (63%)
- Through FY2020, **25** of **56** total functions to be assessed (45%)
- **37** reportable observations, **65** recommendations to date (completed audits), **30** closed/ remediated

## Internal Audit Impact (Continued)

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### Organizational Themes

- Integration of current system capabilities
- Formalization of process
- Communication of expectations

### Auditee/ Stakeholder Response

- Responsive and helpful
- Engaged in process
- Meaningfully respond to, and implement, recommendations for process enhancement

# FY2018 Internal Audit Status: Completed, Current, and Planned

Audit/ Task	Department	Status
Procurement (Engineering)	Engineering	Completed*
Corporate Governance: Ethics Function	Organization-Wide	Completed*
IT: Network Security/ Cybersecurity	Information Technology	Completed
Treatment Plants	Operations	Planning Phase
Customer Care: Assessment and Test of Design	Finance	Planned: Q4
Risk Assessment Refresh	Organization-Wide	Completed
Management Action Plan Evaluation	Organization-Wide	Ongoing

\*Audit and report fully complete. Management action plan development in process.

# Internal Audit Project Summaries

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## Engineering Procurement

### Summarized Observations

1. Formalized policies and procedures for non-standard procurements
2. ERP workflow integration
3. Internal tracking
4. Consistency of documentation

## Corporate Governance: Ethics Function

### Summarized Observations

1. Procedures for disclosure form administration
2. Dissemination of Ethic Policy requirements
3. Ethics training





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# Discussion and Questions

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# Supplemental Information: Management Action Plan Progress

Department	Audit	Obs.	Rec.	Open	Closed	Assessment
Engineering	Design and Construction: CIP Project Management	8	13	2	11	Q4, 2017 Q3, 2018
Water Quality	Biosolids Recycling Program	5	8	1	7	Q2, 2018
Talent Management	HR Administration of Employee Health Insurance	6	15	3	12	Q2, 2018
Operations	Inventory Management	5	5	5	-	Q4, 2018
Finance	Procurement and P-Card Administration	6	11	11	-	Q2, 2019
Engineering	Engineering Procurement	4	8	8	-	Q3, 2019
Organization-wide	Corporate Governance: Ethics Function	3	5	5	-	Q3, 2019
<b>Totals*</b>		<b>37</b>	<b>65</b>	<b>35</b>	<b>30</b>	

\*Totals are not inclusive of confidential/ sensitive audit results.

# Supplemental Information: Audit In Process

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## Treatment Plant Operations Audit

### Preliminary Areas of Focus

1. Repairs and maintenance
2. Chemical usage
3. Budgeting
4. Communication

# Supplemental Information: FY2019 Internal Audit Plan

Audit/ Task	Department	Status
Business Continuity & Disaster Recovery	IT/ Operations/ Communications	Planned: Q1
Customer Care: eBilling System	Finance & Accounting	Planned: Q2
Safety	Talent Management	Planned: Q3
<ul style="list-style-type: none"> <li>* Regulatory/ Reporting (e.g. Water, Air, Solids, Nutrients)</li> <li>* Permitting</li> <li>* Quality Assurance (Accreditation)</li> </ul>	Water Quality/ Operations	Planned: Q4
Risk Assessment Refresh	Organization-Wide	Planned: Q2
Management Action Plan Evaluation	Organization-Wide	Planned: Q2, Q3

# Supplemental Information: FY2020 Internal Audit Plan

Audit/ Task	Department	Status
Payroll and Timekeeping	Enterprise-Wide/ Finance and Accounting	Planned: Q1
Asset Management Program	Engineering	Planned: Q2
SWIFT	Engineering	Planned: Q3
IT: Applications (e.g. ERP, GIS, SCADA, CMMS, CC&B, and other)	Information Technology	Planned: Q4
Risk Assessment Refresh	Organization-Wide	Planned: Q2
Management Action Plan Evaluation	Organization-Wide	Planned: Q2, Q3

# Supplemental Information: Risk Assessment Refresh Summary

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## Background

- SC&H performed an organizational-wide internal audit risk assessment refresh exercise for HRSD
- Objectives were to:
  - Reassess perceived likelihood and impact risk factors
  - Reassess existing Audit Universe
  - Determine if risks and audit priorities have changed/ shifted since the 1<sup>st</sup> risk assessment
  - Prepare/ revise the FY2018-20 audit plans
  - Determine opportunities for potential future audits, beyond FY2020
- Results were based on:
  - Interviews with HRSD leadership and external auditors
  - HRSD knowledge gained through FY2016-18 audit procedures
  - Informational research and analysis
- End products include:
  - Revised Audit Universe risk rankings
  - Revised FY2018, 2019, and 2020 audit plans
  - Additional audit considerations

# Supplemental Information: Risk Ranking Matrix Year 2 Vs. Year 3 Risk Assessments

## Year 2- 2016

IMPACT	High	0	3	15
	Moderate	2	26	2
	Low	1	7	0
		Low	Moderate	High
		LIKELIHOOD		

Total by color:	20
	26
	10
<b>Grand Total</b>	<b>56</b>

## Year 3- 2017

IMPACT	High	0	6	16
	Moderate	2	21	5
	Low	1	5	0
		Low	Moderate	High
		LIKELIHOOD		

Total by color:	27
	21
	8
<b>Grand Total</b>	<b>56</b>

# Supplemental Information

## Audit Universe Refresh: High Risk

Background		Year 3 (Current)			Planning	
AUDIT DETAILS		RISK RANKINGS			HISTORY	
Department	Audit Area	Likelihood	Impact	Overall Risk	Last Audited	Audit Year
Engineering	Asset Management (Y3 Implementation)	H	H	H	N/A	FY2020
Engineering	Design & Construction: CIP Project Management	H	H	H	FY2016	FY2016
Engineering	Design & Construction: Procurement Process	H	H	H	N/A	FY2017
Engineering	Design & Construction: Emergency Repairs	H	H	H	N/A	TBD
Engineering	SWIFT Program	H	H	H	N/A	FY2020
Finance & Accounting	Accounting: Debt Management	H	H	H	N/A	TBD
Finance & Accounting	Customer Care: Billing	H	H	H	N/A	FY18/19
Finance & Accounting	Procurement: Process	H	H	H	FY2017	FY2017
Information Technology	IT: Applications (e.g. ERP, GIS, SCADA, CMMS, CC&B, and other)	H	H	H	N/A	FY2020
Information Technology	IT: Network Security/Cybersecurity	H	H	H	FY2018	FY2018
Information Technology	IT: Disaster Recovery	H	H	H	N/A	FY2019
Operations	Electrical & Energy Management	H	H	H	N/A	TBD
Operations	Treatment Plants	H	H	H	N/A	FY2018
Water Quality	Regulatory/Reporting (e.g. Water, Air, Solids, Nutrients)	H	H	H	N/A	FY2019
Water Quality	Quality Assurance (Accreditation)	H	H	H	N/A	FY2019
Enterprise-Wide	Business Continuity & Disaster Recovery (Operations)	H	H	H	N/A	FY2019
Engineering	Planning & Analysis	H	M	H	N/A	TBD
Finance & Accounting	Accounting: Payroll	H	M	H	N/A	FY2020
Finance & Accounting	Accounting: Cash Management and Investments	M	H	H	N/A	TBD
Information Technology	IT: Data Management and Operations	H	M	H	N/A	TBD
Information Technology	IT: Governance	M	H	H	N/A	TBD
Information Technology	IT: Data Center Physical Security and Environmental Controls	M	H	H	N/A	TBD
Talent Management	HR: Compensation and Benefits	H	M	H	FY2017	FY2017
Talent Management	Safety	M	H	H	N/A	FY2019
Water Quality	Permitting Operations	M	H	H	N/A	FY2019
Enterprise-Wide	Insurance (Risk Management)	H	M	H	N/A	TBD
Communications	Communications	M	H	H	N/A	FY2019

NOTE: Blue highlights indicate changes from the previous risk assessment



# Supplemental Information

## Audit Universe Refresh: Moderate Risk

Background		Year 3 (Current)			Planning	
AUDIT DETAILS		RISK RANKINGS			HISTORY	
Department	Audit Area	Likelihood	Impact	Overall Risk	Last Audited	Audit Year
Finance & Accounting	Accounting: General Accounting, Financial Reporting, and Process	M	M	M	N/A	TBD
Finance & Accounting	Accounting: Accounts Payable	M	M	M	N/A	TBD
Finance & Accounting	Accounting: Fixed Assets	M	M	M	N/A	TBD
Finance & Accounting	Accounting: Revenue/Accounts Receivable	M	M	M	N/A	TBD
Finance & Accounting	Accounting: Grants Management	M	M	M	N/A	TBD
Finance & Accounting	Customer Care: Mail Center & Payments	M	M	M	N/A	FY18/19
Finance & Accounting	Customer Care: A/R & Delinquent Accounts	M	M	M	N/A	FY18/19
Finance & Accounting	Procurement: P-Card Administration	M	M	M	FY2017	FY2017
Finance & Accounting	Procurement: Contract Management	M	M	M	N/A	TBD
Finance & Accounting	Procurement: Surplus Program	M	M	M	N/A	TBD
Information Technology	IT: Vendor and Contractor Management	M	M	M	N/A	TBD
Operations	Support Systems: Facilities Management	M	M	M	N/A	TBD
Operations	Support Systems: Fleet	M	M	M	N/A	TBD
Operations	Water Technology & Research	M	M	M	N/A	TBD
Operations	Inventory	M	M	M	FY2017	FY2017
Talent Management	HR: Recruiting/Onboarding/Offboarding	M	M	M	N/A	TBD
Talent Management	Organizational Development & Training	M	M	M	N/A	TBD
Water Quality	BioSolids (Special Project)	M	M	M	FY2016	FY2016
Water Quality	Operations	M	M	M	N/A	TBD
Enterprise-Wide	Corporate Governance	M	M	M	FY2018	FY2018
Enterprise-Wide	Corporate Policies and Procedures	M	M	M	N/A	TBD

NOTE: Blue highlights indicate changes from the previous risk assessment

# Supplemental Information

## Audit Universe Refresh: Low Risk

Background		Year 3 (Current)			Planning	
AUDIT DETAILS		RISK RANKINGS			HISTORY	
Department	Audit Area	Likelihood	Impact	Overall Risk	Last Audited	Audit Year
Finance & Accounting	Accounting: Budgeting	M	L	L	N/A	TBD
Finance & Accounting	Customer Care: Call Center	L	M	L	N/A	FY18/19
Information Technology	IT: Mobile	M	L	L	N/A	TBD
Operations	Support Systems: Machine Shop and Carpentry Shop	L	M	L	N/A	TBD
Talent Management	HR: Strategy	M	L	L	N/A	TBD
Enterprise-Wide	Physical Security	M	L	L	N/A	TBD
Enterprise-Wide	Media & Public Relations	M	L	L	N/A	TBD
Enterprise-Wide	Legal Operations (Managing Attorneys)	L	L	L	N/A	TBD

## Contact Information

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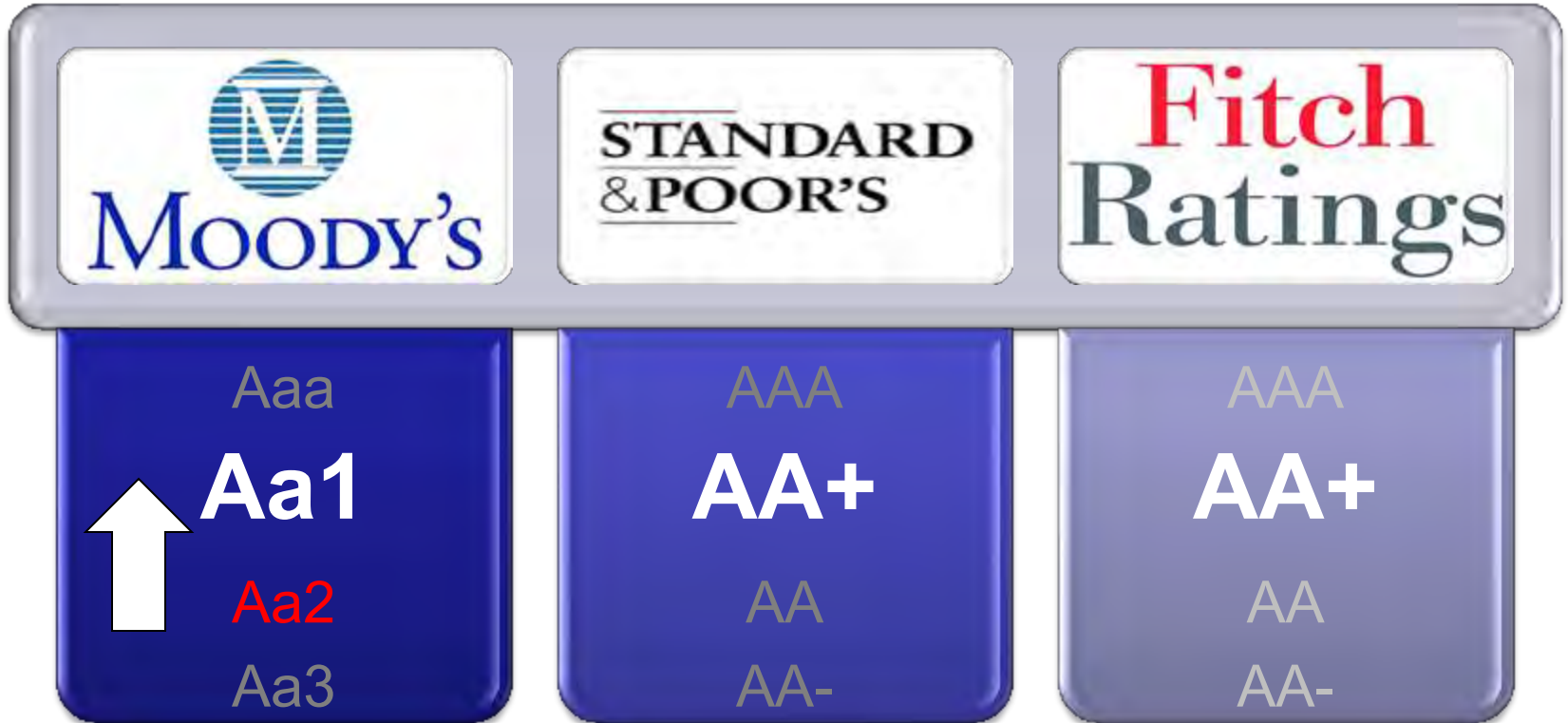


POWERFUL MINDS  
PASSIONATE TEAMS  
PROVEN RESULTS

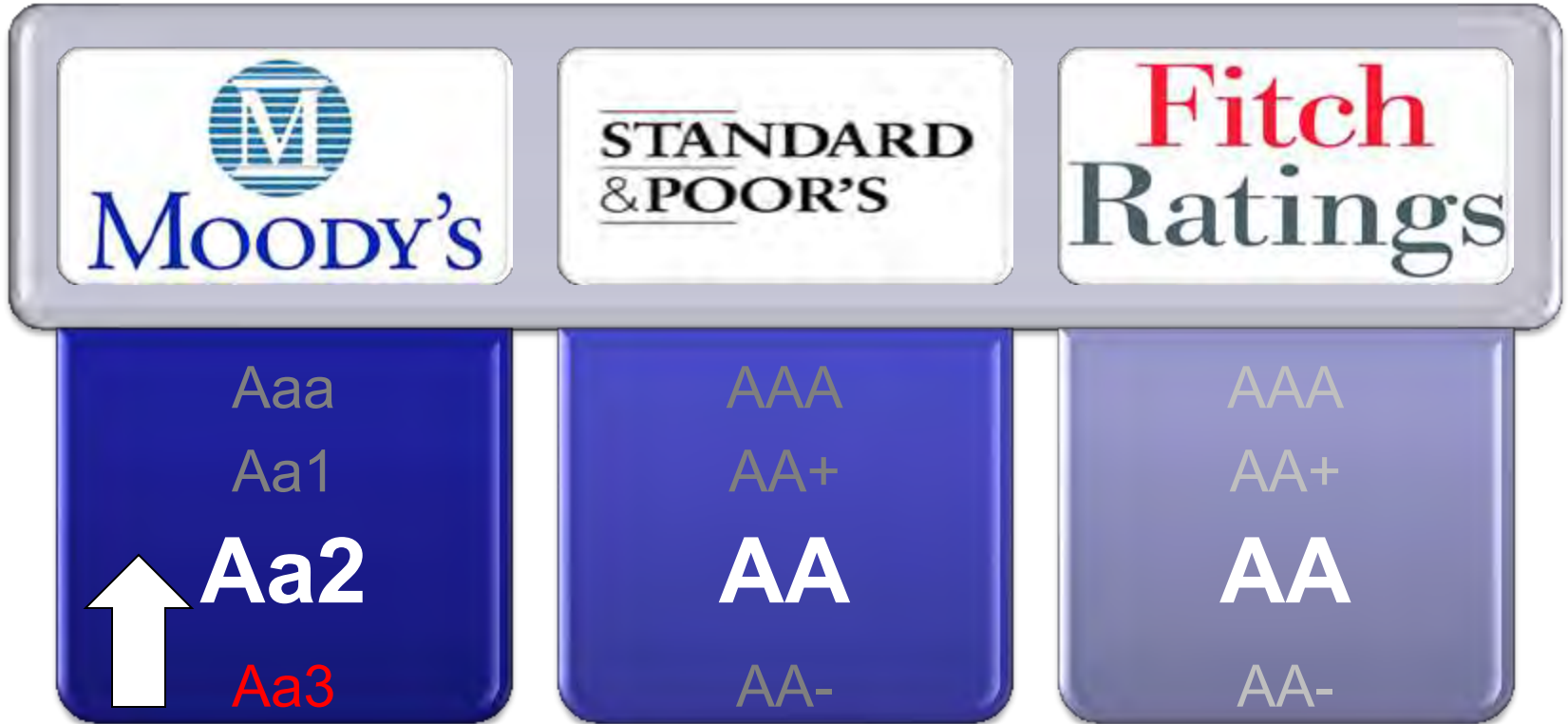


FY2019 Budget Work Session  
March 27, 2018

# HRSD Ratings - Senior Lien



# HRSD Ratings - Subordinate Lien



- Financial Policy Update
- Regional Economy
- Revenues
- Operating Budget

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# Financial Policy Updates

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# Proposed Financial Policy Changes

- Adding VIP Stable NAV Liquidity Pool to list of allowable investments
  - Local Governments investing jointly
  - Managed by PublicTrust Advisors (PTA)
    - Manages \$20 billion+ in assets for state and local governments in CO, MI, NY, TX, FL and other states.
  - S&P rating of AAAm (highest rating)
- Specify benchmarks for each fund as opposed to the Total Return Strategy
  - BofA Merrill Lynch 1-3 Year Corporate & Government Index
  - Local Gov't Investment Pool (LGIP)
- Self-Liquidity for our Variable Rate Demand Bonds is a key consideration
- Largest pooled OPEB trust in the country

LGIP Yield for: 03/07/2018  
(updated daily)  
Daily: 1.57  
7-day: 1.55

VIP Stable NAV Liquidity Pool  
1.60%

*Since its inception, VIP achieved a higher daily yield net of fees than the state LGIP on **290 out of 319 days.\****

\* Inception 11/1/2016 through 2/12/2018. Past performance is not necessarily indicative of future performance.

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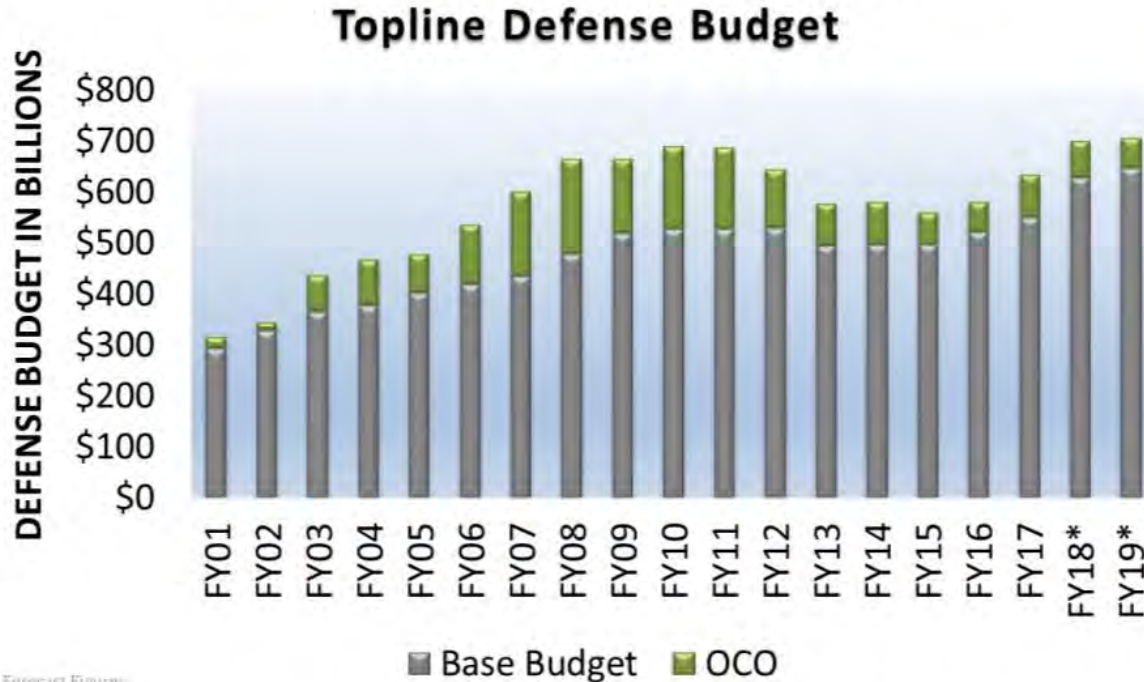
# Regional Economy

## (Hampton Roads Planning District Commission Data)

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# The Bipartisan Budget Act of 2018 and Hampton Roads

## U.S. Topline Defense Budget, and Projections



Source: Office of Management and Budget, Center for International and Strategic Studies (IRSDC)

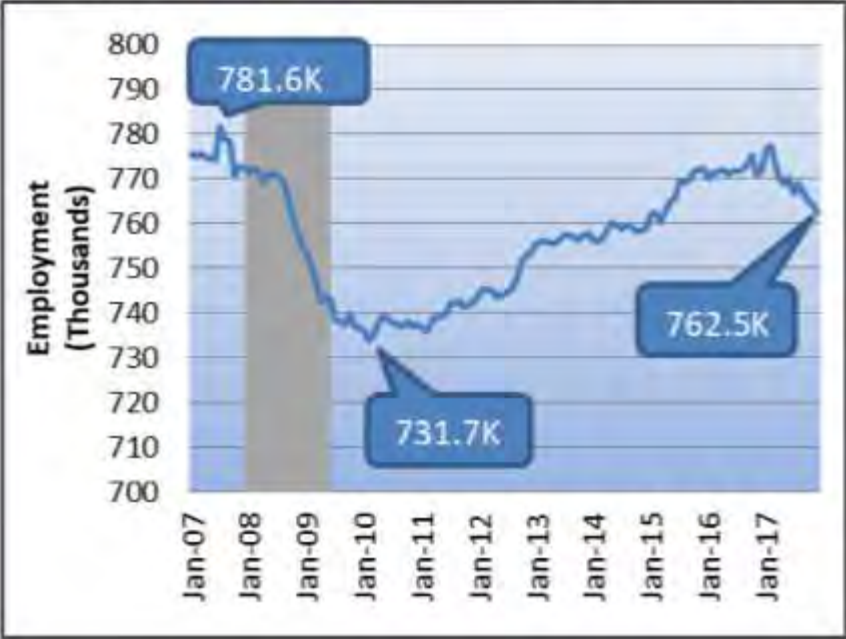
Overseas Contingency Operations (OCO) - intended for war-related activities that cannot be forecasted well in advance and not subject to spending caps



# Regional Employment

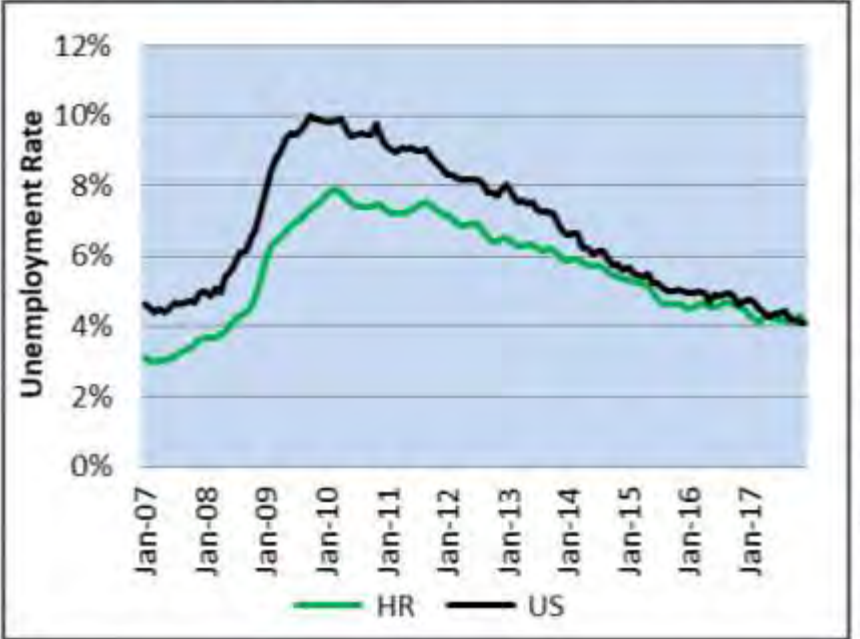
### Civilian Employment, Seasonally Adjusted

Hampton Roads, Jan 2007 – Dec 2017, Monthly



### Unemployment Rate, Seasonally Adjusted

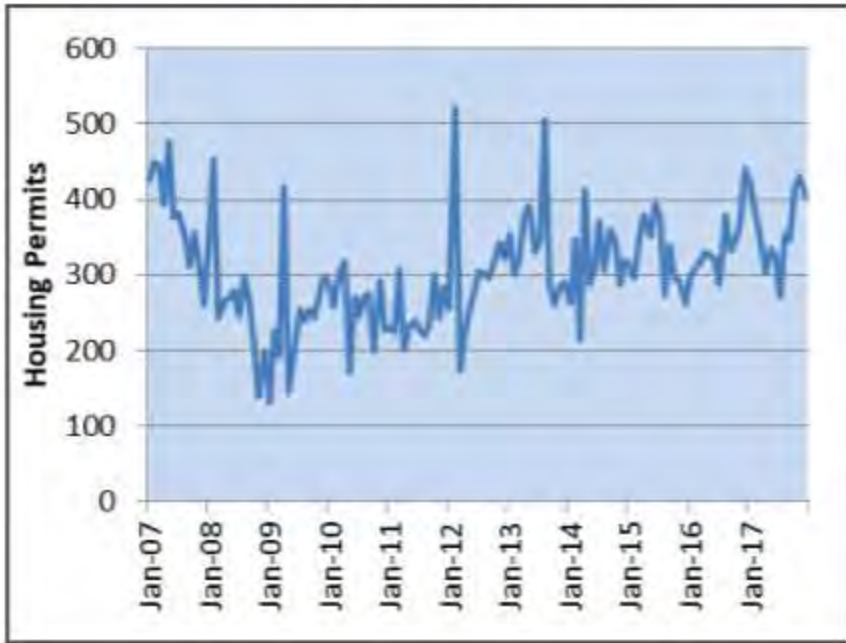
Hampton Roads and U.S, Jan 2007 – Dec 2017, Monthly



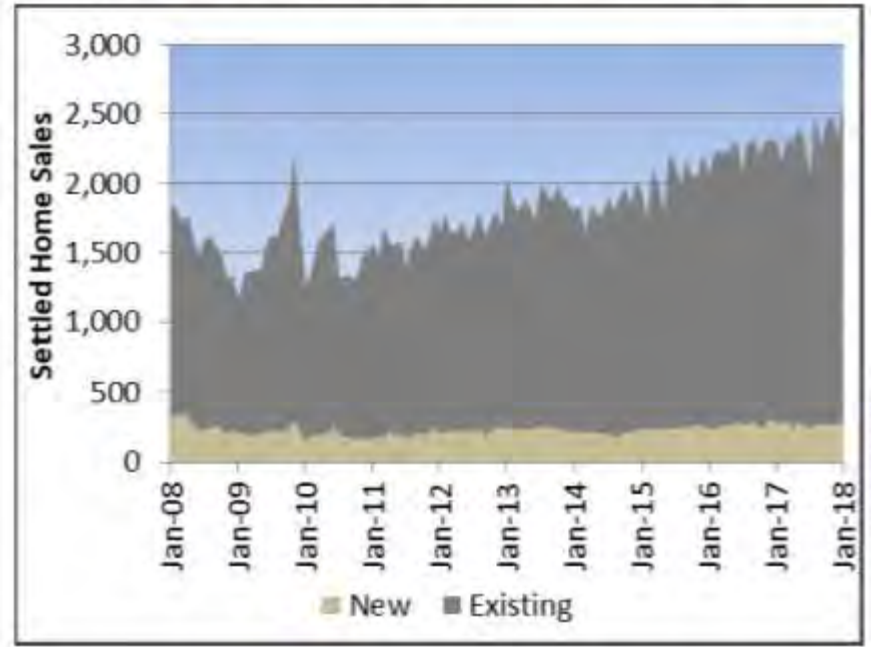
The declining labor force participation drove the improvement in the unemployment rate, as the number of persons reporting they were employed also fell

# 30-year Present Value of a New Single Family Account = \$20,000

**Single Family Housing Permits, Seasonally Adjusted**  
Hampton Roads, Jan 2007 - Dec 2017, Monthly

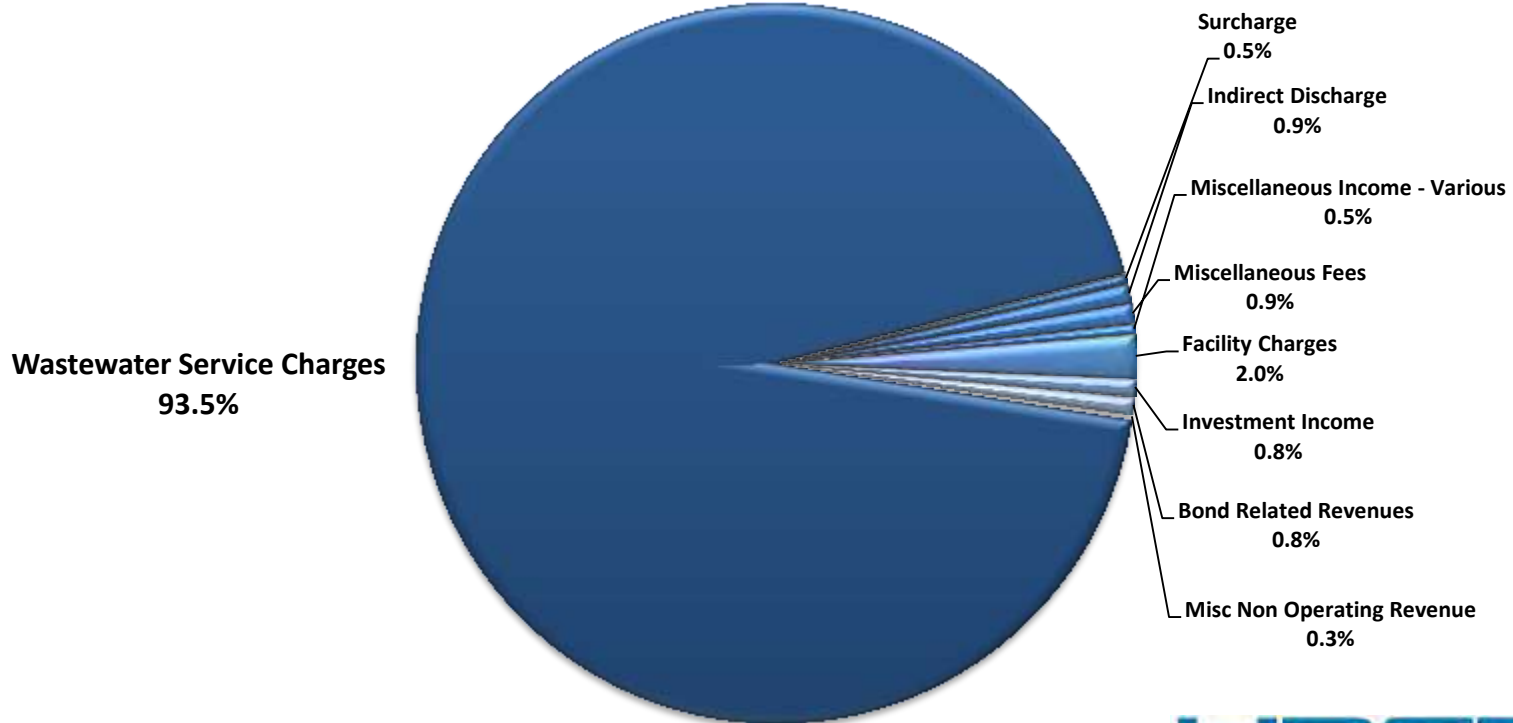


**Number of Homes Sold, Seasonally Adjusted**  
Hampton Roads, Jan 2008 - Jan 2018, Monthly



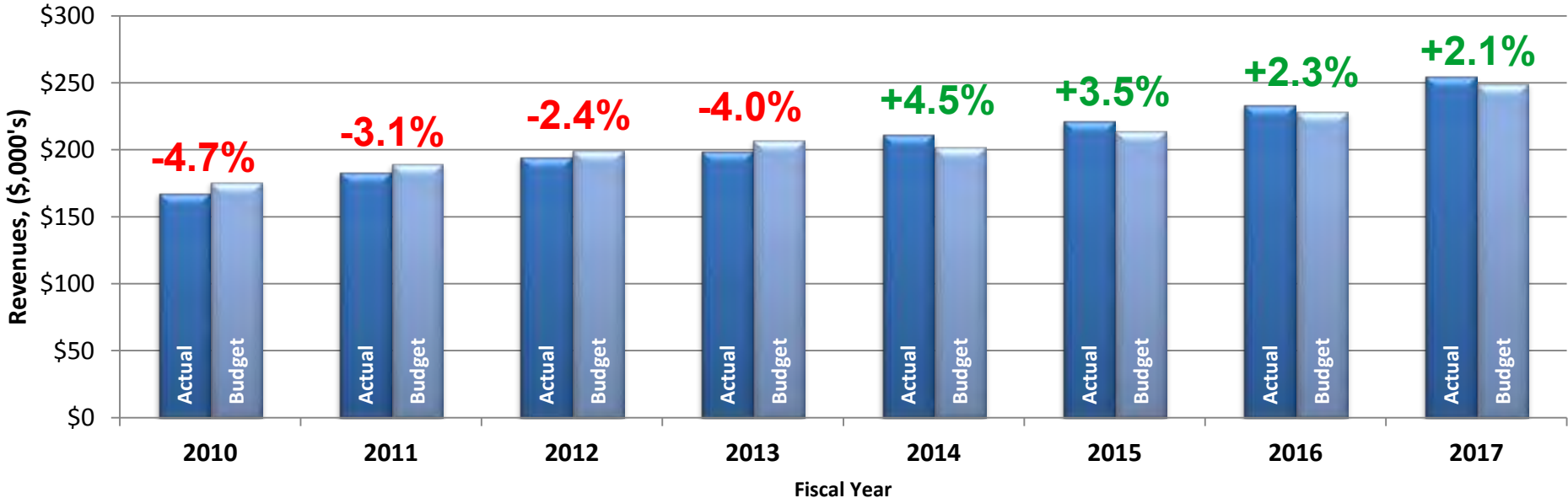


# Revenues (93.5% of Revenues = Water Consumption \* Rate)



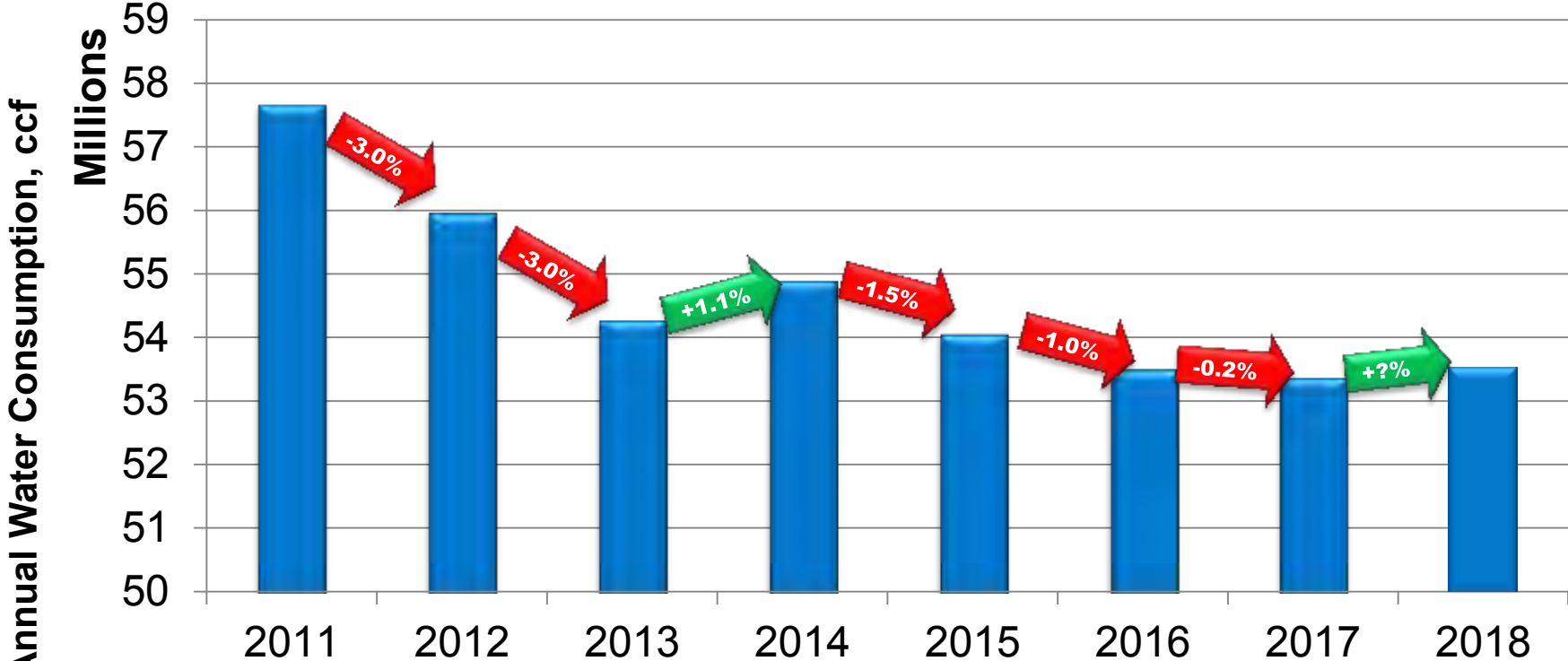
# Historical Wastewater Treatment Charges – Budget vs Actual

## Revenues Wastewater Treatment Charges





# Water consumption may be flattening



# Water Consumption Study – Seasonal Variations

Figure 1 – Median Daily Monthly Consumption for *All Single-Family Customers* Consuming  $\geq 3$  CCF per Month  
%,  $\frac{1}{2}$ , & 1-Inch Meters



Figure 2 – Median Daily Monthly Consumption for Metered *Flat Rate Customers* Consuming  $\geq 3$  CCF per Month  
%,  $\frac{1}{2}$ , & 1-Inch Meters

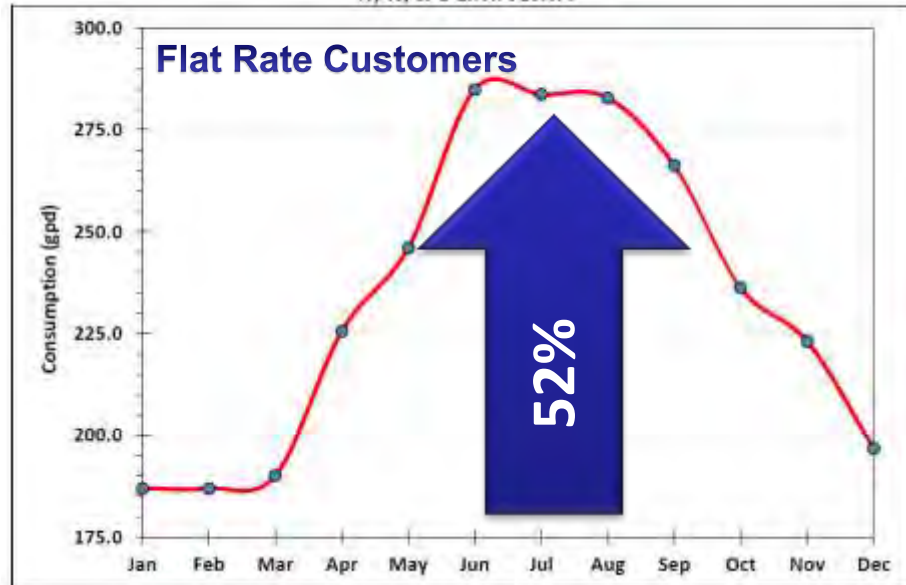
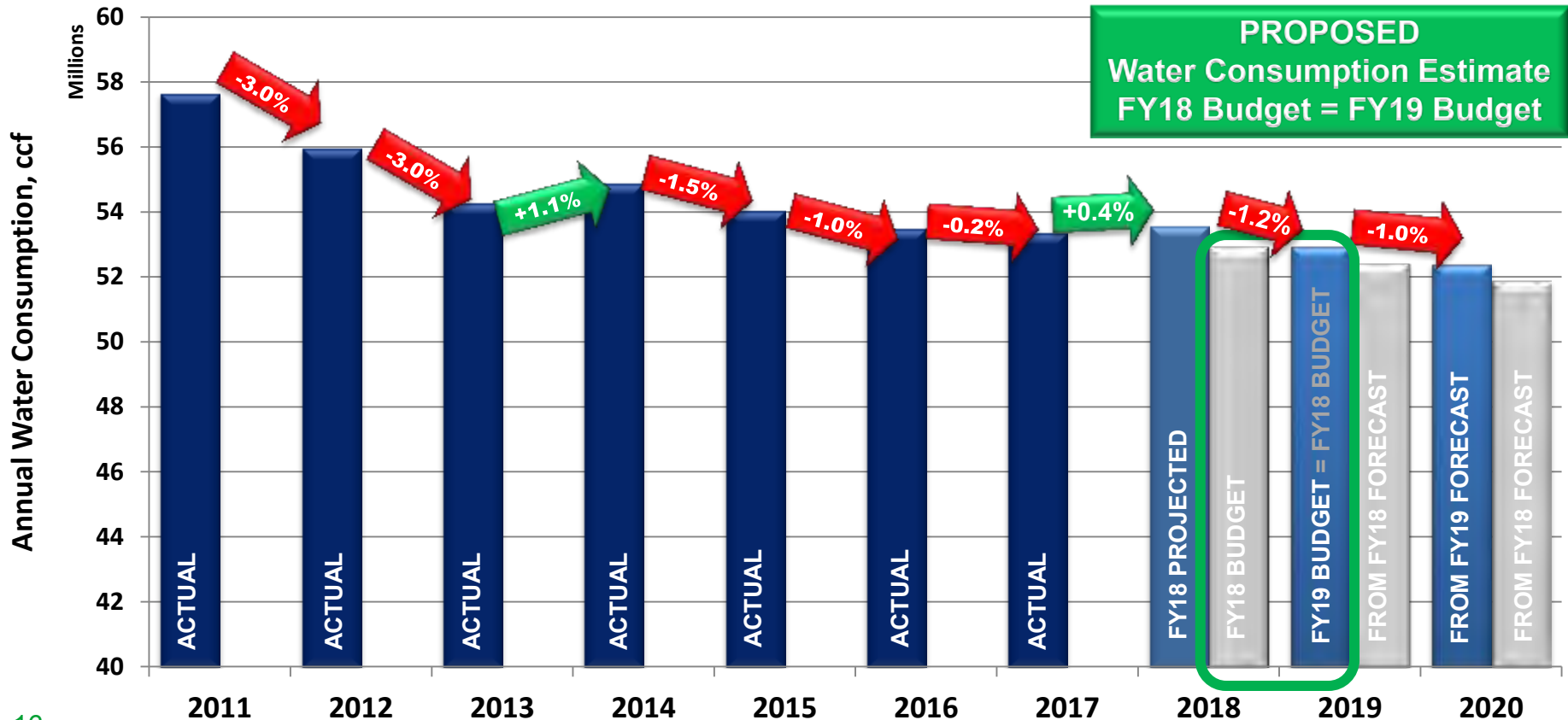


Table 6 – Summary of Median Daily Consumption for Summer & Winter Months

Median Consumption for all Single Family Customers Consuming $\geq 3$ CCF/month (gpd)		Median Consumption for Flat Rate Customers Consuming $\geq 3$ CCF/month (gpd)	
Jun, Jul, Aug (Summer)	Jan, Feb, Mar (Winter)	Jun, Jul, Aug (Summer)	Jan, Feb, Mar (Winter)
144.3	133.5	283.7	187.0

# Water Consumption – Actual and Projected



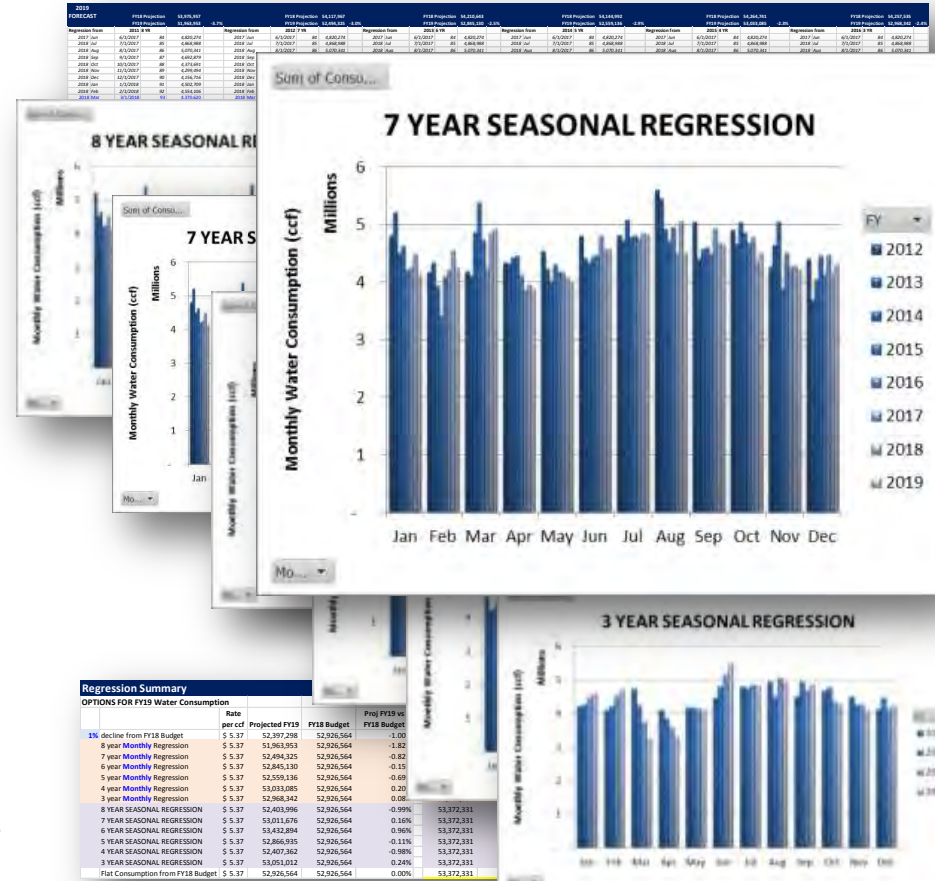
# FY19 Water Consumption Proposal Details

mccf = million ccf

- FY17 Actual = 53.4 mccf
- FY18 Budget = 52.9 mccf
- FY18 Projected = 53.6 mccf
  - +1.2% *increase*, +\$3.2M
- FY19 Budget = 52.9 mccf
  - -1.2% *decline compared to FY18 Projected*
  - Aligns with **7 Year Seasonal Regression Projection**
    - (53.01 mccf)

**@\$5.37/ccf, 186,220 ccf = \$1M**

**@\$5.37/ccf, 1% of annual WC = \$2.8M**



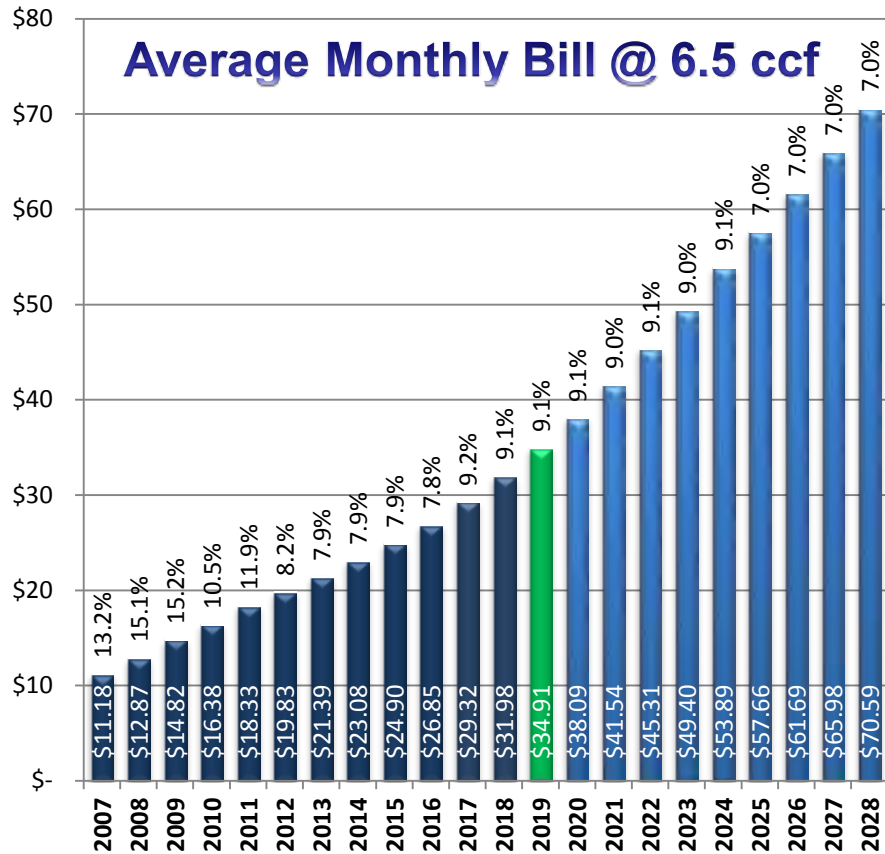
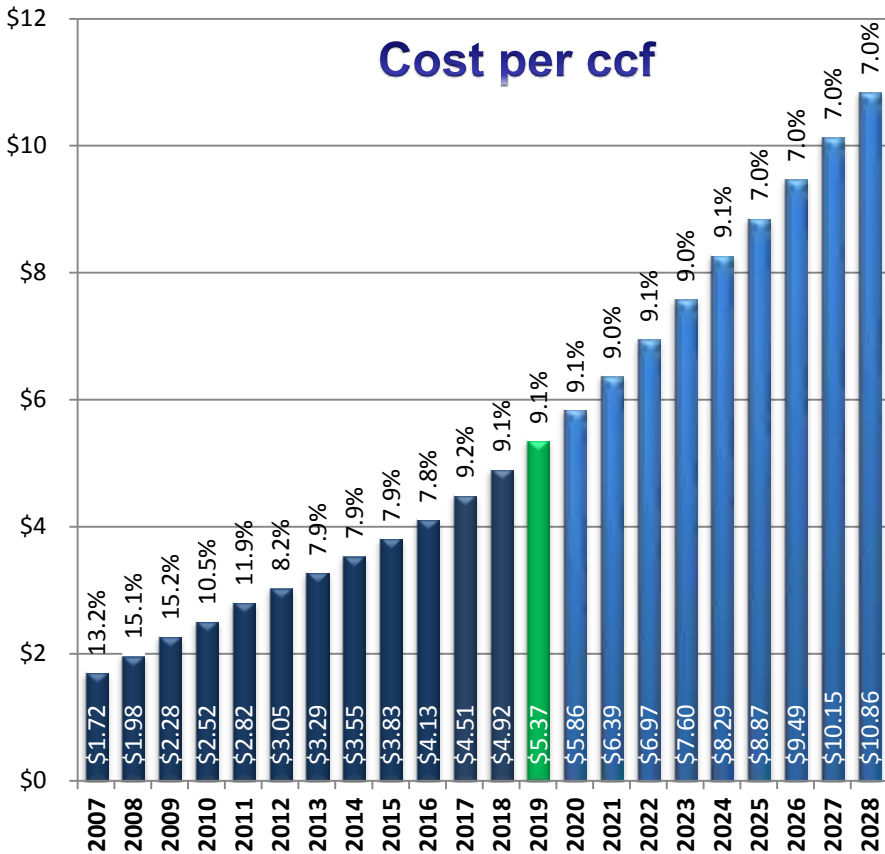
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## Proposed Rate Increase

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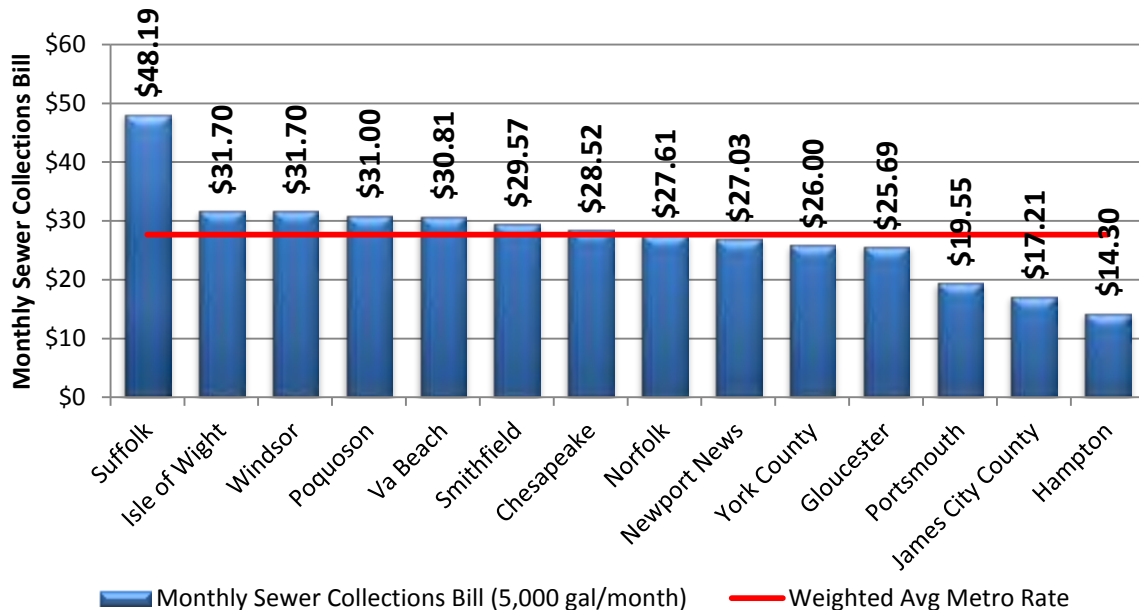
- FY19 – 9.1% rate increase
  - \$5.37 per ccf (up from \$4.92 per ccf)

# Historical and Proposed Rate Increases



# Small Communities Rate Based on Weighted Avg Metro Rate

FY2018 Monthly Collection Charges by Locality (HRPDC)



Locality	FY17	FY18	Rate Increase
Portsmouth	\$ 18.58	\$ 19.55	5.22%
Isle of Wight	\$ 30.20	\$ 31.70	4.97%
Windsor	\$ 30.20	\$ 31.70	4.97%
Norfolk	\$ 26.54	\$ 27.61	4.03%
Suffolk	\$ 46.59	\$ 48.19	3.44%
James City County	\$ 16.87	\$ 17.21	2.02%
Newport News	\$ 26.53	\$ 27.03	1.89%
Chesapeake	\$ 28.52	\$ 28.52	0.00%
Va Beach	\$ 30.81	\$ 30.81	0.00%
Gloucester	\$ 25.69	\$ 25.69	0.00%
Hampton	\$ 14.30	\$ 14.30	0.00%
Poquoson	\$ 31.00	\$ 31.00	0.00%
York County	\$ 26.00	\$ 26.00	0.00%
Smithfield	\$ 29.57	\$ 29.57	0.00%

<b>Weighted Avg Metro Monthly Bill - 5,000 gal/month</b>	<b>\$27.67</b>
<b>Weighted Avg Metro Rate - Per 1,000 gallons</b>	<b>\$5.53</b>

**YOY % Increase**  
3.5%

<sup>1</sup> Monthly Wastewater Collection obtained from HRPDC FY18 data call, excludes Williamsburg

<sup>2</sup> Population for Isle of Wight County and Towns is divided equally



# Proposed Small Communities Rate (per k-gals)

<b>FY19 Small Communities Treatment and Collections Residential Bill</b>									
	<b>HRSD Rate (\$/k-gals)</b>	<b>Collections (\$/k-gals)</b>	<b>Capital Recovery (\$/k-gals)</b>	<b>FY19 Rate</b>	<b>Minimum Monthly Bill - 3,000 gals</b>	<b>Minimum Bimonthly Bill - 6,000 gals</b>	<b>Proposed Flat Monthly Bill<sup>1</sup></b>	<b>YOY Increase</b>	
King William	\$7.18	\$5.53	\$0.54	\$13.25	\$39.75	\$79.50	<b>\$53.00</b>	5.4%	
Surry	\$7.18	\$5.53	N/A	\$12.71	\$38.13	\$76.26	<b>\$50.84</b>	5.7%	
Urbanna	\$7.18	\$5.53	\$2.13	\$14.84	\$44.52	\$89.04	<b>\$59.36</b>	4.8%	
West Point	\$7.18	\$5.53	\$2.24	\$14.95	\$44.85	\$89.70	<b>\$59.80</b>	4.8%	
<sup>1</sup> Assumes 4,000 gals per month									
	<b>HRSD Rate (\$/k-gals)</b>	<b>Collections (\$/k-gals)</b>	<b>Capital Recovery (\$/k-gals)</b>	<b>FY19 Rate</b>	<b>Flat Monthly Bill based on ERU Usage Rate - 4,000 gals per month</b>		<b>YOY Increase</b>		
Mathews	\$7.18	\$5.53	N/A	\$12.71	\$50.84		5.7%		
<p><i>The amount charged to Mathews residential customers is a flat rate based on an Equivalent Residential water Usage (ERU) of 12,000 gallons per quarter. All others, including commercial, government and professional customers, are charged based on a schedule of fractions or multiples of the ERU as appropriate for each customer category. This schedule is derived from information supplied by the Mathews Courthouse Sanitary District and may be subject to verification or revision.</i></p>									



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# Operating Budget

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## Proposed 2018 Revenues

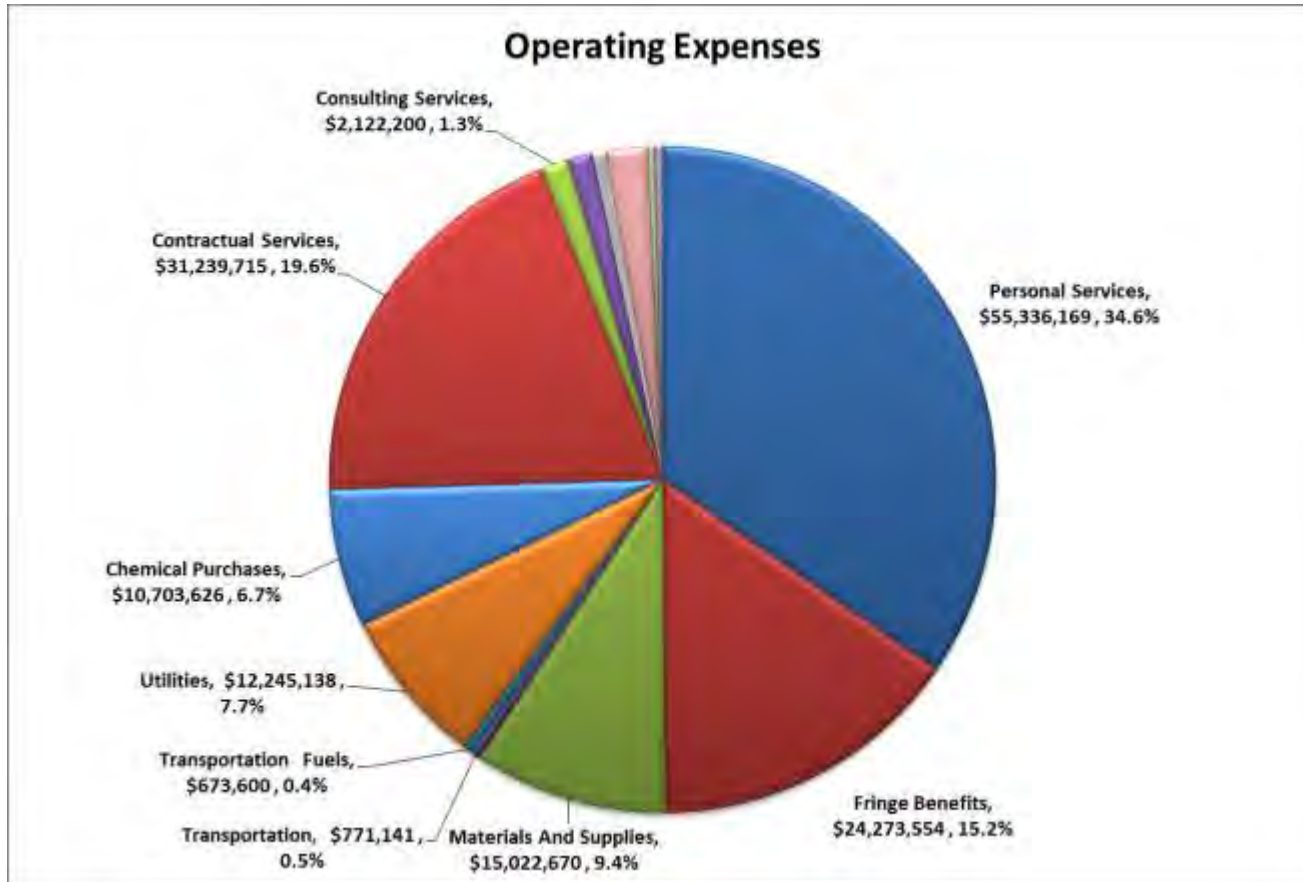
		<b>Adopted</b>	<b>Increase/ (Decrease)</b>	<b>Percent Change</b>
	<b>FY-2019</b>	<b>FY-2018</b>		
<b>Operating Revenues</b>				
Wastewater Treatment Charges	\$ 297,062,000	\$ 273,087,693	\$ 23,974,307	9%
Miscellaneous	1,405,000	1,545,000	(140,000)	(9%)
<b>Total Operating Revenue</b>	<b>298,467,000</b>	<b>274,632,693</b>	<b>23,834,307</b>	<b>9%</b>
<b>Non-Operating Revenues</b>				
Wastewater Facility Charges	6,075,000	6,000,000	75,000	1%
Investment Earnings	2,500,000	1,800,000	(700,000)	(28%)
Build America Bond Subsidy	2,400,000	2,400,000	-	0%
Other	820,000	720,000	100,000	14%
<b>Total Non-Operating Revenues</b>	<b>11,795,000</b>	<b>10,920,000</b>	<b>(525,000)</b>	<b>(5%)</b>
<b>Total Revenues</b>	<b>\$ 310,262,000</b>	<b>\$ 285,552,693</b>	<b>\$ 23,309,307</b>	<b>8%</b>

# Budget Summary - Expenditures

## Summary of Expenses Grouped by Object Code

OBJECT CODE Column1	FY17	FY18	FY19	FY19 Proposed vs	FY19 Proposed vs
	Actuals Year Total	Budget Year Total	Proposed Year Total	Budget \$ Dif	Budget % Dif from Budget
Column1	Column2	Column4	Column6	Column7	Column8
AC_51000:Personal Services	\$ 53,400,849	\$ 53,773,326	\$ 55,336,169	\$ 1,562,842	2.9%
AC_52000:Fringe Benefits	\$ 19,106,292	\$ 24,691,454	\$ 24,273,554	\$ (417,899)	-1.7%
AC_53000:Materials And Supplies	\$ 15,740,746	\$ 14,919,311	\$ 15,022,670	\$ 103,359	0.7%
AC_53500:Transportation	\$ 900,394	\$ 804,060	\$ 771,141	\$ (32,919)	-4.1%
AC_53600:Transportation Fuels	\$ 485,680	\$ 615,325	\$ 673,600	\$ 58,275	9.5%
AC_54000:Utilities	\$ 11,523,328	\$ 11,947,481	\$ 12,245,138	\$ 297,657	2.5%
AC_54500:Chemical Purchases	\$ 8,019,746	\$ 10,324,400	\$ 10,703,626	\$ 379,226	3.7%
AC_55000:Contractual Services	\$ 21,056,692	\$ 25,728,113	\$ 31,239,715	\$ 5,511,602	21.4%
AC_55500:Consulting Services	\$ 2,477,383	\$ 1,800,792	\$ 2,122,200	\$ 321,408	17.8%
AC_56000:Miscellaneous Expenses	\$ 1,969,971	\$ 1,842,349	\$ 1,898,894	\$ 56,545	3.1%
AC_56500:Recruitment Expenses	\$ 326,135	\$ 416,500	\$ 411,000	\$ (5,500)	-1.3%
AC_57000:Bond Issues	\$ 40,765	\$ 900,000	\$ 350,000	\$ (550,000)	-61.1%
AC_57500:Apprentice Program	\$ 220,596	\$ 230,431	\$ 251,972	\$ 21,541	9.3%
AC_58000:Insurance	\$ 2,825,275	\$ 3,105,000	\$ 3,262,000	\$ 157,000	5.1%
AC_58500:District Memberships	\$ 429,973	\$ 560,323	\$ 546,829	\$ (13,494)	-2.4%
AC_60000:Capital Assets	\$ 2,853,910	\$ 814,100	\$ 601,500	\$ (212,600)	-26.1%
<b>Total Operating Expenses</b>	<b>\$ 141,377,736</b>	<b>\$ 152,472,965</b>	<b>\$ 159,710,008</b>	<b>\$ 7,237,043</b>	<b>4.7%</b>

# Operating Expenses



# FY18 Position Summary – Start = 830 FT, +2 Mid-Year

+2	Plant Operators
3	Maintenance Operator (MO)
-2	Maintenance Operations Assistant (MOA)
-5	Facilities Assistant
+1	Interceptor Technician
+1	Interceptor Assistant
-2	HEO-I. Flusher Truck

OPS	
Treatment Re-Org	
+3	TPE's
-3	Plant Mgr
+3	Maintenance Planners
-3	Maintenance Specialist
Mgmt Re-Org	
+1	Ops Project Mgr
Field Re-Org	
+1	Electrical & Instrumentation Specialist
+2	Plant Operators
3	Maintenance Operator (MO)
-2	Maintenance Operations Assistant (MOA)
-5	Facilities Assistant
+1	Interceptor Technician
+1	Interceptor Assistant
-2	HEO-I. Flusher Truck

SWIFT Initiative	
+1	Chief of Design & Construction - SWIFT
+1	Chief of Process Engineering & Research
-1	Process Engineer & Research Mgr
+1	SWIFT Project Mgr
-1	Water Recycling Project Mgr
+1	Ops Project Mgr
-1	YRTP Plant Mgr
+1	Lead Operator
-1	Plant Operator
+1	Lab Specialist
Engineering	
+1	Project Mgr - SS D&C
-1	ATP Plant Mgr

Total Entity	
+1	Accounting Mgr
+1	Customer Care Mgr
+1	Industrial Automation Mgr
+1	Chief Maintenance Mgmt
+2	Condition Assessment Technician
+1	Interceptor Technician-Flusher truck
+1	Data Analyst
+1	CMMS Analyst
+1	WQ Specialist
-1	Financial Analyst
-1	Customer Care Operations Mgr
-1	Industrial Control Mgr
-1	Chief Foreman
-2	Interceptor Technician.CCTV Crew
-1	Interceptor Technician-Chem Crew
-1	Data Analyst Technician
-1	CMMS Analyst
-1	TSD Specialist

SWIFT Initiative	
+1	Chief of Design & Construction - SWIFT
+1	Chief of Process Engineering & Research
-1	Process Engineer & Research Mgr
+1	SWIFT Project Mgr



## FY19 New Positions that Replace Positions Eliminated, **NET = -1**

- New Positions (+5):
  - 1 Treatment Process Engineer I in Operations
  - 1 Small Communities Lab Assistant in Operations
  - 1 Contract Specialist in Engineering
  - 2 Engineering Specialists in Engineering
- Positions eliminated (-6):
  - 1 Chief of Industrial Controls in Information Technology
  - 1 Maintenance Operations Assistant in Operations
  - 1 Machinist in Operations
  - 1 Recycling Manager in Water Quality
  - 1 Engineering Project Manager
  - 1 GIS/CAD Technician

## FY19 Position Summary – **Four Net** New Full-Time Positions

- Part-Time (PT) to Full-Time (FT) (+5):
  - 1 Community Educator in Communications
  - 1 Accounts Payable Associate in Finance
  - 1 Desktop Support Analyst in Information Technology
  - 1 Training Specialist in Talent Management
  - 1 Engineering Clerk in Engineering
  
- FY19 Position Total = 836 FT

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## New Positions Proposed

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- Treatment Process Engineer I in Operations
- Small Communities Lab Assistant in Operations
- Contract Specialist in Engineering
- Engineering Specialists
  - Hydraulic Model updates in-house



- Benefit Overview
- FY18 Changes
- Benchmarking
- Trends
  - Medical
  - Wellness
- Renewal
  - Additions
- Budget



# HRSD Health Benefits

- High Deductible Health Plan- No Premiums

Type	Deductible	Out of Pocket Max
*Wellness –Single	\$1500	\$3000
Non-Wellness - Single	\$2000	\$4000
Wellness - Family	\$3000	\$6000
Non-Wellness -Family	\$4000	\$8000

*\*Assuming Entry Level \$30k, target healthcare costs <10% gross income = \$3,000*

- Pharmacy
  - No Cost Preventative Generics
  - \$10/\$30/\$50 Co-Pays after deductibles
- Health Savings Account
- Basic Vision & Dental – No Premiums
- Premium Vision - Low Monthly Premiums

- Benefit Enhancements
  - Fertility Benefits : Remove Lifetime Maximum
  - Transgender Services (Federally Mandated)
  - Nutritional & Weight Loss Benefits
  - Hearing Aids
- New Consultant
  - Performance guarantees
  - Pharmacy audit & negotiated savings
  - Benchmarking
  - Technology enhancements
  - Strategies to lower cost, improve quality and experience

# Benchmarking- Deductible & Out of Pocket Max

HSA-eligible CDHP deductibles and out of pocket maximums	Hampton Roads Sanitation District – Wellness Plan	Hampton Roads Sanitation District – Non-Wellness & Retiree Plan	500-4,999 employees	Transportation / Communication / Utility 500+	Virginia
<b>Individual coverage</b>					
Median in-network deductible	\$1,500	\$2,000	\$2,000	\$1,500	\$1,742
Median in-network, out-of-pocket maximum (OOP)	\$3,000	\$4,000	\$3,600	\$3,425	\$4,000
<b>Family coverage</b>					
Median in-network deductible	\$3,000	\$4,000	\$4,000	\$3,000	\$3,492
Median in-network, out-of-pocket maximum (OOP)	\$6,000	\$8,000	\$7,000	\$6,850	\$7,936

# Benchmarking - Premiums

Employee Contribution for Individual Coverage (Average Monthly Contributions \$)	Hampton Roads Sanitation District	500-4,999 employees	Transportation / Communication / Utility 500+	Virginia
HSA-eligible CDHP	\$0	\$85	\$63	\$78
Dental	\$0	\$17	\$15	\$20

Employee Contribution for Family Coverage (Average Monthly Contribution \$)	Hampton Roads Sanitation District	500-4,999 employees	Transportation / Communication / Utility 500+	Virginia
HSA-eligible CDHP	\$0	\$327	\$264	\$363
Dental	\$0	\$56	\$59	\$70

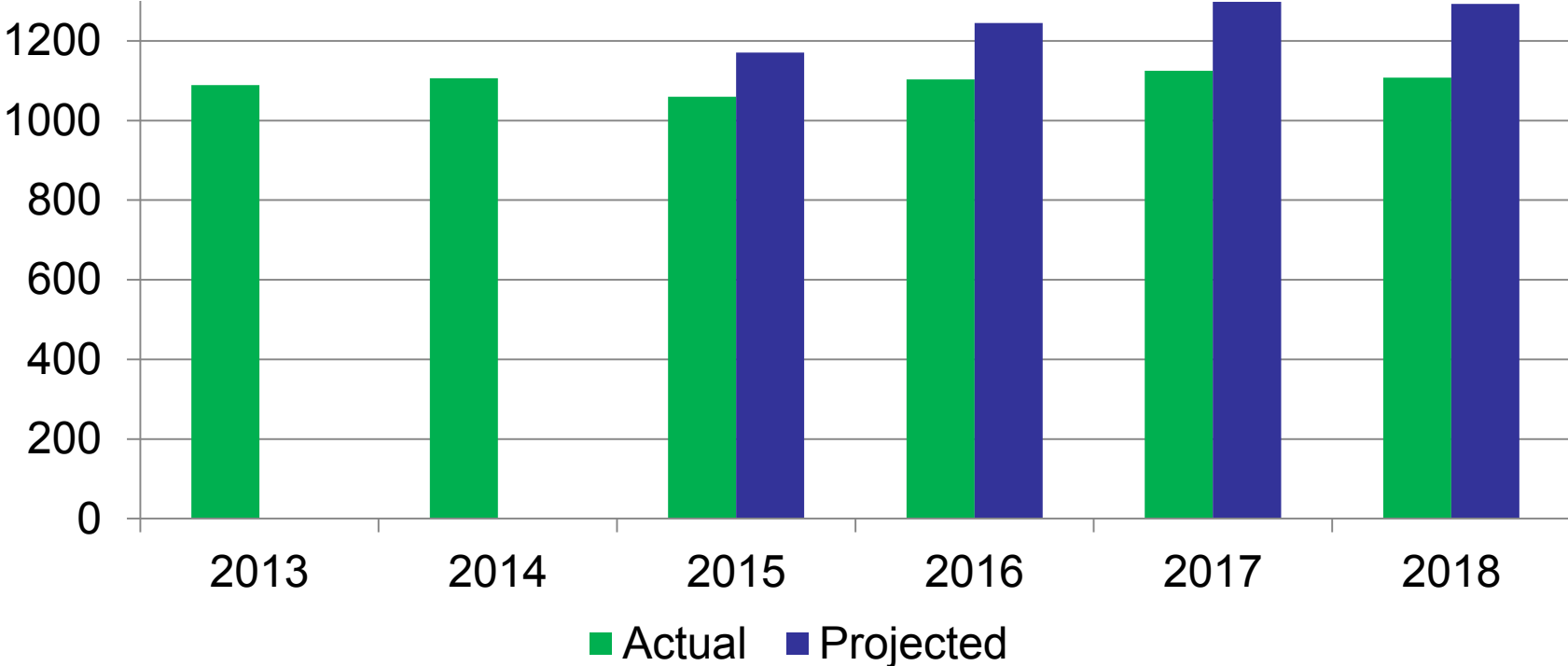


# Cost Trends

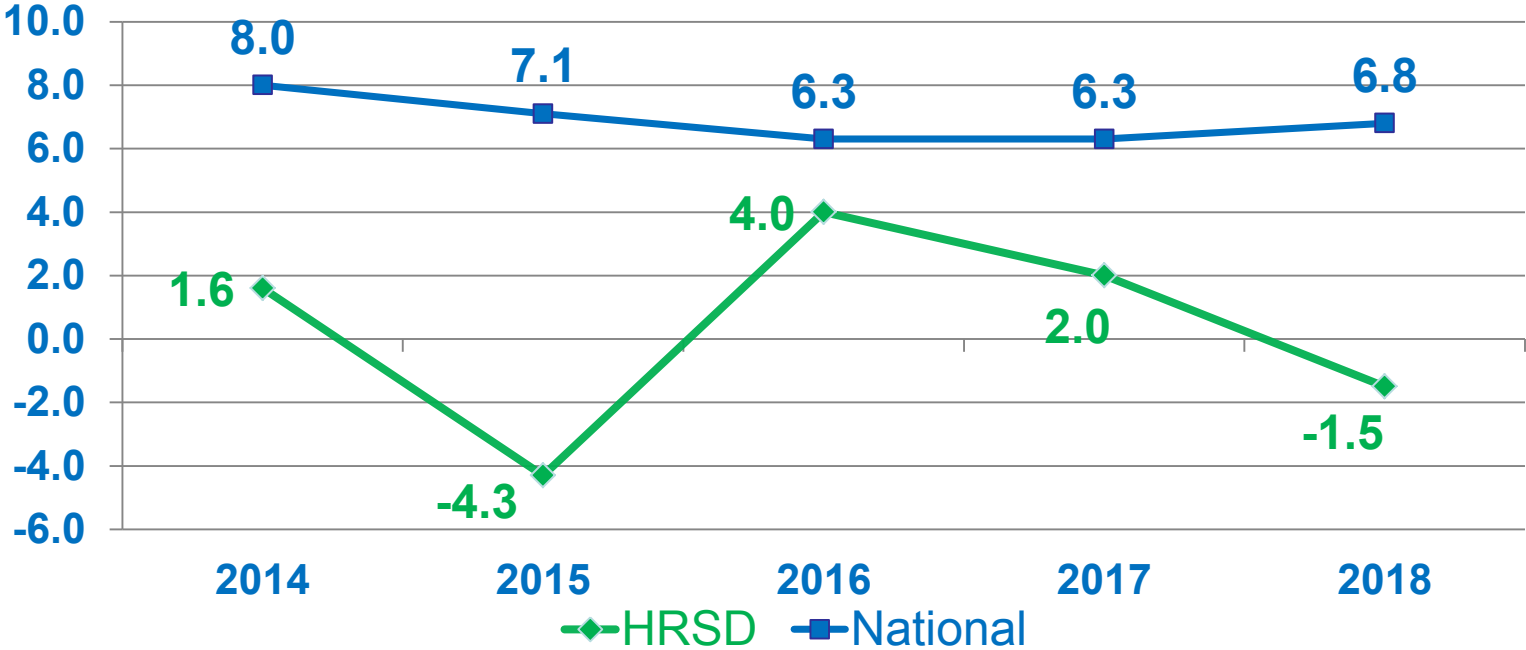
Budget Year	Forecast Total	Actual Total	Forecast PEPM	Actual PEPM	Enrollment
FY16	\$11,529,937	\$10,218,226	\$1245	\$1103	772
FY17	\$12,224,595	\$10,661,118	\$1298	\$1125	790
FY18 Based on YTD	\$12,488,281	\$10,802,476	\$1293	\$1108	812



# PEPM Cost Trends



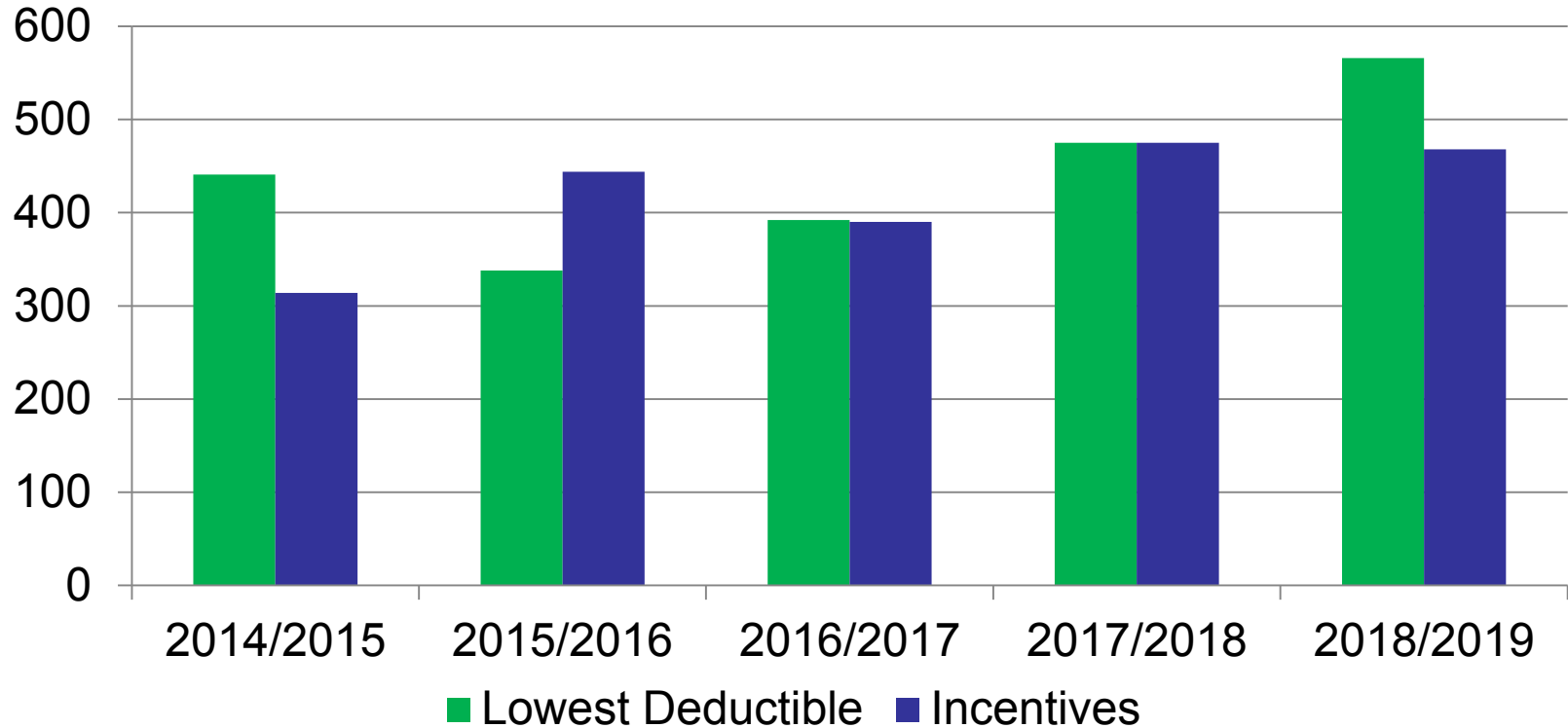
# Medical Cost Trends -% Change





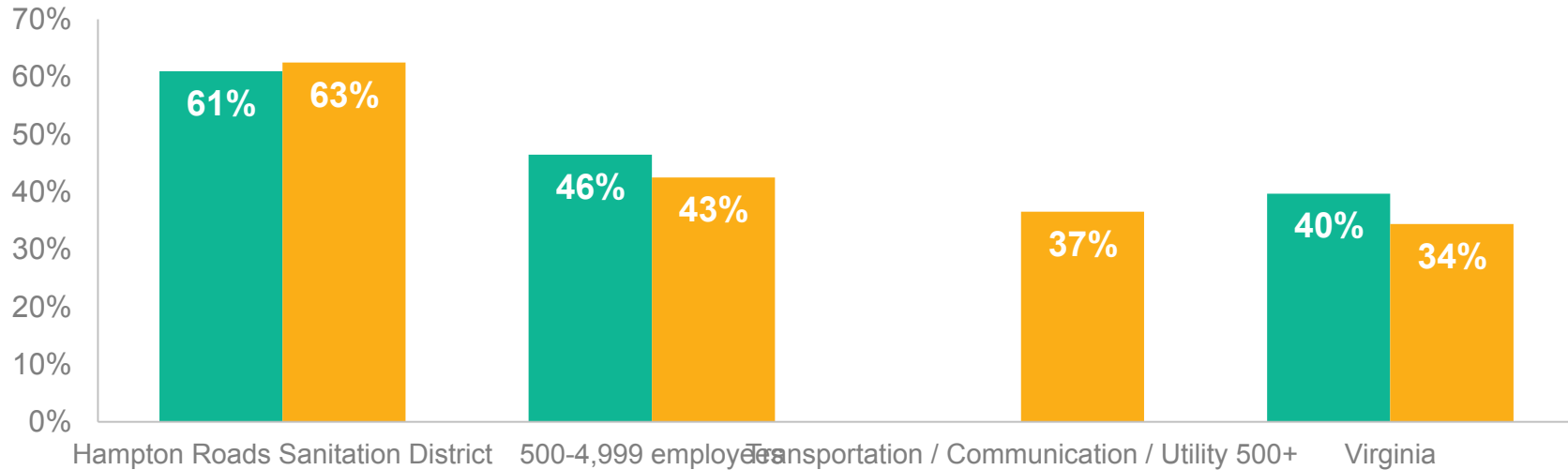
- HDHP design
- Higher employee engagement in health & wellness
- Increased pharmacy costs offset by decreased medical costs
- Increased pharmacy rebates
- Catastrophic claims decrease
- Generic utilization higher than norm
- Lower emergency room usage

# Wellness Program Engagement



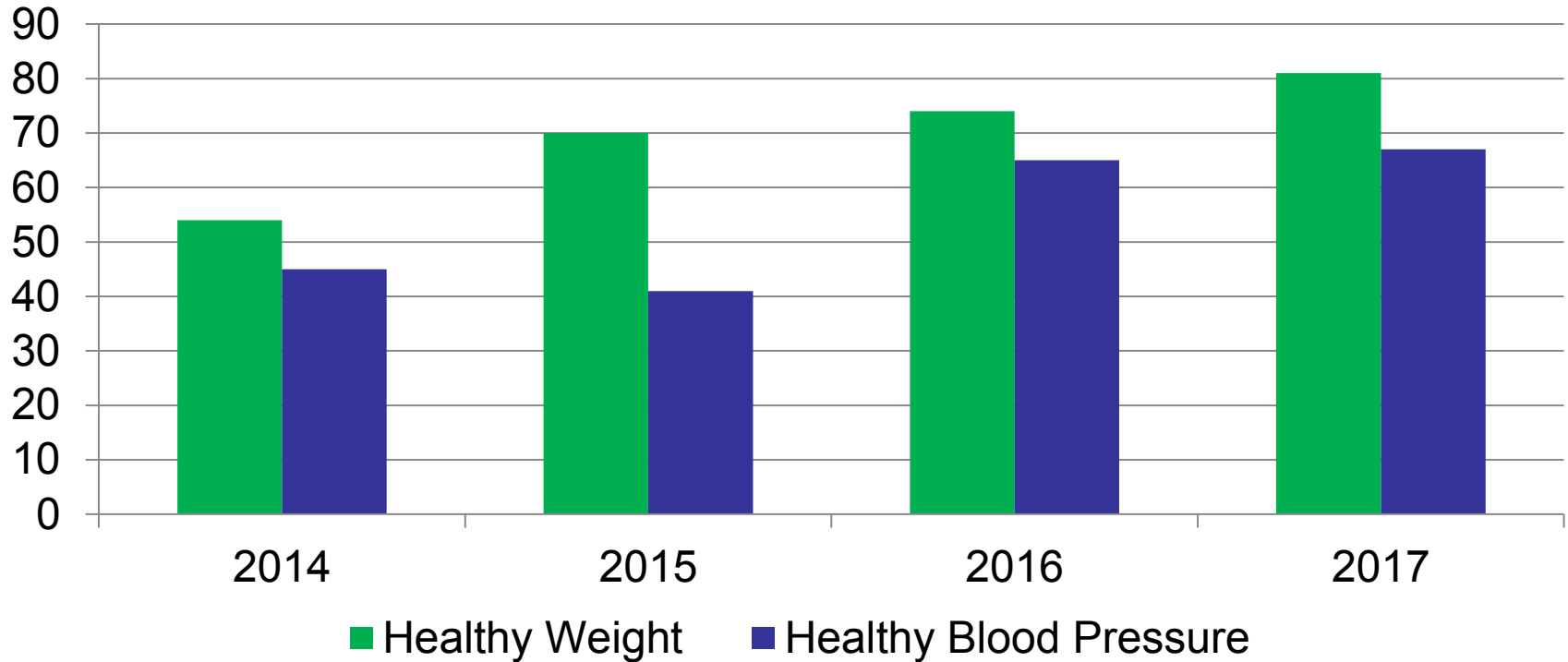
# Wellness Benchmarks

- Completed health assessment (% eligible employees)
- Completed a validated biometric screening (% eligible...)



- Total Health Engagement higher than norm
  - Cancer Screening rates
  - Well Visits
  - Health Improvement Activities
  - Preventive Care
  - Biometric Screening Trends

## Wellness Participant Health



- Challenges
  - Increasing costs
    - Specialty pharmacy
    - High cost claims
  - Care silos
  - Limited oversight of quality/value
  - No focus on patient experience
- Strategies
  - Specialty pharmacy solutions
  - Health Advocacy
  - Expert Medical Opinion
  - Centers of Excellence

- Health Advocate
  - Services
    - Find the right doctors, hospitals and other healthcare providers
    - Coordinate care, schedule follow-up visits, arrange specialized treatments and tests
    - Provide one-on-one coaching to help close gaps in care
    - Explain complex medical conditions and answer questions about results, treatment options and prescribed medications
    - Clarify benefits including copays and deductibles; help facilitate access to appropriate care
  - Benefits
    - Increase quality
    - Improve patient experience
    - Decrease overall costs
    - Increase health engagement

### Advanced Medical

#### – Services

- Concierge medical advocacy delivered entirely by Physicians
- Expert medical opinion
- Critical Care Coach
- Expert behavioral care
- Physician navigation

#### – Benefits

- Improved care through relationships w/ Physicians
  - 39% improved diagnosis
  - 60% modify treatment
  - 90% follow plan
- \$10,000 average savings per case
  - 29% less intense therapy
  - 20% surgeries avoided
  - 15% reduction in medications
- Better position for stop loss insurance negotiations



- HDHP
  - No Changes to Deductible
- Benefits
  - Health Advocate
  - Advanced Medical
- Premium Vision
  - Employee: \$5.85 to \$6.19 Monthly Premium
  - Family: \$16.37 to \$17.33 Monthly Premium
- Dental
  - No Changes

- \$12.3M, +1.2%
  - Same as FY18 on a Per Employee Per Month basis
  - Increase assumes additional employees on the plan and changes from single to family plan

- Moving CIP (outsource) to Engineering (in-house)
  - Condition assessment
  - Forcemain field services
  - Gravity flow monitoring
- \$1M SWIFT Monitoring Lab
- Move to monthly billing (VB 2018, NN 2019)
- Lab analyses (SWIFT)

- Structural assessments
- Studies
  - Bldg Information Mgt Implementation
  - Process Modeling
  - Septage Receiving Facility
- Bank fees related to monthly billing
  - Automated Clearing House (ACH)
  - Check imaging
  - Paymode (electronic payment processing)

- *March 27 – Budget Work Session*
- March 30 – Final CIP Meeting
- April 24 – Draft Budget Submittal
- May 22 – Formal Budget Adoption
- Newspaper advertisement - 4 consecutive weeks
- July 1 – Budget Effective

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Questions?

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# Example – Debt Service Coverage Ratio (DSCR) Calculation

	GAAP Basis	Adjusted Basis
Net Operating Income	\$150M	\$150M
- Locality Projects Expensed	-\$50M	\$ - <i>(adjusted)</i>
Net Operating Income	\$100M	\$150M
Debt Service <i>(Principal + Interest)</i>	\$75M	\$75M

## DEBT SERVICE COVERAGE RATIO

$$\$100M / \$75M =$$

**1.3**

*(GAAP)*

$$\$150M / \$75M =$$

**2.0**

*(Adjusted)*

# Monthly Water Consumption Data

