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Name	Title	Present for Item Nos.
Elofson, Frederick N.	Commission Chair	1-20
Lynch, Maurice P.	Commission Vice-Chair	1-20
Glenn, Michael E.	Commissioner	1-20
Lakdawala, Vishnu K.	Commissioner	1-20
Levenston, Jr., Willie	Commissioner	1-20
Rodriguez, Stephen C.	Commissioner	1-20
Taraski, Elizabeth	Commissioner	1-20
Templeman, Ann	Commissioner	1-20

1. **AWARDS AND RECOGNITION**

Action: No action required.

Brief: The following awards were announced:

a. Government Civil Engineer of the Year Award

Mr. Michael Bumbaco representing the Norfolk Branch of the American Society of Civil Engineers presented The Government Civil Engineer of the Year award to Mr. Ted Henifin. This award recognizes the extraordinary contributions Mr. Henifin has made to his profession, the region, the Commonwealth and the global water environment as he facilitated the adoption of an adaptive regional model for wet weather capacity management with the potential to realize \$1 billion capital savings, and for the implementation of the Sustainable Water Initiative for Tomorrow (SWIFT).

Mr. Henifin was also named one of Engineering News Record's Top 25 Newsmakers for 2017, receiving recognition by ENR for his service to the construction industry and the public.

b. Elizabeth River Project Sustained Distinguished Performance Model Award

Commissioners Elofson, Lakdawala, Levenston, Lynch, Rodriguez, Taraski and Templeman, along with staff, represented the organization on January 25 when HRSD was recognized by the Elizabeth River Project for Sustained Distinguished Performance as a Model Level River Star Business. This year's award recognized the innovative "source tracking" monitoring to determine the leading source of elevated bacteria in Indian River (dogs and geese, rather than humans). HRSD also provided expertise for Elizabeth River Project's Septic Systems Task Force.



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c. National Association of Clean Water Agencies Awards (NACWA)

At the February NACWA meeting, HRSD received National Achievement awards in the following categories: Workforce Development Award for our Apprentice Program and an Operations & Environmental Performance Award for our Pump Station Architectural Guidelines.

Attachment: None

Public Comment: None



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2. **CONSENT AGENDA**

Action: Approve the items listed in the Consent Agenda.

Moved: Maurice Lynch **Ayes:** 8
Seconded: Vishnu Lakdawala **Nays:** 0

Brief:

- a. Approval of minutes from previous meeting.
- b. Task Orders
 - 1. [Atlantic Pressure Reducing Station Reliability Modifications](#) \$612,000
 - 2. [Elbow Road Pressure Reducing Station](#) \$561,900
 - 3. [Independence Boulevard Pressure Reducing Station Reliability Modifications](#) \$254,000
 - 4. [Kempsville Pressure Reducing Station Reliability Modifications](#) \$385,935
 - 5. [Pine Tree Pressure Reducing Station Reliability Modifications](#) \$358,690
 - 6. [Huxley Place to Middle Ground Boulevard Force Main Extension](#) \$262,448
 - 7. [Newtown Road Interceptor Force Main Relocation](#) \$1,232,145
- c. Change Orders
 - 1. [Army Base Treatment Plant Improvements Phase III](#) \$791,537
- d. Sole Source
 - 1. [Hoffman Blowers, Replacement Parts, Maintenance and Repairs](#)
 - 2. [ProMinent Peristaltic Pumps, Parts and Repairs](#)
 - 3. [SolarWinds License and Maintenance Contract](#)
 - 4. [SUMO[®] Software License and Support Contract](#)

Item(s) Removed for Discussion: None

Attachment #1: [Consent Agenda](#)

Public Comment: None



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3. **APARTMENT RENTAL FOR WATER TECHNOLOGY AND RESEARCH INTERNS**

Action: Authorize the General Manager to enter leases for housing for interns, furnish the housing and collect rent from interns while they occupy the housing to offset HRSD costs.

Moved: Willie Levenston
Seconded: Ann Templeman

Ayes: 8
Nays: 0

Brief: The Water Technology and Research Division (WTR) employs between 12-15 interns each year. These interns are employed from three months to six years depending on their degree program. Securing housing for current and future interns allows HRSD to recruit highly qualified graduate students that would otherwise decline our offers due to the lack of affordable short-term housing. Monthly rental amounts increase significantly for short-term lease periods, to a point of being unaffordable at the modest rate of pay for the research interns.

The concept proposed is that HRSD would lease indefinitely 2 bedroom/2 bath units and sublease these apartments to research interns. The research interns would remit to HRSD a monthly lease payment that allows HRSD to fully recover our costs. With 100 percent occupancy of the apartments, this arrangement would be a no-cost program for HRSD. In the event that a bedroom is not occupied, HRSD would cover the cost of the lease. The number of apartments being leased by HRSD would be adjusted routinely based on need to achieve as close as possible to 100 percent occupancy. HRSD would provide modest furnishings in the apartment units.

Staff contacted multiple properties and found that not many offer corporate housing. The desired location of the rental property was to be in close proximity to the HRSD Main Office, which is also near the Chesapeake-Elizabeth Pilot Facility. This is also an ideal location for those interns who are unfamiliar with area or may be staying for a short time. Staff narrowed down the choice to two apartment complexes, Spring Water Apartments and Diamond North Apartments. Diamond North Apartments was selected due to its lower monthly rental rate. As of January 31, 2018, Diamond North Apartments rental rate for a 2 bedroom/2 bath unit is as low as \$1,351 with Spring Water Apartments rental rate as low as \$1,420. HRSD Accounts Payable Division would invoice the interns each month and the interns would be responsible for half of the cost for rent for a 2 bedroom/2 bath unit and for paying all utilities. Staff surveyed the current WTR interns and found they are spending on average \$655 per person per month on housing and utilities.

Discussion Summary: The utilities will be in HRSD's name and the cost will be included in the monthly invoice to the interns.

Attachment: None
Public Comment: None



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4. **NEW POSITIONS**

Action: Approve the creation of two new full-time positions and a part-time regular position to support additional work load at the Central Environmental Laboratory and in the Engineering Department.

Moved:	Stephen Rodriguez	Ayes:	8
Seconded:	Elizabeth Taraski	Nays:	0

Brief: A 14% increase in CEL work load over the past year, 62% of which is due to the demands of SWIFT, the rapid turn-around time for data required of SWIFT has created strain on the entire CEL but particularly in the areas where the majority of this workload increase is focused. Because so much is concentrated in a few sections of the CEL, the ability to spread this impact across the entire CEL is restricted.

In the Engineering Department, SWIFT program management will be accomplished with a combination of internal personnel and consultants. The need for a Chief level position to focus exclusively on SWIFT was identified during our review of program management options. While this position was intended to be included in the Fiscal Year 2019 budget, the aggressive schedule of the SWIFT program requires this position to be filled as soon as possible to allow the SWIFT Chief to be fully engaged in the selection of the program management consulting firm as well as commissioning the new Research Center and helping establish the oversight committee and monitoring lab.

While new positions are typically only added during the annual budget process, the commissioning schedule of the SWIFT Research Center requires these positions to be filled as soon as possible to provide some relief to the stressed CEL staff and ensure the Engineering Department has the resources to devote to SWIFT during this busy time. To the extent possible, these costs will be offset with budget reductions in other areas during the fiscal year 2019 budget development process.

This request is specifically for a new full-time Grade 6 and a part-time regular Grade 5 to meet current analytical demand as well as the additional projected demands from the SWIFT Research Center in the CEL and one Grade 11 in the Engineering Department. These positions will be added to the authorized positions as amended for fiscal year 2018.

Funding: These positions will be funded with existing fiscal year 2018 operating funds but will be included as additions to the fiscal year 2019 budget at an approximate cost of \$250,000 (fully burdened).

Attachment: None

Public Comment: None



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5. **ANAMMOX BACTERIA DECAY RESEARCH STUDY AGREEMENT**

Action: Approve Virginia Polytechnic Institute and State University as a provider of continued services to conduct research studies for HRSD.

Moved:	Maurice Lynch	Ayes:	8
Seconded:	Vishnu Lakdawala	Nays:	0

Brief: The Virginia Polytechnic Institute and State University is conducting an experimental and modeling study with Dr. Jason Zhen which aims to systematically investigate and understand anammox bacteria decay kinetics.

The [original term](#) of this study was for a one-year period. Water Research and Technology has requested the [study](#) continue for another six months due to the need for additional data. This will be at no cost.

Attachment #2: [Agreement](#)

Public Comment: None



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6. **BEACH ROAD TRANSFER OF SANITARY SEWER FACILITIES AGREEMENT**

Actions:

- a. **Accept the terms and conditions of the Agreement for the Transfer of Sanitary Sewer Facilities and the Deed of Transfer of Sanitary Sewer Facilities with the City of Hampton 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. **Authorize conveyance of sewer infrastructure to the City of Hampton.**

<u>Moved:</u>	Maurice Lynch	<u>Ayes:</u>	8
<u>Seconded:</u>	Michael Glenn	<u>Nays:</u>	0

Project Description: HRSD recently completed rehabilitation of the gravity sewer along Beach Road in the City of Hampton from Catalina Drive to Westlawn Drive. The work was completed under the Sewer Repair On-Call Contract with T.A. Sheets General Contractors, Inc. Upon completion of the rehabilitation, the City of Hampton agreed to assume ownership and maintenance responsibilities of this section of rehabilitated new gravity sewer.

This effort is part of a larger program to transfer the 10-inch sanitary sewer on Beach Road to the City of Hampton. This first section of pipe was conveyed to City of Hampton in 2011 and future sections of this sanitary sewer will be conveyed once the pipeline is either rehabilitated or replaced.

Funding Description: No funding required.

Agreement Description: The attached [Agreement](#) for the Transfer of Sanitary Sewer Facilities and the [Deed](#) of Transfer of Sanitary Sewer Facilities have been reviewed by HRSD legal counsel. A facilities [orientation map](#) is also provided for clarification purposes.

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

Public Comment: None



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7. **DEEP CREEK INTERCEPTOR FORCE MAIN RISK MITIGATION PROJECT AGREEMENT AND TASK ORDER**

Actions:

- a. **Approve the terms and conditions of the agreement with Dominion Energy (DE) for the design and construction of City of Chesapeake and private infrastructure needed to abandon the HRSD 24-inch force main that crosses the Elizabeth River near DE’s Chesapeake Energy Center, the reimbursement of all design and construction costs up to \$2,500,000 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. **Approve a task order with Whitman, Requardt and Associates, LLP in the amount of \$230,570.**

Moved: Willie Levenston **Ayes:** 8
Seconded: Stephen Rodriguez **Nays:** 0

CIP Project: NP013400

Budget	\$2,482,800
Previous Expenditures and Encumbrances	(\$70,624)
Available Balance	\$2,412,536

Contract Status:	Amount
Original Contract with Whitman Requardt & Assoc.	\$63,301
Total Value of Previous Task Orders	\$0
Requested Task Order	\$230,570
Total Value of All Task Orders	\$230,570
Revised Contract Value	\$293,871
Engineering Services as % of Construction	15%

Project Description: The project is to study, design and construct 3,800 linear feet (LF) of 6-inch force main to reroute the discharge flow from Chesapeake Pump Station (PS) 54 to the HRSD Interceptor Force Main (IFM) west of main line valve (NA3090C-4) and a 600 LF 12-inch force main extension along Bainbridge Avenue to reroute Chesapeake PSs 56, 131 and 231 east away from a section of corroded IFM that runs parallel to the railroad. 2,400 linear LF of 4-inch low pressure force main will also be constructed to redirect the private pump station serving 1500 Steel Street to the newly constructed 6-in FM. The force mains will be dedicated to the City of Chesapeake upon completion of the project. The existing 24-inch HRSD IFM will be abandoned from the Washington District Pump Station westward to the main line valve at Winslow Avenue. Up to 500 LF of HRSD force main will be removed



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from the property west of Steel Street to accommodate wetland construction. The remaining portion of 24-inch HRSD force main will be abandoned with flowable fill wherever it is practical and necessary. This project will eliminate the risk associated with operating an aging ductile iron and pre-stressed concrete force main beneath a capped coal ash pile. In addition, this rerouting of flow will eliminate a large portion of HRSD's force main lying in easements with difficult access issues including residential yards.

Agreement Description: The [attached agreement](#) between HRSD and DE states that DE will reimburse HRSD for the design and construction costs of the project up to \$2,500,000. The total cost for this project is estimated to be \$2,800,000. The agreement has been reviewed by HRSD legal counsel.

Task Order Description and Analysis of Cost: This task order will provide design phase services. The cost for this task order is based on a negotiated number of consulting hours and hourly rates, which are considered reasonable for this effort. The Engineering Services as a percentage of Construction is comparable to other projects of similar size and complexity.

Schedule:	PER	October 2016
	Design	March 2018
	Construction	October 2019
	Project Completion	December 2020

Attachment #4: [Agreement](#)

Public Comment: None



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8. DEEP CREEK INTERCEPTOR FORCE MAIN REPLACEMENT
EASEMENT ACQUISITION

Actions:

- a. Approve the purchase of an Easement in accordance with the terms and conditions of the Deed with Double R, LLC (Landowner), for \$60,000.
- b. Authorize the General Manager to execute the same, substantially as presented, together with such changes, modifications, and deletions as the General Manager may deem necessary.

<u>Moved:</u>	Stephen Rodriguez	<u>Ayes:</u>	8
<u>Seconded:</u>	Willie Levenston	<u>Nays:</u>	0

CIP Project: NP012600

Budget	\$6,233,000
Previous Expenditures and Encumbrances	(\$858,500)
Available Balance	\$5,374,500

Project Description: This project will replace 3,900 linear feet of 24-inch ductile Iron pipe that runs along Canal Drive from the Deep Creek Pressure Reducing Station north to Military Highway. The project will also construct an interconnect between the force main along Baugher Avenue and the force main along Military Highway in order to eliminate the portion that runs parallel to Military Highway on the north side.

Agreement Description and Analysis of Cost: As a part of the project, HRSD will require a 9,636 square foot permanent utility easement from Double R, LLC, located at 3000 S. Military Highway, Chesapeake, Virginia. The attached [Subordination Agreement](#), which includes the [Deed](#), [acquisition plat](#) and [location maps](#), has been reviewed by HRSD staff and legal counsel. The cost for the easement is based upon a professional appraisal by Valbridge Property Advisors, as well as a negotiated settlement with Double R, LLC.

Attachment #5: [Agreement, Deed, Plat and Maps](#)

Public Comment: None



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9. **SOUTHEASTERN PUBLIC SERVICE AUTHORITY (SPSA) LEACHATE PARTNERSHIP AGREEMENT**

Action: Authorize the General Manager to negotiate an agreement with SPSA to construct a new force main from the Suffolk Regional Landfill to Bainbridge Boulevard.

Moved:	Maurice Lynch	Ayes:	8
Seconded:	Michael Glenn	Nays:	0

Brief: SPSA has an Industrial Wastewater Discharge permit allowing them to discharge up to 50,000 gallons per day of leachate that meets their permit limits. Currently that leachate is pumped into the Nansemond Treatment Plant (NTP) service area and treated at NTP. There are compounds and contaminants in the SPSA leachate that create challenges to producing SWIFT Water. Staff has been working with SPSA to determine volume and appropriate concentration limits for SPSA leachate going forward with the SWIFT Research Center coming on line this spring.

To fully understand the impact on SWIFT advanced water treatment processes, leachate will be permitted in accordance with the current industrial waste discharge permit for approximately the first 30 days of SWIFT Water production at the SWIFT Research Center. After this initial period, SPSA will stop pumping leachate to Nansemond and pump and haul their leachate to the Washington District pump station where it will be discharged into the Atlantic Treatment Plant service area. This will allow full evaluation of the impact of the SPSA leachate on SWIFT Research Center treatment processes. If SWIFT performance is not impacted by the current volumes of SPSA leachate, SPSA will be allowed to resume pumping. If SWIFT performance is impacted, SPSA will be required to maintain pump and haul until another permanent solution can be implemented.

The options available to SPSA appear to fall into three categories:

- Transport leachate to a treatment facility that can handle that waste.
- Construct its own pre-treatment facilities.
- Build a force main to pump the leachate to an HRSD facility that will not be impacted by the leachate (with appropriate Pretreatment & Pollution Prevention limitations).

Project Description: HRSD's preferred alternative is a force main that would route the leachate to the Atlantic Treatment Plant for treatment. The conceptual estimate of this solution is in the \$6 million range. The force main solution may also permit SPSA to increase the volume of leachate discharged to HRSD which may be required in future years.



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Almost exactly two-thirds of HRSD customers are served by SPSA. Staff believes a cost share for this solution, based on this percentage of customers, would be appropriate for the region and for our customers. Staff will be working with SPSA over the coming weeks to prepare for the commission of the SWIFT Research Center and needs authorization to draft such an agreement. The final agreement will be presented to the Commission for approval at a future meeting.

Discussion Summary: Mr. Henifin shared with the Commission the presentation that he will give to the SPSA board tomorrow. Building a force main is the least expensive of the three options listed above. Long-term pumping and hauling would be expensive, and the sustained daily truck traffic would also have a negative impact on the environment.

We will not recharge the aquifer with water that does not meet permit requirements. The initial operation of the SWIFT Research Center will be used to determine the potential impact of the SPSA leachate on SWIFT advanced treatment processes. If there is difficulty with bromate control during the initial days of SWIFT Water production, the SWIFT Water will be discharged back to the treatment plant and will be discharged through the outfall. Safety checks and control points are in place to monitor the effluent before it is injected into the ground.

Staff believes factors that could possibly impact SWIFT advanced treatment performance would be related to the ability to maintain 3-log virus removal through ozone addition and as a result of bromate formation.

HRSD will strictly enforce SPSA's Industrial Wastewater Discharge Permit limitations.

Attachment #6: [Presentation](#)

Public Comment: None



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10. **HAMPTON TRUNK SEWER EXTENSION DIVISION E GRAVITY REPLACEMENT
ADDITIONAL APPROPRIATION AND CONTRACT CHANGE ORDER**

Actions:

- a. **Appropriate additional funding in the amount of \$467,097.**
- b. **Approve a change order to the contract with MEB General Contractors, Inc. in the amount of \$330,000.**

Moved: Willie Levenston **Ayes:** 8
Seconded: Ann Templeman **Nays:** 0

CIP Project: BH012000

Budget	\$2,254,489
Previous Expenditures and Encumbrances	(\$2,229,982)
Available Balance	<u>\$24,507</u>
Proposed Change Order No. 4 to MEB General Contractors, Inc.	(\$330,000)
Proposed Contingency	(\$161,604)
Project Shortage/Requested Additional Funding	(\$467,097)
Revised Total Project Authorized Funding	<u>\$2,721,586</u>

Contract Status:	Amount	Cumulative % of Contract
Original Contract for MEB	\$1,658,580	
Total Value of Previous Change Orders	\$88,741.82	5%
Requested Change Order	\$330,000	
Total Value of All Change Orders	\$418,741.82	25%
Revised Contract Value	\$2,077,321.82	

Time (Additional Calendar Days)	25
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Project Description: This project involves the replacement of approximately 1,000 linear feet of existing 24-inch slip-lined pipe along Kecoughtan Road from Ivy Home Road south towards Clyde Street with a new 24-inch gravity sewer as well as the replacement of approximately 200 linear feet of existing 21-inch slip-lined pipe along Ivy Home Road west from the Kecoughtan Road intersection. This project will also include the restoration of all existing connections to the existing 24-inch gravity sewer and the rehabilitation of two existing manholes within the project limits that were included from the Manhole Rehabilitation Replacement Phase I and North Shore Siphon Chamber Rehab Phase I (GN012130).



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Funding Description: This action includes funding for Change Order No. 4 which is required due to unforeseen conditions. The negotiated amount for this work is \$330,000 and exceeds the balance available for this CIP project. Previous change orders provided access to local businesses and additional traffic control measures to protect the community. This request also includes a \$161,604 contingency to accommodate any additional unforeseen conditions and a change order that is under review.

Analysis of Cost: The Engineer prepared an independent estimate of costs and recommends approval of these changes.

Change Order Description: This change order addresses additional road repairs that were unknown during the design of the project and relocation of a water main that was in conflict with the proposed gravity sewer.

<u>Schedule:</u>	PER	July 2012
	Design	January 2013
	Bid	July 2016
	Construction	October 2016
	Project Completion	March 2018

Attachment: None

Public Comment: None



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11. REGIONAL HYDRAULIC MODEL AND OTHER CONSENT ORDER REQUIREMENTS
ADDITIONAL APPROPRIATION AND TASK ORDER (>\$200,000)

Actions:

- a. Approve a funding transfer in the amount of \$504,510 from JR013300 to GN012110.
- b. Approve a task order with CDM Smith, Inc. in the amount of \$241,000.
- c. Authorize the General Manager to transfer unobligated balances from the Consent Order CIP projects listed below to other projects within the group.

Moved: Vishnu Lakdawala **Ayes:** 8
Seconded: Willie Levenston **Nays:** 0

CIP Project: GN012110

Combined Consent Decree Projects Budget*	\$130,151,133
Previous Expenditures and Encumbrances	(\$128,839,254)
Combined Consent Decree Projects Available Balance**	<u>\$1,311,897</u>
CDM Smith Contract and Task Orders	\$25,639,924
Total Expenditures and Encumbrances	(\$25,639,924)
Available Balance	<u>\$0</u>
Requested Transfer from JR013300	\$504,510
Proposed Task Order to CDM Smith	(\$241,000)
Previous Task Orders Approved	(\$263,510)
Revised Contract Value	<u>\$26,144,434</u>

*Includes the following Consent Order CIP projects: GN012110, GN012112, GN012113, GN012114, GN012115, GN012150, CE011900, AT013800, JR013300, and MP012800.

**Since funds are available in total for the combined project, this recommendation is to transfer funds currently designated for JR013300, which has been completed, to GN012110, to fund the proposed task orders.

Project Background: The Regional Hydraulic Model (RHM) project was established in FY2007 as a single project. Over the past ten years the project has been separated into projects that more closely define the specific work being done, but the combination of these projects, and their funding, supports the broader RHM goals. As shown above, the budget for the RHM has typically included budget authorizations for several Consent Order CIP projects. As these projects are completed funds become available to use for other projects within the group. As an example, the James River Design-Bid-Build Pilot Project, JR013300,



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which was part of the Consent Decree, has been completed under budget, so the remaining funds are available for transfer to GN012110. This transfer will keep the total project funding at the current authorization level of \$130,151,133, and is consistent with the concept of a single large project supported by several smaller components. To enable the appropriate allocation of funds previously approved within the group of projects, we are requesting that the Commission allow the General Manager to transfer available balances among the projects to facilitate the most efficient use of funds.

Project Description: Engineering services, system inspections and software expenses are required to create a fully functional extended state hydraulic model for the specified portions of the regional sanitary sewer system. Model features and engineering services to include extended state simulation, GIS data integration, interoperability with the localities' hydraulic models, training and database administration. Additional task items to be completed as mandated by the Federal Consent Decree include overall program management and guidance, consent decree negotiation, locality coordination and preparation and implementation of the Regional Wet Weather Management Plan (RWWMP).

Funding Description: The requested funding includes a previous task order approved but not funded for Extend Simulation training to be conducted by CDM Smith. This software provides long-term simulation used in determining the Level of Service in the RHM.

Task Order Description: To fully implement additional improvements to the RHM, this task order will provide training to HRSD staff on the tools CDM Smith developed during the implementation of the RHM. HRSD staff will be requesting regular updates from all 14 Localities for infrastructure and flow parameter changes in order to maintain the RHM.

Attachment: None

Public Comment: None



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12. **INDEPENDENCE PRESSURE REDUCING STATION (PRS) RELIABILITY MODIFICATIONS
ALTERNATIVE PROJECT DELIVERY**

Action: Approve the Construction Management project delivery method for the Independence PRS Reliability Modifications project.

Moved:	Ann Templeman	Ayes:	8
Seconded:	Stephen Rodriguez	Nays:	0

CIP Project: CE010400

Brief: At the January 2018 Commission meeting, approval was obtained for five PRS projects to be delivered using the Construction Management project delivery method. The Independence PRS project was not originally included due to an anticipated low complexity effort to be completed by one of HRSD’s on-call contractors. The Preliminary Engineering Report (PER) reached completion in January and as the preliminary design of this station has evolved, it has become apparent that this project’s design is more complex than originally anticipated and the construction must be sequenced carefully with the other five PRS projects to ensure desired system operation when many of HRSD’s PRSs are off-line due to reliability improvements. Due to the long lead time for the replacement pumps for these stations, pre-purchase will be necessary by HRSD or the Construction Manager. The construction phase cost estimate for this project from the PER level is \$1,816,000 and is considered a Class 4 budget with an expected accuracy range of -30% under and +50% above the calculated cost. If added to the Construction Management package with the other five PRS projects, the total construction phase estimate for all of these projects is roughly \$22,874,000.

While the design-bid-build (traditional sealed competitive bid) process is the typical method of construction procurement for HRSD, this project delivery method will not meet all of the critical needs for this project. A Construction Management delivery process is more advantageous than a sealed competitive bid for this project for the following reasons:

1. The Construction Management delivery method will allow for contractor input during the design, which will be beneficial for the complex construction and sequencing of the work.
2. The Construction Management delivery method will allow for contractor input in consideration of cost saving alternatives during the design and a lump sum or guaranteed maximum price can be received during the final design stage.



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3. The Construction Management delivery method will facilitate a single responsible construction entity to coordinate all construction activities as opposed to bidding and awarding up to six individual construction contracts for the individual PRS improvements.
4. The Construction Management delivery method will allow for the early selection of subcontractors and the procurement of the pumps that can be assigned directly to this Construction Manager instead of HRSD taking temporary ownership then reassigning at a later date.

Attachment: None

Public Comment: None



COMMISSION MEETING MINUTES
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13. **CAPITAL IMPROVEMENT PROGRAM (CIP) QUARTERLY UPDATE**

Action: No action required.

Brief: Implementing the CIP continues to be a significant challenge as we address numerous regulatory requirements, SWIFT Program implementation and the need to replace aging infrastructure. Staff will provide a briefing describing the status of the CIP, financial projections, projects of significance and other issues affecting the program.

Discussion Summary: During the discussion of “*CIP Projects Not Meeting Spending Projections*” ([slide 4](#)) staff explained there are performance penalties included in contracts. However, delays are not always related to construction. There are a number of factors that could delay a project, such as additional scope added to a project, delays created to accomplish other related work, or it could be delayed intentionally for fiscal reasons. Some delays were related to the inclement weather the region experienced in January.

A Commissioner asked if the new position approved today in [agenda item #4](#) would help reduce the CIP project delays. Staff explained the new position will be dedicated to the SWIFT construction effort. We will continue to utilize consultants to help manage these projects and will discuss the concerns with project schedules with the firms that assist HRSD.

Substantial completion of the SWIFT Research Center is two months behind schedule due to delays with well drilling as well as material delivery and installation.

During the discussion of the *SWIFT Program Implementation* ([slides 23-24](#)), staff explained they have met with the majority of engineering and consulting firms to communicate our concerns with organizing and managing the multiple projects that will be included in this program. Staff will also meet with the Hampton Roads Utility Contractors Association (HRUCA) to share these same concerns with contractors who may be working on these projects.

A Request for Qualifications (RFQ) will be advertised in the next two weeks for the SWIFT project management consultant contract. This work, which will be accomplished over a 10-year period, will be time demanding, requires specialized expertise and could require 50 or more people to accomplish. Staff does not think it feasible to do the work in-house.



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Staff explained the proposed annual professional services contracts on [slide 25](#) will replace much of the work currently performed by Brown & Caldwell and CDM Smith. On an annual basis, we prepare a cost analysis to determine whether to hire consultants or additional staff to perform the work needed for the next year. This evaluation is based on need, duration of the work, and skill set required to perform the work. The work required as part of the Consent Decree Wet Weather Program may necessitate additional staff in the future.

Chair Elofson congratulated the entire team on a job well done in meeting the February 23, 2018 Consent Decree goal. He said he remembers when we began the work 10 years ago wondering how we would accomplish the work! Mr. Husselbee said it was a group effort accomplished with the help of our staff and many consultants and contractors. He said it was a concerted effort by a lot of folks. Mr. Henifin commended Mr. Husselbee's efficient management of existing HRSD staff and consulting resources. He said Mr. Husselbee's positive attitude is a distinguishing characteristic that sets him apart here, in the region and across the nation. Mr. Henifin said we are very fortunate to have Mr. Husselbee at HRSD.

Attachment #7: [PowerPoint Presentation](#)

Public Comment: None



COMMISSION MEETING MINUTES
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14. **UNFINISHED BUSINESS**

Mr. Henifin stated House Bill 771 for the SWIFT Monitoring Oversight Committee has passed the House, unanimously. The bill will now go to the Senate Agriculture Committee. He said the Health Department submitted a budget amendment in the House budget proposal for an additional full time staff in the Health Department. The proposal is not in the Senate budget proposal. There may be some issues when the budget conveners review the budget. Conway Sheild of Jones, Blechman, Woltz and Kelly continues to help with outreach to Senator Normant. Mr. Henifin has reached out to Senator Mason.

15. **NEW BUSINESS** – None

16. **COMMISSIONER COMMENTS** – None

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

18. **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](#)
- e. [Emergency Declaration - Orcutt Avenue and Mercury Boulevard Gravity Sewer Improvements](#)

Attachment #8: [Informational Items](#)

Public Comment: None



COMMISSION MEETING MINUTES
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21. **ANNOUNCEMENTS**

- The Finance Committee will meet on March 1, 2018 to review the draft Capital Improvement Program for FY 2019-2028.
- The Water Environment Federation Collection Systems Conference will be held at the Virginia Beach Convention Center April 8-11, 2018 and will feature tours of HRSD's SWIFT Research Center and Bridge Street Pump Station. Mr. Phillip Hubbard, Special Assistant for Compliance Assurance, helped organize this year's conference.

Next Commission Meeting Date: March 27, 2018 at the HRSD South Shore Operations Complex, 1434 Air Rail Avenue, Virginia Beach, VA 23455

Meeting Adjourned: 10:45 a.m.

SUBMITTED:

Jennifer L. Cascio

Jennifer L. Cascio
Secretary

APPROVED:

Frederick N. Elofson

Frederick N. Elofson, CPA
Chair

HRSD COMMISSION MEETING MINUTES
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ATTACHMENT #1

AGENDA ITEM 1. – Consent Agenda

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

Subject: Atlantic Pressure Reducing Station Reliability Modifications
Task Order (>\$200,000)

Recommended Action: Approve a task order with Kimley-Horn and Associates, Inc. in the amount of \$612,000.

CIP Project: CE011827

Budget	\$7,586,000
Previous Expenditures and Encumbrances	(\$243,200)
Available Balance	\$7,342,800

Contract Status:	Amount
Original Contract with Kimley-Horn and Associates	\$193,200
Total Value of Previous Task Orders	\$0
Requested Task Order	\$612,000
Total Value of All Task Orders	\$612,000
Revised Contract Value	\$805,200
Engineering Services as % of Construction	16.4%

Project Description: This project is to make reliability improvements to the existing Atlantic Pressure Reducing Station (PRS) including new pumps, interior and yard piping modifications, instrumentation and electrical improvements, structural modifications, and access platforms. This project must be substantially complete by June 2021.

Task Order Description and Analysis of Cost: This task order authorizes the preparation of a pump procurement package for the pre-purchase of pumps for the project and design phase services to produce documents for the construction of improvements at the PRS. The cost for this task order is based on a negotiated number of consulting hours and hourly rates, which are considered reasonable for this effort. The Engineering Services as a percentage of Construction is comparable to other projects of similar size and complexity.

<u>Schedule:</u>	PER	June 2017
	Design	March 2018
	Construction	January 2020
	Project Completion	August 2021

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

Subject: Elbow Road Pressure Reducing Station
Task Order (>\$200,000)

Recommended Action: Approve a task order with Kimley-Horn and Associates, Inc. in the amount of \$561,900.

CIP Project: CE011821

Budget	\$8,984,000
Previous Expenditures and Encumbrances	(\$187,900)
Available Balance	\$8,796,100

Contract Status:	Amount
Original Contract with Kimley-Horn	\$187,900
Total Value of Previous Task Orders	\$0
Requested Task Order	\$561,900
Total Value of All Task Orders	\$561,900
Revised Contract Value	\$749,800
Engineering Services as % of Construction	15.6%

Project Description: This project is to construct a Pressure Reducing Station (PRS) on Elbow Road. The PRS will be located on Section A of the Elbow Road Interceptor Force Main (IFM). HRSD owns a small piece of property at the proposed location, which is roughly a half mile northeast of Bethel Baptist Church. Additional property will be required to accommodate the PRS. This project must be substantially complete by June 2021.

Task Order Description and Analysis of Cost: This task order will provide design and bid phase services for the Elbow Road PRS project. The cost for this task order is based on a negotiated number of consulting hours and hourly rates, which are considered reasonable for this effort. The Engineering Services as a percentage of Construction is comparable to other projects of similar size and complexity.

Schedule:	PER	April 2017
	Design	March 2018
	Bid	June 2019
	Construction	July 2019
	Project Completion	January 2021

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

Subject: Independence Boulevard Pressure Reducing Station Reliability
Modifications
Task Order (>\$200,000)

Recommended Action: Approve a task order with Kimley-Horn and Associates, Inc. in the amount of \$254,000.

CIP Project: CE010400

Budget	\$3,062,000
Previous Expenditures and Encumbrances	(\$204,200)
Available Balance	\$2,857,800

Contract Status:	Amount
Original Contract with Kimley-Horn and Associates	\$154,200
Total Value of Previous Task Orders	\$0
Requested Task Order	\$254,000
Total Value of All Task Orders	\$254,000
Revised Contract Value	\$408,200
Engineering Services as % of Construction	25.2%

Project Description: This project is to make reliability improvements to the existing Independence Boulevard Pressure Reducing Station (PRS) including new pumps and interior piping, instrumentation and electrical modifications associated with new equipment, and yard piping improvements.

Task Order Description and Analysis of Cost: This task order authorizes the preparation of a pump procurement package for the pre-purchase of pumps for the project and design phase services to produce bid-ready documents for the construction of improvements at the PRS. The Engineering Services as a percentage of construction is higher than average since this project is a rehabilitation with a lower than average construction cost.

Schedule:	PER	June 2017
	Design	March 2018
	Construction	February 2020
	Project Completion	May 2021

CONSENT AGENDA ITEM 2.b.4. – February 27, 2018

Subject: Kempsville Pressure Reducing Station Reliability Modifications
Task Order (>\$200,000)

Recommended Action: Approve a task order with Kimley-Horn and Associates, Inc. in the amount of \$385,935.

CIP Project: CE011828

Budget	\$3,208,000
Previous Expenditures and Encumbrances	(\$199,900)
Available Balance	\$3,008,100

Contract Status:	Amount
Original Contract with Kimley-Horn and Associates	\$149,900
Total Value of Previous Task Orders	\$0
Requested Task Order	\$385,935
Total Value of All Task Orders	\$385,935
Revised Contract Value	\$535,835
Engineering Services as % of Construction	23.8%

Project Description: This project is to make reliability improvements to the existing Kempsville Pressure Reducing Station (PRS) including new pumps and interior piping, instrumentation and electrical modifications associated with new equipment, and equipment access platforms. This project must be substantially complete by June 2021.

Task Order Description and Analysis of Cost: This task order authorizes the preparation of a pump procurement package for the pre-purchase of pumps for the project and design phase services to produce bid-ready documents for the construction of improvements at the PRS. The Engineering Services as a percentage of construction is higher than average since this project is a rehabilitation with a lower than average construction cost and the need to accelerate the project design schedule due to its inclusion in the Construction Management procurement.

<u>Schedule:</u>	PER	June 2017
	Design	March 2018
	Construction	August 2019
	Project Completion	March 2021

CONSENT AGENDA ITEM 2.b.5. – February 27, 2018

Subject: Pine Tree Pressure Reducing Station Reliability Modifications
Task Order (>\$200,000)

Recommended Action: Approve a task order with Kimley-Horn and Associates, Inc. in the amount of \$358,690.

CIP Project: CE012200

Budget	\$3,479,000
Previous Expenditures and Encumbrances	(\$204,200)
Available Balance	\$3,274,800

Contract Status:	Amount
Original Contract with Kimley-Horn and Associates	\$154,200
Total Value of Previous Task Orders	\$0
Requested Task Order	\$358,690
Total Value of All Task Orders	\$358,690
Revised Contract Value	\$512,890
Engineering Services as % of Construction	24.6%

Project Description: This project is to make reliability improvements to the existing Pine Tree Pressure Reducing Station (PRS) including new pumps and interior piping, yard piping modifications, instrumentation and electrical modifications associated with new equipment, and equipment access platforms. This project must be substantially complete by June 2021.

Task Order Description and Analysis of Cost: This task order authorizes the preparation of a pump procurement package for the pre-purchase of pumps for the project and design phase services to produce bid-ready documents for the construction of improvements at the PRS. The Engineering Services as a percentage of construction is higher than average since this project is a rehabilitation with a lower than average construction cost and the need to accelerate the project design schedule due to its inclusion in the Construction Management procurement.

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

CONSENT AGENDA ITEM 2.b.6. – February 27, 2018

Subject: Huxley Place to Middle Ground Boulevard Force Main Extension
Task Order (>\$200,000)

Recommended Action: Approve a task order with Rummel, Klepper & Kahl, LLP (RK&K) in the amount of \$262,448.

CIP Project: JR012100

Budget	\$2,500,000
Previous Expenditures and Encumbrances	(\$66,864)
Available Balance	\$2,433,136

Contract Status:	Amount
Original Contract with RK&K	\$52,206
Total Value of Previous Task Orders	\$5,933
Requested Task Order	\$262,488
Total Value of All Task Orders	\$268,421
Revised Contract Value	\$320,627
Engineering Services as % of Construction	9.7%

Project Description: This project will involve the installation of approximately 2,250 linear feet of new 36-inch force main from the intersection of Alpine Street and Huxley Place to the Middle Ground-City Center Interconnect Force Main west of the CSX railroad tracks. This extension will allow for abandonment of the 36-inch reinforced concrete pipe from the intersection of Maxwell Lane and Route 60 to the intersection of Huxley Place and Carnegie Drive (approximately 5,500 linear feet abandoned).

Task Order Description: This task order will provide for design and bid phase engineering services for Huxley Place to Middle Ground Boulevard Force Main Extension.

Analysis of Cost: The cost for this task order is based on negotiated Scope and Fee with RK&K. The Design Engineering Services is 7.4 percent of the estimated cost of Construction. This compares well to other similar projects of this size and type.

Schedule:	PER	January 2016
	Design	March 2018
	Bid	February 2019
	Construction	April 2019

CONSENT AGENDA ITEM 2.b.7. – February 28, 2018

Subject: Newtown Road Interceptor Force Main Relocation
Task Order (>\$200,000)

Recommended Action: Approve a task order with AECOM in the amount of \$1,232,145.

CIP Project: CE010520

Budget	\$16,555,000
Previous Expenditures and Encumbrances	(\$200,541)
Available Balance	\$16,354,459

Contract Status:	Amount
Original Contract with AECOM	\$199,980
Total Value of Previous Task Orders	\$0
Requested Task Order	\$1,232,145
Total Value of All Task Orders	\$1,232,145
Revised Contract Value	\$1,432,125
Engineering Services as % of Construction	10.7%

Project Description: This project is to study, design, and construct a force main to relocate approximately 4,700 linear feet of 48-inch pre-stressed concrete cylinder pipe SF-016 from its current location into the right-of-way of Diamond Springs Road from Wesleyan Drive to Northampton Boulevard in Virginia Beach and install new main line valves in order to isolate the line.

Task Order Description and Analysis of Cost: This task order will provide design phase services. A total fee of \$1,232,145 was negotiated with AECOM which is reasonable for this work. The Preliminary Engineering Report places the project construction cost estimate at around \$13.4 million. The design phase fee is 9.2 percent of the estimated construction cost, which is reasonable compared to such completed pipeline replacement projects as Atlantic Trunk Force Main Replacement (15 percent), Effingham Interceptor Force Main Replacement (10 percent) and South Trunk Sewer Section B and C Replacement (12 percent).

Schedule:	PER	February 2017
	Design	March 2018
	Bid	May 2019
	Construction	August 2019
	Project Completion	May 2021

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

Subject: Army Base Treatment Plant Improvements Phase III
Contract Change Order (>25% or \$50,000)

Recommended Action: Approve a change order with T.A. Sheets General Contractors, Inc. in the amount of \$791,537.

CIP Project: AB010100

Budget	\$124,521,000
Previous Expenditures and Encumbrances	<u>(\$122,173,752)</u>
Available Balance	\$2,347,248

Contract Status:	Amount	Cumulative % of Contract
Original Contract with T.A. Sheets	\$2,644,800	
Total Value of Previous Change Orders	\$0	0%
Requested Change Order No. 1	\$791,537	
Total Value of All Change Orders	\$791,537	30%
Revised Contract Value	\$3,436,337	

Time (Additional Calendar Days)		45
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Project Description: This project completes additional work required to complete this project.

Change Order Description and Analysis of Cost: This change order includes the installation of a 15,000 gallon aboveground stainless steel methanol storage tank to replace the existing underground tank that developed operational issues and was taken out of service. The Engineer prepared an independent estimate of costs and recommends approval of these changes.

Schedule: Project Completion December 2018

CONSENT AGENDA ITEM 2.d.1. – February 27, 2018

Subject: Hoffman Blowers, Replacement Parts, Maintenance and Repairs
Sole Source (>\$10,000)

Recommended Action: Approve the purchase of Hoffman Blowers, replacement parts, maintenance and repairs for use at HRSD.

Sole Source Justification:

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

Details: Service includes purchase of various replacement parts to perform preventative maintenance and repairs on existing equipment. The York River Treatment Plant uses two Hoffman blowers in the grit removal system. Replacement parts will allow for the reuse of the existing equipment and act as a drop-in place replacement.

Gardner Denver Nash is the only authorized service representative for Hoffman blowers. Hoffman blowers exist at other HRSD Treatment Plants.

CONSENT AGENDA ITEM 2.d.2. – February 27, 2018

Subject: ProMinent Peristaltic Pumps, Parts and Repairs
Sole Source (>\$10,000)

Recommended Action: Approve Heyward Inc. as the source for ProMinent Peristaltic Pumps and associated parts for use at HRSD.

Sole Source Justification:

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

Details: Boat Harbor Treatment Plant uses ProMinent Peristaltic pumps in its disinfection process. Standardization of the pumps without the need for modifications to existing infrastructure reduces costs associated with inventory, training and maintenance. Similar pumps are used at the Nansemond Treatment Plant increasing the ability for costs savings associated with larger volume parts purchases, sharing of inventory and limiting downtime.

Heyward Inc. is the only authorized distributor for Virginia.

CONSENT AGENDA ITEM 2.d.3. – February 27, 2018

Subject: SolarWinds License and Maintenance Contract
Sole Source (>\$10,000)

Recommended Action: Approve SolarWinds Inc. DBA SolarWinds Worldwide LLC as the provider of SolarWinds software licenses, network performance monitoring and maintenance for the Information Technology Division.

Sole Source Justification:

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

Details: SolarWinds software licensing provides the status, health, and overall availability of computer network devices that make up HRSD's wide area and local area information networks. HRSD uses a number of monitoring tools to gather both hardware and application performance metrics. This upgrade will move HRSD to a single platform, streamlining the maintenance, and expands the current license to provide a greater scope of monitoring coverage. SolarWinds also provides HRSD with additional features that will further enhance visibility into application-level performance.

CONSENT AGENDA ITEM 2.d.4. – February 27, 2018

Subject: SUMO[®] Software License and Support Contract
Sole Source (>\$10,000)

Recommended Action: Approve Dynamita SARL as the provider of SUMO[®] software licenses and support for the Information Technology Division.

Sole Source Justification:

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

Details: Services include licensing and support for the SUMO[®] software. SUMO[®] is a wastewater treatment process simulator used at HRSD to tie together biological, chemical and physical process models. It is used to design, upgrade and optimize wastewater treatment plants. Licensing and support includes the use of the SUMO[®] model, open model source code, free updates, access to complete model library calibrated by industry leaders and on-going technical customer support.

The SUMO[®] model is owned, developed and supported exclusively by Dynamita SARL.

HRSD COMMISSION MEETING MINUTES
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ATTACHMENT #2

AGENDA ITEM 5. – Anammox Bacteria Decay Research Study

CONTRACT PURCHASE AGREEMENT #6172818

Anammox Bacteria Decay Study at HRSD

This Contract (the "CONTRACT") is made this 2nd day of May, 2017, by and between the HAMPTON ROADS SANITATION DISTRICT, ("HRSD"), a political subdivision of the Commonwealth of Virginia, with place of business in Virginia Beach, Virginia, and Virginia Polytechnic Institute and State University, ("CONTRACTOR"), having a usual place of business at 300 Turner Street NW, Blacksburg, Virginia 24061.

The Contractor and HRSD, for the consideration of the mutual covenants, promises, and agreements herein contained, agree as follows:

Scope of Work

This project aims to systematically investigating the kinetic characterization of anammox bacteria with emphasis on unveiling the mystery of the decay process.

Contract Documents

The Contract Documents consist of this Contract, the HRSD Contract Purchase Agreement, and Virginia Tech's Proposal Number PEP0GUAZ. Where the terms of this Contract and the Virginia Tech's proposal are at variance, the provisions of this Contract shall prevail.

Contract Term

The term of this Contract shall be for the period of 05/10/2017 through 05/09/2018. This contract term may be extended, and if necessary, its term amended, in writing, if mutually agreed to by both parties.

Contract Amount

HRSD will pay the Contractor the amount of \$50,000.

Method of Payment

Payment terms shall be Net 30 days. Payment is made by invoice showing the items delivered or services performed during the preceding month with reference to the contract or purchase order and directed to the address shown on the purchase order contract. Invoices must be emailed to ap@hrsd.com or mailed to Accounts Payable, HRSD, and P.O. Box 5915, Virginia Beach VA 23471-0915.

General Terms and Conditions

Applicable Laws & Courts
Assignment of Contract
Audit
Availability of Funds
Cancellation of Contract
Changes to the Contract

Disputes
Project Intellectual Property
Protection of Persons and Property
Qualifications of Contractor
Termination

In witness whereof, the parties below execute this Contract as of the date first above written.

HRSD

AUTHORIZED
SIGNATURE
NAME
TITLE
DATE

Amy Murphy
Amy Murphy, CPPB, VCO
Chief of Procurement
May 2, 2017

**Virginia Polytechnic Institute and State
University**

AUTHORIZED
SIGNATURE
NAME
TITLE
DATE

Linda R. Bucy
Linda R. Bucy
AVP and Int. Dir. of Sponsored Programs
May 9, 2017

TERMS AND CONDITIONS

Applicable Law and Courts: This contract shall be governed in all respects by the laws of the Commonwealth of Virginia and any litigation with respect thereto shall be brought in the courts of the Commonwealth. The Contractor shall comply with applicable federal, state and local laws and regulations.

Assignment of Contract: A contract shall not be assignable by the Contractor in whole or in part without the written consent of HRSD.

Audit: The Contractor shall retain all books, records, and other documents relative to this contract for five (5) years after final payment, or until audit by HRSD, whichever is sooner. The agency, its authorized agents, and/or State auditors shall have full access to and the right to examine any of said materials during said period.

Availability of Funds: It is understood and agreed between the parties herein that HRSD shall be bound hereunder only to the extent of the funds available or which may hereafter become available for the purpose of this agreement.

Cancellation of Contract: The Procurement Office and Virginia Tech reserve the right to cancel and terminate any resulting contract, in part or in whole, without penalty, upon (60) sixty days written notice to the other party. Any contract cancellation notice shall not relieve the Contractor of the obligation to deliver and/or perform on all outstanding orders issued prior to the effective date of cancellation.

Changes to the Contract: The parties shall use all reasonable efforts to amicably resolve disputes arising out of this Agreement, prior to commencing any formal legal proceedings. Such efforts may include use of a mutually agreed alternative dispute resolution mechanism. Pending resolution of any such dispute by settlement or by final judgment, the parties shall proceed diligently with performance.

Disputes: Contractual claims, whether for money or other relief, shall be submitted in writing to the issuing procurement office no later than (60) days after final payment; however, written notice of the contractor's intention to file such claim shall have been given at the time of the occurrence of beginning of the work upon which the claim is based. Nothing herein shall preclude a contractor from requiring submission of an invoice for final payment within a certain time after completion and acceptance of the work or acceptance of the goods. Pending claims shall not delay payment of amounts agreed due in the final payments (*Code of Virginia*). A contractor may not institute legal action prior to receipt of the procurement office's decision on the claim, unless that office fails to render such decision within (30) days. The decision of the procurement office shall be final and conclusive unless the contractor, within six months of the date of the final decision on the claim, institutes legal action as provided in the (*Code of Virginia*).

Project Intellectual Property: "Project Intellectual Property" means the legal rights relating to inventions, patent applications, patents, copyrights, trademarks, mask works, trade secrets and any other legally protectable information, including computer software, first made or generated during the performance of the Research. If Sponsor uses federal funds for any payments under this Agreement, rights to data and inventions generated under the Research shall be in accordance with the appropriate federal laws and regulations with the Sponsor having rights in data and inventions as necessary to perform its prime contract. In the absence of federal funding, the following shall apply.

- (a) **Ownership.** Ownership of Project Intellectual Property shall vest in the party whose personnel authored, created, conceived the subject matter or first actually reduced the subject matter to

practice. Inventorship of inventions will be determined in accordance with applicable U.S. patent laws. Jointly made or generated Project Intellectual Property shall be jointly owned by the parties. Virginia Tech shall assign its ownership interests to VTIP. Any such assignment shall be subject to the terms and conditions of this Agreement.

- (b) **Disclosures.** Sponsor and Virginia Tech (or VTIP) shall promptly provide a complete written disclosure to each other of each and every invention that is Project Intellectual Property. All written disclosures of such inventions shall contain sufficient detail of the invention and shall be marked proprietary and treated as Proprietary Information in accordance with the terms of this Agreement, whether provided by Sponsor, Virginia Tech or VTIP.
- (c) **Internal Research and Noncommercial License.** With respect to any Project Intellectual Property that are the sole property of Virginia Tech, the Sponsor shall have a permanent, fully paid-up, royalty free, irrevocable, world-wide and nonexclusive license for internal research and noncommercial purposes only in and with respect to Sponsor products, services, and software, which license extends to Sponsor's parents and subsidiaries. No ~~right~~ of sublicense to non-Sponsor companies is granted under this section. right CPB
- (d) **Option for Commercial License.** The Sponsor shall have an option to commercialize the Project Intellectual Property of Virginia Tech as follows:
- i. **Inventions.** Where Project Intellectual Property of Virginia Tech is a potentially patentable invention, Sponsor shall have an exclusive option to negotiate an exclusive license to such invention, for an initial option period of six (6) months after such invention has been reported to Sponsor. During the period of such option, Virginia Tech (or VTIP) will pursue and maintain any patent protection for the invention requested in writing by Sponsor and, except with the written consent of Sponsor or upon the failure of Sponsor to reimburse patenting expenses as required under this section, will not voluntarily discontinue the pursuit and maintenance of any United States patent protection for the invention initiated by Virginia Tech or of any patent protection requested by Sponsor.

Sponsor shall, within thirty (30) days after invoice, reimburse Virginia Tech (or VTIP) for the expenses incurred in pursuing and maintaining any patent protection requested by Sponsor. Sponsor may terminate such option at will by giving written notice to Virginia Tech (or VTIP), in which case further accrual of reimbursable patenting expenses hereunder, other than prior commitments not practically revocable will cease upon Virginia Tech's (or VTIP's) receipt of such notice. At any time prior to the expiration or termination of an option, Sponsor may exercise such option by giving written notice to Virginia Tech (or VTIP), whereupon the parties will promptly and in good faith enter into negotiations for a license under Virginia Tech's patent rights in the invention for Sponsor to make, use and/or sell products and/or services that embody, or the development, manufacture and/or use of which involves employment of, the invention. The Sponsor and Virginia Tech (or VTIP) will negotiate the terms of such license in good faith.

- ii. **Unpatented technology and software.** Where Project Intellectual Property of Virginia Tech is unpatented technology (such as biological materials) or software (including Project Intellectual Property protected under copyright, trademark or trade secret), Sponsor shall have an exclusive option for a license to such Project Intellectual Property, for an initial option period of six (6) months after receipt of a written

description or sample of such Project Intellectual Property. The Sponsor and Virginia Tech (or VTIP) will negotiate the terms of such license in good faith.

- iii. **License Terms.** Terms and conditions for license agreements should consider the nature of the technology, the stage of development of the invention, the effect of the scope of research under this Agreement, the public benefit and the marketplace. Any license must at a minimum provide for Licensee to exert its best efforts to introduce products and services utilizing the licensed technology into public use as rapidly as practicable; royalties that are usual and customary in the trade; and indemnification by the Licensee. Virginia Tech shall have a nonexclusive license, with the right to grant sublicenses to nonprofit and academic institutions, for non-commercial purposes only.

Protection of Persons and Property: The Contractor expressly undertakes, both directly and through its Subcontractors, to take every precaution at all times for the protection of persons and property, including HRSD's employees and property and its own.

The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the work.

The Contractor shall continuously maintain adequate protection of all work from damage and shall protect HRSD's property from injury or loss arising in connection with this contract. The Contractor shall make good any such damage, injury or loss, except such as may be directly due to errors in the Contract Documents or caused by agents or employees of HRSD. The Contractor shall adequately protect adjacent property as provided by law and the Contract Documents, and shall provide and maintain all passageways, guard fences, lights and facilities for protection required by public authority, local conditions, or any of the Contract Documents.

Qualifications of Contractor: All research to be performed under this contract shall be performed by qualified individuals properly trained and authorized to perform such services. HRSD reserves the right to require proof of certification at any time during the term of the contract.

Termination: Performance under this Agreement may be terminated by the Sponsor for its convenience upon sixty (60) days prior written notice. Performance may be terminated by Virginia Tech if circumstances beyond its reasonable control preclude continuation of the Research. Upon termination, Virginia Tech will be reimbursed a pro-rata portion of the price for work performed to the date of termination and for non-cancellable commitments incurred in the performance of the Research to the date of termination, such amount not to exceed the total price as specified. Sponsor will be provided results of the research that have been generated prior to the date of the termination.

Failure by either party to comply with any material term or condition under this Agreement shall entitle the other party to give the party in default written notice requiring it to remedy such default. If the party in default has not cured such default within thirty (30) calendar days of receipt of such notice (or other reasonable time as allowed by such notice), the notifying party shall be entitled to terminate this Agreement. The termination shall be given in writing and shall take effect as of the date of the termination notice. Failure of the parties to agree on termination costs shall be a dispute under section.

Understanding of the Kinetic Characterization of Anammox Bacteria: an Experimental and Modeling Study

Principal Investigator (PI): Dr. Zhen (Jason) He, Associate Professor
Place of Research Project: Virginia Tech, Blacksburg, VA 24061
Project Period: May 10, 2017 – May 10, 2018
Project cost: \$50,000

1. Background

Anammox process can be carried out by different bacteria within the phylum *Planctomycetes*, including sixteen anammox species divided over five genera. Kinetic characteristics such as growth and decay rates of anammox bacteria will have significant impacts on the design and operation of anammox processes. The successful implementation of anammox technologies highly relies on the availability and activities of anammox biomass. Maintaining a reactor's performance against washout or overload depends on the kinetic parameters of the functional organisms. In addition, the evolution of the biological treatment steps from COD removal alone to biological nutrients removal (e.g., nitrogen, phosphorus) exposes bacteria to different conditions with various oxidation–reduction potential (ORP), thereby affecting their growth and decay rates.

From the perspective of microbiology, decay represents maintenance, endogenous respiration, degradation of enzymes or lysis due to adverse environmental conditions (Van Loosdrecht and Henze 1999). The cell decay rate affects the amount of sludge production in biological treatment processes (Wilson and Kim 2016). It was reported that the cell decay rate is linearly proportional to the microbial population in bioreactors (Bruce and Perry 2001, Grady Jr et al. 2011). Typically, the attached growth bioreactors (e.g., trickling filters, rotating biological contactors, moving bed biofilm reactors, membrane-aerated biofilm reactor, granular sludge reactor) generate a smaller amount of waste sludge than the suspended growth bioreactors (e.g., activated sludge) due to their relatively dense microbial populations resulting in higher cell decay rates (Grady Jr et al. 2011). In addition, the decay coefficient is one of the important variables in the mathematical modeling that is applied to BNR processes. Currently, the incorporation of anammox process into activated sludge models (e.g., ASM3) or other models still need a great improvement. The information obtained from modeling will guide system design, optimization and operation. Therefore, an extension of the model to nitrification-anammox is urgently required for its practical applications, including the separate determination of the kinetics of nitrifying bacteria (i.e., ammonia-oxidizing bacteria and nitrite-oxidizing bacteria) and anammox bacteria. The decay rate of nitrifying bacteria has been investigated previously (Manser et al. 2006, Salem et al. 2006). Nevertheless, very limited information is available to understand kinetic characterization of anammox bacteria, although its application in the real world has been rapidly expanded. The methods used for the determination of decay rates have a significant impact on their values (Martinage and Paul 2000). This project aims to systematically investigate the kinetic characterization of anammox bacteria with emphasis on unveiling the mystery of the decay process.

2. Material and Methods

2.1 Decay rate measurement

Approach I

Typically, an extremely high sludge retention time (SRT) was applied in most of the developed anammox bioreactors because of the low growth rate of anammox bacteria. The active biomass equilibrium concentration depends strongly on the endogenous decay coefficient (b_{AN} , d^{-1}). The following equations, derived by the mass balance under steady-state condition in a continuously stirred tank reactor (CSTR), describe the relationship of X_{AN} and b_{AN} (Scaglione et al. 2009).

$$X_{AN} = Y_{AN} \frac{(NH_4^+_{inf} - NH_4^+_{out}) \cdot SRT}{HRT \cdot (1 + b_{AN} \cdot SRT)}$$

if $SRT \rightarrow \infty$, then

$$X_{AN} \rightarrow Y_{AN} \frac{(NH_4^+_{inf} - NH_4^+_{out})}{HRT \cdot (1 + b_{AN})}$$

X_{AN} , concentration of anammox biomass (mg VSS L^{-1})

Y_{AN} , yield of anammox growth (mg VSS $mg NH_4-N^{-1}$)

Three different experimental setups such as SBR (or fill-and-draw) test, high F/M batch test and continuous wash-out test were proposed to experimentally study the various decay mechanisms (Melcer 2003). In this study, a series of batch reactors to measure the continuous loss of activity of anammox sludge under anaerobic conditions over a long-term starvation period (i.e., without feeding for approximately 3 months). The decay process is also expected to be evaluated under various operating conditions such as dissolved oxygen level, and different form of biomass including suspended, biofilm and granular.

Inoculum

The isolation and enrichment of anammox biomass from a mixture of bacterial populations requires the optimization of conditions that favors the growth of anammox bacteria, while limits the growth of any other type of microbial population (Dapena-Mora et al. 2004). Due to the long doubling time (e.g., 11 days) and the cell density of anammox bacteria, the anammox organisms in pure culture has not been successfully obtained (Jetten et al. 2005). In this study, the anammox biomass will be taken directly from a lab-scale upflow anaerobic sludge blanket (UASB) reactor and a full-scale DEMON SBR reactor, and the anammox genera in both biomass sources will be confirmed by high throughput sequencing. The sequencing results will also determine if the enrichment step is needed.

Anammox activity tests

Anammox activity test is employed to assessing the maximum anammox kinetic rate and the stoichiometric coefficient NO_2^-/NH_4^+ and NO_3^-/NH_4^+ ratios. These stepped are modified from the previous descriptions (Hu et al. 2013, van Loosdrecht et al. 2016). The anammox biomass will be transferred to separate 30-ml serum bottles. After the addition of various nitrite and ammonium concentrations and adjustment of the pH to 7.3, the Ar/ CO_2 (95%/5%) gas mixture will be sparged into the headspace of the serum bottles. If necessary, add some amount of nitrate to ensure an adequate redox potential and avoid sulfate reduction. Then the serum bottles are capped with butyl rubber stoppers and sealed with aluminum crimp caps to ensure an oxygen-free environment. The bottles will be incubated in shaking incubators (200 rpm) at 35°C. Collect

the liquid samples at regular time interval, such as every 20 to 60 min (depending on actual activity) for ammonium, nitrite and nitrate measurements. The final MLVSS concentration will also be determined.

Data analysis

The linear regression over the measured data (i.e., ammonium, nitrite and nitrate concentration) can be used to determine ammonium and nitrite removal rates as well as nitrate production rate. The maximum specific anammox rate (q_{N_2} as mg N₂-N g VSS⁻¹ h⁻¹) can be calculated based on the following equation.

$$q_{N_2} = \frac{r_{NH_4} + r_{NO_2} - r_{NO_3}}{X_{VSS}}$$

q_{N_2} , the maximum specific anammox rate (mg N₂-N g VSS⁻¹ h⁻¹)

r_{NH_4} , the ammonium removal rate (mg N L⁻¹ h⁻¹)

r_{NO_2} , the nitrite removal rate (mg N L⁻¹ h⁻¹)

r_{NO_3} , the nitrate production rate (mg N L⁻¹ h⁻¹)

X_{VSS} , the biomass concentration (g VSS L⁻¹)

The stoichiometric coefficient ratios of NO₂⁻/NH₄⁺ and NO₃⁻/NH₄⁺ can also be easily calculated.

$$Y_{NO_2/NH_4} = \frac{r_{NO_2}}{r_{NH_4}} \quad Y_{NO_3/NH_4} = \frac{r_{NO_3}}{r_{NH_4}}$$

Analytical methods

Collected liquid samples will be centrifuged (5 min, 10,000 X G), and the supernatants will be kept at -20°C until further analyses. Ammonium, nitrite, and nitrate will be measured colorimetrically by HACH spectrophotometer. N₂O will be measured with an Agilent 6890 Series GC (Agilent Technologies) equipped with a Porapack Q column and an electron capture detector (ECD).

Approach II

The decay coefficient will be conducted based on the following description.

- To demonstrate a theoretical method to estimate the yield coefficient of anammox bacteria by modifying McCarty's free energy-based method (Bruce and Perry 2001). By using the developed method, various operational factors (i.e., substrate concentration, dissolved oxygen, temperature, and pH) were examined to explain their impacts on anammox growth.
- To determine the observed yield coefficient of anammox bacteria. By comparing the observed yield coefficient from the experiment with the theoretical true yield coefficient, the cell decay coefficient was approximated to quantify the contribution of cell decay to overall sludge production in the anammox reactor. Develop the equation for calculating autotrophic biomass decay coefficient.

2.2 Model development

General assumptions

The following assumptions are used for development of the granule-based model (Ni et al. 2009): (1) the granules are spherical in shape and uniform in size; (2) the number and size of the granules are constant in time; (3) only radial diffusion transport is considered as described by Fick's law; (4) the diffusion coefficient is constant; and (5) there are no active biomass gradients in the granules at time zero.

Monod kinetics was used to describe the dependency of the growth rate of the anammox bacteria on NO_2^- and NH_4^+ concentrations as follows (Dapena-Mora et al. 2004, Ni et al. 2009):

$$r_{AN} = \mu_{AN} \frac{S_{\text{NH}_4}}{K_{\text{NH}_4}^{AN} + S_{\text{NH}_4}} \frac{S_{\text{NO}_2}}{K_{\text{NO}_2} + S_{\text{NO}_2}} X_{AN}$$

r_{AN} , the growth rate of anammox bacteria

μ_{AN} , the maximum specific growth rate of the anammox biomass

S_{NH_4} , ammonia-N concentration

$K_{\text{NH}_4}^{AN}$, affinity constant for ammonium

S_{NO_2} , nitrite-N concentration

K_{NO_2} , affinity constant for nitrite

X_{AN} , the concentration of anammox bacteria

It should be noted that, the inhibition effect of nitrite on anammox process is ignored since the concentrations of nitrite measured in the reactor are generally very low.

The decay rate of anammox is expressed as the following equation.

$$r_{\text{decay}} = b_{AN} X_{AN}$$

r_{decay} , the decay rate of anammox

b_{AN} , the decay coefficient

Model simulation

The simulation will be performed with the AQUASIM software package (Reichert, 1998), which offers a free definition of the biokinetic model, flow scheme, process control strategies, graphic exporting, experimental data, and communication with spreadsheet programs (Ni et al. 2009). Apply the parameters (e.g., specific growth rate, biomass yield, decay coefficient) generated from above experiment to simulate performance and compare with actual measurements.

3. Budget Justification

The total request for the proposed project is \$50,000 for one year.

- Senior/Key Personnel: Support for 1% of PI He (0.12 month) is requested at a total cost of \$2,069, including fringe benefits.
- PhD student: Support for one PhD student research assistant at 100% academic GRA (step 13) is requested at \$23,577, including fringe benefits.
- Student Tuition: Tuition for the graduate student is requested at \$14,354 for one year.
- Equipment: No major equipment is requested.
- Travel: none.
- Materials and Supplies: none.
- Total direct cost: \$40,000.
- Total indirect costs: \$10,000 at a rate of 25%.

References

- Bruce, E.R. and Perry, L.M., 2001. Environmental biotechnology: principles and applications. New York: McGrawHill 400.
- Dapena-Mora, A., Van Hulle, S.W.H., Campos, J.L., Mendez, R., Vanrolleghem, P.A. and Jetten, M., 2004. Enrichment of Anammox biomass from municipal activated sludge: experimental and modelling results. *J. Chem. Technol. Biotechnol.* 79(12), 1421-1428.
- Grady Jr, C.L., Daigger, G.T., Love, N.G. and Filipe, C.D. (2011) Biological wastewater treatment, CRC press.
- Hu, Z.Y., Lotti, T., de Kreuk, M., Kleerebezem, R., van Loosdrecht, M., Kruit, J., Jetten, M.S.M. and Kartal, B., 2013. Nitrogen Removal by a Nitrification-Anammox Bioreactor at Low Temperature. *Appl. Environ. Microbiol.* 79(8), 2807-2812.
- Jetten, M., Schmid, M., van de Pas-Schoonen, K., Damste, J.S.S. and Strous, M. (2005) *Environ. Microbiol.* , pp. 34-57.
- Manser, R., Gujer, W. and Siegrist, H., 2006. Decay processes of nitrifying bacteria in biological wastewater treatment systems. *Water Res.* 40(12), 2416-2426.
- Martinage, V. and Paul, E., 2000. Effect of Environmental Parameters on Autotrophic Decay Rate (bA). *Environ. Technol.* 21(1), 31-41.
- Melcer, H. (2003) Methods for wastewater characterization in activated sludge modeling, IWA publishing.
- Ni, B.J., Chen, Y.P., Liu, S.Y., Fang, F., Xie, W.M. and Yu, H.Q., 2009. Modeling a Granule-Based Anaerobic Ammonium Oxidizing (ANAMMOX) Process. *Biotechnol. Bioeng.* 103(3), 490-499.
- Salem, S., Moussa, M.S. and van Loosdrecht, M.C.M., 2006. Determination of the decay rate of nitrifying bacteria. *Biotechnol. Bioeng.* 94(2), 252-262.
- Scaglione, D., Caffaz, S., Bettazzi, E. and Lubello, C., 2009. Experimental determination of Anammox decay coefficient. *J. Chem. Technol. Biotechnol.* 84(8), 1250-1254.
- Van Loosdrecht, M.C. and Henze, M., 1999. Maintenance, endogeneous respiration, lysis, decay and predation. *Water Sci. Technol.* 39(1), 107-117.
- van Loosdrecht, M.C., Nielsen, P.H., Lopez-Vazquez, C.M. and Brdjanovic, D., 2016. Experimental Methods in Wastewater Treatment. *Water Intelligence Online* 15, 9781780404752.
- Wilson, E.L. and Kim, Y., 2016. The yield and decay coefficients of exoelectrogenic bacteria in bioelectrochemical systems. *Water Res.* 94, 233-239.

HRSD COMMISSION MEETING MINUTES
February 27, 2018

ATTACHMENT #3

AGENDA ITEM 6. – Beach Road Transfer of Sanitary Sewer Facilities

- [Agreement](#)
- [Deed](#)
- [Map](#)

AGREEMENT FOR THE TRANSFER OF SANITARY SEWER FACILITIES
HAMPTON ROADS SANITATION DISTRICT
BEACH ROAD GRAVITY SEWER
TO THE CITY OF HAMPTON

THIS AGREEMENT FOR THE TRANSFER OF SANITARY SEWER FACILITIES (this "Agreement") is made on this ____ day of _____, 2018 by and between the Hampton Roads Sanitation District, a political subdivision of the Commonwealth of Virginia ("HRSD") and the City of Hampton, Virginia, a municipal corporation of the Commonwealth of Virginia (the "City").

WITNESSETH:

That for mutual benefit and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, including all agreements, conditions and undertakings, the parties agree as follows:

1. HRSD agrees to convey and the City agrees to accept all of HRSD's right, title and interest in and to the sanitary sewer facilities located on Beach Road in the City of Hampton beginning at and including manhole NG-088-1935 located at the intersection of Beach Road and Catalina Drive and extending south to but not including manhole NG-088-2517 located at the intersection of Beach Road and Westlawn Drive (the "Facilities"), together with all rights including rights for installation, operation, maintenance, repair, relocation, renewal thereof, and access thereto. The Facilities are more specifically identified on Exhibit A, titled "Route Description, HRSD Facility Transfer to City of Hampton Virginia, January 2018" and which is attached hereto and made a part hereof. Within six (6) months after the execution of this Agreement, HRSD shall provide the City with true copies of mylar or

velum tracings and drawings, specifications and shop drawings for the Facilities, where available.

2. At closing, HRSD shall execute and deliver to the City all such assignments, endorsements and other instruments of assignment, transfer and conveyance as shall be necessary to transfer, assign and convey the Facilities to the City.

3. HRSD warrants that, on the closing date (the "Closing Date"), there shall be no outstanding bonds, loans or other debt instruments secured by liens or other encumbrances against the Facilities or by pledges against revenues generated by virtue of the operation of the Facilities.

4. At such time as the City shall determine that any portion of the Facilities is no longer useful in the performance by the City of its function, the City shall offer to convey to HRSD, at no cost to HRSD or liability, said portion of the Facilities in as close to the same condition as possible of title as received by the City from HRSD. In the event HRSD accepts the return of any City-encumbered Facilities, the City will assume responsibility for any reimbursement due on grants or loans due, or which shall become due, by reason that the said Facilities, or part of said Facilities, shall not have been operated for the full estimated life thereof.

5. HRSD shall retain responsibility for the completion of any and all contracts for the construction, alteration and repair of the Facilities in effect as of the date of the execution of the Agreement.

6. HRSD shall continue to operate and maintain the Facilities until the Closing Date, and thereafter the same shall be the responsibility of the City.

Agreement for the Transfer of the Beach Road Sanitary Sewer Facilities

7. Upon execution of the Agreement, HRSD shall allow the City, its agents, employees, engineers and surveyors access to the Facilities, and to such engineering and financial data HRSD may have, for the purpose of modifying the Facilities in preparation for assuming operation, maintenance and financial responsibilities on the Closing Date, and for obtaining such information as may be reasonably required by the City.

8. The risk of loss to any of the Facilities by Acts of God (including fire, flood, earthquake, storm, hurricane or other natural disaster) shall remain with HRSD until the Closing Date.

9. HRSD and the City agree to execute all documentation and take all necessary actions to effectuate this Agreement.

10. 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

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

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

With Copy to:

Conway H. Shield, III
Jones, Blechman, Woltz and Kelly
701 Town Center Drive, Suite 200
Newport News, VA 23606

Agreement for the Transfer of the Beach Road Sanitary Sewer Facilities

To the City:

City of Hampton
Department of Public Works
Wastewater Operations Division
550 N. Back River Road
Hampton, VA 23669

With Copy to:

City of Hampton, Virginia
City Attorney's Office
22 Lincoln Street
Hampton, VA 23669

11. This Agreement, and exhibits attached hereto, represent the full Agreement and understanding of the parties hereto, there being no additional Agreements written, oral or otherwise. This Agreement may be amended only by written approval of both of the parties hereto.

12. HRSD warrants that it has the permission and authority derived under its corporate charter to execute the Agreement and that all the necessary actions of HRSD's governing body to allow execution of the Agreement have been completed.

13. This Agreement shall survive closing.

14. This Agreement shall be governed, construed, and interpreted by, through, and under the laws of the Commonwealth of Virginia. All suits for any claims or for any and every breach or dispute arising out of this Agreement shall be maintained in the appropriate court of competent jurisdiction in the City of Hampton.

Signature pages follow.


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 February 27, 2018.

HAMPTON ROADS SANITATION DISTRICT

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

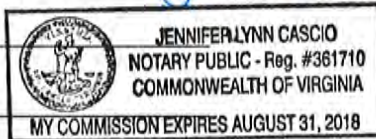
COMMONWEALTH OF VIRGINIA
CITY OF Virginia Beach to wit:

The foregoing instrument was acknowledged before me this 27th day of February, 2018, by Edward G. Henifin, P.E., General Manager of Hampton Roads Sanitation District. He is personally known to me, ~~or provided~~ _____ as identification.


Notary Public

My commission expires: _____

Notary Registration No.: _____



Agreement for the Transfer of the Beach Road Sanitary Sewer Facilities

IN WITNESS WHEREOF, the City of Hampton has caused this Agreement to be signed by the City Manager on its behalf pursuant to Resolution adopted by the City Council on _____, 201__,

CITY OF HAMPTON

By: _____ (Seal)
City Manager / Authorized Designee

ATTEST:

Clerk of Council

Approved as to Content:

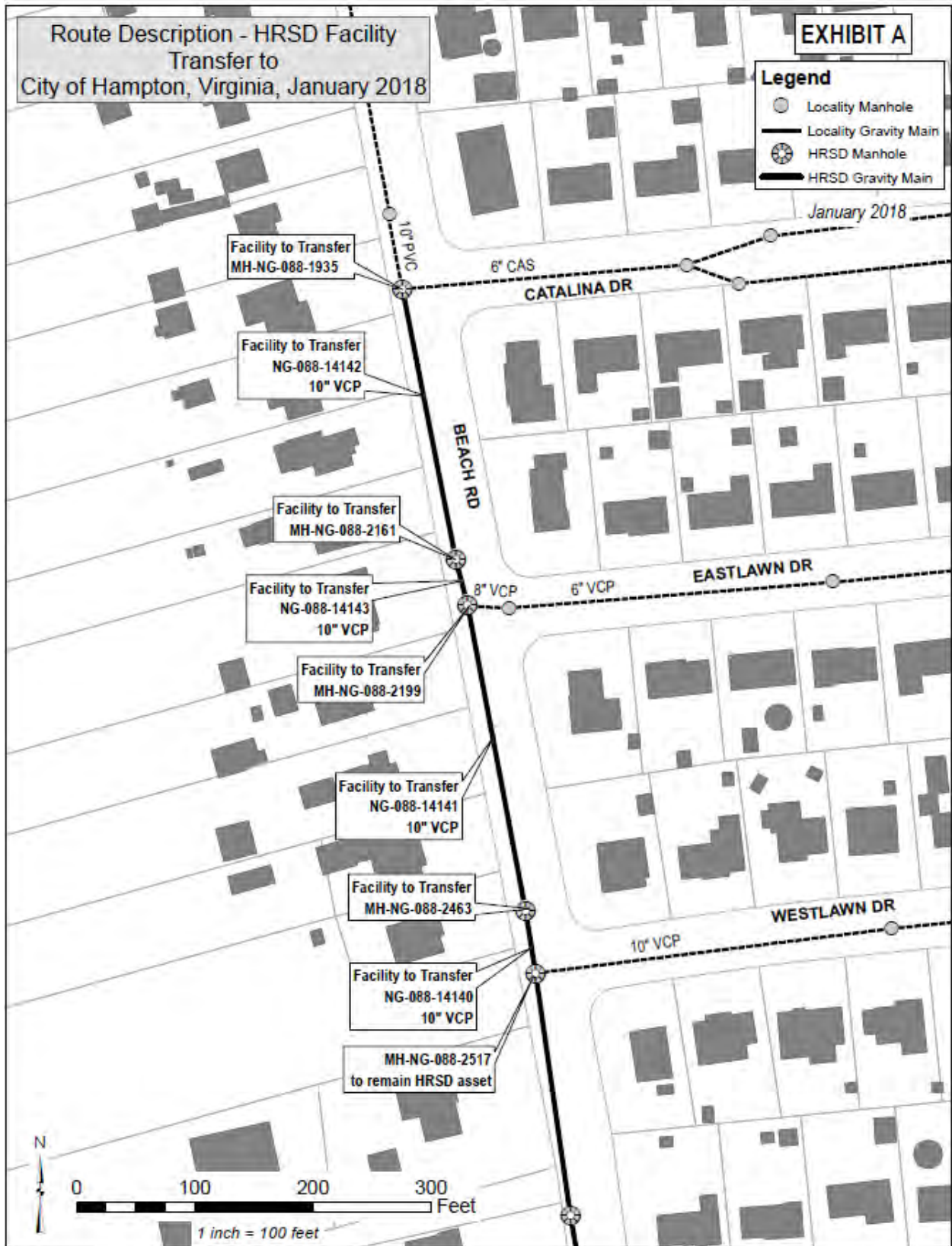
Approved as to Form & Legal Sufficiency:

By: _____
Dept. of Public Works

By: _____
Deputy City Attorney

#608711

Exhibit A



Prepared by and Return to
Jones, Blechman, Woltz & Kelly, P.C.
701 Town Center Drive, Suite 800
Newport News, Virginia 23606

Exempt from recordation tax pursuant to
Section 58.1-811(A)(3), Code of Virginia,
1950, as amended.

DEED OF TRANSFER OF SANITARY SEWER FACILITIES

This Deed of Transfer of Sanitary Sewer Facilities is made this ____ day of _____, 2018, by and between **HAMPTON ROADS SANITATION DISTRICT**, a political subdivision of the Commonwealth of Virginia, hereinafter called “Transferor”, and **THE CITY OF HAMPTON, VIRGINIA**, a municipal corporation under the laws of the Commonwealth of Virginia, hereinafter called “Transferee”.

WHEREAS, the parties to this Deed have previously executed an Agreement for the Transfer of Sanitary Sewer Facilities dated _____, 2018 (the “Agreement”), for the consideration as therein described.

NOW, THEREFORE, for mutual benefit and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged and in consideration of the premises, and in fulfillment of the aforesaid Agreement, Transferor transfers to Transferee all of the right, title and interest of Transferor in and to the said Sanitary Sewer Facilities as hereinafter described, as follows:

Sanitary sewer facilities located on Beach Road in the City of Hampton, Virginia, beginning at and including manhole NG-088-1935 located at the intersection of Beach Road and Catalina Drive and extending south to but not including manhole NG-088-2517 located at the intersection of Beach Road and Westlawn Drive (the

“Facilities”). The Facilities are more specifically identified on Exhibit A, titled “Route Description, HRSD Facility Transfer to City of Hampton Virginia, January 2018” which is attached hereto and made a part hereof.

Together with all rights including rights for installation, operation, maintenance, repair, relocation, renewal thereof, and access thereto.

The parties hereto acknowledge the transfer, and the receipt and acceptance of the same, and acknowledge that no real estate is part of this transaction, as the aforesaid Facilities lie within a public right of way.

The parties further agree that the terms and provisions of the Agreement for the Transfer of Sanitary Sewer Facilities aforementioned shall survive closing.

(Signature page follows.)

IN WITNESS WHEREOF, the parties have caused this Deed of the Transfer of Sanitary Sewer Facilities to be signed by their duly authorized officers as of the date first above written.

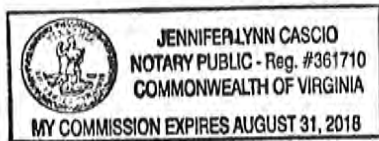
HAMPTON ROADS SANITATION DISTRICT

By: EHG (SEAL)
Edward G. Henifin, P.E., General Manager

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

The foregoing instrument was acknowledged before me this 1st day of March, 2018, by Edward G. Henifin, P.E., General Manager of Hampton Roads Sanitation District. He is personally known to me, or ~~provided~~ see as identification.

My commission expires: 08/31/18.



Jennifer Lynn Cascio
Notary Public (Reg. No. 361710)

CITY OF HAMPTON, VIRGINIA

By: _____ (SEAL)
City Manager/Authorized Designee

COMMONWEALTH OF VIRGINIA
CITY/COUNTY OF _____, to-wit:

The foregoing instrument was acknowledged before me this ____ day of _____, 2018, by _____, City Manager or Authorized Designee for the City of Hampton, Virginia. She/He is personally known to me or provided _____ as identification.

My commission expires: _____.

Notary Public (Reg. No. _____)

Approved as to Legal Form:

By: _____
Deputy City Attorney

Approved as to Content:

By: _____
Public Works

HRSD COMMISSION MEETING MINUTES
February 27, 2018

ATTACHMENT #4

AGENDA ITEM 7. – Deep Creek Interceptor Force Main Risk Mitigation Project Agreement

**AGREEMENT FOR COST SHARING
OF THE
HAMPTON ROADS SANITATION DISTRICT
DEEP CREEK FORCE MAIN ABANDONMENT AND RELOCATION PROJECT
(CIP# NP0134)**

THIS AGREEMENT FOR COST SHARING (this “Agreement”), between VIRGINIA ELECTRIC AND POWER COMPANY d/b/a DOMINION ENERGY VIRGINIA (“DOMINION”) and the HAMPTON ROADS SANITATION DISTRICT (“HRSD”), each a “party” and collectively the “parties”, is entered into this 27th day of February, 2018 (the “Effective Date”).

RECITALS

R:1. DOMINION is the owner of certain real property located in the City of Chesapeake, Virginia, and commonly known as 2701 Vepco Street, Chesapeake, Virginia 23323 (the “Property”), on which Property DOMINION owns a coal ash landfill (the “Landfill”).

R:2. HRSD is the beneficiary of an easement of right of way from DOMINION to construct, operate, and maintain a certain sanitary sewer force main pipeline (the “Force Main”, identified on Exhibit 1 as “24-Inch IFM”) over, across, under and through the Property (the “Easement”). Reference is made to diagram attached hereto as Exhibit 1 and entitled “Preliminary Engineering Report, Deep Creek Interceptor Force Main Risk Mitigation, Chesapeake, Virginia, Project Recommendations” dated May 2017 and prepared for HRSD by WRA (“Exhibit 1”).

R:3. HRSD conducted a Preliminary Engineering Study (the “Study”) to define the Scope of Work (collectively, the “Project”) to (i) abandon a portion of the Force Main (identified on the legend to Exhibit 1 as “Limits of Abandonment”, hereinafter the “FM Abandonment”), (ii) construct a new force main (identified on Exhibit 1 as “Install 3,587 LF of 6-Inch FM”, hereinafter the “New FM”) to be owned by the City of Chesapeake (the “CITY”), (iii) slip line an existing CITY-owned force main (identified on Exhibit 1 as “Slip Line Existing 2,300 LF of 6-Inch FM”, hereinafter the “Modified FM”), (iv) reconnect two CITY pump stations identified on Exhibit 1 as pump stations 54 and 57 (the “CITY Facilities”) and one private pump station (identified on Exhibit 1 as the “Steel Street Private PS”) to a portion of the New FM, and (v) connect HRSD’s Deep Creek Pressure Reducing Station (identified on Exhibit 1 as “Deep Creek PRS”, hereinafter the “PRS”) to the New FM. The connections of the CITY Facilities, the Steel Street Private PS and the PRS are hereinafter referred to as the “New Connections”. The Study was completed in accordance with the “Project Study Agreement between HRSD and VEPCO” entered into on August 30, 2016.

R:4. The parties desire to enter into this Agreement to provide for the design and construction phases for the Project.

R:5. HRSD and DOMINION agree that it is in the best interest of the parties to allow HRSD to manage the design and construction of the Project.

R:6. DOMINION agrees to reimburse HRSD for certain costs of the design and construction of the Project 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 WHITMAN, REQUARDT & ASSOCIATES, LLP (“ENGINEER”) to prepare plans and specifications for the FM Abandonment and construction of the New FM, the Modified FM and the New Connections. The FM Abandonment, the New FM, the Modified FM and the New Connections are referred to herein collectively as the “Improvements”.
2. ENGINEER, along with HRSD and DOMINION, will meet to coordinate, review, and approve a set of final construction plans, specifications and other related documents necessary for construction of the Improvements, inclusive of the FM Abandonment (the “Final Plans and Specifications”), which approval shall not be unreasonably withheld, conditioned or delayed. The parties shall provide the CITY documents for review from early design through the Final Plans and Specifications.
3. HRSD shall have the right to cause the ENGINEER to prepare plans (the “Betterment Plans”) related to the “HRSD Betterment” (defined below) concurrent with preparation of the Final Plans and Specifications, provided that the Betterment Plans shall be deemed to be separate and apart from the Final Plans and Specifications as further provided herein. For purposes of this Agreement, any work on the east side of the Elizabeth River identified on Exhibit 1 as “Potential HRSD Betterment” shall be deemed to be a “HRSD Betterment”.

B. Payment of the Design Costs

1. HRSD shall compensate the ENGINEER for all engineering design costs and any amendments related to preparation of the Final Plans and Specifications (but not the Betterment Plans), and DOMINION shall reimburse HRSD for all such payments, subject to the terms contained herein.
2. Except as otherwise provided in I.B.3. below, DOMINION shall reimburse HRSD for up to \$200,000 for the costs for preparing the Final Plans and Specifications (the "DOMINION Design Costs Share"), and HRSD will be responsible for any and all costs for preparing the Final Plans and Specifications that exceed \$200,000. The DOMINION Design Costs Share shall be paid in a single lump sum payment that will be due after each of the following conditions has been met: (i) DOMINION and HRSD have approved the Final Plans and Specifications; and (ii) that both DOMINION and HRSD, after review of the construction cost estimated contained in the Final Plans and Specifications, confirms to each other that such party is prepared to move forward with the construction detailed in the Final Plans and Specifications. If both conditions in the immediately preceding sentence are satisfied, HRSD will deliver to DOMINION a detailed invoice for the costs for preparation of the Final Plans and Specifications, and DOMINION shall pay the DOMINION Design Costs Share to HRSD within thirty (30) days of its receipt of such invoice, it being understood that such invoice shall not be deemed to have been delivered until the two conditions contained in the immediately preceding sentence have been met. Notwithstanding anything contained herein, HRSD shall be responsible for one hundred percent of any design costs related to any HRSD Betterment, it being understood that DOMINION shall have no responsibility for any design costs related to any HRSD Betterment.
3. If either party desires not to move forward with the construction phase of the Project based on the Final Plans and Specification or as a result of bids in excess of that estimated by the ENGINEER, the Project will terminate and DOMINION shall be responsible for the lesser of (i) fifty percent (50%) of the costs to prepare the Final Plans and Specifications, or (ii) \$100,000, and HRSD will be responsible for all remaining amounts for the costs to prepare the Final Plans and Specifications.

C. Compliance

All design work shall comply with the CITY's Public Facilities Manual, latest edition, the HRSD Standards and Preferences for use in Engineered Construction Projects, latest edition, and the Hampton Roads Planning District Commission Regional Construction Standards, latest edition. Any changes to the Final Plans and Specifications shall be approved by HRSD, DOMINION and, if applicable, the CITY.

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 the ENGINEER for HRSD and DOMINION (the "Improvements Costs") shall include:
 - a. Cost of construction of the Improvements;
 - b. Cost of advertising for bids and management of bidding process;
 - c. Cost of approvals and permits required for the construction of the Improvements;
 - d. Costs of services rendered by ENGINEER (exclusive of the costs of preparing the Final Plans and Specifications, which costs are to be paid pursuant to the requirements of Section I. above and the subsections thereunder);
 - e. Costs for all temporary or permanent easements and fee simple land acquisitions; and
 - f. An allowance for a ten percent (10%) construction contingency to be added to the contractor low bid to cover costs associated with unforeseen changes (e.g. change in traffic control plan requested by the CITY).
 - g. Any related miscellaneous essential expenses.

2. The current estimated cost of the Improvements and the CA and CI Costs (defined below) (excluding any costs or expenses related to the HRSD Betterment) is \$2,300,000. HRSD shall be responsible for all construction costs related to the Improvements and CA and CI Costs for the Improvements that are in excess of \$2,300,000, and (ii) any and all costs and expenses (including administrative and inspection expenses) related to any HRSD Betterment, it being understood that DOMINION shall have no responsibility for any costs related to any HRSD Betterment.

B. Approval of Final Plans and Specifications; Contractor(s); Change Orders

1. HRSD and DOMINION agree that before any construction work is to begin under this Agreement, HRSD and DOMINION will jointly review and approve the Final Plans and Specifications. This approval shall be in writing and shall not be unreasonably withheld, conditioned or delayed. HRSD and DOMINION shall obtain approval of the Final Plans and Specifications from the CITY.
2. HRSD and the CITY shall acquire all necessary plan approvals and property acquisitions related to the HRSD Facilities and CITY Facilities prior to the award of the construction contract.
3. HRSD and DOMINION 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.
4. Contractor(s) selected to complete the work required under the Final Plans and Specifications ("Contractor(s)") shall be responsible for obtaining all necessary permits and approvals necessary for the Improvements.
5. HRSD will review and approve shop drawings related to the HRSD Facilities. HRSD shall review and approve shop drawings related to CITY facilities and shall submit same to the CITY for their approval.
6. HRSD and DOMINION will review and approve scope of work and fee for the construction contract administration and inspections related to the HRSD Facilities and CITY Facilities.

7. HRSD and DOMINION will review and issue final approval on all change orders related to the HRSD Facilities and CITY Facilities. HRSD and DOMINION shall obtain approval from CITY for all change orders related to the CITY Facilities.

C. Payment of Improvements Costs

1. Subject to the terms and conditions contained herein, the Improvements Costs shall be apportioned among the parties as follows:
 - a. HRSD shall administer and be responsible for ten percent (10%) of the construction cost of the Improvements and the CA and CI Costs provided that if those costs are greater than \$2,300,000, HRSD shall be responsible for one hundred percent (100%) for all construction costs of the Improvements plus the CA and CI Costs that are in excess of \$2,300,000.
 - b. DOMINION shall be responsible for ninety percent (90%) of the collective cost of construction of the Improvements and the CA and CI Costs, provided that those costs, together, are less than or equal to \$2,300,000 (the "DOMINION Share"), it being understood that DOMINION shall have no responsibility for any construction costs for the Improvements together with the CA and CI Costs that are greater than \$2,300,000.
 - c. Costs associated with any change to the initial construction cost ("Change Order") shall be as follows:
 - (1) HRSD shall be solely responsible for costs due to a Change Order requested by HRSD; and
 - (2) DOMINION shall be solely responsible for costs due to a Change Order requested by DOMINION (a "DOMINION CO Cost").

2. During the course of construction, HRSD shall compensate the Contractor(s) and other individuals and entities providing materials and/or services related to the Improvements for all Improvements Costs. DOMINION shall reimburse HRSD for the DOMINION Share and, if applicable, a DOMINION CO Cost, pursuant to an invoice provided by HRSD to DOMINION detailing the DOMINION Share and/or, if applicable, a DOMINION CO Cost, for such Improvements Costs. Within thirty (30) days of its receipt of such invoice, DOMINION shall reimburse HRSD for DOMINION's share of those Improvements Costs as detailed in the invoice, subject to the overall cap of the DOMINION Share.
3. Subject to the terms herein, including the overall cap on the DOMINION Share, DOMINION shall reimburse HRSD for a ninety percent (90%) share of HRSD's actual and reasonable construction administration and construction inspection costs (the "CA and CI Costs"), provided that HRSD shall be responsible for one hundred percent (100%) for all construction cost of the Improvements and CA and CI Costs in excess of \$2,300,000. Once construction of the Improvements commences, as CA and CI Costs are incurred by HRSD, HRSD shall provide DOMINION with an invoice detailing DOMINION's share of such CA and CI Costs. Within thirty (30) days of its receipt of such invoice, DOMINION shall reimburse HRSD for DOMINION's share of the CA and CI Costs as detailed in the invoice, subject to the overall cap of the DOMINION Share.

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

1. HRSD shall be responsible for operation and maintenance of the HRSD Facilities during and after construction.
2. HRSD and DOMINION acknowledge that the CITY shall be responsible for operation and maintenance of the CITY Facilities during and after construction.

E. Elimination of Existing Easements after Construction

1. HRSD shall prepare all necessary legal documents and plats to extinguish the existing easement that exists across the Dominion property. With the exception of the section of Force Main under the Elizabeth River which will be isolated by closed valves, the remaining Force Main will be drained and filled with a flowable grout to be abandoned in place.
2. DOMINION shall review and approve of the documents and HRSD shall then have these documents recorded.

III. SCHEDULE

The construction of the Improvements is anticipated to begin by May 2019 and be complete by March 2020. If the construction dates listed herein are substantially delayed, HRSD reserves the right to terminate this Agreement.

IV. OBLIGATIONS OF HRSD AND DOMINION

A. Public Hearing or Meeting

HRSD shall be responsible for holding a public hearing or meeting, if required. DOMINION agrees to provide support to HRSD in connection with such public hearing.

B. Bidding of the Improvements

1. HRSD shall issue bidding documents for construction of the Improvements. DOMINION agrees to provide administrative support during the bidding phase.
2. HRSD shall receive bids for construction of the Improvements. All bids received shall be reviewed and approved by DOMINION and HRSD prior to award of the construction contract. DOMINION 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.

C. Administration

HRSD shall provide contract administration of the Improvements.

D. Inspection

HRSD shall provide full-time inspection for the Improvements.

E. Deeds and Easements

HRSD and DOMINION acknowledge that the CITY shall be responsible for the acquisition of any and all necessary fee simple deeds and/or deeds of easements for the CITY Facilities.

F. Correction of Construction Defects in the Improvements

HRSD shall require the Contractor(s) 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 the Contractor's work against construction defects in the Improvements and shall require the Contractor(s) to correct such defects that are reported by HRSD or the CITY within one (1) year of the final acceptance of the Improvements.

G. Construction Record Drawings

ENGINEER shall provide HRSD and DOMINION approved construction record drawings in accordance with HRSD Standards and Preferences for use in Engineered Construction Projects and CITY's Public Facilities Manual, latest edition.

H. Intentionally Deleted.

V. GOVERNING LAW

This Agreement shall be deemed to be a Virginia Contract and 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 DOMINION 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 DOMINION and HRSD (subject to reimbursement to DOMINION for any remaining amounts of any advance payments already paid).

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

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

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

With Copy to:

William A. Cox, III
Kellam, Pickrell, Cox & Anderson, P.C.
403 Boush Street, Suite 300
Norfolk, VA 23510
Telephone: 757-627-8365

For: DOMINION
Warren Deal, Project Manager
2701 Veeco Street
Chesapeake, VA 23323
Telephone: 757-898-2771

With Copy to:
DOMINION Energy Services, Inc.
120 Tredegar Street, RS-2
Richmond, Virginia 23219
Attention: Clay Burns, Senior Counsel
Law Department

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 any act or 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 causes damage(s), whether to person or property, the negligent party shall be responsible for the payments for such damages to any other party to this Agreement. Notwithstanding anything to the contrary in Agreement, neither party hereto shall be liable to the other for incidental, consequential or punitive damages, including but not limited to loss of use or loss of profit or revenue.

XII. INSURANCE

HRSD and DOMINION have the right to review and approve insurance coverage in the various insurance categories that HRSD and DOMINION deem necessary to be carried by the Contractor(s) or any subcontractors to the Contractor. Proof of such insurance shall be provided at the request of HRSD or DOMINION and any such insurance coverage shall be maintained during the term the contract or contracts by which the Contractor(s) is/are obligated to perform the work required by the Final Plans and Specifications. Notwithstanding anything to the contrary in this Agreement, DOMINION shall have the right to self-insure.

XIII. TERM OF AGREEMENT

The term of this Agreement will commence on the date this Agreement is entered into and shall end (i) when each party has completely performed its obligations hereunder or (ii) this Agreement is otherwise terminated.

XIV. FORCE MAJEURE

In the event of enforced delay in the performance of such obligations due to unforeseeable causes beyond the control of DOMINION or HRSD or the Contractor(s) 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 Contractor(s) hire(s) subcontractors or independent contractors, HRSD shall have the right to approve them by reviewing their requisite experience and knowledge to complete the work assigned. If Contractor(s) hire(s) subcontractors or independent contractors to perform work related to the FM Abandonment, both HRSD and DOMINION shall have the right to approve each such subcontractors by reviewing such subcontractor's requisite experience and knowledge to complete work related to the FM Abandonment.

XVI. STATUS OF AGREEMENT; NO PARTNERSHIP

The purpose of this Agreement is for reimbursement to HRSD from DOMINION for certain costs related to the Final Plans and Specifications, the Improvement Costs, and the CA and CI Costs. Nothing in this Agreement shall be construed as making either party hereto a partner or joint venturer with the other party hereto. Further, nothing in this Agreement shall be deemed to create a contract between DOMINION and the ENGINEER and/or any Contractor(s), and neither the ENGINEER nor any Contractor(s) shall be deemed to be third-party beneficiaries of this Agreement.

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.

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 February 27, 2018.

HAMPTON ROADS SANITATION DISTRICT

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

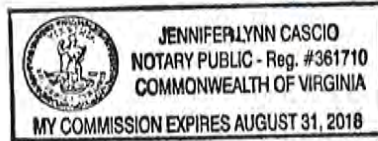
COMMONWEALTH OF VIRGINIA,
CITY OF VIRGINIA BEACH, to-wit:

The foregoing agreement was acknowledged before me this 27th day of February, 2018, by Edward G. Henifin, P.E., General Manager, HRSD.


Notary Public

My commission expires:

Registration No.:



IN WITNESS WHEREOF, DOMINION has caused this Agreement to be signed by the Vice President on its behalf.
Technical Services

DOMINION:

VIRGINIA ELECTRIC AND POWER COMPANY

By: *Joshua Bennett*
Name: Joshua Bennett
Title: VP TECHNICAL SERVICES, DOMINION ENERGY

The foregoing Agreement was acknowledged before me this 15th day of February, 2018, by Joshua J Bennett [Name], VP Technical Services [Title], Virginia Electric and Power Company, on behalf of the Company.

Anne F Bedner
Notary Public

My commission expires:

Registration No.:

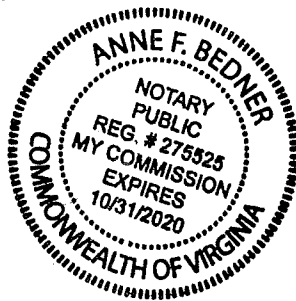


Exhibit 1 - HRSD and City of Chesapeake Facilities Location Map



HRSD COMMISSION MEETING MINUTES
February 27, 2018

ATTACHMENT #5

AGENDA ITEM 8. – Deep Creek Interceptor Force Main Risk Mitigation Project
Easement Acquisition

- [Agreement](#)
- [Deed](#)
- [Plat](#)
- [Map](#)

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

DEED OF EASEMENT

This **Deed of Easement**, Made this 18th day of January, 2018, by and between **DOUBLE R, LLC**, a Virginia limited liability company, (hereinafter called **GRANTOR**), and the **HAMPTON ROADS SANITATION DISTRICT**, a political subdivision of the Commonwealth of Virginia, (hereinafter called **HRSD** or **GRANTEE**), whose mailing address is Hampton Roads Sanitation District, Post Office Box 5911, Virginia Beach, Virginia 23471-0911.

WITNESSETH:

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

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

This Easement is subject to the following conditions and provisions:

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

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

TAX PARCEL NO.: 0254012000351
Insured by: Unknown
Consideration: \$60,000.00

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

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

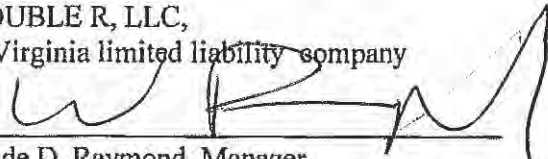
D. **GRANTEE** shall have the right of ingress, egress and regress to, from and over the Easement and the right to use the adjoining land of **GRANTOR** where necessary, provided, however, that its right to use the adjoining lands shall be exercised only during periods of actual construction and/or maintenance.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

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

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

WITNESS the following signatures and seals:

DOUBLE R, LLC,
A Virginia limited liability company


Wade D. Raymond, Manager

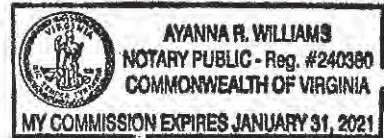
STATE OF VIRGINIA
CITY OF Virginia Beach, to-wit:

The foregoing instrument was acknowledged before me this 21st day of Jan, 2018 by Wade D. Raymond, Manager of Double R, LLC, a Virginia limited liability company


Notary Public

My commission expires: Jan 31, 2021

Registration No.: 240380



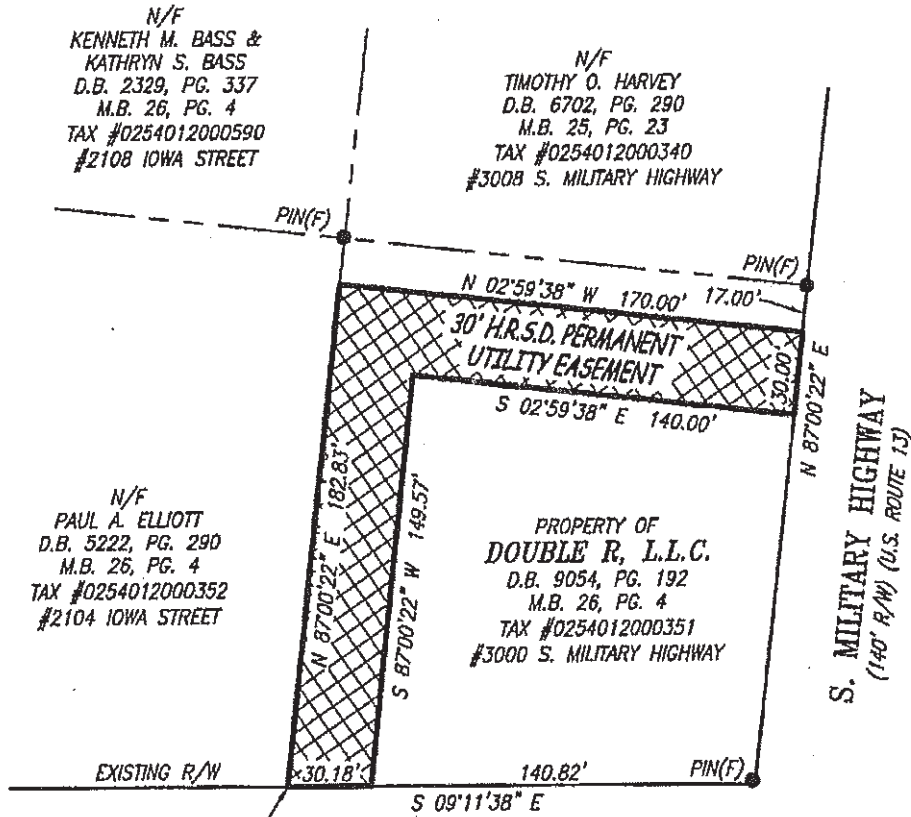
HRSD\DEEDS\DOUBLE R LLC TO HRSD DOE

HELLAM, PICKRELL,
COX & ANDERSON
PROFESSIONAL CORPORATION
ATTORNEYS AT LAW

AREA TABLE

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

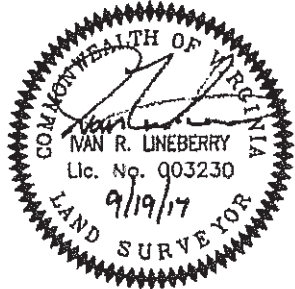
9,636 SQ. FT. OR 0.221 ACRES



N:3,447,948.719
E:12,120,083.109

CANAL DRIVE
(VARIABLE WIDTH R/W)

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



HATCH & SYMBOL LEGEND

- IRON PIN FOUND
- ▨ DENOTES 30' H.R.S.D. PERMANENT UTILITY EASEMENT TO BE ACQUIRED

NOTES:

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



PLAT SHOWING EASEMENT TO BE ACQUIRED FROM
DOUBLE R, L.L.C.
BY
HAMPTON ROADS SANITATION DISTRICT
FOR
DEEP CREEK INTERCEPTOR FORCE MAIN REPLACEMENT
CHESAPEAKE, VIRGINIA
SCALE: 1" = 50' JUNE 29, 2017

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

INSTRUMENT # 180003154
RECORDED CHESAPEAKE CIRCUIT COURT CLERK'S OFFICE
Feb 06, 2018 AT 03:43 pm
ALAN P. KRASNOFF, CLERK by GJB

BOOK 09881 PAGE 0601 - 00606

Prepared by and Return to:
Kellam, Pickrell, Cox & Anderson, P.C.
403 Boush Street, Suite 300
Norfolk, VA 23510

Tax Map No.: 0254012000351

SUBORDINATION AGREEMENT

PLACE OF RECORD: Clerk's Office, Circuit Court, City of Chesapeake, Virginia

DATE OF DEED OF TRUST: March 28, 2013

RECORDED DEED BOOK: 9054 **PAGE:** 197

DATE OF NOTE: March 28, 2013

**FACE AMOUNT OF NOTE
AND DEED OF TRUST:** \$214,000.00

NAME(S) OF GRANTOR(S): DOUBLE R, LLC

NAME(S) OF TRUSTEE(S): VALERIE L. SWEENEY, TRUSTEE

BENEFICIARY: EQUITY ONE SBC

ASSIGNMENT OF DEED OF TRUST DATED: March 25, 2013

RECORDED DEED BOOK: 9054 **PAGE:** 215

ASSIGNOR: EQUITY ONE SBC

ASSIGNEE: APEX MORTGAGE CORP.

BRIEF DESCRIPTION OF PROPERTY: 3000 S. Military Highway
Chesapeake, VA 23323

Noteholder does hereby subordinate the lien of the above described Deed of Trust securing the above described Note to the 30-ft. Permanent Utility Easement conveyed by Grantor to Hamptons Roads Sanitation District ("HRSD") by reason of a Deed of Easement dated January 18, 2018 and intended to be recorded contemporaneously herewith. The purpose of executing this Agreement is to retain the full security interest in the Property described in the above described

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

Deed of Trust, while making said Deed of Trust subject to the HRSD Utility Easement. Reference to the plats recorded with the Deed of Easement is hereby made for a more particular description of the easement conveyed. The undersigned is/are the legal holders of the obligation, note, bond or other evidence of debt secured by said Deed of Trust and represent and warrant same.

Given under my hand this 2nd ^{February} day of January, 2018.

APEX MORTGAGE CORP.

BY: [Signature]

TITLE: Vice President

STATE OF Pennsylvania
CITY/COUNTY OF Montgomery, to-wit:

Subscribed, sworn to and acknowledged before me this 2nd ^{February} day of January, 2018,
by Patrick Selmar, who is Vice President of APEX
MORTGAGE CORP.

[Signature]
Notary Public

My commission expires: _____
Registration Number: _____

COMMONWEALTH OF PENNSYLVANIA
NOTARIAL SEAL
COLLEEN M. CAINE, Notary Public
City of Philadelphia, Phila. County
My Commission Expires November 30, 2019

F:\DOC\HRSD\SUBORD\SUBORDINATION AGMT DOUBLE R LLC

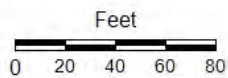
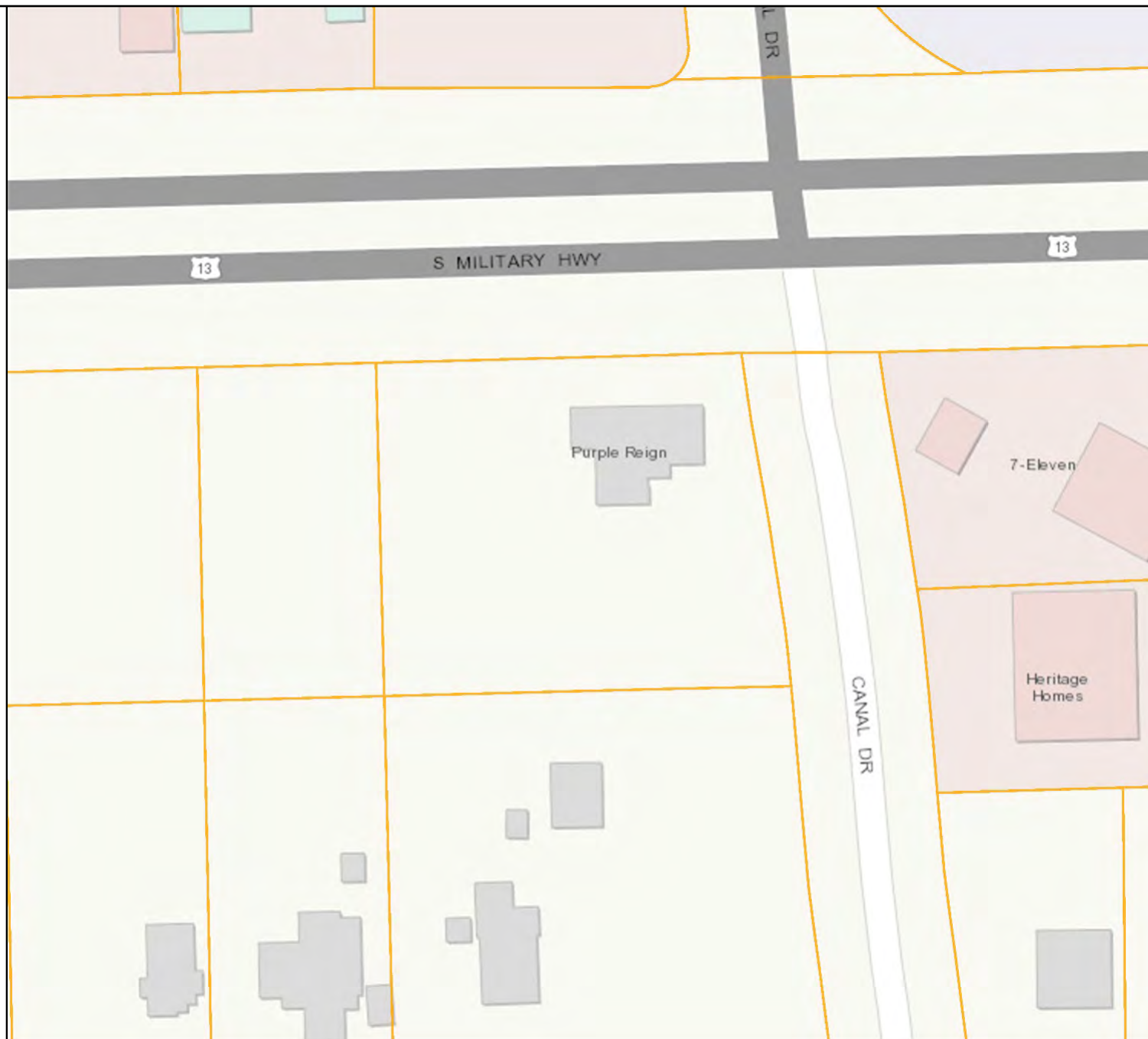
INSTRUMENT # 180003155
RECORDED CHESAPEAKE CIRCUIT COURT CLERK'S OFFICE
Feb 06, 2018 AT 03:43 pm
ALAN P. KRASNOFF, CLERK by GJB
BOOK 09881 PAGE 0607 - 00609

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

City of Chesapeake, Virginia

Legend

-  Parcels
-  City Boundary



Title: 3000 S. Military Highway

Date: 2/15/2018

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
February 27, 2018

ATTACHMENT #6

AGENDA ITEM 9. – SPSA Leachate Partnership Agreement Presentation

One Initiative – Many Benefits



February 27, 2018

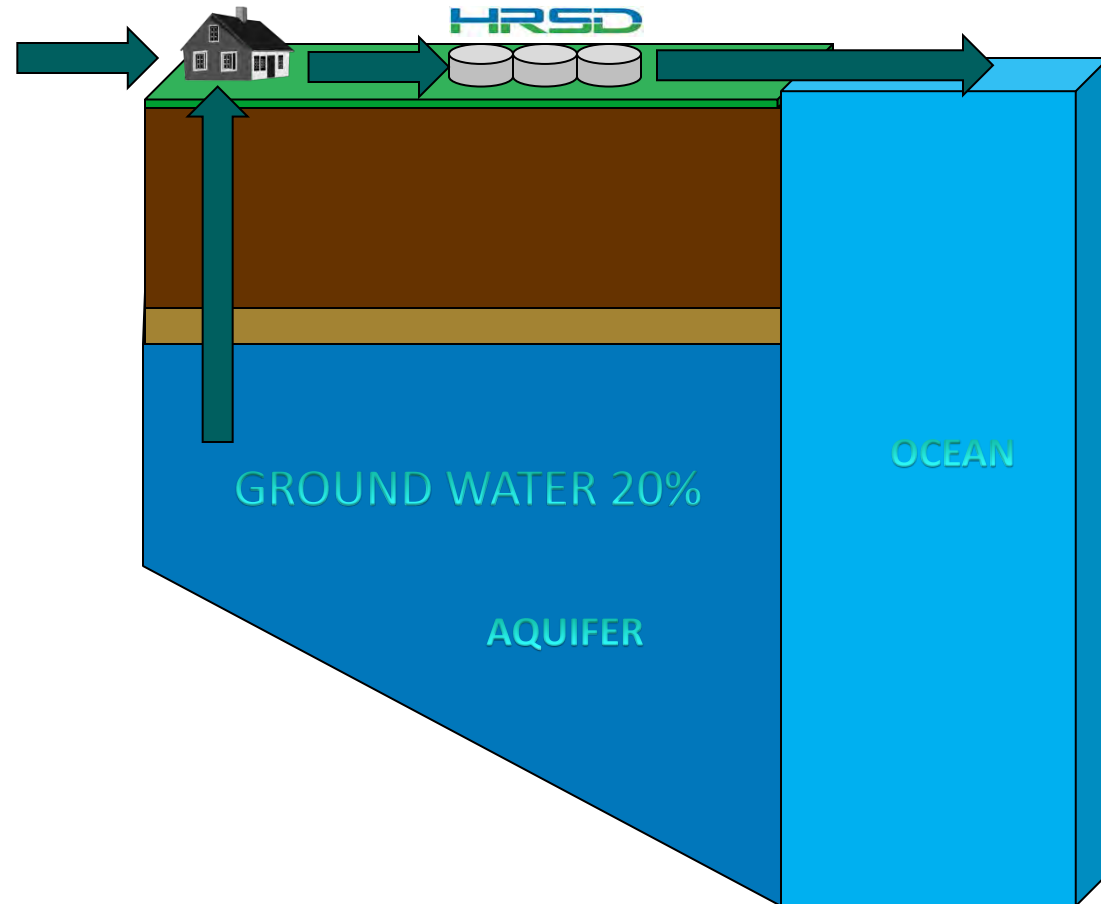
Water issues challenging Virginia and Hampton Roads

- Restoration of the Chesapeake Bay
 - Harmful Algal Blooms
 - Localized bacteria impairments
 - Urban stormwater retrofits (cost and complexity)
- Adaptation to sea level rise
 - Recurrent flooding
- Depletion of groundwater resources
 - Including protection from saltwater contamination
- Wet weather sewer overflows
 - Compliance with Federal enforcement action

Current state of wastewater in Hampton Roads

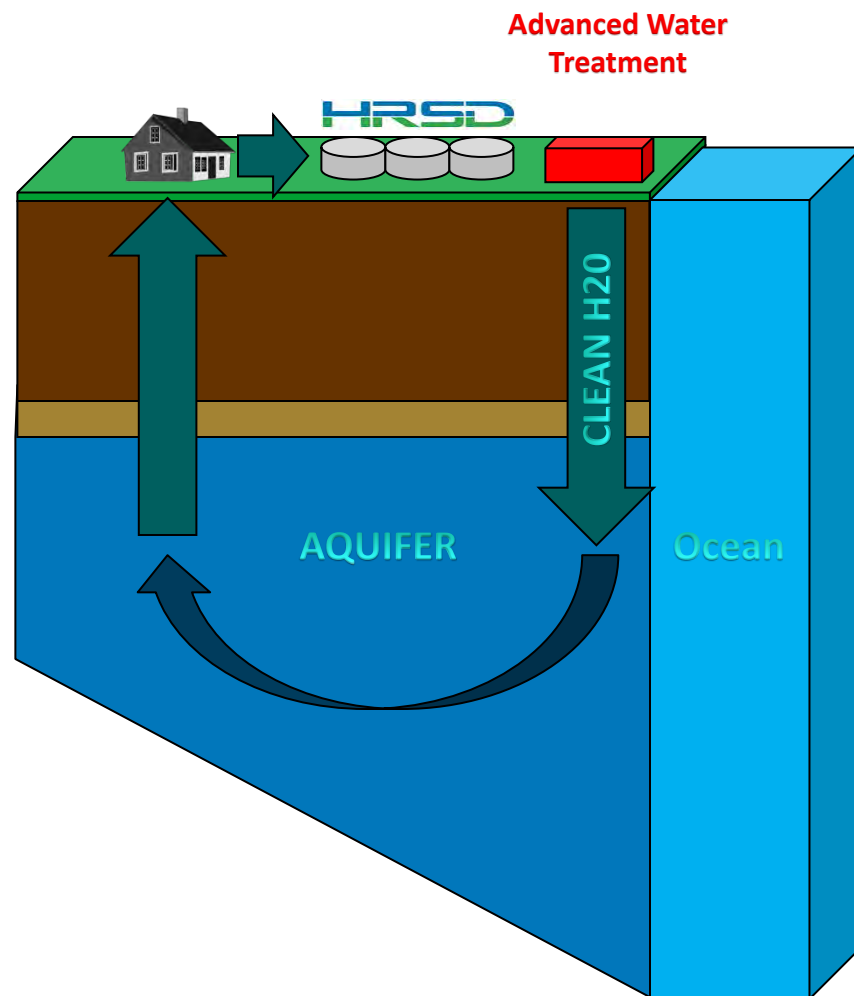
SURFACE WATER 80%

HRSD costs are rising to treat water to higher standards. Treated water currently discharged to area waterways – no beneficial use.



SWIFT – Sustainable Water Initiative for Tomorrow

- Treat water to meet drinking water standards and replenish the aquifer with clean water to:
 - Provide regulatory stability for wastewater treatment
 - Reduce nutrient discharges to the Bay
 - Reduce the rate of land subsidence
 - Provide a sustainable supply of groundwater
 - Protect the groundwater from saltwater contamination



Significant regional benefits

- \$1.5 B in savings from nutrient trading to meet TMDL for stormwater permits
- Regulatory stability for HRSD – eliminating potential future plant upgrades (TMDL backstops estimated at \$.75 B alone)
- Supports regional economy with ability to support new groundwater users throughout eastern Virginia and new nutrient discharges
- Provides added resiliency to regional water supply dependent on groundwater for emergency supply

Treating to drinking water standards

- Advanced treatment used throughout world, many locations in USA and even in Virginia to produce water that exceeds drinking water standards
 - Upper Occoquan Service Authority/Fairfax Water
 - Loudoun Water
 - Montebello Forebay, CA 1962
 - El Paso, TX 1985
 - Scottsdale, AZ 1999
 - Orange County, CA 2008
 - Arapahoe, CO 2009
 - ***San Diego, CA 2020***



Membrane based



Carbon based

Typical Approach to Developing Finished Water Goals for Groundwater Recharge –*Drinking Water Aquifer*

- Meet all primary Maximum Contaminant Levels (MCLs) regulated by the USEPA in the SDWA
- Provide multiple barriers to pathogens and organics (including chemicals)
- Ensure aquifer compatibility
- Conduct hazard analysis and establish critical control points (HACCP) for treatment processes
- Action level exceedance will prevent water from entering the recharge well

Impact on industrial dischargers

- Source protection changes to meet new water use – now must be protective of human health for consumptive use
- Focus is on compounds/contaminants not readily removed by treatment processes or that make the treatment process significantly more challenging – need high confidence in system to produce drinking water 100% of the time

Impact on SPSA - Bromide

- No effective way to remove in conventional treatment processes
- There is direct relationship between source water bromide concentration and formation of bromate during ozonation
 - Bromate is a suspected human carcinogen with an MCL of 10 ppb
 - SPSA is a significant source of bromide – sampling since June 2017 found average to be 163 mg/L (68 pounds per day at 50,000 gpd)
 - Influent concentration at NTP 69.2 pounds per day for 17.3 mgd

Impact on SPSA – 1,4-dioxane

- No effective way to remove in conventional treatment processes – marginally in advanced treatment processes (~50%)
- A likely human carcinogen with a guidance limit of 1 µg/L
- Sampling suggests SPSA contributes 15-20% of load to NTP

Impact on SPSA – COD:BOD ratio < 6

- Provides indication of biodegradability of leachate
 - Less than 2 = readily biodegradable
 - Between 2 and 4 = marginally biodegradable
 - Greater than 4 = challenge to biodegrade
- Currently using flow x concentration to manage COD delivered to NTP from SPSA

Discharge Volume (gals).	COD Criteria Concentration (mg/l)
• <1,000	Case by case basis
• >=1,000 - <5,000	25,000
• >=5,000 - <10,000	10,000
• >=10,000 - <25,000	5,000
• >=25,000 - <50,000	3,000
• >=50,000 - <100,000	1,000
• >=100,000	Case by case basis

Leachate a challenge to deal with nationwide

- HRSD preference would be to prohibit leachate
 - Challenge to treat in conventional processes
 - Landfills across the nation must deal with own leachate disposal
- If leachate is to continue to come to HRSD
 - Maintain strong IWD permitting program
 - Move leachate to non-SWIFT treatment facility to remove direct threat to human health and excessive advanced treatment cost

Recommended plan of action for SPSA leachate

- HRSD needs to fully evaluate treatment processes at SWIFT Research Center scale with and without leachate
 - SPSA to continue to pump to NTP under existing permit limits for first 30-60 days of SWIFT Research Center operations (until approximately July 1, 2018)
 - SPSA pump and haul leachate to Washington District PS beginning July 1, 2018 for 30-60 days to allow HRSD to evaluate potential impact on advanced treatment
 - Outcome will determine whether pumping can resume approximately September 1, 2018

Recommended plan of action for SPSA leachate

- Long term solution to move leachate to non-SWIFT treatment facility
 - Force main to Washington District PS area (Bainbridge Blvd)
 - Estimated at \$6 M
 - HRSD to pay up to \$4 M (2/3 HRSD customers are SPSA customers)
- Begin design immediately and use unit price construction contract to expedite
- Need cost sharing agreement with SPSA
- HRSD to front cost and request reimbursement upon completion



Can your sinks and toilets fight sea-level rise?

Virginia GOP asks state to cancel "loyalty oath"

recycling water

SINKING LAND is part of the problem, as society gazes at groundwater. One solution is to pump treated wastewater back in.

HRSD doesn't want to waste wastewater

By Dave Mayfield
The Virginian-Pilot

SEAFORD

Ted Henfin crouched next to a floor drain at the Hampton Roads Sanitation District's York County treatment plant. Into his palm ran a soft stream of clear water — clean enough, probably, to drink. But the lab results aren't back to confirm that. So, Henfin will hold off before he sips. Waiting isn't exactly Henfin's style these days. He has dived into a project to prove that HRSD can turn what Hampton Roads flushes down

recycled

The sanitation district wants to launch a \$1 billion, decade-long project that would refill the region's aquifers with treated wastewater.

See WASTE, PAGE 10



PENINSULA CITIES IN ECONOMIC DOLDRUMS

Facing sluggish job growth, defense cuts, region fares poorly in national rankings

By J. EDGAR O'NEAL

When it comes to robust growing economies, the two biggest cities in the Peninsula aren't measuring up, according to a recent report. **Water Hub** — a financial and information firm — says the U.S. cities score on economic activity in 50 markets, ranging from growth to decline. It says the Peninsula's score is below average, and that the region's economic future is uncertain. The report, which is based on data from the U.S. Bureau of Economic Analysis, says that the region's economic growth is slower than the national average.



NO WASTING WATER

Following the lead of other regions, local plant tries treating wastewater

By Dave Hess
dohess@dailypress.com

SEAFORD — With a sip of specially treated wastewater, Hampton Roads Sanitation District general manager Ted Henfin put his mouth where his money is — what could be a \$1 billion effort to replenish eastern Virginia's rapidly shrinking pool of groundwater.

A pilot program at the agency's York River Treatment Plant shows it is possible to clean the water Hampton Roads residents flush out of their homes and businesses so that it is safe to drink, he told a

gathering of state and local officials. Not that he expects anyone will be drinking it any time soon. The plan is to eventually inject 100 million gallons a day of treated water deep underground to begin replenishing the wedge of water-saturated sand tapped by wells that serve hundreds of thousands of people and businesses. They're currently drawing about 100 million gallons a day from those wells, resulting in groundwater levels in parts of eastern Virginia dropping 200 feet over the past century.



Top: Process engineering and research manager Chris Wilcox is reflected in a window displaying the first step of the carbon-based advanced water treatment process at a conference at the York River Treatment Plant Thursday. Above: HRSD general manager Ted Henfin holds a glass of purified water during the conference at the plant.

See WATER, PAGE 8



Ted Henfin, Hampton Roads Sanitation District general manager, vowed to take the first gulp of HRSD's treated wastewater. He made good on his promise Thursday.

Sip shape

Hampton Roads Sanitation District's treated sewage water tastes great, say officials, and could shore up the area's sea level rise and bay cleanup issues

By Dave Mayfield
The Virginian-Pilot

YORK COUNTY

Earlier this year, as the Hampton Roads Sanitation District ramped up plans to make its wastewater clean enough to drink, general manager Ted Henfin vowed he'd take the first gulp. On Thursday at the HRSD's York County treatment plant, Henfin made good on the prom-

ise, leading dozens of employees and invited guests in downing glasses of water that came from a sewage stream fed by sinks and toilets.

"Great!" he proclaimed after his first sip. "Ahhh." To Henfin, it was no mere stunt. It was an early demonstration of the potential for an ambitious initiative to turn what goes down Hampton Roads'

See HRSD, BACK PAGE

Hopes that wastewater can conserve land in coastal Va.

BY DARRYL FEARS

SEAFORD, VA. — It looks like a mad scientist's lab, something straight out of a sci-fi novel. Valves turn in every direction. Tubes are stacked halfway to the ceiling. Tiny bubbles dance in large vats of water.

But what's happening in a hangar of the York River Treatment Plant is real, part of a grand experiment that could help keep this coastal region from continuing to subside and eventually being claimed by the rising sea. Over the next 15 months, tests will determine whether millions of gallons of wastewater can be purified to drinking water quality and injected into the ground.

If successful, the project of the Hampton Roads Sanitation District could start to replenish a giant aquifer that thousands of industries and half a million households in the area are sucking dry. Over the past five decades, they have collectively pumped out so much water that land here is falling 4 millimeters a year — or more than 1½ inches by 2026.

Ted Henifin's jaw-dropping, eyebrow-raising idea was proposed in 2015, and last month the sanitation district general manager kicked off the pilot phase to stop what some scientists have called a nightmare in super slow motion.

Aquifers big and small exist under Hampton Roads in muddy
AQUIFER CONTINUED ON A16





HRSD COMMISSION MEETING MINUTES
February 27, 2018

ATTACHMENT #7

AGENDA ITEM 13. – Capital Improvement Program Quarterly Update Presentation



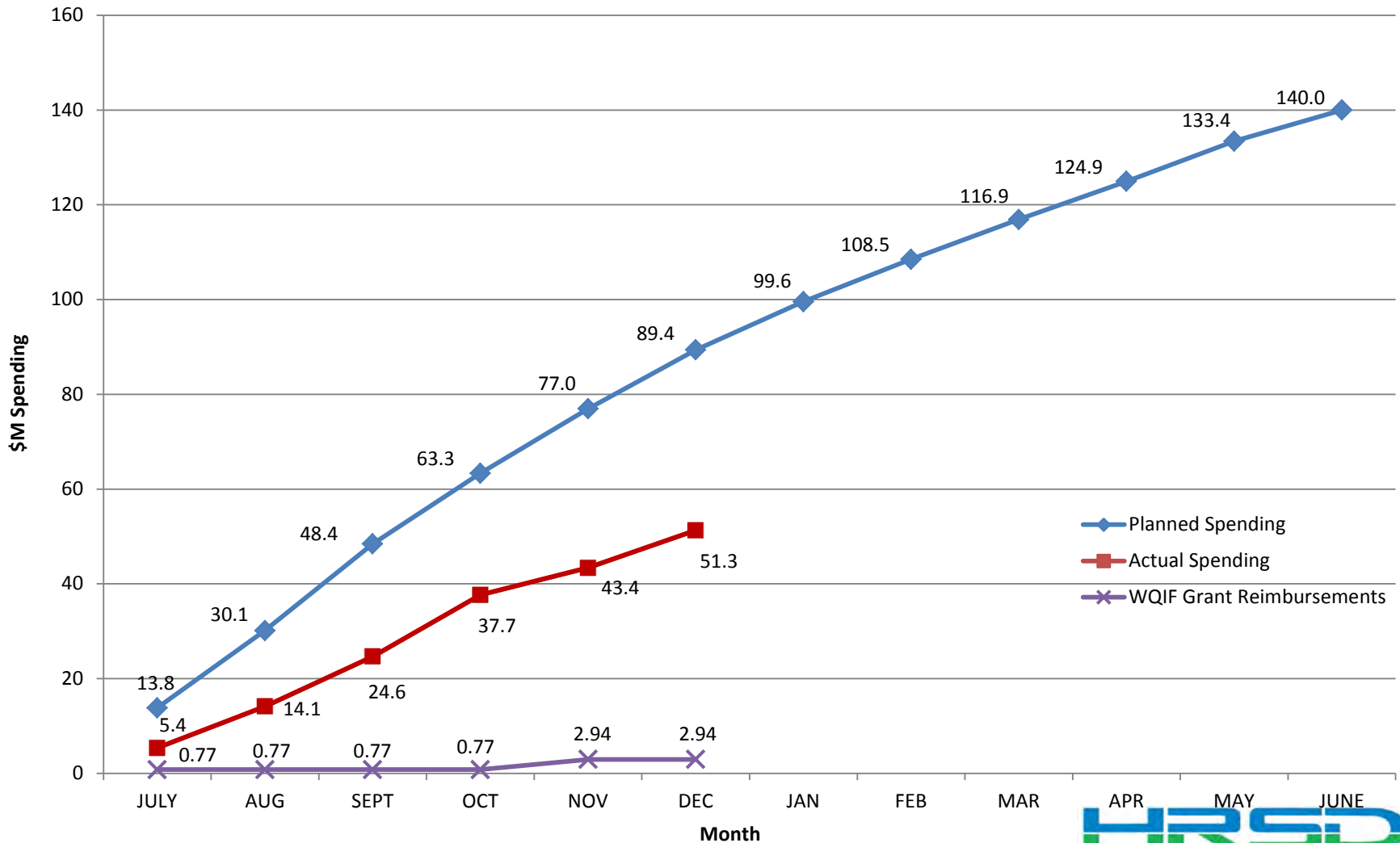
Capital Improvement Program Commission Briefing

February 27, 2018

- CIP Expenditures for FY-2018
- CIP Performance Metrics
- Summary of Projects Requiring Additional Appropriation in CY-2017
- Significant Project Updates
- Consent Decree/SSO Reduction Project Updates
- Project Focus: Engineering Department
Organizational Structure and
Consulting Engineering Support

CIP Expenditures for FY-2018

Cumulative Monthly Expenditures & Reimbursements



CIP Expenditures for FY-2018 (cont.)

CIP Project Not Meeting Spending Projections:

Project Name	Planned Spending for FY	Prorated Spending thru Dec.	Spent to Date	Differential
Sustainable Water Phase 3 – Demonstration Facility	\$19,622,000	\$15,697,600	\$13,232,453	-\$2,465,147
Virginia Initiative Plant Nutrient Reduction Improvements – Phase 3	\$19,182,000	\$11,509,200	\$8,219,846	-\$3,289,354
Aquifer Replenishment System Concept Feasibility Evaluation	\$8,449,000	\$3,520,400	\$1,542,575	-\$1,977,825
Atlantic Treatment Plant Thermal Hydrolysis Process (CAMBI)	\$6,890,000	\$2,870,800	\$3,349,098	\$478,298
Interceptor Systems Pump Station Control and SCADA Upgrades	\$6,188,000	\$2,578,300	\$1,677,414	-\$900,886
				-\$8,154,914

- CIP Spending and Staffing
- Construction Contracts Awarded in CY-2017
- Construction Contracts Completed in CY-2017

CIP Spending and Staffing

CIP Spending for Calendar Year 2017 = \$95.6M
(\$23.9M Design, \$71.7M Construction)

Internal Staffing:

Engineering Department Staff = 40 Full-Time, 6 Part-Time

External Staffing:

Design Services Staff = 122 Full-Time Employees

Construction Services Staff = 394 Full-Time Employees

Total = 516 Full-Time Employees

Construction Contracts Awarded in 2017

2017 Construction Bids

Project Name	CIP	Bid Date	CIP Estimate	Engineer's Estimate	Low Bid	Average of Bids	High Bid	# Bidders
Army Base TP Miscellaneous Improvements	AB010100	06/01/17		\$2,282,702.00	\$2,644,800.00	\$2,655,250.00	\$2,655,700.00	2
Atlantic Treatment Plant Administration Bldg.	AT012000	02/07/17	\$2,706,384.00	\$2,634,005.00	\$2,281,000.00	\$2,357,000.00	\$2,433,000.00	2
Ferguson Park Interceptor FM Bridge Span Relocation	BH013700	06/08/17	\$921,559.50	\$562,573.80	\$777,040.20	\$893,731.73	\$1,032,315.00	3
Hampton Trunk Sewer Ext. Div. B Claremont FM Replace	BH012700	06/08/17	\$4,365,120.60	\$5,419,147.24	\$4,091,738.50	\$4,793,161.46	\$6,373,767.75	6
Lucas Creek – Woodhaven IFM Replacement – Phase 1	JR013100	09/07/17	\$3,600,000.00	\$3,567,040.00	\$2,655,506.00	\$3,029,099.98	\$3,328,474.00	5
Pump Station Wet Well Rehabilitation	GN012140	05/23/17	\$2,960,000.00	\$2,826,395.78	\$2,408,844.00	\$3,277,123.50	\$3,966,000.00	4
Rodman Avenue PS Wet Well Rehabilitation	VP017300	10/10/17	\$1,063,244.00	\$1,248,772.00	\$864,000.00	\$1,058,100.00	\$1,238,700.00	3
Sewerage System Improvements Div. C, Ph II Replacement	VP011600	03/14/17	\$1,600,000.00	\$1,313,120.80	\$978,330.00	\$1,310,148.65	\$1,604,108.98	6
Shippo Corner Interim PRS	AT011510	07/11/17	\$2,310,000.00	\$2,507,000.00	\$2,097,330.00	\$2,249,343.33	\$2,420,000.00	3
York River Treatment Plant Digester Cover Replacement Ph II	YR012220	09/07/17	\$1,008,000.00	\$1,331,843.00	\$1,379,000.00	\$2,145,866.67	\$2,175,400.00	3

Totals
% Different

\$23,692,599.62

\$20,177,588.70
-15%

\$23,768,825.32
0%

\$27,227,465.73
15%

Construction Contracts Completed in 2017

Project Name	Original Contract	Final Contract	#CO	CO Percentage
33 rd Street Pump Station Replacement/Rehabilitation	\$3,867,000.00	\$4,035,384.20	2	4.4%
58 th Street Connecting Sewer Rehabilitation	\$1,321,246.00	\$2,432,624.13	6	84.1%
Atlantic TP Primary Clarifier	\$878,870.00	\$891,206.00	1	1.4%
Center Avenue I & I Remediation – Phase II	\$1,209,213.00	\$1,235,984.50	1	2.2%
Courthouse Interim PRS	\$1,781,000.00	\$1,866,484.00	3	4.8%
Effingham Street IFM	\$1,385,588.72	\$2,151,619.82	5	55.3%
Holland Road IFM	\$5,720,899.00	\$5,963,550.64	4	4.2%
Jefferson Avenue Interceptor Force Main Replacement - Ph 2	\$2,377,506.60	\$2,327,472.75	1	-2.1%
Locality System Monitoring and Condition Assessment (DBD)	\$1,227,296.58	\$1,230,812.52	4	0.3%
Norchester Street PS	\$4,257,000.00	\$5,488,367.09	4	28.9%
State Street PS Electrical	\$1,270,000.00	\$1,604,579.11	6	26.3%
VIP Incinerator	\$2,675,225.00	\$3,045,546.69	6	13.8%
York River Treatment Plant Chemical Facility Improvement	\$1,665,000.00	\$1,800,756.21	2	8.2%
York River Treatment Plant Hypochlorite Tanks Replacement	\$857,000.00	\$894,795.71	2	4.4%
York River Treatment Plant Outfall and Diffuser Modifications	\$14,124,500.00	\$15,044,183.24	3	6.5%

Totals \$39,429,098.90 \$43,545,358.28 10.4%

Summary of Projects Requiring Additional Appropriation in CY-2017

CIP Summary

Total Value of 10-Year CIP:	\$2.35B
CIP Spending in CY-2017	\$95.6M
Total # of Projects in 10-Year CIP:	158
# of Active Projects in CY-2017:	114

Summary of Projects Requiring Additional Appropriation in CY-2017 (cont.)

Project Name	CIP	Original Appropriation	Additional Appropriation	Percent Increase
Aquifer Replenishment System Concept Feasibility Eval	GN015700	\$7,540,000.00	\$3,360,000.00	44.6%
Atlantic TP FOG	AT012910	\$3,392,000.00	\$3,205,517.00	94.5%
Atlantic TP THP	AT013500	\$39,281,000.00	\$21,385,815.00	54.4%
Bridge Street Siphon and Vent Relocation Replacement	BH013400	\$795,000.00	\$100,000.00	12.6%
Effingham Street IFM Emergency Replacement	VP017500	\$3,133,275.00	\$18,774.00	0.6%
Ferguson Park IFM Bridge Span Relocation	BH013700	\$1,024,000.00	\$150,602.00	14.7%
James River TP Centrate Equalizer Improvements	JR012900	\$2,036,670.00	\$200,295.00	9.8%
Pump Station Wet Well Rehabilitation Ph I	GN012140	\$2,890,000.00	\$629,659.00	21.8%
Regional Hydraulic Model and Other Consent Order	GN012110	\$131,191,858.00	\$1,793,275.00	1.4%
Rodman Avenue PS Wet Well Rehabilitation	VP017300	\$1,026,000.00	\$307,958.00	30.0%
Shipps Corner Interim PRS	AT011510	\$3,150,000.00	\$500,000.00	15.9%
York River TP Digester Cover Replacement Ph II	YR012220	\$1,400,500.00	\$376,875.00	26.9%
Totals		\$196,860,303.00	\$32,028,770.00	16.3%

*Original appropriation is from start of calendar year (includes additional appropriations from prior calendar years)

Significant Project Updates

- Sustainable Water Phase 3 Demonstration Facility
SWIFT Research Center
- Virginia Initiative Plant Nutrient Reduction
Improvements

Sustainable Water Phase 3 Demonstration Facility SWIFT Research Center

Engineer: CH2M Hill

Design-Build Team:
Hazen & Sawyer
Crowder Construction
Company

Schedule Completion:
April 2018

Project Value: \$27M

Funding: HRSD Revenue Bonds



Virginia Initiative Plant Nutrient Reduction Improvements

Engineer: HDR Engineering, Inc.

Contractor:

Contract A – PC Construction

Contract B – MEB General
Contractors

Procurement – Emergency
Generators

Schedule Completion

(Contract B):

March 2017 – Nutrient Work

August 2018 – Other Work

Project Value: \$161.4M

Funding: HRSD Revenue Bonds
WQIF Grant (\$46.8M)



Consent Decree/SSO Reduction Project Updates

- 33 CIP projects were included in the original Federal Consent Decree.
- 18 CIP projects were added to the Federal Consent Decree as part of the negotiation to consider regionalization of the sanitary sewer system.
- These projects involve improvements to the interceptor sewer system and numerous pump stations.
- HRSD had until **February 23, 2018** to complete these projects.
- 2 CIP projects were added to the Federal Consent Decree as part of the final negotiation to implement the Regional Wet Weather Program. HRSD has until **Dec. 31, 2018** to complete these projects.

Ref No.	Project Title	Consent Decree Estimate	Authorized/ Completed	Status
1	Claremont Avenue Pump Station Rehabilitation	\$1,500,000	\$2,202,936	Complete
2	Atlantic Pressure Reducing Station Emergency Generator Replacement	\$1,000,000	\$1,281,055	Complete
3	Lake Ridge Interceptor Force Main Section B - Contract 2 (Land)	\$3,000,000	\$2,676,660	Complete
4	Big Bethel Road to J Clyde Morris Boulevard Interceptor Force Main Replacement	\$2,500,000	\$2,865,502	Complete
5	Williamsburg-James River Connection Force Main Section II and Lucas Creek-Woodhaven Interceptor Force Main Replacements - Phase I	\$4,000,000	\$1,965,951	Complete
6	Route 171 Interceptor Force Main	\$8,000,000	\$6,487,309	Complete
7	Kiln Creek Interceptor Force Main	\$7,000,000	\$6,629,172	Complete
8	South Trunk Sewer Section F 20-Inch, Section H 8-Inch, and Section H 12-Inch Interceptor Force Main Replacement and Gravity Sewer Chesterfield Blvd. Replacement	\$11,000,000	\$6,366,640	Complete
9	Eastern Branch Sections A & B, Green Run Section C, and 24-Inch Kempsville Road Force Main Replacements	\$6,000,000	\$5,585,872	Complete
10	North Trunk Sewer Section W 8-Inch and 12-Inch Force Mains and Larchmont Force Mains (Formerly Siphon Lines) Replacements	NA	NA	Project Deleted

Ref No.	Project Title	Consent Decree Estimate	Authorized/ Completed	Status
11	North Trunk Sewer Section R 6-Inch Interceptor Force Main and 10-Inch Gravity Replacement	\$1,000,000	\$1,879,294	Complete
12	North Trunk Sewer Section D 24-Inch Interceptor Force Main Replacement	\$6,000,000	\$5,798,029	Complete
13	Hilltop/Point O'Woods Interceptor Force Main Replacements; Section B	\$6,000,000	\$7,122,565	Complete
14	Hilltop/Point O'Woods Interceptor Force Main Replacements; Section A	\$5,000,000	\$7,122,565	Complete
15	Williamsburg Interceptor Force Main Contract A Replacement	\$6,000,000	\$7,803,667	Complete
16	33rd Street Pump Station Replacement/Rehabilitation	\$3,000,000	\$5,505,196	Complete
17	Sanitary Sewer System Portsmouth VA Contract A Clifford Street Force Main	\$1,000,000	\$1,174,254	Complete
18	James River Diversion 35th Street Phase III and Boat Harbor Outlet Sewer Relocation I-664 Rehabilitation	\$2,000,000	\$979,053	Complete
19	Hampton Trunk Sewer Division A Replacement	\$1,000,000	\$5,011,437	Complete
20	Lucas Creek Pump Station Upgrade	NA	NA	Project Deleted

Ref No.	Project Title	Consent Decree Estimate	Authorized/ Completed	Status
21	South Trunk Sewer Section C-42 inch Force Main Replacement	\$4,000,000	\$13,857,340	Complete
22	Section W Force Main Replacement	NA	NA	Project Deleted
23	Coliseum Drive Pressure Reducing Station	\$6,000,000	\$10,785,839	Complete
24	Center Avenue Pump Station Replacement	\$4,000,000	\$2,826,309	Complete
25	Norchester St Pump Station Replacement/Rehabilitation	\$2,000,000	\$7,538,145	Complete
26	Providence Road Pressure Reducing Station Modifications	\$2,000,000	\$4,041,725	Complete
27	58th Street Connecting Sewer Rehabilitation	\$1,000,000	\$2,978,845	Complete
28	Bridge St. Pump Station Replacement/Rehabilitation	\$2,000,000	\$14,123,400	Construction*
29	South Trunk Sewer Section G-36 inch Force Main Replacement	\$3,000,000	\$13,656,685	Complete
30	Interceptor Systems Pump Station Control and SCADA Upgrades and Enhancements	\$10,000,000	\$24,849,471	Complete
31	Wilroy Pressure Reducing Station, Pughsville PRS Upgrades, Suffolk PS Upgrades	NA	NA	Project Deleted
32	Army Base 24-Inch and 20-Inch Transmission Main Replacements	NA	NA	Project Deleted
33	Normandy Lane Interceptor Force Main Replacement	NA	NA	Project Deleted
		\$109,000,000	\$173,114,916	

*Project extension granted to June 30, 2018.

Ref No.	Project Title	Consent Decree Estimate	Authorized/ Completed	Status
34	Great Neck Road IFM Replacement – Section A	\$4,500,000	\$6,828,269	Complete
35	Military Highway Interim Pressure Reducing Station	\$750,000	\$220,572	Complete
36	Hampton Trunk Sewer Extension Division E – Gravity Replacement	\$750,000	\$2,254,489	Complete
37	Victoria Boulevard Pump Station	\$3,600,000	\$3,706,218	Complete
38	Ivy Home – Shell Road Sewer Extension Division I – Replacement*	NA	NA	Project Deleted
39	South Shore Interceptors Air Vent Rehabilitation	\$2,500,000	\$3,141,000	Complete
40	North Shore Air Vent Replacements	\$1,200,000	\$786,528	Complete
41	Center Avenue Pump Station Service Area I/I Remediation	\$4,000,000	\$5,308,000	Complete
42	Middle Ground Boulevard – City Center Interconnect Force Main	\$5,000,000	\$6,593,520	Complete
43	Center Avenue I&I Remediation – Phase II	\$3,000,000	\$1,824,922	Complete
44	Jefferson Avenue IFM Replacement – Phase I	\$4,500,000	\$4,091,934	Complete

Ref No.	Project Title	Consent Decree Estimate	Authorized/ Completed	Status
45	Warwick Boulevard to James River Influent Force Main - Section 3*	NA	NA	Project Deleted
46	Holland Road 24-inch IFM – Section A	\$14,000,000	\$22,073,381	Complete
47	Pughsville Pressure Reducing Station Upgrades	\$5,000,000	\$2,720,000	Complete
48	Sewerage System Improvements Division C	\$750,000	\$1,649,455	Complete
49	Lafayette River Crossing/Norview – Estabrook Force Main Replacement	\$3,000,000	\$4,091,609	Complete
50	Courthouse Interim Pressure Reducing Station	\$1,500,000	\$2,840,627	Complete
51	Hampton Pump Station 023 Upgrades and Discharge Force Main	\$750,000	\$680,422	Complete
		\$54,800,000	\$68,810,946	

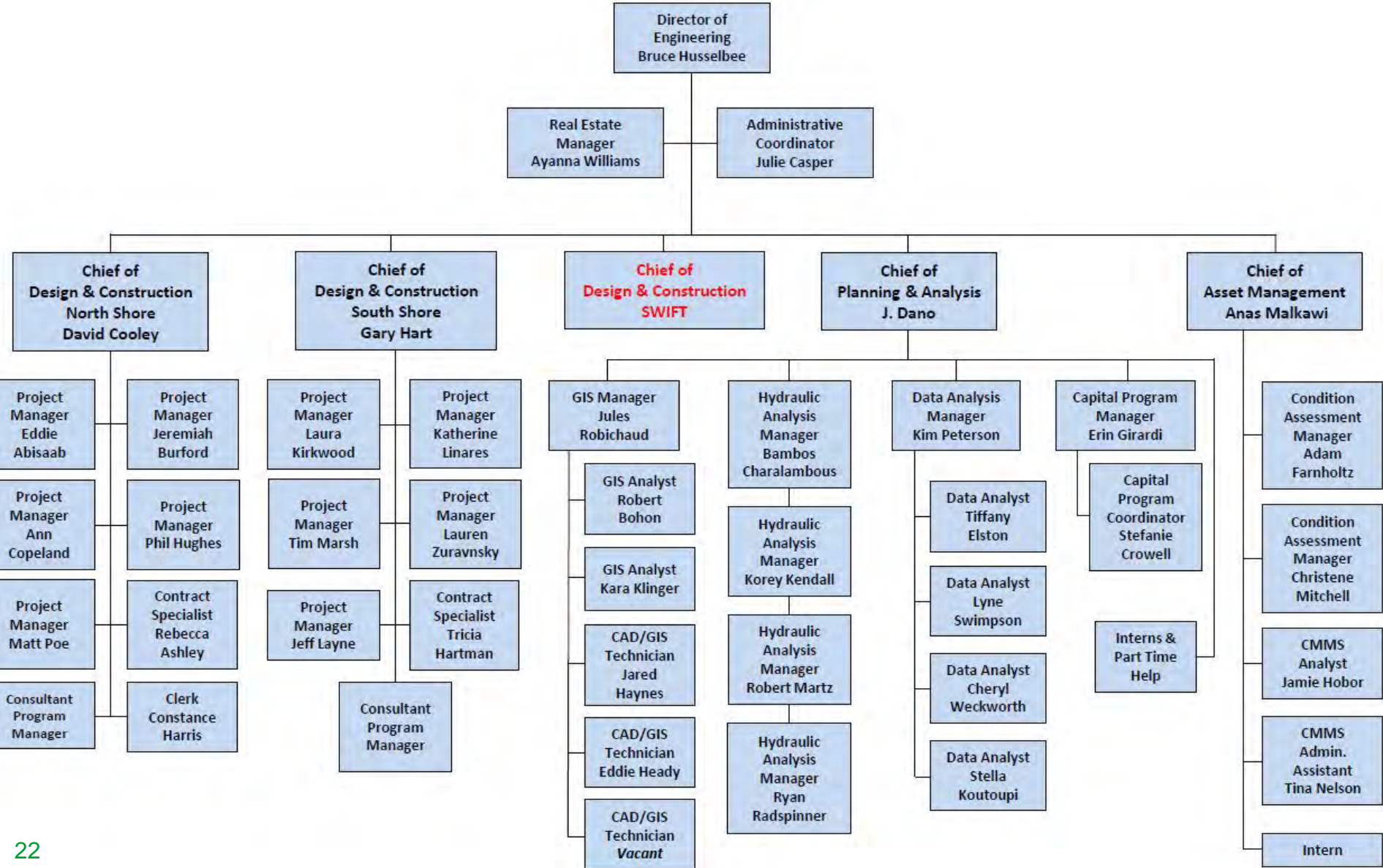
Ref No.	Project Title	Consent Decree Estimate	Authorized/ Completed	Status
52	Virginia Initiative Plant Nutrient Reduction Improvements, Contract A*	\$18,000,000	\$18,343,768	Complete
53	Virginia Initiative Plant Nutrient Reduction Improvements, Contract B*	\$125,000,000	\$135,284,000	Construction
		\$143,000,000	\$153,627,768	
Total for all work:		\$306,800,000	\$395,553,630	

*Project completion date is Dec. 31, 2018.

Project Focus: Engineering Department Organizational Structure and Consulting Engineering Support

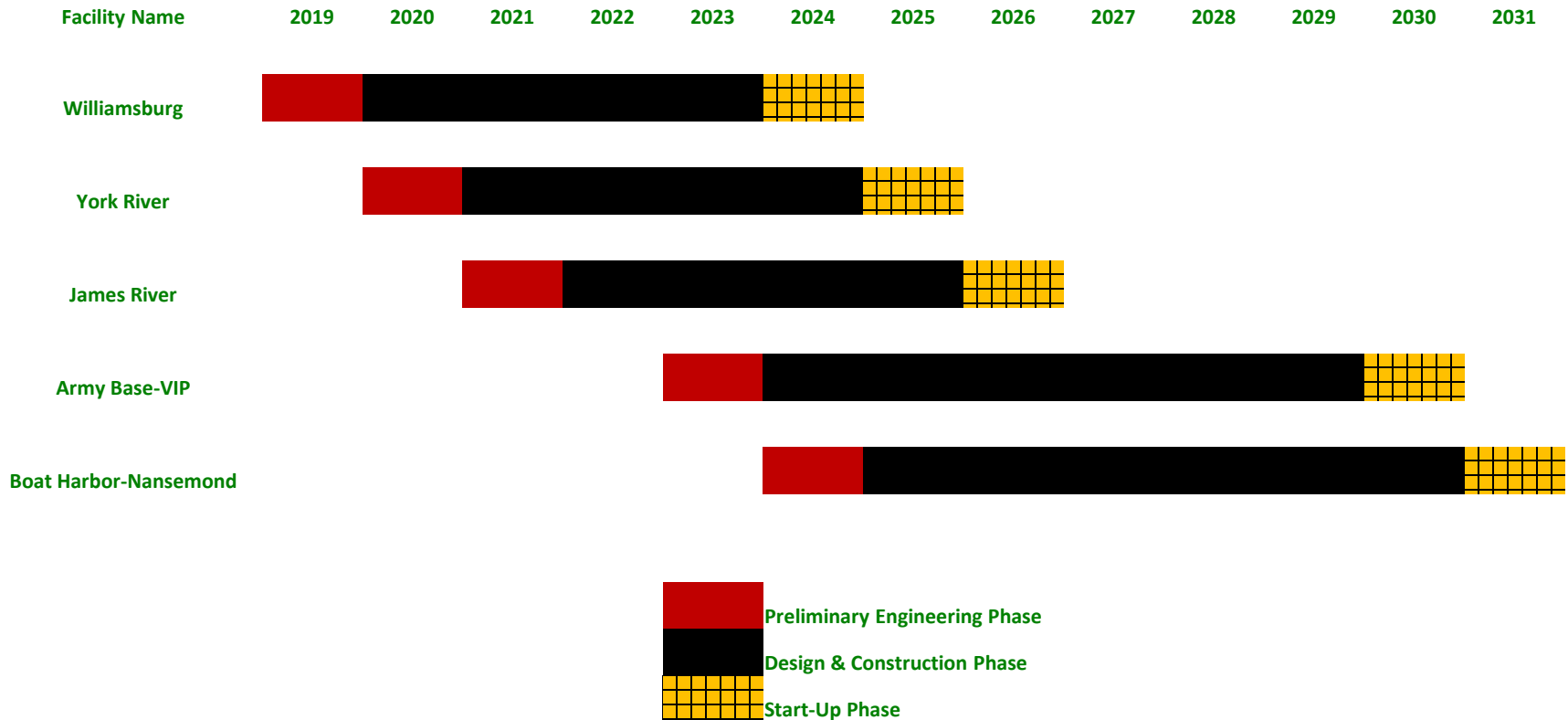


Project Focus: Engineering Department Organizational Structure and Consulting Engineering Support (cont.)



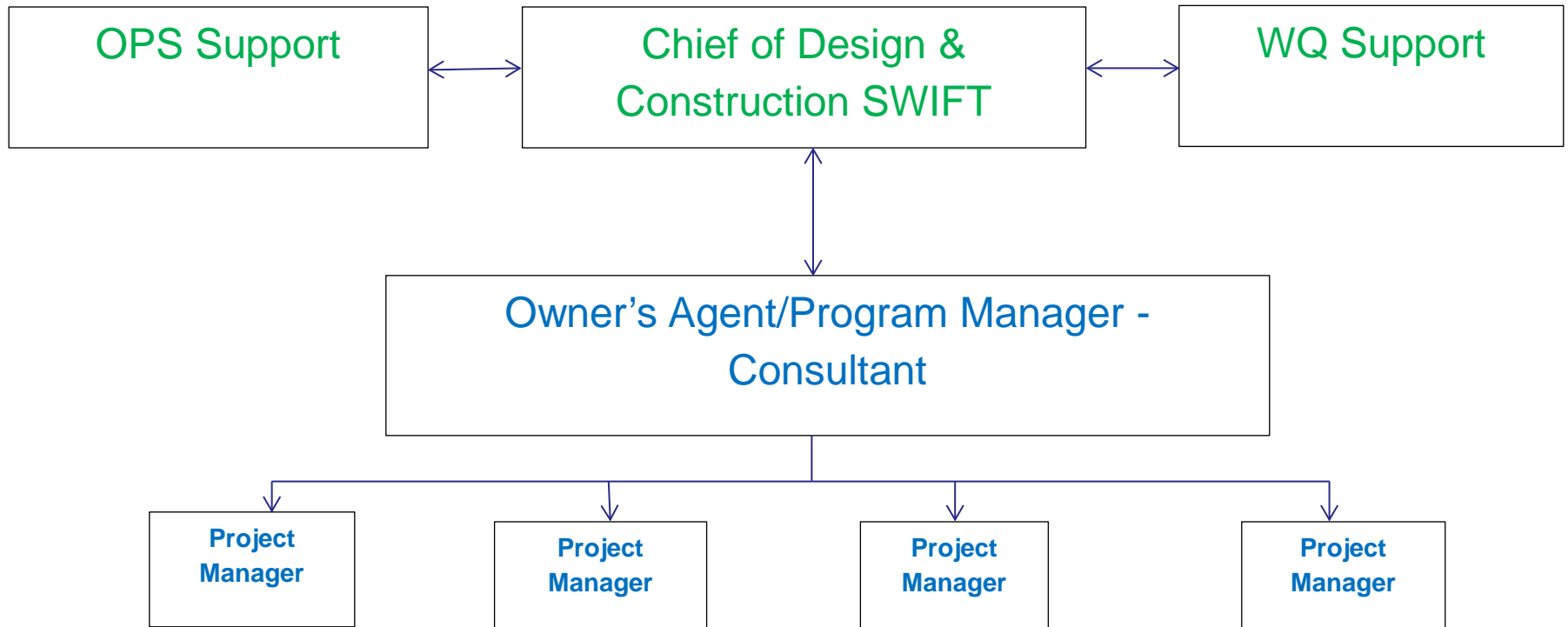
Project Focus: Engineering Department Organizational Structure and Consulting Engineering Support (cont.)

SWIFT Program Implementation



Project Focus: Engineering Department Organizational Structure and Consulting Engineering Support (cont.)

SWIFT Program Management Structure



Notes:

Program Manager provides both Program Management and Project Management functions.

Program Manager also provides Bases of Design Reports (PERs) for each project to allow for D-B Delivery.

Project Focus: Engineering Department Organizational Structure and Consulting Engineering Support (cont.)

Annual Professional Services Contracts

Existing:	Proposed:
<ul style="list-style-type: none">• General Engineering Services (3 firms)• Interceptor Systems• Architectural/Mechanical/Electrical• Structural• Surveying & Related Services• Environmental & Related Services• Real Estate• Corrosion Protection	<ul style="list-style-type: none">• Condition Assessment• Construction Inspection• Force Main Field Services• Gravity Flow Monitoring• Hydraulic Modeling



Questions?

HRSD COMMISSION MEETING MINUTES
February 27, 2018

ATTACHMENT #8

AGENDA ITEM 18. – 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](#)
- e. [Emergency Declaration - Orcutt Avenue and Mercury Boulevard Gravity Sewer Improvements](#)



February 20, 2018

Re: General Manager's Report

Dear Commissioners:

The cold and snowy weather created some operating challenges, particularly with the small community plants during the month. The extended period of sub-freezing temperatures resulted in four permit exceedances on the Middle Peninsula. Three of these were at King William and Urbanna, both above-ground steel-tank facilities, particularly susceptible to cold weather operations.

As is the case with many challenging situations, the best in people is often displayed as they respond to challenges and such was the case with January's snow fall. The teamwork Steve de Mik has worked hard to instill within Operations was on display as everyone pitched in to clear snow from the parking lots and walks, ensuring employees and the public could safely access HRSD facilities. It was an amazing sight to arrive at the Air Rail complex before 6 am and see dozens of Operations employees (including supervisors) with shovels in hand, making fast work of snow removal.

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

- A. **Treatment Compliance and System Operations:** There were two exceedances at King William, one at Urbanna and one at Central Middlesex during the month. These were attributable to the extended cold weather. While operations continue to improve at the Town of Surry plant, the plant remains unable to meet all permit requirements and once again experienced a number of permit issues. Details of these and other issues are included in the Operations Director's report.
- B. **Internal Communications:** I participated in the following meetings/activities with HRSD personnel:
1. Two new employee orientation sessions
 2. A meeting to discuss future partnership opportunities with USGS related to SWIFT
 3. A meeting to discuss the transition from Brown and Caldwell to in-house management of Consent Decree requirements
 4. A meeting to review asset management policy
 5. An internal meeting to review SPSA leachate issues

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6. A meeting to review and select finishes for the SWIFT Research Center
7. A meeting with CH2M to review land needs associated with SWIFT
8. Participated in the internal auditor's out brief of the review of HRSD ethics processes and policies
9. Several meetings to clarify, assemble and review data requested by EPA related to HRSD financial plans

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

1. A meeting with the designers to review status of educational elements for the SWIFT Research Center
2. A meeting with the City of Portsmouth to discuss SWIFT and potential sites for SWIFT facilities
3. A conference call with City of Norfolk staff regarding SWIFT
4. Presented HRSD's experience with regionalization issues for the US Water Alliance's webinar series
5. A meeting with senior leadership from Greeley and Hansen
6. A meeting with Middlesex County officials and the new owner of the Bethpage Campground
7. Several VAMWA Legislative Update conference calls (weekly)
8. A meeting with the Hampton University consultant working on development plans for Strawberry Banks and impact to HRSD facilities
9. A meeting with VDOT Regional Administrator regarding potential purchase of land for a storage tank in Virginia Beach
10. A meeting with senior leadership (board and staff) of SPSA to discuss leachate issues
11. A meeting with senior leadership of Black and Veatch to learn more about their program management experience
12. Conducted a tour of the SWIFT Research Center for Dave Mayfield of the Virginian Pilot
13. Presented a SWIFT overview at the Virginia Drinking Water Clinic hosted by HRSD in partnership with the Virginia Extension Service
14. Attended the annual public meeting for the Consent Decree
15. Participated in the credit surveillance call with Moody's
16. Attended the Elizabeth River Project River Stars Luncheon
17. Briefed Delegate Carr and members of the Joint Legislative Audit and Review Commission (JLARC) Staff on SWIFT and the SWIFT oversight committee and monitoring lab
18. Attended the CBF Legislative Reception
19. Attended a review meeting for the Utility of the Future Today, joint association recognition program at the NACWA offices

20. Participated on a planning call for participation on a panel at the NACWA Winter meeting
21. Met with MEB regarding performance issues on recent contracts

As of today, the legislation to create the SWIFT Oversight Committee and Monitoring Lab (HB771) is moving well through the General Assembly. Commissioner Rodriguez attended the House Agriculture, Natural Resources and Chesapeake Committee meeting where the bill was introduced by Delegate Chris Jones. The bill has now crossed over to the Senate after an affirmative House vote of 97 – 0. All indications are the bill should have no issues in the Senate.

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, February 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 January 2018
DATE: February 15, 2018

A. Publicity and Promotion

1. **“The year HRSD came to Surry”** | January 3, 2018 | [Smithfield Times](#)
Summary: This article is a year-in-review story for new businesses in Surry, which includes HRSD’s assumption of services in the Town of Surry. The story also mentions first bills received by some residents and the future location of Edwards Virginia Smokehouse as it relates to waste disposal because current laws would not permit the smokehouse to operate as it had previously.
2. **“Using wastewater to sustain aquifer”** | January 3, 2018 | [Smithfield Times](#)
Summary: Story highlighted the SWIFT Research Center Construction Tour and Open House event which took place on October 12, 2017 and featured photos of the construction site as well as a photo of HRSD plant staff providing wastewater treatment education to open house attendees.
3. **“‘Green’ fertilizer from wastewater”** | January 3, 2018 | [Smithfield Times](#)
Summary: This story is a result of the October 12 SWIFT Research Center and Open House, which included a tour of the Ostara facility found at the Nansemond Treatment Plant. The feature details how Ostara developed a method to extract struvite and turn it into Crystal Green. It also explains how it works as a fertilizer and also discusses the growing demand for phosphorus worldwide.
4. **ENR’s 2017 Top 25 Newsmakers: “Innovation Addresses Multiple Problems in Hampton Roads”** | January 17, 2018 | [ENR](#) (Engineering News-Record):
<https://www.enr.com/articles/43788-innovation-addresses-multiple-problems-in-hampton-roads>
5. **“Maintenance work on Independence Boulevard postponed, rescheduled”** | January 19, 2018 | [Southside Daily](#)
<https://southsidedaily.com/local-news/2018/01/19/maintenance-work-on-independence-boulevard-postponed-rescheduled/>

6. **“Sustained Distinguished Performance 2018 | River Stars”** | January 19, 2018 | Inside Business, The Hampton Roads Business Journal
https://pilotonline.com/inside-business/special-reports/elizabeth-river-stars/article_8b1a873d-517c-5b1e-8245-92e7cd1de9b3.html
7. **“Work scheduled for Town Point Road”** | January 23, 2018 |Suffolk News Herald <http://www.suffolknewsherald.com/2018/01/23/work-scheduled-for-town-point-road/>
8. **“A ‘SWIFT’ Approach To Managed Aquifer Recharge”** | January 24, 2018 | Water Online <https://www.wateronline.com/doc/a-swift-approach-to-managed-aquifer-recharge-0001>
9. **“In using wastewater to fight sea level rise, will beer be an additional benefit?”** |January 25, 2018 | The Virginian Pilot
https://pilotonline.com/news/local/environment/article_a5fc3267-08c6-5f90-bd41-67b4868de4ed.html

B. Social Media and Online Engagement

1. Facebook Reach: 2,937
2. Twitter: 9,632 impressions
3. SWIFT website visits: 466
4. LinkedIn: 1,696 impressions
5. Construction Project Page Hits: 6,578

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

1. News Releases/Traffic Advisories: 7
2. Advertisements: 1 (well water testing clinic ad, ran in three publications)
3. Project Notices: 2
 - a. [Kecoughtan Road Gravity Sewer Pipeline Replacement](#) (Hampton)
 - b. [Chesapeake Avenue Force Main Replacement](#) (Hampton)
4. New Project Web Pages/Blogs/Videos: 1

Blog post: [“What’s in Your Effluent?”](#) (HRSD staff assisted/co-authored this post with Ocean Lakes High School student, Sarah Scharf.)

D. Special Projects and Highlights

1. The Director of Communications, together with the General Manager and water quality staff participated in a well water testing clinic in partnership with Virginia Tech and the Virginia Cooperative Extension office. Approximately 25 well users attended and participated in the clinic, which served to educate them on the Sustainable Water Initiative for Tomorrow (SWIFT) and allow HRSD to supplement its research with baseline information derived from the water sample testing. A results meeting is scheduled for February 22.
2. Director met with the Hampton Roads Community Foundation scholarship administrator to discuss the HRSD Environmental Scholarship and review award history and scholarship criteria.
3. Director attended the Elizabeth River Project's River Star Luncheon, where HRSD received the 2018 award for Sustained Distinguished Performance.
4. Director attended Freedom of Information (FOIA) training workshop.
5. Director attended a Public Relations Society of America (PRSA) professional development workshop for 2018 content calendar development.
6. Staff attended the askHRgreen.org Green Learning Workgroup Meeting.
7. Staff participated in community outreach assistance with consultant, Brown & Caldwell.

E. Internal Communications

1. The Director of Communications and staff continue meeting weekly with web designers, advancing the redesign of the HRSD.com website. New website launch is tentatively expected for April 2018.
2. Director also participated in the following internal meetings:
 - a. Asset Management communications plan implementation
 - b. HRSD Environmental Grant application review
 - c. Senior Leadership meeting
 - d. New employee orientation meetings (2)

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.

F. Metrics

1. Educational and Outreach Activities: 1
 - a. John Yeates Middle School (Suffolk), Washing Water activity 1/31
2. Number of Community Partners: 1
 - a. John Yeates Middle School
3. Additional Activities Coordinated by Department: 1
 - a. Uploaded videos to WHRO Environmental Education program as educational partner/contributor, 1/9

Item #	Strategic Planning Measure	Unit	January 2018
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	44.5
M-5.2	Educational and Outreach Events	Number	1
M-5.3	Number of Community Partners	Number	1

Respectfully,

Leila Rice, APR
Director of Communications

TO: General Manager
FROM: Director of Engineering
SUBJECT: Engineering Monthly Report for January 2018
DATE: February 12, 2018

A. General

1. Capital Improvement Program (CIP) spending for the sixth month of Fiscal Year 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	7.91	51.29
Plan	12.43	89.38

No WQIF Grant reimbursements were received in the month of January.

2. Construction efforts were slowed in January due to very cold weather and two significant snow events. These conditions impact our ability to place concrete and install asphalt pavement. The weather has been dryer than normal over the last few months, limiting project delays thru the winter season and lowering groundwater levels which is beneficial when installing buried pipelines.
3. Due to staffing changes within the Operations Department, the Engineering Department was fortunate to add Mr. Jeff Layne as a South Shore Design and Construction Project Manager. Jeff was the Plant Manager at both the Atlantic and Chesapeake-Elizabeth Treatment Plants and this experience will be valuable as he manages projects for the Engineering Department. In addition, Jeff has previous experience working for the City of Virginia Beach, Norfolk Naval Shipyard and a consulting engineering firm.

B. Asset Management Division

1. Preparation of a Strategic Asset Management Plan (SAMP) has begun. The SAMP serves many purposes including:
 - Describes the strategic context and stakeholder requirements in which the assets need to be operated and maintained.

- Communicates clear rationale and objectives, providing a line of sight between asset-related organizational objectives.
 - Provides internal stakeholders with direction for developing the long-term management of the assets.
2. A Request for Proposals (RFP) is being prepared to provide annual services for future Condition Assessment support. This will be a one-year contract with the option to extend for an additional four years to address program requirements, force main and gravity sewer assessments, corrosion evaluations and infrastructure investment planning. This RFP will be issued in the coming months and the services will be ready to begin in July 2018.

C. North Shore and South Shore Design & Construction Divisions

1. Construction efforts continue on the Sustainable Water Recycling Phase 3 (SWIFT Research Center) project. This project is being delivered using a Design-Build method that allows for a fast-track schedule. The contractor is installing the exterior metal siding, painting, plumbing, electrical, process piping and equipment installation. Site grading and exterior yard piping work is also proceeding. The contractor is using two shifts to keep this project moving forward. The Research Center's interpretive learning material has been approved and will be installed soon. The project team is working closely to address the start-up of the facility which should begin in February. The project is planned for completion in April 2018.
2. Progress continues on construction of the Virginia Initiative Plant (VIP) Nutrient Reduction Improvements project. The first part of the project (Group 1) involves the nutrient reduction portion of the project. This segment of the project reached substantial completion in March 2017. The versatile bioreactor was placed into service in 2017 and the plant is now feeding methanol. The contractor is focused on addressing punch list items associated with this work. The second part of the project (Group 2) involves construction of the plant peak flow capacity improvements. Ongoing work as part of this phase includes equipment installation located within the Preliminary Treatment Facility, electrical improvements and large diameter yard piping installation. The substantial completion date for this part of the project is June 28, 2018 with a final completion date of August 27, 2018. This is HRSD's largest single CIP project, and work will continue through the end of 2018. The project team is working well together and this effort is an example of good planning and communication.

This project is partially funded through a Water Quality Improvement Fund (WQIF) grant and HRSD should receive \$46 million as part of the cost sharing agreement with the Virginia Department of Environmental Quality (VDEQ).

D. Planning & Analysis Division

1. Preparation of the Fiscal Year 2019 CIP continues. Internal coordination meetings with the Operations Department have been held to discuss new projects and update existing efforts. CIP project updates were received in January and the first CIP Review Meeting has been scheduled for March 1. 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.
2. Staff continues to assist with implementation of the SWIFT Program. The following efforts are underway:
 - The Underground Injection Control Package was recently submitted to the USEPA.
 - The Ribbon Cutting Event for the Demonstration Facility is planned for May 18.
 - The concept design and estimate for the Williamsburg SWIFT Facility has been finalized. The updated cost estimate is now \$112.4M.
 - The overall SWIFT Program cost is under review and specific projects are being outlined for the next CIP update.
 - A meeting was held with staff from Virginia Tech to discuss future long-term groundwater and subsurface research.

E. Strategic Planning Metrics Summary

1. Educational and Outreach Events: 2
 - a. Staff acted as a moderator at the American Water Works Association (AWWA) International Symposia for Potable Reuse in a session entitled, "Source Control," on January 22.
 - b. Staff taught a class on Engineering and Surveying at the Hampton Roads Public Works Academy on January 30.

2. Number of Community Partners: 2
 - a. AWWA
 - b. Hampton Roads Public Works Academy
3. Number of Research Partners: 0

Item #	Strategic Planning Measure	Unit	January 2018
M-1.4a	Total Training Hours per Full Time Employee (40) - Current Month	Hours / #FTE	1.58
M-1.4b	Total Training Hours per Full Time Employee (40) - Cumulative Fiscal Year-to-Date	Hours / #FTE	17.67
M-5.2	Educational and Outreach Events	Number	2
M-5.3	Number of Community Partners	Number	2
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 January 2018
DATE: February 14, 2018

A. General

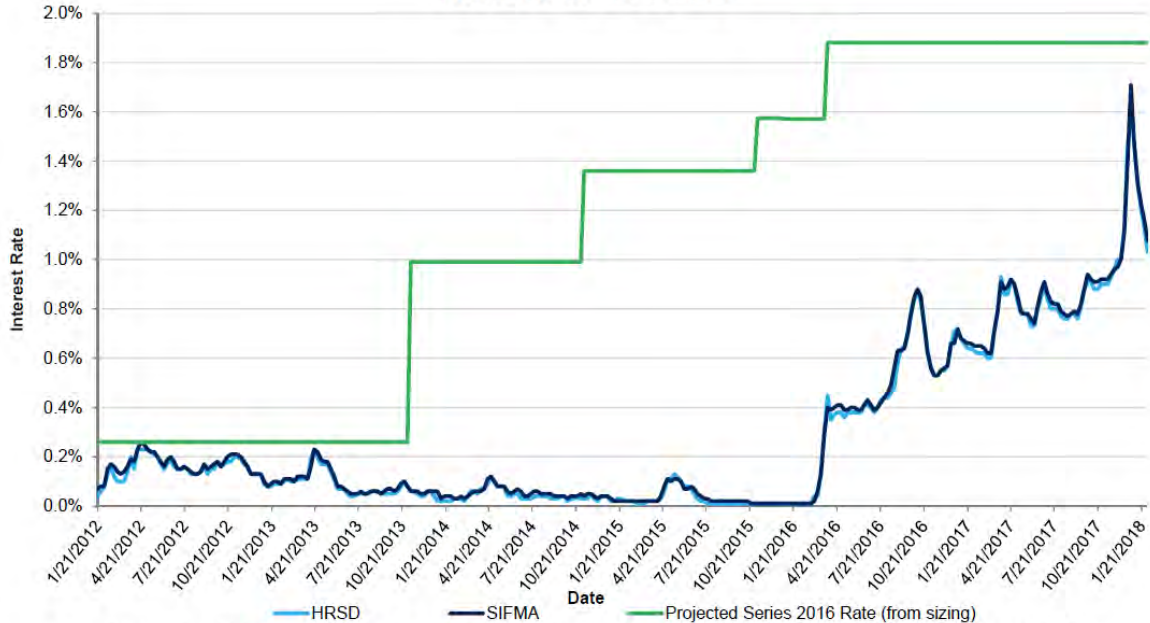
1. In January, the Customer Interaction Center experienced a slight service level improvement despite the continued heavy volume of interactions. January marked the completion of customers receiving their initial bills from our new vendor, resulting in less calls related to enrollment for the new online payment service. There is still a significant volume of calls regarding automatic payments and the lost linkage to individual bank bill-pay systems. Staff is working diligently to implement Fiserv's services to restore this service. In the meantime, these customers will receive paper bills but retain the ability to pay their bill through their bank's web bill pay feature, or they can register online with HRSD and sign up for auto-pay.
2. The two inclement weather events in January affected the jurisdictions' meter readings. Some jurisdictions estimated meter readings and others delayed meter readings until the snow melted. The delayed and estimated meter readings caused a substantial amount of calls from customers related to larger bill amounts and extended bill periods.
3. Revenues continue to track higher than expenses and are generally in-line relative to this point last year. Water consumption trend is flat compared to last year and the three-year average. Overall expenses are lower than budget. Personal Services and Fringe are generally in-line with current and prior year budget. Capital Asset expenses are slightly higher with the \$250,000 land acquisition.
4. HRSD successfully sold \$63.185 million in par (\$75 million in net proceeds with the bond premiums) through our first competitive bond sale on January 23, 2018. We received a strong response from underwriters with 10 bids total and a spread of less than 0.06 percent between the highest and lowest bid. Pricing on the bonds was very strong, with spreads relative to market indices lower than on each of HRSD's bond sales over the past five years. Bank of America Merrill Lynch submitted the winning bid that was 0.02 percent lower than the next bid. This timing was optimal as interest rates increased by 0.22 percent as of February 12th, which would have increased our total interest cost by approximately \$3.4 million.
5. The recently approved Tax Reform created significant volatility for our \$50 million Variable Rate Demand Bonds (VRDBs) in January. Money managers liquidated short-term assets to buy municipal bonds in December as Advanced Refundings were eliminated, which caused our VRDBs to spike from 1.00 percent up to 1.63 percent. With the lack of municipal bond issuance in January, which was approximately 45.7 percent lower than this time last year, money managers began parking their January principal repayments in short term tax-exempt debt like our VRDBs. The dealers' unsold inventories declined from about \$5 billion down to \$1 billion. The high demand drove our VRDB rate down to 1.03 percent, which is in contrast to our Local Government

Investment Pool (LGIP) investment yielding 1.50 percent. We expect continued volatility this year as the market digests the Tax Reform changes.



Hampton Roads Sanitation District Subordinate Wastewater Revenue Bonds, Series 2016

Reset Rates vs SIFMA



Note: Prior to the date of defeasance, the Projected Series 2011 Rate is based on the Series 2011 Final Numbers DBC sizing. The interest rate was equal to the 2-year average of SIFMA (0.26%) for the first two years and, beginning after 11/1/2013, gradually increased from 0.26% to the 20-year average of 2.50%.

The Projected Series 2016 Rate is based on the Series 2016 Final Numbers DBC Sizing, assuming the 20-yr. average of SIFMA (1.88%) from the date of defeasance (4/1/2016) to present.

- The Financial Ratio table was modified to include Days Cash on Hand (DCOH) to represent our liquidity. Previously, this was "General Reserve as a percent of Operations". Paygo cash used for capital projects is considered unrestricted and **included** within DCOH. Bond proceeds are considered restricted and are **not included** within DCOH.

B. Interim Financial Report

1. Operating Budget for the Period Ended January 31, 2018

	Amended Budget	Current YTD	Current YTD as % of Budget (58% Budget to Date)	Prior YTD as % of Prior Year Budget
Wastewater	\$ 265,662,693	\$ 159,576,590	60%	61%
Surcharge	1,900,000	872,458	46%	74%
Indirect Discharge	2,500,000	1,573,495	63%	63%
Norfolk Sludge	90,000	39,876	44%	48%
Fees	2,935,000	1,650,326	56%	62%
Municipal Assistance	700,000	449,676	64%	42%
Miscellaneous	720,000	651,424	90%	74%
Total Operating Revenue	274,507,693	164,813,845	60%	61%
Non Operating Revenues				
Facility Charge	6,000,000	3,646,385	61%	60%
Interest Income	1,800,000	1,608,165	89%	16%
Build America Bond Subsidy	2,400,000	1,168,524	49%	50%
Other	845,000	872,606	103%	48%
Total Non Operating Revenue	11,045,000	7,295,680	66%	51%
Total Revenues	285,552,693	172,109,525	60%	60%
Transfers from Reserves	9,760,286	5,693,500	58%	58%
Total Revenues and Transfers	\$ 295,312,979	\$ 177,803,025	60%	60%
Operating Expenses				
Personal Services	\$ 53,773,327	\$ 31,538,198	59%	58%
Fringe Benefits	24,700,569	14,621,929	59%	58%
Materials & Supplies	7,399,704	4,180,563	56%	56%
Transportation	1,423,974	646,035	45%	51%
Utilities	11,973,115	6,355,235	53%	52%
Chemical Purchases	10,620,594	4,657,607	44%	49%
Contractual Services	36,900,038	17,429,569	47%	47%
Major Repairs	10,429,168	3,347,252	32%	37%
Capital Assets	1,716,528	1,110,644	65%	44%
Miscellaneous Expense	2,396,234	1,452,128	61%	55%
Total Operating Expenses	161,333,251	85,339,160	53%	53%
Debt Service and Transfers				
Debt Service	59,949,120	34,654,841	58%	62%
Cost of Issuance Bonds	900,000	595,569	66%	0%
Transfer to CIP	58,802,000	34,301,167	58%	58%
Transfer to General Reserve	14,068,608	8,206,688	58%	0%
Transfer to Risk management	260,000	151,673	58%	58%
Total Debt Service and Transfers	133,979,728	77,909,938	58%	60%
Total Expenses and Transfers	\$ 295,312,979	\$ 163,249,098	55%	56%

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 January 31, 2018

	General	Risk Management	Reserve	Capital
Beginning of Period - July 1, 2017	\$ 169,127,728	\$ 3,000,520	\$ 30,760,330	\$ 37,452,225
Add: Current Year Sources of Funds				
Cash Receipts	169,359,563			
Capital Grants				2,946,739
Line of Credit				-
Bond Proceeds (includes interest)				273,602
Transfers In	494,006	151,673		34,301,167
Sources of Funds	<u>169,853,569</u>	<u>151,673</u>	<u>-</u>	<u>37,521,508</u>
Total Funds Available	<u>\$ 338,981,297</u>	<u>\$ 3,152,193</u>	<u>\$ 30,760,330</u>	<u>\$ 74,973,733</u>
Deduct: Current Year Uses of Funds				
Cash Disbursements	123,729,688			62,107,400
Transfers Out	34,452,840		494,006	-
Uses of Funds	<u>158,182,528</u>	<u>-</u>	<u>494,006</u>	<u>62,107,400</u>
End of Period - January 31, 2018	<u>\$ 180,798,769</u>	<u>\$ 3,152,193</u>	<u>\$ 30,266,324</u>	<u>\$ 12,866,333</u>

4. Capital Improvements Budget and Activity Summary for Active Projects for the Period Ended January 31, 2018

Classification/ Treatment Service Area	Expenditures		Year to Date		Total Expenditures	Outstanding Encumbrances	Available Balance
	Budget	prior to June 30, 2017	FY 2018 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	1,626,784	122,154,084	5,448,966	30,980,950	
Atlantic	119,731,914	42,154,292	5,269,296	47,423,588	55,406,738	16,901,588	
Boat Harbor	102,484,447	42,142,558	6,429,468	48,572,026	7,486,242	46,426,179	
Ches-Eliz	148,955,317	6,729,890	1,564,469	8,294,359	4,884,806	135,776,152	
James River	90,011,312	50,821,444	2,609,341	53,430,785	4,708,398	31,872,129	
Middle Peninsula	48,732,269	6,398,032	782,975	7,181,007	3,958,014	37,593,248	
Nansemond	78,546,570	33,846,838	2,276,415	36,123,253	4,458,697	37,964,620	
Surry	3,236,000	-	53,643	53,643	17,539	3,164,818	
VIP	272,689,561	229,739,637	11,246,475	240,986,112	14,086,516	17,616,933	
Williamsburg	16,156,843	8,937,934	(203,543)	8,734,391	832,937	6,589,515	
York River	45,537,761	39,366,401	243,443	39,609,844	2,131,987	3,795,930	
General	245,158,797	166,626,067	19,417,305	186,043,372	27,161,225	31,954,200	
	<u>\$ 1,385,070,502</u>	<u>\$ 786,931,857</u>	<u>\$ 51,635,459</u>	<u>\$ 838,567,316</u>	<u>\$ 131,445,152</u>	<u>\$ 415,058,034</u>	

5. Debt Management Overview

	Debt Outstanding (\$000's)					
	Principal Dec 2017	Principal Payments	Principal Draws	Principal Adj FY18 Bonds	Principal Jan 2018	Interest Payments
Fixed Rate						
Senior	\$ 342,818	\$ (2,580)	\$ -	\$ -	\$ 340,238	\$ (3,047)
Subordinate	371,276	(42)	-	-	371,234	(9)
Variable Rate						
Subordinate	50,000	-	-	-	50,000	(54)
Line of Credit						
	-	-	-	-	-	-
Total	<u>\$ 764,094</u>	<u>\$ (2,622)</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ 761,472</u>	<u>\$ (3,110)</u>

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

	SIFMA Index	HRSD	Spread to SIFMA
Maximum	1.71%	1.63%	-0.08%
Average	0.27%	0.27%	0.00%
Minimum	0.01%	0.01%	0.00%
As of 2/2/18	1.08%	1.03%	-0.05%

* Since October 20, 2011 HRSD has averaged 27 basis points on Variable Rate Debt

6. Financial Performance Metrics for the Period Ended January 31, 2018

	Current YTD	Policy Minimum
Days Cash on Hand	462 days	270-365 days
Days Cash on Hand (Excl Reserve \$30.3m and Risk Mgmt	394 days	270-365 days
Risk Management Reserve as % of Projected Claims Cost:	25%	25%

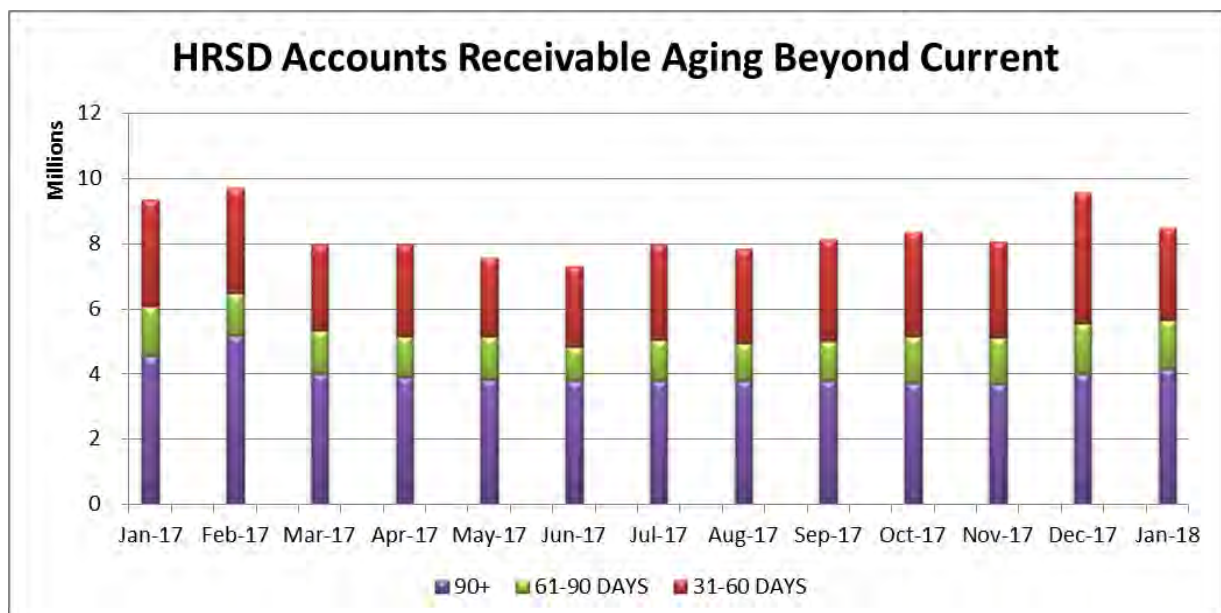
Total Return Strategy						
	Market Value June 30, 2017	YTD Buy/Sell	YTD Change in Market Value	YTD Adjustments	Market Value January 31, 2018	
Investment Activity	\$ 123,687,020	\$ 1,023,062	\$ (1,153,309)	\$ -	\$ 123,556,773	
Investment Cash	\$ 157,418	\$ 32,649			\$ 190,067	
Unrestricted Reserve Fund	30,760,330			(494,006)	30,266,324	
	\$ 154,604,768	\$ 1,055,711	\$ (1,153,309)	\$ (494,006)	\$ 154,013,164	

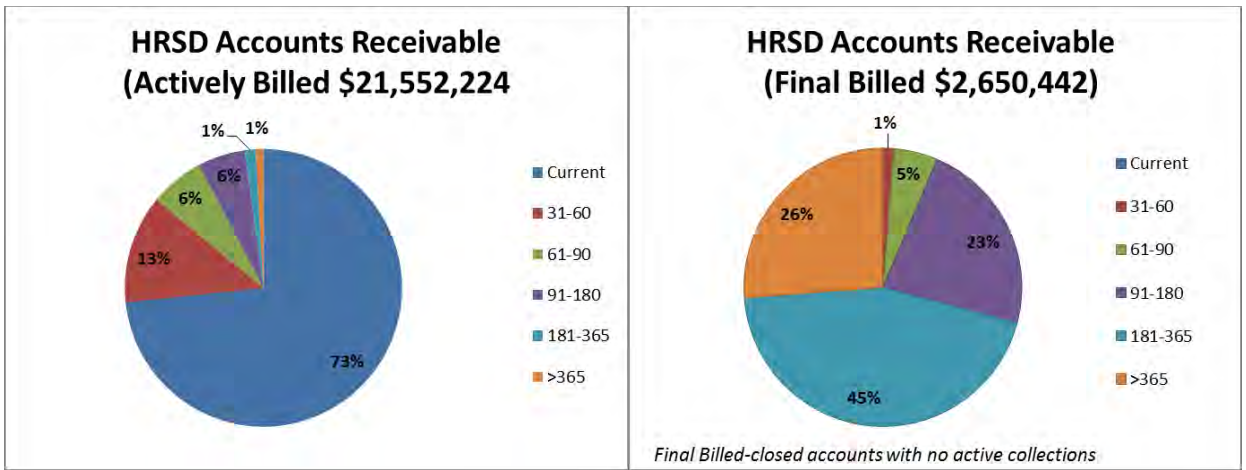
7. Summary of Billed Consumption

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	-	N/A	36,263	N/A	35,878	N/A
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

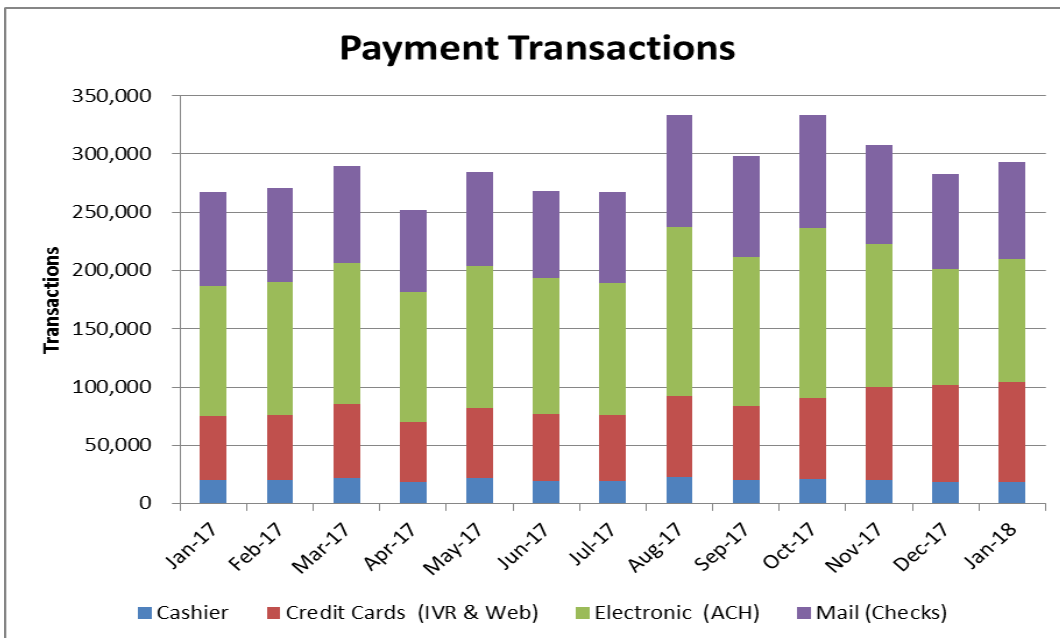
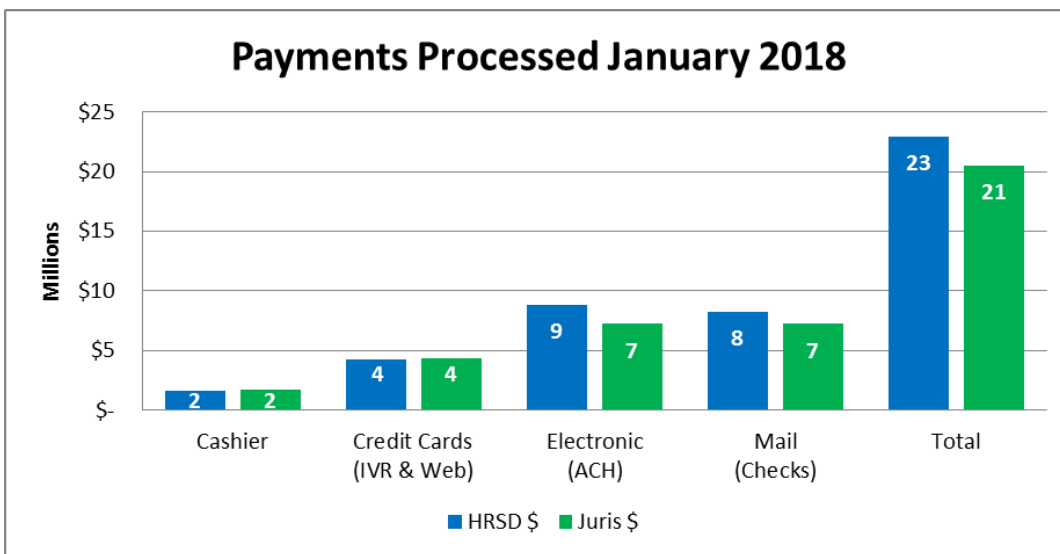
C. Customer Care Center

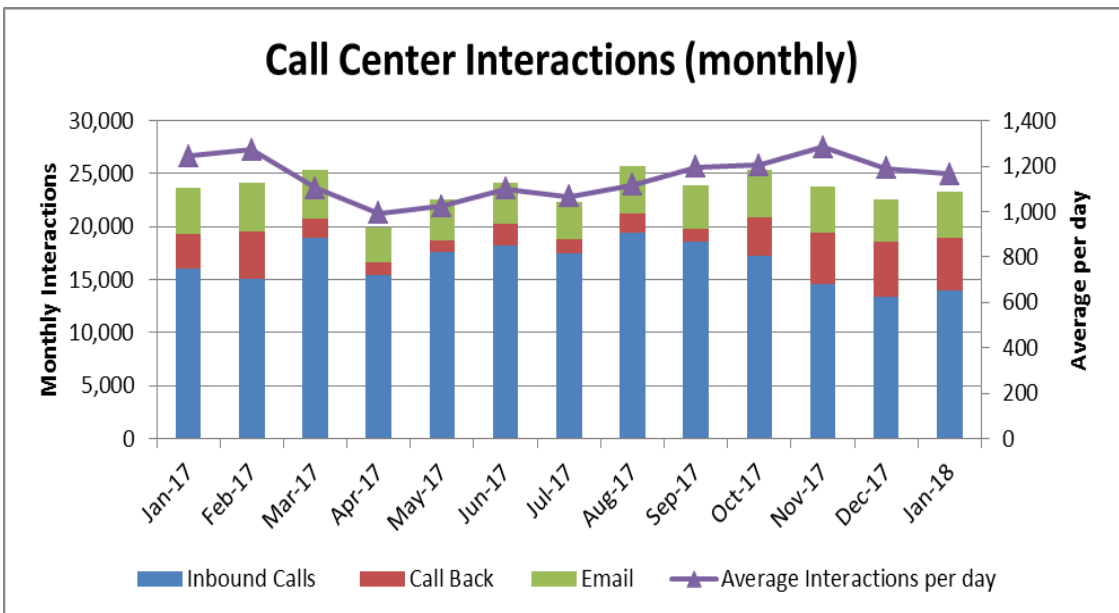
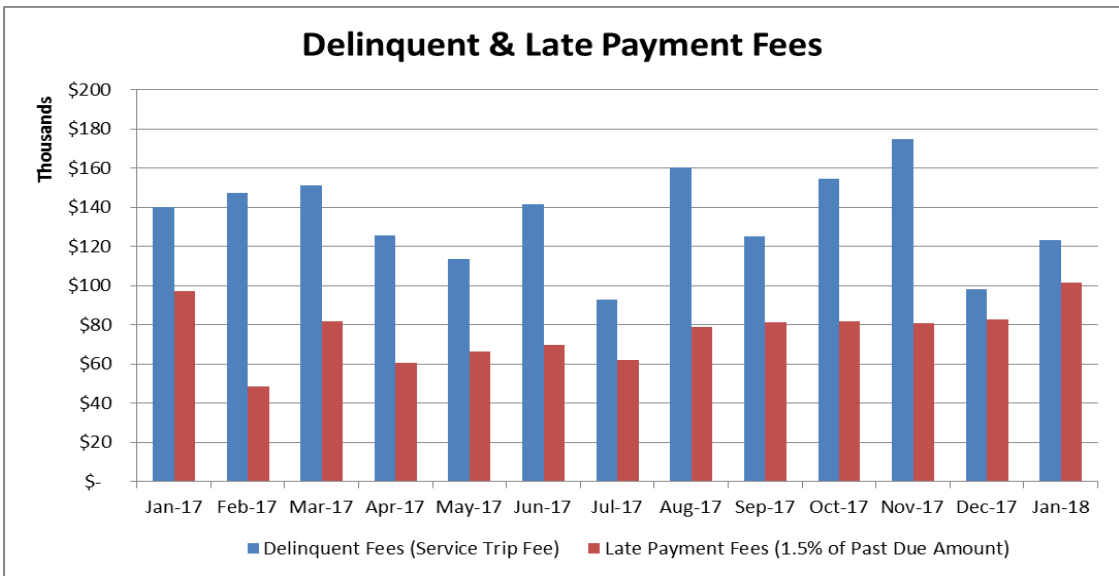
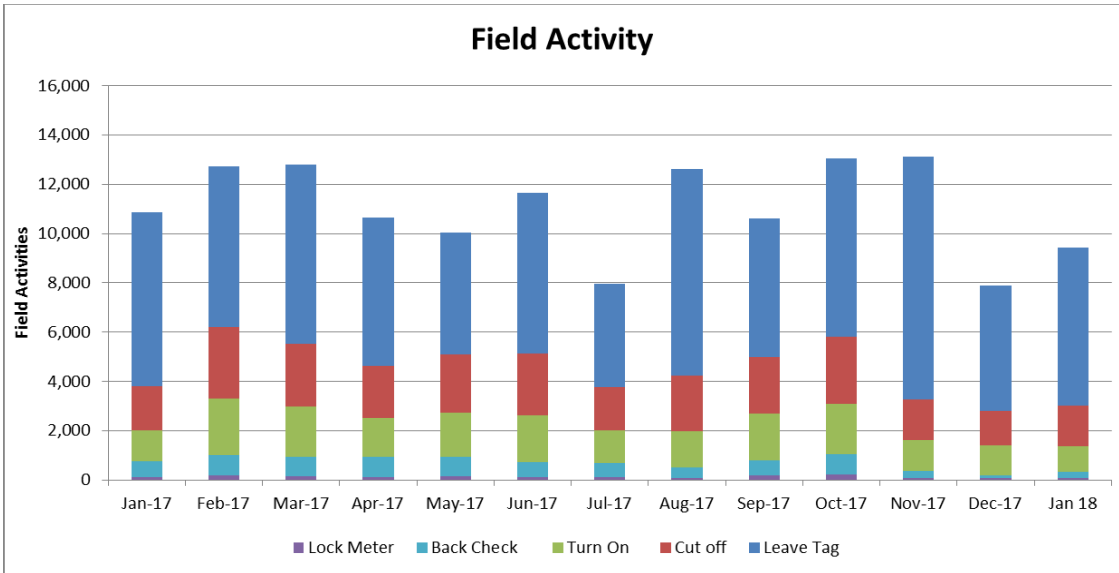
1. Accounts Receivable Overview

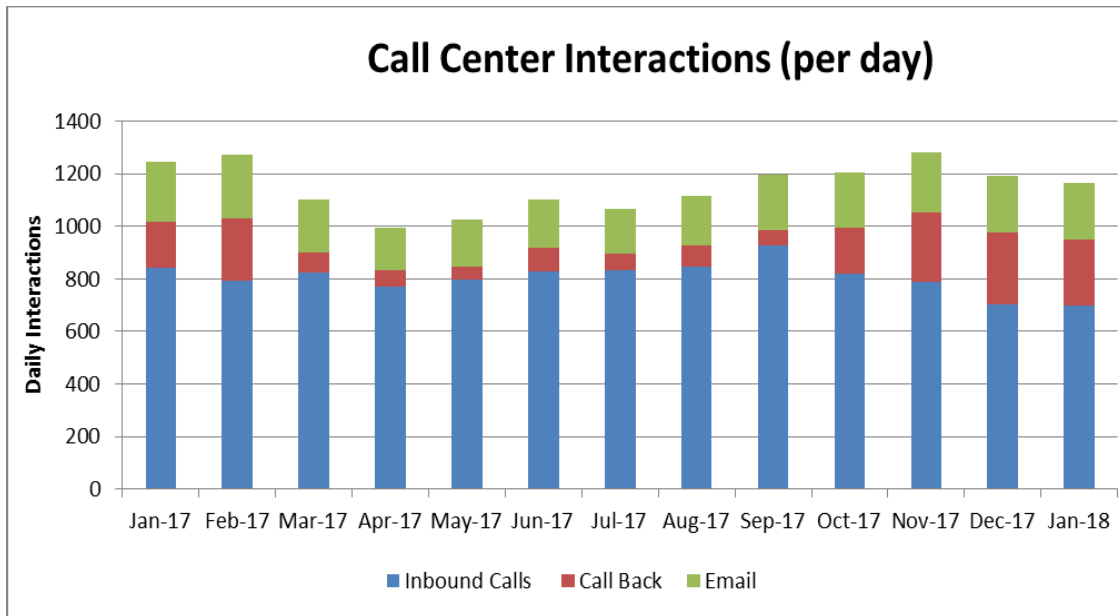




2. Customer Care Center Statistics







Customer Interaction Statistics	Aug	Sep	Oct	Nov	Dec	Jan
Calls Answered within 3 minutes	75%	81%	58%	45%	45%	49%
Average Wait Time (minutes)	2:04	1:33	3:51	5:50	6:39	5:41
Calls Abandoned	8%	7%	13%	18%	18%	17%

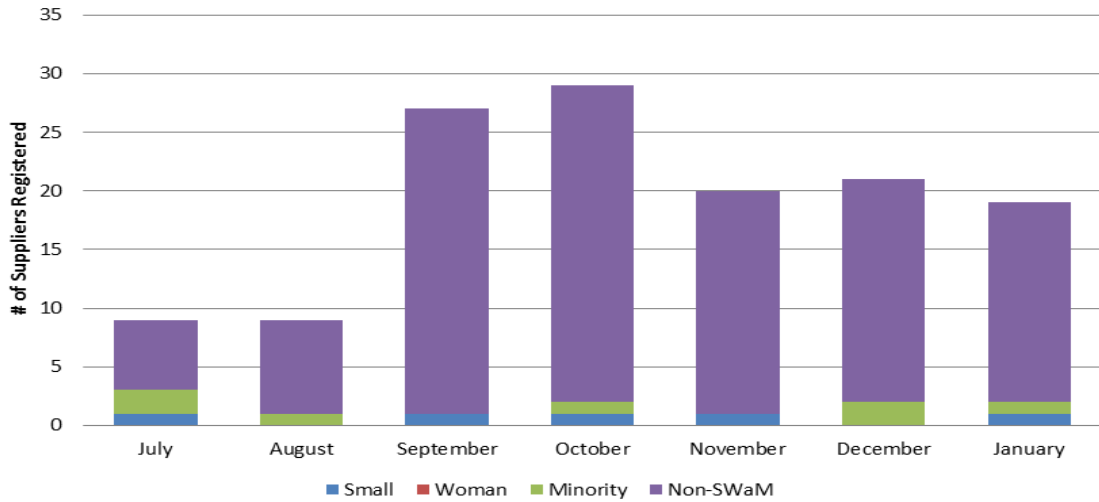
D. Procurement Statistics

Savings	Current Period	FYTD
Competitive Savings ¹	\$31,723	\$652,539
Negotiated Savings ²	\$130,290	\$2,107,545
Salvage Revenues	\$436	\$32,502
Corporate VISA Card - Estimated Rebate	\$15,029	\$127,962

¹ Competitive savings are those savings obtained through the informal/formal bidding process. All bids received (except for the lowest responsive/responsible bid) added together and averaged. The average cost is subtracted from the apparent low responsive/responsible bidder.

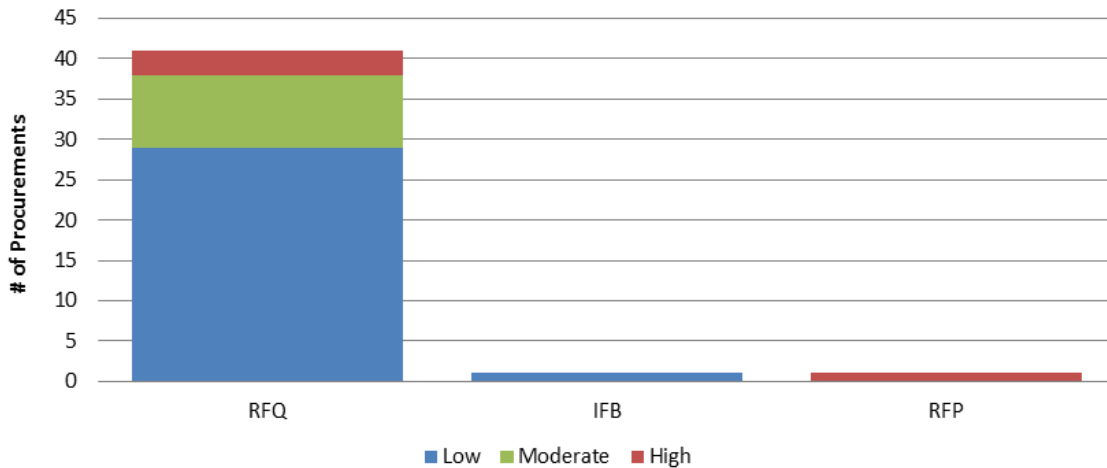
² Negotiated savings are savings obtained during a Request for Proposal process, or if all bids received exceed the budgeted amount, or if only one bid is received.

New Suppliers Registered in ERP

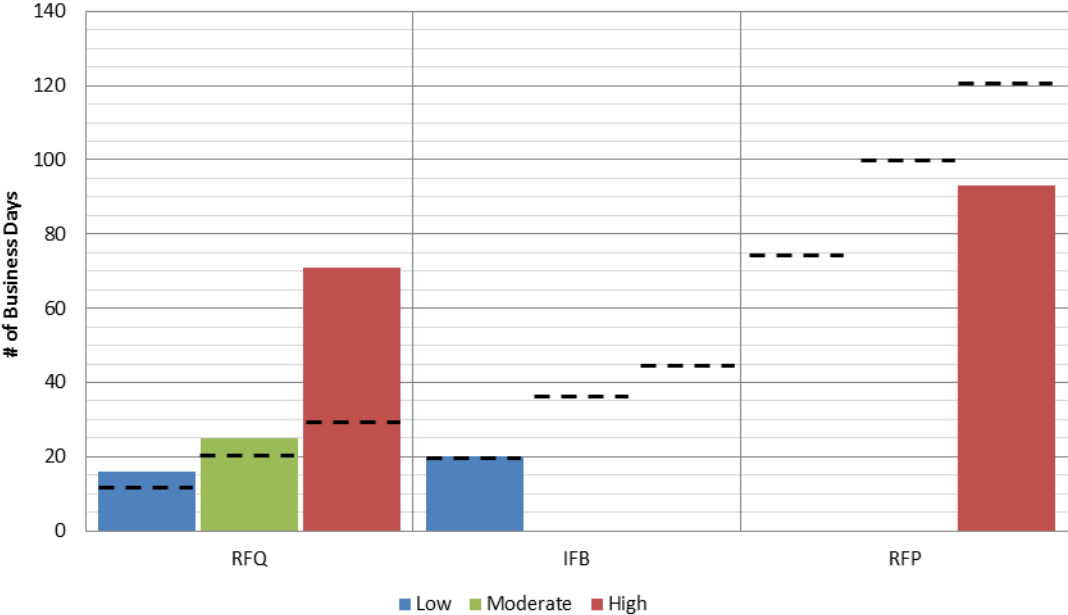


**Increased supplier registration due to supplier outreach at NIGP Forum 8/29/17, Water Jam 9/13/17, VASCUPP® SWaMFest 10/4/17, City of Richmond OMBD and CVMSSDC, Procure Your Business Conference 10/18/17, Virginia Beach Minority Business Council Conference and Expo 11/2/17, CNU SWaM Fair 11/9/17, DGS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

Procurements Completed Based on Complexity



Cycle Time per Method of Procurement and Complexity

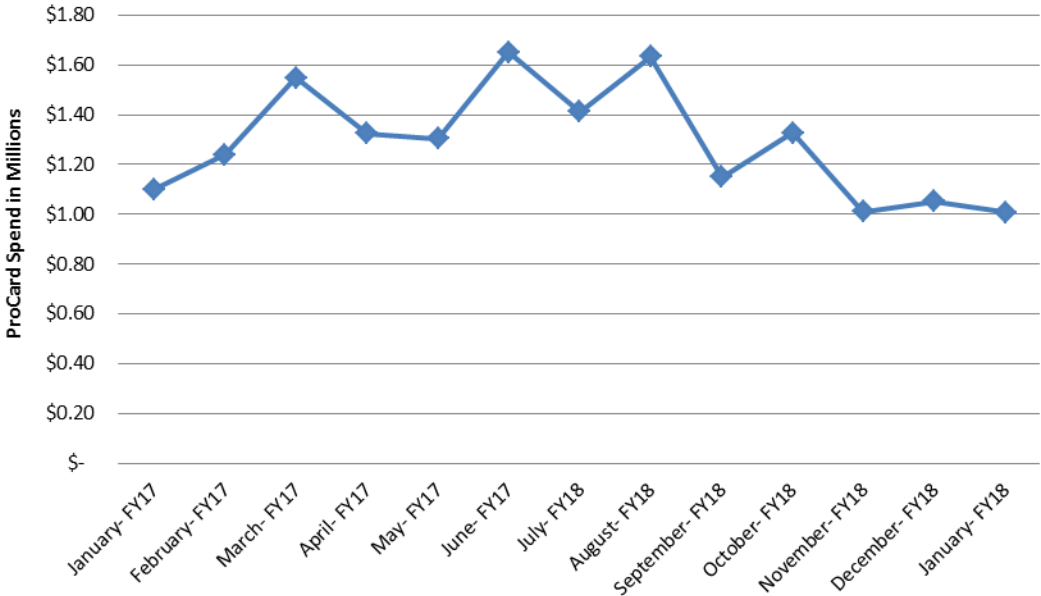


Dashed Line: Target Service Level Cycle Time

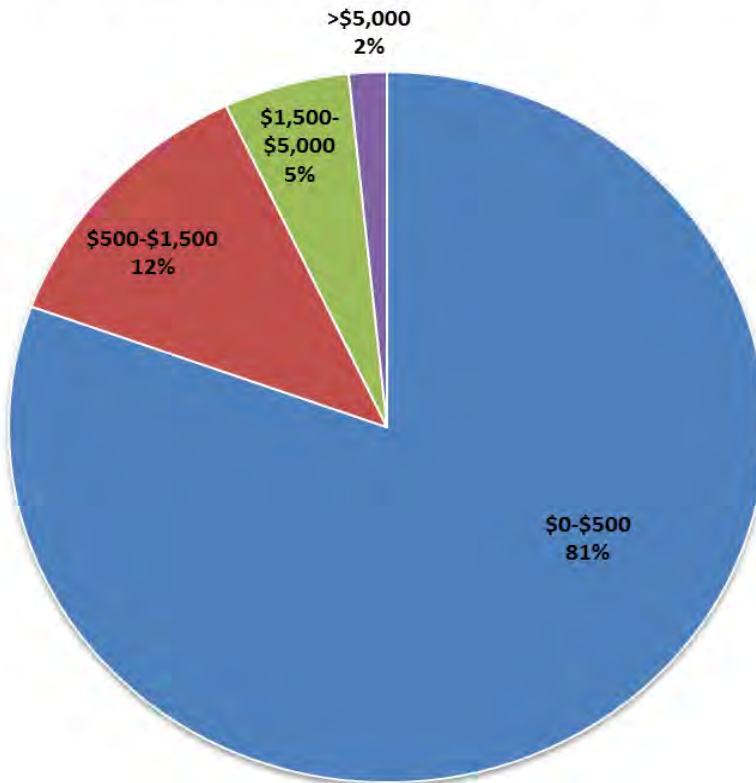
	Low	Moderate	High
RFQ	12	20	30
IFB	20	35	45
RFP	75	100	120

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

ProCard Spend



January 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	
Total	16	

***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 January's ProCard transactions.

Procurement Client Training		
	Current Period	YTD
ProCard Policy and Process	6	36
Procurement Cycle	0	10
Additional Training Provided	0	0
Total	6	46

E. Business Intelligence – Enterprise Resource Planning (ERP)

1. ERP Helpdesk currently has 239 open work orders in the following statuses: 5 escalated, 78 in progress, 16 on hold, 138 open, 2 waiting on user. ERP Helpdesk received 157 work orders in January. In January, 241 work orders were closed and 41 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: 1
 - a. 2018 Carolinas-Virginia Minority Supplier Development Council (CVMSDC) Annual Meeting/Supplier Development
2. Community Partners: 1
 - a. Carolinas-Virginia Minority Supplier Development Council
3. Monthly Metrics

Item #	Strategic Planning Measure	Unit	January 2018
M-1.4a	Training During Work Hours Per Full Time Employee (101) – Current Month	Hours / #FTE	1.16
M-1.4b	Total Training During Work Hours Per Full Time Employee (101) – Cumulative Fiscal Year-to-Date	Hours / #FTE	28.22
M-5.2	Educational and Outreach Events	Number	1
M-5.3	Number of Community Partners	Number	1
	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	\$24,202,666
	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 January 2017

DATE: February 15, 2018

A. General

1. Cybersecurity design modifications were developed and are being implemented to accommodate the use of cellular 4G communications prior to deploying the initial pump station cabinets for the new Supervisory Control and Data Acquisition (SCADA) platform.
2. The industrial automation programmers are testing the Nansemond Plant SWIFT Research Center distributed control system. The testing is going well and in accordance with the project schedule.
3. Staff completed a variety of software updates and patches to the HRSD storage platform, instituted account storage limitations, and instituted enhanced security filtering enhancements.
4. A major data cleanup and platform tuning was completed for the Telog system. The Telog system is comprised of hardware and software that collects, transmits and stores data from various sensors throughout HRSD's infrastructure. Over 3 billion records were purged and all required data is now archived in the OSI Pi data historian.
5. The HRSD web site redesign is on schedule and within budget, expected to go live, in April.

B. Strategic Planning Metrics Summary

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

C. Monthly Metrics

Item #	Strategic Planning Measure	Unit	January 2018
M-1.4a	Training During Work Hours Per Full Time Employee (50) – Current Month	Total Training Hours / # FTE	8.63
M-1.4b	Total Training During Work Hours Per Full Time Employee (50) – Cumulative Fiscal Year-to-Date	Total Training Hours / # FTE	23.75
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 January 2018
DATE: February 6, 2018

A. Highlights

The Operations Department was largely affected by hazardous weather conditions and extreme temperatures for part of January. Despite these difficult conditions, staff responded to the conditions and the related challenges with the professionalism and efficiency to which we've become accustomed.

B. Interceptor Systems

1. North Shore (NS) Interceptor Systems

- a. There were five interceptor complaints and two system alarms during the month. The alarms and complaints were fully resolved.
- b. Staff responded to a call about a leak/failure at the Boat Harbor Treatment Plant (BHTP). The Leak/failure was attributed to existing sheeting adjacent to ductile iron pipe force main. Repair consisted of removal of existing sheeting and installation of full circle repair clamp.
- c. Staff completed in-house engineering and logistical analyses on the 25th Street Pump Station (PS) design, Surry collections and treatment endeavors, York County, PS 47 isolation valve and other miscellaneous projects.

2. South Shore (SS) Interceptor Systems

- a. There was one odor complaint this month. On January 10, staff found a clogged automatic air vent on Etheridge Manor Boulevard in Chesapeake. After the debris was cleared, the air vent released an inordinate amount of gas over two hours that same night. A nearby resident complained about the sewage odor. In the future, if staff finds a clog, we will utilize a mobile carbon unit to prevent off-site odors.

- b. Staff performed a diversion to take 1.5 million gallon per day (MGD) from the Nansmond Treatment Plant (NTP) to the Atlantic Treatment Plant (ATP) in order to optimize the treatment process at both plants.
- c. Staff cleaned the scum wells at the NTP and the Virginia Initiative Plant (VIP) Treatment Plant and repaired a two-inch non-potable water line at the ATP.
- d. Staff assisted Support Systems with parking lot and sidewalk snow removal at the Air Rail campus during the two snowstorms.
- e. In order to meet the Consent Decree deadline for the Providence Road Pressure Reducing Station project, staff relocated the 18" diesel pump at Shipps Corner Pressure Reducing Station (PRS) to the Providence Road PRS. Staff then connected the yard piping to the pump and checked for leaks.

C. Major Treatment Plant Operations

1. Army Base Treatment Plant (ABTP)

- a. A process upset accompanied by cold weather at the beginning of the month resulted in a Final Effluent Total Phosphorus monthly average of 1.06 mg/L which although not a permit violation, exceeded our internal monthly target.
- b. On January 1, a caustic supply line froze resulting in an air permit deviation for low pH. Staff shut down the incinerator and back-flushed the chemical piping with warm non-potable water before resuming incineration operations.
- c. On January 31, there was an air permit deviation for use of the emergency bypass stack for 44 minutes due to multiple power anomalies.
- d. During the cold weather a non-potable water pipe ruptured, flooding a caustic tank containment area. The caustic recirculation pump in the containment area was submerged. Staff replaced the motor on the recirculation pump. During this time, caustic could not be fed to one of the odor control stations for six days. As a result, without the recirculation pump, the caustic supply piping also froze.

- e. The contractor began work to replace the leaking underground methanol tank with an above-ground tank.

2. ATP

- a. A significant portion of staff time was dedicated to troubleshooting the high hydrogen sulfide (H₂S) levels related to the Combined Heat and Power engine (CHP). The CHP scrubber is designed for an H₂S influent level of 2,500 parts per million (ppm). Levels exceeded 3,500 ppm which overwhelmed the scrubber system. To combat the H₂S levels, staff fed ferric sulfate to the primary clarifiers. So far, this has reduced the influent H₂S to levels below the design limit. Staff also ordered replacement carbon media for the scrubber. As a result of these high H₂S levels, there were two reportable odor control issues and four air permit deviations.
- b. A potable water line broke on January 4 due to the cold weather. A repair was made the next day.
- c. On January 8, a 6-inch non-potable water (NPW) line froze and broke resulting in the loss of approximately 1,000 gallons. The line was secured and repaired.
- d. Construction of the Thermal Hydrolysis Process (THP) and administration building continues.
- e. Staff replaced the old Motor Control Center (MCC) unit for Primary Clarifiers #2 & #4 with a new unit.

3. BHTP

- a. Despite the low temperatures, staff continues to optimize nitrification efforts in support of the lower James River bubble permit resulting in higher than normal energy demand requirements due to having to run the larger blower. A significant portion of staff time was required to maintain and troubleshoot the instrumentation and controls for the aeration process that is responsible for the nitrification and denitrification.
- b. Staff assisted in the setup and operation of a dewatering screw press pilot test. This is the first time HRSD has tested this particular dewatering technology. Normally, with its centrifuges, the plant averages around 20 percent Total Solids (TS) levels. During the pilot test dewatering results averaged 27 percent TS. Staff is awaiting lab

results to help determine if abandoning the centrifuge dewatering technology in favor of the screw press technology makes sense. We believe there are multiple benefits in using screw press technology including: a significant reduction in energy demands (from 125 horsepower centrifuge motor to a 12 horsepower dewatering screw press motor); dryer solids leading to a reduction in natural gas usage in the incinerator; and a reduction in operation and maintenance requirements.

4. Chesapeake-Elizabeth Treatment Plant (CETP)

- a. There were three air permit deviations and one odor complaint this month.
 - 1) On January 13 and 14 the induced draft (ID) fan failed when there were power failures.
 - 2) On January 24 there was a less than minimum average pressure drop due to a planned incinerator burn out.
- b. On January 17 there was a call from the Lake Shores Civic League about an offsite odor. Staff believes the odor could be a result of the discharged material in an open pit from vacuum trucks and the open overhead doors of the preliminary treatment facility. Staff removed the material and the doors were closed. The odor source could also be coming from the aeration tanks. The hydrogen peroxide feed system at the raw influent was shut down on January 5 per the end odor season. The aeration tank odor control system had been previously shut down. The shutdown of peroxide and aeration tank odor control system coupled with a lower than normal wastewater solids retention (SRT) time could also have been the source of the odors that led to the complaint. Since receiving the complaint, the peroxide feed and aeration tank odor control was reestablished and adjustments were made to increase the wastewater SRT. No additional complaints have been received.

5. James River Treatment Plant (JRTP)

- a. There was one reportable wastewater event when two chlorine residual samples were not taken by an operator. There was one odor deviation when an odor control exhaust reading of 8.5 ppm was recorded after the scrubber fan cut off while switching to generator power.

- b. Staff installed new non-potable water booster pumps for the centrifuges. Staff also rebuilt and reinstalled the #4 return activated solids pump. Staff is currently rebuilding the #2 grit cyclone and classifier.
- c. Testing of a HydroFLOW unit to prevent struvite accumulation on the centrate pipeline transporting centrate from the centrate wet well to the two centrate equalization tanks continued. The rate of struvite accumulation on the centrate transfer pump remains unchanged as staff continues to remove struvite from the pump. The only noticeable struvite accumulation in the pipeline is at a turn in the pipe near the centrate equalization tanks. Staff is installing a lobe pump to transfer centrate to determine if less turbulence produced by the lobe pump results in less struvite accumulation on the pump.

6. Nansemond Treatment Plant (NTP)

- a. Staff reinstalled the air piping in #4 AAA tank once the contractor completed the coatings project. This was the last of the seven tanks to be coated as part of a capital improvement project. The AAA tanks are the tanks used for denitrification and biological phosphorus removal, located before the aeration tanks.
- b. The Administration Building renovations are near completion.
- c. Coating of the #2 Anaerobic Digester should be complete in March. Staff is still challenged with only one of the two digesters in service. As a result, we closely monitor temperatures, foaming and overall performance of the digester in service.
- d. The dewatering screw press pilot was also tested on the Waste Activated Sludge (WAS) as a part of the WASSTRIP project at the ATP. Similar to BHTP results, the press performed well. Lab results will be received in mid-February.

7. VIP

- a. On January 2, there was a low pH recorded for one hourly average because the pH probe needed cleaning. This caused a deviation in the three-hour scrubber water pH average. On January 3, a loss of utility power shut down the induced draft fan. This caused two deviations, an open bypass damper and a low twelve-hour venturi differential pressure average.

- b. A Nitrified Recycle (NRCY) valve and a non-potable water flange froze, causing 500-gallon and 100-gallon spills onto the ground, respectively. There was no flow into any storm drain from either event.
- c. Nocardia bacteria became more predominant in the aeration tanks with the advent of colder weather, higher solids retention time and half of the process tanks out of service for construction. Nocardia foam is a nuisance, spreading across walkways and process tank covers. Staff developed a system to collect and chlorinate the foam prior to draining it to the plant headworks.

8. Williamsburg Treatment Plant (WBTP)

- a. There was one reportable air permit event when the Total Hydrocarbon (THC) analyzer failed to record two valid readings in one hour.
- b. Staff completed modifying aeration tank #1 for improved nutrient removal. The modifications will provide additional removal of nitrogen from nitrate by optimizing carbon usage in the first anoxic zone.
- c. Staff cleaned out, inspected and made minor repairs to the #1 incinerator, and repaired nonpotable water lines that broke due to the cold weather.

9. York River Treatment Plant (YRTP)

Staff performed a shutdown of the dewatering building to facilitate replacement of a failing breaker in the motor control center.

D. Small Communities

1. Small Communities Division – Middle Peninsula

- a. The Small Communities Division (SCD) Treatment Plants reported four permit exceedances for the month of January 2018, all occurring during the sample week of January 7. In anticipation of the predicted severe and sustained cold weather temperatures that week, staff moved the plants into an extended aeration mode and began increasing the solids retention time (SRT) to aid in nitrification. Although their efforts were initially successful, the ongoing frigid temperatures kept the wastewater temperatures in the single digits

thereby inhibiting nitrification. The following exceedances were reported:

- King William Treatment Plant (KWTP): Weekly maximum TKN concentration (reported value 10 mg/L, limit 4.5 mg/L) and monthly maximum TKN concentration (reported value 3.4 mg/L, limit 3.0 mg/L)
- Urbanna: Weekly maximum ammonia concentration (reported 23.43 mg/L, limit 9.08 mg/L)
- Central Middlesex: Weekly maximum ammonia concentration (Quarterly value to be reported 0.66 mg/L, limit 0.56 mg/L).

Nitrification subsequently improved with increased temperatures and the longer SRT.

- b. There were no sanitary sewer overflows (SSOs) or odor complaints for the month.
- c. Bush-hogging is nearly completed for FY18. In the King William service area we are still utilizing the bypass pump as the main station pump while we wait for the new engineered pump to arrive.

2. Town of Surry

- a. There were four permit exceedances during the month of January. The number of permit exceedances at the Town of Surry WWTP since HRSD took over operations has been steadily dropping from 11 in October. Despite the colder temperatures, the work done by HRSD operations staff has significantly improved the plant performance.

	Limit Type	Unit	Permit Limit	Reported Value	Number of Exceedances
TSS	Monthly average	MG/L	10	23	1
		G/Day	2300	5543	1
	Weekly average	MG/L	15	58	1
		G/Day	3400	14126	1
				Total	4

- b. Rain at the Town of Surry WWTP resulted in surface runoff entering the final effluent weir box, carrying with it a significant amount of TSS. This resulted in an elevated TSS for that day at 104 mg/L.

Improvements by staff have since been made to divert surface runoff around the tank and prevent recurrence.

- c. Staff began installing new air diffusers in RBC #2.
- d. A technical memorandum was completed by staff for Bowman Consulting to use as their basis of design for the Surry County WWTP upgrade and the new Town PS and Storage Tank.

E. Support Systems

1. Automotive

- a. A utility power failure occurred at approximately 3:30 A.M. on January 4 at the Air Rail Avenue Complex. All generators started and assumed building loads. At 1:00 P.M. the Central Environmental Lab (CEL) generator failed due to a faulty coolant level switch. A technician was onsite at 4:00 P.M. and bypassed the switch restoring power. The coolant level switch was replaced on January 11. Staff subsequently performed the monthly Air Rail Complex generator test. All generators operated as designed. On January 16, utility power again failed at the Air Rail Avenue Complex for approximately two hours. All generators started and assumed building load for the duration of the outage.
- b. On January 17 staff conducted a building load test on the CEL generator due to varying electrical loads noted at the December 2017 and January 2018 scheduled monthly tests. Varying building electrical loads were recorded and the generator operated as designed.
- c. Staff performed load bank tests at Chesapeake Boulevard, Coliseum, and Willard Avenue PSs and on portable generator #316. All generators operated as designed and were returned to service.

2. Condition Assessment (including Coatings and Concrete)

- a. Condition Assessment (CA), through use of Closed-Circuit Television (CCTV), inspected 1,057 linear feet (LF) of gravity force main completing the inspection of line SG-044. CA supported South Shore (SS) Interceptors utilizing CCTV for line #173.
- b. Coating of the rake arm assemblies in ATP's Secondary Clarifier #5 is complete. Work in secondary clarifier #6 begins.

- c. Rehabilitation of the odor control piping throughout BHTP continues. Scrubber tanks and fans were added to the project which is 70 percent complete. Staff met with the contractor for repairs on the aeration and secondary tanks. Cementitious coating has fallen off due to improper surface preparation.
- d. Rehabilitation of JRTP's grit tanks, rake arm assemblies, and channels continues. Concrete work is complete in grit tank #3.
- e. Coating work on all cells of the #4 Aeration Tank at NTP are complete. Contractors are installing 21 baffle boxes restoring the inside ceiling and walls of NTP's #2 digester tank.

3. Facilities Maintenance

- a. Staff continued with the construction of a new office area within the main office building for the SCD and the relocation of a new lab at UBTP. Staff repaired walls and installed new office signs in the CEL where water system were removed, built a credenza for ABTP and finished walls after the installation of new windows in Procurement.
- b. Staff rebuilt pumps at Dovercourt, Newmarket, and Woodland PSs. Staff fabricated threaded water pipe nipples for FM, water keys for the Customer Care Center, and calibration plates for pelican boxes for SS Instrumentation. Staff continues to work with YRTP personnel on repairing a large micro-screen obtained from Surry Treatment Plant.

F. Electrical and Energy Management (EEM)

- 1. The Medium Voltage Preventive Maintenance (PM) contract was awarded to Electrical Power Systems (EPS) last month. A kick-off meeting was held with representatives to discuss the envisioned contract work and visit some of the treatment plants. This contract provides specialized services and maintenance for medium voltage (4,160 and 13,200 volt) equipment such as breakers, motors, switchgear and transformers.
- 2. Staff installed power quality meters at ABTP incinerator. The advanced metering and software will enable accurate assessment and reporting regarding the causes of power anomalies that interrupt critical equipment and/or processes. Additionally, the meters will accurately monitor and trend energy consumption information. This information will also allow

analysis and possible implementation of energy conservation changes. Future studies are scheduled at other plants.

3. Staff is conducting a THP heat exchanger experiment at the ATP. The District of Columbia Water and Sewer Authority (DC Water) as well as other CAMBI THP users have discovered corrosion in their THP heat exchangers. The experiment will test theories of the cause of corrosion and try to determine a process to mitigate it.
4. Staff responded to numerous emergency equipment failures during the snow events this month. The Central Environmental Lab (CEL) lost its generator and heating, ventilation and air conditioning (HVAC) system after losing utility power. The CETP lost its generator after losing utility power followed by the failure of two aeration blowers and a returned activated biosolids (RAS) pump. The fuel island at the South Shore Operations Complex lost a power transformer. VIP lost the total hydrocarbons (THC) monitor analyzer. Additionally, staff coordinated with Information Technology (IT) to repair a faulty network switch and restore a programmable logic control (PLC) in the hypo building at VIP.
5. Staff replaced the main breaker in the solids handling (SH) MCC at YRTP. This project required coordination with Dominion Energy (DE) to shut down the SH building while performing the work.
6. The basement of the caustic building at VIP flooded and submerged electrical equipment when the non-potable water (NPW) line froze and broke. The flooding submerged two caustic motors, two power panel boards and a transformer. Staff dried, repaired and tested the flooded electrical equipment. The caustic system was returned to normal operation the following day.
7. Staff worked with the contractor to test the new Supervisory Control and Data Acquisition (SCADA) remote site panels for Bridge Street PS, Cross Street, Morrison, North Avenue and Rappahannock PSs. Additionally, the team built a MODBUS interface cable to test the interface between the Godwin PrimeGuard controller and the ControlWave[®] PLC.
8. Staff is setting up Motorola and Telog equipment to provide interim alarming at the new Bridge Street PS until the Emerson SCADA system is installed and communication issues have been resolved.
9. Staff responded to a flow meter failure at Master Metering Program Site (MMPS) 309, Town of Surry TP. They repaired faulty wiring and returned the flow meter to normal operation.

10. Staff updated the On-the-Job Training (OJT) Apprenticeship and Professional Development books. The Department of Labor (DOL) also approved the skills-based apprenticeship book.

G. Water Technology and Research

Construction activities are coming to an end at the SWIFT Research Center (SWIFTRC), and the HRSD team is transitioning into the mode of commissioning, startup, and functional testing of processes and equipment. Preparations for facility operation are well underway, and planning is ongoing to demonstrate compliance with SWIFT Water treatment objectives such that recharge activities can be initiated as soon as possible.

H. 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					
2.7	# of PS Annual PMs Performed (SS)	5	5	6	5	3	2	3					
2.7	# of Backup Generator PMs Performed (Target is 4.6)	9	10	10	12	7	9	12					
2.8	# of FM Air Release Valve PMs Performed (NS)	108	36	186	204	256	203	130					
2.8	# of FM Air Release Valve PMs Performed (SS)	79	153	115	409	140	210	153					
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	1198					
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					
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					

I. Strategic Measurement Data

1. Education and Outreach Events: 4

- a. VIP plant tour for Hazen and Sawyer Employees
- b. ATP plant tour for Virginia Aquarium Middle School mentoring program
- c. NTP staff supported the HRSD General Manager during the Well water testing clinic he organized and presented at NTP
- d. Charles Bott and Jamie Mitchell provided a SWIFT Overview Presentation for the Virginia Department of Health

2. Community Partners: 5

- a. Chesapeake Bay Foundation – oyster cage maintenance at BHTP for oyster gardening program
- b. Virginia Institute of Marine Science
- c. Old Dominion University
- d. Virginia Department of Health
- e. Virginia Aquarium

Item #	Strategic Planning Measure	Unit	January 2018
M-1.4a	Training During Work Hours per Full Time Employee (FTE) (510) – Current Month	Hours / FTE	2.14
M-1.4b	Total Training During Work Hours per FTE (510) – Cumulative Year-to-Date	Hours / FTE	21.82
M-2.3a	Planned Maintenance Total Maintenance Hours	Total Recorded Maintenance Labor Hours	26,209.75
M-2.3b	Planned Maintenance – Preventive and Condition Based	% of Total Maintenance Hours	39.8
M-2.3c	Planned Maintenance - Corrective Maintenance	% of Total Maintenance Hours	34.1
M-2.3d	Planned Maintenance - Projects	% of Total Maintenance Hours	26.1
M- 4.1a	Energy Use: Treatment *reported for December 2017	kWh/MG	2,796
M-4.1b	Energy Use: Pump Stations *reported for December 2017	kWh/MG	166

Item #	Strategic Planning Measure	Unit	January 2018
M-4.1c	Energy Use: Office Building *reported for December 2017	kWh/MG	106
M-5.2	Educational and Outreach Events	Number	4
M-5.3	Number of Community Partners	Number	5

Respectfully submitted,

Steve de Mik
Director of Operations

TO: General Manager

FROM: Special Assistant for Compliance Assurance

SUBJECT: Monthly Report for January 2018

DATE: February 8, 2018

- A. Submittals Completed in January 2018 – The Consent Decree-required Annual Public Meeting was held on **January 23**. The Quarterly Briefing Summary for the United States Environmental Protection Agency (EPA) and Virginia Department of Environmental Quality (DEQ) was provided on **January 30**. An annual newsletter on the Regional Wet Weather Management Program, as required by the Consent Decree, was prepared in January.
- 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.
 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.
 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 meeting was held on **January 29** that will focus on developing new standards for wet weather flows from new single family residential development for pump station design.
 4. **Phase 9 – Supplemental Services.** A meeting to review the status Interim System Improvement (ISI) projects was held on **January 18**. The EPA approved an extension for the completion of the Bridge Street Pump Station ISI project on **January 10**.

Management, Operations and Maintenance (MOM) Program elements are ongoing, including the Hydrogen Sulfide (H₂S) Monitoring Program and implementation of a Business Intelligence (BI) system for the Small Communities Division (SCD). This includes a MOM update manual guidance document for use on the next major update. The 2018 MOM Refresh Kick-Off meeting has been scheduled for **February 7** with North and South Shore staff invited.

The Flow, Pressure and Rainfall (FPR) monitoring program continued in January 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 January. Force main inspection work order status is as follows:

- FMP2 039 Bowers Hill: Work is in progress to inspect the force main.
- FMP2 043 Kempsville Road: Project complete.
- FMP2 049 Shore Drive (Reservoir Group): Work order under development.
- FMP2 050 Laskin Road: Ground Penetrating Radar (GPR) being used to confirm location of force main high point for air valve placement.
- FMP2 051 Independence Blvd: Ground Penetrating Radar (GPR) being used to confirm location of force main high point for air valve placement.

Field work planning continued in January 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 February:
 - 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 SCD work orders are under development
 - 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. 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 other co-chairs coordinating the national WEF Collections Specialty Conference, which will be at the Virginia Beach Convention Center, April 8-11, 2018.
2. Number of Community Partners: 0

Item #	Strategic Planning Measure	Unit	January 2017
M-1.4a	Total Training Hours Per Full Time Employee (1) – Current Month	Total Training Hours / # FTE	0
M-1.4b	Total Training Hours Per Full Time Employee (1) – Cumulative Fiscal Year to Date	Total Training Hours / # FTE	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

	Total Appropriation	January 2018 Obligations	Available Balance
Regional Consent Order and Other Consent Order Requirements			
Regional Hydraulic Model	\$108,931,987	\$108,551,629	\$380,358
Locality System Monitoring and Condition Assessment	\$21,219,146	\$20,287,625	\$931,521
Subtotal - In progress	\$130,151,133	\$128,839,254	\$1,311,879

Completed Work

Regional Consent Order and Other Consent Order Requirements	(Included in subtotal above)
Master Metering Program III	\$2,005,140
Master Metering Program IV	\$13,628,635
Total	\$144,473,029

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

A. Human Resources (HR)

1. Recruitment Summary

New Recruitment Campaigns	9
Job Offers Accepted – Internal Selections	5
Job Offers Accepted – External Selections	2
Internal Applications	22
External Applications	128
Average Days to Fill Position	110

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. Staff worked with Oracle Support on appraisal and dependent address functionality.
- c. Accounting, Talent Management and Information Technology staff met to address 2017 Internal Revenue Service Affordable Care Act mandatory reporting requirements and worked on system set-up and data validation.

3. Benefits and Compensation

- a. The Request for Proposal Process was completed for selection of a new Benefits Consultant. Staff began providing HRSD Benefit plan information as part of transitioning services and to begin the renewal process for medical, pharmacy, vision and dental benefits.

- b. HR continued to work with Finance on administrative issues with the long-term disability benefits provider.
- c. The quarterly Employee Assistance Program (EAP) review meeting was held with the provider to review utilization and to clarify administrative and communication procedures.
- e. Staff met with HRSD internal auditors to finalize the Management Action Plan for the Employee Benefits Internal Audit.

4. Wellness

a. Participation Activities

Year 3 Participation Activities	Unit	January 2018	Year to Date (March 2017–February 2018)
Biometric Screenings	Number	54	93
Preventive Health Exams	Number	38	111
Preventive Health Assessments	Number	100	412
Coaching Calls	Number	0	0
On-Line Health Improvement Programs	Number	357	1,054
Web-MD Online Health Tracking	Number	302	1,737
Challenges Completed	Number	0	0
Fit-Bit Promotion	Number	3	101

- b. The first quarter Wellness newsletter, featuring activities for the current plan year, was completed and sent to employees and spouses.
- c. Biometric screenings began: five onsite screenings were held with 168 participants. The Wellness Specialist updated wellness records with screening, physician visit, and health improvement information as the end of the current plan year approaches.
- d. The Wellness Specialist presented Wellness program outcomes, trends and recommendations for future programming to the QST.
- e. New American Medical Association Blood Pressure guidelines were evaluated for incorporation into future Wellness plan years.

5. Workers Compensation

- a. One new case was opened with 13 cases remaining active.
- b. The Occupational Health and Safety Administration (OSHA) 300 log and Summary was completed and provided to Safety for distribution.
- c. The Department of Labor Survey of Occupational Injuries and Illnesses was completed and submitted.

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.
- 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. Bi-weekly 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 Leadership Forum
- b. Staff participated in the following training:
 - (1) Hyperion Budget module refresher training
 - (2) Virginia Ethics Council State Employee and Officer on-line training
 - (3) Emotional Intelligence Intensive
- c. Talent Management record and storage item inventories were completed and sent to Engineering and Procurement.

B. Organization Development and Training (OD&T)

1. Five new facilitators were selected including Leadership facilitators; Lisa Bolen (Water Quality Technician) and Erin Girardi (Project Manager) and Teams and Problem Solving (TAPS) facilitators; Christeena Kelley (Water Quality Technician), Laura Shields (Plant Superintendent) and Alex Pereyra (Account Investigator) .
2. The OD&T Manager continued working with Operations on an abridged Supervisor Workshop for Lead Operators.
3. Planning began for a *Workforce of the Future* workshop with Operations, OD&T and HR staff.
4. Work continued with Engineering on development of an *Effective Collaborative Meeting* workshop. The February pilot class was finalized.
5. The Project Management workshop team completed a framework and a training manual template.
6. Staff continued cross-training to improve e-learning software skills.
7. Apprenticeship Program
 - a. The semi-annual Apprenticeship Committee meeting was held where the following items were addressed:
 - (1) Reviewed feedback and recommendations from the December Apprenticeship Representative meeting
 - (2) Reviewed first and second-term actions
 - (3) Discussed several new program initiatives
 - (4) Discussed Apprenticeship Manual revisions
 - (5) Apprenticeship Committee membership and roles
 - b. Staff continued to add historical training and apprenticeship program information into the ERP Learning Management system.
 - c. The Training Superintendent and Coordinator continue to conduct supervisor training on procedures for Apprentice On-the-Jobs Skills Training (OJT) and Training Increases.
 - d. Recruitment was completed to select instructors for Math and Disinfection courses.
 - e. An additional math recitation class was added to assist apprentices while enrolled in math classes.

e. 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

8. General

a. Staff participated in the following training:

- (1) The Training Superintendent continued online wastewater treatment training provided by Sacramento State Office of Water Programs
- (2) Association of Training and Development’s Apprenticeship and Facilitator training
- (3) Wiley’s 360 Communication for Employees
- (4) Institute for Apprenticeship Education and Training Conference
- (5) Coaching Ethics and Risk Management

C. Safety

1. Mishaps and Work Related Injuries

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

	<u>2017</u>	<u>2018</u>
Mishaps	42	1
Lost Time Mishaps	10	0
<i>Numbers subject to change pending HR review of each case.</i>		

b. MOM Program Year Performance Measure Work Related Injuries

January 2018 Injuries For Operations	January 2018 Injuries for Other HRSD Departments	Total Lost Time Injuries Since July 2017	Total HRSD Injuries Since July 2017
0	1	5	23

- c. A follow-up investigation was performed on one work-related injury and six auto and/or property damage incidents.

2. HRSD Safety Training

Strategic Planning Measure	Unit	January 2018
Total Safety Training Hours per Full Time Employee (830) All HRSD – January 2018	265.39 Hours / 830 FTE	0.32
Total Safety Training Hours Per Full Time Employee (830) – Cumulative July 2017	2452.37 Hours / 830 FTE	2.95

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

- a. Five external briefings for contractors working at treatment plants and pump stations
- b. Coordinated and supervised fifteen Department of Transportation Commercial Driver’s License physicals for North Shore Interceptor System employees
- c. Developed a Liquid Oxygen Safe Work Practice and provided a training session for Nansemond TP employees and three training sessions for SWIFT Research Center contractor employees

4. Safety Inspections, Testing and Monitoring

- a. Weekly on-site inspections of the following construction sites:
 - (1) Army Base Treatment Plant (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) Army Base TP
 - (2) Boat Harbor TP
 - (3) Lawne's Point TP
 - (4) Nansemond TP
 - (5) North Shore Automotive, Carpentry and Electrical Shops
 - (6) North Shore Apprenticeship classrooms
 - (7) North Shore Interceptors
 - (8) North Shore Pretreatment and Pollution Prevention (P3)

- c. Monitoring and testing for the following:
 - (1) Monthly hood velocity tests on Central Environmental Laboratory and Technical Services lab hoods
 - (2) Quarterly hood velocity test on a North Shore P3 lab hood

- d. Safety walk-throughs and evaluations
 - (1) Escorted consultant on Nansemond TP adjacent property to survey groundwater sampling locations
 - (2) Escorted an insurance safety consultant through SWIFT Research Center and Atlantic TP construction sites
 - (3) Escorted insurance representatives and provided information for evaluations of Chesapeake-Elizabeth TP and VIP
 - (4) Evaluated liquid oxygen delivery for the SWIFT Research center
 - (5) Performed an ergonomic evaluation of Account Investigator vehicles with mobile work stations

- e. Staff continued to evaluate safety needs for the Town of Surry TP.

5. Safety Programs

- a. The 2017 OSHA Form 300 summary of on-the-job injuries was distributed and posted at all work centers.

- b. Semi-annual Safety Recognition Program results were compiled. Seventy-six percent of work centers received full recognition for no lost time accidents or injuries and 21 percent received partial recognition for minimal incidents.

- c. The following was performed for the hearing conservation program:
 - (1) Continued to review and input audiometric testing results
 - (2) Conducted employee audiometric testing
 - (3) Coordinated required Audiologist review of employee audiogram histories and medical reviews
- d. Superfund Amendments and Reauthorization Act (SARA) Title III information was compiled and emergency response procedures updated for all work locations. Chemical inventories were completed for Surry TPs as part of the effort.
- e. Staff met with a coatings contractor at Nansemond TP to review safety issues.
- f. Staff evaluated a confined space for the Nansemond TP
- g. Safety Coordinator continued maintaining the Operations Safety Accident Tracking report.
- h. Annual inspection tags were completed and distributed.

6. General

- a. Staff met with Procurement and continued developing Request for Proposals for a Prescription Safety Glasses program and for employment related physicals.
- b. The Winter Safety newsletter was completed and distributed.
- c. The Safety Manager assisted Nansemond TP staff with investigation of an incident resulting in damage to a roll-up door.
- d. Staff participated in the following HRSD activities:
 - (1) HRSD Safety Team
 - (2) HRSD Uniform Committee
- e. Staff attended the following training
 - (1) Hyperion Budget Refresher training

D. Monthly Strategic Planning Metrics Summary

1. Education and Outreach Events: 3

- a. City of Norfolk Economic Development's *Norfolk Works* Winter Career Fair
- b. City of Suffolk's Workforce Development Job & Career
- c. City of Virginia Beach regional Organizational Development and Training meeting

2. Community Partners: 3

- a. City of Norfolk Economic Development
- b. City of Suffolk
- c. City of Virginia Beach

3. Monthly Metrics

Item #	Strategic Planning Measure	Unit	January 2018
M-1.1a	Employee Turnover Rate (Total)	Percentage	0.63
M-1.1b	Employee Turnover due to Service Retirements	Percentage	0.00
M-1.4a	Total Training Hours Per Full Time Employee (15) – Current Month	Total Training Hours/ FTE	3.85
M-1.4b	Total Training Hours Per FTE (15) Cumulative Fiscal Year-to-Date	Total Training Hours/ FTE	22.48
M-5.2	Educational and Outreach Events	Number	3
M-5.3	Community Partners	Number	3

Respectfully submitted,
Paula A. Hogg
Director of Talent Management

TO: General Manager

FROM: Director of Water Quality (WQ)

SUBJECT: Monthly Report for January 2018

DATE: February 14, 2018

A. General

1. Pretreatment and Pollution Prevention (P3) division staff assessed two civil penalties this month.

BFI Goodwin Transfer Station – Yorktown

An Enforcement Order was issued to BFI Transfer Systems of Virginia, LLC for BFI Goodwin Transfer Station in December 2017 for administrative and technical violations that occurred between May and October 2017. The Order contained an invoice totaling \$3,250 in Civil Penalties.

The administrative violation was associated with late submittal of required data. The technical violations were for limit exceedances related to Methyl Ethyl Ketone (MEK) and Zinc. A Show Cause Meeting was held and the source of the MEK and zinc was investigated. The facility found the source of each directly on the tipping floor and is moving toward a pump and haul operation for their wastewater rather than discharge to the sanitary sewer. This change in operation will result in the HRSD Industrial Wastewater Discharge Permit being dropped once all pumps have been adequately locked out. The Enforcement Order was accepted and the Civil Penalty was paid in January 2018.

Stemmle Plumbing Repair, Inc. - Midlothian

An Enforcement Order was issued to Stemmle Plumbing Repair, Inc. in December 2017 for administrative violations that occurred between September and October 2017. The Order contained an invoice totaling \$2,000 in Civil Penalties.

The administrative violations were associated with late submittal of July, August, and September 2017 monthly reports, which reached a chronic status. A Show Cause Meeting was held. The permit requirements were discussed, and the industry acknowledged that the monthly reports were required. The Enforcement Order was accepted and the Civil Penalty was paid in full in January 2018.

2. Reginald Morgan accepted a nomination to become a committee member of The NELAC (National Environmental Laboratory Accreditation Conference) Institute Proficiency Testing Expert Committee. His role as a committee member will include representing the environmental laboratory sector in development of standards pertaining to proficiency testing, which is a major component of laboratory accreditation. He will also participate as a voting member on standards and issues with a national impact on the environmental laboratory accreditation program.
3. The Division of Consolidated Laboratory Services completed a Virginia Environmental Laboratory Accreditation Program on-site assessment of the WQ Quality System, sample handling and accredited methods. Assessors gave positive feedback regarding knowledge and integrity of analysts, as well as praise for managing the large volume of work performed. In addition, the assessors were impressed with the traceability systems in place. Possible findings mentioned in the closing meeting were minor and focused on documentation and meeting new quality system requirements for the newly implemented 2009 standard.
4. The Director participated as a member of the Advisory Committee for Water Information (ACWI), a federal advisory committee serving the United States Department of the Interior (DOI), held in Reston, Virginia. This position with ACWI represents the interests of the National Association of Clean Water Agencies as well as those of HRSD. ACWI's purpose is to improve water information for decision making regarding natural resources management and environmental protection. One discussion of significant relevance to HRSD focused on the wide distribution of environmental data sources. There is a need for a Google-type, internet-based search engine that can gather data once data qualifiers are selected. EPA refers to this concept as the Internet of Water. It seems that the DOI is interested in pursuing this idea and will do so through ACWI. EPA also referenced their E-Enterprise for the Environment; an effort to put cooperative federalism into practice between environmental co-regulators. The intent here is to streamline regulatory processes and increase productivity in the environmental regulatory world while providing credible, trusted information. The Director will follow these issues through participation in ACWI and update/inform HRSD as appropriate.

B. Quality Improvement and Strategic Activities

1. The Sustainability Advocacy Group (SAG) did not report activity for the month of January.
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 Bedford County, Northumberland, and Westmoreland County to support their Virginia Pollution Discharge Elimination System (VPDES) permit application processes.

D. Strategic Planning Metrics Summary

1. Educational and Outreach Events: 0

2. Community Partners: 11

- 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. United Way

3. Odor Complaint

- a. On January 10, 2018 South Shore Operations (SS Ops) received an odor complaint associated with a force main automatic pressure relief vent (commonly referred to as an auto-bleed). Due to the extreme weather conditions including 10 inches of snow in Chesapeake, VA, the auto-bleed at the AT-8115-1 location as well as others along the Etheridge line did not receive routine weekly maintenance. This resulted in excessive force main gas being emitted from the single auto-bleed at the AT-8115-1 location and thus the complaint. SS Ops has since serviced all the auto-bleeds and no further complaints have been received.
- b. On January 27, 2018 the Chesapeake-Elizabeth facility received an odor complaint from the neighbors in the Lake Shores Civic League across the street from the plant. Upon investigation, excess odors were observed coming from the aeration tanks. The hydrogen peroxide feed system at the raw influent had been shut down on January 5 given the perceived end of the region's odor season. The aeration tank odor control system had also been previously taken out of service. The shutdown of the peroxide feed and aeration tank odor control system,

coupled with a lower than normal wastewater solids retention (SRT) time most likely caused the odors that led to the complaint. Since receipt of this complaint the peroxide feed and aeration tank odor treatment resumed and adjustments were made to increase the wastewater SRT. Since then additional complaints have not been received.

Item #	Strategic Planning Measure	Unit	January 2018
M-1.4a	Training During Work Hours Per Full Time Employee (109) (Current Month)	Total Hours / # FTE	2.83
M-1.4b	Total Training During Work Hours Per Full Time Employee (109) (Cumulative Fiscal Year-to-Date)	Total Hours / # FTE	30.17
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	9:33,765
M-3.2	Odor Complaints	#	0
M-3.4	Pollutant Removal	Total Pounds Removed	110,900,205
M-3.5	Pollutant Discharge	% Pounds Discharged/Pounds Permitted	17%
M-5.2	Educational and Outreach Events	#	0
M-5.3	Community Partners	#	11
	Average Daily Flow	Total MGD for all Treatment Plants	148.11
	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 (January 2018)**
 - On January 2, 2018, SC&H was informed by Engineering that additional documentation related to real estate procurement exists, however has not been previously provided. The requested transaction population was provided on January 22nd. Following validation of contents, SC&H communicated a sample selection for testing on January 25th.

- **Upcoming Tasks (February 2018)**
 - Complete Testing- Requested documentation was provided to SC&H on February 8th
 - Finalize report with any additional information noted during real estate review

IT: Network Security/ Cybersecurity

- **Tasks Completed (January 2018)**
 - Met with process owners to discuss management action plan response
 - Finalized report

- **Upcoming Tasks (February 2018)**
 - Determine communication method of report findings
 - Submit final report

Corporate Governance: Ethics Function

- **Tasks Completed (January 2018)**
 - Finalized fieldwork
 - Completed draft audit report
 - Conducted exit meeting with process owners

- **Upcoming Tasks (February 2018)**
 - Review management action plan responses
 - Finalize report

Risk Assessment: Year 3 Refresh

- **Tasks Completed (January 2018)**
 - Completed risk assessment interviews and documented management responses
 - Prepared risk ranking and audit plan presentation



- **Upcoming Tasks (February 2018)**
 - Discuss results with HRSD management

Treatment Plant Operations

- **Tasks Completed (January 2018)**
 - Prepared planning materials
 - Scheduled entrance meeting
- **Upcoming Tasks (February 2018)**
 - Conduct entrance meeting and schedule walkthrough discussions
 - Perform and document process walkthroughs
 - Prepare audit plan
 - Perform fieldwork

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%

Monthly Updated Metrics												FY-18	FY-18
Item	Strategic Planning Measure	Unit	Target	FY-10	FY-11	FY-12	FY-13	FY-14	FY-15	FY-16	FY-17	Dec-17	Jan-18
	Average Daily Flow	MGD at the Plants	< 249		136	146.5	158.7	156.3	153.5	155.8	153.5	134.8	148.1
	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%	102%	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	\$23,184,740	\$24,202,666
	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	5:28941	9:33765
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	93,707,429	110,900,205
M-3.5	Pollutant Discharge (% of permitted)	Pounds Discharged/Pounds Removed	< 40%		25%	22%	25%	22%	22%	20%	22%	16%	17%
M-5.2	Educational and Outreach Events	Number			302	184	238	322	334	443	502	14	28
M-5.3	Number of Community Partners	Number			280	289	286	297	321	354	345	21	34

EFFLUENT SUMMARY FOR JANUARY 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	10.58	59%	5	4.5	3	2	1.1	1.1	8.2	8.2	NA	NA	8
ATLANTIC	26.37	49%	11	9.5	2	2	NA	NA	NA	NA	NA	NA	0
BOAT HARBOR	14.27	57%	6	8.0	2	2	0.56	0.56	15	15	NA	NA	0
CENT. MIDDLESEX	0.011	45%	1	8.4	<1	<1	NA	NA	NA	NA	2.5	0.36	NA
CHES-ELIZ	17.75	74%	17	13	25	3	0.90	0.90	30	30	NA	NA	4
JAMES RIVER	14.17	71%	6	6.1	1	<1	0.51	0.51	9.3	9.3	NA	NA	1
KING WILLIAM	0.037	37%	5	<1.0	NA	<1	0.01	0.01	2.8	2.8	3.4	NA	NA
NANSEMOND	17.28	58%	5	6.4	<1	1	2.5	2.5	5.7	5.7	NA	NA	12
SURRY, COUNTY	0.071	108%	1	<1.0	NA	1	NA	NA	NA	NA	0.60	<QL	0
SURRY, TOWN	0.052	86%	7	23	NA	15	NA	NA	NA	NA	3.1	0.32	NA
URBANNA	0.034	34%	10	11	7	6	3.4	3.4	30	30	NA	7.7	NA
VIP	26.12	65%	5	3.7	1	1	0.63	0.63	9.3	9.3	NA	NA	3
WEST POINT	0.363	61%	28	16	1	1	3.0	3.0	21	21	NA	14	0
WILLIAMSBURG	7.68	34%	4	3.6	2	1	0.34	0.34	3.7	3.7	NA	NA	4
YORK RIVER	13.32	89%	6	2.7	<1	<1	0.20	0.20	4.6	4.6	NA	NA	6
	<u>148.11</u>												

	% of Capacity
North Shore	60%
South Shore	59%
Small Communities	57%

Tributaries	Tributary Summary					
	Annual Total Nitrogen			Annual Total Phosphorus		
	Discharged	Operational		Discharged	Operational	
	YTD	Projection CY18		YTD	Projection CY18	
	%	Lbs	%	%	Lbs	%
James River	8%	4,174,313	92%	9%	292,561	92%
York River	6%	261,561	91%	5%	16,104	83%
Rappahannock	22%	NA	NA	34%	NA	NA

Permit Exceedances: Total Possible Exceedances, FY18 to Date: 9:33,765
Pounds of Pollutants Removed in FY18 to Date: 110,900,205
Pollutant Lbs Discharged/Permitted Discharge FY18 to Date: 17%

	Rainfall (inch)		
	<u>North Shore (PHF)</u>	<u>South Shore (ORF)</u>	<u>Small Communities (FYJ)</u>
Month	4.39"	4.41"	4.36"
Normal for Month	3.30"	2.98"	3.40"
Year to Date Total	4.39"	4.41"	4.36"
Normal for YTD	3.30"	2.98"	3.40"

AIR EMISSIONS SUMMARY FOR JANUARY 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	0	0	0	0	0	1	1	29	99	0
BOAT HARBOR	0	0	0	n/a	0	0	0	0	7	99	0
CHES-ELIZ	0	0	0	0	0	0	0	2	48	90	0
VIP	0	1	0	n/a	0	0	1	1	65	96	0
WILLIAMSBURG	0	0	0	n/a	0	0	0	0	8	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:	2
Odor Scrubber HRSD Exception Events:	6

AGENDA ITEM 18.f. – February 27, 2018

Subject: Orcutt Avenue and Mercury Boulevard Gravity Sewer Improvements
Emergency Declaration

CIP Project: BH015000

Recommended Action: No action is required. Information Only

Brief: HRSD staff discovered a large void adjacent to the manhole in the intersection of [Mercury Boulevard and Big Bethel Road](#). Staff took immediate action to close the two left turn lanes from Big Bethel Road to Mercury Boulevard. Injection of grout was used as the method of repair causing minimal impact to the existing street. Approximately 40 to 50 cubic feet of grout was used to fill the void. The help stabilize the brick manhole shotcrete was used on the interior wall of the manhole.

An emergency declaration was authorized on February 2, 2018. This emergency was declared to allow HRSD to take immediate corrective action. The most efficient approach was to use the Prompt Repairs On-Call Services contractor T.A. Sheets General Contractors, Inc.

The total cost of this work is \$54,232 and will be funded from the CIP project appropriation.

