HRSD Commission Meeting Agenda
9:00 a.m. – March 23, 2021

Location: Electronic Meeting via Zoom in Accordance with Chapter 1289, Virginia 2020 Acts of Assembly

Limited electronic observation is available by reservation and must be received by Jennifer Cascio at jcascio@hrsd.com by noon one business day prior to the meeting.

Public Comments to be made during the meeting should be submitted to Jennifer Cascio by email to jcascio@hrsd.com or by phone to 757.460.7003, and must be received by noon one business day prior to the meeting.

No.	Topic	Resource
	Call to Order	Elofson
	Roll Call of HRSD Commission	Cascio
1.	Consent Agenda	Henifin
	a. Approval of Minutes	
	b. Contract Awards	
	c. Task Order	
	d. Sole Source and Contract Awards	
	e. Sole Source	
2.	Central Norfolk Area Gravity Improvement Phase II Initial Appropriation	Husselbee
3.	Shipps Corner Pressure Reducing Station Modifications Initial Appropriation	Husselbee
4.	Surry Hydraulic Improvements and Interceptor Force Main Additional Appropriation	Husselbee
5.	Surry Hydraulic Improvements and Interceptor Force Main Easement Acquisition	Husselbee
6.	Town of Exmore Wastewater Treatment Services Agreement	Henifin
7.	Town of Onancock Wastewater Services Ownership Transfer and Service Agreement	Henifin
8.	COVID-19 Wastewater Surveillance Study Update	Curtis
9.	Unfinished Business	Henifin

No.	Topic	Resource
10.	New Business	Henifin
11.	Commissioner Comments	
12.	Public Comments Not Related to Agenda	Cascio
13.	Informational Items	Henifin
	a. Management Reports	
	b. Strategic Planning Metrics Summary	
	c. Effluent Summary	
	d. Air Summary	
14.	Fiscal Year-2022 Annual Budget Work Session	Henifin

Next Regular Commission Meeting Date: April 27, 2021

Resource: Ted Henifin

AGENDA ITEM 1. – March 23, 2021

Subject: Consent Agenda

Recommended Action: Approve the Consent Agenda.

Brief: The items listed below are presented on the following pages for Commission action.

a. Approval of Minutes

The draft minutes of the previous Commission Meeting were distributed electronically prior to the meeting.

b. Contract Awards

1.	Nansemond Treatment Plant Struvite Recovery Facility Improvements Contract Award Contract Change Order	 $379,100 $1,046,437
2.	Per- and Polyfluoroalkyl (PFAS) Substances Fate and Uptake after Land Application of Thermal Hydrolysis Process (THP) Biosolids and Effects of Adding SWIFT Treatment Residuals Contract Award – Multi Year Research Study	$340,000
3.	Polydyne Polymer Blanket Purchase Agreement	$12,791,020
4.	Small Communities Operation Center Parking and Laydown Area	$295,735

c. Task Orders

1.	Independence Boulevard Pressure Reducing Station (PRS) Force Main Repair	$280,887
2.	Salem Road Interconnect Force Main	$499,806
3.	South Shore Cathodic Protection System Inspections	$372,347
4.	SWIFT Program Management (James River SWIFT Design-Build Projects)	$2,259,128
5.	Washington District Pump Station Area Sanitary Sewer Improvements	$225,727
6.	York River Treatment Plant Administration Building Renovation	$274,891

d. Sole Source and Contract Award

1. James River Treatment Plant Advanced Nutrient Reduction Improvements $360,000

2. SCADA Network (4G/LTE WAN) Monitoring Support Services $1,840,000

e. Sole Source

1. ACOEM RT-300 Laser Alignment System Reliability Tool, Parts and Repairs

2. BizLibrary Learning Portal and Training Module Annual Licenses

3. Det-Tronics Combustible Gas Point Detectors and Parts

4. Smart Prep II Extractor System

5. Spencer Centrifugal Blowers, Parts and Repairs

6. Sulzer Centrifugal Pumps, Parts and Repairs

CONSENT AGENDA ITEM 1.b.1. – March 23, 2021

Subject: Nansemond Treatment Plant Struvite Recovery Facility Improvements Contract Award and Contract Change Order (>25% or $50,000)

Recommended Actions:

a. Award a contract to MEB General Contractors Inc. in the amount of $379,100 to complete Phase I of NP013700.

b. Approve a change order with Ostara USA, LLC in the amount of $1,046,437.

CIP Project: NP013700

Budget	$6,628,400
Previous Expenditures and Encumbrances	($3,768,675)
Available Balance	$2,859,725

Type of Procurement: Competitive Bid

Bidder	Bid Amount
MEB General Contractors Inc.	$379,100
Crowder Construction Company	$455,000
American Contracting & Environmental Services Inc.	$516,500
Shaw Construction Corp.	$684,500

Engineer Estimate: $710,000

Contract Status:	Amount	Cumulative % of Contract
Original Contract with Ostara USA, LLC	$2,139,792	
Total Value of Previous Change Orders	$104,904	5%
Requested Change Order No. 3	$1,046,437	
Total Value of All Change Orders	$1,151,341	54%
Revised Contract Value	$3,290,323	

Project Description: This project involves the implementation of the WASSTRIP® (Waste Activated Sludge Stripping to Remove Internal Phosphorous) process and improvements to the Struvite Recovery Facility (SRF). The WASSTRIP process consists of the storage of thickened WAS/PS in a tank for a period sufficient to allow phosphorus and magnesium release, followed by post thickening, and transfer of thickened solids to digestion. The thickening filtrate (WASSATE) will be transferred to the SRF reactors along with the existing centrate stream. The SRF upgrade includes improvement of the chemical system, additional reactor capacity, and replacement of the struvite product drying equipment. The majority of this project is in the design phase and will be completed as one construction project in unison with the Nansemond Treatment Plant Digester Capacity Upgrade (NP014700). The WASSTRIP and SRF processes will be sized to handle flows from both Boat Harbor and Nansemond Treatment Plants. The project team identified a need to move forward quickly with the new dryer equipment and a new programmable logic controller (PLC) for the SRF. This is being considered Phase I and will involve contractor installation of the Ostara supplied dryer, PLC, and ancillary equipment.

Phase II of the project is in early design and will require additional appropriation prior to awarding the construction contract. The FY-2022 CIP budget for NP013700 has been updated to include both Phase I and Phase II.

Analysis of Cost: In accordance with HRSD's competitive sealed bidding procedures, the Engineering Department advertised and solicited bids directly from potential bidders. Four bids were received and evaluated based upon the requirements of the Invitation for Bid. MEB General Contractors Inc. is the apparent low bidder with a bid amount of $379,100. The Engineer's estimate was approximately 40% higher than the average of the bids, and approximately 4% higher than the highest bid received. The reason for this is that contingencies used in the installation cost were very conservative and based percentages of the owner furnished equipment, rather than detailed take-offs.

Change Order Description: This change order includes a new Pearl 2K reactor to accommodate Boat Harbor Treatment Plant flows at the Nansemond Treatment Plant SRF, as well as pumps, valves, and other ancillary equipment. The services also include system engineering (which involves collaboration during the design phase), construction supervision, startup and training and Ostara PLC programming. HRSD has recently made the decision to continue anaerobic digestion at the Nansemond Treatment Plant and revise the WASSTRIP and SRF design to accommodate additional loading from BHTP. The engineering services and equipment to be provided as part of this change order will be integrated into the Phase II portion of this project.

Analysis of Cost: The cost of this change order is based on negotiations between HRSD and Ostara and similar projects utilizing the similar equipment.

Schedule:	**Phase I**	Construction	April 2021
		Project Completion	October 2021
	Phase II	Bid	November 2021
		Construction	February 2022
		Project Completion	October 2023

Resource: Jim Pletl

CONSENT AGENDA ITEM 1.b.2. – March 23, 2021

Subject: Per- and Polyfluoroalkyl (PFAS) Substances Fate and Uptake after Land Application of Thermal Hydrolysis Process (THP) Biosolids and Effects of Adding SWIFT Treatment Residuals
Contract Award – Multi Year Research Study

Recommended Action: Award a contract to The Trustees of Purdue University DBA Purdue University in the amount in the estimated amount of $115,000 for year one with two annual renewal options and an estimated cumulative value in the amount of $340,000.

Project Description: This research study will evaluate the fate and transport of PFAS through land application of biosolids at the Atlantic Treatment Plant Progress Farm. This work will also evaluate the potential benefit of incorporating water treatment residuals into biosolids in an attempt to reduce mobility of PFAS. The scope of research is identified in the attached proposal.

Purdue University SCOPE OF WORK

Field Study to evaluate PFAS Fate and Uptake after Land Application of Cambi THP Biosolids and Effects of Adding SWIFT Alum Water Treatment Residuals

1. Background

The statement of work (SOW) to be conducted at HRSD fits within a larger effort funded by the EPA National Priority grant evaluating PFAS in rural communities and agricultural operations (Abstract in Appendix A). Specifically, Objective 3 of the EPA grant will be done at the HRSD Progress Farm, and thus, under this SOW: *Evaluate PFAS fate, transport and crop uptake in a site-specific study from land-applied biosolids and if co-application at the field-scale of biosolids-based biochar and/or water treatment residuals (WTRs) with typical biosolids will reduce overall PFAS mobility.*" Additional work to be done with the data collected at the HRSD site includes column studies and modeling fate and transport, which will be covered by EPA funds. In addition, some PFAS degradation studies and investigation of side-chain polymers will be covered by the EPA funds.

2. Objective

The research proposed here is to 1) evaluate PFAS fate, transport and crop uptake in a site-specific study from land-applied biosolids and 2) evaluate id the addition to biosolids of Al-based WTRs from the SWIFT process reduces PFAS concentrations in leachate. The latter will include a bench-scale study to determine the best mix to use at the field scale within what is practical at the field-scale. This data along with other research being conducted through the EPA grant is expected to (i) inform management strategies in agricultural operations; and (ii) inform regulatory agencies on relative impacts of land-applied effluents and biosolids as a agricultural resource on rural water supplies.

3. Hampton Roads Sanitation District Progress Farm Land-applied Biosolids Field Study

A detailed study of PFAS fate and transport from a biosolids land-application site will be conducted at the Progress Farm (PF) in Virginia Beach, VA operated by the Hampton Roads Sanitation District (HRSD) (**Fig. 1**). The PF site is ~190 acres, where primarily corn and soybean and occasionally wheat are grown for animal feed. The HRSD staff maintain detailed records of the biosolids and associated nutrients and trace elements that were applied to various PF fields. The PF receives an average annual precipitation of 120 cm with annual average low and high temperatures of 10.8 and 20.3°C, respectively. PF is dominated by

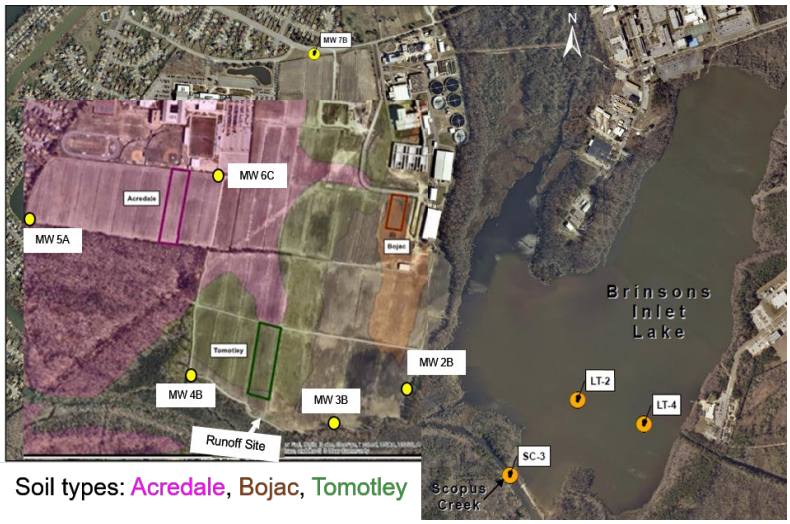

Figure 1. HRSD Progress Farm with monitoring wells, surface water sampling stations, and soil types.

three soils series classified as an Acredale silt loam, which is a deep and slowly permeable soil, and a Bojac sandy loam, which is deep and moderately rapidly permeable soil, and Tomotley loam. Most fields have a 2 to 3% slope and are underlain by a shallow groundwater (<1 m) table. Soils at PF are typical of the Atlantic coastal plain with low moisture and nutrient holding capacity typical of coarse textured agricultural soils. These soils benefit greatly from the added organic matter and slow-release nutrients characteristic of biosolids. Lime is added when necessary to keep the soil pH above 5.5. The PF also has 7 groundwater monitoring sites with all but one site having both shallow and deep wells, one main storm-monitoring site and three dedicated surface water monitoring sites adjacent to the where land-application occurs. We are also working towards placement of lysimeters on the plots designated for our research.

Biosolids from the HRSD Atlantic WRRF in Virginia Beach, VA, are currently stabilized via anaerobic digestion and thickened by centrifugation to an average of 14-17% total solids. Land application to date has been a surface applied (broadcasted) wet biosolids and then tilled into the top 15-20 cm, with the last application in 2014. In spring 2022, HRSD will begin applying dewatered Class A biosolids (~25% TS) from the Cambi Thermal Hydrolysis Process (THP) (broadcasting and tilled in). We have received our first post-Cambi samples this month along with background samples in preparation for land-application of biosolids in late March early April 2022 after the biosolids from the new process are permitted as Class A biosolids.

Biosolid Treatment Evaluation: On a relative scale, the Acredale silt loam soil type is most prevalent at the HRSD farm. Therefore, we will focus on plots with soils in this series for evaluation changes in PFAS release from Class A Cambi biosolids that are amended with Alum-WTRs or biochar produced from low temperature low oxygen pyrolysis of biosolids. Bench-scale studies will be conducted to evaluate performance of both these amendments to biosolids and optimization of the mixing ratio of amendments to biosolids.

Sampling Plan. Biosolids will be sampled prior to land-application. Triplicate soil cores (75-cm cores divided into 15-cm increments) from each of 3 soil types (9 cores per sampling event) prior to a new biosolids application and at the end of the crop growing cycle for each of two years from biosolid-applied areas and one set each year from a control area. Monitoring wells and lysimeters will be sampled up to 10 times over a 2-y period (Up to 60 shallow well and 50 deep well samples plus lysimeters). Surface water composites will be taken 5 times during the 2-y period at each of the 3 stations (2 at Lake Tecumseh and 1 at Scopus Creek, **Fig. 1**). In addition, we will capture samples from a number of stormwater runoff events with a focus on events after biosolids application, and if possible, a few prior to biosolid-application. Sampling of plant (corn or soybean) will be one from each of the three soils types from each of three growing cycles to evaluate loads in the fruit, plant and roots. PFAS analysis for all HRSD-site samples will be conducted at Purdue University while all other standard analysis (pH, nutrients, carbon, metals, etc.) will be conducted independently by HRSD.

A potential approach to reduce PFAS leaching from biosolids is the addition of Al-based WTRs from the SWIFT process to biosolids prior to land application. WTRs have been found to reduce leaching of other contaminants of concern of varying hydrophobicity and charge (e.g., Elliot et al., 2002; Makris and O'Connor, 2007; Cherukumilli et al., 2017; Kupryianchyk et al., 2016; Aslekland et al., 2020). Currently we are doing bench-scale tests to determine the ratio of WTRs to biosolids that may work best to reduce PFAS concentrations in porewater leaving the biosolid mix zone while also being practical to implement at the field scale with negligible adverse effects to crops. Bench-scale tests will include batch studies looking at PFAS levels in the supernatant after mixing with different but practical biosolid:WTRs ratios as well as removal of PFAS upon addition of WTRs from porewater created in our porewater assay (Choi et al., 2020; Kim-Lazcano

et al., 2020) with the Cambi THP biosolids. If we are able, we may also add a treatment involving mixing biosolids-based biochar with biosolids similar to the WRT treatment.

4. Analytical Approach for PFAS Analysis

For routine analysis, we will target up to 60 PFAS which standards are available (typically those offered by Wellington Labs, Canada) including separate quantitation of linear and branched PFAS and the recent ether replacements for the longer chain PFAS. PFAS, along with corresponding ^{13}C-labeled internal standards, will be performed at all three universities as well as advanced analytical methods to achieve detection and quantification at $\geq$ 10 ng L^{-1} for the PFASs targeted for quantitation. The Lee lab at Purdue has already developed standard operating procedures (SOPs) and quality control/quality assurance steps for approximately 44 PFAS as well as target and nontarget screening protocols.

Solid and aqueous samples will be prepared for analysis using techniques already established in Dr. Lee's lab, which were developed starting with EPA Method 537 and then optimized to deal with matrices other than water. Aqueous samples will be processed using solid phase extraction (SPE) consistent with EPA Method 537 and generally compliant with DoD's QSM 5.1 (http://www.denix.osd.mil/edqw/documents/documents/qsm-version-5-3-final/) and specifically QA/QC requirements listed in Table B-15 wherever practicable. Some requirements listed in Table B-15 do not apply when using a QToF-MS. We will use Wellington Laboratories as the source for all calibration, calibration verification, and spiking standards. QC guidance (documentation, calculation) on ion transitions used for quantitation in QSM 5.3 Table B-15 will be followed and specific transitions used if relevant to an analyte of interest. All analytical sequences will begin an initial calibration (internal standard method) consisting of a minimum of five calibration standards. Acceptance criteria (from QSM 5.1 Table B-15) will include the following: the %RSD of the response factors for all analytes must be < 20%, linear or nonlinear calibrations must have $R^2 \geq 0.99$ for each analyte and be within 70- 130% of their true value for each calibration standard. Instrument QC Checks prescribed in QSM 5.3 Table B-15 will be followed, including mass calibration, tuning checks, and mass spectral acquisition rate. QC checks with analyte concentrations at the limit of quantitation (LOQ) and continuing calibration verifications at analyte concentrations between concentrations > LOQ and the midpoint of the calibration curve will be conducted after every 10 samples and at the end of the analytical sequence. The acceptance criteria for all of these checks will be ± 30% of the true value. Instrument and method blanks will also be a part of every analytical sequence. Carry-over between injections will be assessed by running instrument blanks after the highest calibration standard. Internal contamination during sample processing will be checked by running at least one method blank for each batch of samples processed. In addition, extracted isotopically mass-labeled internal standard surrogates, injection internal standard analytes, laboratory control samples, matrix spikes and duplication will be analyzed consistent with both the QSM 5.3 Table B-15 guidance document and EPA Method 537.

In addition to the total fluorine, organo fluorine and TOP assays mentioned in section 2.1, we will do target and nontarget screening using a Sciex QTof/MS, which the Lee lab has done for their previous remediation and degradation studies (Park, et al., 2017; Zenobio et al., 2020) thus positioned well to be able to address the larger PFAS precursors.

5. Sample Handling and Collection

This project involves the collection of well water, surface water, run-off, effluent, biosolids and soils and laboratory-generated aqueous-based and solvent-based samples during degradation, sorption/desorption and column studies. Aqueous samples will be collected in PFAS-free high-density polyethylene (HDPE) sample containers. Solvent extracts will be stored in PFAS-free

polypropylene tubes. All samples or sub-samples received or generated from laboratory experiments will be collected in appropriately labeled PFAS-free containers and stored at either 4°C, -20°C or -80°C, depending on sample type. All samples will be assigned unique IDs.

Chain of custody (COC) sheets already established in the Lee Lab will be used in the collection and transport to our labs of all well water, surface water, run-off, effluent, biosolids and soils samples as well as samples that are shipped between labs for PFAS quantification or MS screening analysis. All other samples will remain in the custody of the PIs or personnel under their direct supervision precluding the need for chain of custody documentation. Dr. Lee will maintain copies of all COCs consistent with our regular data management plan.

6. Procedures for data reduction, analysis, and reporting

Organization and reduction of chemical data will be carried out on a personal computer. Data will be stored and graphically presented in Excel spreadsheets. Data collected electronically or from instrument readouts will be maintained in computer files for further analysis. The PI will keep copies of all raw data and computer files generated in accordance with our established and EPA-approved scientific data management plan (SMDP). Statistical Analysis System (SAS) version 9.0, Sigma Stat or similar software will be used for statistical analysis. Reduced data from all experiments will be analyzed for trends and correlations and fitted to appropriate models. Final reports and publications will be reviewed to ensure that they accurately reflect the raw data and provide a description of the experimental methods, observations, results and interpretation. Only reproducible results will be published in peer-reviewed journals. If unusual results are observed, new data will be obtained by re-sampling, re-analysis or repeating the experiments in question as appropriate.

7. Facilities. Dr. Lee's lab at Purdue University includes over 3,000 ft^2 equipped with ventilated chemical storage areas, two fume hoods, 2 Milli-Q water systems, and an automated water distillation system. Her lab is staffed with a full time PhD analytical chemist. Relevant equipment associated with her lab or with complete access includes: Shimadzu uPLC- Sciex 5600+ QToF; Shimadzu HPLC/MSMS ABSciex 3000 triple quad; Shimadzu 8040 LC/MS/MS triple quad; nitrogen generator for all LC/MS systems and several other Shimadzu HPLCs and GCS with various detectors including GC/MS; 2 SPE systems and other common minor lab equipment; CEM MARS 6 microwave extraction/digestion system; Shimadzu ICP9800-OES, a Labconco RapidVap N2 Evap. System, autoclaves, and a large cold room. Dr. Lee also shares an automated Metrohm Ion Chromatograph (IC) 850 with a conductivity detector and MS interface and has access at Purdue to a Shimadzu TOC 5000 for dissolved carbon analysis.

8.0 References

Askeland, M.; Clarke, B.O.; Cheema, A.A.; Mendez, A. Gasco, G.; Paz-Ferreiroa, J. 2020. Biochar sorption of PFOS, PFOA, PFHxS and PFHxA in two soils with contrasting texture. Chemosphere, Vol. 249, June 2020, 126072

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Choi, Y. J.; Kim Lazcano, R.; Yousefi, P.; Trim, H.; Lee, L. S. Perfluoroalkyl Acid Characterization in US Municipal Organic Solid Waste Composts. *Environ. Sci. Technol. Lett.* **2019**, *6* (6), 372–377.

Elliott, H. A., O'Connor, G. A., Lu, P., Brinton, S., Influence of water treatment residuals on phosphorus solubility and leaching. *J. Environ. Qual.*, 2002. **31**(4): p. 1362-1369.

Kim Lazcano, R.; Choi, Y. J.; Mashtare, M. L.; Lee, L. S. Characterizing and Comparing Per- and Polyfluoroalkyl Substances in Commercially Available Biosolid and Organic Non-Biosolid-Based Products. *Environ. Sci. Technol.* **2020**, *54* (14), 8640–8648.

Kupryianchyk, D., Hale, S. E., Breedveld, G. D., & Cornelissen, G. (2016). Treatment of sites contaminated with perfluorinated compounds using biochar amendment. Chemosphere, 142, 35-40.

Makris, K. C., O'Connor, G. A., *Beneficial utilization of drinking-water treatment residuals as contaminant-mitigating agents*, in *Developments in Environmental Science: Concepts and Applications in Environmental Geochemistry*, D. Sarkar, Datta, R., Hannigan, R., Editor. 2007. p. 609-635.

8. Budget and Budget Justification

In accordance with 2 CFR 200, Uniform Administrative Requirements, Cost Principles, And Audit Requirements for Federal Awards, Purdue University tracks and reports its professional personnel on a percent of effort and not on an hourly basis. Salaries are adjusted by standard University inflation rates each fiscal year (July 1): 3% for faculty, 2.5% for professional/technical assistants, and 2% for post docs, graduate/undergraduate students and service staff.

Distribution Plan: HRSD annual allocations are planned for $115K in Year 1, $115K in Year 2, and $110K in year 3 for a total of $340K

Personnel (Salary) **$167,271**

Dr. Linda Lee, PI, is budgeted at 3% (Year 1 5,205, Year 2 $5,361, and Year 3 $5,552, base salary $173,510 effective July 1, 2019). Dr. Lee will be responsible for overall project management and quality assurance.

PhD chemist Dr. Youn Choi is budgeted for 10 % effort for the length of the project . (Year 1 $7,016, Year 2 $7,191 and Year 3 $7,371, base salary $70,158 effective July 1, 2019). The chemist will be directly involved in methods development, lab and instrument maintenance, safety training, ensuring quality control and quality assurance steps are properly conducted on a routine basis by all lab members, and overseeing daily SOPs.

Post-doc (Mahsa Modiri-Gharehveran or TBD) is budgeted for 25% for 6 months in Year 1, 50% in Year 2 and Year 3 of the project. (Year 1 $5,938, Year 2 $24,387, and Year 3 $24,874, base salary $47,500 effective July 1, 2020). Dr. Modiri-Gharehveran will be responsible for PhD student training, support of HRSD sample analysis and synthesis; and facilitate/conduct the non-target screening for PFAS precursors.

PhD graduate student Lynda Peter is budgeted for 50% effort for the length of the project. (Year 1 $22,548, Year 2 $22,999, and Year 3 $23,459, base salary $45,096 effective July 1, 2019) The PhD student will be responsible for the research conducted at the HRSD Progress Farm field site as their dissertation research.

An undergraduate student is requested to add researchers and wash labware for 150 hours each year at $12 per hour. (Year 1 $1,800, Year 2 $1,800, and Year 3 $1,800).

Fringe Benefits **$33,621**

Fringe benefits are budgeted in accordance with university policy as follows:
Faculty 27.8%

Post-Doc 28.7%
Professional 34.4%
Grad Student 7.9%
Undergrad 8%

Travel Domestic **$5,700**

$1,200 is budgeted in year 1for the PI, graduate student and post doc or chemist to visit Progress farm, $1,500 is budgeted for Year 2 and Y$3,000 for Year 3 to travel to PFAS/related conference/workshops (TBD) one person in Year 2 and two people in Year 3.

Supplies and Lab Expenses **$40,364**

Funds requested for laboratory supplies include cost of safety supplies, lab notebooks, pipettes, tubes, sampling bottles, and other common laboratory consumables as well as specific items relevant to the sampling and determination of PFASs by LC-MS/MS in various environmental matrices. The latter includes standard reference materials, analytical standards, compressed gases, solvents, analytical vials, solid-phase extraction disks, syringes, etc. equipment maintenance parts, and contribution to the QToF and Peak generator maintenance contracts.

Other Direct Costs **$31, 305**

Graduate Fee Remissions are budgeted in accordance with university policy. $62,610 with $31,305 contributed from HRSD.

Total Direct Costs **$278,261**

Indirect Costs **$61,739**

Indirect costs are budgeted at the negotiated indirect cost rate of 25% of the modified total direct costs for research, which is the established IC maximum with HRSD.

Total Direct Costs **$340,000**

Appendix A

ABSTRACT

a. Funding Opportunity: EPA-G2020-ORD-B1

b. Project Title: Evaluating PFAS Occurrence and Fate in Rural Water Supplies and Agricultural Operations to Inform Management Strategies

c. Investigators: Linda Lee[a] (contact PI; lslee@purdue.edu), Kurt Pennell[b], Heather Preisendanz[c]

d. Institutions: [a]Purdue University (Lead Institution), West Lafayette, IN; [b]Brown University, Providence, RI; [c]Penn State University (PSU), University Park, PA

e. Project Period, Location: 11/01/2019 – 10/30/2022, Purdue, Brown, PSU, PA, IN. VA

f. Project Cost: $2,316,074 (Total) $1,610,752 (EPA)

g. Project Summary:

(1) Objectives/Hypotheses: Our overall goal is to address key data gaps in our understanding of the occurrence and fate of PFAS in the rural landscapes and agricultural operations and their impacts on rural water supplies and agricultural products. We propose a combination of field, laboratory and modeling activities to evaluate the following objectives: **Objective 1.** Evaluate the contribution of effluent and land-applied biosolids to PFAS in rural water sources in partnership with environmental management entities, cooperating water resource recovery facilities (WRRFs), biosolid applicator entities and farm owners to access WRRF effluents, biosolids, soils, and well/drinking water; **Objective 2.** Evaluate PFAS fate, transport and crop uptake in a site-specific field study from spray-irrigation with WRRF effluent; **Objective 3.** Evaluate PFAS fate, transport and crop uptake in a site-specific study from land-applied biosolids and if co-application at the field-scale of biosolids-based biochar or water treatment residuals with typical biosolids will reduce overall PFAS mobility; **Objective 4.** Evaluate the occurrence of larger PFAS precursors (e.g., side-chain polymers) in land-applied biosolids and their relative persistence (PFAS source strength) in lab-based studies; **Objective 5.** Evaluate the role of interfacial adsorption on PFAS transport in the unsaturated zone relative to sorption estimated in traditional soil slurries; and **Objective 6.** Refine and validate mathematical models to predict PFAS leaching and potential risk to surface and ground water resources based on lab and field results.

(2) Approach: We propose a combination of field, laboratory and modeling activities. We will survey rural water supplies for PFAS in PA, IN, and VA. We will conduct two in-depth field studies. One in PA where treated wastewater is used to irrigate crops and one in VA at a field site receiving biosolids in which leaching of PFAS to wells and crop uptake will be evaluated. At the VA site we will also will also be used to test mitigation of PFAS leaching with sorbents such as water treatment residuals or biochar. We will conduct laboratory studies to quantify the relative long-term contributions of mobile PFAS from precursors and to assess the hypothesized enhanced retention of PFAS in the unsaturated zone.

(3) Expected results. The proposed research will increase our understanding of the occurrence of PFAS and their concentrations in private drinking wells in rural communities as well in rural water resource recovery facilities (WRRFs), the relative contribution of PFAS from land-application wastewater and biosolids to rural water supplies. the role of enhanced PFAS sorption to air-water interfaces in the vadose zone, the occurrence and source strength of PFAS precursors including side-chain polymers in land-applied biosolids, and provide model refinements in improving our ability to predict when PFAS will impact potable water sources. This measured and modeling approach will identify landscape, hydrologic and soil characteristics that are most appropriate for receiving biosolids or treated wastewater with minimal impact to water and crop resources

h. SUPPLEMENTAL KEYWORDS: well water, drinking water, effluent-irrigation, biosolid

Resource: Steve de Mik

CONSENT AGENDA ITEM 1.b.3. – March 23, 2021

Subject: Polydyne Polymer Blanket Purchase Agreement
Contract Award (>$200,000)

Recommended Action: Award a blanket purchase contract for Polydyne Polymers to Polydyne, Inc. in the estimated amount of $2,558,204 for year one with four annual renewal options and an estimated cumulative value in the amount of $12,791,020.

HRSD Estimate: $2,646,523

Contract Description: This contract is an agreement to furnish and deliver Polydyne brand polymers to HRSD Treatment Plants on an as needed basis. This is a continuous use contract developed and utilized in accordance with the Polymer Evaluation Policy.

Analysis of Cost: This is an estimated use contract. HRSD Estimate is based on current annual usage and FY-2022 Budget Projections.

Resource: Steve de Mik

CONSENT AGENDA ITEM 1.b.4. – March 23, 2021

Subject: Small Communities Operation Center Parking and Laydown Area Contract Award (>$200,000)

Recommended Action: Award a contract to C T Redd Construction Inc in the amount of $295,735.

CIP Project: MP013400

Budget	$495,000
Previous Expenditures and Encumbrances	($14,158)
Available Balance	$480,842

Type of Procurement: Competitive Bid

Bidder	Bid Amount
C T Redd Construction, Inc.	$295,735
J.S.G. Corporation	$349,660
Henderson, Inc.	$392,000
Parking Lot Maintenance, Inc.	$422,225
Athens Building Corp DBA First Class Contracting	$496,642

Engineer Estimate: $451,356

Project Description: In 2015, HRSD purchased approximately two acres in West Point, VA behind the existing Small Communities Operations Center for future expansion. This project will allow for creation of a laydown yard, expansion for much needed additional parking, and any associated storm water requirements.

Analysis of Cost: CT Redd Construction, Inc. was found to be the low responsive and responsible bidder when evaluated against all other bids received. While the cost is lower than the Engineer Estimate, the bid was found to be fair and reasonable for this project and reflective of this type of construction work.

CONSENT AGENDA ITEM 1.c.1. – March 23, 2021

Subject: Independence Boulevard Pressure Reducing Station (PRS) Force Main Repair Task Order (>$200,000)

Recommended Action: Approve a task order with Bridgeman Civil, Inc. in the amount of $280,887.

Contract Status:	**Amount**
Original Contract with Bridgeman Civil, Inc.	$0
Total Value of Previous Task Orders	$8,883,467
Requested Task Order	$280,887
Total Value of All Task Orders	$9,164,354
Revised Contract Value	$9,164,354

Project Description: On February 17, 2021, staff discovered a sewage leak in the Independence Boulevard PRS yard. Staff isolated the leak and excavated to investigate what caused of failure on 1968 vintage 36-inch reinforced concrete pipe (RCP). Several sections of the RCP appear to be cracked possibly from construction activities nearby. Approximately 100 feet of the RCP will be replaced to eliminate this section of pipe.

Task Order Description: The work under this task order includes the replacement of 100 feet of force main along with several tees and a blind flange.

Analysis of Cost: The cost for this task order is based on the unit prices and labor rates in the Sewer Repairs and On-Call Services contract with Bridgeman Civil, Inc.

Schedule:

Construction	March 2021
Project Completion	May 2021

Resource: Bruce Husselbee

CONSENT AGENDA ITEM 1.c.2. – March 23, 2021

Subject: Salem Road Interconnect Force Main
Task Order (>$200,000)

Recommended Action: Approve a task order with Bridgeman Civil, Inc. in the amount of $499,806.

CIP Project: CE011825

Budget	$ 1,449,000
Previous Expenditures and Encumbrances	($ 212,454)
Available Balance	$ 1,236,546

Contract Status:	**Amount**
Original Contract with Bridgeman Civil	$0
Total Value of Previous Task Orders (Sewer Repair On-Call Contract)	$8,883,467
Requested Task Order	$499,806
Total Value of All Task Orders	$9,383,273
Revised Contract Value	$9,383,273

Project Description: The project will install a new control valve in Salem Woods Park on a section of existing 30-inch force main that runs parallel to Salem Road, just south of Ferrell Parkway. The new automated valve will provide a higher level of control when flow from the Chesapeake-Elizabeth Treatment Plant (CETP) is diverted and the pressure reducing stations in the Atlantic Treatment Plant (ATP) service area are running more frequently. The project will include near real-time communication and control logic between multiple remote pump station sites. The new controlled facilities will adapt to variable system conditions in order to provide isolation between the Central and the Southern Loops as required for efficient operation in the post-2021 ATP service area when CETP is off-line.

Task Order Description: The task order will provide for the installation of a 30-inch valve, adapters, short sections of pipe, a concrete vault, access drive, associated power conduits and concrete equipment pads.

Analysis of Cost: The cost for this task order is based on the unit prices and labor rates in the Sewer Repair On-Call Contract with Bridgeman Civil.

Schedule:

Permitting	May 2021
Construction	June 2021
Completion	September 2021

Resource: Bruce Husselbee

CONSENT AGENDA ITEM 1.c.3. – March 23, 2021

Subject: South Shore Cathodic Protection System Inspections
Task Order (>$200,000)

Recommended Action: Approve a task order with Hazen and Sawyer, P.C. in the amount of $372,347.

Contract Status:	**Amount**
Original Contract with Hazen and Sawyer, P.C.	$0
Total Value of Previous Task Orders	$0
Requested Task Order	$372,347
Total Value of All Task Orders	$372,347
Revised Contract Value	$372,347

Project Description: This project will evaluate HRSD's cathodic protection systems (both galvanic and impressed current) on the South Shore in accordance with the goals and performance measures identified in the 2018 HRSD Maintenance of Operation Manual (MOM).

Task Order Description: This task order will provide for the complete evaluation of the systems to include inspection to identify damage and ensure operability, and analysis to determine if adequate protection is being provided to our corrosion susceptible force mains. For those systems that are not providing adequate protection, soil corrosivity studies will be performed along the force mains and system repair/replacement needs will be evaluated and recommended. This task order includes cost needed to evaluate and provide repair/replacement recommendations for all our South Shore cathodic protection systems. Any systems that are deemed to be working properly will not have further repair/replacement evaluations and recommendations, and we will not be charged for this unnecessary work.

Analysis of Cost: The cost for this task order is based on negotiated and approved contract rates within the Condition Assessment Program contract and will be billed to the Operations Department Operating Budget Collection System Force Main Field Services budget.

Resource: Bruce Husselbee

CONSENT AGENDA ITEM 1.c.4. – March 23, 2021

Subject: SWIFT Program Management (James River SWIFT Design-Build Projects) Task Order (>$200,000)

Recommended Action: Approve a task order with AECOM in the amount of $2,259,128.

CIP Project: GN016320

Budget	$80,000,000
Previous Expenditures and Encumbrances	($16,488,850)
Available Balance	$63,511,150

Contract Status:	Amount
Original Contract with AECOM Technical Services	$5,264,440
Total Value of Previous Task Orders	$11,139,762
Requested Task Order	$2,259,128
Total Value of All Task Orders	$13,398,890
Revised Contract Value	$18,663,330
Engineering Services as % of Construction	0.48%

Project Description: The SWIFT Full Scale Implementation Program (FSIP) Management team will manage the delivery of the advance water treatment facilities to take HRSD's already highly treated wastewater and produce SWIFT water. The Program Management team may also deliver conveyance, wastewater treatment plant improvements, and other such projects to support full scale SWIFT implementation. The Program Management team will implement the processes, procedures, and systems needed to design, procure, construct, permit, manage, and integrate the new SWIFT related assets.

Task Order Description: This task order will provide Owner's Consultant Services during the Design-Build Design Phase of the James River SWIFT Facility (GN016360) and James River Treatment Plant Advanced Nutrient Reduction Improvements (JR013400) projects. Owner's Consultant Services are intended to provide support to HRSD by engaging technical experts to review deliverables and change requests submitted by the Design Builder for conformance with Contract Documents, Basis of Design Report, HRSD Design & Construction Standards, and general design best practices and engaging program management team members to provide project delivery support, document management, cost estimate reviews, and schedule submittal reviews. The expected duration of this project phase and task order is 12 months.

Analysis of Cost: The cost for this task order is based on a detailed estimate of labor hours and direct costs required to execute the negotiated scope of work. The total hours budgeted are appropriate for the proposed services. The time and materials fee plus proposed additional services is 0.48% of the estimated construction cost. This ratio for Owner's Consultant services compares well with other HRSD Design Build projects, which ranged from 0.26% to 1.63% of construction cost for Owner's Consultant fees during design phase. This task order will be issued as an amendment to the Professional Services Agreement with AECOM for SWIFT Full Scale Implementation. The rates and proposed sub-consultant fees are consistent with the rate structure within the Agreement, as approved for FY2021.

Schedule:		
	Selection of Design Build firm / establish CCL	January 2021
	Detailed design development / Stipulated Fixed Final Price	March 2022
	Construction Completion	December 2025

Resource: Bruce Husselbee

CONSENT AGENDA ITEM 1.c.5. – March 23, 2021

Subject: Washington District Pump Station Area Sanitary Sewer Improvements Task Order (>$200,000)

Recommended Action: Approve a task order with Rummel, Klepper and Kahl, LLP in the amount of $225,727.

CIP Project: AT013000

Budget	$2,496,266
Previous Expenditures and Encumbrances	($418,558)
Available Balance	$2,077,708

Contract Status:	Amount
Original Contract with RK&K	$94,850
Total Value of Previous Task Orders	$323,708
Requested Task Order	$225,727
Total Value of All Task Orders	$549,435
Revised Contract Value	$644,285

Project Description: This project is part of the Rehabilitation Action Plan Phase 2, which is part of the Federal Consent Decree. The project will replace 4,300 linear feet of 18-inch diameter gravity sewer pipeline and associated manholes. This project will include the permanent abandonment of the inactive Washington District outfall.

Task Order Description: This task order will provide design services for a new bar screen installed in the wet well of the existing station. This is necessary due to the relocation of the gravity influent piping into the pumping station. It will also replace the existing sanitary sewer force main from the Dozier's Corner PS 109 that was constructed of cast-iron pipe in 1960. This pipeline is 10-inches in diameter and during a failure the internal diameter was reduced to approximately 3-inches. The Asset Management Division has also reviewed this effort and recommends replacement.

Analysis of Cost: The cost for this task order is based on established rates for the Interceptor System Projects annual services contract. The proposed hours and effort are in line with past efforts on similar projects.

Schedule:

Design	September 2019
Bid	January 2022
Construction	March 2022
Project Completion	April 2023

Resource: Bruce Husselbee

CONSENT AGENDA ITEM 1.c.6. – March 23, 2021

Subject: York River Treatment Plant Administration Building Renovation
Task Order (>$200,000)

Recommended Action: Approve a task order with Guernsey Tingle in the amount of $274,891.

CIP Project: YR014000

Budget	$1,329,400
Previous Expenditures and Encumbrances	($39,730)
Available Balance	$1,289,670

Contract Status:	**Amount**
Original Contract with Guernsey Tingle	$39,730
Total Value of Previous Task Orders	$0
Requested Task Order	$274,891
Total Value of All Task Orders	$314,621
Revised Contract Value	$314,621
Engineering Services as % of Construction	17.3%

Project Description: This project will renovate the existing 1980's Administration Building at the York River Treatment Plant. This project will provide for an expanded men's and women's restroom and locker facilities as well as a unisex restroom and shower. Existing toilets, sinks, showers, and lockers will be replaced as needed. Much needed office space will be added for plant staff including electrical and instrumentation staff, an expanded lunchroom, a conference room, a panic room, and an enclosed Clerk office including windows and doors. A new plant lab and space for a future SWIFT lab will be provided. A larger operations control room capable of meeting existing and future SWIFT needs will be constructed along with a secured room for control systems. Existing medium voltage and fiber optic ductbanks and cables will be relocated to accommodate the new building addition.

Task Order Description: This task order will provide design and bid phase services for this project.

Analysis of Cost: The costs for this task order is based on a negotiated price between Guernsey Tingle and HRSD. The current AACE Class 4 cost estimate for construction is $1,810,000. The design phase services as a percentage of construction cost is 15.1 percent which compares well to other similar renovation projects.

Schedule:

Design	March 2021
Bid	September 2021
Construction	December 2021
Project Completion	October 2022

CONSENT AGENDA ITEM 1.d.1 – March 23, 2021

Subject: James River Treatment Plant Advanced Nutrient Reduction Improvements
Sole Source (>$10,000) and Contract Award (>$200,000)

Recommended Actions:

a. Approve the use of Moving and Fixed Media Integrated Fixed Film Activated Sludge (IFAS) Partial Denitrification-Anammox (PdNA) Demonstration Testing Equipment by World Water Works, Inc.

b. Award a contract to World Water Works, Inc.in the amount of $360,000.

CIP Project: JR013400

Budget	$231,764,106
Previous Expenditures and Encumbrances	($3,126,656)
Available Balance	$228,637,450

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

Details: World Water Works, Inc. (WWW) is a licensing partner for our AvN and PdNA technologies, which are patented or patent pending. WWW brings expertise and experience in aerobic and anoxic IFAS design that is not available from any other sources in North America. WWW can supply equipment for both the moving (MIFAS) and fixed media (FIFAS) demonstrations.

Project Description: This project is for the design and construction of improvements to the secondary treatment process at the James River Treatment Plant. The scope includes equalization of primary effluent, modifications to the Integrated Fixed Film Activated Sludge (IFAS) system, increased IFAS media fill, demolition of existing secondary clarifiers (1, 2, and 3), replacement with new rectangular secondary clarifiers, conversion of clarifier 5 to a post denitrification moving bed bio-reactor (MBBR), chemical storage and feed systems, and all pumping, piping, instrumentation, and site work required. Current estimate does not include any upgrades to the treatment plant electrical system backbone.

HRSD's development and demonstration of polishing partial denitrification-anammox (PdNA) has been quite promising as applied in the case of the full-scale and pilot-scale York River Treatment Plant (YRTP) deep-bed denitrification filters and the James River Treatment Plant (JRTP) pilot-scale moving bed biofilm reactors (MBBR). The JRTP nutrient upgrade associated with SWIFT was previously planned to include polishing MBBR reactors that could be operated in PdNA mode, and this provides considerable operational and capital benefits. Recent pilot testing at the BNR pilot facility and at JRTP has proven out this concept.

The next phase of research broadly involves transitioning to integrated PdNA such as in second anoxic zones of our existing BNR facilities (Nansemond, Army Base, VIP, James River). This is a much larger challenge from a development and control standpoint, but we have initiated an investigation of both moving and fixed media integrated fixed-film activated sludge (IFAS), including both full-scale and pilot plant testing. Preliminary results are very promising. Transitioning the nutrient upgrade at JRTP from the polishing MBBR concept to MIFAS or FIFAS constructed within the existing IFAS tanks has the potential to provide significant capital and operating cost savings for nitrogen removal. This demonstration testing will convert the 2nd anoxic zone of one existing IFAS tank at JRTP to MIFAS and one to FIFAS.

CONSENT AGENDA ITEM 1.d.2. – March 23, 2021

Subject: SCADA Network (4G/LTE WAN) Monitoring Support Services
Sole Source (>$10,000) and Contract Award (>$200,000)

Recommended Actions:

a. Approve the use of LTE WAN performance monitoring and azimuth maintenance by Savant Ltd.

b. Award a blanket contract for LTE WAN performance monitoring and azimuth maintenance to Savant Ltd. in the estimated amount of $368,000 for year one with four annual renewal options and an estimated cumulative value in the amount of $1,840,000.

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

Details: Savant has provided LTE WAN network performance monitoring services and azimuth maintenance as a subcontractor under a previous contract competitively solicited and awarded to REW Corporation for SCADA network services. The contract was terminated at the end of 2019, but Savant has continued to provide HRSD with these critical services over the past year and will continue through 2025. The services that were provided by Savant from the end of 2019 through March 31, 2021 are estimated to be $100,000 and will be paid as part of this action.

Contract Description: This contract is an agreement to provide all materials, equipment, and labor for the new SCADA network performance monitoring services of the Verizon 4G/LTE WAN, utilizing Savant's proprietary software that resides on HRSD's SCADA servers and network equipment. These services will ensure that network performance is optimal, by providing cable and antennae system monitoring, testing, and repair services when network throughput degradation is detected. Services also include annual validation and re-aiming of site antennas, as needed. In addition, the contract will provide hot spare maintenance and emergency configuration support for the Cisco 809 and 1101 network routers.

Resource: Steve de Mik

CONSENT AGENDA ITEM 1.e.1. – February 23, 2021

Subject: ACOEM RT-300 Laser Alignment System Reliability Tool, Parts and Repairs Sole Source (>$10,000)

Recommended Action: Approve the use of the ACOEM RT-300 Laser Alignment System Reliability Tool, Parts and Repairs by VibrAlign Inc. for all of 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

Details: Product includes the purchase of the ACOEM RT-300 Laser Alignment System Reliability Tool, including all associated software, accessories, and two days of on-site training. This is a machinery and diagnostic tool for pump equipment alignment. Sensors are placed on the equipment to measure the alignment discrepancy between the pump and motor shafts and a report is generated listing any deficiencies. The report can be saved to the cloud, sent to plant staff, or converted into a work order.

This device has been successfully used at the Nansemond Treatment Plant and has applications across HRSD. Nansemond Plant currently uses two separate pieces of equipment to perform preventative maintenance diagnosis of vibration and/or bearing issues within the pump equipment. This can take up to three days and the alignment results are not always precise. In addition, plant staff are manually transferring data to create a work order. The RT-300 tool will ensure precise alignments and allow plant staff to only replace couplings when needed which aids in catching issues before they spread into an entire pump requiring a rebuild.

Resource: Paula Hogg/Don Corrado

CONSENT AGENDA ITEM 1.e.2. – March 23, 2021

Subject: BizLibrary Learning Portal and Training Module Annual Licenses
Sole Source (>$10,000)

Recommended Action: Approve the use of BizLibrary Learning Portal and Training Module Annual Licenses for Organizational Development and Training (OD&T).

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

Details: Product includes the purchase of annual license subscription for BizLibrary learning portal and training modules provided by Business Training Library Inc. DBA Biz Library. BizLibrary learning portals allow OD&T to customize a training library that is suited for the specific needs and content of HRSD training programs, such as Supervisor Training and Quality Leadership Program.

The customized training modules were previously developed under the former OD&T contract with EMA, Inc. This was the preferred software at the time and has now become HRSD branded video lessons, interactions, and quizzes for the facilitators.

This request is for a limited sole source authority to continue use of the annual license subscription with Biz Library under the current contract with Hicks Carter Hicks (HCH). OD&T will be reviewing the customized training modules to determine if they should be incorporated into the HCH programs.

Resource: Steve de Mik

CONSENT AGENDA ITEM 1.e.3. – March 23, 2021

Subject: Det-Tronics Combustible Gas Point Detectors and Parts
Sole Source (>$10,000)

Recommended Action: Approve the use of Det-Tronics Combustible Gas Point Detectors and Parts by Detector Electronics Corporation DBA Det-Tronics at all HRSD facilities.

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

Details: Product includes the purchase of Det-Tronics combustible gas point detectors and parts, including but not limited to, PointWatch Eclipse® PIRECL Infrared Gas Detectors and FlexVu® Explosion-Proof Universal Display Unit. Propane gas will be mixed in with water to enhance treatment at the SWIFT Research Center. The gas point detectors monitor for ambient propane gas and the display will show the concentration of propane gas for safety purposes.

CONSENT AGENDA ITEM 1.e.4. – March 23, 2021

Subject: Smart Prep II Extractor System
Sole Source (>$10,000)

Recommended Action: Approve the use of the Smart Prep II Extractor System by Biotage LLC at the Central Environmental Laboratory.

Sole Source Justification:

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

Details: Product includes the purchase of a Smart Prep II Extractor System. The Organics Section of the Central Environmental Laboratory uses the Smart Prep II Extractor System in the analysis and detection of semi-volatile organic compounds and contaminants in drinking water to support SWIFT. The Smart Prep II Extractor System will be used in conjunction with currently owned Smart Prep II Extractor System that was previously purchased via competitive bid.

The Commission previously approved Horizon Technology, Inc. as the provider of the Smart Prep II Extractor System. Horizon Technology has been acquired by Biotage LLC. This action supersedes previous actions to include the new sole source recommended action of approving the product (instead of the provider) and to make reference to the purchase of equipment from Biotage, LLC in general.

Resource: Steve de Mik

CONSENT AGENDA ITEM 1.e.5. – March 23, 2021

Subject: Spencer Centrifugal Blowers, Parts and Repairs
Sole Source (>$10,000)

Recommended Action: Approve the use of Spencer Centrifugal Blowers, Parts and Repairs by Tencarva Machinery Company at the Williamsburg Treatment Plant.

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

Details: Product includes the purchase of Spencer multistage fabricated centrifugal blowers. These blowers are installed on each incinerator and located in the incinerator combustion air fan. The blowers provide air to the natural gas burners that heat the incinerator. The existing centrifugal blowers were installed during the original construction of the incinerators at the Williamsburg Treatment Plant. The blower will act as direct replacement and allow the use of existing pipework and concrete base that are still in good condition.

Resource: Steve de Mik

CONSENT AGENDA ITEM 1.e.6. – March 23, 2021

Subject: Sulzer Centrifugal Pumps, Parts and Repairs
Sole Source (>$10,000)

Recommended Action: Approve the use of Sulzer Centrifugal Pumps, Parts, and Repairs by Chesapeake Environmental Equipment at the Williamsburg Treatment Plant.

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

Details: Product includes the purchase of a Sulzer single-stage centrifugal pump. There are currently three pumps that have been installed at the Williamsburg Treatment Plant since 2009. This pump will act as direct replacement to the existing process line of pumps in which each are directly tied to a centrifuge. The pumps are responsible for supplying thickened sludge to the centrifuges for dewatering. Plant staff will perform all maintenance to the pumps.

Resource: Bruce Husselbee

AGENDA ITEM 2. – March 23, 2021

Subject: Central Norfolk Area Gravity Improvement Phase II
Initial Appropriation

Recommended Action: Appropriate total project funding in the amount of $7,160,000.

CIP Project: VP017120

Project Description: This project consists of three sections of improvements to the existing gravity sewer system:

- Fox Hall/ Norcova Drive/East Princess Anne Gravity Sewer - Rehabilitation of 3,650 linear feet (LF) of gravity sewer (Ranging from 10 to 12-inches) with associated 19 manholes. Includes the 150 LF of 12-inch gravity sewer extending to the City of Norfolk Pump Station (PS) #44.
- Luxembourg Avenue Gravity Sewer - Rehabilitation of 1,500 LF of 12-inch gravity sewer with associated 11 manholes and replacement or relocation of 13,00 LF of 8-inch gravity sewer with associated 6 manholes. Relocation of the referenced gravity sewer considers redirecting flows from the existing Lafayette River Crossing.
- Norview-Estabrook/Chesapeake Blvd Gravity Sewer - Rehabilitation of gravity sewer not previously rehabilitated or replaced including 3,000 LF ranging from 12 to 18-inches with 20 associated manholes. Three additional manholes on Chesapeake Blvd are also included.

Condition assessment activities indicate that these assets present a material risk of failure due to infiltration and inflow and physical defects. This project is a portion of the EPA Rehabilitation Action Plan Phase 2 with a substantial completion requirement of May 5, 2025. At the completion of this project, ownership of the gravity sewer assets and associated manholes will be transferred from HRSD to the City of Norfolk.

Funding Description: The total cost for this project is estimated to be $7,160,000 based on a Class 5 CIP-prioritization level cost estimate. Preliminary engineering services will be completed by Hazen and Sawyer, P.C. under the General Engineering Services annual services contract.

Schedule:

PER	July 2021
Design	January 2022
Construction	February 2023
Substantial Completion	February 2024
Project Completion	February 2025

Resource: Bruce Husselbee

AGENDA ITEM 3. – March 23, 2021

Subject: Shipps Corner Pressure Reducing Station Modifications
Initial Appropriation

Recommended Action: Appropriate total project funding in the amount of $1,826,426.

CIP Project: AT011520

Project Description: This project will replace the emergency generator at the Shipps Corner Pressure Reducing Station in order to provide the reliability required by the Rehabilitation Action Plan-Phase 2 and the Virginia Sewage Collection and Treatment (SCAT) regulations.

Funding Description: The total project cost estimate of $1,826,426 includes approximately $117,961 in design phase services, approximately $1,366,772 in construction phases costs, and $341,693 of project contingency and is based on a Class 5 CIP Prioritization Level cost estimate prepared by HRSD. Preliminary engineering services will be completed by Guernsey Tingle Architects, P.C. under the Architectural/Mechanical/Electrical Services annual services contract.

Schedule:

PER	April 2021
Design	June 2021
Bid	February 2022
Construction	July 2022
Project Completion	July 2023

Resource: Bruce Husselbee

AGENDA ITEM 4. – March 23, 2021

Subject: Surry Hydraulic Improvements and Interceptor Force Main Additional Appropriation

Recommended Action: Appropriate additional funding in the amount of $1,757,429.

CIP Project: SU010200

Budget	$40,098,676
Previous Expenditures and Encumbrances	($38,228,986)
Available Balance	$ 1,869,690
Change Order No. 4 to MEB	($1,701,577)
Proposed Contingency	($1,925,542)
Project Shortage/Requested Additional Funding	($1,757,429)
Revised Total Project Authorized Funding	$41,856,105

Contract Status with Change Orders:	Amount	Cumulative % of Contract
Original Contract for MEB	$8,978,000	
Total Value of Previous Change Orders	$27,831,260	309%
Requested Change Order	$1,701,577	
Total Value of All Change Orders	$29,532,837	329%
Revised Contract Value	$38,510,837	

Time (Additional Calendar Days)		N/A

Project Description: The project will include the design and construction of three new pump stations; upgrades of two existing pump stations in addition to electrical, instrumentation and controls, a generator at each new pump station, an equalization tank, approximately 131,200 linear feet of force main ranging from 4-inch to 10-inch in diameter; and the closure of both of the Surry County Waste Water Treatment Plants (WWTPs). Flow will be conveyed to the existing HRSD infrastructure in the Town of Smithfield and ultimately to the Nansemond Treatment Plant.

Funding Description: This additional funding request will establish a Contingency for the project to accommodate any potential unforeseen conditions. The current project contingency will be depleted with Change Order No. 4 for work required for the decommissioning of the Surry County WWTPs, replacement of the Marina Drive Pump Station, and installation of 5,800 linear feet of force main.

Analysis of Cost: The additional appropriation is necessary to address a number of items added to the scope of work including: demolish the Surry County Treatment Plant, addition of 5,800 linear feet of force main and replacement of the Marina Drive Pump Station. The additional funds will allow for a project contingency of 5 percent of the construction cost which is within the range of other Design/Build construction projects.

Schedule: Project Completion December 2022

Resource: Bruce Husselbee

AGENDA ITEM 5. – March 23, 2021

Subject: Surry Hydraulic Improvements and Interceptor Force Main Easement Acquisition

Recommended Action: Approve the purchase of a 25,831 square foot permanent easement in accordance with the terms and conditions of the agreement between Mary Boyd Horton, Trustee of the Mary Boyd Horton Revocable Trust (Landowner) and HRSD for $66,400 (Tax Map: 06-01-041).

CIP Project: SU010200

Project Description: This project will close the Town of Surry Treatment Plant and construct a 20-mile long interceptor force main to connect to the existing HRSD force main in the Town of Smithfield. HRSD is a signatory to a Consent Decree with the Virginia Department of Environmental Quality to close the Town of Surry Treatment Plant and this project will eliminate this plant in-lieu of making facility improvements. HRSD has acquired over 140 of the 150 temporary and permanent easements necessary for this project.

Agreement Description: The attached Agreement was reviewed by HRSD staff and legal counsel as will the forthcoming Deed of Easement. An Acquisition Plat and Facilities Orientation Map is also provided for clarification purposes.

Analysis of Cost: The cost for the easement is based upon an appraisal by Valbridge Property Advisors and a negotiated settlement with the property owner that includes landscaping, trees and the cost to reconstruct owner's masonry wall and custom-built masonry entryway. (Note: Owner has submitted estimates from two local masonry companies).

AGREEMENT

THIS AGREEMENT, made this_____day of_____2021, by and between **MARY BOYD HORTON, TRUSTEE OF THE MARY BOYD HORTON REVOCABLE TRUST,** (established May 2, 2005), whose mailing address is 7300 Appletree Lane, Norfolk, VA 23505 ("Landowner"), and **HAMPTON ROADS SANITATION DISTRICT** ("HRSD"), a political subdivision of the Commonwealth of Virginia, located at 1434 Air Rail Avenue, Virginia Beach, Virginia 23455 (the "Grantee"), and Collectively, Buyer and Seller shall be referred to as the "Parties."

WITNESSETH: That for and in consideration of one dollar and other valuable consideration, receipt of which is hereby acknowledged, Landowner agrees to convey to HRSD a Permanent Utility Easement over, across and through the following described property of the Landowner, by Deed of Easement, properly executed, acknowledged, and delivered.

The land and improvements subject to the Permanent Utility Easement (hereinafter referred to as the "Easement") is described as follows:

All that certain Permanent Utility Easement shown and designated as a "20' H.R.S.D. PERMANENT UTILITY EASEMENT 0.593 ACRES 25,831 SQUARE FOOT", as shown on the attached plat prepared by W. M. Naulty, Surveyor, 4701 Owens Way, Suite 900 Prince George, Virginia 23875 entitled, ""PLAT SHOWING EASEMENT TO BE ACQUIRED FROM MARY BOYD HORTON REVOCABLE TRUST BY HAMPTON ROADS SANITATION DISTRICT FOR ISLE OF WIGHT COUNTY FORCE MAIN HARDY DISTRICT ISLE OF WIGHT COUNTY, VIRGINIA" and dated December 16, 2019; and being part of the same property conveyed to Mary Boyd Revocable Trust Agreement established on May 2, 2005 by Deed of Gift and Distribution from James M. Boyd, Successor Trustee of the Robert F. Boyd Trust dated May 25, 1999, and Mary Boyd Trustee, or her Successors in interest, dated February 17, 2019, recorded March 6, 2019, in the Clerk's Office, Circuit Court, Isle of Wight County, Virginia as Instrument No. 19-772; also having been the same real estate conveyed to Robert F. Boyd Trustee of the Robert F. Boyd Trust dated May 25, 1999, by Deed of Gift from Robert F. Boyd and Sara M. Boyd, his wife, dated December 9, 2003, recorded June 23, 2004, in the aforesaid Clerk's Office, Circuit Court as Instrument No. 04-4334.

The said Robert F. Boyd having originally acquired title with William E. Boyd, as tenants in common, by Deed from Robert W. Remick, dated December 1, 1969, recorded December 29, 1969, in the aforesaid Clerk's Office, Circuit Court in Deed Book 199, page 608. William E. Boyd and Daisy J. Boyd, his wife, convey their interest to Robert F. Boyd, dated June 1, 1975, recorded November 12, 1975, in the aforesaid Clerk's Office in Deed Book 235, page 111.

Together with all and singular the buildings and improvements, tenements, hereditaments, rights, privileges and appurtenances thereunto belonging or in anywise appertaining (the "Easement"), a copy of which plat is attached hereto and made a part hereof.

The total consideration for the conveyance provided for herein is as follows:

CONSIDERATION: Together with those payments described in the below paragraphs for masonry and landscaping, TWENTY-FIVE THOUSAND DOLLARS AND 00/100 CENTS ($25,000.00) in full for the easement described herein before and for all damages related to the initial installation of HRSD equipment to be paid to Landowner upon full execution hereof.

The consideration hereinabove mentioned represents the value of all estates or interests in such land, and the damages to remaining lands of the Landowner which may result by reason of the use to which HRSD will put the land to be conveyed.

In addition, and as a result of the destruction of property required hereunder, HRSD agrees, upon full execution hereof, to pay Landowner (i) Twenty-Nine Thousand Four Hundred Dollars and 00/100 Cents ($29,400.00) for masonry work required to reconstruct Landowner's custom entrance and (ii) Twelve Thousand Dollars and 00/100 Cents ($12,000.00) required to grade and replace the high-end, custom landscaping installations along Landowner's entrance. The area from the gate to the highway and between the walls will also be graded to Landowner's satisfaction by HRSD in order to restore the grading of the area destroyed by the construction/installation of the sewer line. THE TREES WHICH WILL BE IMPACTED WILL BE MARKED IN ADVANCE OF ANY WORK CONTEMPLATED IN THE AGREEMENT IN CONSULTATION WITH LANDOWNER. HRSD AND/OR ITS CONTRACTORS AGREE TO MEET AT A MUTUALLY CONVENIENT TIME AND DATE AT THE PROPERTY TO DISCUSS THE MODIFICATIONS TO THE SATISFACTION OF LANDOWNER BEFORE COMMENCING WORK CONTEMPLATED IN THIS AGREEMENT.

It is understood and agreed that the consideration paid to the Landowner in connection herewith constitutes payment in full for the Easements hereby conveyed. Damages, if any, to the residue or other property of the Landowner resulting from the project and use made of the Easements conveyed for the installation of the facilities shall be covered by the HRSD. Future damages resulting from maintenance, operations, and repairs to facilities, including any release of pipe contents, shall be covered by HRSD.

In the event the Landowner is unable to convey clear title to the above easement to HRSD as herein provided, and HRSD should elect to institute condemnation proceedings for the purpose of acquiring such easements, it is agreed by the Landowner that this instrument may be introduced in such proceedings as evidence of the value of land and damages, if any, to the remaining property of the Landowner.

The Landowner by execution of this instrument acknowledges that the plans for the aforesaid project as they affect the subject property have been fully explained to the undersigned.

HRSD or its agents will restore Landowner's land and Parcel affected as a result of construction of the project as closely as is reasonably possible to its pre-construction condition (or better) upon completion of the Project including replacing with acceptable landscaping. Any disturbance of the premises during the life of this Agreement 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, addressing ground sink issues, and removal of trash or debris. Landscaping will be replaced with immature trees, shrubs, and ground cover. Restoration shall be completed within 21 calendar days from the date of notification to HRSD.

HRSD or its contractor hereby agrees that it will perform all such measures in a manner causing as little inconvenience and disruption to the Landowner, and Landowner's invitees, licensees and occupants as is reasonably possible.

RIGHT TO ENTER: HRSD, or its agents, may exercise the right to enter upon so much of the parcel or Land needed for such purposes as may be necessary for the construction of this project with at least 48 hour notice to the Landowner, unless in cases of emergency repair of HRSD facilities.

ETHICS IN PUBLIC CONTRACTING: By executing this Agreement, the undersigned Landowner or its representative, and the representative of HRSD, certify that the prices agreed to in this Agreement were arrived at without collusion or fraud and that they have not offered or received any payment, kickbacks or other inducement from any other party to this Agreement or its agent or employee in connection with this Agreement, and that they have not conferred on any public employee having responsibility for this procurement transaction any payment, loan, subscription, advance, deposit of money, services or anything of more than nominal value, present or promised unless disclosed in this Agreement.

Landowner acknowledges that HRSD has relied upon these covenants, representations and warranties in purchasing the above easements.

Settlement shall be within ninety (90) days, or as soon thereafter, allowing a reasonable time to correct any title defects reported by the title examiner and preparation and signing of the necessary documents to enable the HRSD to take proper title.

THE COVENANTS, AGREEMENTS, REPRESENTATIONS, WARRANTIES OF THE LANDOWNER CONTAINED IN THESE PARAGRAPHS SHALL SURVIVE THE CLOSING AND DELIVERY OF THE DEED OF EASEMENT ACROSS THE SUBJECT LAND.

WITNESS the following signatures and seals:

LANDOWNER:

_____
Mary Boyd Horton
Trustee of the Mary Boyd Horton Revocable Trust

COMMONWEALTH OF VIRGINIA
COUNTY OF_____, to-wit:

The foregoing instrument was acknowledged before me this_____day of_____, 2021, by Mary Boyd Horton, Trustee of the Mary Boyd Horton Revocable Trust.

_____
Notary Public

My Commission Expires: _____
Registration Number: _____

HAMPTON ROADS SANITATION DISTRICT

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

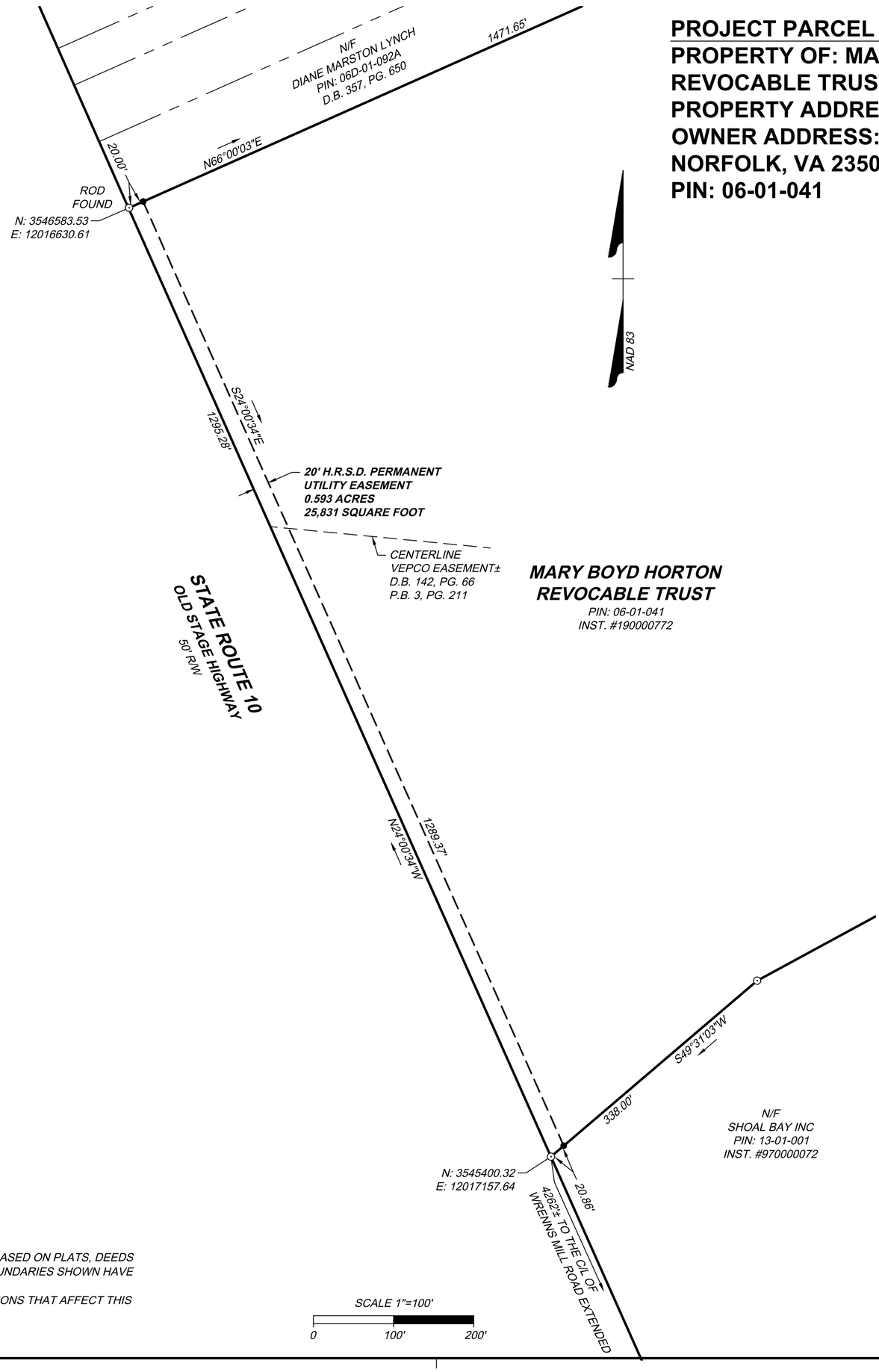
COMMONWEALTH OF VIRGINIA
CITY OF VIRGINIA BEACH, to-wit:

The foregoing Utility Easement Agreement was acknowledged before me this _____day of _____, 2021, by Edward G. Henifin, P.E., General Manager, Hampton Roads Sanitation District.

_____
Notary Public

My Commission Expires:_____
Registration No.:_____

PROJECT PARCEL NO. 136
PROPERTY OF: MARY BOYD HORTON REVOCABLE TRUST
PROPERTY ADDRESS: 7031 OLD STAGE HIGHWAY
OWNER ADDRESS: 7300 APPLETREE LANE NORFOLK, VA 23505
PIN: 06-01-041



AREA TABLE

20' H.R.S.D. PERMANENT UTILITY EASEMENT TO BE ACQUIRED	0.593 ACRES 25,831 SQUARE FOOT

COMMONWEALTH OF VIRGINIA
W. M. NAULTY
Lic. No. 2067
12-16-19
LAND SURVEYOR

NOTES:

1. PROPERTY LINES AND RIGHT OF WAY INFORMATION SHOWN IS BASED ON PLATS, DEEDS OR RECORD AND ACTUAL FILED MEASUREMENTS. ONLY THE BOUNDARIES SHOWN HAVE BEEN SURVEYED FOR THIS PROJECT.
2. THIS SURVEY MAY NOT REFLECT ALL EASEMENTS OR RESTRICTIONS THAT AFFECT THIS PROPERTY
3. EASEMENTS SHALL BE ACQUIRED BY DEED.

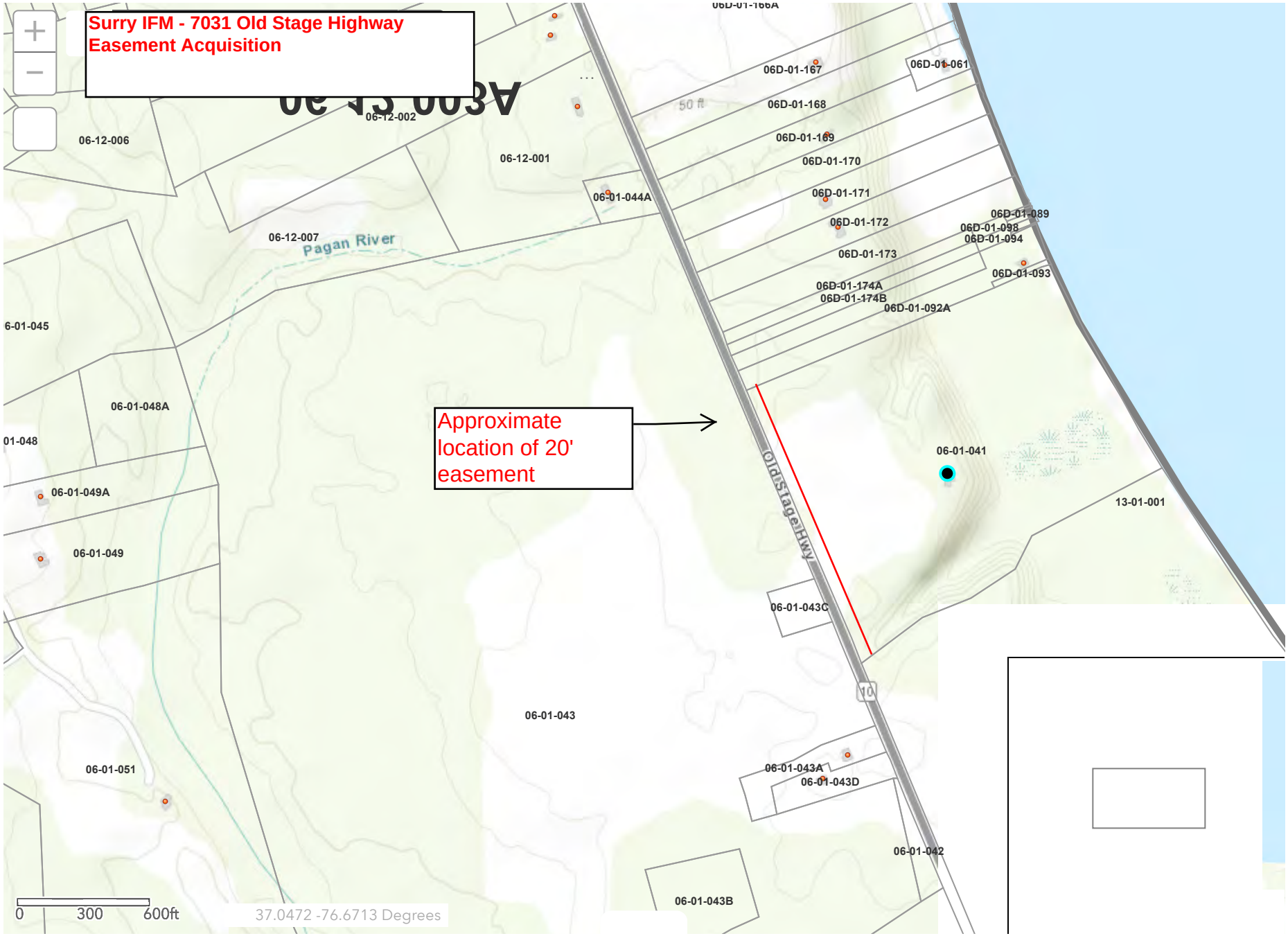
PLAT SHOWING EASEMENT
TO BE ACQUIRED FROM

MARY BOYD HORTON REVOCABLE TRUST

BY HAMPTON ROADS SANITATION DISTRICT FOR ISLE OF WIGHT COUNTY MARINA FORCE MAIN
HARDY DISTRICT
ISLE OF WIGHT COUNTY, VIRGINIA

SCALE 1"=100' DECEMBER 16, 2019
JN: 42956-903-06-01-041

W.M. NAULTY, SURVEYOR
4701 OWENS WAY, SUITE 900
PRINCE GEORGE, VIRGINIA 23875



Resource: Ted Henifin

AGENDA ITEM 6. – March 23, 2021

Subject: Town of Exmore Wastewater Treatment Services Agreement

Recommended Action: Approve the terms and conditions of the Town of Exmore Wastewater Treatment Services Agreement between HRSD and the Town of Exmore, subject to approval of a wholesale rate with the Fiscal Year-2022 budget 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.

Background: On October 2, 2020, the Northampton County Circuit Court and the Accomack County Circuit Court ordered the boundaries of the District be enlarged to include both counties and all the towns therein.

In accordance with policy, HRSD will only assume responsibility for existing wastewater systems when approached by the system owner and when a transfer of ownership and/or operations agreement can be executed. The Town of Exmore does not want to transfer ownership and operation responsibility for wastewater collection within the Town of Exmore but does desire to pump the wastewater collected to HRSD for treatment and disposal. An agreement has been drafted to accommodate this arrangement.

This proposed arrangement with Exmore will be the first where a small community agrees to own and operate its own collection system and pay for all flow delivered to HRSD facilities. In our traditional agreements with communities that own and operate their own collection systems, HRSD bills the individual customer directly based on the customer's water meter reading. HRSD's rates must be developed to cover all costs, which include the cost of conveyance and treatment of inflow and infiltration. Under this agreement, the Town of Exmore will be responsible for paying for the conveyance and treatment of all flow that is delivered to the HRSD pump station, regardless of the source. HRSD will bill the Town of Exmore monthly based on a flow meter at the pump station.

The rate for this service was developed by HRSD's rate consultant as a wholesale rate as there are some costs excluded from the rate calculation in this arrangement. This wholesale rate concept will be presented to the Finance Committee and ultimately to the entire Commission for approval with the rates for FY-2022.

Staff recommends approval of this agreement subject to modification of the wholesale rate established by the Commission with approval of the FY-2022 budget.

TOWN OF EXMORE WASTEWATER TREATMENT SERVICES AGREEMENT WITH HAMPTON ROADS SANITATION DISTRICT

THIS AGREEMENT is made this _____day of _____ 2021, by and between HAMPTON ROADS SANITATION DISTRICT, hereinafter referred to as "HRSD," and the TOWN OF EXMORE, VIRGINIA, hereinafter referred to as "EXMORE."

WHEREAS, EXMORE owns and operates the EXMORE Wastewater Treatment Plant, hereinafter referred to as the "WWTP" and

WHEREAS, HRSD is planning to construct the Eastern Shore Transmission Force Main (hereinafter referred to as ESTFM) from Nassawadox to Onancock to provide regionalized wastewater services to northern Northampton County and southern Accomack County, and

WHEREAS, EXMORE has expressed a desire to close the WWTP and connect to the ESTFM for treatment of wastewater from EXMORE,

NOW, THEREFORE, THIS AGREEMENT WITNESSETH, that for and in consideration of the premises and the mutual covenants and undertakings of the parties to this Agreement, the parties mutually agree with each other as follows:

1. Upon completion of the ESTFM, HRSD agrees to accept and treat an average daily flow not to exceed one hundred ninety thousand gallons per day (0.19 MGD), to be calculated on a rolling 12-month average, and a daily peak flow not to exceed three hundred eighty thousand gallons per day (0.38 MGD), to be calculated on a rolling 12-month basis.

2. EXMORE shall convey, at no cost to HRSD, fee simple title to an appropriately subdivided parcel within EXMORE of adequate size for HRSD to construct a wastewater pump station as part of the ESTFM project. HRSD shall provide the appropriate valving and connections for EXMORE to connect EXMORE owned piping conveying wastewater to the HRSD pump station. HRSD shall install, at no expense to EXMORE, a wastewater billing meter that measures the amount of wastewater delivered by EXMORE to HRSD's pump station. HRSD shall maintain, repair, operate and manage the foregoing at its sole expense.

3. EXMORE shall have the right to inspect HRSD's billing meter provided reasonable notice is provided. HRSD shall have the billing meter calibrated no less than once every six (6) months and provide EXMORE with documentation of such calibrations, if requested. HRSD shall read the meter no more than 7 days after the last day of the preceding month.

4. Wholesale Treatment Charge: EXMORE shall pay HRSD $3.55 per 1000 gallons delivered to the HRSD pump station as measured by the meter described in Paragraph 3 above. Payment shall be made within 30 days from date of the meter read, without demand.

5. Effective Term of Wholesale Treatment Charge: The $3.55 per 1000 gallons charge as described above shall be in effect for ten years beginning July 1, 2022 (or the date HRSD begins accepting flow from Exmore, whichever occurs first). At that time the Wholesale Treatment Charge shall be recalculated in accordance with the methodology as described in Exhibit A. The Wholesale Treatment Charge shall be re-calculated every ten years thereafter.

6. EXMORE shall prohibit the introduction of sewage into the wastewater system of a quality specifically inadmissible under any HRSD wastewater regulation or permit or federal or state law. EXMORE agrees to cooperate with and support HRSD in enforcing HRSD's Industrial Wastewater Discharge Regulations and the Pretreatment & Pollution Prevention Enforcement Response Plan. EXMORE hereby acknowledges that HRSD shall, if required, establish a Pretreatment and Pollution Prevention program and issue Industrial Wastewater Discharge permits or Best Management Practices (BMPs) to industrial and commercial dischargers within EXMORE town limits.

7. EXMORE shall provide any information HRSD needs for complying with the terms and conditions of the Virginia Pollutant Discharge Elimination system permit or any other permit issued for the facility HRSD is using to treat EXMORE wastewater that is now or may hereafter be in force. EXMORE shall provide any information HRSD needs to respond to requests for information from state or federal regulatory agencies.

8. If operational problems or permit violations occur at the WWTP that are primarily the result of actions of EXMORE or its customers, EXMORE agrees to pay one- hundred (100%) of the costs associated with correcting said problems, addressing the permit violations, and/or paying any civil penalties or charges associated with the violations.

9. Neither EXMORE nor HRSD shall be liable in damages to the other for any act, omission, or circumstance occasioned by or in consequence of any acts of God, acts of the public enemy, wars, epidemics, landslides, lightening, explosions, breakage or accident to machinery or lines of pipe, or any other cause, not reasonably within the control of the offending party and which by the exercise of due diligence such party is unable to prevent or overcome. Such causes or contingencies affecting the performance hereunder by either EXMORE or HRSD shall not relieve either of liability in the event of its concurring negligence or in the event of its failure to use due diligence to remedy the situation and to remove the cause in an adequate manner and with all reasonable dispatch, nor shall such causes or contingencies affecting such performance relieve either party from its obligations to make payment of amounts then due hereunder in respect of wastewater theretofore received, disposed of or treated. Nothing contained in this section shall be construed as waiving any immunity which either party may possess.

10. This Agreement shall continue in full force and effect until terminated by mutual agreement of the parties in writing or until superseded by the transfer of ownership of the EXMORE wastewater collection system to HRSD pursuant to a duly negotiated and executed Agreement of Sale between the parties.

11. The rights under this contract may be exercised by any successor or successors, assignee or assignees of either party when approved by the governing body of that jurisdiction or district, but such transfer shall not operate to relieve such governing body of any of its obligations under this contract. Written notice of intent to transfer shall be given to the other party at least ninety (90) days in advance of the transfer.

12. In the event either party fails to comply with a deadline set forth hereunder or otherwise is in default hereunder, the party that has failed to comply with such deadline or that otherwise is in default shall cure such default within thirty (30) days of receiving written notice of such default from the party not in default, or any such longer period to which the parties may agree in writing.

13. This agreement shall be governed by the laws of the Commonwealth of Virginia, and the venue for any dispute arising hereunder shall be in the Courts of the County of Northampton, Virginia.

IN WITNESS WHEREOF, EXMORE and HRSD have caused this Agreement to be executed by their duly authorized officers.

HAMPTON ROADS SANITATION DISTRICT

_____

General Manager

TOWN OF EXMORE

_____

Town Manager

Resource: Ted Henifin

AGENDA ITEM 7. – March 23, 2021

Subject: Town of Onancock Wastewater Services
Ownership Transfer and Service Agreement

Recommended Action: Approve the terms and conditions of the Ownership Transfer and Service Agreement between HRSD and the Town of Onancock 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.

Background: On October 2, 2020, the Northampton County Circuit Court and the Accomack County Circuit Court ordered the boundaries of the District be enlarged to include both counties and all the towns therein.

In accordance with policy, HRSD will only assume responsibility for existing wastewater systems when approached by the system owner and when a transfer of ownership and/or operations agreement can be executed. The Town of Onancock has expressed interest in transferring ownership and operations of their wastewater system to HRSD. An agreement has been drafted to facilitate transfer of assets and operational responsibilities.

While this agreement is modeled after agreements HRSD has entered with Surry County, the Town of Surry, King William County and other small communities, there are some unique terms and conditions as there were with the other agreements. The key unique terms of the draft agreement with Onancock include:

- Defeasance of existing debt on the Onancock Treatment Plant. HRSD policy is not to accept debt when taking ownership of existing sewer systems. Working with various partners, we have identified two sources of state grant funds to retire the debt associated with the Onancock facilities: a principal forgiveness loan from the Virginia Resources Authority; and a Water Quality Improvement Fund grant from the Department of Environmental Quality. Under the terms of the draft agreement HRSD would defease the debt at the time the agreement is executed and be reimbursed by the grant funds when received as part of the Eastern Shore Transmission Force Main Project.

- Water meter replacement. Onancock has requested HRSD replace the Town's water meters as part of this agreement. There is precedence as we agreed to do this with the Surry agreements. As we base our charges on water meter readings, replacing aged meters is to our advantage as meters typically become less accurate with age. New meters will ensure an accurate basis of bills for years to come.

- Extension of a portion of the existing collection system. The Town has plans for an extension of the gravity collection system to serve a small new development. The subdivision has been approved and the first phase of homes is under construction. HRSD has the expertise to manage this small construction project and since we will own the entire collection system upon execution of this agreement, it is in our best interest to ensure it is built to our standards. We would only agree to participate financially (beyond project management) if the Town can demonstrate investment of public dollars is in the public interest.

This AGREEMENT, made on this ___day of _____, 2021 by and between the TOWN of ONANCOCK, a political subdivision of the Commonwealth of Virginia, hereinafter referred to as the "TOWN", and the Hampton Roads Sanitation District, a political subdivision of the Commonwealth of Virginia, hereinafter referred to as "HRSD."

WITNESSETH

WHEREAS, TOWN has determined that it would be in the best interests of the citizens of the TOWN to request that HRSD assume ownership and operation of the wastewater system and HRSD has indicated a willingness to do so under certain terms and conditions;

NOW THEREFOR, for and in consideration of the mutual covenants contained herein and the sum of Ten Dollars ($10.00) cash in hand, and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties agree as follows;

1. HRSD agrees to pay the TOWN $x,xxx,xxx to defease all debt associated with Onancock Wastewater Treatment Plant. This payment will eliminate the requirement to establishment of a Fixed Capital Recovery Rate for Onancock customers. HRSD shall make this payment from HRSD cash reserves to be reimbursed with grant proceeds associated with the Eastern Shore Transmission Force Main project. The grant funds shall include a principal forgiveness loan from the Virginia Resources Authority in the amount of $2,228,693 granted specifically and exclusively to eliminate any Fixed Captial Recovery Rate and $x,xxx,xxx from a Water Quality Improvement Fund grant awarded by the Virginia Department of Environmental Quality.

2. Upon defeasance as described in Paragraph 1. herein, the TOWN agrees to convey at no cost to HRSD by deed with general warranty, and HRSD agrees to accept all real property, with improvements thereon and fixtures thereto attached owned by Onancock Town, as of the date of this Agreement, including but not limited to the Onancock Wastewater Treatment Plant and all associated wastewater collection systems, pumping stations and appurtenances. The TOWN also agrees to transfer all of TOWN'S rights to existing engineering/design data, record drawings/as-built data, operations and maintenance manuals associated therewith. The TOWN further agrees to transfer all agreements and easements, highway permits and all rights including rights for installation, operation, maintenance, repair, relocation, renewal of, and access to, gravity sewers and force mains that lie either within or without public streets or public places of rights of way. Instruments of transfer (attached as Appendix 1) satisfactory to HRSD have been executed by TOWN and will be delivered to HRSD upon execution of this Agreement by TOWN and HRSD. All of the foregoing properties, real and personal, are referred to herein as the "FACILITIES".

3. Title to the FACILITIES shall be free and clear of any lien or encumbrance which, in the judgment of HRSD, has a materially adverse effect upon the right of HRSD to use such lands or property in the performance of the functions of HRSD. TOWN agrees that

should any material adverse claim, lien or encumbrance existing at the time of transfer to HRSD be discovered at any time, TOWN will defend the right and title of HRSD against such claim at TOWN'S expense and shall bear any costs associated with resolving or removing such claim, lien, or encumbrance.

4. Any easements or other properties wherein water utility facilities are currently located shall be available without additional compensation for continued use by the TOWN for the operation and maintenance of the TOWN'S water utility facilities. If any easements or other properties have been previously conveyed to the Town for combined water and sewer utility purposes and no water facilities have been constructed as of the date of recordation of the deed of conveyance to HRSD, then such easements or properties shall be available without additional compensation for use by the TOWN for water utility facilities only with the written approval of HRSD provided that HRSD shall not unreasonably withhold approval if HRSD's use and enjoyment of the easement is not negatively impacted by the proposed TOWN water facilities and appropriate separation can be maintained between water and sanitary sewer facilities within the same easement.

5. In addition to the operating responsibilities outlined in paragraph 5 below, HRSD agrees to provide collection and sewer treatment services, at HRSD cost, to all areas of the TOWN in accordance with the TOWN's Comprehensive Plan and implementing ordinances.

    a. Within xx months of the date of this agreement, HRSD agrees to extend the sewer collection system within future public right-of-way to serve the Carnival Grounds development at HRSD cost.

    b. HRSD agrees to provide adequate capacity to treat all sewage generated within the TOWN in accordance with all applicable laws and regulations at HRSD cost.

    c. Adequate capacity will be reasonably anticipated and based upon future land uses as adopted in the TOWN Comprehensive Plan. TOWN agrees to consult with HRSD prior to any proposed future changes in Comprehensive Plan land use designations.

6. HRSD shall own, operate, maintain, repair, and replace the sewer collection system, interceptor system and all treatment facilities as necessary in accordance with all applicable laws and regulations. Local ordinances shall not cause HRSD to suffer unreasonable costs or unusual operational restrictions. HRSD will strive to meet the following levels of service:

    a. Treatment Facilities: Permit compliance for 99 percent of all permit parameters in a calendar year.

b. Interceptor System Facilities: Investigation into system failures and/or overflows within 2 hours of notification. Corrective action to remediate as soon as possible thereafter.

c. Collection System Facilities: Investigation into system failures and/or overflows within 4 hours of notification. Corrective action to remediate as soon as possible thereafter.

d. System Odors: Investigation into source and or cause of odor complaints within 2 days of notification. Corrective action to remediate as soon as possible thereafter.

7. The TOWN shall assist and support HRSD in the planning, scheduling, locating and constructing of new or replacement facilities required for HRSD's services as follows:

a. TOWN shall promptly notify HRSD of any proposed changes to the TOWN's Comprehensive Plan as well as any proposed developments in accordance with the existing Comprehensive Plan with potential to add sewer flow to HRSD facilities. Failure to provide adequate notice and coordination may delay HRSD's ability to serve new or expanded service areas. Additional treatment capacity, beyond current permitted capacity, requires a minimum of 2 years advance notice.

b. TOWN owned real property required for new or expanding HRSD facilities, including easements and fee simple title transfers shall be provided to HRSD at no cost to HRSD.

8. Any relocation of HRSD facilities at the request of the TOWN shall not be at the cost of HRSD including facilities on TOWN owned land or within public rights-of way.

9. All sewer customers shall be HRSD customers and billed for services in accordance with the current HRSD Rate Schedule and applicable policies.

a. Customers shall be billed in accordance with HRSD Model 3 Billing Agreement.

b. HRSD shall cut off water service to delinquent accounts in accordance with the Model 3 Billing Agreement and restore service upon payment.

c. If requested by HRSD, TOWN agrees to assist HRSD's wastewater debt collection efforts within the TOWN and not to interfere with such efforts.

10. HRSD, at its sole discretion, may self-perform or contract for provision of any or all services required to fulfill HRSD's obligations under this Agreement.

11. At such time as HRSD shall determine that any real property portion of the FACILITIES is no longer useful in the performance by HRSD in its function or to fulfill any obligations under this Agreement, HRSD shall offer to convey to the TOWN at no cost to the TOWN, said portion of real property.

12. This AGREEMENT and exhibits attached hereto, represent the full agreement and understanding of the parties hereto. All previous agreements between TOWN AND HRSD are superseded by this AGREEMENT. There are no additional agreements written, oral or otherwise. TOWN and HRSD represent and warrant that there are no agreements of which it is a part which would interfere with TOWN's or HRSD's fulfillment of this AGREEMENT.

13. This AGREEMENT may be amended only with written approval signed by both of the parties hereto.

14. This AGREEMENT may be terminated by the TOWN with three years written notice. TOWN shall reimburse HRSD for all facilities constructed by HRSD based on current depreciated value as carried on HRSD's last Comprehensive Annual Financial Report. Upon termination, unless otherwise agreed, the TOWN shall assume all regulatory liability for all sewer facilities within the TOWN. All Facilities previously conveyed to HRSD hereunder shall be re-conveyed to Town at no cost.

15. This AGREEMENT may be not be terminated by HRSD without the express written consent of the TOWN.

16. HRSD may transfer this AGREEMENT in whole or in part after consultation with the TOWN.

17. The parties warrant they have the permission and authority derived under general law to execute this AGREEEMENT and that all necessary actions of the parties' governing bodies to allow execution of this AGREEMENT have been completed.

18. This agreement shall not be deemed effective until HRSD has received the fully executed loan agreement from the Virginia Resources Authority for the Eastern Shore Transmission Force Main with $2,228,693 of principal forgiveness and a Water Quality Improvement Fund grant agreement equal to or greater than $x,xxx,xxx from the Department of Environmental Quality.

19. Any notices required pursuant to the terms of this AGREEMENT shall be deemed effective when delivered to:

    a. For the TOWN: Town Manager

    b. For HRSD: General Manager, HRSD, PO Box 5911, Virginia Beach, VA 23471

IN WITNESS WHEREOF, the parties have caused this AGREEMENT to be signed by their duly authorized officers as of the day, month and year first above written.

Approved as to form:

_____

Town Attorney

Date_____

HRSD

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

Date_____

Town of Onancock

_____

By _____

Date_____

Resource: Raul Gonzalez

AGENDA ITEM 8. – March 23, 2021

Subject: COVID-19 Wastewater Surveillance Study Update

Recommended Action: No action is required.

Brief: Staff will present the latest data and status of the COVID-19 surveillance work.

Resource: Ted Henifin

AGENDA ITEM 9. – March 23, 2021

Subject: Unfinished Business

AGENDA ITEM 10. – March 23, 2021

Subject: New Business

AGENDA ITEM 11. – March 23, 2021

Subject: Commissioner Comments

AGENDA ITEM 12. – March 23, 2021

Subject: Public Comments Not Related to Agenda

Resource: Ted Henifin

AGENDA ITEM 13. – March 23, 2021

Subject: Informational Items

Recommended Action: No action is required.

Brief: The following items listed below are presented for information.

a. Management Reports

(1) General Manager

(2) Communications

(3) Engineering

(4) Finance

(5) Information Technology

(6) Operations

(7) Talent Management

(8) Water Quality

(9) Report of Internal Audit Activities

(10) Internal Audit – Fleet Services

(11) Internal Audit – SWIFT Program Management Plan

b. Strategic Planning Metrics Summary

c. Effluent Summary

d. Air Summary

March 16, 2021

Re: General Manager's Report

Dear Commissioners:

Another month, another challenge. Perhaps the pandemic is distorting my memory, but I cannot recall so many challenges impacting HRSD in such a compressed time frame. Since November, we have overcome a massive ransomware attack, a billing disruption, distribution of over $7 million in CARES Act funding, the largest pipe failure in memory, and now the highest flows in more than a decade. We compounded the challenge of last month's record flows with unusual human error to rack up 12 permit exceedances in February alone. We have not had 12 permit exceedances in an entire year since 2011, which was a particularly bad year from a permit compliance perspective. We are up to 19 for this fiscal year and we are only two-thirds of the way through.

February also saw several capacity-related overflows from the Claremont Pump Station service area in Hampton. Overflows in this area of the regional sanitary sewer system were regular occurrences prior to 2010. HRSD worked to minimize overflows in this area over the past decade by making investments in the Victoria Pump Station, Bridge Street Pump Station, gravity pipe and syphon cleaning and repairs, and upgrading Claremont Pump Station. While that work had largely eliminated regular overflows, February's overflows confirm that more needs to be done. We already have a major investment programmed in this area with the first group of High Priority Projects to be constructed as part of the Consent Decree which should resolve this issue permanently once completed.

Our entire organization takes our mission very seriously. Permit exceedances and spills of any amount are disheartening as I reported last month. There will be challenging months and perhaps challenging years, but we have the talent and resources to overcome whatever challenges come our way. We have been doing just that for 80 years and we will be doing it for the next 80, ensuring future generations inherit clean waterways and are able to keep them clean.

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

A. **Treatment Compliance and System Operations:** We had permit exceedances at Army Base, Surry, King William and West Point, all other plants met permit. We had overflows in Hampton and a major break in Virginia Beach.

B. **Internal Communications:** I participated in the following meetings/activities (all virtual unless otherwise noted) with HRSD personnel:

1. A meeting to discuss Eastern Shore issues
2. A lunch and learn presentation on the research work of Ali Gagnon and Jeff Sparks, HRSD Treatment Plant Engineers and Ph.D. candidates
3. The monthly status review of the Consent Decree Rehabilitation Phase I projects
4. A discussion of 16th Street force main break restoration work
5. One new employee orientation session
6. A review of CARES Act fund distribution and plans going forward
7. A review of a new Organizational Development and Training Program for supervisory skill and information development
8. A meeting to discuss pilot work at James River Treatment Plant
9. A meeting to begin planning a celebration of the Chesapeake-Elizabeth Treatment Plant as it closes this year
10. A meeting to review results of the investigation into the Suffolk Pump Station failure in November
11. A meeting to discuss planning for the Woodstock Park ribbon cutting in June
12. A briefing on the Pump and Haul business case evaluation
13. An update on SCADA

C. **External Communications:** I participated in the following meetings/activities (all virtual unless otherwise noted):

1. The monthly Hampton Roads Planning District Commission meeting of the Director of Utilities Committee
2. The final of three executive training sessions conducted by the UNC Kenan-Flagler School of Business sponsored by NACWA
3. The annual risk assessment interview with SC&H
4. A discussion about the future of WEFTEC
5. Weekly legislative update calls with VAMWA
6. A site visit to the Elisabeth River Project's future resilience center
7. Lead my final US Water Alliance's One Water Council meeting as chair
8. Prepared in discussions and a practice for a panel discussion to be presented during the WateReuse Symposium
9. A discussion with VRA regarding funding for the Eastern Shore Transmission Force Main project
10. The February 9th Newport News City Council Work Session
11. A discussion with the Director of the DEQ Tidewater Regional Office
12. The quarterly board meeting of Virginia Forever
13. A meeting of the Water Agency Leaders Alliance

14. The February meeting of the Ghent Neighborhood League to address billing questions
15. A mentoring session with a rising leader in the US Water Alliance

D. **Consent Decree Update:** No change. The Commonwealth has signed off on the Fifth Amendment. I confirmed that EPA has also signed off on the Fifth Amendment, but we are still waiting for DOJ final signatures before lodging with the Norfolk District Court. We continue to anticipate final signatures soon but do not expect the judge to approve until first quarter 2021.

Both pieces of legislation we were following were passed by both chambers, enrolled, and communicated to the Governor where they await his action. HB 2257 makes several changes to the HRSD Enabling Legislation which will be effective on July 1, 2021. HB 2129 sets out the path forward for Virginia's compliance with the Chesapeake Bay TMDL and includes specific projects and schedules for HRSD in alignment with our SWIFT implementation plan as programmed in our CIP.

The meeting next week will be another fully electronic meeting using Zoom as we did last month. The Governor has extended the declared state of emergency indefinitely and as such we will continue to meet in this fashion until that executive order is lifted.

The leadership and support you provide are the keys to our success as an organization. Thanks for your continued dedicated service to HRSD, the Hampton Roads region, the Commonwealth, and the environment. **I look forward to seeing you (virtually) on Tuesday, March 23, 2021**.

Respectfully submitted,

Ted Henifin, P.E.
General Manager

TO: General Manager

FROM: Director of Communications

SUBJECT: Monthly Report for February 2021

DATE: March 10, 2021

A. Publicity and Promotion

HRSD and/or SWIFT were mentioned or featured in 3 news stories on topics that included:

1. Line break on Independence Boulevard
2. Promotion of upcoming well water sampling event sponsored by HRSD
3. Op/Ed in support of investment in wastewater infrastructure to protect the Chesapeake Bay

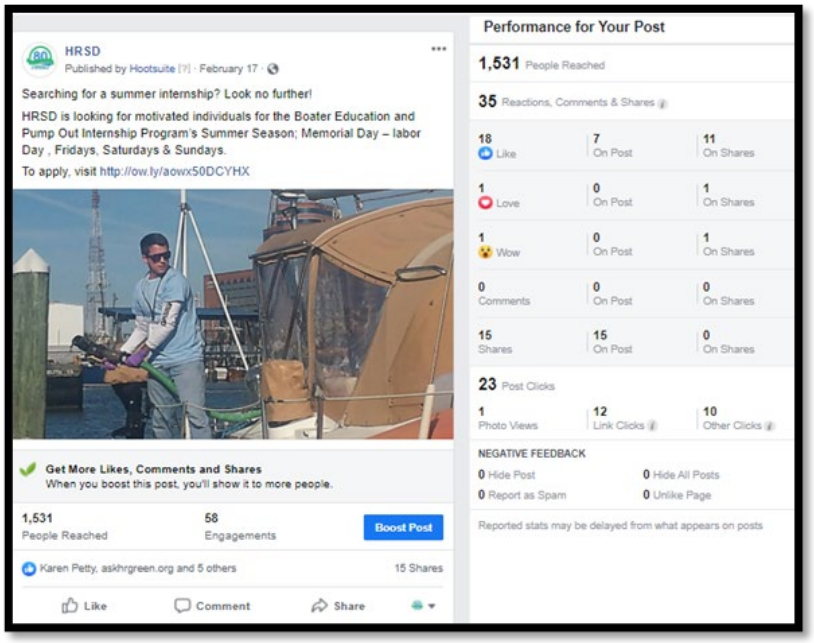
B. Social Media and Online Engagement

1. Metrics

Social Media Metrics February 2021				
***Imagine A Day Without Water October 21 METRIC**	**FACEBOOK**	**LINKEDIN**	**TWITTER**	**YOUTUBE**
Number of Posts *number of published posts	21 +0	7 +3	21 +3	1:47 average view duration
Number of Followers/Likes *total number of fans	1,571 +1	5,210 +51	545 -2	215 +1
Engagement *sum of reactions comments and shares	399 -33	284 +137	32 -6	628 unique viewers -42
Traffic *total clicks on links posted	43 -71	507 +312	34 -80	3.3% click through -0.3%

2. Top posts on Facebook, Twitter, and YouTube

a. Top Facebook post



b. Top Tweet

c. Top YouTube Videos

(1) The Wastewater Treatment Process (343 views)

(2) Let's Talk Water! Water Resources Engineering (93 views)

(3) HRSD Atlantic Treatment Plant Cambi Tour (64 views)

(4) SWIFT Research Center: What is the Potomac Aquifer? (60 views)

(5) Woodstock Park Wet Weather Storage Tank (42 views)

3. Impressions and Visits

a. Facebook: 11,004 page impressions, 8,693 post impressions reaching 8,321 users and Facebook engagement of 399 (325 reactions, 45 shares and 27 comments)

b. Twitter: 16,600 tweet impressions; 479 profile visits and 6 mentions

c. HRSD.com/SWIFTVA.com: 1,074 page visits

d. LinkedIn Impressions: 8,480 page impressions reaching and 8,440 post impressions

e. YouTube: 884 views

f. Next Door unique impressions: 1,6343 post views from 5 postings

g. Blog Posts: 2

(1) Celebrating Black History Month Through Men and Women In STEM
(2) Celebrate Engineers Week with HRSD!

h. Construction Project Page Visits – 109 total visits (not including direct visits from home page, broken down as follows:

(1) 382 visits to individual pages
(2) 627 to the status page

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

1. News Releases/Traffic Advisories/Construction Notices: 12 (2 traffic advisories, 8 construction notices and/or notices to neighbors, one emergency repair notice, one Commission meeting notice)

2. Advertisements: 0

3. Project Notices: 11 (via door hanging and emailing, reaching approximately 500 residents)

4. Project/Community Meetings: 0

5. New Project Web Pages /Videos: 1

- Middlesex Sewer Force Main Installation

D. Special Projects and Highlights

1. Director participated in final biweekly Department of Environmental Quality (DEQ) coordination call meetings through mid-month, finalizing communication related to the 16th Street force main failure in Newport News.

2. Director and Engineering staff participated in the kickoff planning meeting with the City of Virginia Beach Parks & Recreation in preparation for the Woodstock Park Ribbon Cutting, slated for Saturday, June 12, 2021.

3. Director participated in the quarterly NACWA Communications Committee meeting.

4. Director continues to support and consult the Water Research Foundation (WRF) WateReuse initiative to develop communications best practices documents related to establishing water reuse exhibits and learning centers.

5. Director attended the WateReuse Outreach and Education Advisory Group meeting.

6. Director and staff continue working with City of Norfolk public utilities engineers and communications staff in developing a coordinated community outreach plan for the Larchmont Sanitary Sewer Improvements Program.

7. Staff participated in the Hampton Roads Planning District Commission (HRPDC) askHRGreen Water Awareness meeting.

8. Staff attended the Virginia Water Education Association (VWEA) communications committee meeting.

E. Internal Communications

1. Director participated in the following internal meetings and events:

   a. Weekly Leadership and COVID-19 meetings
   b. Community outreach planning and update meetings related to 16th Street force main failure.
   c. Meeting with the director of operations and staff to begin planning Chesapeake-Elizabeth Treatment Plant closure celebration and Water and Wastewater Professionals Day recognition events
   d. Water Quality Recruitment Team meeting
   e. Engineering Week planning and coordination meetings
   f. Discharge Monitoring Report (DMR), SWIFT Quality Steering Team (QST) and QST meetings
   g. Meeting with Operations director and staff from the Atlantic Treatment Plant (ATP) to determine criteria for selecting a professional muralist who will ultimately paint the winning art entry onto the solids holding tank seen from the street at ATP
   h. Introductory meeting for the Lafayette Norview Overbrook PS replacement project
   i. MOM update discussions
   j. James River Land Improvements kickoff meeting

2. Director conducted biweekly communications department status meetings and weekly one-on-one and team check-in meetings.

3. Staff attended project progress meetings and presentation and outreach development meetings with various project managers.

F. Metrics

1. Educational and Outreach Activities (all virtual unless otherwise noted): 13

   a. SWIFT Virtual Tour – 24 views (represents survey access at the beginning of each tour but does not necessarily represent the actual number of people who may have been watching/participating in the virtual tour at the time)

   b. 2/4/21 Virtual Presentation Opportunities -- 355 people reached; 5 clicks; 9 reactions, comments, and shares

   c. 2/3/21 Radio Interview: What Not to Flush| 30 minutes | FM99 WNOR

   d. 2/4/21 Virtual SWIFT Presentation and Tour | 1 hour| LEAD Peninsula, Hampton Roads

   e. 2/11/21 Virtual SWIFT Presentation | 30 minutes | Norfolk Sunrise Rotary Club

   f. 2/22/21 Virtual SWIFT Presentation | 30 minutes | Chrome: Churchland Academy and Hodges Manor, Portsmouth

   g. 2/22/21 Virtual SWIFT Presentation | 30 minutes | Chrome: Cradock Middle, Portsmouth

   h. 2/23/21 Virtual SWIFT Presentation | 30 minutes | Chrome: Waters Middle and Churchland Middle, Portsmouth

   i. 2/23/21 Virtual SWIFT Presentation | 30 minutes | Chrome: John Tyler Elementary, Portsmouth

   j. 2/24/21 Virtual SWIFT Presentation | 30 minutes | Chrome: Park View and Lakeview elementary schools, Portsmouth

   k. 2/25/21 Virtual SWIFT Presentation | 30 minutes | Chrome: Douglass Park, James Hurst, Westhaven, Simonsdale elementary schools, Portsmouth

   l. 2/25/21 Virtual SWIFT Presentation | 30 minutes | Chrome: Victory Elementary, Portsmouth

   m. 2/25/21 Virtual SWIFT Presentation | 30 minutes | Chrome: Churchland Primary, Portsmouth

2. Number of Community Partners: 3

   a. City of Portsmouth Public Schools
   b. WNOR FM
   c. Virginia Peninsula Chamber of Commerce LEAD Peninsula

3. Additional Activities Coordinated by Communications Department: 0

4. Monthly Metrics Summary

Item #	Strategic Planning Measure	Unit	February 2021
M-1.4a	Total Training Hours per Full Time Employee (3) - Current Month	Hours / #FTE	3.17
M-1.4b	Total Training Hours per Full Time Employee (3) - Cumulative Fiscal Year-to-Date	Hours / #FTE	46.16
M-5.2	Educational and Outreach Events	Number	13
M-5.3	Number of Community Partners	Number	3

Respectfully,

Leila Rice, APR
Director of Communications

TO: General Manager

FROM: Director of Engineering

SUBJECT: Engineering Monthly Report for February 2021

DATE: March 11, 2021

A. General

1. Capital Improvement Program (CIP) spending for the seventh month of Fiscal Year (FY) 2021 was below the planned spending target:

   CIP Spending ($M):

	Current Period	FYTD
Actual	13.32	109.49
Plan	19.30	147.80

2. The Engineering Department coordinated several activities for National Engineers Week held February 22-27. This year's activities included:

   - Virtual Trivia Competition – Nine Engineers competed using a game known as Escape Room to answer technical questions related to the wastewater industry. In addition to the participants, there were 20 individuals who watched the competition and cheered for the favorite team.
   - Engineers in the Spotlight – Three of HRSD's Engineers were highlighted on the HRSD SharePoint site and through LinkedIn. This was an opportunity to focus on new staff members, their interests and contributions to HRSD.
   - Egg Drop Competition – This was the fifth year of this event. Unfortunately, the competition had to be held without an audience this year, but it was captured virtually and shared via YouTube. The winner once again was a member of HRSD's Carpentry Shop.
   - Balloon Car Showcase – Internal and external participants designed, constructed, demonstrated, and marketed a car powered by a balloon.
   - Inspiring Water Wonder Art Showcase – Internal and external participants created an artistic design that highlighted water resources engineering.

B. Asset Management Division

1. Staff continued creating a Plant Yard Piping Inventory and Mapping Program at each treatment plant. A Geographic Information System (GIS) Map will be created at each location and will include the location, size, material, and criticality of each pipe segment to prioritize condition assessment, repair, and replacement planning. A special focus on the Nansemond Treatment Plant yard piping will take place to ensure the additional flows from the Boat Harbor Treatment Plant will not detrimentally impact the existing piping and allow for increased flow and pressures.

2. Condition assessment efforts continue at several recent pipe failure locations including the York River Treatment Plant Primary Effluent Piping, Independence Pressure Reducing Station Yard Piping, and the West Bay Avenue Force Main. Each of these

locations appears to have a unique failure condition, but assessing these failures is a valuable way to better understand the limitations of each pipe material and to better plan for the future.

C. North Shore, South Shore and SWIFT Design & Construction Divisions

1. The Huxley Place to Middle Ground Boulevard Interceptor Force Main project was substantially completed in February. Final restoration efforts and the abandonment of an adjacent force main are now underway. This project began in 2015 and the design was slowed due to difficulty negotiating several easements. The length of time to complete this project was excessive (seven years) but it was important to stay focused on finishing this work since it allowed for the removal of a 36-inch concrete pipe that was in poor condition and had numerous unvented high-spots. This project is another important link in the upgrades to the James River service area.

2. The Water Quality Services Building Phase II construction is nearing completion. All exterior building work is now complete. Site grading and final paving are scheduled in the next month. All the major plumbing, mechanical and electrical systems are installed and are under testing and final approvals. The generator has been tested and accepted. Carpet and drywall work are nearing completion. The furnishings needed for the occupancy permit are being installed. HRSD-purchased furniture will be installed when the construction in each area is complete, and the needed approvals are issued. The A/V equipment is scheduled for installation in the coming month. The current plan is to begin occupying the space in late May. This project is being delivered using a Design-Build procurement approach and there is a strong collaborative mindset by all team members as this project is completed.

3. Staff worked with SC&H to develop a SWIFT Full-Scale Implementation Program Internal Audit Report. The report focused on the following major areas:

   - People
   - Third-Party Monitoring
   - Processes
   - Project Management Plan
   - WIFIA Funding

   Due to the size and complexity of the SWIFT Program, the importance to HRSD, and the fact that so much of the work is being done by non-HRSD individuals, close monitoring of the areas listed in the audit report is critical. HRSD brought together an experienced and motivated group of individuals that are working to meet the goals of the SWIFT Program, but close monitoring of the project goals and constant communication is needed to be successful.

D. Planning & Analysis Division

1. Staff began documenting the existing sewer assets on the Eastern Shore. Some plans for Eastern Shore Sewer facilities have been acquired and digitizing these features into the GIS is underway. Field collection of sewer manholes in Onancock has also been completed. The Eastern Shore mapping of sewer assets will be a continuous and long-term process and the information will be shared on the HRSD Map Portal available on the internal SharePoint site.

2. Staff is working with other departments at HRSD and with a consultant to better understand the infiltration and inflow concerns in the area around Hampton University. This work will include field investigations, detailed hydraulic modeling, and the installation of sensors in the area. The sensors will measure conductivity, flow, pressure, and groundwater elevations. This information will be linked to the GIS and new temporal layers will be created to see how these parameters are related. This information can also be compared to rainfall and tide data to get a better picture of how the sewer system truly operates in this service area.

E. Strategic Planning Metrics Summary

1. Educational and Outreach Events: 2

   a. 02/16/2021 – Virtual Presentation to the Old Dominion University Civil Engineering Department Class (CEE 401) on Sustainability.
   b. 02/25/2021 – Virtual Presentation to the University of Memphis Environmental Science Department Class (ESCI 7231) on HRSD's SWIFT Program.

2. Number of Community Partners: 2

   a. Old Dominion University Civil and Environmental Engineering Department

   b. University of Memphis Environmental Science Department

3. Number of Research Partners: 0

4. Monthly Metrics Summary:

Item #	Strategic Planning Measure	Unit	February 2021
M-1.4a	Total Training Hours per Full Time Employee (44) - Current Month	Hours / #FTE	0.89
M-1.4b	Total Training Hours per Full Time Employee (44) - Cumulative Fiscal Year-to-Date	Hours / #FTE	13.60
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, PhD, PE

TO: General Manager

FROM: Director of Finance

SUBJECT: Monthly Report for February 2021

DATE: March 10, 2021

A. General

1. There are two new stacked column graphs in the monthly report which were originally presented at the January Commission meeting. The first graph is the amount of money in each delinquency bin based on days past due. It is broken up into active vs. inactive accounts. Inactive accounts consist of former customers that may have moved and left a balance due on their account. The second graph is the number of accounts in each delinquency bin. A delinquent account may be counted in multiple bins because they may have amounts owed in each one.

2. Water consumption for the last few months has been tracking last year's cumulative actuals. As a result, wastewater revenues are in-line. Facility Charges remain strong as year-over-year December single family housing permits were up 35 percent. Total home sales were the highest on record in December. The IRS backlog is delaying our Build America Bond Subsidy payment. Salaries and Fringe Benefits remain in-line with budget. All other expenses are expected to remain under budget for the remainder of the fiscal year.

3. HRSD received $8.7 million from the Municipal Utility Relief Program. In the latest update, approximately, $7.2 million was applied to both HRSD and locality water and sewer customers' past due balances. Total HRSD payments were $4.1 million, which is shown in the Reserve and Capital Activity table. There is approximately $451,000 that is under review due to potential leak adjustments that may affect the payments applied. As a result, there is approximately $1.1 million available for our phase 2 program this summer.

4. February Billing statistics continue to improve and normalize after the ransomware attack and billings delays. HRSD worked with the localities to regain access to their billing systems and HRSD billing staff worked diligently to process the outstanding manual bill kickouts. All localities have resumed normal processing with exception of Portsmouth. Staff is continuing to work with Portsmouth to restore access to their system, which will speed up processing the 400 outstanding manual bill kickouts.

B. Interim Financial Report

1. Operating Budget for the Period Ended February 28, 2021

	Amended Budget	Current YTD	Current YTD as % of Budget (67% Budget to Date)	Prior YTD as % of Prior Year Budget
Operating Revenues				
Wastewater	$ 312,218,000	$ 211,375,092	68%	68%
Surcharge	1,522,000	1,097,854	72%	74%
Indirect Discharge	3,200,000	2,186,608	68%	77%
Fees	3,020,000	(417,201)	-14%	71%
Municipal Assistance	700,000	432,233	62%	59%
Miscellaneous	1,165,000	614,046	53%	82%
Total Operating Revenue	321,825,000	215,288,632	67%	68%
Non Operating Revenues				
Facility Charge	6,160,000	5,195,795	84%	70%
Interest Income	1,510,000	413,512	27%	108%
Build America Bond Subsidy	2,292,000	-	0%	47%
Other	610,000	401,470	66%	63%
Total Non Operating Revenue	10,572,000	6,010,777	57%	77%
Total Revenues	332,397,000	221,299,409	67%	68%
Transfers from Reserves	28,765,873	23,972,397	83%	67%
Total Revenues and Transfers	$ 361,162,873	$ 245,271,806	68%	68%
Operating Expenses				
Personal Services	$ 60,952,502	$ 41,363,283	68%	71%
Fringe Benefits	24,945,953	16,116,837	65%	67%
Materials & Supplies	9,663,402	5,566,627	58%	59%
Transportation	1,579,254	595,445	38%	50%
Utilities	13,019,361	7,983,105	61%	64%
Chemical Purchases	10,500,337	5,317,639	51%	51%
Contractual Services	51,831,008	23,455,967	45%	44%
Major Repairs	13,076,208	4,041,753	31%	35%
Capital Assets	867,079	231,215	27%	18%
Miscellaneous Expense	3,721,391	2,187,123	59%	98%
Total Operating Expenses	190,156,495	106,858,994	56%	59%
Debt Service and Transfers				
Debt Service	61,407,822	46,981,707	77%	73%
Transfer to CIP	109,338,556	77,687,516	71%	67%
Transfer to Risk management	260,000	173,336	67%	67%
Total Debt Service and Transfers	171,006,378	124,842,559	73%	69%
Total Expenses and Transfers	$ 361,162,873	$ 231,701,553	64%	64%

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**, and expenses are generally recorded on a cash basis. No provision is made for non-cash items such as depreciation and bad debt expense.

This interim report does not reflect financial activity for capital projects contained in HRSD's Capital Improvement Program (CIP).

Transfers represent certain budgetary policy designations as follows:

a. Transfer to CIP: represents current period's cash and investments that are designated to partially fund HRSD's capital improvement program.

b. Transfers to Reserves: represents the current period's cash and investments that have been set aside to meet HRSD's cash and investments policy objectives.

3. Reserves and Capital Resources (Cash and Investments Activity) for the Period Ended February 28, 2021

HRSD - RESERVE AND CAPITAL ACTIVITY February 28, 2021

	General Reserve						Capital	
	General	CARES - HRSD	CARES - JCSA	Debt Service	Risk Mgmt Reserve	Reserve	Paygo	Debt Proceeds
	Unrestricted	Restricted	Restricted	Restricted	Unrestricted	Unrestricted	Unrestricted	Restricted
Beginning - July 1, 2020	**$ 198,874,822**	**$ -**	**$ -**	**$ 28,154,541**	**$ 3,759,535**	**$ 15,266,324**	**$ 22,209,680**	**$ -**
Current Year Sources of Funds								
Current Receipts	206,233,902	8,737,113	315,872					-
Line of Credit								10,000,000
VRA Draws							17,682,515	
CARES Transfer In	4,090,864							-
Days Cash on Hand Transfer In							14,385,444	
Transfers In	-				173,336		78,568,396	
Sources of Funds	210,324,766	8,737,113	315,872	-	173,336	-	110,636,355	10,000,000
Total Funds Available	**$ 409,199,588**	**$ 8,737,113**	**$ 315,872**	**$ 28,154,541**	**$ 3,932,871**	**$ 15,266,324**	**$ 132,846,035**	**$ 10,000,000**
Current Year Uses of Funds								
Cash Disbursements	165,082,816						123,731,675	10,000,000
CARES Transfer Out		7,179,613	139,454					
Days Cash on Hand Transfer Out	14,385,444							
Transfers Out	63,475,408					15,266,324		-
Uses of Funds	242,943,668	7,179,613	139,454	-	-	15,266,324	123,731,675	10,000,000
End of Period - February 28, 2021	**$ 166,255,920**	**$ 1,557,500**	**$ 176,418**	**$ 28,154,541**	**$ 3,932,871**	**$ -**	**$ 9,114,360**	**$ -**
Unrestricted Funds	**$ 179,303,151**							

4. Capital Improvements Budget and Activity Summary for Active Projects for the Period Ended February 28, 2021

HRSD - PROJECT ANALYSIS February 28, 2021

Classification/ Treatment Service Area	Appropriated Funds	Expenditures prior to 7/1/2020	Expenditure Year to Date FY2021	Total Project Expenditures	Encumbrance	Available Funds
Administration	47,227,240	15,313,091	9,056,026	24,369,117	3,800,154	19,057,969
Army Base	155,448,800	123,095,232	30,500	123,125,732	2,302,801	30,020,267
Atlantic	112,007,296	76,561,802	2,655,638	79,217,440	5,745,787	27,044,069
Boat Harbor	262,090,388	36,048,636	6,508,681	42,557,317	19,484,015	200,049,056
Ches-Eliz	164,907,309	67,782,112	28,562,481	96,344,593	28,771,991	39,790,725
Eastern Shore	14,000,000	-	7,044	7,044	84,456	13,908,500
James River	309,704,973	38,156,333	3,758,963	41,915,296	3,284,051	264,505,626
Middle Peninsula	70,391,456	10,777,028	1,774,893	12,551,921	10,310,168	47,529,367
Nansemond	347,091,385	23,061,497	11,014,368	34,075,865	12,156,855	300,858,665
Surry	45,747,598	10,875,464	4,429,640	15,305,104	24,362,454	6,080,040
VIP	297,042,874	178,705,768	3,448,822	182,154,590	2,609,072	112,279,212
Williamsburg	34,145,622	17,684,308	6,954,408	24,638,716	7,286,797	2,220,109
York River	76,430,343	25,864,189	3,135,746	28,999,935	4,051,239	43,379,169
General	755,529,055	155,776,300	28,152,215	183,928,515	44,006,813	527,593,727
	$ 2,691,764,339	$ 779,701,760	$ 109,489,425	$ 889,191,185	$ 168,256,653	$ 1,634,316,501

5. Debt Management Overview

HRSD - Debt Outstanding ($000's) February 28, 2021

	Principal Jan 2021	Principal Payments	Principal Draws	Principal Feb 2021	Interest Payments
Fixed Rate					
Senior	199,911	-	-	199,911	-
Subordinate	555,057	(3,461)	826	552,422	(4,523)
Variable Rate					
Subordinate	50,000	-	-	50,000	(2)
Line of Credit	10,000	(10,000)		-	
Total	$ 814,968	$ (13,461)	$ 826	$ 802,333	$ (4,525)

HRSD- Series 2016VR Bond Analysis February 26, 2021

	SIFMA Index	HRSD	Spread to SIFMA
Maximum	4.71%	4.95%	0.24%
Average	0.44%	0.53%	0.09%
Minimum	0.01%	0.01%	0.00%
As of 02/26/21	0.03%	0.02%	-0.01%

* Since October 20, 2011 HRSD has averaged 53 basis points on Variable Rate Debt

6. Financial Performance Metrics for the Period Ended February 28, 2021

HRSD - UNRESTRICTED CASH — February 28, 2021

Can be used for any purpose since it is not earmarked for a specific use and is extremely liquid

			Adjust Days Cash on Hand	Days Cash on Hand
Total Unrestricted Cash	**$**	**179,303,151**		**344**
Risk Management Reserve	$	(3,932,871)	(7)	337
Capital (PAYGO only)	$	(9,114,360)	(18)	319
Adjusted Days on Cash	**$**	**166,255,920**		**319**

Risk Management Reserve as a % of Projected Claims Cost is 25% YTD compared to 25% Policy Minimum
Adjusted Days Cash on Hand Policy Minimum is 270-365 days.

HRSD - SOURCES OF FUNDS — February 28, 2021

Primary Source	Beginning Market Value July 1, 2020	YTD Contributions	YTD Withdrawals	YTD Income Earned	Ending Market Value February 28, 2021	Allocation of Funds	Credit Quality	Current Mo Avg Yield
BAML Corp Disbursement Account	7,339,242	320,784,739	312,399,164	19,070	15,743,887	11.7%	N/A	0.55%
VIP Stable NAV Liquidity Pool	178,660,390	10,000,000	70,000,000	196,419	118,856,809	88.3%	AAAm	0.12%
Total Primary Source	**$ 185,999,632**	**$ 330,784,739**	**$ 382,399,164**	**$ 215,489**	**$ 134,600,696**	100.0%		

VIP Stable NAV Liquidity Pool performed at the same level as the Va Local Government Investment Pool (the market benchmark) in the month of February.

Secondary Source	Beginning Market Value July 1, 2020	YTD Contributions	YTD Withdrawals	YTD Income Earned & Realized G/L	Ending Market Value February 28, 2021	Ending Cost	LTD Mkt Adj	Yield to Maturity at Market
VIP 1-3 Year High Quality Bond Fund	64,899,667	-	8,704	532,133	65,067,131	63,259,983	1,807,148	0.22%
Total Secondary Source	**$ 64,899,667**	**$ -**	**$ 8,704**	**$ 532,133**	**$ 65,067,131**	**$ 63,259,983**	**$ 1,807,148**	

VIP 1-3 Year High Quality Bond Fund out performed ICE BofA ML 1-3 yr AAA-AA Corp/Gov Index (the market benchmark) by 0.03% in the month of February.

	Total	Fund Alloc
Total Primary Source	**$ 134,600,696**	**67.4%**
Total Secondary Source	**$ 65,067,131**	**32.6%**
TOTAL SOURCES	**$ 199,667,827**	**100.0%**

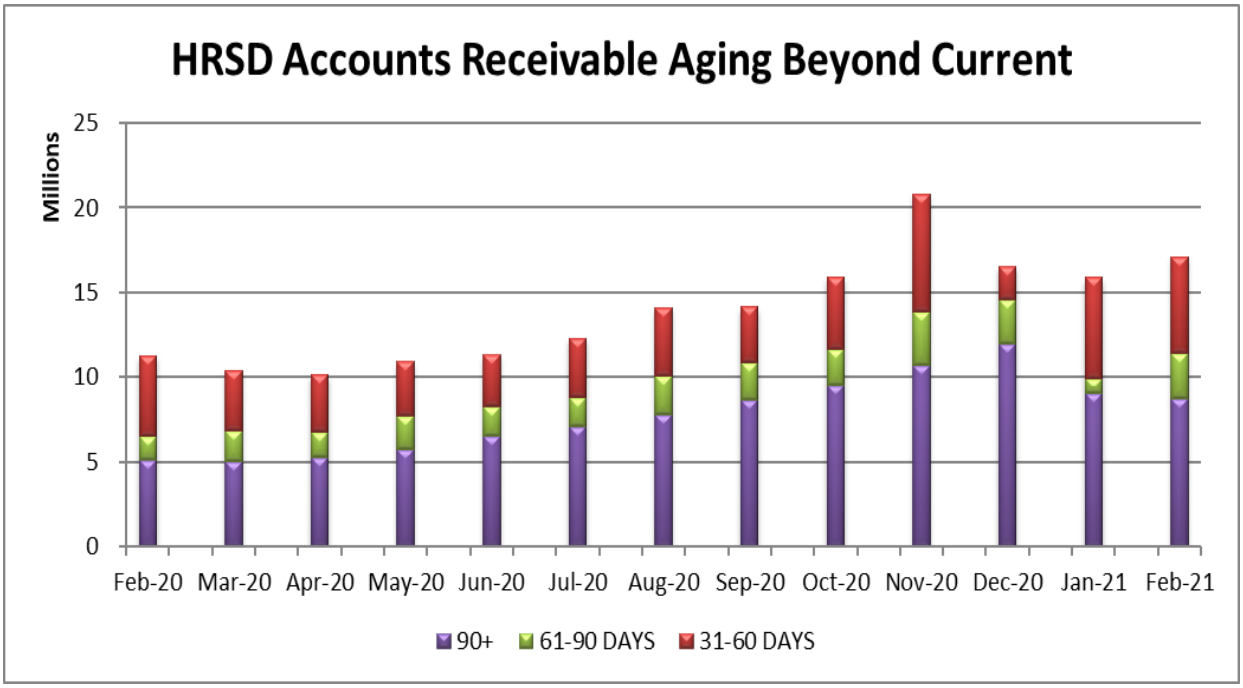
7. Summary of Billed Consumption

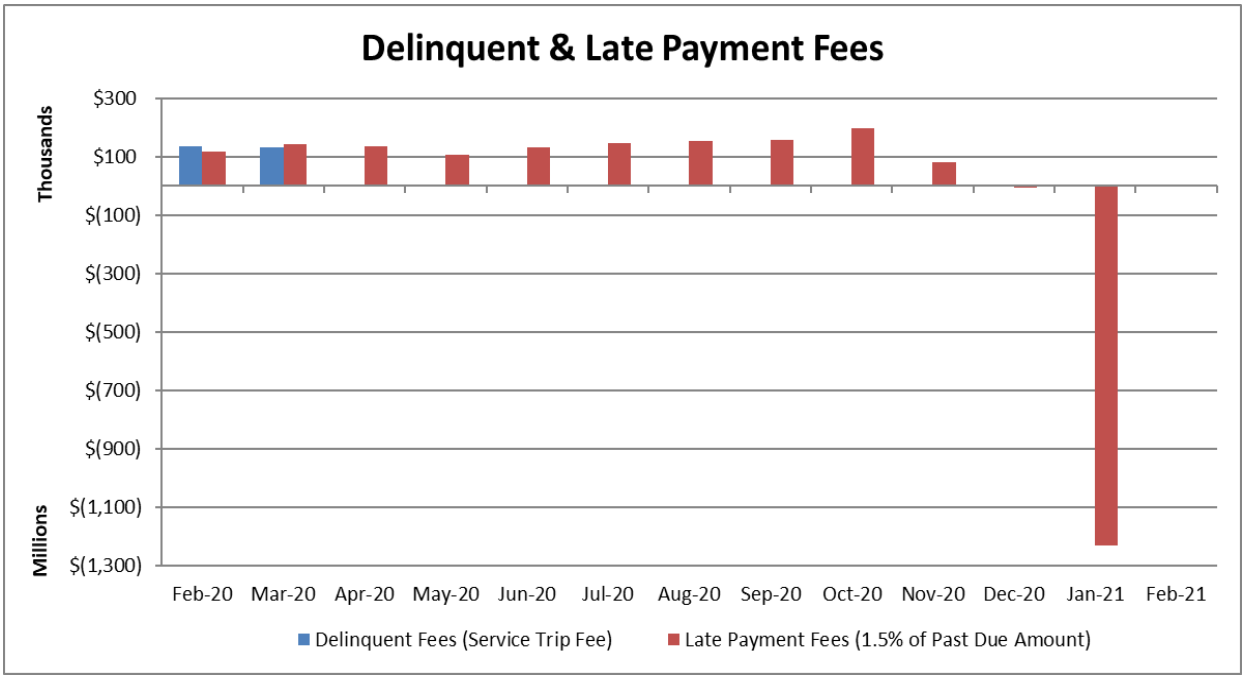
Summary of Billed Consumption (,000s ccf)

Month	FY2021 Cumulative Budget Estimate	FY2021 Cumulative Actual	% Difference From Budget	Cumulative FY2020 Actual	% Difference From FY2020	Cumulative 3 Year Average	% Difference From 3 Year Average
July	5,086	4,751	-6.6%	5,114	-7.1%	5,045	-5.8%
Aug	10,047	9,459	-5.8%	9,944	-4.9%	10,026	-5.7%
Sept	14,477	14,335	-1.0%	14,354	-0.1%	14,389	-0.4%
Oct	18,951	18,863	-0.5%	18,952	-0.5%	18,966	-0.5%
Nov	22,937	21,192	-7.6%	23,092	-8.2%	23,160	-8.5%
Dec	27,268	27,614	1.3%	27,518	0.3%	27,383	0.8%
Jan	31,818	32,477	2.1%	32,101	1.2%	31,920	1.7%
Feb	36,287	36,068	-0.6%	36,005	0.2%	36,236	-0.5%
March	39,495	-	N/A	40,108	N/A	40,223	N/A
Apr	43,441	-	N/A	44,246	N/A	44,387	N/A
May	47,762	-	N/A	48,397	N/A	48,604	N/A
June	52,222	-	N/A	52,535	N/A	52,869	N/A

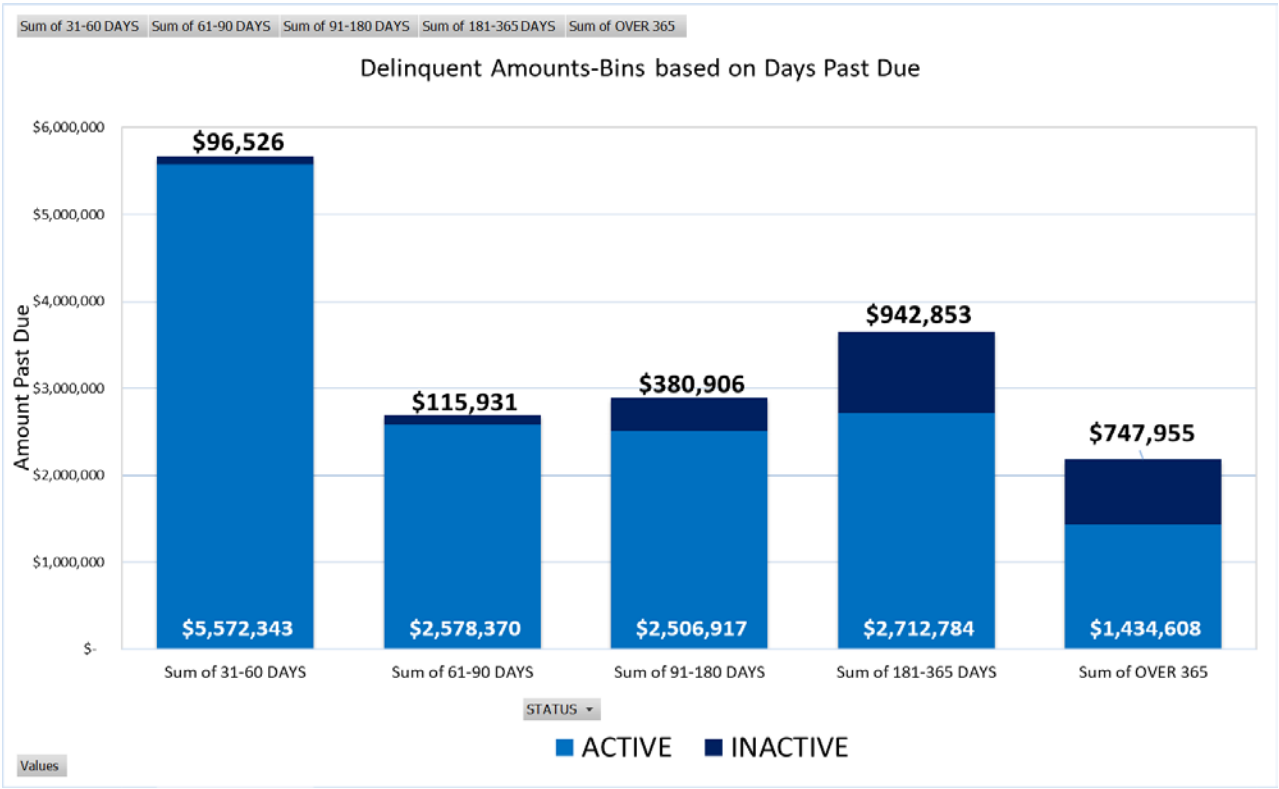
C. Customer Care Center

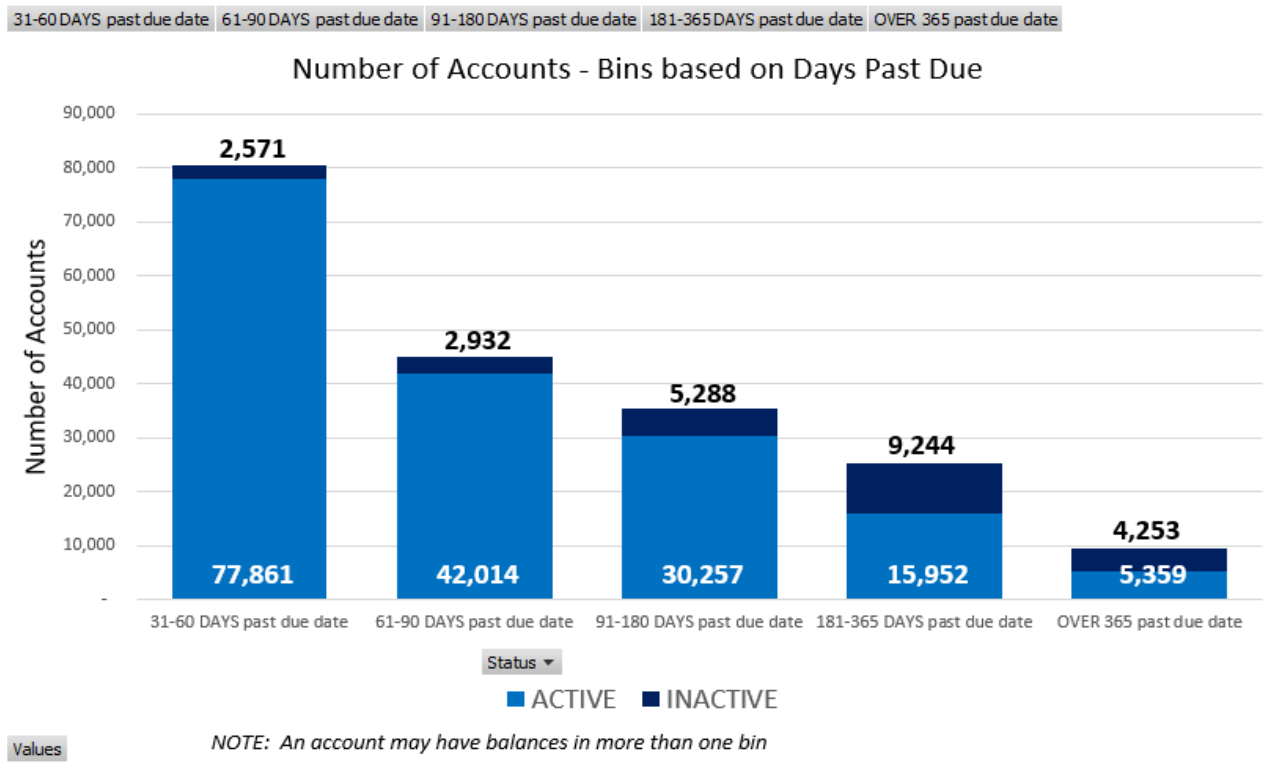
1. Accounts Receivable Overview





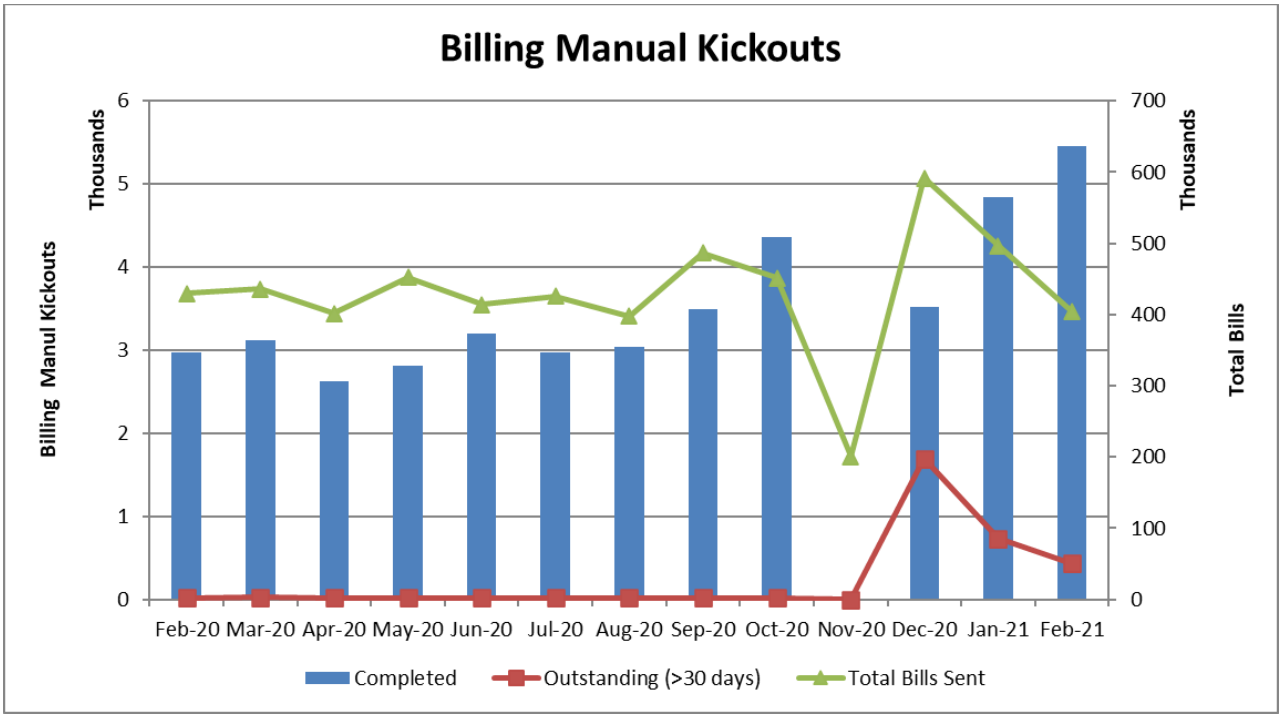
Apr 20-Feb 21 Field Activity was suspended late March 2020 in response to COVID-19.



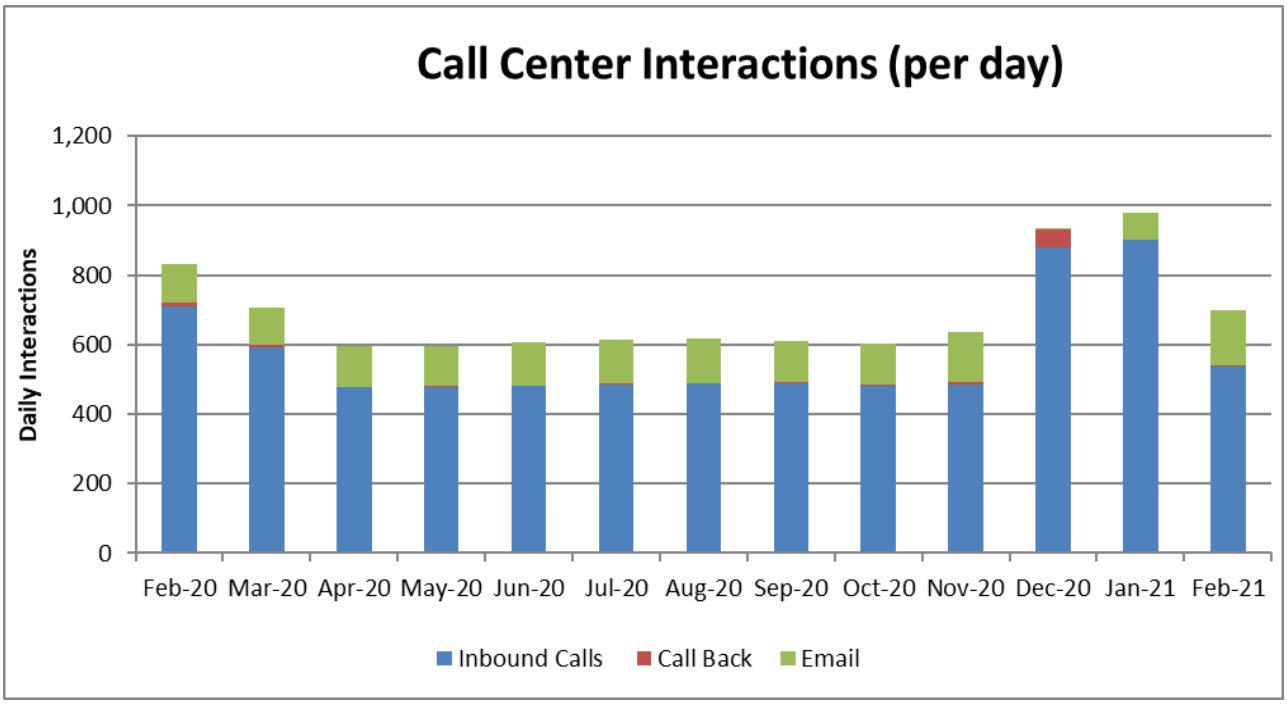


NOTE: An account may have balances in more than one bin

2. Customer Care Center Statistics



November data not available due to Ransomware attack



Customer Interaction Statistics	Sep	Oct	Nov	Dec	Jan	Feb
Calls Answered within 3 minutes	95%	95%	86%	30%	41%	90%
Average Wait Time (seconds)	0:28	0:25	0:37	378	803	0:48
Calls Abandoned	3%	3%	8%	28%	39%	7%

D. Procurement Statistics

ProCard Fraud	External Fraud Transactions *	Comments
July	0	
August	3	One transaction was caught by the card holder and two transactions were caught by the bank immediately.
September	3	Three caught by card holder
October	2	Caught by bank immediately
November	0	
December	0	
January	1	Caught by bank immediately
February	0	
Total	**9**	

***External Fraud:** Fraud from outside HRSD (i.e.: a lost or stolen card, phishing, or identity theft)

E. Strategic Planning Metrics Summary

1. Educational and Outreach Events: 0

2. Community Partners: 0

3. Monthly Metrics

Item #	Strategic Planning Measure	Unit	February 2021
M-1.4a	Training During Work Hours Per Full Time Employee (102) – Current Month	Hours / #FTE	0.51
M-1.4b	Total Training During Work Hours Per Full Time Employee (102) – Cumulative Fiscal Year-to-Date	Hours / #FTE	6.36
M-5.2	Educational and Outreach Events	Number	0
M-5.3	Number of Community Partners	Number	0
	Wastewater Revenue	Percentage of budgeted	101%
	General Reserves	Percentage of Operating Budget less Depreciation	102%
	Liquidity	Days Cash on Hand	344 Days
	Accounts Receivable (HRSD)	Dollars	$31,630,351
	Aging Accounts Receivable	Percentage of receivables greater than 90 days	28%

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

TO: General Manager

FROM: Director of Information Technology

SUBJECT: Information Technology Department Report for February 2021

DATE: March 11, 2021

A. General

1. As the new Water Quality Services Building nears completion, staff are busy installing, configuring, and testing hardware, software, and data connections, for the latest addition to the HRSD network.

2. Staff continues work on the upcoming migration of Microsoft Exchange, Outlook, Office 365, and other applications to the cloud, scheduled for late spring. Once complete, users will be able to connect to their applications and data from anywhere they can connect to the Internet.

3. In February, the IT Help Desk staff completed over 440 work orders, ensuring availability of computing resources to those working locally and remotely.

4. Members of the data retention and governance team are fine-tuning the final draft of the data retention plan for presentation to the Quality Steering Team (QST), followed by submission to the Library of Virginia this summer.

5. Design and configuration options are being explored in preparation for the next data center technology refresh. As applications and user data migrate to the cloud, storage and computing needs within the data center are revised accordingly.

B. Strategic Planning Metrics Summary

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

Item #	Strategic Planning Measure	Unit	February 2021
M-1.4a	Training During Work Hours Per Full-Time Employee (50) – Current Month	Total Training Hours / # FTE	0.77
M-1.4b	Total Training During Work Hours Per Full-Time Employee (50) – Cumulative Fiscal Year-to-Date	Total Training Hours / # FTE	8.87
M-5.2	Educational and Outreach Events	Number	0
M-5.3	Number of Community Partners	Number	0

Respectfully,

Don Corrado

TO: General Manager

FROM: Director of Operations

SUBJECT: Operations Report for February 2021

DATE: March 10, 2021

A. General Comments

February was another very wet month with several extended periods of rain throughout the month. The rainfall coupled with exceedingly high groundwater levels presented several challenges for the Operations Department. Although, there were some staff errors, staff responded with the same enthusiasm and effectiveness we have come to expect from them. Groundwater and wastewater flows have steadily risen with each rainfall event since the remnants of Hurricane Sally passed through the area in September 2020 and have generally not subsided.

B. Interceptor Systems

1. North Shore (NS) Interceptor Systems

There were 10 Sanitary Sewer Overflows (SSO) this month resulting in a total loss of 246,757 gallons. The Claremont Pump Station (PS) service area in the City of Hampton was particularly affected by the rainfall and groundwater levels and is where most of the spills occurred. In addition to setting up emergency pumps to supplement capacity, staff also utilized the new Supervisory Control and Data Acquisition (SCADA) system to control the Bridge Street PS to enhance system capacity. This was the first time that remote control of a PS has occurred.

2. South Shore (SS) Interceptor Systems

a. There were three SSOs reported this month.

(1) On February 5, the City of Virginia Beach reported a force main failure near the intersection of Independence Boulevard and Hinsdale Street. Staff isolated the force main and closed all southbound lanes on Independence Boulevard. A contractor excavated and discovered a circular hole in the side of the 36-inch reinforced concrete pipe. The contractor replaced the failed section and repaired the compromised roadway. The failure resulted in an SSO and leaked approximately 281,000 gallons into a nearby storm drain that drains to the Western Branch of the Lynnhaven River.

(2) On February 8, staff reported a force main failure near the intersection of West Bay Avenue and St. George Avenue in Norfolk. Staff isolated the force main, excavated, and determined the failure was from internal corrosion from an unknown, unvented high point. Staff replaced the failed section of 20-inch prestressed concrete cylinder pipe (PCCP) and installed an air vent. The failure resulted in an SSO and leaked approximately 900 gallons into a nearby storm drain that drains to Oastes/Mason Creek.

(3) On February 18, an intense and long duration rainfall caused an SSO at the Chesapeake Boulevard Pump Station in Norfolk when the station pumps couldn't keep up with the high flows in the system. Approximately 1.6 million gallons were released into Wayne Creek, a tributary of the Lafayette River.

C. Major Treatment Plant Operations

1. Army Base Treatment Plant (ABTP)

a. During the weekend of February 13-15, there was an increase in effluent suspended solids leading to exceedances of the weekly total suspended solids (TSS) and biological oxygen demand (BOD) concentration, and load-based limits and the monthly average TSS load limit. During the worst of the wet weather event, a fourth clarifier was mistakenly not placed into service as intended to compensate for rising secondary blankets, and anoxic zone mixers were not secured in the aeration tanks to holds solids within the process. Both actions would have prevented solids loss from the secondary clarifiers during the storm event. This was compounded by excess mixed liquor inventory prior to the storm event that was caused by multiple solids handling interruptions associated with scheduled incinerator emissions testing and maintenance and operational issues. Under normal flow conditions, the secondary clarifier solids loading rates would have been manageable, but not with severe wet weather. ABTP has an unseasoned but eager team of plant operators who did not fully understand the significance of rising secondary clarifier blankets. In addition, the existing wet weather SOP was not followed, though it would have done little to alleviate the suspended solids discharge because it did not clearly address secondary clarifier solids loading issues. Staff has updated the wet weather SOP and provided training. Solids handling has been optimized in both maintenance and operations to maximize process stability and minimize downtime. Additionally, communication protocols have been enhanced to ensure better response during wet weather and other potential upset events.

b. On February 25, contractors broke a non-potable water (NPW) line causing 300 gallons to spill into a storm drain discharging into the Elizabeth River.

c. Staff completed installation of a new aeration diffuser air flow pattern on aeration tank #3 to better optimize nitrogen and phosphorus removal in the Biological Nutrient Removal (BNR) process.

2. Atlantic Treatment Plant (ATP)

   a. Staff are working to automate level controls that feed the Thermal Hydrolysis Process (THP). This should help adjust the feed to the pre-dewatering centrifuge more smoothly.

   b. Contractors removed the Dystor cover and started to clean the # 5 digester. Staff also started to clean digester #4. Once cleaned out, both digesters will be disinfected and ready for use when needed.

   c. Digester 3 was disinfected, and all the mixers were rebuilt.

3. Boat Harbor Treatment Plant (BHTP)

   a. A wet weather event that began on February 11 resulted in an overflow of approximately 55,000 gallons of secondary influent on February 16. Approximately 2,750 gallons was recovered and pumped back into the secondary clarifiers; 52,250 gallons was not recovered and lost to the ground or storm drain.

   b. In response to dewatering issues that began in November 2020, staff contracted with a company to remove the solids from both holding tanks with a mobile dewatering unit. Contractors began operation on holding tank #2 on February 9 and finished on February 14. The contractors used a belt filter press to dewater the solids in the holding tank to an average solids content of 15.23 percent which was incinerated. Total volume of solids incinerated was 1,247,120 wet pounds.

   c. Staff repaired the center column seal on secondary clarifier #6 with a quick turnaround to prepare for ongoing rain. The seal is a critical component that aids in solids removal from the secondary clarifier.

   d. Contractors finished the LED lighting upgrades in the intermediate pump station basement, incinerator building, scrubber basement, primary effluent channels, float treat basement, and the furnace NPW building.

4. Chesapeake-Elizabeth Treatment Plant (CETP)

   a. Staff replaced two centrifuge feed pumps and the lower bearings on ash bucket elevator this month.

   b. Staff modified alum/ ferric chemical feed system to allow both chemicals to be fed simultaneously to different feed locations.

5. James River Treatment Plant (JRTP)

   a. Staff installed a new centrifuge feed pump, replacing the dewatering dry polymer blower, and replacing solids and gas valves on #2 digester systems.

b. Staff continued work on the centrate pipeline from the centrate pump vault to the centrate equalization tanks. Above ground piping and pipe supports were installed near primary clarifier #1. The new pipeline will transport centrifuge centrate from the centrifuge to the centrate equalization tanks without pumping. Eliminating pumping will eliminate the formation of struvite occurring in the pumps.

6. Nansemond Treatment Plant (NTP)

a. There were three reportable spills in the month of February:

(1) On February 21, while placing aeration tank #3 in service, a frozen NPW line broke causing approximately 1,000 gallons of NPW to spill on the ground. None was recovered.

(2) On February 17, the plant emergency generator failed resulting in an overflow of approximately 5,000 gallons of treated water in the effluent channel. About 3,800 gallons were recovered. The spill occurred when power was restored and there was a momentary increase in effluent flow when starting the NRCY pumps. Upon further investigation, it was discovered a contractor had failed to reinstall the air release valve on a hatch on the effluent pipe when they performed work on it earlier in the month. This caused a significant decrease in efficiency of the effluent pipe resulting in the overflow.

(3) On February 24, a fitting on a wet well pump at the Regional Residual Facility (RRF) broke and pumped approximately 100 gallons of wastewater onto the ground; nothing was recovered. The pump was taken out of service for repair.

b. Staff completed repairs on a centrifuge which will be returned to service in early March.

c. Staff completed repairs on secondary clarifier #5. The clarifier should be returned to service in early March to resume testing on the Hydrograv Adapt inlet.

d. Sustainable Water Initiative for Tomorrow (SWIFT) Research Center (RC)

(1) The total volume of SWIFT recharge into the Potomac aquifer for the month of February was 0 MG (0% Recharge Time).

(2) A contractor completed the chemical rehabilitation of the recharge well.

(3) The Contractor completed site preparations for the new recharge well #1 and are ready to begin drilling.

7. Virginia Initiative Plant (VIP)

a. Staff investigated vibrations associated with one of the main odor control scrubber fans. Work will continue, including motor repair or replacement and fan inspection.

b. Staff disassembled one dewatering centrifuge for annual inspection and replaced its centrate chute.

c. Staff continues to work on optimizing automation of the aeration blowers with the newly installed control panels and sent one blower motor out for rehabilitation.

8. Williamsburg Treatment Plant (WBTP)

a. The short outfall was used during a planned power shutdown for the connection to the new electrical switchgear. An odor deviation also occurred during a planned shutdown of power to three electrical substations for inspection.

b. Staff worked closely with a contractor to remove fats, oils, and grease (FOG) from FOG system tanks for inspection and repair. Removing FOG from the tanks is a slow, tedious process involving skimming, pumping and hot water pressure washing.

9. York River Treatment Plant (YRTP)

a. Electrical contract work on the aeration tanks continued.

b. Replacement of approximately 300 linear feet of corroded 60-inch headworks effluent pipe from the headworks to the primary clarifier distribution chamber continued.

10. Incinerator Operations Events Summary

a. Total Hydrocarbon (THC) monthly averages (not to exceed 100 ppm) were met by all five treatment plants with incinerators with a THC continuous emission monitoring valid data captured of greater than 97%.

b. There was one deviation from the required 129 SSI rule minimum operating parameters and two bypass events (<60 minute).

D. Small Communities (SC)

1. Middle Peninsula Small Communities Treatment and Collections

a. West Point Treatment Plant (WPTP)

Continuous, excessive flows throughout the month resulted in reduced settling performance and extensive hydraulic loading throughout the plant, resulting in TSS exceedances in the weekly loading for the week of February 14 and the monthly loading. During this week, the plant averaged 1.25 million gallons per day (MGD), with a monthly average of 0.958 MGD. Offline storage was at maximum capacity throughout most of the month in order to avoid spills from occurring out of process tanks. Staff notated multiple days of zero depth blanket formation in the clarifiers throughout the month due to the hydraulic loading. All concentration values were met, with the majority of values moderately above typical effluent range for TSS. The new tertiary filter is expected to be online the

week of March 15. The filter, combined with possibility of more normalized flows, should substantially reduce the effluent TSS loading.

b. King Williams Treatment Plant (KWTP)

Excessive flows and cooler temperatures continued to exacerbate the nitrification upset that occurred in December. Multiple supplemental seeding efforts, process changes to extended aeration with an increase in supplemental carbon, wet weather pump and haul to decrease hydraulic load on the plant, multiple verifications of pH, DO, and mechanical components were all done in an attempt to stabilize nitrification. Despite these efforts, there were TKN exceedances in the weekly concentration for week of February 21 and the monthly concentration.

c. Urbanna Treatment Plant (UBTP)

Despite the wet weather and increase flows, plant performance was good this month.

d. Mount Olive Treatment Plant (MOTP) & Drain Field

Work began to add a level indicator to the drain field holding tank(s). This indicator will report back through the Telog system and reduce the need for staff e to make daily trips to the plant.

2. Small Communities – Surry Systems

Because of high flows, there were three permit violations this month at the Town of Surry TP. Both the weekly cBod and TSS loading maximum limits were exceeded the week of February 14 and the monthly TSS loading was exceeded.

E. Energy Management (EM)

1. A third-party contractor investigated billing anomalies with over 200 HRSD electric and gas utility accounts with Dominion Energy Virginia (DEV) and Virginia Natural Gas (VNG) respectively. Excessive contract demands, billing demands, data entry errors and overcharges were found. The estimated annual savings is $75,000. A final report on savings will be available this summer.

2. The electrical utility rate schedule for the SWIFT Research Center was recently changed to save electric utility costs. The SWIFT Research Center is currently consuming more electrical power than a year ago, but the costs are slightly lower than expected due to the decrease in the cost per kilowatt hour (kWh).

3. The solar array construction on the NS Operations Complex building is complete. Once the electrical utility has swapped the existing utility meter for a bidirectional utility meter, the system will be in full operation.

F. Electrical & Instrumentation (E&I)

1. Staff installed a skid mounted boiler as a backup for the primary THP steam boiler at ATP.

2. Staff programmed the carbon dosing pumps on the Moving Bed Bio Reactor (MBBR) Pilot at JRTP. Graphics and controls were updated to enhance visibility and provide additional control options.

3. Staff continues to support the Generator and Switchgear Replacement CIP Project at WBTP. On February 24, a scheduled outage occurred to install two portable generators for providing temporary power to the sludge dewatering and gravity belt thickener buildings. Temporary power is required to facilitate installation of new equipment and new feeder cables. During startup testing, the normal power temporary generator tripped offline due to voltage phasing issues in the Sludge Dewatering building. Upon further investigation, it was determined that the contractor mislabeled and improperly connected the temporary cables. A lesson learned meeting was conducted with all stakeholders to ensure this type of incident does not occur again.

4. Staff replaced damaged wiring that prevented Aeration Blower #1 from operating at Surry Town Plant. Upon further investigation staff determined the wiring damage was due to overheating. In addition, they identified the same issue on Aeration Blower #2 and preemptively replaced the wiring. Both blowers were tested and returned to normal service.

G. Water Technology and Research

The demand for methanol to achieve denitrification was found to be much less than expected at VIP Treatment Plant. This observation led to a new research program that has uncovered new mechanisms for “stored carbon” denitrification in the second stage anoxic zones of our 5-stage biological nutrient removal processes. While there is some evidence of this phenomenon in the literature, the reports are quite scarce, poorly understood, and difficult to interpret in terms of practical guidance. We have learned that this “stored carbon” denitrification is linked to organic carbon, and specifically volatile fatty acids (VFA), taken up in the anaerobic zone, it is correlated well with the activity of poly-phosphate accumulating organisms (PAO), and it is enhanced by more plug flow hydraulic conditions in the second stage anoxic zone. The objective of this research program is to improve our understanding of the biological mechanisms so that we can better control this process and thus decrease methanol demand. Interestingly, we have also discovered that there is considerable potential for “stored carbon” denitrification at James River Treatment Plant that, similar to VIP, seems to be driven by high concentrations of influent VFA and very good PAO activity.

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	4	2	4	3	3	3	4	4				
2.7	# of PS Annual PMs Performed	5	7	5	5	5	3	4	5				
2.7	# of Backup Generator PMs Performed (Target is 4.6)	7	15	6	17	10	5	7	9				
2.8	# of FM Air Release Valve PMs Performed	114	42	187	264	182	186	161	43				
2.8	# of FM Air Release Valve PMs Performed	220	243	200	316	108	152	249	163				
2.9	# of Linear Feet of Gravity Clean (NS) (Target is 2,417 for HRSD)	9,394	3,605	5,057	6,050	1,467	3,320	2,062	4,862				
2.9	# of Linear Feet of Gravity Clean (SS) (Target is 2,417 for HRSD)	10,686	2,217	1,100	6,245	3,687	3,370	1,876	756				
2.9	# of Linear Feet of Gravity CCTV Inspection (HRSD Target	0	0	0	0	0	0	0	0				

I. Strategic Measurement Data

1. Education and Outreach Events: 1

   02/09/2021: Chief of Electrical and Energy Management (CEM) attended New Horizons Technical Center.

2. Community Partners: 6

   a. Chesapeake Bay Foundation-oyster cage maintenance at BHTP for oyster garden project
   b. Jefferson Lab
   c. Old Dominion University (ODU)
   d. City of Chesapeake Public Utilities
   e. City of Suffolk Public Utilities
   f. United Way Williamsburg House

3. Monthly Metrics

Item #	Strategic Planning Measure	Unit	February 2021
M-1.4a	Training During Work Hours per Full Time Employee (FTE) (526) Current Month	Hours / FTE	1.82
M-1.4b	Total Training During Work Hours per FTE (526) – Cumulative Year-to-Date	Hours / FTE	14.20
M-2.3a	Planned Maintenance Total Maintenance Hours	Total Recorded Maintenance Labor Hours	29,340.75
M-2.3b	Planned Maintenance – Preventive and Condition Based	% of Total Maintenance Hours	61.7%
M-2.3c	Planned Maintenance - Corrective Maintenance	% of Total Maintenance Hours	13.7%
M-2.3d	Planned Maintenance - Projects	% of Total Maintenance Hours	24.6%
M- 4.1a	Energy Use: Treatment *reported for January 2021	kWh/MG	2,415
M-4.1b	Energy Use: Pump Stations *reported for January 2021	kWh/MG	192
M-4.1c	Energy Use: Office Buildings *reported for January 2021	kWh/MG	74
M-5.2	Educational and Outreach Events	Number	1
M-5.3	Number of Community Partners	Number	6

Respectfully submitted,

Steve de Mik
Director of Operations

TO: General Manager

FROM: Director of Talent Management (TM)

SUBJECT: Monthly Report for February 2021

DATE: March 10, 2021

A. Talent Management Executive Summary

1. Recruitment Summary

New Recruitment Campaigns	6
Job Offers Accepted – Internal Selections	6
Job Offers Accepted – External Selections	11
Average Days to Fill Position	118

2. The following were performed in response to the COVID-19 pandemic:

a. Continued addressing and monitoring suspected employee COVID-19 cases and potential close contact exposures based on the Virginia Department of Health (VDH) guidelines:

Description	February 2021	Annual (March 2020-February 2021)
Quarantines due to illness or direct exposure (household or external)	26	289
Work Related Quarantines	5	22
Personal Travel Quarantines	3	45
Confirmed Employee COVID-19 Cases	6	58
Work Related COVID-19 Cases	0	1
Contractor COVID-19 Cases on HRSD Work Sites*	1	10

*No direct exposure to HRSD employees

b. Implemented new Virginia Department of Health COVID-19 guidelines for quarantining fully vaccinated employees following exposure.

c. Began updating HRSD's Infectious Disease Preparedness and Response Plan based on *OSHA's Final Standard for Infectious Disease Prevention*

d. Addressed questions related to the *Vaccine Policy* and *Guidelines for Contractors entering HRSD Worksites*.

e. Developed and implemented an Employee Vaccine Acknowledgement in ERP.

f. Continued to contact medical providers regarding on-site vaccination clinics for Phase 1c.

g. Worked with the health plan provider to extend COVID-19 cost share waivers.

3. Benefits and Compensation

a. TM and Finance staff worked with HRSD's Benefit consultant on:

(1) 2021/2022 medical, vision and dental renewal, including changes and cost projections
(2) Implementing voluntary supplemental health care plan options
(3) Discussing Flexible Spending Account plan changes resulting from the Consolidated Appropriations Act

b. TM and Finance began to evaluate the impact of a $15 per hour minimum wage on full time and part time positions.

c. The Human Resources (HR) Business Analyst worked with HR, Accounting, and Information Technology staff to begin the Affordable Care Act reporting process.

d. HR continued to partner with Departments and work centers on the following:

(1) Updated and distributed *Annual Leave, Paid Time Off* and *Pay at Separation* policies to adjust leave carry over limits through 2025, allowing employees time to utilize leave accumulated during the COVID-19 pandemic and to address payout at separation during this timeframe.
(2) Worked with Chesapeake-Elizabeth Treatment Plant (CETP) leadership, to present the CETP closure plan to employees and address questions about the timeline and retirement process.
(3) Worked with Operations on plans to transition Onancock TP employees to HRSD, assisting with placement, compensation, and job descriptions.

5. Wellness Program

a. Participation

Year Eight Participation Activities	Unit	February 2021	Year to Date (March 2020– February 2021)
Biometric Screenings	Number	232	338
Preventive Health Exams	Number	229	391
Preventive Health Assessments	Number	297	625
Online Health Improvement Programs	Number	454	890
Web-MD Online Health Tracking	Number	44	984
Challenges: *Holiday Maintain Don't Gain*	Number	21	435
Fit-Bit Promotion	Number	6	65

b. Two virtual wellness program meetings were held for TP employees.

c. The Wellness Specialist coordinated end of the year wellness activities including clarifying program requirements for employees and spouses, distributing information, and compiling Wellness data.

6. Organization Development and Training (OD&T)

a. Work continued with the OD&T consultant on:

(1) Evaluation of online training for an introductory Supervisory Knowledge and Information Program (SKIP)
(2) Development of a virtual coaching program
(3) Work with HRSD Leadership on several diversity, equity and inclusion actions and strategies as a follow-up to *Courageous Conversations*.

b. The Facilitator team conducted the third Leadership and Management Academy (LAMA) session, *Enhancing Communication Using Myers Briggs Type Indicator.* In addition, participants worked on their capstone project, *Employee Burnout*, and participated in Emotional Intelligence assessments and debriefs.

c. The 2021 OD&T training catalogue was published.

7. Apprenticeship Program

a. Progress was made on several ongoing improvements including:

(1) Canvas course development
(2) Electrical and Instrumentation (E&I) trade revisions
(3) Plant Operator Curriculum review
(4) Development of a Student Success Program
(5) Apprenticeship Mentoring Program, AMP
(6) Simulation Development- Operations
(7) Request for Proposals to enhance virtual instruction capabilities

b. Staff administered the Math Refresher Final Exam to thirteen apprentices.

8. 2020 Superfund Amendments and Reauthorization Act (SARA) Title III, Tier I and Tier II reports for HRSD facilities were submitted by the Safety Division prior to the deadline. Corresponding Emergency Response Procedures were updated for all work centers.

9. The Safety Manager was selected to participate in the Board for Global Health Credentialing's Job Analysis for the Certified Industrial Hygienist.

10. The Safety Division continued conducting respirator fit testing and coordinating medical screenings for work centers to meet Respiratory Protection Program requirements.

11. Mishaps and Work-Related Injuries Status to Date (OSHA Recordable)

	2020	**2021**
Mishaps	32	5
Lost Time Mishaps	8	2
Numbers subject to change pending HR review of each case.		

12. Safety Division Monthly Activities

Safety Training Classes	19
Work Center Safety Inspections	5
Reported Accident Investigations	2
Construction Site Safety Evaluations	24
Contractor Safety Briefings	7
Hot Work Permits Issued	43
Confined Space Permits Issued/Reviewed	175
Industrial Hygiene Monitoring Events	3

B. Monthly Strategic Planning Metrics Summary

1. Education and Outreach Events: (0)

2. Community Partners: (0)

3. Monthly Metrics

Item #	**Strategic Planning Measure**	**Unit**	**February 2021**
M-1.1a	Employee Turnover Rate (Total)	Percentage	0.25%
M-1.1b	Employee Turnover - Service Retirements	Percentage	0%
M-1.4a	Total Training Hours Per Full Time Employee (17)	Total Training Hours/ FTE	1.35
M-1.4b	Total Training During Work Hours Per Full Time Employee (17) – Cumulative Fiscal Year-to-Date	Hours / FTE	19.11
M-5.2	Educational and Outreach Events	Number	0
M-5.3	Community Partners	Number	0

Respectfully submitted,
Paula A. Hogg
Director of Talent Management

TO: General Manager

FROM: Director of Water Quality (WQ)

SUBJECT: Monthly Report for February 2021

DATE: March 10, 2021

A. General

Pretreatment and Pollution Prevention (P3) division staff assessed one civil penalty this month.

Chesapeake Bay Bridge Tunnel - Thimble Shoal Tunnel Project, Virginia Beach

An Enforcement Order was issued to Chesapeake Bay Bridge Tunnel - Parallel Thimble Shoal Tunnel Project in February 2021 for a technical violation associated with discharges from the jet grout operations through the Portal Island 1 sample point. The permittee exceeded the monthly average permit limit for chromium for December 2020. The Order contained an invoice for a $2,000 Civil Penalty. The maximum penalty was proposed due to the compliance history of the facility and repeated occurrences of the same violation type and parameter (chromium).

A Show Cause meeting was previously held on September 21, 2020 in which ion exchange resin technologies were discussed as measures to prevent recurrence of chromium permit limit exceedances. Mechanical problems associated with the ion exchange treatment process were the proposed reason for the December limit exceedance. The mechanical problems have been corrected. Jet grout operations at Portal Island 1 are complete and will not generate any more wastewater associated with this process. The Enforcement Order was accepted, and the Civil Penalty was paid in full on February 24, 2021.

B. Quality Improvement and Strategic Activities

1. The Sustainability Environment Advocacy (SEA) Group reported the following activities for the month of February.

    a. Metrics Committee: Compiled data from work centers to gain an understanding of what is being recycled and/or specially disposed of across HRSD.
    b. Reduce, Reuse, Recycle (R3) Support Committee: Reminded HRSD employees via the Sustainable Spotlight of some of the most common items that end up in recycling cans that cannot be recycled: cardboard with food residue, solo cups, and shredded paper.
    c. Communications Committee: In honor of Black History Month, highlighted three black environmentalists and some of their accomplishments in the Sustainable Spotlight: Ibrahim Abdul-Matin, MaVynne Oshun Betsch, and Lisa Jackson.

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 Northumberland County, Westmoreland County, and to Harrisonburg Rockingham Regional Sewer Authority to support monitoring required for their respective Virginia Pollution Discharge Elimination System (VPDES) permits.

D. Strategic Planning Metrics Summary

1. Educational and Outreach Events: 0

2. Community Partners: 2

   a. Hampton Roads Planning District Commission
   b. Virginia Plastics Pollution Prevention Network

3. Odor Complaints: 1

   - February 18 - HRSD was contacted by Norfolk resident regarding sewage odors in and around the area of 7320 Glenroie Avenue, Norfolk, VA. South Shore Operations identified that HRSD does not have any assets at that location. Only City gravity wastewater lines and storm drains are at this location. HRSD forwarded the complaint to Norfolk Public Utilities and the resident was also provided the appropriate City contacts.

4. Monthly Metrics

Item #	Strategic Planning Measure	Unit	February 2021
M-1.4a	Training During Work Hours Per Full Time Employee (118) (Current Month)	Total Hours / # FTE	2.94
M-1.4b	Total Training During Work Hours Per Full Time Employee (118) (Cumulative Fiscal Year-to-Date)	Total Hours / # FTE	31.80
M-2.5	North Shore/South Shore Capacity Related Overflows	# within Level of Service	11
M-3.1	Permit Compliance	# of Exceedances: # of Permitted Parameters	19:40,586
M-3.2	Odor Complaints	#	1
M-3.4	Pollutant Removal	Total Pounds Removed	122,710,046
M-3.5	Pollutant Discharge	% Pounds Discharged/ Pounds Permitted	22%
M-5.2	Educational and Outreach Events	#	0

Item #	Strategic Planning Measure	Unit	February 2021
M-5.3	Community Partners	#	2
	Average Daily Flow	Total MGD for all Treatment Plants	214.49
	Pretreatment Related System Issues	#	0

Respectfully submitted,
James Plett, PhD
Director of Water Quality

Hampton Roads Sanitation District
Internal Audit Status
February 28, 2021

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 audits, and the status of current management action plan (MAP) monitoring.

I. *Projects in Process*

SWIFT Program Management Plan

- **Tasks Completed (February 2021)**
  - Obtained Management actions plans
  - Finalized report

Fleet Services

- **Tasks Completed (February 2021)**
  - Obtained Management actions plans
  - Finalized report

Succession Planning

- **Upcoming Tasks (March 2021)**
  - Obtain Management actions plans
  - Finalize report

Risk Assessment

- **Tasks Completed (February 2021)**
  - Conducted remaining interviews
  - Finalized Risk Assessment Documentation
  - Developed FY22 Internal Audit Plan
- **Upcoming Tasks (March 2021)**
  - Submit Internal Audit Plan to Director of Finance for Approval
  - Present Internal Audit Plan to Commission

Business Continuity and Disaster Recovery (Audit Fieldwork Complete/ Management Response in Process)

- HRSD management has communicated its continued progress to develop a plan to address the recommendations included in the BC/DR report. SC&H will continue to work with HRSD process owners and management to finalize the audit report, incorporating management action plans. A specific completion date has not been identified at this time.

Upcoming Projects (FY2021)

SC&H is about to commence the WIFIA Program consulting engagement and Emergency Repairs Internal Audit.

II. 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.

Hampton Roads Sanitation District
Internal Audit Status
February 28, 2021

The following describes the current project monitoring status. This listing does not include audits which were determined by HRSD Management and the Commission to include confidential or sensitive information.

			Recommendations		
Audit	**Report Date**	**Next Follow-up**	**Closed**	**Open**	**Total**
D&C: CIP Project Management	5/11/16	Closed	13	0	13
Biosolids Recycling	10/8/16	Pending Permit	7	1	8
HR Benefits	11/22/16	Closed	15	0	15
Inventory	4/20/17	Closed	5	0	5
Procurement/ ProCard	8/23/17	In process	8	3	11
Engineering Procurement	4/20/18	Closed	8	0	8
Corporate Governance: Ethics Function	3/21/18	January 2021	3	2	5
Treatment Plant Operations	10/15/18	July 2021	5	4	9
Customer Care Division	7/26/19	December 2021	2	2	4
Safety Division	9/12/19	February 2022	0	3	3
Permitting	2/4/20	March 2021	0	2	2
Payroll	3/27/20	April 2021	0	3	3
Pollution Source Control	6/2/20	January 2022	3	5	8
		Totals	69	25	94

SC&H GROUP

Expertise that Works

Internal Audit

Fleet Services

Hampton Roads Sanitation District

February 24, 2021

Table of Contents

I. Executive Summary

Background

SC&H conducted an internal audit of Hampton Roads Sanitation District's (HRSD) Fleet Services function (Fleet Services). HRSD's Fleet Services function is managed by the Support Systems Division within the Operations Department.

Fleet Services Summary

Fleet Services is responsible for a comprehensive fleet management program of HRSD on-road vehicles, off-road equipment, and select generators (e.g., generators that are not located at a treatment plant) (collectively, assets). This program includes acquisitions, maintenance, fueling, inventory parts ordering, replacement planning, and disposal processes for over 500 HRSD Fleet Services managed assets. The Fleet Services team includes five Automotive Technicians, two Automotive Foremen, an Administrative Assistant, an Automotive Superintendent, and a Support Systems Manager.

Fleet Services conducts most of its work in three service locations throughout the HRSD region (North Shore, South Shore, and West Point Operations Center). Parts inventories are stored and maintained in two inventory storerooms (North Shore and South Shore). The West Point Operations Center also maintains an inventory of tires. Further, HRSD maintains three fueling stations (North Shore, South Shore, and West Point Operations Center).

Fleet Services uses the following systems to manage fleet processes:

- Computerized Maintenance Management System (CMMS): CMMS is used to manage assets and inventory records, and document preventive maintenance (PM) activities performed on assets.
- Phoenix: Phoenix is used to administer the fueling program and capture fueling activity at HRSD fueling stations.
  HRSD recently replaced Phoenix with FuelMaster. Implementation of FuelMaster was completed in September 2020.
- Fleetistics: Fleetistics is used to assess the real-time diagnostics of vehicles throughout the fleet. It also provides data on driver activity in instances when HRSD receives a call-in complaint related to a driver. It is connected to a GPS device installed on every on-road vehicle owned by HRSD and is used to track vehicle location, speed, braking, acceleration, and engine idle time. It also tracks if drivers are wearing their seatbelt.
- Oracle: Oracle is HRSD's ERP system and is used for ordering, receiving, timecard entry, and parts inventory.

Replacement and Acquisitions

Annually, the Automotive Superintendent evaluates and projects fleet assets requiring replacement within the next three fiscal years. Factors used to identify replacements include the total cost to operate each vehicle over its lifespan, total vehicle downtime, and knowledge of whether parts are or will be readily available for the vehicle's make/model. When a vehicle is

scheduled to be replaced, Fleet Services includes the replacement cost within the annual capital improvement plan (CIP) budget request, which is ultimately approved by the HRSD Commission.

Asset Preparation

When a new asset is purchased and delivered to HRSD, the Administrative Assistant performs activities to prepare the asset for use. Activities include creating the asset record within CMMS, obtaining insurance and registration, and assigning the asset to a PM schedule. A work order is then created to install Fleetistics and an E-Z Pass unit for all on-road vehicles.

Preventive Maintenance

PM and repair work orders are documented in CMMS. Once marked "Completed" by an Auto Technician or Foreman, each work order is reviewed by the Administrative Assistant for completeness and accuracy. The Administrative Assistant changes the status of the work order to "Closed" within CMMS.

Inventory Management

Parts inventory for PM and repair work is picked from the asset's assigned service location. For each stock part (parts maintained through inventory) taken from a storeroom, a Reorder Form is expected to be completed for each part used. Weekly, the Foreman places a stock parts order based on the Reorder Form. Part orders under $10,000 are placed using a procurement card (ProCard[1]), and orders over $10,000 are placed through a requisition within ERP that is routed to the HRSD Procurement Division for processing. When orders are delivered to the storeroom location, the Administrative Assistant reconciles the items ordered against the items delivered and matches the order to a posted ProCard transaction (or requisition if over $10,000). Inventory is accounted for and itemized within ERP, which interfaces with CMMS to update inventory data.

Fueling

Fleet Services manages fuel operations at North and South Shore. Employees with an HRSD owned vehicle obtain fuel from one of HRSD's fueling stations using an assigned fueling card. To access the fueling station, an employee swipes his/her HRSD access badge at the front gate. The employee obtains fuel by using the vehicle's assigned fueling card and the card's personal identification number (PIN). All fuel dispensed at the main Operations centers is tracked by Phoenix.[2] Monthly, Phoenix generates a fuel activity report which is used by the Administrative Assistant to replenish the fuel reserves at each of the fueling stations. Annually, the Fuel Activity report is used by the Automotive Superintendent when calculating the total cost to operate each vehicle for the preceding year. Fuel dispensed from the Chesapeake Elizabeth and Nansemond Treatment Plants are recorded manually and are not part of the Phoenix software.

[1] The HRSD Procurement Division manages HRSD's ProCard program, which provides access to a line of credit for small dollar purchasing to staff throughout HRSD.

[2] HRSD recently replaced Phoenix with FuelMaster. Implementation of FuelMaster was completed in September 2020. At the time of the internal audit, the implementation was in-process. As a result electronic fueling related procedures were not assessed.

Objectives

The following objectives were established based on the internal audit planning procedures:

A. Ensure Fleet managed assets received preventative maintenance timely.
B. Verify stock and non-stock orders are properly executed, received, reconciled, and approved.
C. Verify periodic inventory counts are performed, documented, and reviewed timely.
D. Verify asset information entered into CMMS is complete and accurate.
E. Analyze the population of Fleet managed assets to identify assets requiring replacement are identified and disposed timely.
F. Verify access to CMMS is properly restricted based on roles and responsibilities.
G. Assess plant fueling operations for controls and efficiencies.
H. Verify authorized take-home vehicles are communicated to the Finance Department completely, accurately, and timely to facilitate compliance with quarterly reporting requirements.

Scope

The internal audit initiated in May 2020. Fieldwork procedures began in August 2020 and were completed in October 2020. The internal audit focused on the policies, procedures, and controls in place at the time of the internal audit. Documentation sample selections were examined for the period of July 1, 2019 through June 30, 2020. Further, additional data analytic procedures were performed for the period of July 1, 2019 through September 1, 2020.

Methodology and Approach

SC&H performed the following procedures:

Process Walkthrough and Flowchart Creation

SC&H obtained and reviewed the draft Fleet Services policy and procedural documentation, which detailed the following: high level criteria for asset replacement decisions, requests for additions to fleet, and requests for take-home vehicles. SC&H also met with members of Fleet Services to conduct detailed process understanding discussions of in-scope Fleet Services functions. Based on the discussions and review of the procedural documentation, SC&H created flowcharts to document the following processes:

- Acquisition and Vehicle Preparation
- Preventive Maintenance, Unplanned Maintenance, and Timecard Review
- Ordering, Approvals, and Inventory
- Fueling
- Disposals

Risk Ranking and Creation of Project Plan

Following the documentation of process steps, SC&H developed a Fleet Services risk and control matrix (RCM). The RCM aligns risks with controls to analyze the control environment and ranks the risks on perceived likelihood and severity. Based on the understanding of the

processes, risks, and related controls, SC&H developed an audit program to achieve the objectives described above. This audit program includes detailed steps to address each objective with the goal of verifying the existence of sound internal controls and identifying opportunities for improvement.

Audit Program Execution

SC&H executed the audit program by completing the following tasks:

- Performed data analytics to quantify the number of Fleet Services managed assets which:
  - Did not have a completed PM within the past 12 months.
  - Were past-due for their scheduled PM.
  - Had a past-due/expired VA state inspection.
  - Had a PM due date that does not align with the defined frequency as determined by CMMS.
- Performed data analytics to select a sample of 40 closed work orders and performed the following:
  - Verified each completed work order was 'Closed' and 'Completed' by two different users.
  - Reconciled labor hours recorded on the work order to labor time entered in ERP.
- Verified that work orders cannot be closed within CMMS without labor documentation.
- Selected a sample of 10 open work orders and inquired as to the reason the work order was still in the 'Open' status.
- Verified that Fleet employees ProCard statements were approved by the appropriate approver based on the employee's job title.
- Performed data analytics to select a sample of 40 ProCard purchases and performed the following:
  - Reconciled part purchases to a work order, CMMS inventory record, or Reorder Form.
  - Verified that the purchase price of the part reconciles to the part cost as documented on the work order.
- Verified that a semi-annual physical inventory count was performed by the Administrative Assistant at both the North Shore and South Shore inventory locations.
- Verified that any adjustments per the semi-annual physical inventory counts were properly adjusted in CMMS with a documented reason.
- Performed data analytics on the CMMS report of adjustments processed during fiscal year (FY) 2020 to quantify adjustments and identify frequency by part number and user for outliers.
- Reviewed a sample of five assets purchased during FY2020 to verify required vehicle information was entered completely and accurately in CMMS.
- Analyzed the population of Fleet Services managed assets to calculate the percentage of maintenance costs compared to the purchase price of each asset and quantified the number of vehicles in excess of 75%.
- Reconciled a listing of current users with access to CMMS to a Human Resources listing of current employees to ensure access is restricted to current employees with a business need.

- Reviewed user access roles within CMMS and verified that access appeared reasonable based on job titles and assigned responsibilities.
- Met with Plant Superintendent or Plant Clerk from a sample of two treatment plants to walkthrough the manual fuel process and identify process controls, gaps, and risks.
- Met with representatives from Finance to discuss the processes around the reporting and tracking of take-home vehicles.

Summary of Work

After reviewing Fleet Services processes and evaluating the current control environment, the operation appears to incorporate effective functions and controls to ensure timely maintenance of HRSD fleet related assets.

SC&H concludes that there are improvement opportunities that exist to mitigate associated risks. These opportunities are documented as six observations that can be incorporated into HRSD and Fleet Services operations. The following section provides detailed observations and recommendations regarding these topics.

We appreciate the assistance and cooperation of the management and staff involved in HRSD's Fleet Services function. Please contact us if you have any questions or comments regarding any of the information contained in the internal audit report.

SC&H Group, Inc.

Matthew Simons, CPA, CIA, CGAP
Principal

II. Detailed Observations and Recommendations

Observation 1

There is no formalized or defined threshold to evaluate and identify potential replacement of fleet assets.

Observation Detail

HRSD monitors maintenance costs for each asset and manages a spreadsheet that projects active vehicles to be replaced within three fiscal years. The following criteria are documented within the draft Fleet Management Policy and used by HRSD to determine if replacement of vehicles are needed:

1. Excessive cost to operate (i.e., cost of parts, fuel, and labor);
2. Difficulty in obtaining replacement parts;
3. Excessive downtime when the vehicle/equipment is unavailable; or
4. Unacceptable general condition of the vehicle/equipment

While there are established criteria used to evaluate the timing of replacement, there is no formalized baseline or threshold for each of the identified criteria. Additionally, vehicle lifespans are not assigned or captured within CMMS when the asset is added into the system.

SC&H obtained a CMMS Active Vehicles Report which contains the total cost of incurred maintenance for each vehicle and the acquisition date. SC&H also obtained a Master Vehicle Report which contains the acquisition price of each vehicle. Using the reports, SC&H calculated the percentage of the cost to maintain each vehicle against each vehicle's acquisition cost, and compared the results to the replacement schedule for FY22-FY24.

SC&H performed analytics using data as of September 1, 2020 and identified that HRSD maintains a population of approximately 284 on-road vehicle assets (excluding trailers, heavy equipment, generators, and boats). Of these 284 vehicles:

- 50 assets had maintenance costs that exceed 75% of the vehicle acquisition cost. Of these 50 assets, only 13 are included on the replacement projection schedule for FY22-FY24. For additional details, see *Appendix A* for a table of assets with maintenance costs of 75% or greater.
    - 21 assets have total maintenance costs exceeding the acquisition cost, ranging from 100% to 167%. Of these 21 assets, only three are included on the replacement projection schedule for FY22-FY24.
- The average maintenance cost was 44.90% compared to acquisition cost.
- 139 assets are over 10 years old, and the average age of the 284 vehicles is 9.93 years old. Of these 139 assets, 29 are included on the replacement projection schedule for FY22-FY24.

Risk

Vehicles may not be disposed or replaced timely, resulting in increased costs or public/employee

safety concerns.

Recommendation 1.1
Fleet Services Management should review the analytics performed and determine the cost benefit of continuing to perform high maintenance costs on vehicles and equipment well past the initial acquisition cost.

Management's Action Plan
Although we believe that our current replacement practices have served us well, we concur that it is time to review our replacement policy and will compare it to other utilities and industries that maintain fleets like ours to determine "best practices."

Implementation Date
August 2021

Recommendation 1.2
Fleet Management should consider performing maintenance to acquisition cost analytics on a periodic basis (e.g., annual) that includes factors (e.g., years in service and maintenance costs incurred) to assess the best financial decision to HRSD. The review should be documented and decisions should be justified and supported. With this approach, HRSD should consider implementing expected asset lifecycles and establishing a percentage threshold for replacement evaluation. If HRSD determines the methodology in place is preferred, HRSD should consider defining, establishing, and formalizing thresholds for the criteria used to evaluate and determine asset replacement schedules/projections (e.g. excessive cost to operate).

Management's Action Plan
Although we believe that our current replacement practices have served us well, we concur that it is time to review our replacement policy and will compare it to other utilities and industries that maintain fleets like ours to determine "best practices."

Implementation Date
August 2021

Recommendation 1.3
Fleet Management should establish a standard asset downtime calculation methodology that uniformly tracks asset downtime hours.

Management's Action Plan
Currently, Fleet Management calculates downtime for all vehicles from the time the vehicle enters a fleet facility for repair and maintenance until the vehicle is ready for use. As a result, no further action will be taken.

Implementation Date
N/A

Observation 2

A process is not in place to monitor fuel usage by asset and owner. Further, fuel cards are not set to expire. As long as a fuel card is active, it can be used at an HRSD fueling station.

Observation Detail

In order to fuel a vehicle at one of the HRSD fueling stations, a Fleet Services issued card (linked to a vehicle), PIN, and vehicle mileage is required to be entered prior to fuel being dispensed. There are fuel cards that are marked as miscellaneous and not linked to a vehicle. These cards provide fuel for non-vehicles (e.g., equipment and trailers) that are in the field and do not visit fueling stations. The North Shore, South Shore, and West Point Operations Center fueling stations are secured behind HRSD facilities that require an employee swipe card for access. The South Shore fueling station is monitored by a surveillance camera, however, the North Shore and West Point Operations Center fueling stations are not equipped with a surveillance camera. Small Communities Division[3] employees with Fleet Services vehicles can use a ProCard to purchase fuel at non-HRSD gas stations. All ProCard fuel charges are coded to a Fleet Services line item within the ERP system and approved monthly by the Automotive Superintendent.

Per discussion with Fleet Services Management, Phoenix is not configured to perform or provide the following automated controls:

- Monitor or limit fuel dispenses based on a vehicle's fuel tank capacity.
- Prevent fuel from being disbursed if an inaccurate vehicle mileage is entered at the time of fueling.

Monthly, the Administrative Assistant runs a fueling report to purchase fuel and replenish the fuel supply. The monthly report is also sent to Finance for accounting related entries. The Automotive Superintendent reviews an annual fuel report that is used to adjust and estimate the overall operating budget, but a process is not in place to review fuel usage at an employee level for reasonableness or as part of a trending analysis.

Risk

Misuse of fuel access rights may occur, which could result in increased costs or misappropriation.

Recommendation 2.1

Per discussion with Fleet Management, a new fueling system, FuelMaster, is in the process of being implemented and may provide several automated fueling related controls that were not previously available in the Phoenix system. Once Fuel Master is implemented HRSD should evaluate available automated system controls and determine the appropriate automated checks that should be in place for future fueling procedures. Preventive or detective related fueling controls may include a real-time limit of fuel dispenses specific to a vehicle’s tank capacity,

[3] The Small Communities Division operates and maintains four smaller treatment plants and the associated collection systems for four counties on the Middle Peninsula.

requiring an accurate vehicle mileage be entered prior to fueling, and automated monitoring for frequency patterns.

Management's Action Plan
We concur and will review new system functionality and controls.

Implementation Date
August 2021

Recommendation 2.2
Fleet Management should consider establishing a formalized scheduled review of fueling activity to evaluate reasonableness and appropriateness of fuel related costs. In FY2020, Fleet's budget for fuel related costs was approximately $645,000. The review may include a trend analysis to identify the highest fuel consumers by vehicle and/or department. A review of the results should be performed to determine and document the appropriateness of the activity.

Management's Action Plan
We concur and will establish a formal quarterly review process.

Implementation Date
July 2021

Recommendation 2.3
Fleet Management should consider implementing a process to set fuel cards to expire on a pre-determined date and schedule. This would allow HRSD and Fleet to reassess fuel card needs on a periodic basis and verify that a business need still exists and the assigned cardholder is appropriate.

Management's Action Plan
We concur with the need to periodically reassess fuel card needs and will establish an appropriate review process at least once per year.

Implementation Date
July 2021

Observation 3

Inventory access, counts, and adjustment functions are not fully restricted or segregated.

Observation Detail

When an Automotive Technician or Foreman uses an item from the storeroom, they complete a Reorder Form prior to leaving the inventory area. The Reorder Form captures the date, vehicle number, part number, quantity taken, work order number. The employee is then expected to sign their initials on the Reorder Form. When completing a work order, the Foreman and Automotive Technicians document work performed and parts used within CMMS. The PM labor hours are captured each week when staff enter their time within the ERP system. In order to submit time, staff are required to assign their time to an existing work order within the time entry system. The ERP system does not allow an employee to charge time to a work order if they are not assigned to the work order.

Monthly, the Administrative Assistant performs an inventory count at both the North Shore and South Shore storerooms. This count is performed by printing out an Inventory by Location Report from CMMS. The Administrative Assistant then counts each item on the storeroom shelves. If the count does not match what is in CMMS, the Administrative Assistant manually updates the count in the system (adjustment). At West Point Operations Center, the Foreman performs inventory counts during one of his trips to perform maintenance on-site. The Foreman also takes photographs of the tire inventory and sends to the Administrative Assistant.

The review of the inventory management process found:

- All Technicians have access to the parts room via electronic swipe card (North Shore) or traditional key (South Shore). If a part is needed, a Technician can enter the storage room and take any item. Additionally, there is no security footage at any of the inventory storage locations.
- The Administrative Assistant has access to order inventory with a ProCard, is responsible for receiving and stocking orders, performing monthly inventory counts, and has access to process inventory adjustments within CMMS. While it was noted that Foreman usually places stock orders, the Administrative Assistant has the ability to place orders.
- Inventory count adjustments in CMMS do not require a reason to be entered, nor a second level of approval. Additionally, inventory counts are not blind[4]. SC&H obtained each of the four most recently completed inventory counts (biannual for each of the inventory locations) and manually identified all instances where the amount in the 'Quantity' field does not align with the count documented in the 'Physical' field. No reason or description was provided within CMMS, but some manual notes are recorded on the hard copy of the physical inventory performed. Below is the count of inventory items with a physical count discrepancy:
    - North Shore (June 2019): 46 discrepancies
    - North Shore (June 2020): 52 discrepancies

[4] Blind counts require the inventory counter to independently record the count of items physically found at the designated inventory location without the knowledge of the count per the system.

- South Shore (June 2019): 37 discrepancies
- South Shore (June 2020): 61 discrepancies
- Total: 196 discrepancies

Our review of a sample of 40 work orders found seven instances in which the same employee 'Completed' and 'Closed' the work order.

Risk

1. Unauthorized access and use of vehicle parts could occur. This may further result in theft or increased costs.
2. Unauthorized inventory adjustments could be made in CMMS, which may result in overstated or inaccurate assets.

Recommendation 3.1

Fleet Management should evaluate the Administrative Assistant's responsibilities for ordering, receiving, and inventorying parts to incorporate and implement segregation of duties to ensure one individual does not have the ability to control the parts lifecycle from procurement through inventory counts. In the event that resources do not allow for segregation of duties, Management should consider implementing formalized and documented monitoring controls to verify activity is appropriate and reasonable.

Management's Action Plan

We concur and will evaluate and institute appropriate internal controls regarding the Administrative Assistant's current duties.

Implementation Date

August 2021

Recommendation 3.2

Fleet Management should consider adjusting the periodic inventory count process to include the following:

1. Require multiple Fleet personnel be involved in the physical inventory count at each location. Those involved in the scheduled inventory count should sign documentation to evidence their count.
2. Require the inventory count be performed blind and without knowledge of the expected count for each item. Discrepancies should be communicated to the employee which performed the count, and the employee should have the opportunity to perform a second blind count. If the discrepancy remains, a second individual should verify the count prior to adjusting the inventory. Research should be performed to document the root cause for the discrepancy and adjustment.
3. Evaluate the functionality within CMMS to require adjustment reasons to be notated at the time of entering the adjustment. Further, adjustments to inventory should require approval by an individual independent of the employee which processed the adjustment.
4. Implement a process to perform periodic data analytics to monitor and trend parts which

are adjusted to identify outliers and may require further research.

Management's Action Plan
We concur and will implement appropriate changes.

Implementation Date
July 2021

Recommendation 3.3
Fleet Management should consider consolidating/centralizing the responsibilities of dispensing parts for use on work orders.

Management's Action Plan
Currently, each automotive shop has a part inventory storage area; consolidation of these into one facility is cost prohibitive. However, we will evaluate the security and controls of each inventory location.

Implementation Date
August 2021

Recommendation 3.4
Fleet Management should evaluate whether CMMS can be configured to prevent the same user from marking a work order 'Completed' and 'Closed.'

Management's Action Plan
The rights to complete and close a work order in CMMS are based on user groups. Changing this will likely require a software modification and is cost prohibitive. We will, however review existing procedures to determine if improvements can be made.

Implementation Date
July 2021

Observation 4

Fuel operations at treatment plants are not automated/aligned with Fleet processes.

Observation Detail

HRSD treatment plants maintain fueling stations not managed by Fleet personnel. To gain access to the fuel pumps at each plant, an HRSD employee must swipe their badge at the front gate of the treatment plant. Any employee with an HRSD badge can access the plant.

SC&H selected a sample of two treatment plants (Chesapeake Elizabeth and Nansemond) to perform inquiry procedures and gain an understanding of controls and processes in place surrounding the option to fuel assets at the treatment plants. The Chesapeake Elizabeth Plant has one gas pump and one diesel pump, while Nansemond has two gas pumps and two diesel pumps. Once an employee swipes their badge and enters through the front gate, they can then drive up to the gas/diesel pumps. The gas pump is secured by a key lock and cannot not dispense fuel if the key is not inserted. To obtain the key, an HRSD employee must obtain the key and the Fuel Log Book from the Lead Operator. The employee is expected to write down the following information within the Fuel Log:

- Date
- Name (Initial)
- Meter Reading (Before)
- Meter Reading (After)
- Gallons pumped
- Vehicle Number

SC&H obtained a sample Fuel Log from both the Chesapeake Elizabeth and the Nansemond treatment plants. The following was observed:

- The diesel fuel pumps are not secured by a key lock at either the Chesapeake Elizabeth or Nansemond Treatment Plants.
- The Fuel Log at both the Chesapeake Elizabeth and Nansemond Treatment Plants are not reviewed at the time of providing and collecting the fueling key to ensure that all required fields are documented completely, accurately, and legibly.
- A Diesel Fuel Log is not maintained at the Nansemond Treatment Plant.
- Fuel Log Books are not consistently provided to/communicated to Fleet Services in order to be factored into the total cost to operate the vehicles, which is used as a metric by the Automotive Superintendent to determine when a vehicle should be replaced.

Risk

Misuse of fuel access rights may occur, which could result in increased costs or misappropriation.

Recommendation 4.1

HRSD should consider the cost/benefit of automating plant fueling operations to align with Fleet Services North Shore and South Shore operations to reduce the manual inefficiencies, improve

the control environment, and automate processes. Should Management determine that automating and streamlining fueling operations across HRSD would not be cost effective or beneficial, Fleet Management should ensure the Fuel Logs at all plant fueling locations are reviewed and completed timely, ensuring all required fields (date, meter reading, gallons pumped, vehicle/equipment numbers, and signature) are documented accurately and legibly.

Management's Action Plan
In the past, management evaluated the cost of automating plant fueling operations at the Nansemond Treatment Plant and determined the cost to be in excess of $75,000. Given its central location in HRSD's service area, we will review actual fueling activity to determine if such an investment is cost effective at that location.

We do concur that fuel logs at all locations should be reviewed for accuracy and completeness and will implement procedures as necessary.

Implementation Date
August 2021

Recommendation 4.2
HRSD should ensure all plant diesel pumps are secured by a key lock and have a Diesel Fuel Log Book similar to the Fuel Log Books used for the gas pumps.

Management's Action Plan
We concur and will install locks on all fuel pumps. Although you must enter a treatment plant through a secured gate, there are many instances when contractors or other personnel are on plant site. We also concur that absent an automated fueling system, gasoline and diesel fuel log books should be maintained.

Implementation Date
July 2021

Recommendation 4.3
On a scheduled basis, HRSD Fleet should request and collect Fuel Logs from each plant to review for completeness and accuracy. Follow-up should be performed for any Fuel Logs not submitted by treatment plants. Further, the costs recorded on the logs should be incorporated into the vehicle costs for calculating replacement.

Management's Action Plan
We concur. Fuel logs will be collected every six-months and the information will be applied to vehicle operating costs.

Implementation Date
July 2021

Observation 5

A formal process is not in place to ensure all HRSD vehicles approved as take-home vehicles are identified, tracked, and communicated to Finance timely.

Observation Detail

Currently, there are approximately 30-35 known employees who are authorized to take a HRSD vehicle home. The majority of these employees are Account Investigators in the Customer Service Department, as these employees are on-call to go out to residences to follow-up on meter concerns.

The decision to authorize an employee to take a vehicle home is the responsibility of the respective department management. When assigning a vehicle to an employee, department management should notify Fleet Services and Finance of this assignment change. This notification is important because if a vehicle is assigned as a take-home vehicle, the average mileage may change, impacting the preventive maintenance frequency for that specific vehicle. In addition to this communication to Fleet Services, when an employee is assigned a take-home vehicle, one of the following personnel should be notifying the Financial Analyst directly:

- Employee assigned the take-home vehicle
- Department Management
- Automotive Superintendent
- Systems Support Manager
- Administrative Assistant

Once notified, the Financial Analyst communicates directly with the employee assigned the take-home vehicle regarding the quarterly forms that are required to be completed. The Financial Analyst tracks employees with take-home privileges within an excel spreadsheet. The Financial Analyst also regularly receives a Master Vehicle List from the Automotive Superintendent. This report has a field that lists who each Fleet vehicle is assigned to. Periodically, the Financial Analyst reconciles the list of employees that Finance is tracking with take-home vehicles against the Master Vehicle List to make sure the employees that Finance is aware of are the same employees that have access to a take-home vehicle.

The role that Fleet currently has in the process is as a supplement. As Fleet becomes aware of an employee with new take-home vehicle privileges, a Fleet Services employee notifies Finance.

Per discussion with Finance, there have been instances where Finance has found out an employee was using a take-home vehicle for a period of time and not completing the required quarterly Personal Benefits Form, a required document that needs to be submitted by employees with vehicle take-home privileges. This form tracks vehicle mileage and is used for tax purposes. Finance does not have access to CMMS and relies on Fleet or Department Management to notify them of all employees with take-home vehicle privileges.

Risk

1. Inappropriate or unauthorized use of take-home vehicles could result in abuse of Fleet owned vehicles and reduced lifecycles.
2. Unauthorized use of take-home vehicles could result in potential non-compliance with tax reporting requirements.

Recommendation 5.1

HRSD should consider implementing a formalized approval workflow that requires both Finance and Fleet Services to receive notification of a new take-home vehicle, ensuring that all internal documents used to track take-home vehicles are updated and accurate.

Management's Action Plan

We concur, we will work with the Finance Department to ensure there is an appropriate internal control structure in place to appropriately track take-home vehicle assignments.

Implementation Date

July 2021

Recommendation 5.2

HRSD should explore the ability to add a field within CMMS to systematically track HRSD vehicles authorized for take-home use. Periodically, Fleet should export a list and provide to Finance for reconciliation and verification purposes.

Management's Action Plan

We concur, we will work with the Finance Department to ensure there is an appropriate internal control structure in place to appropriately track take-home vehicle assignments.

Implementation Date

July 2021

Recommendation 5.3

HRSD should consider implementing a formalized recurring reconciliation of the Finance take-home privileges excel spreadsheet to the Fleet Master Vehicle List to ensure all employees who have vehicle take-home privileges are properly recorded.

Management's Action Plan

We concur, we will work with the Finance Department to ensure there is an appropriate internal control structure in place to appropriately track take-home vehicle assignments.

Implementation Date

July 2021

Observation 6

A series of ProCard purchases were not routed properly for appropriate review and approval.

Observation Detail
Weekly, the Administrative Assistant reviews all 'Completed' work orders from the prior week and reconciles all parts that were ordered (e.g., Reorder Forms, invoices) to the parts documented within a CMMS work order. If a discrepancy arises, the Administrative Assistant contacts the CMMS Support team to determine if the problem appears to be related to a data transfer issue. If the issue appears to be a human error, the Administrative Assistant follows-up with the Automotive Technicians who performed the work to correct. After reconciling each work order, the Administrative Assistant marks the work order as 'Closed' in CMMS.

SC&H obtained a population of ProCard purchases in FY2020 by Fleet employees to verify each transaction was properly approved. The review identified 77 transactions where the ProCard holder was able to approve their own transactions. Per discussion with an HRSD Procurement Analyst, it was discovered that the assigned approver had a vacation rule set within ERP, where the ProCard holder would have the ability to approve transactions on the approver's behalf. As a result, the ProCard holder was able to approve his own expense reports.

Risk
Unauthorized purchases could be made, resulting in misappropriation or inefficient use of resources.

Recommendation 6.1
As a result of the audit, HRSD is actively correcting the vacation rule. HRSD should ensure the vacation rule within ERP for the employee identified above is corrected to ensure the employee cannot review their own expenses in the absence of the assigned approver. Further, the activity identified as a result of the audit should be reviewed for appropriateness.

Management's Action Plan
Will work with finance to see if this can be resolved in ERP.

Implementation Date
July 2021

III. Appendix A

HRSD Fleet Services
ACTIVE INVENTORY ANALYSIS OF MAINTENANCE COSTS VS. ACQUISITION COST

Asset#	Vehicle#	Body Type	Description	Work Center	Date Installed	Years Active	Total Work Order Cost (WOC)	Equipment Value	(WOC) Percentage of Acquisition Cost	Maintenance Cost in Excess of Equipment Value	Projected for Replacement?	Meter MI
111450	158	Crew Truck Class 8	158 - 2006 Freightliner M-2106 Crewcab	NS-INT	3/1/2006	15	$109,139.47	$65,407.00	166.86%	$43,732.47	FY24	100,803
121388	083	Pickup Class 2	083 - 2008 GMC Sierra 1500 Pickup Truck	FM	1/6/2009	12	$24,920.50	$16,500.00	151.03%	$8,420.50	No	120,543
111405	104	Van Class 2	104 - 2006 GMC 3500 Cargo Van	EI	2/22/2006	15	$21,176.90	$14,535.00	145.70%	$6,641.90	No	146,005
111420	124	Crew Truck Class 8	124 - 2006 Freightliner M-2106 Crewcab	NS-INT	3/1/2006	15	$90,196.62	$65,407.00	137.90%	$24,789.62	No	85,132
111565	284	Van Class 2	284 - 2002 Ford E-350 Std. Wheelbase Cargo Van	EI	12/20/2001	19	$32,436.88	$23,793.00	136.33%	$8,643.88	No	170,760
111398	097	Pickup Class 1	097 - 2006 GMC 1500 Pickup	AUTO	2/2/2006	15	$18,891.99	$14,655.00	128.91%	$4,236.99	No	149,355
111407	106	Van Class 2	106 - 2006 GMC 3500 Cargo Van	EI	2/22/2006	15	$17,669.08	$14,535.00	121.56%	$3,134.08	No	119,374
111342	043	Pickup Class 2	043 - 2001 GMC 2500 HD Utility Truck	NS-INT	10/18/2001	19	$34,697.42	$29,582.00	117.29%	$5,115.42	No	196,859
111345	046	Van Class 2	046 - 1998 Ford E-350 Van	EI	1/15/1998	23	$25,634.97	$21,927.00	116.91%	$3,707.97	No	157,308
111304	016	Van Class 2	016 - 2004 Ford E-350 Econoline Van	EI	3/23/2004	16	$25,485.06	$21,965.54	116.02%	$3,519.52	No	82,838
111360	054	Pickup Class 2	054 - 2001 GMC 2500 HD Utility	NS-INT	10/18/2001	19	$34,126.92	$29,582.00	115.36%	$4,544.92	No	218,243
121883	349	Crew Truck Class 5	349 - 2009 Ford F-550 4x4 Crewcab Truck	NS-INT	6/5/2009	11	$83,651.47	$73,648.00	113.58%	$10,003.47	No	121,846
148593	376	Crew Truck Class 8	376 - 2011 International 7400 Workstar Crew Truck	NS-INT	5/11/2011	9	$89,394.18	$80,385.72	111.21%	$9,008.46	No	62,349
104801	197	Pickup Class 2	197 - 2006 Chevrolet 2500 HD Pickup - 01	AT	1/3/2005	16	$20,592.85	$18,584.00	110.81%	$2,008.85	No	60,573
111592	311	Van Class 2	311 - 2005 Ford E-350 Cargo Van	EI	1/5/2005	16	$25,054.76	$22,635.00	110.69%	$2,419.76	No	174,415
168876	455	Van Class 2	455 - 2015 GMC Savanna Cargo Van	SS-INT	7/2/2015	5	$20,528.93	$18,884.00	108.71%	$1,644.93	FY23	157,260
115512	334	Van Class 2	334 - 2007 Chevrolet Cargo Van	EI	9/5/2007	13	$18,973.75	$17,750.00	106.89%	$1,223.75	FY24	110,652
121201	140	Crew Truck Class 5	140 - 2008 Ford F-550 Crewcab Utility Body	NS-INT	8/7/2008	12	$74,821.42	$72,713.00	102.90%	$2,108.42	No	132,161
111472	186	Van Class 2	186 - 2004 Ford E-350 Van	EI	3/23/2004	16	$22,543.84	$21,965.54	102.63%	$578.30	No	138,578
124545	086	Crew Truck Class 8	086 - 2011 International Crew Truck 3+3	NS-INT	11/5/2010	10	$75,797.00	$74,754.00	101.40%	$1,043.00	No	63,521
111403	102	Van Class 2	102 - 1998 Ford E-350 Van	AUTO	1/15/1998	23	$22,777.88	$22,730.00	100.21%	$47.88	No	209,536
111373	004	Pickup Class 2	004 - 2005 Chevrolet 1500 4x2 Pickup	AUTO	1/3/2005	16	$14,980.35	$14,986.00	99.96%	($5.65)	No	117,138
111384	082	Truck Class 4	082 - 1999 Ford F-450 Stake	SS-INT	2/25/1999	22	$29,557.07	$29,735.00	99.40%	($177.93)	FY22	166,365
111601	319	Truck Class 6	319 - 2005 Freightliner M2 Utility	SS-INT	6/30/2005	15	$87,761.96	$90,194.00	97.30%	($2,432.04)	FY23	176,106
111290	002	Car Class 1	002 - 2004 Chevrolet Malibu Sedan	SS-INT	12/22/2003	17	$12,355.94	$13,011.28	94.96%	($655.34)	No	132,732
121393	110	Pickup Class 2	110 - 2008 GMC Sierra 1500 Pickup Truck	AUTO	1/6/2009	12	$15,648.26	$16,500.00	94.84%	($851.74)	No	139,028
165879	438	Pickup Class 2	438 - 2014 Ford F-150 4x2 Pickup Truck	CIS	6/4/2014	6	$16,873.44	$17,905.00	94.24%	($1,031.56)	FY23	130,456
111386	084	Truck Class 3	084 - 2006 Chevrolet 3500 Utility	SS-INT	3/28/2006	14	$35,507.41	$37,683.00	94.23%	($2,175.59)	No	119,055
111397	096	Van Class 2	096 - 2006 GMC 3500 Van	NS-P3	3/28/2006	14	$27,791.55	$29,941.00	92.82%	($2,149.45)	FY24	123,668
120753	257	Pickup Class 2	257 - 2008 Chevrolet Silverado Pickup Truck	AUTO	4/28/2008	12	$15,005.75	$16,479.84	91.06%	($1,474.09)	No	128,741
152356	218	Van Class 2	218 - 2012 Chevrolet 3500 Express Cargo Van	EI	3/21/2012	8	$22,832.32	$25,227.00	90.51%	($2,394.68)	No	180,404
112818	022	Pickup Class 2	022 - 2007 Chevrolet 2500 Ext. Cab Pickup Truck	TSD	6/13/2007	13	$27,852.02	$31,885.00	87.35%	($4,032.98)	FY24	201,498
120754	258	Pickup Class 2	258 - 2008 Chevrolet Silverado 1500	AUTO	4/28/2008	12	$14,251.43	$16,479.84	86.48%	($2,228.41)	No	141,574
111548	266	SUV Class 1	266 - 2004 Jeep Grand Cherokee 4x2 SUV	ENG	6/4/2004	16	$17,691.11	$20,476.00	86.40%	($2,784.89)	No	108,765
166240	442	Van Class 2	442 - 2014 Ford E-250 Cargo Van	SS-INT	8/1/2014	6	$18,942.32	$22,003.00	86.09%	($3,060.68)	FY22	117,331
111555	274	SUV Class 1	274 - 2000 Jeep Cherokee Sport Utility 4 Door	AUTO	4/12/2000	20	$15,359.73	$17,996.00	85.35%	($2,636.27)	No	110,299
111594	313	Van Class 2	313 - 2005 Ford E-350 Cargo Van	EI	1/5/2005	16	$20,042.33	$23,551.00	85.10%	($3,508.67)	FY24	150,732
111294	006	Truck Class 3	006 - 2001 Dodge 3500 Utility Pickup Truck	EI	3/16/2000	20	$31,422.31	$37,359.00	84.11%	($5,936.69)	No	221,327
111517	234	Pickup Class 2	234 - 2004 Chevrolet 2500 8' Bed 4x4 Utility Truck	NS-INT	4/26/2004	16	$25,935.83	$31,164.00	83.22%	($5,228.17)	FY23	218,847
111477	191	Truck Class 8	191 - 2003 Capacity TJ 5000 Yard Tractor	YR	8/22/2006	14	$34,466.63	$41,587.00	82.88%	($7,120.37)	No	26,152
111426	130	Pickup Class 2	130 - 2002 Chevrolet 2500 HD Utility 4x4	NS-INT	3/5/2002	18	$27,062.95	$32,657.35	82.87%	($5,594.40)	No	297,673
124547	255	Pickup Class 2	255 - 2011 Ford F-250 Suber Cab Pickup Truck	AUTO	11/5/2010	10	$19,526.87	$23,806.57	82.02%	($4,279.70)	No	164,018
111506	223	Pickup Class 2	223 - 2006 Chevrolet 2500 HD Silverado Ext. Cab Pickup	AUTO	2/2/2006	15	$22,084.03	$27,537.00	80.20%	($5,452.97)	No	284,869
111468	181	Mini-Van Class 1	181- 2004 Chevrolet Venture Van	SC	3/23/2004	16	$14,900.47	$18,735.00	79.53%	($3,834.53)	No	138,442
111347	048	Pickup Class 2	048 - 1996 Ford F-250 Utility	AUTO	12/5/1995	25	$17,394.00	$21,911.00	79.38%	($4,517.00)	No	197,322
124546	057	Crew Truck Class 8	057 - 2011 International Crew Truck	SS-INT	11/5/2010	10	$58,922.50	$74,754.00	78.82%	($15,831.50)	No	82,655
111504	221	Pickup Class 2	221 - 2006 Chevrolet 2500 HD Utility with Bumper Crane	AUTO	3/28/2006	14	$25,880.14	$32,844.00	78.80%	($6,963.86)	No	179,908
111475	189	SUV Class 1	189 - 2004 Jeep Grand Cherokee 4x2 SUV	ENG	6/4/2004	16	$16,041.68	$20,476.00	78.34%	($4,434.32)	FY22	139,656
111431	135	Pickup Class 2	135 - 2004 Chevrolet 2500 8' Bed 4x4 Utility Truck	NS-INT	4/26/2004	16	$24,248.40	$31,164.00	77.81%	($6,915.60)	No	226,774
111302	014	Pickup Class 2	014 - 2006 Chevrolet Silverado 2500HD Pickup Truck	SC	1/31/2006	15	$22,501.08	$29,828.00	75.44%	($7,326.92)	FY22	264,033

Internal Audit

SWIFT Program Management Plan

Hampton Roads Sanitation District

February 24, 2021

Table of Contents

I. Executive Summary

Background

SC&H conducted an internal audit of Hampton Roads Sanitation District's (HRSD) Sustainable Water Initiative for Tomorrow (SWIFT) Full Scale Implementation Program (FSIP) Program Management Plan. SWIFT FSIP is managed internally by the HRSD Engineering Department's Design and Construction – SWIFT division and externally by AECOM, a third-party infrastructure and program management firm.

SWIFT Background

SWIFT is a significant, multi-year HRSD initiative designed to substantially improve regional surface water quality while restoring Potomac Aquifer water levels. HRSD has a website dedicated to communicating the purpose, process, and benefits of SWIFT. Within the site, HRSD describes SWIFT as "an innovative water treatment initiative in eastern Virginia designed to ensure a sustainable source of groundwater while addressing environmental challenges such as Chesapeake Bay restoration, sea level rise and saltwater intrusion."[1]

SWIFT FSIP is collectively referred to as the "Program", which will be executed through multiple, distinct projects. Therefore, Program Management refers to the overall Program while Project Management refers to individual projects within SWIFT FSIP. The Program will be executed through capital projects integrated with HRSD's 10-year Capital Improvement Program (CIP).

The SWIFT FSIP estimated cost is approximately $2.1 billion. The initiative was formally announced in 2016, and includes completing all SWIFT-related projects by 2032. There will be over 40 SWIFT projects performed at seven of HRSD's nine major treatment plants, as follows:

1. Army Base Treatment Plant
2. Boat Harbor Treatment Plant
3. James River Treatment Plant
4. Nansemond Treatment Plant
5. Virginia Initiative Plant
6. Williamsburg Treatment Plant
7. York River Treatment Plant

In addition to the SWIFT projects at various treatment plants, a number of projects will also be required to improve the HRSD interceptor sewer and conveyance system between treatment plants.

A pilot project was conducted at the York River Treatment Plant in 2016 to determine which technology could be effective and integrate with HRSD's current wastewater treatment

[1] https://www.hrsd.com/swift

processes. The resulting sequence of treatment unit processes was incorporated into the SWIFT Research Center, which was built at the Nansemond Treatment Plant and opened in May 2018. Results of groundwater replenishment and water quality testing performed at the SWIFT Research Center assisted in planning and design for future full scale SWIFT treatment implementation projects. The James River Treatment Plant will be the first full-scale project to implement SWIFT's advanced water treatment and begin replenishing the Potomac Aquifer.

SWIFT Full-Scale Implementation Program

HRSD engaged AECOM and Hazen & Sawyer (Hazen) to develop the Full-Scale Implementation Program (FSIP) Program Management Plan (PMP) for SWIFT. The FSIP PMP establishes the framework and business requirements for delivering a consistent level of quality for the FSIP's products, expectations, and outcomes by standardizing processes and procedures. Additionally, the PMP emphasizes the need for collaboration between HRSD and third-party Program and project teams as well as the need for continuous improvement to revise the PMP for lessons learned and opportunities to improve Program and/or project delivery. HRSD maintains final approval authority for any changes, corrections, or disagreements regarding the PMP.

PMP Structure

The PMP is organized into the following chapters.

Chapter	Title
00	Overview
1	Program Description and Charter
2	Organization and Governance
3	Communications Management
4	Document Management
5	Schedule and Budget Management
6	Change Management
7	Quality Management
8	Risk Management
9	Engineering and Design
10	Procurement and Contracts Management
11	Permitting and Regulatory Compliance Management
12	Health and Safety
13	Public Information Management
14	Construction Management
15	Program Design Manual
16	Sustainability Management

PMP Procedures

PMP Procedures is a supplemental document that provides step-by-step instructions, detailed roles and responsibilities, workflow diagrams, and standard forms and templates to execute the processes documented in the PMP.

Program and Project Management Team

The SWIFT Program and Project Management Team includes the following resources.

Internal Resources

The Chief of Design & Construction – SWIFT (Chief of D&C - SWIFT) is an HRSD employee and serves as HRSD's internal authority for all SWIFT-related Program and Project Management. While Program and Project Management is outsourced to AECOM and Hazen, the Chief of D&C - SWIFT maintains the responsibility of approving deliverables, work confirmations, payment applications, and other FSIP requirements. The Chief of D&C - SWIFT also chairs HRSD Selection Committees for SWIFT-related professional services, alternative delivery, and construction solicitations. The Chief of D&C - SWIFT reports directly to HRSD's Director of Engineering.

The Chief of D&C - SWIFT is supported by a Contract Specialist, who is responsible for reviewing and posting SWIFT-related solicitation documents, reviewing all SWIFT-related invoices for contract compliance, and working with contractors to correct any invoice errors. Depending on the need, additional HRSD staff (e.g., from Engineering, Operations, or Water Quality departments) could provide support to SWIFT-related efforts. However, there are no other HRSD employees fully dedicated to the SWIFT FSIP, within the Engineering Department.

Outsourced Resources

The outsourced FSIP Program Management Team includes AECOM, Hazen, and Jacobs Engineering Group (Jacobs).

1. AECOM provides Program Management services, professional engineering services, and staff augmentation. AECOM reports directly to the Chief of D&C - SWIFT.
2. Hazen provides Program Management services, professional engineering services, and staff augmentation. Hazen, and any other subcontractors hired to execute the FSIP, report directly to AECOM.
3. Jacobs provides Owner's Technical Advisor services to support execution of the FSIP. Jacobs reports directly to the Chief of D&C - SWIFT.

Unifier

The SWIFT FSIP will be maintained in Unifier, a project management system for capital projects owned and maintained by HRSD. All contractors/sub-contractors are granted Unifier access based on their responsibilities. Unifier is used for initiating amendments (task orders and change orders) to existing contracts, processing invoices, submitting deliverables and documentation (e.g., design drawings or construction photos). Unifier also maintains final copies of all SWIFT capital project-related documentation and approvals. HRSD provides various trainings and tutorials on its website for internal and external Unifier users.

Project Execution

The SWIFT FSIP encompasses over 40 capital projects that will be executed over the next 12 years with a limited number of projects in each phase during any period. HRSD has developed preliminary project budgets and schedules for each SWIFT project. Project-specific Master

Schedules and Master Budget Reports will be developed during each project's planning phase and refined during the design phase. The SWIFT projects will be executed using a variety of project delivery methods, which will be determined on a project-by-project basis, and be based HRSD's normal Engineering procurement processes.

Project Statuses

The following projects are currently in process:

1. James River SWIFT Facility
2. James River Treatment Plant Advanced Nutrient Reduction Improvements
3. James River Land Improvements
4. James River Recharge Wells
5. Nansemond Advanced Nutrient Reduction Improvements – Phase II
6. Boat Harbor Treatment Plant Pump Station Conversion
7. Boat Harbor Treatment Plant Transmission Force Main – Section 1
8. Boat Harbor Treatment Plant Transmission Force Main – Section 2

SWIFT Oversight

House Bill 2358 established the Potomac Aquifer Recharge Oversight Committee (the committee) and the Potomac Aquifer Recharge Monitoring Laboratory (the laboratory).[2]

1. The committee is a 10-member advisory board established to ensure the SWIFT initiative is monitored independently. The committee meets at least quarterly and consists of the State Health Commissioner, the Director of the Department of Environmental Quality, the Executive Director of the Hampton Roads Planning District Commission, the two Co-Directors of the laboratory, the Director of the Occoquan Watershed Monitoring Laboratory, two Virginia citizens appointed by the Governor, and two non-voting members.
2. The laboratory monitors the impact of SWIFT on the Potomac Aquifer, manages testing data, and conducts water sampling and analysis.

HRSD also established a SWIFT Quality Steering Team (QST), consisting of cross-departmental HRSD leadership, to provide broad strategic direction to SWIFT's implementation.

SWIFT Funding

The current SWIFT FSIP budget estimate is approximately $2.1 billion which is represented in HRSD'S CIP. In the FY21-FY30 CIP, SWIFT represents approximately 56% of HRSD's total capital project costs. HRSD's overall CIP is primarily funded by revenue bonds, loan funds, and cash.

Currently, HRSD plans to use the following funding sources for the SWIFT Program:[3]

[2] Source: Virginia's Legislative Information System, accessed from website: https://lis.virginia.gov/cgi-bin/legp604.exe?191+sum+HB2358

[3] The dollar amounts provided represent HRSD's best estimates as of September 2020. Funding amounts and sources could change over the Program's implementation.

1. The U.S. Environmental Protection Agency (EPA) administers the Water Infrastructure Finance and Innovation Act of 2014 (WIFIA) federal credit program which provides reduced interest rates and flexible financial terms for eligible water and wastewater infrastructure projects. HRSD was approved to apply for $1 billion of WIFIA loans.[4]
2. The Virginia Department of Environmental Quality administers the Virginia Clean Water Revolving Loan Fund (VCWRLF) which provides local governments with reduced interest rates for projects that improve water quality or prevent future problems. VCWRLF has earmarked approximately $342 million in loans for HRSD's SWIFT FSIP, and has been approved for $100 million to date.[5]
3. Virginia Water Quality Improvement Fund (VWQIF) grant program.[6]
4. The remaining funding for the SWIFT FSIP will come directly from HRSD as cash.

Objectives

The following audit objectives were established based on the internal audit's planning procedures.

A. Evaluate the SWIFT FSIP Program Management Plan for risks, controls, and best practices.
B. Assess the SWIFT FSIP Program Management Plan for compliance with applicable HRSD policies and procedures.
C. Assess HRSD's preparedness for compliance with the Water Infrastructure Finance and Innovation Act federal credit program funding requirements.

Scope

The internal audit initiated in February 2020. Fieldwork procedures began in May 2020 and were completed in August 2020. The internal audit focused on the policies, procedures, and controls referenced in the SWIFT FSIP PMP and the requirements referenced in the WIFIA Program Handbook.

Methodology and Approach

In order to achieve the objectives, SC&H performed the following procedures:

Documentation Review

SC&H obtained and reviewed the following documents to gain an understanding of SWIFT:

1. SWIFT FSIP Program Management Plan
2. SWIFT FSIP Program Procedures
3. HRSD Program Management Consultants (PMC) Quality Control Plan Training

[4] WIFIA funding assistance generally cannot exceed 49% of project costs and limits all sources of federal assistance to no more than 80% of a project's cost. HRSD closed on their of WIFIA loan on September 28, 2020 for the first tranche of funding totaling $225.9 million.

[5] HRSD currently plans to apply for additional funds every other year with VCWRLF.

[6] Only certain SWIFT projects are eligible for VWQIF grant funds. Further, the dollar amount to be funded by the VWQIF is currently unknown and will be updated as state funding becomes available. As this source of funding is a grant, and not loan proceeds as WIFIA and VCWRLF, it will be advantageous for HRSD to maximize this funding source throughout the SWIFT FSIP.

4. Potomac Aquifer Recharge Oversight Committee Draft Meeting Minutes (from the 12/16/2019 and 5/28/2020 meetings)
5. Professional Services Agreement for the Program Management of SWIFT FSIP
6. SWIFT FSIP Program and Project Risk Management Register
7. SWIFT FSIP Program Software Listing
8. HRSD Engineering Department Guidelines and Procedures Manual
9. James River combined design build project Request for Qualifications
10. James River combined design build project Request for Proposals[7]
11. HRSD and SWIFT-related website content, such as the FY21-FY30 CIP, SWIFT Home, Oversight, and Videos
12. AECOM Policies and Procedures Listing

WIFIA Review

SC&H obtained and reviewed the following documents to gain an understanding of the WIFIA program:

1. 2017 – 13438 WIFIA Regulation
2. WIFIA Program Handbook
3. WIFIA Benefits Summary
4. WIFIA Program Summary
5. HRSD SWIFT WIFIA Letter of Interest

HRSD has not requested disbursement of WIFIA funding yet. However, SC&H reviewed the WIFIA Program Handbook and HRSD SWIFT WIFIA Letter of interest to understand the application process, financial terms and conditions, and compliance requirements. The Master Agreement was not finalized until September 28, 2020 and therefore was not reviewed as part of this internal audit.

Research

SC&H researched best practices for the following topics to compare with the SWIFT FSIP PMP:

1. Construction management including design-build projects
2. Program and project management
3. Environmental project management including water-specific projects
4. Project risk management
5. Compliance monitoring

The purpose of this research was to identify opportunities for HRSD to improve the PMP documents, internal SWIFT-related processes, and/or management of outsourced Program and Project Managers.

Stakeholder Inquiry

SC&H conducted interviews with the following key SWIFT stakeholders to discuss risks, controls, and/or inefficiencies associated with the SWIFT PMP and/or SWIFT-related processes:

1. Director of Engineering, HRSD

[7] Volume 1 of 3 was received and reviewed.

2. Chief of Design and Construction – SWIFT, HRSD
3. Capital Program Manager, HRSD
4. Capital Program Analyst, HRSD
5. Contract Specialist, HRSD
6. Program Manager, AECOM
7. Program Controls Manager, AECOM

From these interviews, SC&H was also able to gain a high-level understanding of the following SWIFT-related processes/functions:

1. Procurement process
2. Contract compliance monitoring
3. Regulatory compliance monitoring
4. Invoice and payment processing
5. Unifier access, workflows, and approvals
6. Financial processes related to WIFIA

Evaluation of Risks and Controls

Using information gathered through documentation review, research, and interviews, SC&H developed a SWIFT FSIP PMP and WIFIA risk and control matrix (RCM). The RCM aligns risks with controls to analyze the control environment and ranks the risks on perceived likelihood and severity. A limited number of controls are currently active as design or construction firms have not yet been hired for the projects. Therefore, SC&H did not evaluate the operational effectiveness of controls.

Instead, SC&H conducted interviews with HRSD and AECOM stakeholders to further understand and rank Program and project risks. The interviews focused on identifying potential risk scenarios and assessing the potential impact of those scenarios on implementation of the SWIFT Program. The proactive identification of potential SWIFT-related risks early in the Program's lifecycle can offer HRSD opportunities to mitigate risks.

Summary of Work

SC&H concludes that HRSD's SWIFT FSIP PMP is a detailed and comprehensive document that provides Program and Project Management standards through specific policies, processes, and procedures. These policies, processes, and procedures incorporate controls designed to monitor and manage both Program and project schedules, budgets, and changes. The instructions they provide also appear to establish an environment of collaboration and consistency across the various third parties that will be involved in the SWIFT FSIP.

Through research, documentation review, and interviews, SC&H identified the following attributes of the SWIFT Program that appear to create a foundation for the implementation of a successful operation:

1. HRSD has undergone significant efforts to plan, communicate, and champion the SWIFT Program. Due to SWIFT's impact on operations across HRSD, leadership from each department participate in the SWIFT QST. The SWIFT QST meets monthly to ensure

there is effective and timely communication of key issues related to the SWIFT Program, including project status, budget, costs, and milestones.

2. PMP appears to align with best practices for Program and Project Management.
3. The Program Procedures document appears to provide consistency and transparency for key processes, communications, and deliverables. Additionally, there are detailed procedures, workflows, and sample documents that provide examples, templates and step-by-step procedures for execution of key tasks. These tools could assist third parties in providing consistent and timely deliverables, communications, and reporting.
4. The PMP documents a focus on periodically identifying, tracking, and updating Program and project risks and involves stakeholders from HRSD, AECOM/Hazen, and Jacobs. The PMP includes an initial and annual program risk review and project risk reviews during preliminary engineering report development; every three months during design, at completion of design, and every three months during construction.
5. HRSD appears to have a sound foundation of documented policies and procedures, and existing processes across several departments/functions to support the SWIFT Program.
6. HRSD and AECOM have collaborated to develop a continuous improvement process to align the PMP with lessons learned from each project and HRSD standards. The initial development of the PMP was done to align with HRSD standards. However, due to continuous improvement of the PMP and lessons learned throughout the execution of each project, differences may occur between the PMP and HRSD standards. As a result, AECOM recognized that conflicts must comply with HRSD standards when identified, and that changes to the PMP and/or HRSD's standards will be part of the project closeout processes.

Additionally, SC&H identified five risk categories associated with the SWIFT PMP, HRSD's SWIFT-related processes, and the WIFIA requirements that HRSD should consider as the SWIFT Program progresses. These risk categories and associated observations focus on HRSD addressing risks early in the SWIFT Program's lifecycle. The following section provides the risk categories with detailed observations and recommendations.

SC&H acknowledges the significant efforts HRSD continues to take towards this important initiative. We appreciate the assistance and cooperation of the management and staff involved in HRSD's SWIFT Program. Please contact us if you have any questions or comments regarding any of the information contained in the internal audit report.

SC&H Group, Inc.

Matthew Simons, CPA, CIA, CGAP
Principal

II. Detailed Observations and Recommendations

SC&H identified the following five risk categories related to the SWIFT FSIP PMP or processes surrounding the SWIFT implementation:

1. People
2. Third-Party Monitoring
3. Processes
4. PMP
5. WIFIA Funding

Each risk category provides details surrounding observations identified during internal audit procedures, risks, and recommendations for mitigating the risk or improving the processes. Since certain components of the SWIFT FSIP PMP are still being planned and have not been fully implemented, **Appendix A** contains process areas that represent a future risk instead of the identification of current state risk.

Observation 1 – Risk Category: People

HRSD's and the SWIFT Program Manager's ability to ensure an adequate number of competent stakeholders are engaged from planning though implementation and ongoing operations is critical to SWIFT's overall effectiveness and success. Therefore, all resources working on the SWIFT Program, including internal HRSD employees, AECOM/Hazen Program and Project Managers and staff, and sub-contractors play a critical role in the success of the SWIFT Program.

The following observations were identified during the internal audit related to the people risk category.

1.1 Internal Resources

HRSD has one fully dedicated staff, the Chief of D&C - SWIFT, who is responsible for managing the SWIFT Program. The tasks for this position are voluminous including; reviews of solicitation documentation, contracts, invoices, changes, and deliverables. Responsibilities will likely increase when each solicitation is posted, each vendor is selected, and each project is initiated. The Chief of D&C - SWIFT is supported by other positions within HRSD (e.g., the Contract Specialist), but does not have assigned, fully dedicated internal staff. Further, there are no backups or cross-trained employees to perform the Chief of D&C - SWIFT's responsibilities.

1.2 Third-Party Reliance

HRSD is relying on third parties to both manage and execute the SWIFT Program and projects. HRSD will rely upon third parties to monitor safety, quality, deliverables, permits, field inspections, and regulatory compliance (including WIFIA compliance).

Risks

Inadequate quantity, quality, and/or timing of staffing resources, both internal and external to

HRSD, could lead to inefficiencies, ineffective project monitoring, project delays, and/or increased project costs.

Recommendation 1.1
HRSD should evaluate the current workload and anticipated workload of the Chief of D&C - SWIFT. This should include documenting the Chief's tasks that can be expected for each project at various frequencies (e.g., daily, weekly, and monthly) and at each phase (e.g., planning, design, and construction). Once tasks have been accumulated, HRSD should determine if there are tasks that can be re-assigned to:

1. Distribute the workload (e.g., remove responsibilities from the Chief of D&C - SWIFT and assign them to a specific individual).
2. Streamline tasks (e.g., provide an additional level of review before the Chief of D&C - SWIFT's review to identify errors, perform tedious or administrative tasks, and/or reduce review effort/time by the Chief of D&C - SWIFT).
3. Enhance third-party monitoring (e.g., perform additional tasks that are not currently being performed that could enhance controls or mitigate risks).

Further, HRSD should consider if the sum of tasks that can be re-assigned warrant the hiring internal HRSD staff to assist and report to the Chief of D&C - SWIFT. Based recommendations within this report, HRSD could benefit from additional resources to centralize and monitor:

1. Vendor management (see *Observation 2.1* and *2.2*)
2. Contract compliance (see *Observation 3.2*)
3. Regulatory compliance (see *Observation 2.2* and *5.1*)
4. Workflow, communication, and collaboration (e.g., to be responsible for identifying and remediating bottlenecks or process delays)
5. Document management (e.g., to ensure final documents are saved timely and accurately)

Management's Action Plan
The Director of Engineering and the Chief of D&C – SWIFT will review anticipated workloads and provide any recommended staffing needs for the coming budget cycle and each year into the future (January/February).

Implementation Date
March 1, 2021 and each year afterward.

Recommendation 1.2
HRSD should periodically evaluate their workload and the workload of HRSD staff supporting the SWIFT initiative. This evaluation should

1. Include risks, challenges, concerns, or issues that have been identified by HRSD.
2. Consider whether additional controls (e.g., reviews or checklists) should be implemented or if additional staff should be hired/incorporated into the operation to enhance controls, improve processes, or mitigate risks associated with SWIFT (see *Recommendation 1.1).*

Management's Action Plan
To be addressed as part of MAP 1.1.

Implementation Date
March 1, 2021 and each year afterward.

Observation 2 – Risk Category: Third-Party Monitoring

As mentioned in *Observation 1.2*, and as is customary for HRSD Engineering projects, the majority of the SWIFT Program including Program and Project Management, design, and construction will be outsourced. Common risks associated with outsourcing to a third-party include the regulatory compliance violations, litigation, financial losses from third-party errors, business interruption, and reputational damage.

The following observations were identified during the internal audit related to the third-party monitoring risk category.

2.1 New Vendor Relationships

Due to the size, schedule, and budget of SWIFT projects, vendors with HRSD specific experience may not be suitable for certain projects based on their experience, skills, resources, or ability to execute SWIFT projects. Therefore, HRSD may establish new vendor relationships, which could result in third-party risks specific to a SWIFT project's scope and deliverables. However, HRSD does not have an independent, formalized plan to capture, review, and manage third-party risks outside of third-party contractors.

2.2 Third-Party Risks

The project risk registers capture risks associated with each individual SWIFT project, which includes certain risks associated with third-party contractors. However, key third-parties, such as AECOM, Hazen, and Jacobs participate in the meetings that document and analyze project risks. HRSD does not conduct periodic risk meetings independent of third-parties (e.g., AECOM) to identify, document, and evaluate risks with all third-parties.

2.3 Regulatory Compliance

A significant portion of compliance is outsourced to third parties who will be responsible for complying with federal, state, and local regulations. However, HRSD does not have a formalized plan to centralize and track regulatory compliance of third parties.

Risks

Lack of formalized third-party monitoring could result in noncompliance with regulatory requirements, HRSD reputational impacts, project delays, and/or budget overages. Additionally, third parties with malicious intent could negatively impact the SWIFT project which could result in litigation, financial losses, business interruption, and/or negative media attention.

Recommendation 2.1

HRSD should inventory all SWIFT-related third-party vendors (including known sub-contractors of prime contractors). Additionally, HRSD should document contact information (i.e., HRSD, AECOM/Hazen, and vendor points of contact) as well as key contract terms, milestones, deliverables, and renewal/expiration dates. This will allow HRSD to be aware of all relationships, quickly identify contacts, establish accountability, and improve transparency.

Management's Action Plan
HRSD will create a SWIFT FSIP 3rd-Party Summary including the items listed above.

Implementation Date
The SWIFT FSIP 3rd-Party Summary will be prepared by March 31, 2021 and reviewed annually.

Recommendation 2.2
HRSD should develop standardized procedures to track third-party activity and performance at a high-level to proactively identify red flags or emerging risks. Procedures can include:

1. HRSD employee that is responsible for monitoring.
2. Tasks that should be performed at each frequency (e.g., weekly or monthly).
3. Deadlines/due dates for completing monitoring timely to improve accountability.
4. Procedures for:
    a. Who at HRSD should be notified of risks or issues identified.
    b. Who and how to communicate with the third-party vendor.
5. Expectations for remediation, required communications and approvals, timelines, and follow-up processes to close out any issues identified.

Management's Action Plan
HRSD will prepare a SWIFT FSIP 3rd-Party Performance Review Report for each major firm involved with the SWIFT FSIP Program with a goal to provide feedback semi-annually or annually. HRSD will use a standard template developed specifically for this performance review report.

Implementation Date
The SWIFT FSIP 3rd-Party Performance Review Report will be prepared by May 31, 2021.

Recommendation 2.3
HRSD should develop a monitoring checklist or tool to assess whether third parties are complying with HRSD Design & Construction Standards, contracts, the PMP, and/or PMP Procedures. These checklists should include the required tasks, responsible parties, milestones, deliverables, and due dates. Noncompliance should be addressed and remediated.

Management's Action Plan
HRSD will create the suggested checklist and integrate it into the SWIFT FSIP 3rd-Party Performance Review Report.

Implementation Date
This item will be completed by May 31, 2021.

Observation 3 – Risk Category: Processes

While HRSD has significantly outsourced components of the SWIFT Program, HRSD's internal processes to provide oversight will be crucial to the Program's success. HRSD and AECOM/Hazen Program Managers will be responsible with updating the PMP and HRSD standards to be in alignment.

The following observations were identified during the internal audit related to the processes risk category.

3.1 Scalability

HRSD plans to rely on existing processes, policies, and procedures to manage and support the SWIFT Program. In general, SWIFT projects are larger in both scale and cost than typical HRSD projects. It is unclear if HRSD policies, processes, systems, and controls are scalable and/or adaptable to handle the size and complexity of SWIFT projects.

3.2 Invoicing

Invoice approvals follow a workflow in Unifier that routes invoices to the contract specialist, then a Project Manager, and then the Chief of D&C - SWIFT. The Project Manager could be internal to HRSD or external to HRSD (i.e., AECOM) depending on each project's approval workflow. The Chief of D&C - SWIFT signs off on all SWIFT-related invoices, but the level of review may differ based on whether the invoice was reviewed and approved internally only (i.e., more detailed review by the Chief of D&C - SWIFT) or internally and externally by AECOM (i.e., less detailed review by the Chief of D&C - SWIFT). The quantity of invoices is expected to increase over the SWIFT implementation.

However, HRSD has historically experienced issues with consultant/contractor invoices, such as:

1. Invoices that are not submitted timely or at consistent frequencies.
2. Errors on consultant/contractor's invoices.

Risks

HRSD's processes could be inadequate to manage and monitor the SWIFT Program resulting in over/underpayments, inefficiencies, project delays, noncompliance with regulatory requirements, and/or increased Program costs.

Recommendation 3.1

HRSD should review their current processes to determine if there are any changes that could be made to accommodate SWIFT's size and complexity. For example, HRSD could consider if dollar thresholds or approval workflows should be adjusted to streamline the approval process. Additionally, HRSD should define the internal review requirements for deliverables, such as timelines and required (i.e., versus optional) department level approvals, to ensure collaboration does not negatively impact SWIFT project schedules.

Note: See *Recommendation 1.1* and *1.2* for recommendations related to HRSD's internal resources/oversight.

Management's Action Plan
The Director of Engineering and the Chief of D&C – SWIFT will review the procedures as described above.

Implementation Date
Review/revise by July 1, 2021.

Recommendation 3.2
As SWIFT related invoice activity begins to increase in quantity, HRSD should consider the following to enable the review process to be scalable.

1. Establish a process to proactively anticipate and address upcoming consultant/contractor/sub-contractor invoices to help ensure invoices are received and processed timing/consistently.
2. Implement more thorough review process of the contractor invoices and consultant/contractor-approved invoices of subcontractors to identify and remediate errors.
3. Establish turnaround times for consultant/contractor to conduct reviews of sub-contractor invoices to ensure HRSD has adequate time to review and approve invoices for payment in compliance with contract terms.

Management's Action Plan
The Director of Engineering and the Chief of D&C – SWIFT will review the procedures as described above.

Implementation Date
Implement any changes to HRSD's current procedures by July 1, 2021.

Observation 4 – Risk Category: PMP

The PMP provides guidance and workflows for SWIFT-related processes and clearly defines the processes that will follow HRSD's policies, procedures, and processes (collectively, HRSD standards). The PMP will be a guiding document for all Program and project staff that sets the expectations for project delivery and outlines how the Program will be managed, executed, and controlled.

The following observations were identified during the internal audit related to the PMP risk category.

4.1 Hiring, Onboarding, and Offboarding

As mentioned in *Observations 1 and 3*, the SWIFT Program is relying on third parties to perform critical roles in Program and Project Management and project delivery. Therefore, the hiring, onboarding, and offboarding of Program and project staff is essential to ensuring smooth transitions, collaboration between new and existing contractors, and effective knowledge exchange.[8]

The PMP provides guidance for the roles and responsibilities of each position within the SWIFT Program. Additional requirements could be documented in contracts through each SWIFT project's solicitation scope and/or the SWIFT project's contract general terms and conditions. The PMP and/or contracts did not address the following topics:

1. Hiring:
    a. Minimum requirements and/or qualifications for any contracted staff augmentation role.
    b. HRSD's approval or review of staff consultants/contractors hired by AECOM.
2. Onboarding:
    a. Introduce new team members and define their roles and responsibilities of each critical third-party employee (e.g., the point of contact for invoices or reporting) to the existing Program and Project Management teams.
    b. Establish workflows and required integrations (e.g., systems or reporting lines) to proactively address transitions.
    c. Ensure new team members understand, are able to, and agree to comply with the PMP and PMP Procedures.
3. Offboarding:
    a. Define critical roles and the plan for offboarding those critical roles to provide effective transitions and communication of institutional knowledge between team members.

4.2 Other Updates to the PMP

The PMP does not reference, or does not clearly define the following areas:

[8] Onboarding is the process of orienting and training new employees or contractors to learn the organization's policies, procedures, processes, and practices. Offboarding is the process of an employee or contractor separating with an organization that is focused on ensuring a smooth transition and effective knowledge exchange.

1. Business continuity or disaster recovery plans.[9]
2. Specific timing expectations related to the document submittal, review, or approval.

Risks

The lack of specific guidance or procedures for Program and Project Management could result in errors, inconsistencies, inefficiencies, or inadequate performance of the Program and project teams.

Recommendation 4.1

HRSD should develop policies and procedures and consider incorporating them into the PMP documents to provide guidance for:

1. Establishing off-boarding procedures; including documenting critical roles and responsibilities, identifying backups, and defining transition plans to exchange institutional knowledge and communication.
2. Defining the minimum requirements for key staff augmentation roles; such as years of experience, certifications, skills, etc.
3. Defining what staff augmentation roles HRSD will be involved in the hiring process and defining allowable actions (e.g., rejecting a resume) for HRSD during hiring.
4. Identifying and communicating critical roles and responsibilities of each critical third-party employee (e.g., the point of contact for invoices or reporting) for new team members to the existing Program and Project Management teams.
5. Ensuring new team members understand, are able to, and agree to comply with the PMP and PMP Procedures.
6. Defining ambiguous terms (e.g., timely) to document turnaround times and due dates.
7. Including business continuity and disaster recovery plans to address the scope and magnitude of the SWIFT Program.

Management's Action Plan

Conduct meeting with SWIFT FSIP PM Team to review recommendations and revise the PMP.

Implementation Date

Meet to review recommendations by February 26, 2021 and revise SWIFT PMP as necessary by April 30, 2021.

Recommendation 4.2

HRSD should develop a new team member onboarding training. This training could communicate the PMP and PMP Procedures applicable to the team member, and proactively provide necessary information for workflows, systems, and reporting lines. This training could also be used to communicate the importance of HRSD's culture and expectations with regards to third parties. HRSD should consider obtaining acknowledgment from each new team member that they understand and agree to comply with the PMP and PMP Procedures.

[9] HRSD has not developed business continuity or disaster recovery plans related to SWIFT, but plans to begin discussions for their inclusion in organization-wide business continuity and disaster recovery plans.

Management's Action Plan
Prepare SWIFT PMP Onboarding Training document and implement effort.

Implementation Date
Prepare document and begin training by July 31, 2021.

Observation 5 – Risk Category: WIFIA Funding

HRSD is seeking approximately $1 billion in WIFIA credit assistance for the SWIFT Program. This is the first time HRSD will be receiving WIFIA funding and therefore the first time HRSD will need to be compliant with WIFIA requirements.

The following observations were identified during the internal audit related to the WIFIA funding risk category.

5.1 WIFIA Compliance Monitoring

HRSD does not have WIFIA-specific policies, procedures, or processes to ensure compliance with WIFIA requirements. Currently, HRSD plans to rely on existing processes to substantiate eligible costs, execute draw downs, submit required reporting, and monitor compliance.

SWIFT FSIP is the first time HRSD will be receiving WIFIA funding. Therefore, there is some uncertainty regarding the level of effort required to ensure HRSD is compliant with WIFIA-related requirements and is prepared for future federal compliance audits.

5.2 WIFIA Coordination

Ensuring compliance with regulatory requirements will require collaboration between Finance, Engineering, AECOM/Hazen, and sub-contractors. Each department/group will monitor compliance based on their responsibilities. Additionally, HRSD has not determined a method for maintaining WIFIA-related records (i.e., during and after project completion) to ensure records are accurate, complete, and available for federal or state audits.

Risks

HRSD could be in noncompliance WIFIA requirements which could result in a loss or reduction in funding. Further, external auditors could identify areas of noncompliance which could result in audit findings, negative publicity, or financial penalties.

Recommendation 5.1

HRSD should evaluate existing HRSD policies, procedures, and processes and determine if they contain criteria needed to assess WIFIA compliance. If they do not, HRSD should consider incorporating WIFIA specific components into its documentation, or creating a stand-alone set of documentation. Criteria to consider includes:

1. The WIFIA Program and requirements
2. Responsible parties (i.e., internal and external)
3. Roles and responsibilities
4. Onboarding new team members (e.g., notification, tracking)
5. Systems, including the source of documents and/or reports
6. Workflows and approvals
7. Plans to achieve compliance including self-monitoring (see *Recommendations 2.2* and *2.3*)
8. Record retention (e.g., version control, system of record, time requirements)

Then, HRSD should consider whether they have adequate resources to fulfill WIFIA-related monitoring requirements. As mentioned in *Observation 5.1,* there is uncertainty regarding the level of effort required to maintain compliance with WIFIA. HRSD should consider the tasks and level of effort recommended in *Recommendation 5.1* and *5.2*, as well as efforts that may be required to monitor compliance with other funding sources (e.g., VCWRLF) to determine if additional resources may be necessary to mitigate risks and safeguard HRSD's funding sources.

Management's Action Plan

1. Meet with SWIFT FSIP Team and review roles and responsibilities.
2. Meet to review HRSD and program management resources.

Implementation Date

1. Complete Item 1 by March 31, 2021.
2. Complete Item 2 by April 30, 2021.

Recommendation 5.2

HRSD should develop a self-monitoring program to periodically evaluate their compliance with WIFIA requirements and the WIFIA policy (see *Recommendation 4.1*). The self-monitoring program should include a checklist to ensure compliance is documented and retained for future audits. These checklists should define:

1. The responsible HRSD staff who is responsible for conducting monitoring.
2. The specific tasks that will be executed.
3. What tasks will be performed monthly, quarterly, and/or annually.
4. Who will be notified of results.
5. How HRSD will address issues or noncompliance.
6. Who should sign, approve, and date monitoring checklist.
7. Where the checklists should be maintained and for how long.

Management's Action Plan

Create a SWIFT FSIP WIFIA Monitoring Program.

Implementation Date

Create program by July 1, 2021.

Recommendation 5.3

HRSD should develop a WIFIA training to notify responsible parties of the policies, procedures, monitoring, and expectations. This training should be updated periodically to be consistent with current practices and regulations and can be used to onboard new team members.

Management's Action Plan

Create a SWIFT FSIP WIFIA Training Program.

Implementation Date

Create program by July 1, 2021.

III. Appendices

Appendix A – Additional Considerations

Since certain components of the SWIFT FSIP PMP are still being planned and have not been fully implemented, the process areas below represent future risks that has been identified. Since these processes are not fully developed, these are being provided to HRSD to consider as the SWIFT Program progresses.

A.1: HRSD Culture and Reputation

Due to the environmental impact and overall cost of the SWIFT Program, HRSD could receive increased public scrutiny of costs, vendors, Program and project budgets and schedules, and outcomes. HRSD has invested a significant amount of time, energy, and resources in communicating SWIFT Program goals and engaging the community in the SWIFT initiative. Currently, HRSD has not developed a plan to clearly communicate expectations and to acclimate/integrate third parties with HRSD's culture.

Risk: Actions of SWIFT contractors could result in negative media attention, public perception, or damage to HRSD's reputation.

A.2: Contract Execution

Due to the number of third-party relationships that will be established throughout the implementation of SWIFT (see *Observation 2.1*), HRSD's contracts need to be as complete, accurate, and as indisputable as possible to protect HRSD. While litigation and compensation after the fact could provide HRSD with recourse for any noncompliance identified, these options could burden internal resources and impact schedules.

Risk: Third parties with malicious intent could sabotage the SWIFT project which could result in financial losses, business interruption, or reputational damage. Additionally, HRSD could incur additional costs or experience project delays while seeking recourse or litigation for noncompliance with contract terms.

A.3: Change Requests

Through the solicitation for the first James River Project, HRSD received requests to change HRSD's standard contract terms and conditions. HRSD and AECOM reviewed the changes and consulted with other departments to ensure changes to contract language were appropriate. As SWIFT progresses, and more/new vendors are selected, HRSD should be cautious of vendor's requests to make changes to contracts and/or other requirements (e.g., requests to not comply with the PMP) to prevent litigious vendors from exploiting HRSD. Further, as this will be first time working with new vendors, HRSD could not be fully aware of consequences that changes to contract language, PMP, or procedures could bring.

Risk: Third parties could request changes to contracts, HRSD standards, the PMP, or PMP Procedures to the detriment of HRSD and/or the SWIFT Program.

A.4: System Customization

Unifier was setup for the Design-Bid-Build project delivery method. HRSD currently has a third-party customizing Unifier to align with the Design-Build project deliver method, which will be utilized for certain SWIFT projects. As of October 2020, HRSD stated the customization was almost complete. This will result in SWIFT being the first Design-Build project to be managed through the Unifier customization.

Risk: Program Management system customizations could result in project delays, lack of transparency, or inefficiencies.

Annual Metrics

Item	Strategic Planning Measure	Unit	Target	FY-10	FY-11	FY-12	FY-13	FY-14	FY-15	FY-16	FY-17	FY-18	FY-19	FY-20
M-1.1a	Employee Turnover Rate (Total)	Percentage	< 8%	5.63%	4.09%	6.64%	7.62%	8.22%	9.97%	6.75%	6.66%	9.99%	6.63%	6.78%
M-1.1b	Employee Turnover Rate within Probationary Period		0%		2.22%	8.16%	14.58%	9.68%	0.66%	0.13%	0.90%	1.01%	2.10%	3.08%
M-1.2	Internal Employee Promotion Eligible	Percentage	100%		59%	80%	70%	71%	64%	69%	68%	85%	85%	63%
M-1.3	Average Time to Fill a Position	Calendar Days	< 30		70	60	52	43.76	51	56	67	67	66	60
M-1.4	Training Hours per Employee - cumulative fiscal year-to-date	Hours	> 40		30.0	43.8	37.5	35.9	42.8	49.0	48.4	41.1	40.9	39.3
M-1.5a	Safety OSHA 300 Incidence Rate Total Cases	# per 100 Employees	< 3.5	6.57	6.15	5.8	11.2	5.07	3.87	7	5.5	5.7	4.1	4.8
M-1.5b	Safety OSHA 300 Incidence Rate Cases with Days Away	# per 100 Employees	< 1.1	0.74	1.13	1.33	0.96	1.4	0.82	1.9	1	1.1	0.8	1.34
M-1.5c	Safety OSHA 300 Incidence Rate Cases with Restriction, etc.	# per 100 Employees	< 0.8	3.72	4.27	2.55	4.5	2	1.76	3.6	2.8	2.8	1.8	1.6
M-2.1	CIP Delivery - Budget	Percentage			113%	96%	124%	149%	160%	151%	156%	160%	170%	170%
M-2.2	CIP Delivery - Schedule	Percentage			169%	169%	161%	150%	190%	172%	173%	167%	159%	159%
M-2.3a	Total Maintenance Hours	Total Available Mtc Labor Hours Monthly Avg			16,495	22,347	27,615	30,863	35,431	34,168	28,786	28,372	31,887	29,596
M-2.3b	Planned Maintenance	Percentage of Total Mtc Hours Monthly Avg			20%	27%	70%	73%	48%	41%	43%	44%	59%	59%
M-2.3c	Corrective Maintenance	Percentage of Total Mtc Hours Monthly Avg			63%	51%	12%	10%	18%	25%	25%	24%	18%	19%
M-2.3d	Projects	Percentage of Total Mtc Hours Monthly Avg			18%	22%	20%	18%	32%	34%	32%	32%	27%	25%
M-2.4	Infrastructure Investment	Percentage of Total Cost of Infrastructure	2%		8.18%	6%	6%	4%	7%	7%	5%	5%	4	5%
M-3.3	Carbon Footprint	Tons per MG Annual Total			1.61	1.57	1.47	1.46	1.44	1.45	1.58	1.66	1.58	1.7
M-3.6	Alternate Energy (Incl. Green Energy as of FY19)	Total KWH			0	0	0	5,911,289	6,123,399	6,555,096	6,052,142	5,862,256	47,375,940	56,473,800
M-4.1a	Energy Use: Treatment	kWh/MG Monthly Avg			2,473	2,571	2,229	2,189	2,176	2,205	2,294	2,395	2,277	2,408
M-4.1b	Energy Use: Pump Stations	kWh/MG Monthly Avg			197	173	152	159	168	163	173	170	181	174
M-4.1c	Energy Use: Office Buildings	kWh/MG Monthly Avg			84	77	102	96	104	97	104	104	95	102
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%	1.4%	1.8%	1.3%
M-4.3	Total Labor Cost/MGD	Personal Services + Fringe Benefits/365/5-Year Average Daily Flow		$1,028	$1,095	$1,174	$1,232	$1,249	$1,279	$1,246	$1,285	$1,423	$1,348	$1,487
M-4.4	Affordability	8 CCF Monthly Charge/ Median Household Income	< 0.5%		0.48%	0.48%	0.41%	0.43%	0.53%	0.55%	0.59%	0.60%	0.64%	0.71%
M-4.5	Total Operating Cost/MGD	Total Operating Expense/ 365/5-Year Average Daily Flow		$2,741	$2,970	$3,262	$3,316	$3,305	$3,526	$3,434	$3,592	$3,959	$3,823	$4,048
M-5.1	Name Recognition	Percentage (Survey Result)	100%	67%	71%	N/A	62%	N/A	60%	N/A	N/A	53%	N/A	53%
M-5.4	Value of Research	Percentage - Total Value/HRSD Investment			129%	235%	177%	149%	181%	178%	143%	114%	117%	143%
M-5.5	Number of Research Partners	Annual Total Number			42	36	31	33	28	35	15	20	26	32
	Rolling 5 Year Average Daily Flow	MGD		157.8	155.3	152	154.36	155.2	151.51	153.09	154.24	152.8	152.23	149.84
	Rainfall	Annual Total Inches		66.9	44.21	56.21	46.65	46.52	51.95	54.14	66.66	49.24	53.1	48.49
	Billed Flow	Annual Percentage of Total Treated		71.9%	82.6%	78%	71%	73%	74%	72%	73%	76%	72%	78%
	Senior Debt Coverage	Net Revenue/Senior Annual Debt Service	> 1.5	2.51%	2.30%	2.07%	1.88%	1.72%	1.90%	2.56%	3.10%	3.59%	4.84%	5.80%
	Total Debt Coverage	Net Revenue/Total Annual Debt	>1.4	1.67%	1.67%	1.46%	1.45%	1.32%	1.46%	1.77%	1.93%	2.03%	2.62%	2.81%

*to be reported

Monthly Updated Metrics

Item	Strategic Planning Measure	Unit	Target	FY-10	FY-11	FY-12	FY-13	FY-14	FY-15	FY-16	FY-17	FY-18	FY-19	FY-20	FY-21 Jan-21	FY-21 Feb-21
	Average Daily Flow	MGD at the Plants	< 249		136	146.5	158.7	156.3	153.5	155.8	153.5	145.8	152.7	141.5	165.3	214.5
	Industrial Waste Related System Issues	Number	0		3	6	6	6	2	4	7	4	7	1	0	0
	Wastewater Revenue	Percentage of budgeted	100%		97%	96%	98%	107%	102%	104%	103%	103%	104%	104%	105%	101%
	General Reserves	Percentage of Operating and Improvement Budget	75% - 100%		72%	82%	84%	92%	94%	95%	104%	112%	117%	119%	109%	102%
	Accounts Receivable (HRSD)	Dollars (Monthly Avg)			$17,013,784	$17,359,488	$18,795,475	$20,524,316	$20,758,439	$22,444,273	$22,572,788	$22,243,447	$23,900,803	$27,335,100	$35,305,729	$31,630,351
	Aging Accounts Receivable	Percentage of receivables greater than 90 days			21%	20%	18%	19%	21%	20%	18%	18%	17%	18%	25%	28%
M-2.5	Capacity Related Overflows	Number within Level of Service	0		25	1	30	5	11	16	6	10	5	2	0	11
M-3.1	Permit Compliance	# of Exceedances to # of Permitted Parameters	0		12:55,045	1:51995	2:52491	1:52491	2:52491	2:52,491	9:53236	9:58338	2:60879	9:60879	7:35513	19:40586
M-3.2	Odor Complaints	Number	0		6	2	7	11	5	9	7	6	9	15	1	11
M-3.4	Pollutant Removal (total)	Total Pounds Removed			178,163,629	171,247,526	176,102,248	185,677,185	180,168,546	193,247,790	189,765,922	190,536,910	187,612,572	182,759,003	108,738,508	122,710,046
M-3.5	Pollutant Discharge (% of permitted)	Pounds Discharged/Pounds Removed	< 40%		25%	22%	25%	22%	22%	20%	22%	17%	17%	17%	19%	22%
M-5.2	Educational and Outreach Events	Number			302	184	238	322	334	443	502	432	367	256	6	16
M-5.3	Number of Community Partners	Number			280	289	286	297	321	354	345	381	293	230	8	12

EFFLUENT SUMMARY FOR FEBRUARY 2021

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	16.33	91%	21	27	4	3	1.5	0.97	7.2	6.0	NA	NA	1
ATLANTIC	30.15	56%	13	12	1	1	NA	NA	NA	NA	NA	NA	6
BOAT HARBOR	24.61	98%	8	13	2	<1	0.37	0.30	13	15	NA	NA	17
CENT. MIDDLESEX	0.010	39%	<2	1.7	<1	<1	NA	NA	NA	NA	NA	NA	NA
CHES-ELIZ	24.32	101%	21	19	6	4	1.3	1.2	26	27	NA	NA	4
JAMES RIVER	20.76	104%	5	5.1	3	3	0.48	0.41	6.5	6.6	NA	NA	3
KING WILLIAM	0.070	64%	<2	<1.0	NA	1	0.025	0.025	5.9	4.3	3.9	NA	NA
NANSEMOND	22.52	75%	6	7.4	1	1	0.50	0.61	4.7	5.7	NA	NA	1
SURRY, COUNTY	0.073	113%	6	13	NA	NA	NA	NA	NA	NA	NA	NA	0
SURRY, TOWN	0.106	177%	3	12	NA	60	NA	NA	NA	NA	0.81	0.30	NA
URBANNA	0.058	58%	5	10	3	4	1.2	0.76	15	12	NA	3.75	NA
VIP	44.41	111%	7	5.9	3	1	0.29	0.54	4.6	4.4	NA	NA	1
WEST POINT	0.958	160%	19	22	1	7	1.7	1.8	10	11	NA	NA	0
WILLIAMSBURG	10.73	48%	8	7.9	4	3	0.37	0.38	5.5	4.7	NA	NA	1
YORK RIVER	19.40	129%	1	0.56	2	<1	0.20	0.18	7.0	6.3	NA	NA	1
	214.49												

	% of Capacity
North Shore	92%
South Shore	83%
Small Communities	127%

Tributary Summary

	Annual Total Nitrogen			Annual Total Phosphorus		
	Discharged YTD	Operational Projection CY21		Discharged YTD	Operational Projection CY21	
Tributaries	%	Lbs	%	%	Lbs	%
James River	16%	3,849,690	85%	14%	278,496	87%
York River	21%	270,283	94%	12%	16,479	85%
Rappahannock	13%	NA	NA	3%	NA	NA

Permit Exceedances:Total Possible Exceedances, FY21 to Date: 19:40,586
Pounds of Pollutants Removed in FY21 to Date: 122,710,046
Pollutant Lbs Discharged/Permitted Discharge FY21 to Date: 22%

Rainfall (inch)

	North Shore (PHF)	South Shore (ORF)	Small Communities (FYJ)
Month	5.84"	6.44"	6.27"
Normal for Month	3.03"	2.97"	2.89"
Year to Date Total	9.84"	10.25"	10.24"
Normal for YTD	6.42"	6.08"	6.32"

AIR EMISSIONS SUMMARY FOR FEBRUARY 2021

	No. of Permit Deviations below 129 SSI Rule Minimum Operating Parameters								Part 503e Limits		
MHI PLANT	Temp 12 hr ave (F)	Venturi(s) PD 12 hr ave (in. WC)	Precooler Flow 12 hr ave (GPM)	Spray Flow 12 hr ave (GPM)	Venturi Flow 12 hr ave (GPM)	Tray/PBs Flow 12 hr ave (GPM)	Scrubber pH 3 hr ave	Any Bypass Stack Use	THC Mo. Ave (PPM)	THC DC (%)	BZ Temp Daily Ave Days >Max
ARMY BASE	0	0	0	0	0	0	0	0	44	99	0
BOAT HARBOR	0	0	0	n/a	1	0	0	0	12	97	0
CHES-ELIZ	0	0	0	0	0	0	0	0	14	100	0
VIP	0	0	0	n/a	0	0	0	1	9	100	0
WILLIAMSBURG	0	0	0	n/a	0	0	0	1	21	99	0

ALL OPERATIONS

DEQ Reportable Air Incidents:	0
DEQ Request for Corrective Action:	0
DEQ Warning Letter:	0
DEQ Notice of Violation:	0
Other Air Permit Deviations:	0
Odor Complaints Received:	1
HRSD Odor Scrubber H2S Exceptions:	1

Resource: Ted Henifin

AGENDA ITEM 14. – March 23, 2021

Subject: Fiscal Year-2022 Annual Budget Work Session

Recommended Action: No action is required.

Brief: Staff will present key components of the Fiscal Year-2022 budget as a continuation of the budget preview provided in February. The following topics will be covered:

- Internal audit update
- Operating revenues
- Operating expenses
  - Medical trends
  - Chesapeake-Elizabeth closure budget impacts
  - Pump and haul business case