



COMMISSION MEETING MINUTES  
December 17, 2024

No.   Topic

[Call to Order](#)

1.   [Public Comments Not Related to the Agenda](#)
2.   [Consent Agenda](#)
3.   [Residential Customer Survey](#)
4.   [HRSD Logo and Tag Line](#)
5.   [Audit of HRSD's CIP Construction Cost Estimating Procedures  
Internal Assessment](#)
6.   [George Washington Interceptor Force Main Extension Part 2 \(SF-140\)  
Segmental Replacement at St. Julian's Creek  
Initial Appropriation – Non-Regulatory](#)
7.   [Onancock Meter Replacement  
Contract Award \(>\\$200,000\) and Task Order \(>\\$200,000\)](#)
8.   [Providence Road Interceptor Force Main \(SF-165\) Segmental Replacement at  
Depositor Lane  
Initial Appropriation – Non-Regulatory](#)
9.   [Suffolk Pump Station Replacement  
Additional Appropriation – Regulatory Required \(>\\$10,000,000\), Contract Award  
\(>\\$200,000\), Task Order \(>\\$200,000\)](#)
10.   [Larchmont Area Sanitary Sewer Improvements  
Acquisition of Real Property for a Public Purpose – 900 Jamestown Crescent, Norfolk](#)
11.   [Section W Force Main Replacement  
Real Property - Easement Acquisition for a Public Purpose  
1612 W Little Creek Road, Norfolk](#)
12.   [Hampton Roads Water Technology Innovation Ecosystem Briefing](#)
13.   [New Business](#)
14.   [Unfinished Business](#)
15.   [Commissioner Comments](#)



COMMISSION MEETING MINUTES  
December 17, 2024

No.   Topic

16.   [Informational Items](#)

17.   [Closed Meeting](#)

18.   [Reconvened Meeting](#)



COMMISSION MEETING MINUTES  
December 17, 2024

The Commission Chair called the meeting to order at 9:02 a.m.

Name	Title	Present for Item Nos.
Rodriguez, Stephen C.	Commission Chair	1-18
Levenston, Jr., Willie	Commission Vice-Chair	1-18
Elofson, Frederick N.	Commissioner	1-18
Glenn, Michael E.	Commissioner	3-18
Lakdawala, Vishnu K.	Commissioner	Absent
Stern, Nancy J.	Commissioner	1-18
Taraski, Elizabeth	Commissioner	1-18
Templeman, Ann	Commissioner	1-18

1. **Public Comments Not Related to Agenda – None**



COMMISSION MEETING MINUTES  
December 17, 2024

2. **Consent Agenda**

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

<b>Moved:</b>	Willie Levenston	<b>Ayes:</b>	6
<b>Seconded:</b>	Ann Templeman	<b>Nays:</b>	0

**Brief:**

a. Approval of minutes from previous meeting.

b. Contract Awards (>\$200,000)

1.	<a href="#">Aveva PI Historian Software License and Support Services</a>		\$411,984
2.	<a href="#">Concrete and Coatings Maintenance Services</a>		\$705,000
3.	<a href="#">Ferebee Avenue Pump Station Replacement</a>		\$9,243,000
		Task Order	\$1,848,154
		Additional Funding	\$7,574,464
4.	<a href="#">Fleet Management (FY-2025) Road Tractor for Biosolids Hauling</a>		\$227,404
5.	<a href="#">James River Treatment Plant MIFAS Conversion Emergency</a>		
		Pioneer	\$125,200
		WWW	\$335,445
		Colonial	\$113,400
6.	<a href="#">Metrohm Ion Chromatography and Agilent Triple Quadrupole Preventive Maintenance Services</a>		\$331,871
7.	<a href="#">South Norfolk Area Gravity Sewer Improvements, Phase II</a>		\$14,397,200
		Task Order	\$705,380
		Additional Funding	\$6,839,652

c. Task Orders (>\$200,000)

1.	<a href="#">King William Treatment Plant Improvements Phase II</a>	\$331,168
2.	<a href="#">Park Avenue Pump Station Replacement</a>	\$340,786





COMMISSION MEETING MINUTES  
December 17, 2024

- d. Regulatory Capital Improvement Project – Initial or Additional Appropriation  
<\$10,000,000

1. <a href="#">Lucas Creek Pump Station Replacement</a>		\$1,538,539
	Change Order	\$3,958,539

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

**Public Comment:** None



COMMISSION MEETING MINUTES  
December 17, 2024

3. **Residential Customer Survey**

**Action:** No action is required.

**Brief:** SIR Research recently completed an abbreviated version of the previous HRSD biennial online customer satisfaction survey of our residential customers. Staff gave an [overview](#) of the customer billing business model including general environmental conditions, current challenges, and the path forward including the 5+ year strategic plan development. SIR Advisor, Quantitative and Qualitative Research Brian Siepka shared [highlights](#) of the survey results during the meeting including research objectives and methodology; executive summary; respondent profile; and key findings.

**Discussion Summary:** The HRSD/HRUBS billing model is unique and there are not many companies within the industry to draw a direct comparison. During discussion of bill payment, SIR stated 20% of survey respondents are using the autopay feature. They also indicated that this is not necessarily representative of the population as a whole since the survey was limited to customers who provided HRSD an email address. Staff explained that they believe the decrease in satisfaction of billing consistency and accuracy of bills as largely attributable to delayed meter readings. HRSD relies on the localities for meter readings, which in some cases across the region have experienced delays. A bill is not produced until meter readings are received. Delayed meter readings result in a higher number of days billed (45-60 days, instead of a typical 30-day cycle) causing confusion and increasing dissatisfaction by the customers.

**Public Comment:** None



COMMISSION MEETING MINUTES  
December 17, 2024

4. **HRSD Logo and Tagline**

**Action:** Approve the proposed new HRSD logo and tag line.

<b><u>Moved:</u></b>	Frederick Elofson	<b><u>Ayes:</u></b>	7
<b><u>Seconded:</u></b>	Nancy Stern	<b><u>Nays:</u></b>	0

**Brief:** HRSD’s 2022 Brand Perception Study revealed that while HRSD enjoys nearly 60% awareness, only 32% of those surveyed cited familiarity with what we do, giving us a largely neutral and significantly unfamiliar customer base. This study, together with our Strategic Plan update in 2023 which updated our Promise and Vision, presented an opportunity to refresh the HRSD brand, seeking a more current and dynamic design which we can also align into a house of brands with HRSD’s sub-brands (SWIFT, SWIFT Water® and NutriGreen®) for better recognition. It also allowed us to update our tagline to better align with our Priorities, Promise and Vision.

Qantm Creative (formerly The Meridian Group) was selected through competitive RFP process to lead this effort. Our initial engagement request was to look at a potential rebrand for HRUBS, which has been a long-standing source of confusion for customers. A workshop was held to evaluate this, which ultimately led to a decision to abandon a “brand” for the billing service in favor of a more accurate name for the services provided.

The process we implemented to arrive at the logo and tagline we are presenting for your approval today included several workshops and meetings between Qantm Creative and an HRSD team comprised of staff from all HRSD divisions, external in-person focus groups, and employee surveys. HRSD employees determined the final tagline selection and provided feedback on the final design.

If approved, the new logo will be gradually introduced over the next 12-18 months to minimize the cost of implementation, with emphasis on utilizing HRSD-owned and earned media opportunities. Existing supplies of items bearing the current logo will be used until depleted to avoid waste.

The current HRSD logo was approved by the Commission on May 25, 2010.

A [briefing](#) was provided during the meeting explaining the brand workshop, logo development, stakeholder research, new tagline, brand elements, and activation plan.

**Public Comment:** None



COMMISSION MEETING MINUTES  
December 17, 2024

5. **Audit of HRSD's CIP Construction Cost Estimating Procedures  
Internal Assessment**

**Action:** No action is required.

**Brief:** This [audit](#) conducted by the SC&H Group evaluated construction cost estimating processes, researched industry trends and standards, and conducted data analytics to understand variances between bidding costs and estimating procedures.

The background, observations/findings, recommendations and Management Action Plans to address these findings were [presented](#) by SC&H and staff during the meeting.

**Discussion Summary:** Staff explained development of initial project budget and scope, the Request for Proposal (RFP) process, and how consulting firms are selected either through an Annual Services Contract or through an RFP. Overall, 80% of projects are within budget. Staff will present a summary of projects requiring additional appropriation during the quarterly Capital Improvement Program briefing in January. Staff will also review reasons why 20% of the projects were not on target.

Staff explained the initial budget (highly conceptual) estimate developed by staff is used as a place holder when first introduced into the 10-year CIP. That number is continually updated as the project progresses and when an Engineer is hired. Recently, staff began the process of studying certain projects that are highly variable, without a clear outcome, to get a better budget estimate before entering it into the CIP. The project estimates are updated each year and then prioritized during the annual CIP review considering current budget constraints, regulatory requirements, and available grant funding. In addition, the financial model/forecast is updated each year based on the reprioritized projects. Projects could be cancelled or have the scopes significantly reduced when the cost is too high, but regulatory projects have to be done by their respective deadlines to be in compliance.

The Commission Chair expressed concern that continuing to underestimate project budgets will have a serious effect on the overall finances/CIP program. He said we need to prioritize getting better estimates on these projects and put more emphasis in the RFPs on the consultant's estimating ability. The Commission Chair said he believes the consultant's estimate should be within a minimum of 10 percent of the project cost. He also asked staff to prepare another briefing for a future meeting outlining the next steps.

**Public Comment:** None



COMMISSION MEETING MINUTES  
December 17, 2024

6. **George Washington Interceptor Force Main Extension Part 2 (SF-140) Segmental Replacement at St. Julian's Creek  
Initial Appropriation – Non-Regulatory**

Deferred to a future meeting.



COMMISSION MEETING MINUTES  
December 17, 2024

7. **Onancock Meter Replacement  
Contract Award (>\$200,000) and Task Order (>\$200,000)**

**Actions:**

- a. **Award a contract to Consolidated Pipe & Supply Company, Inc. in the amount of \$480,267.**
- b. **Approve a task order with Rummel, Klepper & Kahl, LLP (RK&K) in the amount of \$263,527.**

**Moved:** Nancy Stern  
**Seconded:** Michael Glenn

**Ayes:** 7  
**Nays:** 0

**CIP Project:** ES010600

**Regulatory Requirement:** None

Budget	\$2,767,660
Previous Expenditures and Encumbrances	(\$218,394)
Available Balance	\$2,549,266
Proposed Contract Award to Consolidated Pipe & Supply Company, Inc.	(\$480,267)
Proposed Task Order to Rummel, Klepper & Kahl, LLP	(\$263,527)
Proposed Contingency	(\$48,027)
Revised Total Project Authorized Funding	\$1,757,445

<b>Contract Status with Task Orders:</b>	<b>Amount</b>
Original Contract with Engineer	\$114,646
Total Value of Previous Task Orders	\$103,748
Requested Task Order	\$263,527
Total Value of All Task Orders	\$367,275
Revised Contract Value	\$481,921
Engineering Services as % of Construction	100%

**Type of Procurement:** Competitive Bid



COMMISSION MEETING MINUTES  
December 17, 2024

In accordance with HRSD's competitive sealed bidding procedures, the Engineering Division advertised and solicited bids directly from potential bidders. The project was advertised on September 19, 2024, and three bids were received on November 14, 2024, as listed below:

Bidder	Bid Amount
Consolidated Pipe & Supply Company, Inc.	\$480,267
Ferguson Enterprises, LLC	\$495,199
Metron Farnier, LLC	\$761,739

**Engineer Estimate:** \$2,422,346

The design engineer, Rummel, Klepper & Kahl, LLP, evaluated the bids based upon the requirements in the invitation for bid and recommends award to the lowest responsive and responsible bidder Consolidated Pipe & Supply Company, Inc. in the amount of \$480,267.

**Project Description:** As described in the Ownership Transfer and Service Agreement with the Town of Onancock, dated February 18, 2022, HRSD agrees to locate, inspect, and replace 795 water meters in the Town of Onancock and four water meters in the Town of Accomac with smart technology water meters and corresponding software. The four water meters in the Town of Accomac will be funded by the American Rescue Plan Act (ARPA).

**Project Justification:** The existing water meters are assumed to be outdated and in questionable condition; thus, HRSD has agreed to replace the water meters with new meters with automated reading features to ensure accurate billing moving forward. Although the water meters will be owned and operated by the Town of Onancock (Town) and Accomack County (County), HRSD will incorporate a Model 5 billing structure with the Town and County. Model 5 is designed for small towns, typically with less than 2,000 customers, where HRSD bills on behalf of the town and handles the billing work.

**Contract Description:** This contract is for construction services with Consolidated Pipe & Supply Company, Inc.

**Task Order Description:** This task order will provide construction administration and construction inspection from Rummel, Klepper & Kahl, LLP.

**Analysis of Cost:** This contract is for construction services with Consolidated Pipe & Supply Company, Inc. The bid amount of \$480,267 is 80% lower than the engineer's estimate of \$2,422,346. A review of the bid tabulation from Consolidated Pipe & Supply Company, Inc. was completed in comparison with the engineer's estimate. The engineer's estimate is based on plan material quantities, estimated labor requirements, supplier/vendor costs, average unit prices bid on recent similar projects and published cost data. A review of unit prices revealed the substantially lower bid costs were realized for each of the meter sizes. During the design process, meter costs were provided by the manufacturers/suppliers, including the low bidder. The bid results indicate the costs received for the specific meters included the



COMMISSION MEETING MINUTES  
December 17, 2024

installation costs. During design, the manufacturers did not indicate provided costs included labor and equipment for installation. Since this was not indicated, RK&K escalated material costs to account for labor and equipment required for installation. The addition of labor and equipment costs resulted in the large variance between the engineer's estimate and the bid results. The engineer's estimate was further escalated to account for the remote location of the project. Given the recent trend of increased construction costs for projects, the engineer's estimate was conservative in pricing the meter installation. Based on the bidders, these typical cost tendencies did not apply to this project. The cost for this construction contract has been reviewed by RK&K and has been found to be reasonable.

The proposed task order for RK&K has been reviewed and is reasonable for the amount of effort. The fee for construction administration is 20.7% of the construction cost, and the construction inspection is 21.2% of the construction cost. On smaller projects, higher construction administration and inspection percentages are reasonable.

<b><u>Schedule:</u></b>	Construction	January 2025
	Project Completion	July 2025

**Public Comment:** None





COMMISSION MEETING MINUTES  
December 17, 2024

8. **Providence Road Interceptor Force Main (SF-165) Segmental Replacement at Depositor Lane**  
**Initial Appropriation – Non-Regulatory**

**Action:** Appropriate total project funding in the amount of \$3,157,000.

**Moved:** Michael Glenn  
**Seconded:** Elizabeth Taraski

**Ayes:** 7  
**Nays:** 0

**CIP Project:** AT016700

**Regulatory Requirement:** None

**Project Description:** This project will address the replacement of a segment of a 36-inch reinforced concrete pressure pipe (RCPP) exposed in a creek crossing of Morgan Trail Creek along Providence Road in Virginia Beach. A trenchless installation method shall be used to provide the City with stream restoration at the site location. The attached [map](#) depicts the project location.

**Project Justification:** This project will replace a section of a 36-inch RCPP force main that is severely undermined at an exposed creek crossing due to stream bed and bank erosion. This pipe section is approximately 15-feet downstream of a stormwater headwall discharge for 21-inch, 36-inch and two 60-inch discharge pipes.

**Funding Description:** The total project cost estimate of \$3,157,000 includes \$110,000 in preliminary engineering phase services, \$264,000 in design phase services, \$2,233,000 in construction phase costs, and \$550,000 of project contingency and is based on a Class 5 CIP-prioritization level cost estimate prepared by Hazen and Sawyer. Engineering services will be completed by Hazen and Sawyer under the General Engineering Services annual services contract, and the cost for preliminary engineering services is below the \$200,000 Commission approval threshold.

<b><u>Schedule:</u></b>	PER	January 2025
	Design Delay	July 2025
	Design	January 2026
	Bid Delay	October 2026
	Construction	January 2027
	Closeout	January 2028

**Public Comment:** None



COMMISSION MEETING MINUTES  
December 17, 2024

9. **Suffolk Pump Station Replacement  
Additional Appropriation – Regulatory Required ( $\geq$ \$10,000,000), Contract Award  
( $>$ \$200,000), Task Order ( $>$ \$200,000)**

**Actions:**

- a. **Appropriate additional funding in the amount of \$43,811,024.**
- b. **Award a contract to MEB General Contractors, Inc. in the amount of \$45,531,000.**
- c. **Approve a task order with AECOM in the amount of \$1,895,728.**

**Moved:** Willie Levenston  
**Seconded:** Michael Glenn

**Ayes:** 7  
**Nays:** 0

**CIP Project:** NP010620

**Regulatory Requirement:** Rehab Action Plan Phase 2 (5/5/2027 Completion)

Budget	\$12,049,000
Previous Expenditures and Encumbrances	(\$3,880,196)
Available Balance	\$8,168,804
Proposed Contract to MEB	(\$45,531,000)
Proposed Task Order to AECOM	(\$1,895,728)
Proposed Contingency (10% of construction)	(\$4,553,100)
Project Shortage/Requested Additional Funding	(\$43,811,024)
Revised Total Project Authorized Funding	\$55,860,024

<b>Contract Status with Task Orders:</b>	<b>Amount</b>
Original Contract with AECOM	\$146,710
Total Value of Previous Task Orders	\$2,431,972
Requested Task Order	\$1,895,728
Total Value of All Task Orders	\$4,327,700
Revised Contract Value	\$4,474,410
Engineering Services as % of Construction	9.8%

**Type of Procurement:** Competitive Bid



COMMISSION MEETING MINUTES  
December 17, 2024

In accordance with HRSD's competitive sealed bidding procedures, the Engineering Division advertised and solicited bids directly from potential bidders. The project was advertised on October 28, 2024, and three bids were received on December 9, 2024 as listed below:

Bidder	Bid Amount
MEB General Contractors, Inc.	\$45,531,000
Garney Companies, Inc.	\$51,680,750
W.M. Schlosser Company, Inc.	\$66,722,000

**Engineer Estimate:** \$34,567,375

The design engineer, AECOM, evaluated the bids based upon the requirements in the invitation for bid and recommends award to the lowest responsive and responsible bidder, MEB General Contractors, Inc., in the amount of \$45,531,000.

**Project Description:** This project will relocate and replace the existing Suffolk Pump Station. In lieu of constructing one replacement pump station, two pump stations will be constructed. One pump station will be retained by HRSD as a replacement for the existing Suffolk Pump Station, the other pump station will be transferred to the City of Suffolk. The benefit of the two-pump station scenario includes abandonment/removal of the approximately 6,500 linear feet of 24-inch gravity sewer and 34 manholes along Shingle Creek. The existing Shingle Creek gravity sewer is located in wetlands with ongoing concerns for potential overflows, pipe failure and difficult access for maintenance. The project includes two new pump stations, 8,000 linear feet of force main, 2,100 linear feet of gravity sewer, 12 sanitary manholes, demolition of the existing Suffolk Pump Station and abandonment/ removal of 6,500 linear feet of 24-inch gravity sewer and 34 manholes. The project includes six trenchless crossings under both CSX and Norfolk Southern railroad tracks. The attached [map](#) depicts the project location.

**Project Justification:** The project will replace the existing Suffolk Pump Station with a station that meets both current needs and provides for future expansion. The existing pump station site does not provide the needed space for expansion, is difficult to access with large maintenance vehicles, and creates a nuisance for traffic in the surrounding neighborhood. The incoming Shingle Creek Gravity Sewer has rehabilitation needs, has had multiple failures in recent years, and is identified in the Rehabilitation Action Plan.

**Contract Description:** This contract is for construction phase services with MEB in the amount of \$45,531,000. The cost for the construction contract has been reviewed by AECOM and is 27% over the Engineer's estimate. The primary drivers for the cost disparity between the bid price and the Engineer's estimate are the tight project constraints at all locations, the high risk associated with the railroad crossings, the pipe installation in roadways and residential areas with associated damage mitigation monitoring, and material price escalation. The Engineer did not adequately account for the impacts of the tight sites on the trenchless subcontractors and the pipeline installation and abandonment.



COMMISSION MEETING MINUTES  
December 17, 2024

**Task Order Description and Analysis of Cost:** This task order will provide services during construction including contract administration and inspection services. HRSD and the design engineer, AECOM, negotiated a fee of \$1,895,728. The fee proposal is comparable to other projects of similar size and complexity. The fee for contract administration is 1.7% of the construction cost and the inspection fee is 2.3% of the construction cost.

**Funding Description:** The construction bid amount of \$45,531,000 and the fee for construction related engineering services exceeds the current balance available for this CIP project. A 10% construction contingency is also being requested to accommodate any unforeseen conditions.

<b><u>Schedule:</u></b>	Construction	January 2025
	Project Completion	March 2027

**Discussion Summary:** Commission Taraski stated she is glad to see this long-awaited project is finally moving forward.

**Public Comment:** None



COMMISSION MEETING MINUTES  
December 17, 2024

10. **Larchmont Area Sanitary Sewer Improvements  
Acquisition of Real Property for a Public Purpose – 900 Jamestown Crescent, Norfolk**

**Action:** Approve the purchase of a portion of property located at 900 Jamestown Crescent, further identified as a portion of City of Norfolk Acct. No: 02371000, and the associated total acquisition costs of \$41,200 and \$26,200 for additional considerations for a total price of \$67,400, in accordance with the terms and conditions of the Purchase Agreement with Shaune W. Meredith Trustee of Shaune W. Meredith Revocable Trust, owner of subject property; and authorize the General Manager to execute same and related acquisition documents in accordance with those terms and conditions substantially as presented, together with such changes, modifications and deletions as the General Manager may deem necessary.

<b>Moved:</b>	Willie Levenston	<b>Ayes:</b>	7
<b>Seconded:</b>	Nancy Stern	<b>Nays:</b>	0

**CIP Project:** VP015320

**Regulatory Requirement:** Rehab Action Plan Phase 2 (5/5/2027 Completion)

Budget	\$52,974,267
Previous Expenditures and Encumbrances	(\$40,736,063)
Available Balance	\$12,238,204

**Project Description:** This project involves rehabilitation of three existing pump stations, the design and construction of three new pump stations, and the design and construction of the associated force mains, gravity mains and appurtenances, all located in the Larchmont area of Norfolk. This work at this site will fulfill EPA's requirements for increased elevation, enclosed control panel room, as well as the redundant pump system.

**Project Justification:** This project was identified as part of a condition assessment program to address aging infrastructure concerns related to structural, electrical, and pump performance operations. These efforts will help mitigate the risks from tidal flooding during wet weather conditions and from sea level rise due to climate change. HRSD and City of Norfolk (City) jointly funded a comprehensive sanitary sewer master plan for the Larchmont sanitary sewer service area that encompassed pump station facilities and gravity collection systems associated with these pumping facilities.

**Acquisition Justification:** The existing below-ground Jamestown Crescent pump station site (located in the public ROW) does not allow for expansion or the required structures to be added. The acquisition site was strategically chosen due to its location directly abutting the existing Jamestown Crescent pump station site. This site will minimize construction costs and impacts to the public, as this site eliminates the need to find a new site large enough to relocate the existing pump station and redirect the existing pipelines throughout the



## COMMISSION MEETING MINUTES December 17, 2024

neighborhood. During construction the existing pump station will remain in service and continued use of the on-street parking, directly in front of the existing pump station and new site, will be utilized. With the approval for this acquisition, no additional acquisitions or easements are required for this Program.

**Agreement Description:** The attached [Purchase and Sale Agreement](#) was reviewed by HRSD staff and real estate legal counsel, with edits pending. The deed of bargain and sale will also be reviewed by HRSD staff and real estate legal counsel before execution. The attached [map](#), [site photo](#) and [rendering](#) depict the project location.

**Key Terms of the Agreement:** HRSD has made a commitment to the property owner and the following terms have been included as part of the overall consideration (purchase price) for the parcel.

- Design the structure to blend in with the home and detached garage, as if it were an original part of the larger property and buildings onsite currently
- Add an enhanced landscaping package that will also blend with the existing landscaping plan for the larger property.
- Removal of two large trees in the immediate area that would most likely not survive the construction and loss of water due to loss of immediate ground water source once the concrete pad and structure are in place
- Rerouting and reinstallation of the existing irrigation system being impacted by the work
- Install irrigation system to maintain the enhanced landscaping package on HRSD's parcel
- Use of the property owners existing and preferred landscaper, tree removal company, and irrigation contractors to provide the property owner with additional comfort during these efforts

**Analysis of Cost:** The cost for the acquisition is based on an appraisal by Dove Valuations, as well as negotiated settlement with the property owner for this preferred site, abutting the pump station, that reflects current fair market value acquisition costs in the area, as well as increased payment for two very large established trees needing to be removed as part of the project and site improvements surrounding the structure as considerations to make this acquisition acceptable to the property owner. This acquisition with a willing seller is critical to the overall project's success.

**Public Comment:** None



COMMISSION MEETING MINUTES  
December 17, 2024

11. **Section W Force Main Replacement**  
**Real Property - Easement Acquisition for a Public Purpose – 1612 W Little Creek Road, Norfolk**

**Action:** Approve the purchase of a 25-foot and variable width permanent utility easement on the property located at 1612 W Little Creek Road, further identified as GPIN Nos: 1520405653 and 152006924, and the associated acquisition costs of \$64,000 in accordance with the terms and conditions of the Purchase Agreement with Hampton Creek LLLP, owner of subject property; and authorize the General Manager to execute same and related acquisition documents in accordance with those terms and conditions substantially as presented, together with such changes, modifications and deletions as the General Manager may deem necessary.

**Moved:** Michael Glenn  
**Seconded:** Elizabeth Taraski

**Ayes:** 7  
**Nays:** 0

**CIP Project:** AB010500

**Regulatory Requirement:** None

Budget	\$2,570,000
Previous Expenditures and Encumbrances	(\$227,835)
Available Balance	\$2,342,165

**Project Description:** This project will design and construct a replacement interceptor for Line SF-006, approximately 2,642 linear feet of 10-inch cast iron force main, which is the discharge line from HRSD Pump Station #117 (North Shore Road). This project will include replacement main line valves, branch valves, associated appurtenances, and replace the existing force main through the walls into the pump station. Hydraulics Analysis Review Team (HART) analysis has determined that this force main will be downsized from 10-inch to 8-inch.

**Project Justification:** This project will replace the cast iron force main that was installed in 1948. There have been two documented repairs in 1964 and in 2005. Operations staff believes that there are additional undocumented repairs on the line. The pipeline is of a material and age for which HRSD has seen recent repeated failures in other parts of the interceptor system due to wastewater chemistry and soil corrosion.

**Agreement Description:** The attached [Purchase and Sale Agreement](#) was reviewed by HRSD staff and real estate legal counsel. The deed of bargain and sale will also be reviewed by HRSD staff and real estate legal counsel before execution. With approval of this easement acquisition, no additional new acquisitions or easements will be required. However, renewal of a license and separate 50-year term easement with the Navy, as well as clarification of existing easements with the Virginia Port Authority are required for this



COMMISSION MEETING MINUTES  
December 17, 2024

pipeline and are nearing completion. The attached [map](#) and [site photos](#) depict the project location.

**Analysis of Cost:** The cost for the acquisition is based on an appraisal by Dove Valuations, which reflects current market value acquisition costs in the area, mortgage review and release by the lender, property owner's legal fees, as well as negotiated settlement with the property owner who is concerned about impacts (temporary loss of parking spaces and noise and inconvenience) the work may cause for the owner and/or their tenants.

**Public Comment:** None





COMMISSION MEETING MINUTES  
December 17, 2024

12. **Hampton Roads Water Technology Innovation Ecosystem Briefing**

**Action:** No action is required.

**Brief:** HRSD is one of the most innovative utilities in the country. There is an opportunity where HRSD can increase our positive community impact by contributing to Economic Development in Hampton Roads. By leveraging HRSD's expertise and infrastructure and developing regional partnerships, we can create a Water Technology Innovation Ecosystem. This [briefing](#) provided more information on the concept.

**Discussion Summary:** The Commissioners agreed with the General Manager's proposal to explore the innovation ecosystem concept and to perform site assessments to evaluate the potential for co-location of industries as described in the presentation.

**Public Comment:** None



COMMISSION MEETING MINUTES  
December 17, 2024

13. **New Business – None**

14. **Unfinished Business – None**

15. **Commissioner Comments – None**

16. **Informational Items**

**Action:** No action required.

**Brief:** The items listed below were 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 – Design & Construction Cost Estimating Internal Assessment

b. [Strategic Measures Summary](#)

**Public Comment:** None

17. **Closed Meeting**

**Action:** Motion to go into Closed Meeting for discussion with legal counsel and staff regarding probable litigation (Specific Exemption: Va. Code §2.2-3711.A7)

**Moved:** Michael Glenn  
**Seconded:** Willie Levenston

**Ayes:** 7  
**Nays:** 0

**Exemption Description:** Consultation with legal counsel and briefing by staff members or consultants pertaining to probable litigation, where such consultation or briefing in open meeting would adversely affect the negotiating or litigating posture of the public body.



COMMISSION MEETING MINUTES  
December 17, 2024

18. **Reconvened Meeting**

**Certification of Proceedings:** Pursuant to Section 2.2-3712.D of the Code of Virginia, a roll call vote was conducted to certify that to the best of each Commission member's knowledge: (i) only public business matters lawfully exempted from open meeting requirements under this chapter, and (ii) only such public business matters as were identified in the motion by which the closed meeting was convened were heard, discussed or considered. Any Commissioner who believes there was a departure from these two requirements shall so state prior to the vote, indicating the substance of the departure.

**Roll Call Vote:**

**Ayes:** 7  
**Nays:** 0

**Action:** No action required.

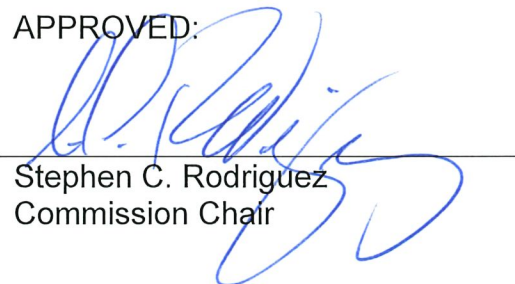
**Next Commission Meeting Date:** January 28, 2025 at the HRSD North Shore Operations Center, 2389 G. Avenue, Newport News, VA 23602

**Meeting Adjourned:** 12:59 p.m.

SUBMITTED:

APPROVED:

  
Jennifer L. Cascio  
Commission Secretary

  
Stephen C. Rodriguez  
Commission Chair

HRSD Commission Meeting Minutes  
December 17, 2024  
Attachment #1

2. Consent Agenda

CONSENT AGENDA ITEM 2.b.1. – December 17, 2024

**Subject:** Aveva PI Historian Software License and Support Services  
Contract Award (>\$200,000)

**Recommended Action:** Award a contract to Aveva Software LLC in the amount of \$137,328 for one year with two renewal options and an estimated cumulative value of \$411,984

**Regulatory Requirement:** None

**Type of Procurement:** Sole Source

**Contract Description:** This contract is for the purchase of Aveva PI Historian software license and annual support. This software will serve as the data historian for HRSD's Telog data. It enables digital transformation of operations data to derive useful insights such as creating custom reports and views to monitor processes and troubleshoot.

These services were previously supported by the OSIsoft PI Historian database software license agreement which will no longer be receiving updates or support. This switch ensures continued access to critical updates, support, and services, thereby enhancing the stability, performance, and security of our database systems. This transition is vital for maintaining operational efficiency and leveraging the latest advancements in data management and analytics provided by Aveva.

**Analysis of Cost:** The cost is determined to be fair and reasonable when compared to past contracts for similar services.

This work is in accordance with the Commission Adopted Procurement Policy.

## CONSENT AGENDA ITEM 2.b.2. – December 17, 2024

**Subject:** Concrete and Coatings Maintenance Services  
Contract Award (>\$200,000)

**Recommended Action:** Award a contract to Commonwealth Epoxy Coatings LLC in the amount of \$141,000 for one year with four renewal options and an estimated cumulative value of \$705,000.

**Regulatory Requirement:** None

**Type of Procurement:** Competitive Bid

In accordance with HRSD's competitive sealed bidding procedures, the Procurement Department advertised and solicited bids directly from potential bidders. The project was advertised on October 7, 2024, and one bid was received on November 13, 2024, as listed below:

Bidder	Bid Amount
Commonwealth Epoxy Coatings LLC	\$141,000

**Contract Description:** This contract is an agreement to provide, apply, and install concrete and protective coating systems to various structures and substrates throughout HRSD's service area. Projects under this agreement include leak repairs, joint repairs, and containment repairs of primary clarifiers, secondary clarifiers, and various buildings at HRSD Treatment Plants.

**Analysis of Cost:** This is an estimated use contract. Costs are determined to be fair and reasonable based on past purchase history of similar services. Commonwealth Epoxy held the previous five-year term agreement for these services.

This work is in accordance with the Commission Adopted Procurement Policy.

## CONSENT AGENDA ITEM 2.b.3. – December 17, 2024

**Subject:** Ferebee Avenue Pump Station Replacement  
Contract Award (>\$200,000), Task Order (>\$200,000), Additional Appropriation –  
Regulatory Required Capital Improvement Project (<\$10,000,000),

**Recommended Actions:**

- a. Award a contract to American Contracting & Environmental Services, Inc. (ACE) in the amount of \$9,243,000.
- b. Approve a task order with Gannett Fleming, Inc. in the amount of \$1,848,154.
- c. Appropriate additional funding in the amount of \$7,574,464.

**CIP Project: VP014010****Regulatory Requirement:** Rehab Action Plan Phase 2 (5/5/2026 Completion)

Budget	\$5,852,747
Previous Expenditures and Encumbrances	(\$1,411,757)
Available Balance	\$4,440,990
Proposed Contract to ACE	(\$9,243,000)
Proposed Task Order to Gannett Fleming	(\$1,848,154)
Proposed Contingency	(\$924,300)
Project Shortage/Requested Additional Funding	(\$7,574,464)
Revised Total Project Authorized Funding	\$13,427,211

<b>Contract Status with Task Orders:</b>	<b>Amount</b>
Original Contract with Gannett Fleming	\$163,516
Total Value of Previous Task Orders	\$751,924
Requested Task Order	\$1,848,154
Total Value of All Task Orders	\$2,600,078
Revised Contract Value	\$2,763,594
Engineering Services as % of Construction	30%

**Type of Procurement:** Competitive Bid

In accordance with HRSD's competitive sealed bidding procedures, the Engineering Division advertised and solicited bids directly from potential bidders. The project was advertised on October 16, 2024, and four bids were received on November 13, 2024, as listed below:

<b>Bidder</b>	<b>Bid Amount</b>
American Contracting & Environmental Services, Inc.	\$9,243,000
Shaw Construction Corporation	\$9,630,000
W.M. Schlosser Company, Inc.	\$10,366,000
MEB General Contractors, Inc.	\$12,914,000

**Engineer Estimate:** \$8,865,596

The design engineer, Gannett Fleming, evaluated the bids based upon the requirements in the invitation for bid and recommends award to the lowest responsive and responsible bidder, American Contracting & Environmental Services, Inc., in the amount of \$9,243,000.

**Project Description:** This project is to design and construct a replacement pump station for the Ferebee Avenue Pump Station which was built in 1951. The attached [map](#) depicts the project location.

**Project Justification:** This project will evaluate and implement the replacement of Ferebee Avenue Pump Station, as it is nearing the end of its useful life. This facility was inspected in 2008, 2011, and August 2013, as part of a Condition Assessment Program administered by Brown and Caldwell. Ferebee Avenue Pump Station was recommended for replacement and/or upgrades under Level 2 in the Rehabilitation program. An in-house hydraulic evaluation in 2014 identified several alternatives for maintaining this station as a lift station or revising its hydraulic capacity and connectivity to function as a terminal station. Final alignment and connectivity (to gravity or to the force main system) will significantly impact the design of both the Ferebee Avenue and Park Avenue pump stations. Preliminary engineering evaluations of these two stations will be conducted jointly.

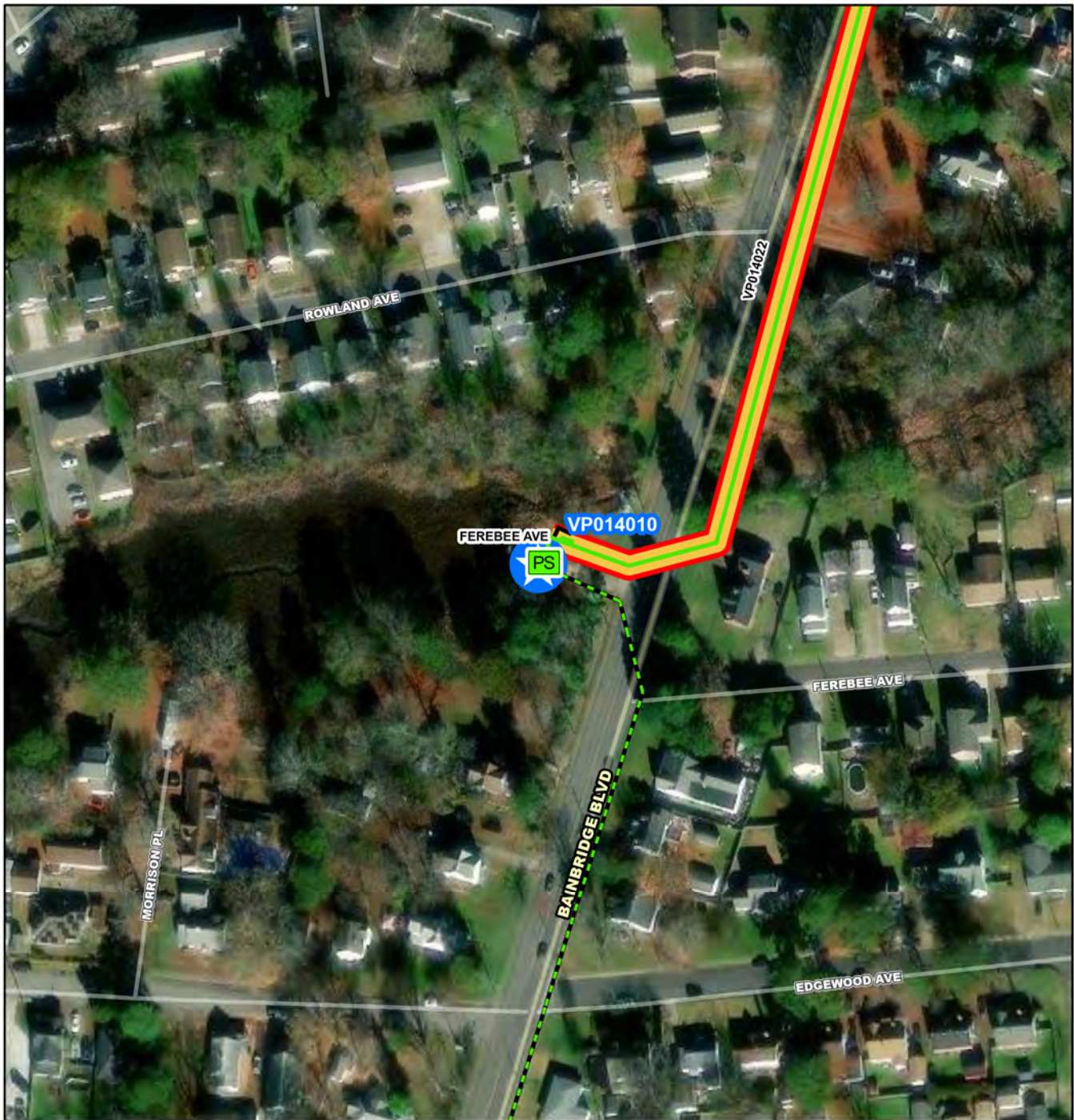
**Contract Description and Analysis of Cost:** This contract is for construction phase services with American Contracting & Environmental Services, Inc., in the amount of \$9,243,000. The bids received ranged between 104% and 146% of the Engineer's Estimate. The two lowest bids are within 4.1% of each other. This provides high confidence in the reasonableness and accuracy of the bids received for the work to be performed. While lower than the bids, the Engineer's Estimate was within 5% of the lowest bidder. Contractors indicated that the relatively compressed bid period (< 30 days) may have contributed to somewhat higher bids due to not being able to assemble firm quotes from all vendors and including additional risk.

**Task Order Description and Analysis of Cost:** This task order will provide services during construction including contract administration and field engineering and inspection services. HRSD and the design engineer, Gannett Fleming, negotiated a fee in the amount of \$1,848,154 based on an estimation of hours required for this project. The fee for contract administration is 9% of the construction cost and the field engineering and inspection is 7% of the construction cost, which is comparable to other projects of similar size and complexity.

**Funding Description:** The construction bid amount and the fee for construction related engineering services exceed the current balance available for the CIP project. This request also includes a 10% construction contingency to accommodate any unforeseen conditions.

<b><u>Schedule:</u></b>	Construction	February 2025
	Substantial Completion	January 2027
	Final Completion	February 2027





VP014010

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

**Legend**

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

0 45 90 180 270 360 Feet

**VP014010**

**Ferebee Avenue Pump Station Replacement**



CIP Location



## CONSENT AGENDA ITEM 2.b.4. – December 17, 2024

**Subject:** Fleet Management (FY-2025)  
Road Tractor for Biosolids Hauling  
Contract Award (>\$200,000)

**Recommended Action:** Award a contract to Peterbilt of Richmond Inc dba The Pete Store - Chesapeake in the amount of \$227,404.

**CIP Project:** GN020400

**Regulatory Requirement:** None

Budget	\$4,432,780
Previous Expenditures and Encumbrances	( <u>\$3,334,164</u> )
Available Balance	\$1,098,616

<b><u>HRSD Estimate:</u></b>	\$227,404
------------------------------	-----------

**Type of Procurement:** Use of Existing Contract Vehicle

**Project Description:** This project will provide for replacement of aging fleet vehicles and purchase of additional vehicles to meet the needs of the organization. An itemized list of vehicles to be replaced or added is maintained by the Support Services Department.

**Project Justification:** Replacement of aging vehicles will result in lower repair costs and the purchase of additional vehicles will provide for increased staff efficiency.

**Contract Description:** This contract is for the purchase of one Peterbilt 567 Day Cab Road Tractor for Biosolids Hauling. The tractor includes a Cummins X15 450HP motor, Allison 4,000RDS disc brakes, and 30-40 GPM installed hydraulic wet line kits.

Upon evaluation of the Sourcwell Contract 032824-PMC terms and conditions, as a public agency, HRSD is eligible to use the contract awarded to Peterbilt of Richmond Inc dba The Pete Store – Chesapeake.

**Analysis of Cost:** HRSD is receiving a 25 percent cost savings by utilizing the Sourcwell Contract 032824-PMC for Cab and Chassis, Vocational and Medium-duty Trucks, class 6, 7, and 8.

This work is in accordance with the Commission Adopted Procurement Policy.

# CONSENT AGENDA ITEM 2.b.5. – December 17, 2024

**Subject:** James River Treatment Plant MIFAS Conversion Emergency  
Contract Change Order (>25% of original contract value or \$50,000, whichever is greater)

## **Recommended Actions:**

- a. Approve a change order to the contract with Pioneer Industries LLC (Pioneer) in the amount of \$125,200.
- b. Approve a change order to the contract with World Waterworks (WWW) in the amount of \$335,445.
- c. Approve a change order to the contract with Colonial Welding (Colonial) in the amount of \$113,400.

**CIP Project:** JR013401

**Regulatory Requirement:** None

Budget	\$6,201,000
Previous Expenditures and Encumbrances	(\$5,528,451)
Available Balance	\$672,549
Proposed Change Order to Pioneer	(\$125,200)
Proposed Change Order to WWW	(\$335,445)
Proposed Change Order to Colonial	(\$113,400)
Available Balance	\$98,504

<b>Contract Status with Change Orders:</b>	<b>Amount</b>	<b>Cumulative % of Contract</b>
Original Contract with Pioneer	\$44,253	
Total Value of Previous Change Orders	\$422,955	956%*
Requested Change Order	\$125,200	
Total Value of All Change Orders	\$548,155	1239%*
Revised Contract Value	\$592,408	

\*High total value due to part of the work performed under Emergency Declaration in an initially very small scope (less than \$10,000).

<b>Contract Status with Change Orders:</b>	<b>Amount</b>	<b>Cumulative % of Contract</b>
Original Contract with WWW	\$1,298,750	
Total Value of Previous Change Orders	\$79,200	6%
Requested Change Order	\$335,445	
Total Value of All Change Orders	\$414,645	32%
Revised Contract Value	\$1,713,395	

<b>Contract Status with Change Orders:</b>	<b>Amount</b>	<b>Cumulative % of Contract</b>
Original Contract with Colonial	\$665,000	
Total Value of Previous Change Orders	\$387,220	58%
Requested Change Order	\$113,400	
Total Value of All Change Orders	\$500,620	75%
Revised Contract Value	\$1,165,620	

**Project Description:** This project modified the James River Treatment Plant (JRTP) integrated fixed-film activated sludge (IFAS) basins by adding a second anoxic zone to achieve partial denitrification-anammox (PdNA).

Parallel with the James River Treatment Plant Advanced Nutrient Reduction Improvements (ANRI) (JR013400) project, it was decided to upgrade the JRTP aeration tanks from an anaerobic-anoxic-aerobic (A2O) configuration to a 5-stage Bardenpho with moving media IFAS (MIFAS) PdNA in a newly created second anoxic zone in 8 of the 9 IFAS tanks. PdNA MIFAS provides considerable operational cost savings, but more importantly, this is needed to meet nitrogen limits in the future for the James River SWIFT Facility (GN016360) and to meet new total nitrogen discharge requirements. PdNA MIFAS construction began immediately before the large SWIFT/ANRI design-build project (GN016360/JR013400) construction project to avoid significant conflicts with the larger project performing construction in the same space to upgrade the secondary clarifiers. For this reason, the project was declared an emergency on February 11, 2022.

This initial MIFAS construction allowed HRSD to get the needed mechanical equipment installed for a PdNA MIFAS zone on a very rapid timeline. MIFAS was started in one tank and has demonstrated anammox and PdNA activity, confirming the full-scale validity of this technology. Other tanks are starting up as the ANRI project sequence proceeds. The optimization of this MIFAS process must continue in the same sequence with which tanks are out-of-service for the ANRI portion (JR013400) of construction to meet the timeline needed for nutrient limits. This is even more critical with the ANRI polishing moving bed bioreactor (MBBR) construction schedule delaying completion until late in 2026.

**FIFAS Replacement** - As a full-scale pilot test for other HRSD plant PdNA upgrades, one of the 9 IFAS tanks was upgraded with fixed media IFAS (FIFAS). This tank was placed in service in November 2022 and demonstrated anammox and PdNA activity. It was operated through March 2024. This tank is now out of service with the sequence of construction on the ANRI project work, and it has been decided that it will be converted to a MIFAS configuration to match the other 8 second anoxic zones since the MIFAS was found to outperform the FIFAS technology in the small anoxic zone available at JRTP. ANRI construction will finish in the area of tank 8 by March 1, 2025, and we would like to remove the FIFAS modules and update tank 8 with MIFAS to match the other eight tanks.

**Influent screen updates on MIFAS** – The installation of MIFAS at James River was the first time influent screens had been attempted on a moving media reactor. Wedge wire style screens are normally used on the effluent end of a reactor since they have more open surface, and this minimizes head loss. These same wedge wire screens were also used on the influent of MIFAS. What we have learned with this influent screen scenario is that wedge wire is not the best option for this location. Testing in one tank has demonstrated that perforated plates for the influent screen will reduce head loss across this zone, reduce maintenance associated with screen cleaning, and improve reliability by maximizing flow through the MIFAS zone.

Heavy Media Replacement (two tanks) – It has been determined from the original full-scale MIFAS pilot that plastic biofilm carriers impregnated with calcium carbonate to achieve a specific gravity of about 0.98 mix much better than normal plastic-only media (0.94 SG) due to the thinner biofilm developed under PdNA conditions. With improved mixing, we can reduce mixer speed in this zone, which increases the life of the media and reduces energy costs. Heavy media is currently operating in 7 of the 9 full-scale tanks. This change order includes replacing the normal media in the original MIFAS pilot tank and purchase of heavy media for what was the FIFAS tank.

**Project Justification:** PdNA MIFAS provides considerable operational cost savings, but more importantly, this is needed to meet nitrogen limits in the future for James River SWIFT and to meet new total nitrogen discharge requirements.

**Change Order Description and Analysis of Cost:** These change orders include replacing the original MIFAS media with heavy media, updating the MIFAS influent screens to perforated plate, and replacing the pilot FIFAS zone with MIFAS technology. WWW will provide the MIFAS equipment package for tank 8 (screens, media, mixer), the perforated plate influent screens for the other remaining MIFAS tanks, and the heavy media for the original MIFAS tank. Colonial will provide stainless-steel baffle walls and the mixer beam for the MIFAS zone. Pioneer will remove the FIFAS modules and install all the MIFAS equipment into tank 8.

The cost of these change orders is based on a negotiated price between HRSD and the three contractors: Pioneer, WWW, and Colonial. These costs were determined to be fair and reasonable based on other similar efforts from these contractors.

This work is in accordance with the Commission Adopted Procurement Policy.

**Schedule:**      Project Completion                      June 2025



CONSENT AGENDA ITEM 2.b.6. – December 17, 2024

**Subject:** Metrohm Ion Chromatography and Agilent Triple Quadrupole Preventive Maintenance Services  
Contract Award (>\$200,000)

**Recommended Action:** Award a contract to Agilent Technologies Inc. in the amount of \$66,374 for one year with four renewal options and an estimated cumulative value of \$331,871.

**Regulatory Requirement:** VPDES or Other Regulatory Sampling Requirement (CEL projects)

**Contract Description:** This contract is for preventive maintenance services for the 940 Ion Chromatography (IC) Conductivity Detector and the Agilent 6475 Triple Quadrupole LC/MS System. These services include detailed inspection, calibration, software updates, replacement of worn or consumable parts, and functional testing of the equipment to ensure compliance with operational standards and manufacturer specifications. Preventative maintenance ensures accurate and consistent analysis by verifying and optimizing the conductivity cell's functionality, calibrating the system, and addressing any potential issues that could compromise analytical results.

Both instruments were a sole source purchase in September 2023.

**Analysis of Cost:** The cost was determined to be fair and reasonable when compared to previous preventive maintenance contracts for similar instruments.

This work is in accordance with the Commission Adopted Procurement Policy.

# CONSENT AGENDA ITEM 2.b.7. – December 17, 2024

**Subject:** South Norfolk Area Gravity Sewer Improvements, Phase II  
Contract Award (>\$200,000), Task Order (>\$200,000), Additional Appropriation –  
Regulatory Required Capital Improvement Project (<\$10,000,000)

## **Recommended Actions:**

- a. Award a contract to Tidewater Utility Construction, Inc. (TUCI) in the amount of \$14,397,200.
- b. Approve a task order with Brown and Caldwell in the amount of \$705,380.
- c. Appropriate additional funding in the amount of \$6,839,652.

## **CIP Project: AT013110**

## **Regulatory Requirement:** Rehab Action Plan Phase 2 (12/31/2025 Completion)

Budget	\$10,566,000
Previous Expenditures and Encumbrances	(\$863,352)
Available Balance	\$9,702,648
Proposed Contract to TUCI	(\$14,397,200)
Proposed Task Order to Brown and Caldwell	(\$705,380)
Proposed Contingency	(\$1,439,720)
Project Shortage/Requested Additional Funding	(\$6,839,652)
Revised Total Project Authorized Funding	\$17,405,652

<b>Contract Status with Task Orders:</b>	<b>Amount</b>
Original Contract with Brown and Caldwell	\$215,901
Total Value of Previous Task Orders	\$647,450
Requested Task Order	\$705,380
Total Value of All Task Orders	\$1,352,830
Revised Contract Value	\$1,568,731
Engineering Services as % of Construction	10.9%

## **Type of Procurement:** Competitive Bid

In accordance with HRSD's competitive sealed bidding procedures, the Engineering Division advertised and solicited bids directly from potential bidders. The project was advertised on October 21, 2024, and two bids were received on November 22, 2024, as listed below:

<b>Bidder</b>	<b>Bid Amount</b>
Tidewater Utility Construction, Inc.	\$14,397,200
Bridgeman Civil, Inc.	\$15,882,630

**Engineer Estimate:** \$11,173,377

The design engineer, Brown and Caldwell, evaluated the bids based upon the requirements in the invitation for bid and recommends award to the lowest responsive and responsible bidder, Tidewater Utility Construction, Inc., in the amount of \$14,397,200.

**Project Description:** This project will rehabilitate and/or replace gravity sewer segments and manholes in the South Norfolk area of Chesapeake. The attached [map](#) depicts the project location.

**Project Justification:** Condition assessment activities indicate that these assets present a material risk of failure due to Infiltration and Inflow (I/I) and physical condition defects.

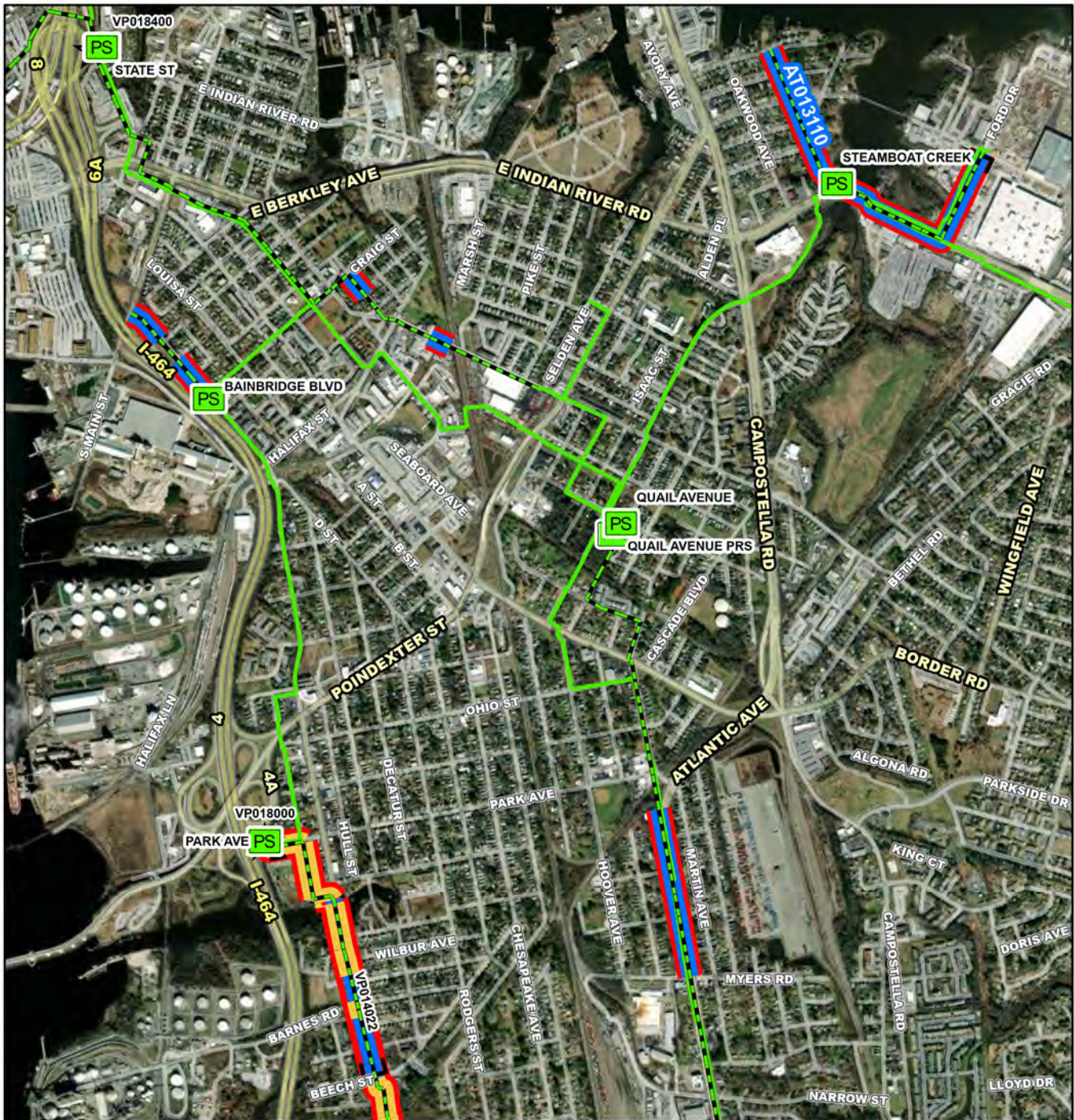
**Contract Description and Analysis of Cost:** This contract is for construction phase services with Tidewater Utility Construction, Inc. in the amount of \$14,397,200. The Engineer's Estimate was 22% lower than the low bid and can be largely attributed to the increased unit bid prices for gravity sewer (3x higher), sewer point repairs (7x higher), and asphalt repair/replacement (2-5x higher). The Engineer reviewed other bids from 2024 to estimate the cost of the work. As a point of comparison, the applicable unit prices in HRSD's Sewer Repair and Condition Assessment (SRCA) contract with Tidewater Utility Construction, Inc. are more in line with the Engineer's estimate; however, the SRCA contract reflects pre-pandemic unit pricing and this project cannot be completed under the SRCA contract due to the value of the work (i.e., greater than \$500,000). Although much higher than the Engineer's estimate, the gravity sewer unit prices were relatively similar between the two bidders and may reflect additional risk associated with high groundwater and access challenges. The high sewer point repair unit price reflects the bidder's intent to dig and repair instead of the intended internal grout repair. Finally, the high asphalt repair/replacement unit prices reflect the bidder's strategy to carry additional contingency in this item to mitigate profit risk.

**Task Order Description and Analysis of Cost:** This task order will provide services during construction including contract administration and field engineering and inspection services. HRSD and the design engineer, Brown and Caldwell, negotiated a fee in the amount of \$705,380 based on an estimation of hours required for this project. The fee for contract administration is 2.1% of the construction cost and the field engineering and inspection is 2.6% of the construction cost, which is lower than similar efforts for comparable projects.

**Funding Description:** The construction bid amount and the fee for construction related engineering services exceed the current balance available for the CIP project. This request also includes a 10% construction contingency to accommodate any unforeseen conditions.

<b><u>Schedule:</u></b>	Construction	February 2025
	Substantial Completion	October 2025
	Final Completion	December 2025





**AT013110**

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

**Legend**

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

0 500 1,000 2,000 3,000 4,000 Feet

## AT013110

### South Norfolk Area Gravity Sewer Improvements, Phase II

N  
W E  
S

CIP Location



## CONSENT AGENDA ITEM 2.c.1. – December 17, 2024

**Subject:** King William Treatment Plant Improvements Phase II  
Task Order (>\$200,000)

**Recommended Action:** Approve a task order with AH Environmental Consultants, Inc. in the amount of \$331,168.

**CIP Project:** MP013300

**Regulatory Requirement:** None

Budget	\$16,923,311
Previous Expenditures and Encumbrances	(\$3,776,909)
Available Balance	<u>\$13,146,402</u>

<b>Contract Status with Task Orders:</b>	<b>Amount</b>
Original Contract with Engineer	\$277,961
Total Value of Previous Task Orders	\$2,255,321
Requested Task Order	\$331,168
Total Value of All Task Orders	\$2,586,489
Revised Contract Value	\$2,864,450
Engineering Services as % of Construction (Revised Scope)	18.5%

**Project Description:** This project will increase capacity for the King William Treatment Plant from 100,000 gallons per day (GPD) Average Daily Flow (ADF) to a firm capacity of 150,000 GPD ADF.

**Project Justification:** King William Treatment Plant can currently treat 100,000 GPD ADF. Development in King William County has been accelerating in recent years. New subdivisions are planned, and construction has ramped up in existing subdivisions adding additional flow. Buildout of approved subdivision will require an expansion of capacity beyond 100,000 GPD ADF.

**Task Order Description:** This task order will provide design for the installation of a package membrane filtration system for the King William Treatment Plant. The previous task orders for this project, as detailed in the table above, provided the design of a new treatment plant to completely replace King William Treatment Plant. The previous effort was revisited due to the 90% Design Submittal cost estimate for construction of a new treatment plant. Instead, a package membrane filtration system has been purchased and will be integrated into King William Treatment Plant to increase capacity to 150,000 GPD ADF.

**Analysis of Cost:** The cost for this Design task order of \$331,168 was negotiated with AH Environmental Consultants, Inc. The fee is 18.5% of the construction cost estimate for installation of the package membrane filtration system. This cost is comparable to other projects of similar size and complexity.

The construction will be done by HRSD Project Team, in-house personnel.

<b><u>Schedule:</u></b>	Design	December 2024
	Construction	May 2025
	Project Completion	December 2025

## CONSENT AGENDA ITEM 2.c.2. – December 17, 2024

**Subject:** Park Avenue Pump Station Replacement  
Task Order (>\$200,000)

**Recommended Action:** Approve a task order with Gannett Fleming, Inc. in the amount of \$340,786.

**CIP Project:** VP018000

**Regulatory Requirement:** Rehab Action Plan Phase 2 (12/31/2025 Completion)

Budget	\$15,366,578
Previous Expenditures and Encumbrances	(\$15,025,323)
Available Balance	\$341,255

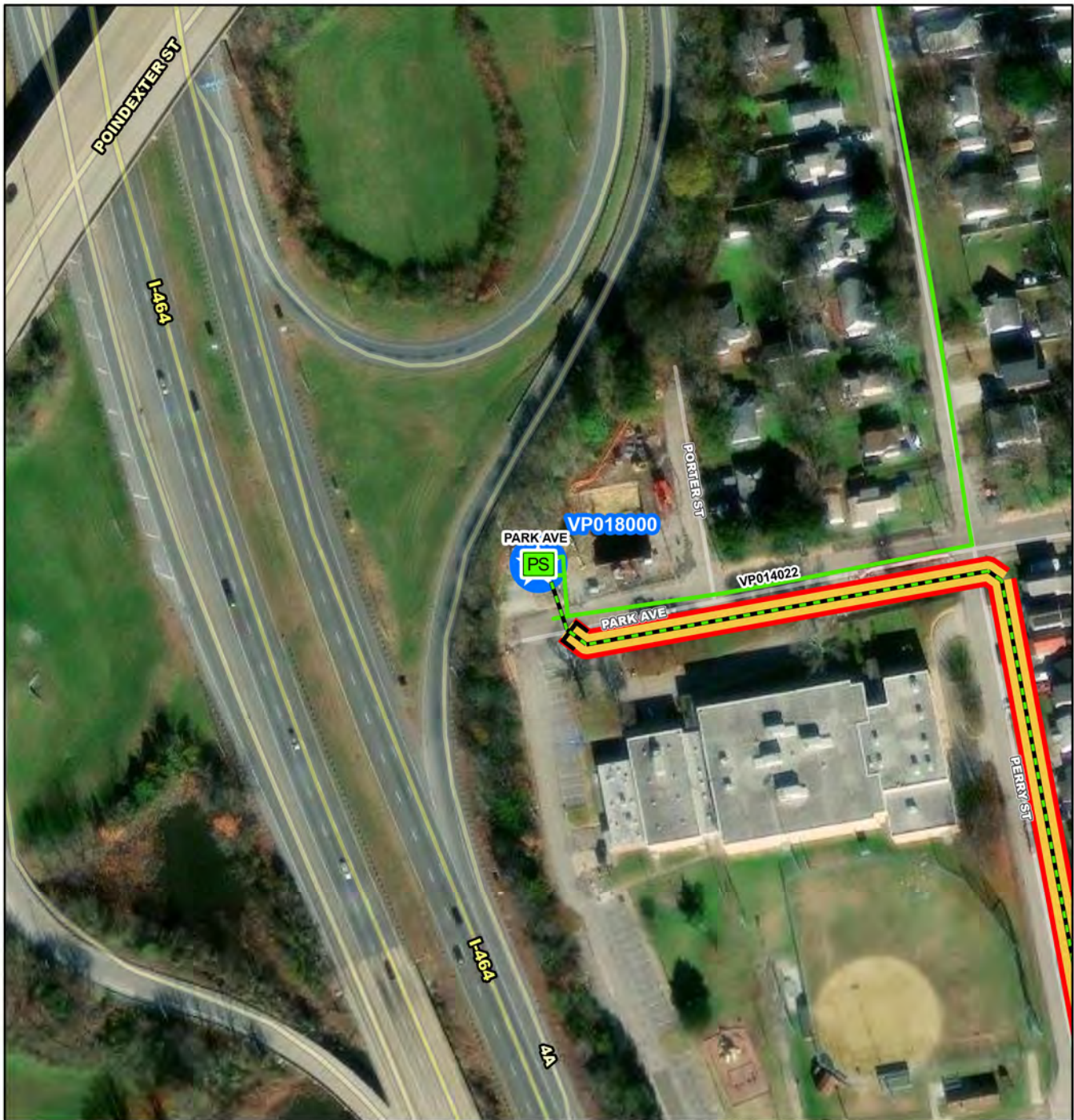
<b>Contract Status with Task Orders:</b>	<b>Amount</b>
Original Contract with Gannett Fleming	\$177,355
Total Value of Previous Task Orders	\$2,418,502
Requested Task Order	\$340,786
Total Value of All Task Orders	\$2,759,288
Revised Contract Value	\$2,936,643
Engineering Services as % of Construction	24.2%

**Project Description:** This project will construct a replacement pump station for the existing Park Avenue Pump Station which was built in 1922. The attached [map](#) depicts the project location.

**Project Justification:** The existing facility was inspected as part of the Condition Assessment Program and was recommended for replacement due to operational issues related to aging equipment and infrastructure. The project is included in HRSD's EPA Rehabilitation Action Plan Phase Two and needs to be completed by May 2025.

**Task Order Description and Analysis of Cost:** This task order will provide additional construction phase services. A stop work order issued in March 2023 lasted for 216 days; when combined with approved change orders, the overall project duration has been extended 283 days. Additional contract administration and field engineering and inspection services encompass critical tasks necessary for project completion. Substantial completion and final completion are scheduled for March 2025 and August 2025 respectively. The cost is based on previously agreed upon billing rates and anticipated hours needed until project completion.

<b><u>Schedule:</u></b>	Bid	March 2022
	Construction	June 2022
	Project Completion	August 2025



VP018000

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

**Legend**

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

0 45 90 180 270 360 Feet

**VP018000**

**Park Avenue Pump Station Replacement**



CIP Location





## CONSENT AGENDA ITEM 2.d.1. – December 17, 2024

**Subject:** Lucas Creek Pump Station Replacement  
 Additional Appropriation - Regulatory Required Capital Improvement Project  
 (<\$10,000,000)  
 Contract Change Order (>25% of original contract value)

**Recommended Actions:**

- a. Appropriate additional funding in the amount of \$1,538,539.
- b. Approve a change order to the contract with Kiewit Infrastructure South Company in the amount of \$3,958,539.

**CIP Project: JR013500****Regulatory Requirement:** Rehab Action Plan Phase 2 (12/31/2025 Completion)

Budget	\$26,076,376
Previous Expenditures and Encumbrances	<u>(\$22,776,376)</u>
Available Balance	\$3,300,000
Proposed Change Order to Contractor	(\$3,958,539)
Proposed Amendment to Engineer	(\$380,000)
Proposed Contingency	(\$500,000)
Project Shortage/Requested Additional Funding	(\$1,538,539)
Revised Total Project Authorized Funding	<u>\$27,614,915</u>

<b>Contract Status with Change Orders:</b>	<b>Amount</b>	<b>Cumulative % of Contract</b>
Original Contract with Contractor	\$19,285,068	
Total Value of Previous Change Orders	\$1,203,388	6.24%
Requested Change Order	\$3,958,539	
Total Value of All Change Orders	\$5,161,927	26.8%*
Revised Contract Value	\$24,446,995	
Time (Additional Calendar Days)		215

\*20% of the change order rate is for Owner requested changes. Costs for changes will be negotiated.

**Project Description:** This project includes the replacement of the existing Lucas Creek Pump Station to include all yard piping and an addition of two flow meters and vaults. After evaluating several alternatives and taking into consideration cost projections, it was determined that replacement of the pump station was the optimal solution to address conditional and operational issues. The attached [map](#) depicts the project location.

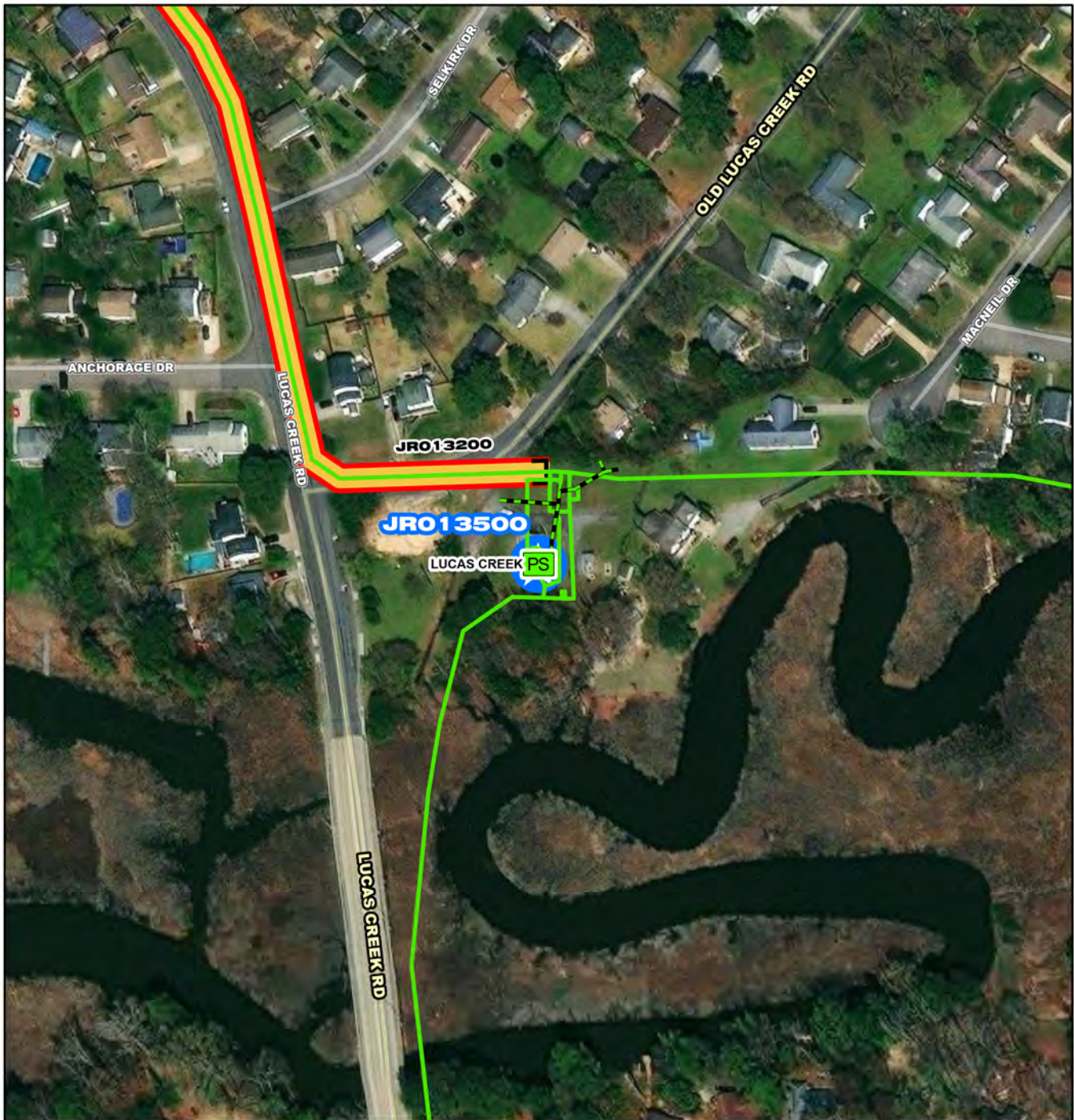
**Project Justification:** This project is required to provide expanded operational flexibility in the North Shore system. The new Kiln Creek Interceptor Force Main (IFM) and Route 171 IFM, in conjunction with upgrades to Lucas Creek, will reduce system pressures during wet weather events.

**Analysis of Cost and Change Order Description:** The cost is based on negotiated Contractor proposals and Engineer estimates for unforeseen conditions and necessary changes as well as Owner requested changes to the construction contract scope and price. Owner requested items include changes to electrically actuated yard valves to allow for regulation of force main pressures.

This change resulted in electrical, site plan and yard piping modifications as well as an increased contract duration and associated overhead. Additionally, the Owner has requested to install a gate valve for pump station isolation in lieu of the originally scoped sluice gate due to the increased longevity and reduced maintenance associated with the gate valve when compared to the sluice gate. The requested amount also includes an estimated increase in contract administration and inspection for the Consultant due to the extended contract duration.

**Funding Description:** This request includes a 2.6% contingency based on the original contract price. The estimated amount for this work exceeds the available project balance by \$1,538,538.55.

<b><u>Schedule:</u></b>	Construction	June 2022
	Project Completion	December 2025



**JRO13500**

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

**Legend**

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

0 55 110 220 330 440 Feet

**JRO 13500**

**Lucas Creek Pump Station Replacement**



**CIP Location**



HRSD Commission Meeting Minutes  
December 17, 2024  
Attachment #2

3. Residential Customer Survey





Customer Billing – An Overview  
Commission Meeting  
December 17, 2024

## Customer Billing Business Model

66%

**HRSD**

- County of York
- James City
- Gloucester
- Isle of Wight
- Mathews County
- Newport News Water Works
- Portsmouth
- Virginia Beach
- Windsor

34%

Hampton Roads Utility Billing Service

**HRUBS**

- Chesapeake
- Norfolk
- King William County
- Suffolk
- County of Surry
- Town of Surry
- Urbanna
- Smithfield

- General environmental conditions for Customer Care are difficult
  - Sometimes customer's willingness to pay has become challenging
- Business model is unique & sometimes challenging
  - HRSD – customer receives 2 bills
  - HRUBS – consolidated bills
- Good for region, but adds levels of complexity

---

## Some Current Challenges

---

- Localities own and read meters initiating the billing process
- Arrangements with HRUBS clients varies greatly
- Calls are often about services not provided by HRSD
  - Customer must be referred to locality
  - Recent localities challenges occurred before and during survey timing
- Varying arrangements creates confusion and complexity

- 5+ Year Strategic Plan Development
  - Improved Customer Experience
    - Customer Engagement Portal
    - Bill Redesign
    - Retail Payment Locations (Walmart, Kroger, etc)
    - Leverage social media for enhanced communications
  - Billing System Improvements
    - CC&B Cloud conversion
    - Functional efficiencies
    - Standardize HRSD Billing models and service





# Hampton Roads Sanitation District

Customer Satisfaction Study Wave 4

December 2024



# Report Contents

---

- I. Research Objectives and Methodology
- II. Executive Summary
- III. Respondent Profile
- IV. Key Findings
  - 1. Familiarity and Satisfaction
  - 2. Bill Payment
  - 3. Customer Care
  - 4. HRSD Website
  - 5. Communications
- V. Appendix



# Research Objectives and Methodology

**Research Objectives:** The overall goal of this study is to monitor residential customer satisfaction via a tracking tool that provides rich insights and actionable findings, with specific objectives including:

- Customer awareness, satisfaction, and value of HRSD/HRUBS
- Customer satisfaction with HRSD customer service, billing, and payment options
- Customer use of and satisfaction with the HRSD website
- Compare 2024 Wave 4 results to 2018, 2020, and 2022 benchmarks where possible

## Research Methodology:

- S.I.R. administered an 8-minute survey among HRSD residential customers ages 18 and older who play a role in the payment of utility bills across the 18 different geographical areas served.
  - All responses were collected from a random sample of HRSD customers who currently have a working email address on file. This list of customers was provided by HRSD.
- The survey was fielded between August 21 and September 4, 2024.
- 1,726 survey responses were collected and analyzed.

# Segmentation & Survey Geography

- S.I.R. analyzed the survey responses based on a wide range of variables to identify important differences among residential customers. Those include:
  - Geography and region
  - Respondent age or generation
  - Gender
  - HRSD vs. HRUBS customers
- In most cases, few significant differences appear; however, segments with large significant differences in responses are noted in this report.
- Only residents residing in the 19 counties and cities were offered the opportunity to participate.
- Respondents were also screened to ensure they have a primary or shared role in utility bill payment.



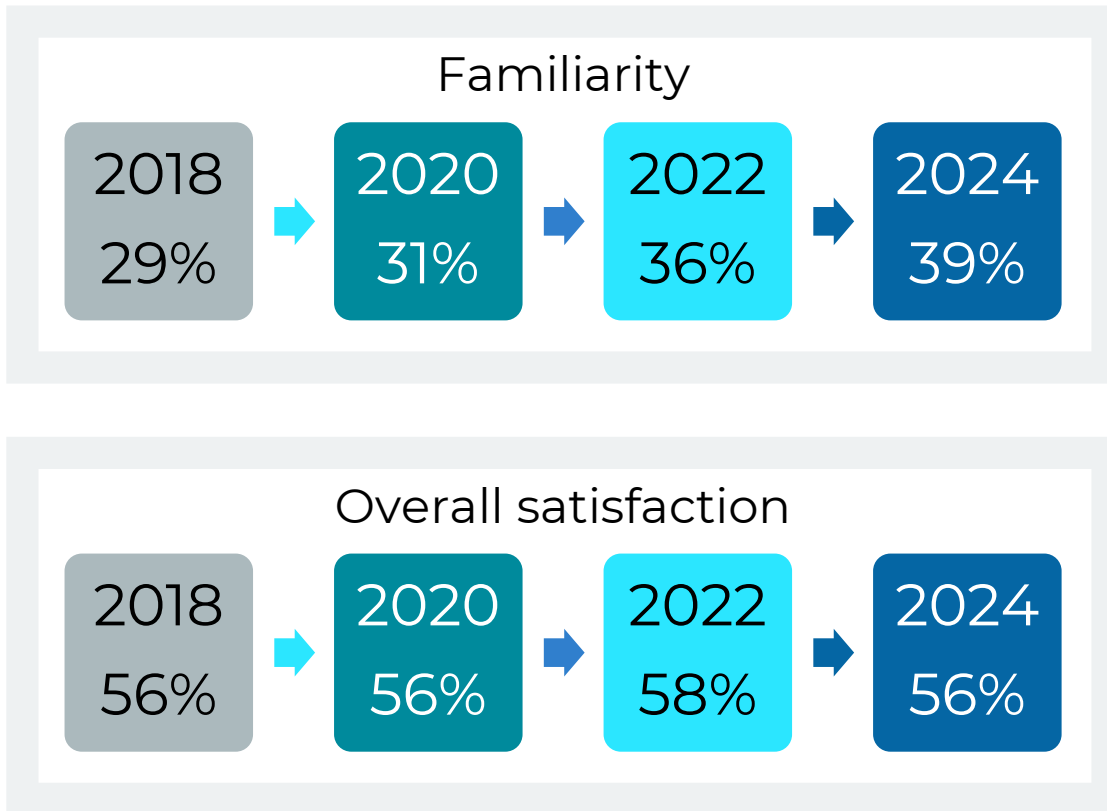


# Executive Summary



## Overall ratings of HRSD

Familiarity has increased significantly from prior survey waves, while overall satisfaction has remained consistent.



# 37%

of respondents say there is a high value of services for the fees paid

Note: Value question asked near the beginning of the survey to avoid influencing responses

## Customer Care: Satisfaction & Attributes

Satisfaction with customer care has significantly decreased from 2022.  
Satisfaction with friendliness, knowledge, and ease of contact remain highest among customer care attributes.



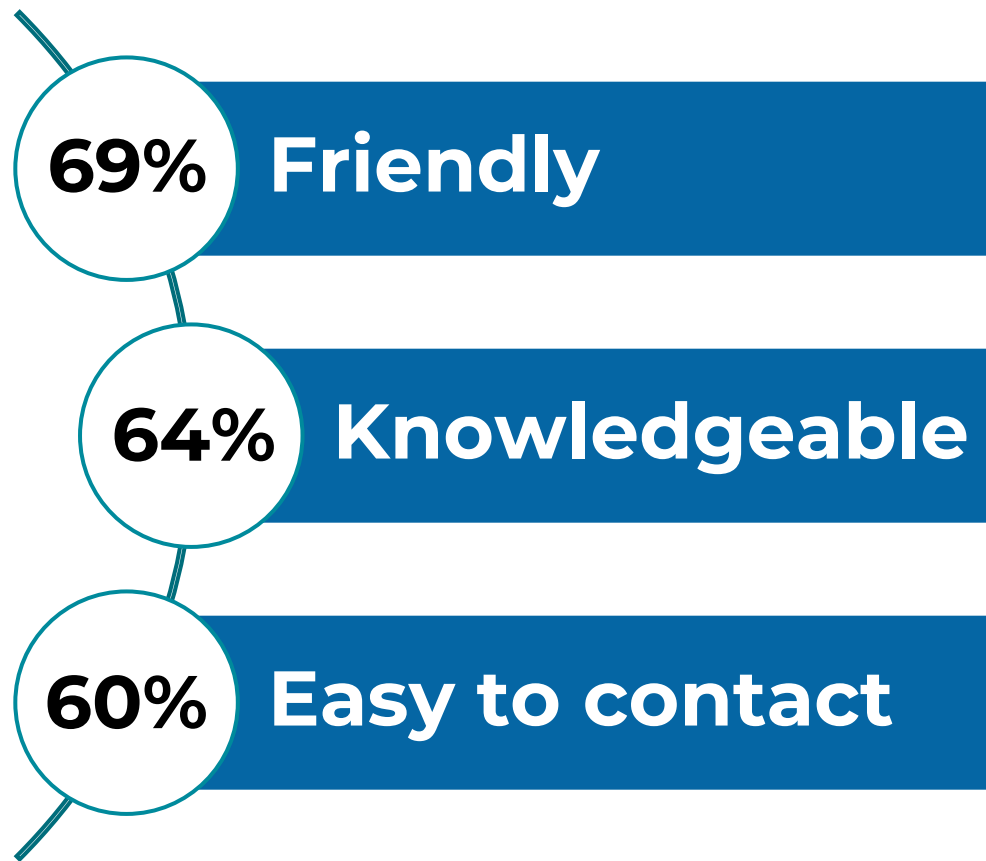
# 49%

of respondents are  
satisfied with HRSD  
customer care

Satisfaction is down  
significantly from 2022 by 8%



## Top attributes of customer care



## Bill Payment

The majority of those surveyed receive and pay their bills online and rate the website highly. However, when faced with a billing issue, most reach out via telephone. This is especially true of older generations.



**77%**

receive bills online  
or via email,  
consistent with  
prior survey waves



**70%**

use the website to  
pay their bill

**69%**

are satisfied with  
the website



**70%**

reach out via  
phone when faced  
with a billing issue

## Billing Satisfaction

Satisfaction with various elements of billing services remains in a similar ranking order as prior waves but is significantly down almost across the board, with some elements experiencing consecutive decreases over each survey wave.

- **Payment options**
- ↓ **Consistent service**
- ↓ **Adequacy of billing information**
- **Minimizing environmental impact**
- ↓ **Bill Accuracy**
- ↓ **Understanding utility charges**
- ↓ **Understanding additional fees**
- ↓ **Fees that are charged**



**Consistency of service** and **accuracy of bills** have decreased in satisfaction significantly over multiple waves – the only elements to do so.

- No significant change from prior wave
- ↓ Significantly lower than prior wave

# Respondent Profile

# Respondent Profile

Demographic	Group	Sample %
Generation	Gen Z (born after 1996)	1%
	Millennials (born 1981 – 1996)	16%
	Gen X (born 1965 – 1980)	24%
	Boomer+ (born before 1965)	40%
Gender	Male	38%
	Female	53%
	Nonbinary or genderqueer	<1%
	Other	<1%



Q28: In what year were you born?

Q29: Are you:

Note: Nearly all questions included a “prefer not to answer” option. The proportion selecting “prefer not to answer” is not presented above, so percentages may not sum to 100 percent.

# Respondent Profile

Geography	Count	Sample %
Virginia Beach	525	30%
Chesapeake	229	13%
Norfolk	221	13%
Williamsburg	172	10%
Newport News	150	9%
Hampton	110	6%
Suffolk	88	5%
Portsmouth	83	5%
Yorktown	65	4%
Poquoson	26	2%
Smithfield	15	1%
Toano	14	1%
Other areas	28	2%



# Key Findings

1. Familiarity and Satisfaction
2. Bill Payment
3. Customer Care
4. HRSD Website
5. Communications

# 1. Familiarity & Satisfaction

# 1. Familiarity and Satisfaction



Familiarity with HRSD/HRUBS has increased from 2022, continuing the trend of incremental gains with each study wave.



Boomer respondents (born before 1965), more than any other generation, are more likely to be satisfied with HRSD and rate HRSD as having excellent value.



Increased familiarity with HRSD/HRUBS significantly lifts overall satisfaction and value ratings.



**39%**

of respondents are very familiar with HRSD.

**56%**

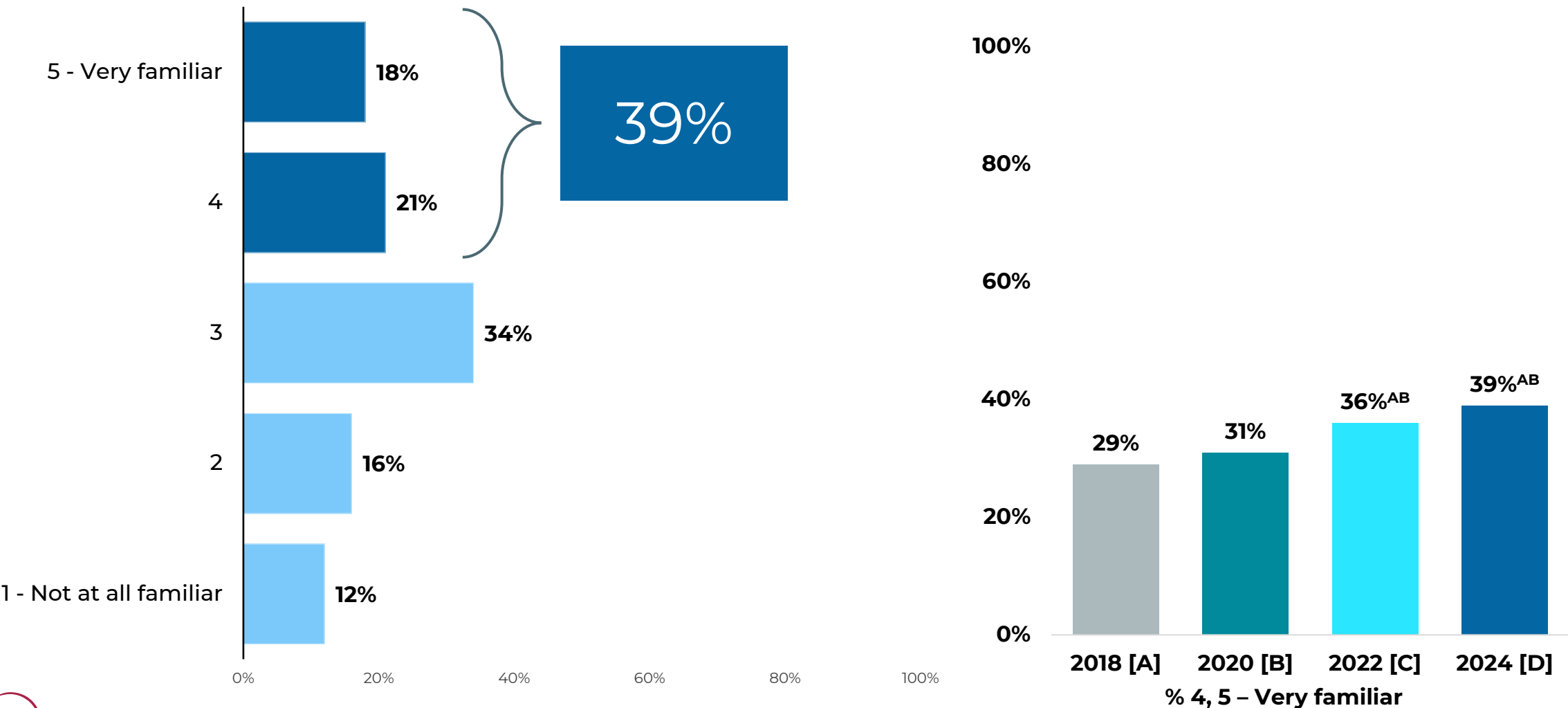
of respondents express a high degree of satisfaction with HRSD's services.

**37%**

of respondents rate HRSD as providing excellent value for the fees paid.

# Familiarity

Familiarity with HRSD has continued to grow with each study wave and is significantly higher than it was in 2018 and 2020.

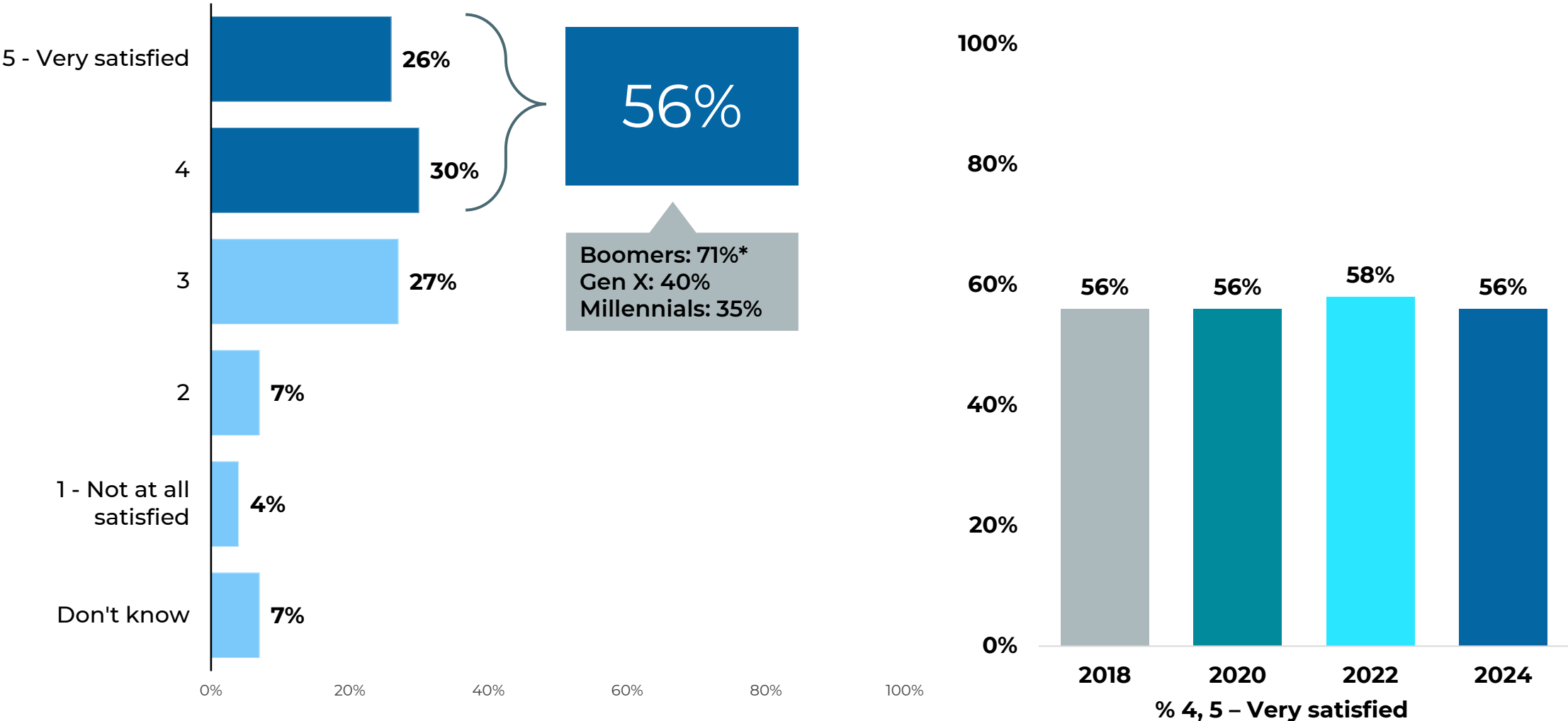


Q4: As you may know, HRSD is the regional organization that manages wastewater treatment. How familiar are you with HRSD and its services? \*Significantly higher,  $p < .05$

\*Note: 2022 scores updated to correct reporting error

# Satisfaction

Satisfaction with HRSD/HRUBS's service remains consistent with prior years but is particularly higher among Boomer respondents.



Q5: Based on what you may know about HRSD/HRUBS, how satisfied are you with HRSD's/HRUB's service overall?  
 \*Significantly higher, p<.05

## Satisfaction by Region

Hampton and Newport News residents are more likely to post high satisfaction ratings overall, while respondents from Portsmouth, Virginia Beach, and Williamsburg are more likely to answer “Don’t know”.

	Chesapeake (n = 229)	Hampton (n = 110)	Newport News (n = 150)	Norfolk (n = 221)	Portsmouth (n = 83)	Suffolk (n = 88)	Virginia Beach (n = 525)	Williamsburg (n = 172)
Top 2 Box Score	52%	<b>70%*</b>	<b>71%*</b>	56%	46%	50%	53%	56%
5 – Very satisfied	17%	37%	35%	29%	20%	23%	25%	25%
4	34%	33%	36%	28%	25%	27%	28%	31%
3	31%	21%	21%	29%	31%	32%	27%	23%
2	9%	5%	3%	8%	5%	9%	7%	4%
1 – Not at all satisfied	4%	1%	1%	4%	5%	5%	4%	6%
Don’t know	4%	4%	3%	3%	<b>13%*</b>	5%	<b>9%*</b>	<b>11%*</b>

Note: Localities with smaller sample sizes are excluded from comparison



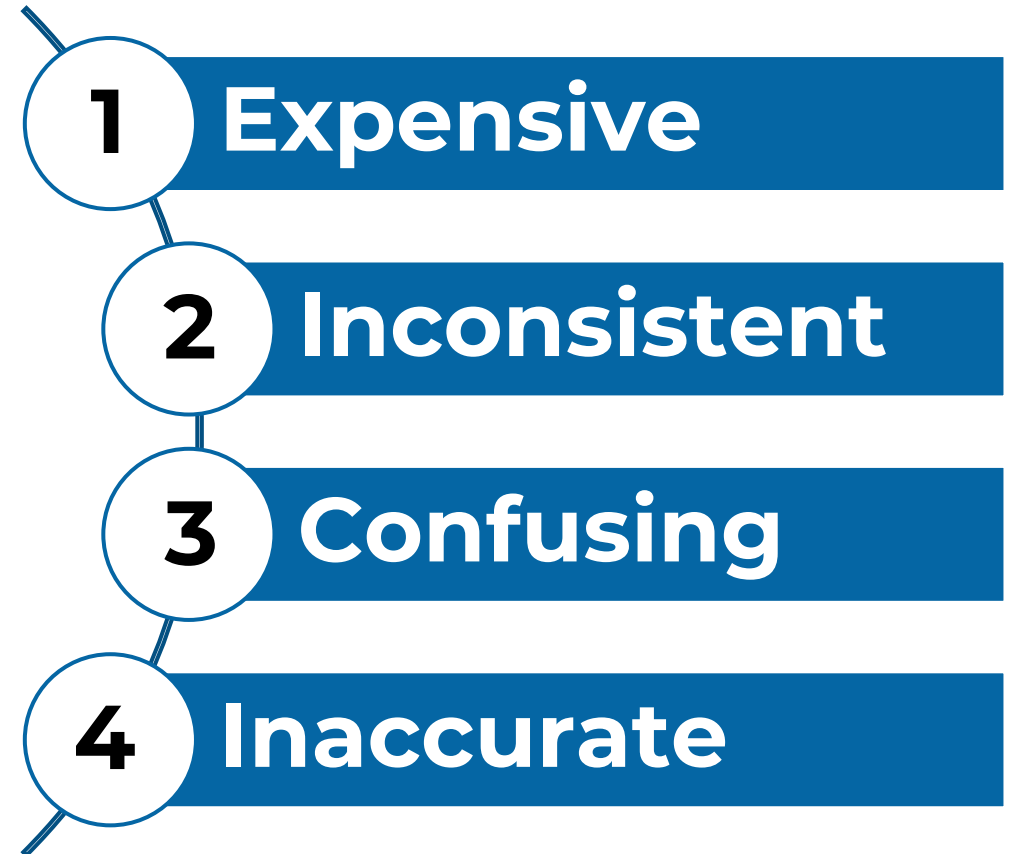
Q5: Based on what you may know about HRSD/HRUBS, how satisfied are you with HRSD's/HRUB's service overall?

\*Significantly higher,  $p < .05$

# Top Areas of Dissatisfaction

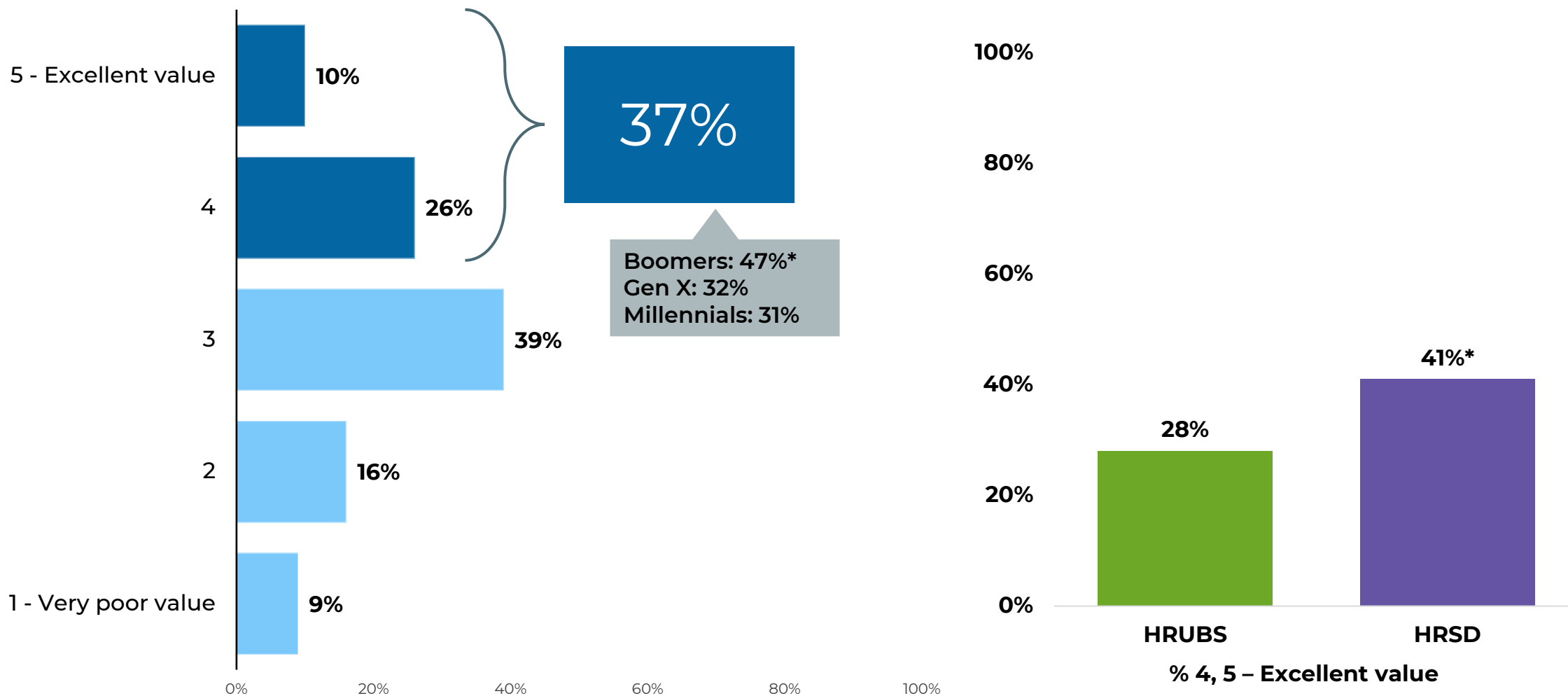
The most-mentioned problem areas involve cost:

- Bills perceived as unmanageably high
- Variability of billed amounts
- Lack of clarity on how amounts are determined
- Inaccuracy of readings and billed amounts



# Value

Both Boomer and HRSD respondents are more likely than their counterparts to rate HRSD/HRUBS as providing a high value of services for fees paid.



Q7: How would you rate the overall value of services for the fees paid to HRSD/HRUBS? \*Significantly higher, p<.05

Overall n = 1,726  
HRSD n = 1,160  
HRUBS n = 565



# Value by Wave

While overall value scores are not significantly different between 2022 and 2024, Millennial respondents did exhibit a significant decrease in their ratings.

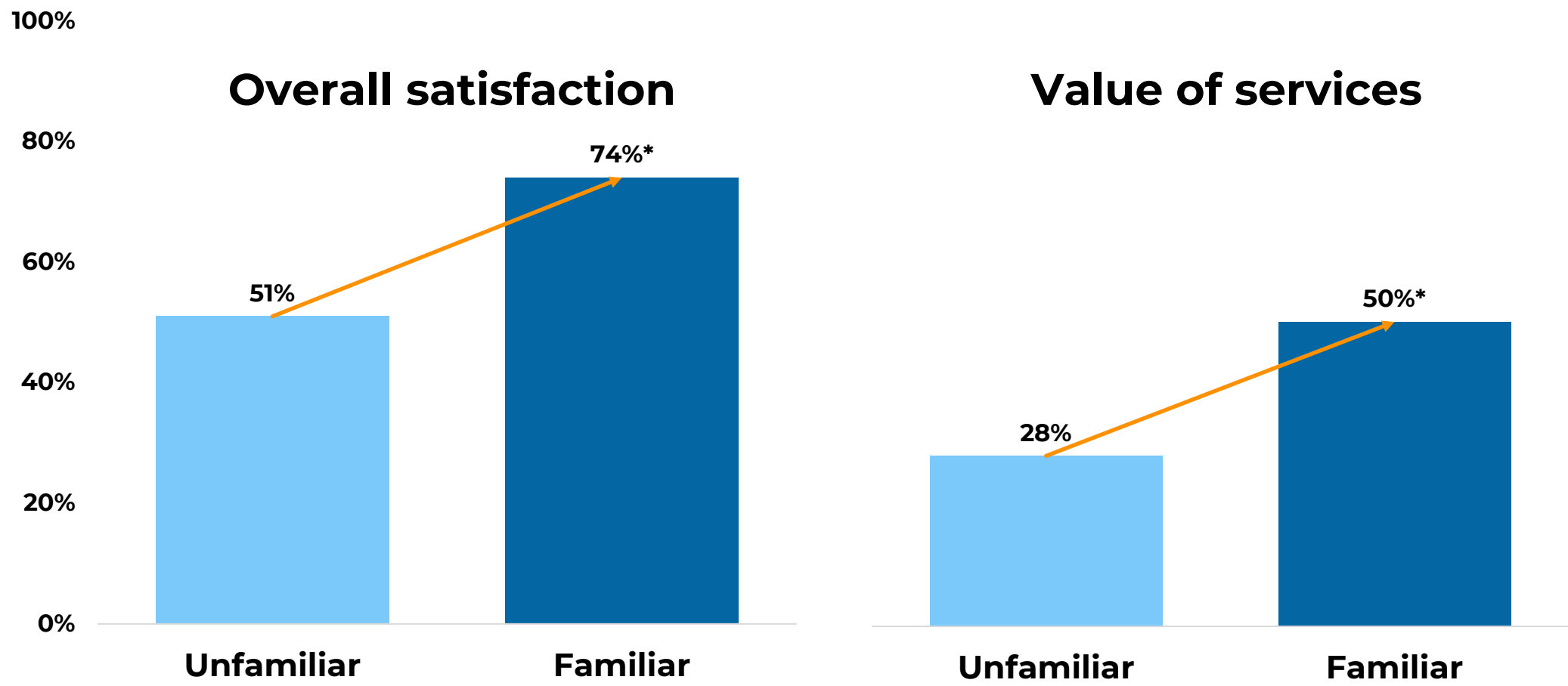
4, 5 – Excellent value	2022	2024
Millennials (born 1981 – 1996)	40%*	31%
Gen X (born 1965 – 1980)	37%	32%
Boomer+ (born prior to 1965)	43%	47%
Overall	40%	37%



Q7: How would you rate the overall value of services for the fees paid to HRSD/HRUBS? \*Significantly higher, p<.05

# Impact of Familiarity on Satisfaction & Value

Those who are familiar with HRSD/HRUBS are more likely to be satisfied and post higher value ratings than those who are unfamiliar.



Q5: Based on what you may know about HRSD/HRUBS, how satisfied are you with HRSD's/HRUBS's services overall?  
 Q7: How would you rate the overall value of services for the fees paid to HRSD/HRUBS?  
 Note: "Don't know" responses have been removed from analysis. \*Significantly higher, p<.05

Familiar avg n = 655  
 Unfamiliar avg n = 1,014

# Implication

## Familiarity and Satisfaction

Familiarity is on the rise, but satisfaction and value have not seen corresponding increases, largely due to decreased scores from younger generations.

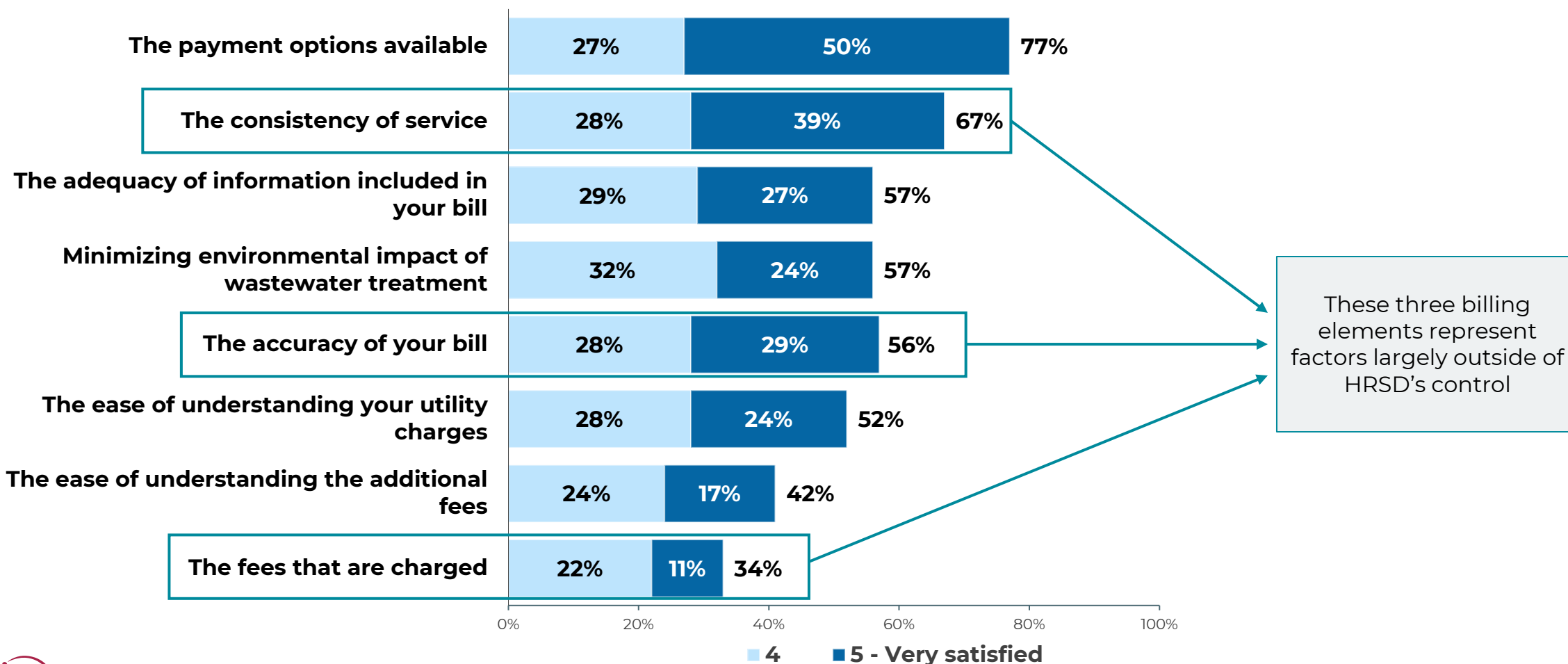
With costs increasing, respondents need to understand the impact of what they're paying for through clear communication and education (which may, in turn, increase perceived value). Ensuring that bills and billing cycles are predictable, easy to understand, and accurate should also go a long way toward increasing overall perceptions.

HRUBS customers especially display a need for increased clarification on what they are being billed for when it comes to wastewater vs. water utility.

## 2. Bill Payment

# Billing Satisfaction

The majority of respondents are satisfied with the payment options available to them, while fewer than half are satisfied with fees and their understanding of those fees.

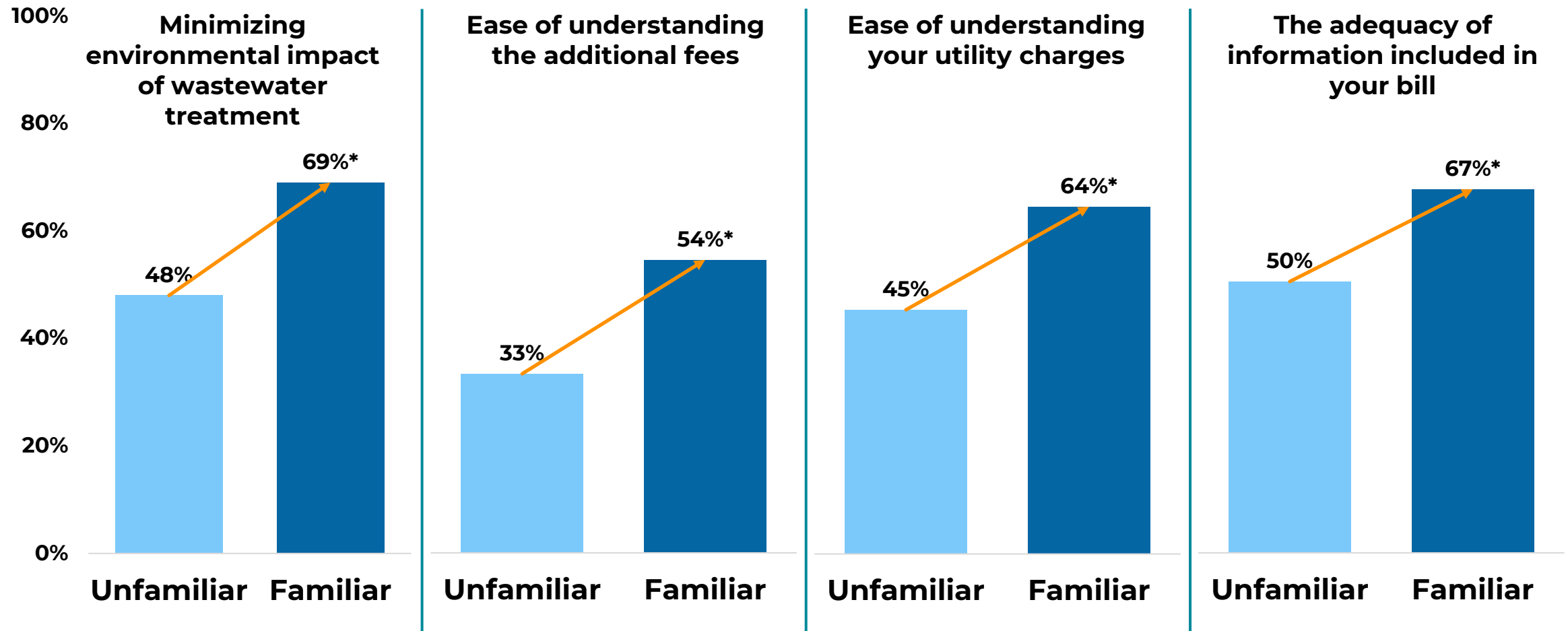


Q10: How satisfied are you with the following aspects of HRSD/HRUBS wastewater services and billing?  
 \*Note: "Don't know" responses have been removed from analysis. \*Significantly higher,  $p < .05$

n = 1,421 to 1,640

# Impact of Familiarity on Billing Satisfaction

A higher degree of familiarity with HRSD/HRUBS has the largest impact on customer satisfaction with minimizing environmental impact of wastewater treatment and the ease of understanding additional fees.

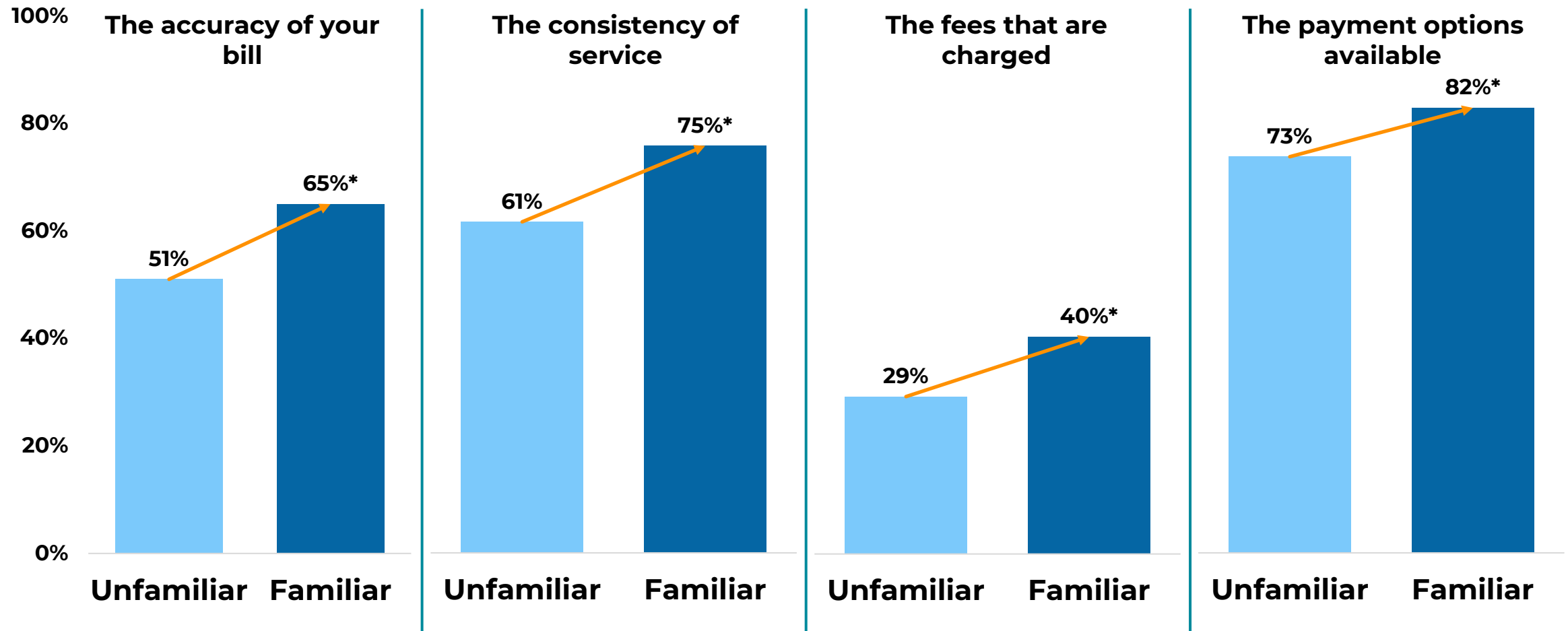


Q10: How satisfied are you with the following aspects of HRSD/HRUBS wastewater services and billing?  
 \*Note: "Don't know" responses have been removed from analysis. \*Significantly higher,  $p < .05$

Familiar n = 572 to 634  
 Unfamiliar n = 849 to 1,006

# Impact of Familiarity on Billing Satisfaction

Increased familiarity has less of an impact on increased satisfaction with the payment options available and the fees that are charged, although it is still significant.



Q10: How satisfied are you with the following aspects of HRSD/HRUBS wastewater services and billing?

\*Note: "Don't know" responses have been removed from analysis. \*Significantly higher,  $p < .05$

Familiar n = 572 to 634  
Unfamiliar n = 849 to 1,006



# Implication

## Bill Payment

Increasing communication about the purpose and role of HRSD can help build familiarity, which will, in turn, enhance understanding and satisfaction with all aspects of billing.

Bills also offer a valuable opportunity to improve transparency, as a significant portion of respondents have noted dissatisfaction with the clarity and detail of the information currently provided.

# **3. Customer Care**

### 3. Customer Care



Half of those who have contacted customer service are satisfied with their experience. Boomers are significantly more likely to be satisfied than Gen X or Millennial respondents.



The portion of respondents who have contacted Customer Care with a question or problem within the past 12 months has remained consistent with each survey wave.



Respondents are most satisfied with the friendliness and knowledge of customer service representatives.



# 24%

of respondents have contacted customer service within the past year.

# 49%

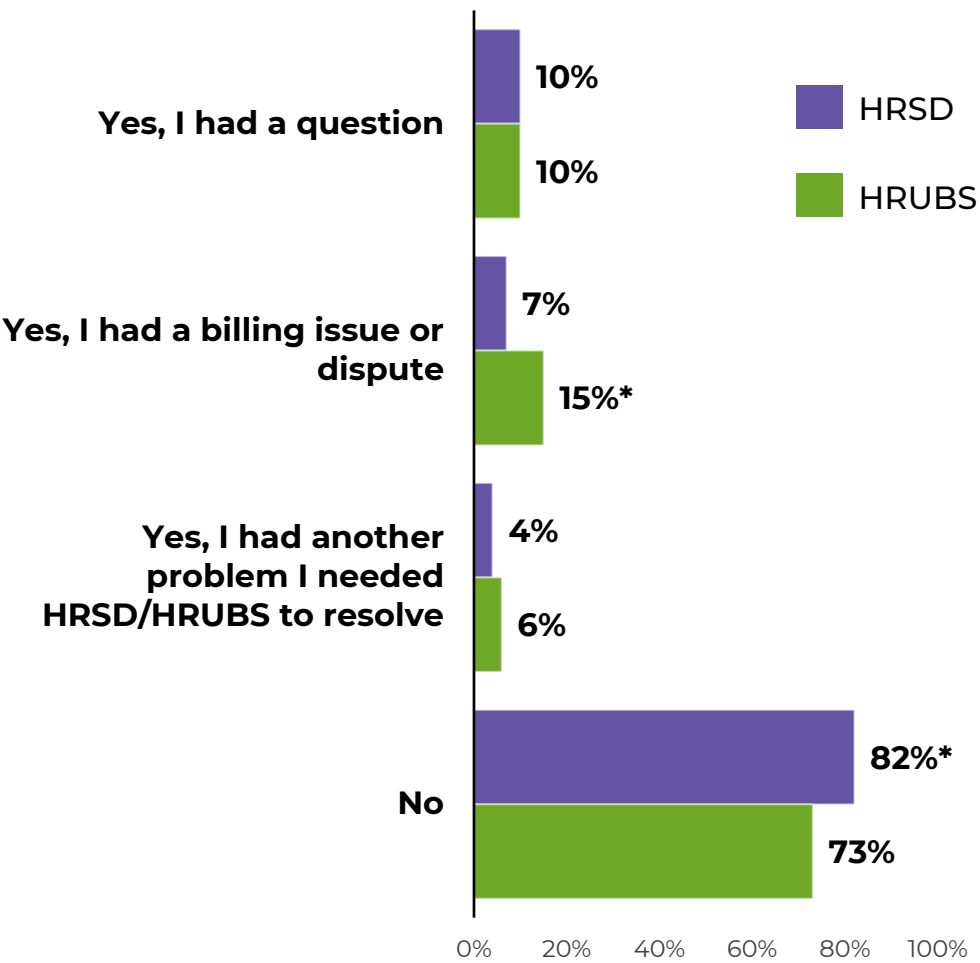
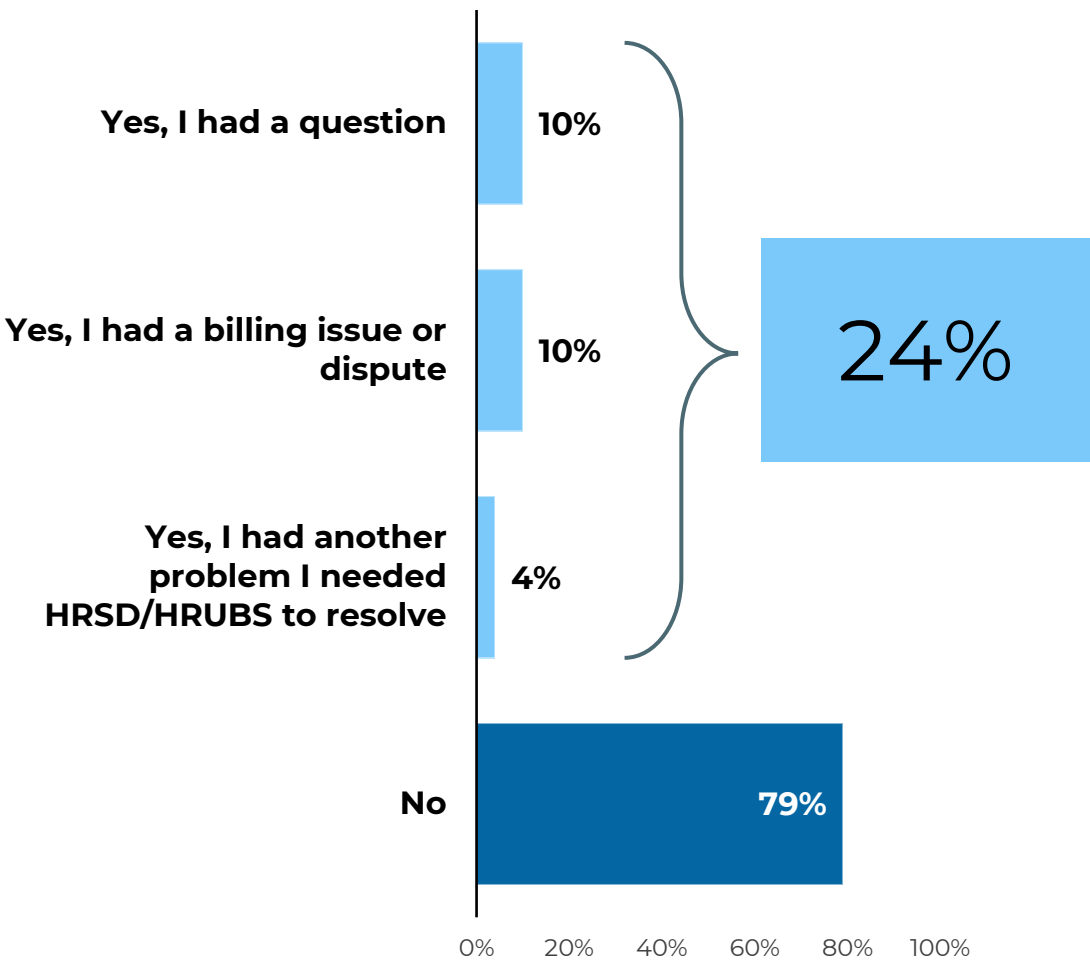
of respondents are highly satisfied with HRSD/HRUBS customer care

# 66%

of those contacting customer service reached a satisfactory outcome.

# Customer Service Contact

Over the past year, one-quarter of respondents have contacted HRSD/HRUBS customer support with a question or problem.



Q13: In the past 12 months, have you contacted HRSD/HRUBS Customer Service to ask a question or report a problem? *Select all that apply.* \*Significantly higher, p<.05

n = 1,726  
HRSD n = 1,160  
HRUBS n = 565

## Customer Service Contact by Wave

Over the years, respondents have contacted HRSD/HRUBS for support for the same reasons at the similar rates.

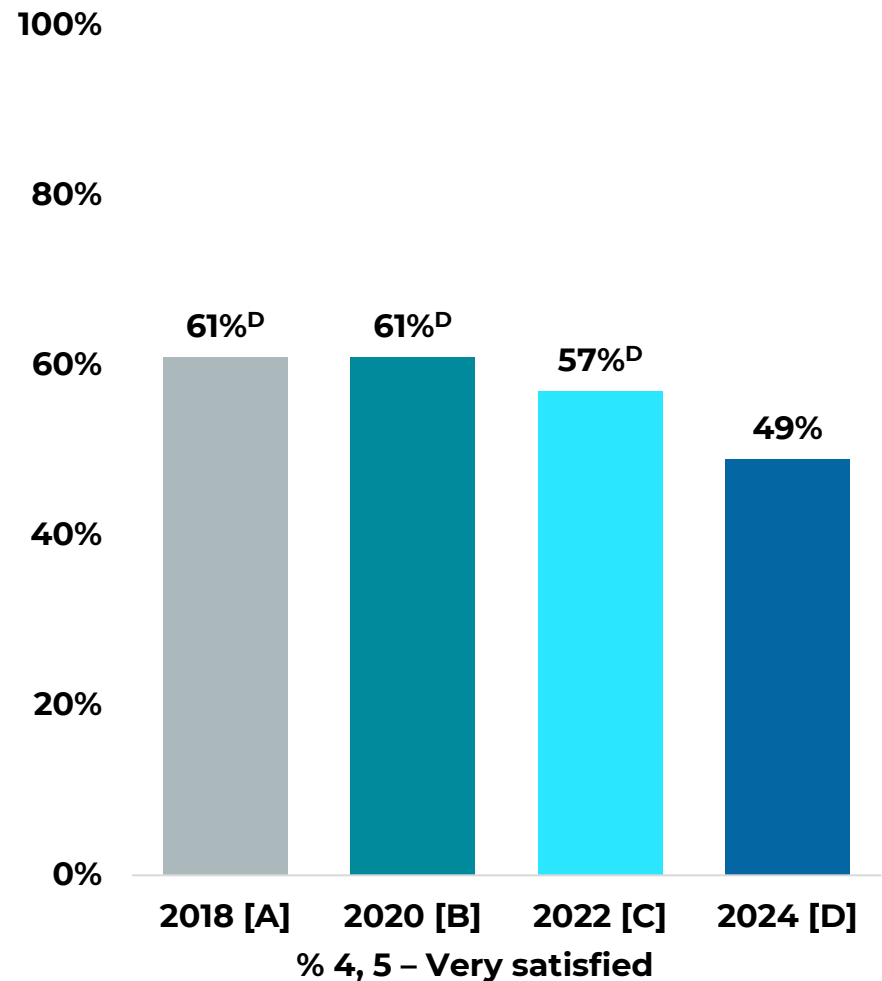
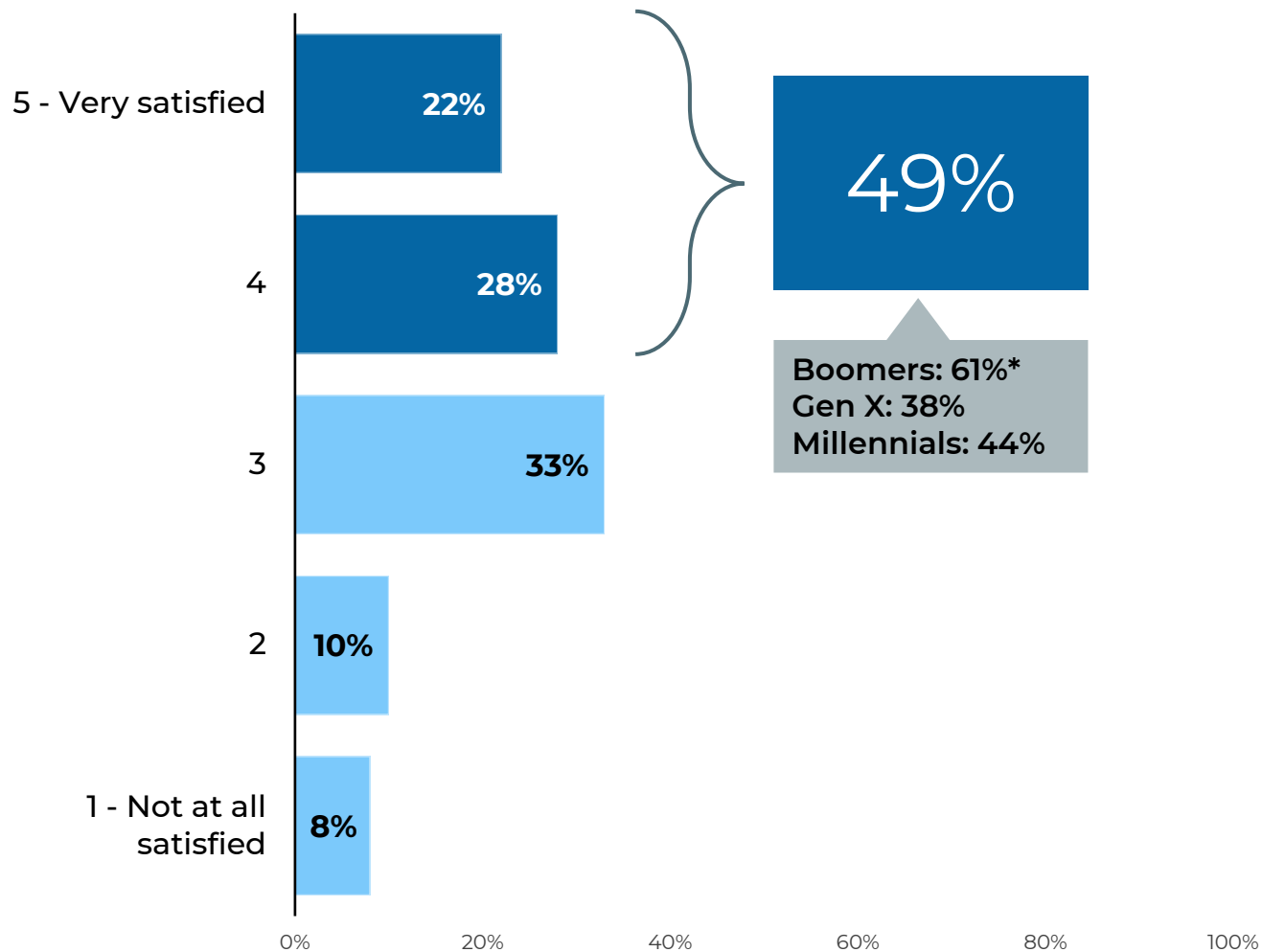
Contact in Past 12 Months	2018 [A] (n = 2,191)	2020 [B] (n = 2,784)	2022 [C] (n = 1,627)	2024 [D] (n = 1,726)
Yes, I had a question	12%	10%	8%	10%
Yes, I had a billing issue to dispute	11%	9%	11%	10%
Yes, I had another problem I needed HRSD/HRUBS to resolve	4%	3%	3%	4%
No	73%	<b>80%<sup>A</sup></b>	<b>78%<sup>A</sup></b>	<b>79%<sup>A</sup></b>



Q13: In the past 12 months, have you contacted HRSD/HRUBS Customer Service to ask a question or report a problem? *Select all that apply.* \*Significantly higher,  $p < .05$

## Customer Care Satisfaction

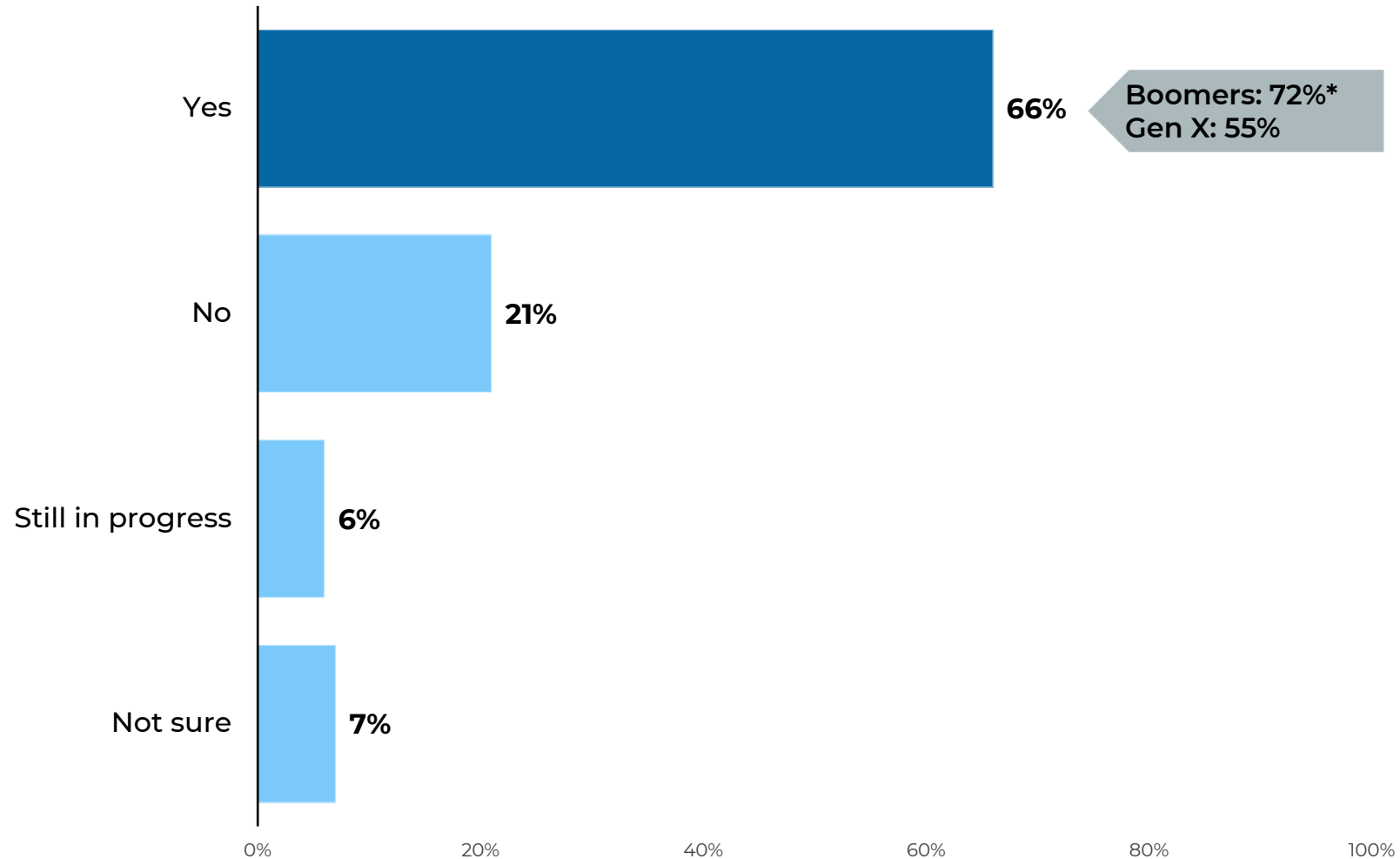
Satisfaction with customer care among those who have contacted them is down from prior waves; however, Boomer respondents are much more likely than younger generations to report a higher degree of satisfaction.



Q15: Overall, how would you rate your level of satisfaction with HRSD/HRUBS customer care?  
BASE: those contacting customer service, Q13; \*Significantly higher,  $p < .05$

## Problem Resolution Success

Two-thirds of respondents successfully had their issue or question resolved. Boomer respondents especially are more likely to indicate a satisfactory resolution.

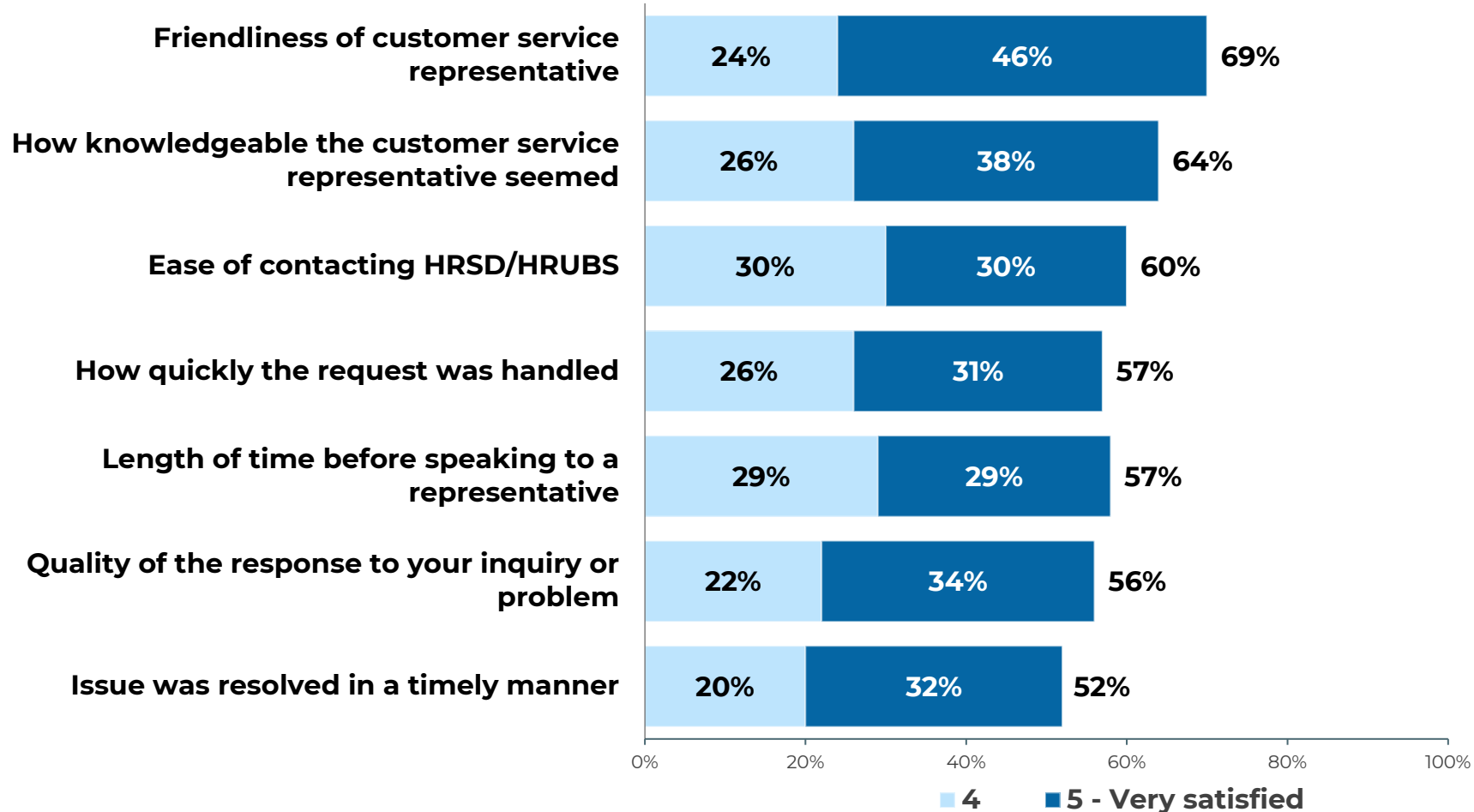


Q18: Was the issue resolved or the question answered to your satisfaction?  
BASE: those contacting customer service, Q13; \*Significantly higher,  $p < .05$



## Elements of Customer Care: Satisfaction

Roughly two-thirds of respondents contacting customer service are satisfied with customer service representatives being friendly and knowledgeable; however, only half are satisfied with how quickly their issue was resolved.



Q19: How satisfied are you with the following aspects of your customer service contact?

BASE: those contacting customer service, Q13; Note: "N/A" responses have been removed from analysis

n = 345 to 357

## Elements of Customer Care: Satisfaction

Overall, satisfaction scores with customer service are tending downwards from 2022, especially regarding how knowledgeable customer service representatives seemed, the quality of responses, and the resolution of issues in a timely manner.

Aspects of customer service	2022	2024
Friendliness of customer service representative	75%	69%
How knowledgeable the customer service representative seemed	<b>72%*</b>	64%
Ease of contacting HRSD/HRUBS	69%	60%
How quickly the request was handled	64%	57%
Length of time before speaking to a representative	59%	57%
Quality of the response to your inquiry or problem	<b>64%*</b>	56%
Issue was resolved in a timely manner	<b>62%*</b>	52%



Q19: How satisfied are you with the following aspects of your customer service contact?

BASE: those contacting customer service, Q13; Note: "N/A" responses have been removed from analysis; \*Significantly higher,  $p < .05$

# Implication

## Customer Care

Satisfaction with the quality of responses to customer issues and the timeliness of resolutions has declined since the last survey wave.

With overall customer care satisfaction lower among Gen X and Millennial respondents, it's essential to address their expectations for quick resolutions and instant access to information. Providing these audiences with accessible resources—beyond traditional customer care channels (e.g., video tutorials)—can help resolve questions and concerns more efficiently, aligning with their preferences for timely and convenient solutions.

# 4. HRSD Website

## 4. HRSD Website



Millennial and Gen X respondents are most likely to have visited HRSD's website, while Boomer respondents are less likely.



Overall satisfaction with HRSD's website remains consistent with prior waves of this study and is highest among Boomer respondents.



# 67%

of respondents have been on the HRSD website within the past year.

# 87%

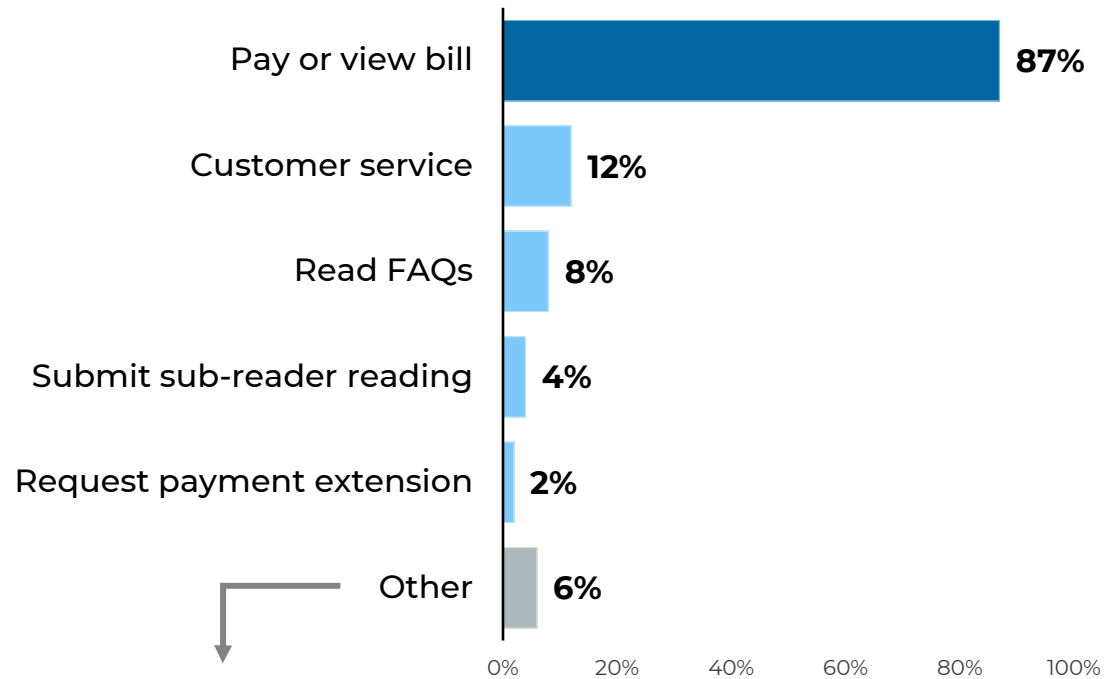
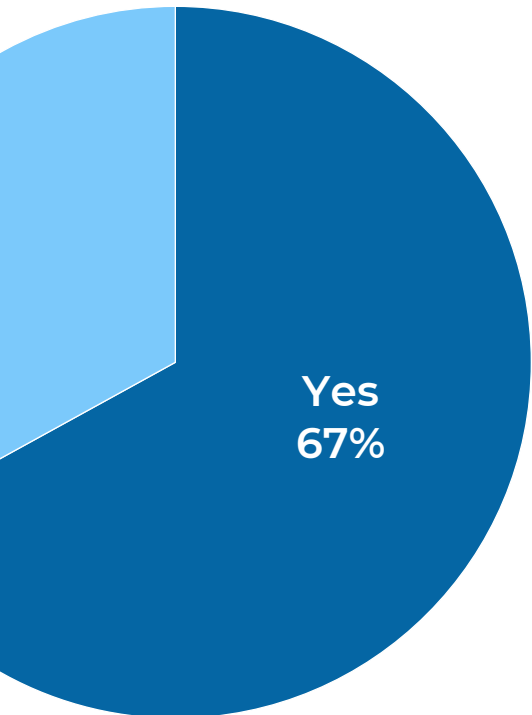
of respondents visiting the site do so to pay or view their bill.

# 69%

of respondents visiting the HRSD website are very satisfied with their experience.

# visitation

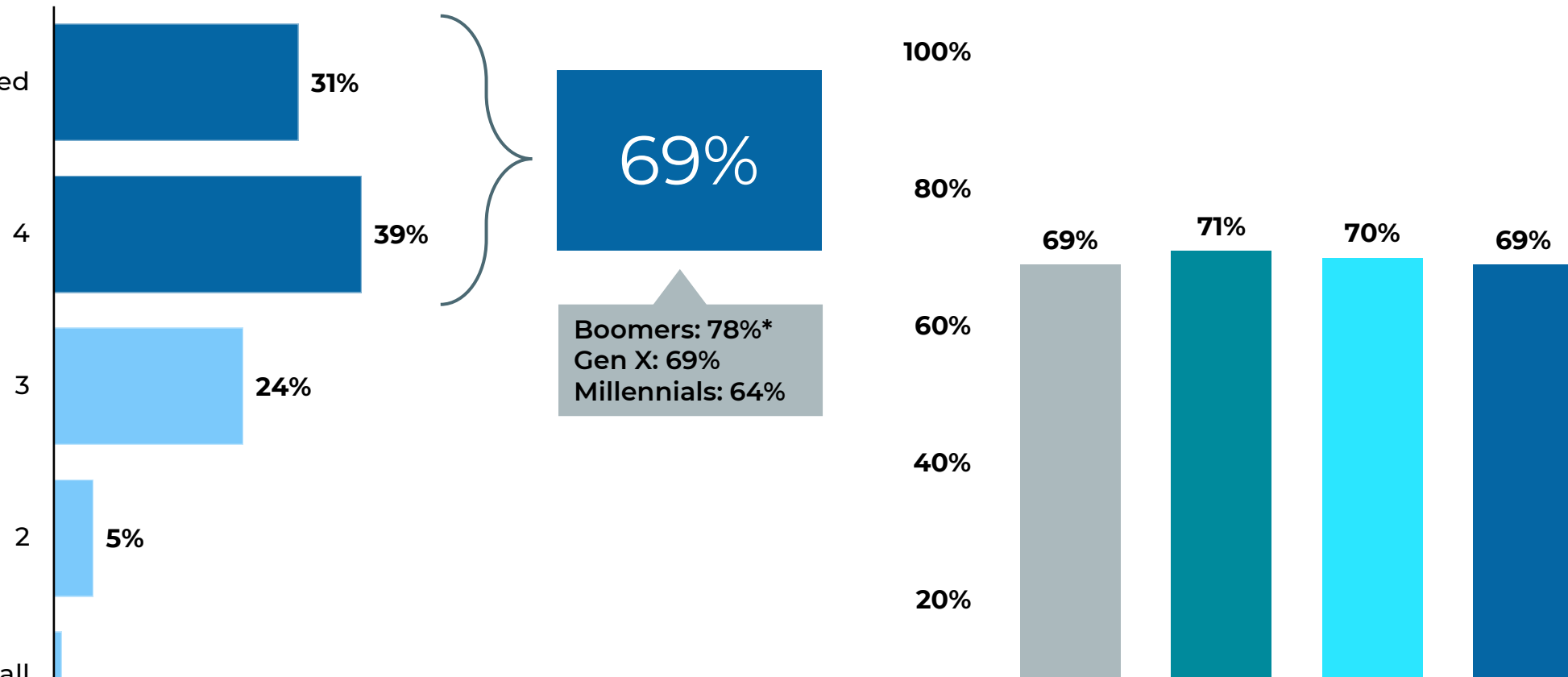
Two-thirds of respondents have gone on the HRSD website within the past year, with the majority visiting to pay or view their bill.



- Update payment info
- Enroll in autopay
- Review usage
- Start service

# Satisfaction

Satisfaction with the HRSD website remains consistent with prior waves and is especially high among Boomer respondents.





# lication

## Website

satisfaction with HRSD's website remains consistently high, an opportunity to increase its perceptions among younger residents.

Importance of online resources in supplementing the delivery of customer service and billing issues, it is essential that the website is easy to navigate, resources are relevant and easy to use, and that the payment process is simple.

Findings will help improve website satisfaction as well as customer service and billing satisfaction scores.

**ommunications**



## communications

tion with HRSD communications remains consistent  
rior waves and is significantly higher among Boomers.

rtion of respondents indicating that they don't receive  
n information from HRSD has increased with every wave  
study.

**62%**

of respondents are  
satisfied with HRSD  
communications.

**81%**

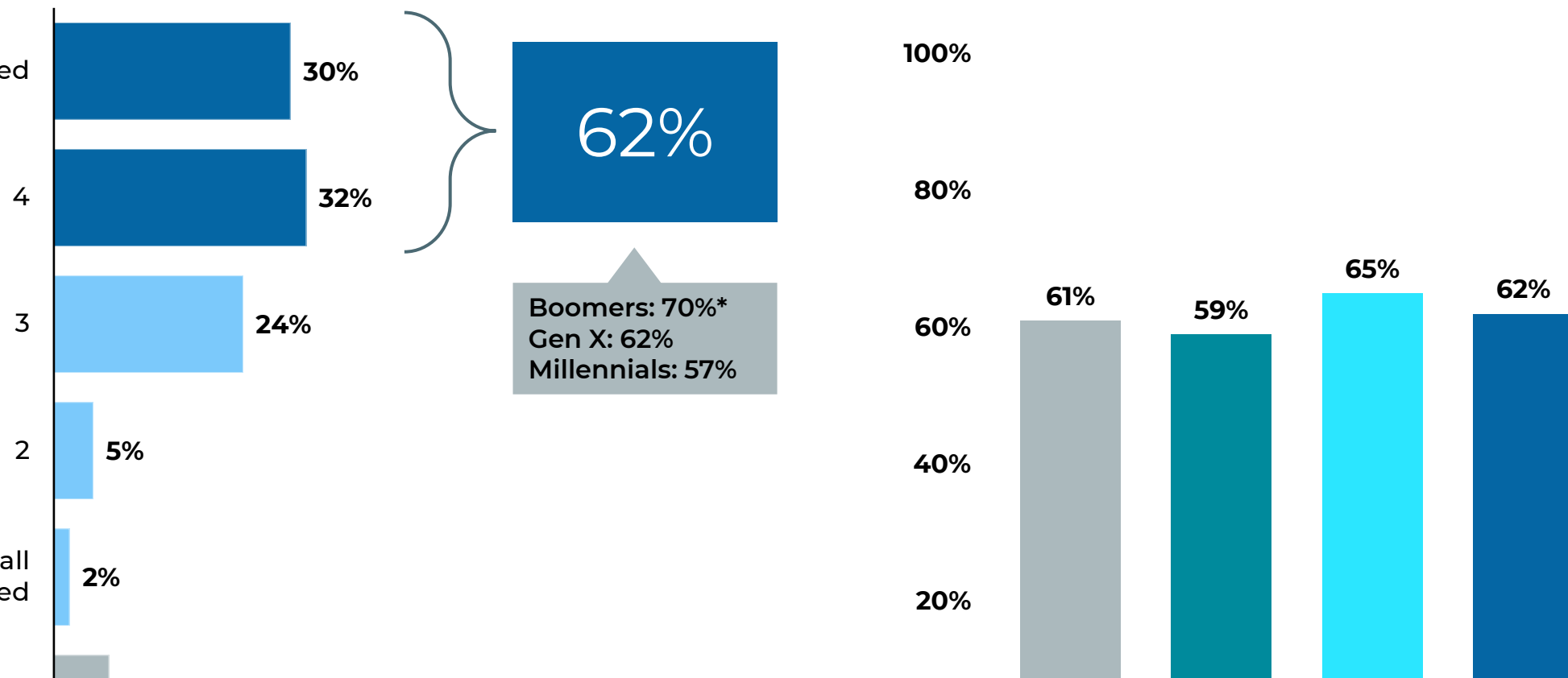
of respondents indicate  
they receive just enough  
information from HRSD.

**18%**

of respondents indicate

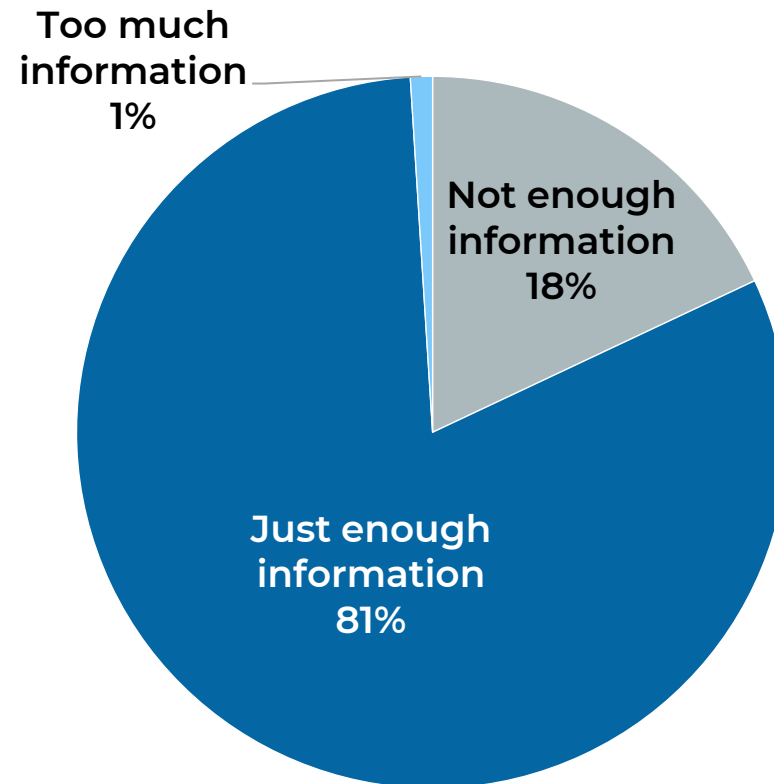
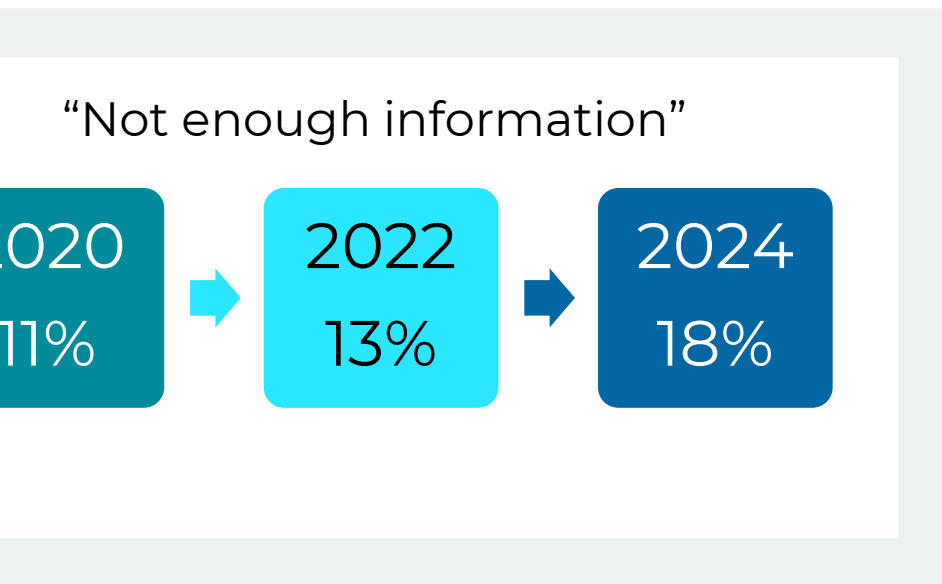
# Communications

Satisfaction with HRSD communications remains consistent from prior waves and is especially high among Boomer respondents.



## Communications

While most respondents feel HRSD communicates just enough information, the portion indicating they don't receive enough information has increased with each wave of this study.



# lication

## munications

n with communications from HRSD remains  
with prior waves, but there is a growing desire to  
ore information.

creased outreach and education, HRSD can  
derstanding of why and how it provides an  
ervice. This may, in turn, “lessen the blow” of rate  
and increase value perceptions among those who  
as just another bill to pay.



**stions?**





HRSD Commission Meeting Minutes  
December 17, 2024  
Attachment #3

4. HRSD Logo and Tag Line



Logo & Brand Development  
2023-2024





A desk with various branding items like lightbulbs, a coffee cup, and a laptop.

**Branding.**

A man with glasses pointing upwards while speaking.

**Consulting.**

Hands pointing at a laptop screen displaying charts and graphs.

**Creative.**

Hands pointing at a laptop screen displaying charts and graphs.

**Digital Marketing.**

A woman holding a smartphone displaying an advertisement.

**HTML5 Ad Design.**

Hands pointing at a laptop screen displaying charts and graphs.

**Marketing Strategy.**

A hand holding a tablet displaying a graph, with a coffee cup and a laptop in the background.

**Media Planning,  
Research & Analysis.**

A professional video camera on a tripod.

**Photo & Video.**

A hand holding a smartphone displaying a social media post.

**Public Relations.**

A hand holding a smartphone displaying a social media post.

**Social Media &  
Influencer Marketing.**

A close-up of a person's face looking at a screen.

**UX & UI.**

A hand holding a smartphone displaying a website.

**Web Development.**

- 1 **Brand Workshop**
- 2 **Logo Development**
- 3 **Stakeholder Research**
- 4 **New Tagline**
- 5 **Brand Elements**
- 6 **Activation Plan?**

# BRAND WORKSHOP



## Attributes

Water Industry Expert  
Efficient  
Environmentally focused  
Trustworthy  
Collaborative  
Innovative  
Data Driven

## Personality

Responsible  
Compassionate  
Fair  
Outdoorsy / active  
Grounded  
Open minded  
Hard working

## Core Value Statement

Helping our communities  
thrive with clean water.

# Logo Development



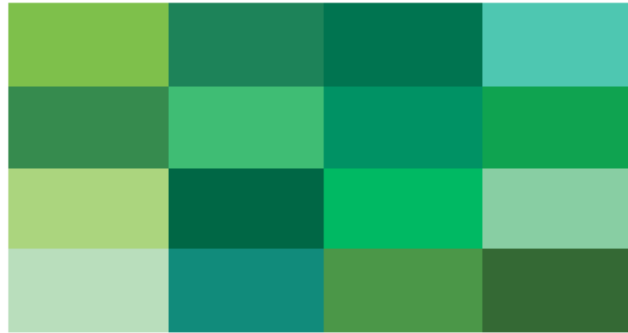


## Blues



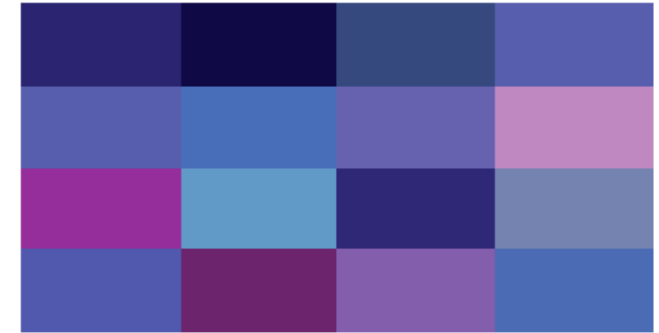
intelligent  
trustworthy  
mature  
purity  
steadfast  
security.

## Greens



nature  
growth  
rebirth  
money  
prosperity

## Purples



royalty or fantasy  
tech  
cutting-edge  
wise  
  
noticable  
innovative



## Acronym

## Shape/Badge

## Name/Icon

## Wordmark





## Water



## Environment



**LOS ANGELES COUNTY  
SANITATION DISTRICTS**  
*Converting Waste Into Resources*



Colorado Springs Utilities



San Francisco  
Public Utilities  
Commission



**SEMCOENERGY**  
GAS COMPANY

## Service



Plumbing Service

YOUR SLOGAN HERE



INTERNATIONAL  
PLUMBING





Logo Development | Concepting





# Stakeholder Research

Focus Groups & Internal Surveys



## Key Findings

Participants were generally familiar with HRSD, but not totally clear on the scope of services and geographic area it covered.

Participants responded favorably to the new HRSD logo and rebranding initiative.

They suggested HRSD do more to promote itself, raise awareness in the community.

## Old Logo

Perceived as “dated.”

You see it. You just know what it is. It’s nothing special. I know what it is because I’m used to seeing it’

“Plain.” “Boring.”

“Minimal, not fussy.”

Not particularly ‘polished’... “it looks like a rough draft.”

## New Logo

Initial reaction to the new logo was positive, they felt this was “More thought out” and “more modern.”

New logo “didn’t stray too far” from the current logo, which would make it more recognizable.

“I like it. It looks very professional, very clean. I’m looking for this particular company to trust...and this gives me trust. They know what they’re doing.”



## Key findings

HRSD outshined competition in attention and connecting with brand alignment attributes of “data-driven, open minded, and hard-working.”

LACSD was strongest in many attributes, but lags behind HRSD in overall impact.

HRSD was strongest in aligning with “Water industry experts, environmentally conscious and focused, responsible, and innovative.”

The HRSD logo stands apart from the other two control test logos in driving more effective communications based on the overall impact calculation.

## What does this mean?

Your “people” are buying into the rebrand.

“I think it’s cool that they’re brave enough to change.”

**Focus Group Participant**



**Purple**  
#00693B  
CMYK: 100 94 3 0  
RGB: 42 54 147



**Green**  
#f8af4d  
CMYK: 79 2 89 0  
RGB: 27 175 93



**Light Blue**  
#8dc741  
CMYK: 70 9 4 0  
RGB: 30 179 225



**White**  
#FFFFFF  
CMYK: 0 0 0 0  
RGB: 255 255 255

72pt Font Size  
72pt Leading

## Captivating Headline.

Explitio ratenda nditatum fuga. Ut as et volorum hilla elc temperr uptatium dolorem eossum voluptatet, voluptatius, sitatur aut ut id mo blant. Sedias eum ea si con reptian duclur, ut ullorror am re pa prehendaepel maxim quatquatum experaepro berrum rem sapedis sandi am fuga. Cuptas eum eos malos molorem. Ut doluptias poria debis magniminlat.

Ucil ius quidebis simus aut officimaxim quia corerum demporeperis volupta quatur? Torerum illatio beari tem facepudant excribea doluptis sum ipis.

20pt Font Size  
28pt Leading

## Northura

**Black**

**Bold**

**Medium**

**Regular**

**Light**

**Thin**

Aa Bb Cc Dd Ee Ff Gg Hh Ii Jj Kk Ll Mm Nn Oo  
Pp Qq Rr Ss Tt Uu Vv Ww Xx Yy Zz  
0 1 2 3 4 5 6 7 8 9

## Just Sans

**Extra Bold**

**Bold**

**Semi Bold**

**Medium**

**Regular**

**Light**

Aa Bb Cc Dd Ee Ff Gg Hh Ii Jj Kk Ll Mm Nn  
Oo Pp Qq Rr Ss Tt Uu Vv Ww Xx Yy Zz  
0 1 2 3 4 5 6 7 8 9



HRSD Commission Meeting Minutes  
December 17, 2024  
Attachment #4

5. Audit of HRSD's CIP Construction Cost Estimating Procedures  
Internal Assessment

# Hampton Roads Sanitation District

## Construction Cost Estimating Internal Assessment

Commission Meeting

December 17, 2024

# Team Introductions

## Presenting Team

Matt Simons

SC&H, Engagement Principal

Hayden Wigley

SC&H, Manager, Project Lead



# Topics

1. Background
2. Objectives and Scope
3. Approach
4. Challenges and Headwinds
5. Results
  - Data Analytics
  - Consultant Firms
  - Related Organizations
  - Observations and Recommendations
  - HRSD's Efforts
6. HRSD Responses and Next Steps

# Background

## What is HRSD Trying to Address?

- Large variances between the opinion of probable construction cost (OPCC) vs. bid award have been occurring over the past several years.
- HRSD is seeking opportunities to limit the variances.
- SC&H conducted an internal assessment to help identify causes and offer solutions.
  - Evaluate internal processes and data for OPCC values.
  - Collect and evaluate 3<sup>rd</sup> party engineering firm processes and feedback.
  - Evaluate comparable organizational environments.

# Background

## Key Items

- › Identification of a new project and integration into the Capital Improvement Program
- › Development of initial budget, scoping, and consultant firm selection
- › Consultant firm's Preliminary Engineering Report (PER)
- › Development of the Opinion of Probable Construction Cost (OPCC)
- › Advertisement
- › Bid acceptance

# Background

## AACE Class Estimations

Primary Characteristics		Secondary Characteristic			
Estimate Class	Level of Project Definition Expressed as a % of complete definition	End Usage Typical purpose of estimate	Methodology Typical estimating method	Expected Accuracy Range Typical variation in high and low range	Preparation Effort Typical degree of effort relative to least cost index of 1
Class 5	0% - 2%	Concept Screening	Capacity Factored, Parametric Models, Judgment, or Analogy	L: -20% to -50% H: +30% to +100%	1
Class 4	1% - 15%	Study or Feasibility	Equipment Factored or Parametric Models	L: -15% to -30% H: +20% to +50%	2 to 4
Class 3	10% - 40%	Budget, Authorization or Control	Semi-Detailed Unit Costs with Assembly Level Line Items	L: -10% to -20% H: +10% to +30%	3 to 10
Class 2	30% - 70%	Control or Bid/Tender	Detailed Unit Cost with Forced Detailed Take-Off	L: -5% to -15% H: +5% to +20%	4 to 20
Class 1	50% - 100%	Check Estimate or Bid/Tender	Detailed Unit Cost with Detailed Take-Off	L: -3% to -10% H: +3% to +15%	5 to 100

# Objectives and Scope

## Objectives

1. Evaluate the design and construction estimating processes, focusing on the following:
  - a. Estimate lifecycle: How estimates are determined and modified up to the bidding process.
  - b. Estimate data/calculations and their components.
  - c. Management oversight, both internal and external.
2. Research industry standards/trends and methods for opportunities to reduce estimate versus bid differences.

## Scope

1. Operations and processes:
  - a. Current state
  - b. All project delivery types excluding CMAR and Design-Build
2. Time period: Project data from 97 projects for calendar years 2015 through 2023

# Approach

## Internal Assessment Process

- › Conducted interviews/walkthroughs with HRSD personnel to understand internal design and construction processes.
- › Prepared process-level and timeline flowcharts that illustrate HRSD and engineering firm interactions.
- › Performed data analytics on completed project information to identify trends in estimates vs. bids.
- › Met with engineering firms to understand external processes.
- › Administered benchmarking questionnaire to similar organizations to confirm understanding of bidding environment and trends.

# Challenges and Headwinds

## Contributing Factors

- Construction companies have a surplus of work due to the saturation of construction projects in the Hampton Roads region:
  - \$5.5 billion in ongoing transportation infrastructure construction
  - \$4.7 billion funded by the Hampton Roads Transportation Accountability Commission (HRTAC)
  - \$2.6 billion in SWIFT program construction
- HRSD is in its own micro market.
- Reduction in the availability of subcontractor use across the region.
- Increases in the current market value of labor and material.
- Limitations in the population of construction companies with the necessary skillsets and equipment to bid on and win projects with HRSD.

# Results

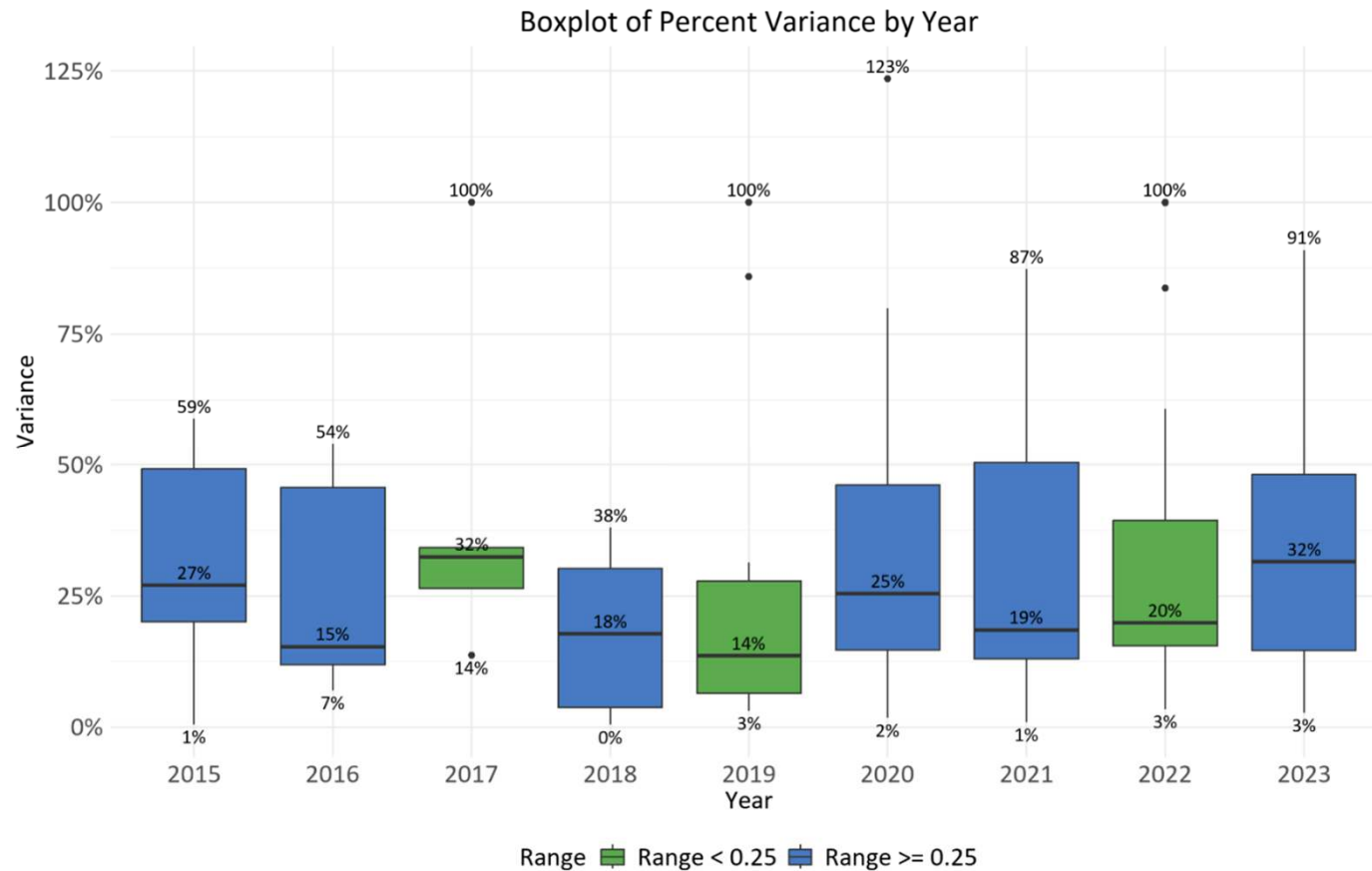
## Categorized Results

- › Data analytics
- › Consultant firm suggestions and validation
- › Benchmarking organization views and confirmations
- › HRSD's efforts
- › Overall observations and recommendations



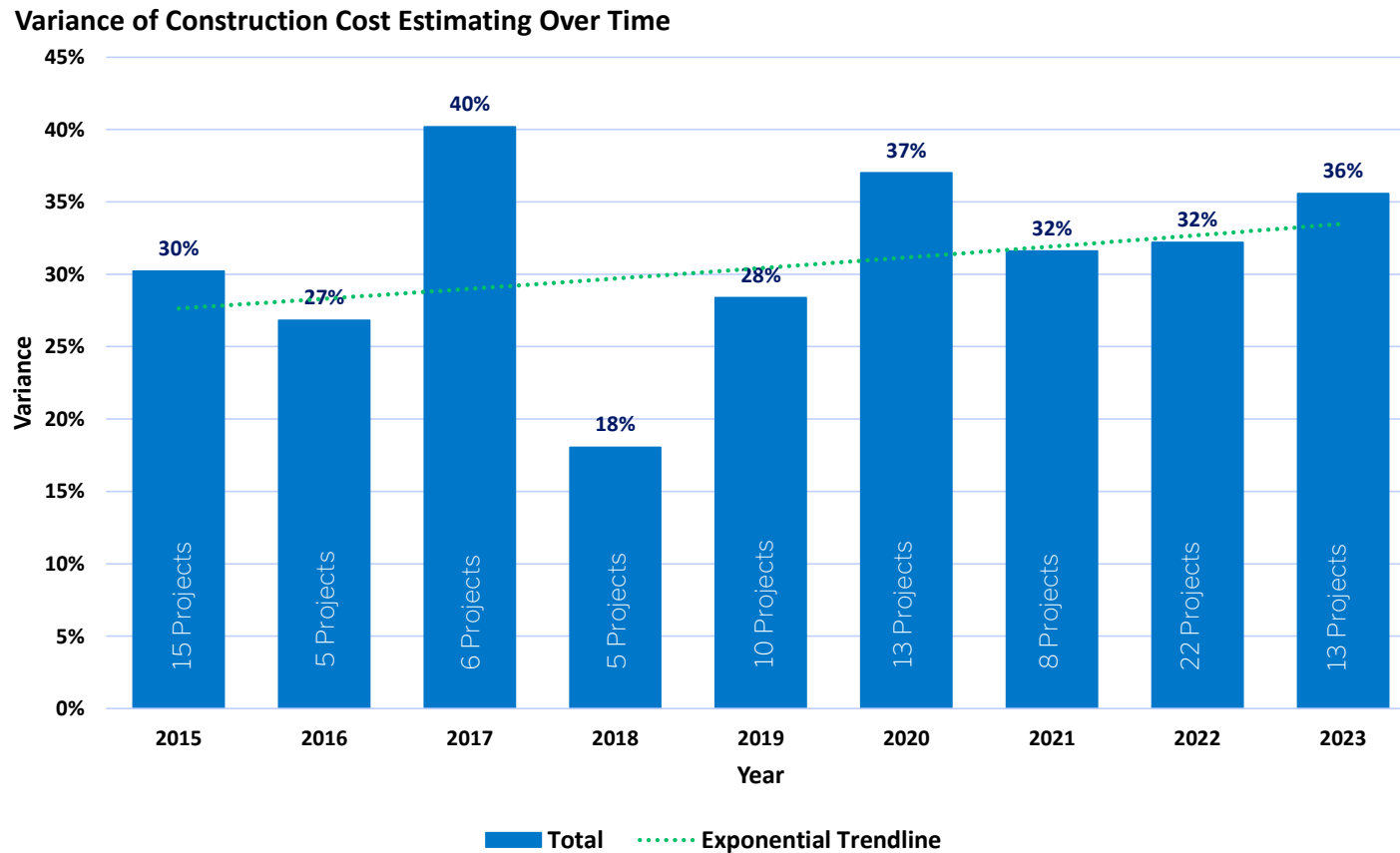
# Data Analytics

## Boxplot of Variance in OPCC vs. Bid Award



# Data Analytics

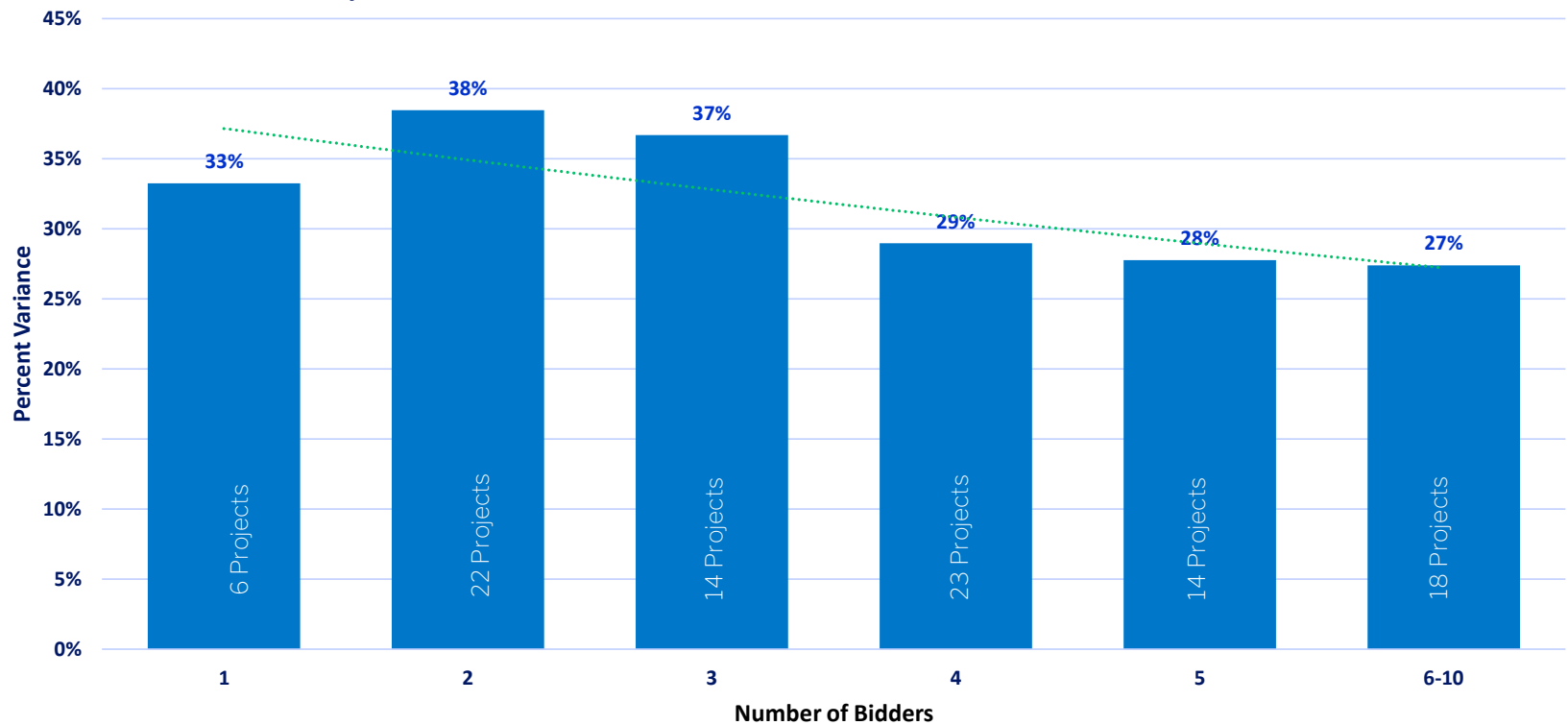
## Variance of Construction Cost Estimate Over Time



# Data Analytics

## OPCC vs. Bid Award Price by Number of Bidders

OPCC vs. Bid Award Price by Number of Bidders



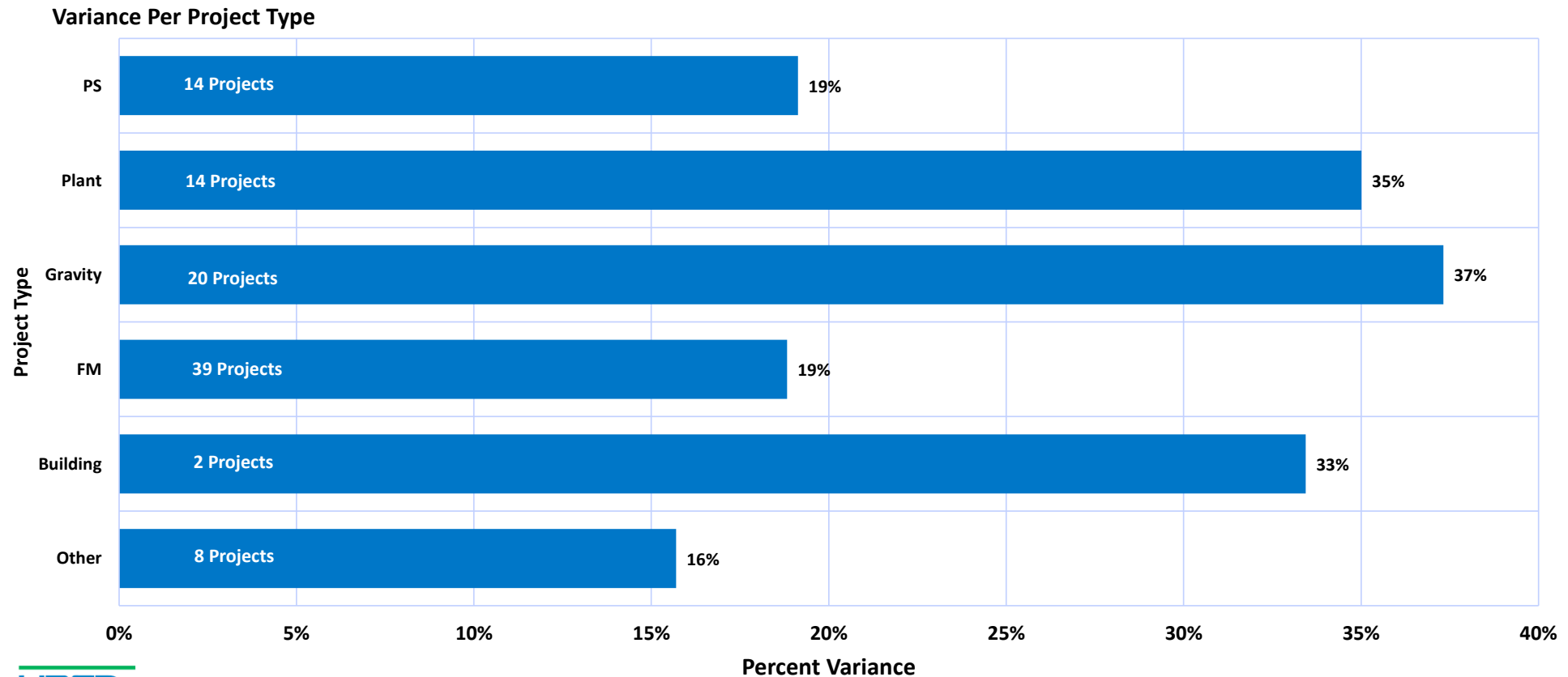
# Data Analytics

## Average Number of Bids Received for a Project per Year



# Data Analytics

## Average of Variance in OPCC and Bid Award Price by Project Type



# HRSD's Efforts

## HRSD Actions to Mitigate Variances

- › Administered benchmarking exercises with similar organizations.
- › Performed internal research surrounding:
  - Bids price received compared to final construction cost
  - Market research on current construction environment
- › Conducted consultant coordination meetings with external firms to receive input.
- › Reviewing estimates compared to bids received when large deltas are received.
- › Performing active monitoring surrounding:
  - Bid price received to actual costs incurred
  - Market pricing for material and labor
- › Outreach to additional contractors.

# External Engineering Firm Summary

## Obtain Feedback from HRSD's Contracted Firms

- SC&H met with the following firms:

Gannett Fleming

HDR Engineering

Hazen & Sawyer

RK&K

- Firms have seen common themes as identified in research completed by SC&H and HRSD:
  - Growth in bid value received after the COVID-19 pandemic
  - A need for active monitoring for current and future bid environments. All firms are actively monitoring the current market value of labor and materials.
  - Constraints on the availability of construction companies with a surplus of work in the region
- Firms agreed with SC&H's proposed recommendations and felt as though they could potentially decrease deltas in the future.

# Benchmarking and Questionnaire Summary

## Obtain Feedback Related Organizations

- SC&H contacted 13 organizations and received limited (2) responses.
- Organizations have related experiences as those identified in research completed by SC&H and HRSD:
  - Experiencing the same increases in bids
  - Cancelled projects due to large deltas received
- Organizations agreed with SC&H's proposed recommendations and felt as though they could potentially decrease deltas in the future.



# Observations and Recommendations

## Observation 1

- › Improvement opportunities exist to maintain current and historic cost estimating data, to serve as a tool for analyzing and evaluating trends that impact project pricing and timing.

## Observation 2

- › Improved strategic communication and coordination can exist between HRSD and engineering firms during the project development and estimating processes.

# Observations and Recommendations

## Recommendation 1: Centralized Data Repository

- Centralize data and reporting:
  - Increasing data availability
  - Internal data repository
- Determine additional critical data elements to monitor in the future:
  - Pricing and change throughout the lifecycle of an estimate
  - Line-item pricing/costs
  - Project delivery methods
  - Risk register and scoring
- Consult with engineering firms and contractors on updated data retention.
- Determine opportunities for additional detail in bids/proposals.
- Encourage additional communication and record keeping of estimate development.
  - Unanticipated changes
  - Unique equipment required
  - Specialized skillsets

# Observations and Recommendations

## Recommendation 2.1: Design & Construction Standards

- Update HRSD standards and expectations:
  - Expectations for timely services
  - Expectations for deliverables during the lifecycle of an estimate
  - Expectation for baseline communications
- Consider agreeing upon criteria with contracted firms including:
  - Periodic information that will aid in transparency and clarity
  - Frequency to meet and discuss estimates
  - Agenda and criteria to discuss during meetings
  - Action items, responsibilities, timelines

## Recommendation 2.2: Consultant Cost Estimating User Group

- Establish consultant user group who meet regularly to discuss concerns about current bidding and estimating environment with potential agenda items including
  - Current and upcoming trends
  - Economic factors
  - Improvement opportunities

# HRSD Responses

## Observation 1: Data Retention

### Recommendation 1: Centralized Data Repository

- We agree with the recommendations included in Recommendation 1. HRSD will create a more detailed database of project cost information, share it with the Consultants, and create a new Policy assuring this information has been reviewed prior to finalizing all OPCC's.
  - HRSD will update the Construction Cost Database and share it with the consultants by April 1, 2025
  - HRSD will create a Policy for Construction Cost Estimating by April 1, 2025

# HRSD Responses

## Observation 2: Strategic Communication

### Recommendation 2.1: Design & Construction Standards

- HRSD will create a Construction Cost Estimating Policy to address the recommendations listed above.
  - HRSD will develop this policy by April 1, 2025

### Recommendation 2.2: Consultant Cost Estimating User Group

- HRSD will create a Consultant Cost Estimating User Group.
  - Create the CCEUG and hold the first meeting by Feb. 1, 2025

# SC&H Team Contact Information

Matthew  
Simons

PRINCIPAL

////

msimons@schgroup.com  
410-403-1561

Hayden  
Wigley

MANAGER

////

hwigley@schgroup.com  
703-852-5603

Alex  
Ushamirsky

STAFF

////

aushamirsky@schgroup.com  
703-287-5988



December 10, 2024

# **Hampton Roads Sanitation District Construction Cost Estimating Internal Assessment**

# Table of Contents

Executive Summary .....	1
Objectives.....	1
Approach.....	1
Results.....	1
Internal Assessment Summary.....	2
Background .....	2
Objectives and Scope.....	5
Methodology, Approach, and Execution .....	5
Summary of Work.....	14
Observations and Recommendations .....	15
Observation 1 .....	15
Observation 2 .....	17
Appendix A: Flow Diagrams .....	19



# Executive Summary

SC&H conducted an internal assessment of Hampton Roads Sanitation District's (HRSD) construction cost estimations, specifically its management/oversight of planned versus actual spend of capital spending evaluated by HRSD's Financial Analytics and Data Systems Department and Engineering Division.

HRSD's Financial Analytics and Data Systems Department and Engineering Division personnel were tremendously helpful and supportive during this assessment. It was apparent that HRSD personnel were paying attention to the historic bid versus actual variances and focused on solutions to mitigate them. A summary of the assessment is listed below, with a full report following.

## Objectives

1. Evaluate the construction cost estimating processes, focusing on the following:
  - a. Estimate lifecycle: How estimates are determined and modified up to the bidding process
  - b. Estimate calculations and their components.
  - c. Management oversight, both internal and external.
2. Research industry standards/trends and methods for opportunities to reduce estimate versus bid differences.
3. Conduct data analytic procedures to understand the possible variances between the bidding and estimating procedures.

## Approach

The assessment included multiple types of procedures designed to meet the objectives and help HRSD understand and address estimating versus bid deltas and trends, including the following.

1. Performing bid creation research.
2. Conducting interviews with HRSD personnel to understand the estimate creation and development process and identify possible improvement opportunities.
3. Preparing construction cost estimate lifecycle flow diagrams to present and evaluate estimates.
4. Analyzing historical bid and estimate data.
5. Conducting interviews and administering questionnaires to external engineering firms to understand estimate processes and communications throughout the life of estimate creation.
6. Performing benchmarking procedures to gain insight into similar organizations' practices, successes, and challenges in the estimate process.

## Results

HRSD's construction cost estimating operations include multiple procedures and activities that attempt to align estimates with actuals. HRSD personnel have also been actively seeking ways, independently from this assessment, to reduce variances. There are multiple criteria that have been and continue to contribute to bid variances, which similar organizations are also experiencing.

Based on the assessment procedures, there appear to be opportunities for HRSD to mitigate bid variances. These opportunities are categorized into two areas:

1. Data organization and evaluation.
2. Proactive and actionable communication.

# Internal Assessment Summary

## Background

SC&H conducted an internal assessment of Hampton Roads Sanitation District's (HRSD) construction cost estimations (collectively, internal assessment or assessment).

HRSD's Financial Analytics and Data Systems Department (Financial Analytics) and Engineering Division (Engineering) are responsible for, among other things, assessing the need for new capital improvement projects and working to estimate and oversee the implementation of these projects. From 2015 to 2023, Financial Analytics and Engineering have overseen over \$771 million of construction projects, plus \$497 million in the Sustainable Water Initiative for Tomorrow (SWIFT) construction projects.

HRSD has experienced increased variances in construction prices for its Capital Improvement Plan (CIP) projects between the Opinion of Probable Construction Cost (OPCC) developed during the final design stage and actual construction bids received from contractors, which impacts HRSD's ability to accurately estimate its fiscal obligations and resource needs over time.

**Graph I** below in the "Data Analytics" section of this report provides a timeline that visualizes the variances between estimates and bid awards over the past eight years. It depicts the total variance by comparing the difference between the total values of 1) the final design stage estimates (OPCC) and 2) the accepted bid price from all projects in the associated calendar year. The dotted line represents the cumulative variance growth from year to year. The data analytics completed below and throughout the report include all data for awarded projects at HRSD outside of SWIFT Program via collaboration delivery methods.

## Bid and Estimation Lifecycle

SC&H gained insight into HRSD's procedures and processes to understand why HRSD is experiencing variances between their estimates and the bids. The following describes the selection of a CIP project, the creation of a construction cost estimate, and HRSD's initial review of estimates versus bids received.

## Project Scope of Work & Estimate

HRSD maintains and monitors completed, in-process, and planned future CIP projects needed to provide services to protect public health and the waters of Hampton Roads by treating wastewater.

Annually, HRSD selects CIP projects to approve and initiate within a fiscal year. The selection is based on a risk-based methodology that prioritizes CIP projects based on current financial constraints, regulatory requirements, and the need to renew and replace aging infrastructure. The scope of work (SOW) determines the outline of the work required and develops the project plan. The SOW defines the tasks, deliverables, assignments, and other important elements that are needed to achieve the project's goals. If the project is activated by HRSD, estimates are created in connection with the outsourced engineering firm hired for the project. If the project has not been activated by HRSD, the HRSD Operations team would be responsible for the creation of the initial cost estimates without input from a selected engineering firm. In the creation of an estimate, HRSD considers different cost and risk impacts, premiums, contingencies, escalations, and spend curves that can affect the delivery method of the estimate. These types of delivery methods include Construction Manager at Risk (CMAR), Design-Build, or Design-Bid-Build. The engineering firm is selected by HRSD after a review of the technical aspects of proposals received by the Engineering team. During the selection review process, specific criteria within the request for proposals (RFP) for engineering services require engineers to detail their ability to

accurately estimate past project costs. Following, a recommendation is brought to the Commission for a vote. Upon approval and engagement, the engineering firm conducts fieldwork research to obtain an understanding of the project and potential problems that could increase or decrease pricing. Following, the engineering firm begins the creation of an estimate and will communicate preliminary research and/or findings to HRSD's Engineering team, which initiates the development of an estimate.

HRSD and the engineering firm communicate throughout the lifecycle of an estimate's creation, which is guided by a five-class approach developed by the American Association of Cost Engineering (AACE). This approach is intended to improve communication among stakeholders involved in preparing, evaluating, and using project cost estimates. HRSD utilizes the AACE Recommended Practices as baseline guidance for the estimate creation process while following HRSD's internal requirements. The **AACE Cost Estimate Classification Matrix** table below, sourced from the AACE's No. 18R-97 Recommended Practice publication, provides a visual representation and descriptions of the level of detail included in an estimate during the lifecycle of an estimate.

The AACE expanded the cost estimate classification system recommended practices to include estimating for long-range planning in AACE's No. 111R-20. This expansion defined an Unclassified / Class 10 long-range planning estimate. A Class 10 estimate is associated with cost estimates prepared for longer-term planning needs, where a specific project definition is primarily supported by the description of an identified future need, but not a specific project scope. Class 10 estimating involves developing a specific scope scenario that works at the present time but will likely change at the point where the need enters into a Class 5 estimate.

Estimate Class	Primary Characteristics	Secondary Characteristic			
	Level of Project Definition Expressed as a % of complete definition	End Usage Typical purpose of estimate	Methodology Typical estimating method	Expected Accuracy Range Typical variation in high and low range	Preparation Effort Typical degree of effort relative to least cost index of 1
<b>Class 5</b>	0% - 2%	Concept Screening	Capacity Factored, Parametric Models, Judgment, or Analogy	L: -20% to -50% H: +30% to +100%	1
<b>Class 4</b>	1% - 15%	Study or Feasibility	Equipment Factored or Parametric Models	L: -15% to -30% H: +20% to +50%	2 to 4
<b>Class 3</b>	10% - 40%	Budget, Authorization or Control	Semi-Detailed Unit Costs with Assembly Level Line Items	L: -10% to -20% H: +10% to +30%	3 to 10
<b>Class 2</b>	30% - 70%	Control or Bid/Tender	Detailed Unit Cost with Forced Detailed Take-Off	L: -5% to -15% H: +5% to +20%	4 to 20
<b>Class 1</b>	50% - 100%	Check Estimate or Bid/Tender	Detailed Unit Cost with Detailed Take-Off	L: -3% to -10% H: +3% to +15%	5 to 100

#### **AACE Cost Estimate Classification Matrix**

#### **Class 5 Estimate**

Class 5 estimates are generally prepared based on very limited information and subsequently have wide accuracy ranges. As such, some organizations have elected to determine that, due to the inherent inaccuracies, such estimates cannot be classified in a conventional and systemic manner. Class 5 estimates, due to the requirements of end use, may be prepared within a limited amount of time and

with little effort expended — sometimes requiring less than an hour to prepare. Often, little more than the proposed plant type, approximate extents of the project, general location, and capacity are known at the time of estimate preparation.

#### Class 4 Estimate

Class 4 estimates are also generally prepared based on limited information and subsequently have wide accuracy ranges. They are typically used for project screening, determination of feasibility, concept evaluation, and preliminary budget approval. Typically, engineering designs are from 1% to 15% complete and would comprise, at a minimum, the following: plant capacity, block schematics, indicated layout, process flow diagrams (PFDs) for main process systems, and preliminary engineered process and utility equipment lists. At this point, a Preliminary Engineering Report (PER) is created, which includes the scope of the project and all labor, material, and schematics of the project. Upon approval of the PER, the project moves to the class 3 Estimate.

#### Class 3 Estimate

Class 3 estimates are generally prepared to form the basis for budget authorization, appropriation, and/or funding. As such, Class 3 estimates typically form the initial control estimate against which all actual costs and resources will be monitored. Typically, engineering is from 10% to 40% complete and would comprise, at a minimum, the following: PFDs, utility flow diagrams, preliminary piping and instrument diagrams, site/plot plans, developed layout drawings, and essentially complete engineered process and utility equipment lists.

#### Class 2 Estimate

Class 2 estimates are generally prepared to form a detailed control baseline against which all project work is monitored in terms of cost and progress control. For contractors, this class of estimate is often used as the “bid” estimate to establish contract value. Typically, engineering is from 30% to 70% complete and would comprise, at a minimum, the following: PFDs, utility flow diagrams, piping and instrument diagrams, heat and material balances, final site/plot plan, final layout drawings, complete engineered process and utility equipment lists, single line diagrams for electrical, electrical equipment and motor schedules, vendor quotations, detailed project execution plans, resourcing and workforce plans, etc.

#### Class 1 Estimate

Class 1 estimates are generally prepared for discrete parts or sections of the total project rather than generating this level of detail for the entire project. The parts of the project estimated at this level of detail will typically be used by subcontractors for bids, or by owners for check estimates. The updated estimate is often referred to as the current control estimate and becomes the new baseline for cost/schedule control of the project. Class 1 estimates may be prepared for parts of the project to comprise a fair price estimate or bid check estimate to compare against a contractor’s bid estimate, or to evaluate/dispute claims. Typically, engineering is from 50% to 100% complete and would comprise virtually all engineering and design documentation of the project, complete project execution, and complete commissioning plans.

# Objectives and Scope

## Objectives

1. Evaluate the construction cost estimating processes, focusing on the following:
  - a. Estimate lifecycle: How estimates are determined and modified up to the bidding process.
  - b. Estimate calculations and their components.
  - c. Management oversight, both internal and external.
2. Research industry standards/trends and methods for opportunities to reduce estimate versus bid differences.
3. Conduct data analytic procedures to understand the possible variances between the bidding and estimating procedures.

## Scope

Assessment procedures were concluded in 2024 and focused on the current state of the construction cost estimating processes which HRSD employs. Project documentations were examined for the period of January 1, 2015 through June 30, 2023. SC&H excluded collaborative project delivery methods, CMAR and Design-Bid-Build, due to the size and specificity of project development. Reviewed construction cost estimating processes and documentation are included in the “Methodology, Approach, and Execution” report section.

## Methodology, Approach, and Execution

Multiple tailored procedures were performed to achieve the assessment’s objectives, clarify HRSD’s understanding of bid versus actual variances, and offer recommendations to help mitigate future deltas.

## Research

SC&H performed targeted research to gain an initial understanding of the current construction cost estimating process. This involved research surrounding how estimates are initiated, developed, and completed, and included the AACE recommended practices and initial documentation provided by HRSD.

Research was also conducted into the current bidding environment to understand the market saturation of construction projects in the Hamptons Roads region, which included a review of recently completed, ongoing, and planned future construction projects. The construction projects reviewed included HRSD’s projects, as well as projects for state and local government agencies, and other nearby water sanitation organizations. One example of the saturation in current construction projects in the region is the improvement to the transportation infrastructure of the region totaling \$5.5 billion dollars, with \$4.7 billion being funded by the Hampton Roads Transportation Accountability Commission (HRTAC). HRSD’s SWIFT Program has added \$2.6 billion dollars of projects to the region, further saturating the construction market in the region.

Alongside the research into constraints experienced due to the current construction environment, HRSD experiences a secondary constraint surrounding the availability of specialized and capable construction companies able to complete HRSD construction projects. Because of the nature, location (i.e., wetlands, waterways, under-developed land), and complexity of HRSD construction projects, fewer construction companies maintain the necessary skillsets and equipment required to bid on and win projects for HRSD.

## HRSD Interviews

SC&H conducted interviews with HRSD Chief and Director level personnel in Design and Construction, Financial Analytics and Data Systems, and Asset Management to gain an understanding of the detailed steps to create an estimate and identify opportunities for improvement. Procedures included conducting detailed discussions of their processes, challenges, and potential solutions surrounding bid versus estimate variances.

## Estimate Lifecycle Flow Diagrams

To document SC&H's understanding of the construction cost estimating process developed through initial research and interviews conducted, flowchart diagrams were created summarizing the following process steps in relation to the AACE classes. Refer to **Appendix A: Flow Diagrams** for illustrations, and below for a summary of the lifecycle.

### Estimate Creation

The process begins with the identification of a needed CIP project. The identification of this project is typically requested by the Operations and Water Quality Departments, notification from the Asset Management Department of aging infrastructure, and/or a previously identified project maintained on the CIP projects listing that are pending activation. This identification of a future need without a defined scope is the creation of the Class 10 estimate.

The requested project is then reviewed and, if approved, added to the schedule of CIP projects to be initiated within a given fiscal year. The requesting department then develops the initial CIP project, developing both an initial budget and scope of work to be included in the RFP. The Project Review Team reviews the project and drafts initial planning documentation. Projects during this phase of the process are loosely based on the AACE Class 5 estimates classifications.

### Estimate Development

Once the RFP is advertised, HRSD receives proposals from engineering firms for the opportunity to assist HRSD in the evaluation of alternatives, preliminary and final design, and subsequently establishing and updating the construction cost estimate. The requesting department establishes a Selection Committee to review the proposals received and conducts interviews with the engineering firms, as applicable. The Selection Committee ranks proposals received and presents the selections and rankings to the HRSD Commission for approval of the firm and the associated design contract. Following the approval from the Commission, a project kickoff meeting is held with the selected firm concluding the Class 5 estimate. A Class 4 estimate begins with the selected firm developing and presenting a PER that is provided to HRSD Design and Construction for approval. The approval of the firm's PER would initiate a Class 3 estimate. The described process is only applicable to the Design-Bid-Build method.

### Design Phase

The engineering firm works in collaboration with HRSD to develop a more detailed budget for estimated costs. A predetermined design stage submittal package would be provided to the HRSD Project Manager and the appropriate Director, as needed, for review and approval. Once approved, the estimate continues as a Class 3 estimate where the HRSD Project Manager and a Director of Design and Construction work with the engineering firm to review the population of possible construction companies, permitting requirements, and unique equipment required for the project. HRSD would work to purchase the required land and complete any required permits. This review and preparation would conclude the Class 3 estimate.

### Bid Process

After the completion of the design and creation of an OPCC, HRSD advertises the project for construction. The engineering firm would provide HRSD with the Class 2 estimate, which includes all associated costs. The HRSD Engineering team would then review. Upon acceptance, the project would be advertised for bid.

### Project Bid

Construction company bids are created by external contractors for the project, and include materials, labor, subcontractors, timeline, geographic features, and economic outlook among other things. The culmination of these factors allows construction companies to develop a Class 1 estimate with a bid price for the project. The Project Manager, Engineering, and engineering firms review all the bids or estimates to review the prospective company's ability to complete the SOW for the contract. HRSD selects the lowest responsive and responsible bidder for recommendation for award of the construction contract.

### Commission Meeting

HRSD holds monthly Commission Meetings to vote on organizational business matters, including action items for CIP projects, such as the award of construction contracts. This review will culminate in a staff recommendation and the creation of an agenda item to discuss the recommendation at the following Commission meeting. If the lowest bid is appropriate for the scope of work defined, the Commonwealth of Virginia requires that HRSD accept the lowest bidder for the project. If the project bid far exceeds the estimated amount, HRSD may decide to not award the project and change the scope to obtain a more favorable price.

### Data Analytics

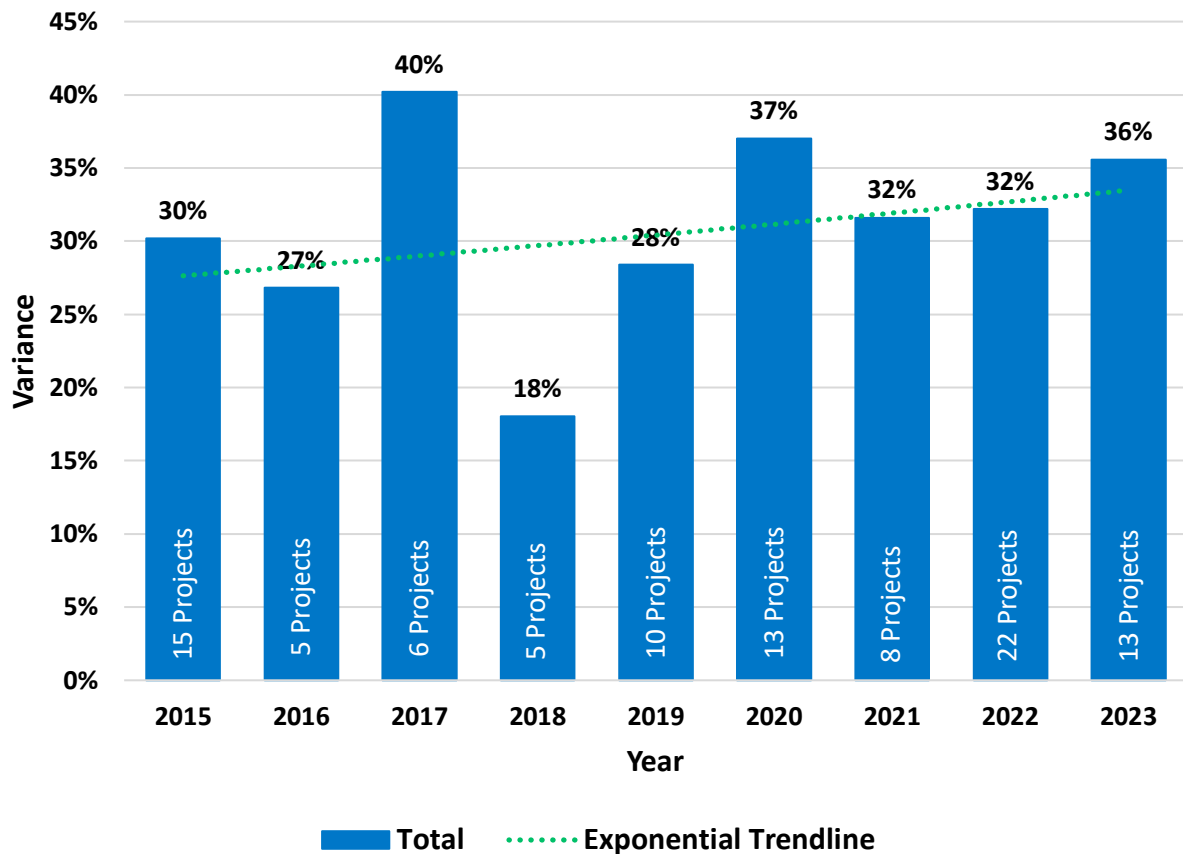
SC&H requested project documentation for analysis to obtain a quantitative understanding of bids and achieve the assessment's objectives. The documentation provided included project summary files for all projects completed between 2015 and 2023, including high-level values of the estimate created, and contractor bids received for the projects. SC&H excluded collaborative project delivery methods, CMAR and Design-Bid-Build, due to the size and specificity of project development. SC&H completed multiple data analysis activities on construction cost estimates and bids received. This analytical review included more than 100 prior projects completed with over 8,000 summary line-item values. The following provides data and results identified from the analytical procedures.

#### Graph I: Variance of Construction Cost Estimating Over Time

To illustrate the effects of yearly price changes, SC&H analyzed the total change in bid award price versus OPCC, then averaged those prices. **Graph I** below provides a visualization of how high the variances have been over the scope period. On average, the variance across all years in the scope period is 31% and is increasing in the final four years sampled (2020-2023). The average variance for the final four years sampled is 34% meaning the variances are increasing (slope of the trendline).



### Variance of Construction Cost Estimating Over Time



Graph I – Variance of Construction Cost Estimate Over Time

Calendar Year	Number of Projects	Average of Percent Variance
2015	15	30.20%
2016	5	26.81%
2017	6	40.19%
2018	5	18.04%
2019	10	28.38%
2020	13	37.00%
2021	8	31.61%
2022	22	32.19%
2023	13	35.57%
<b>Total</b>	<b>100</b>	<b>32.03%</b>

### Graph II: Boxplot of Variance in OPCC vs. Bid Award

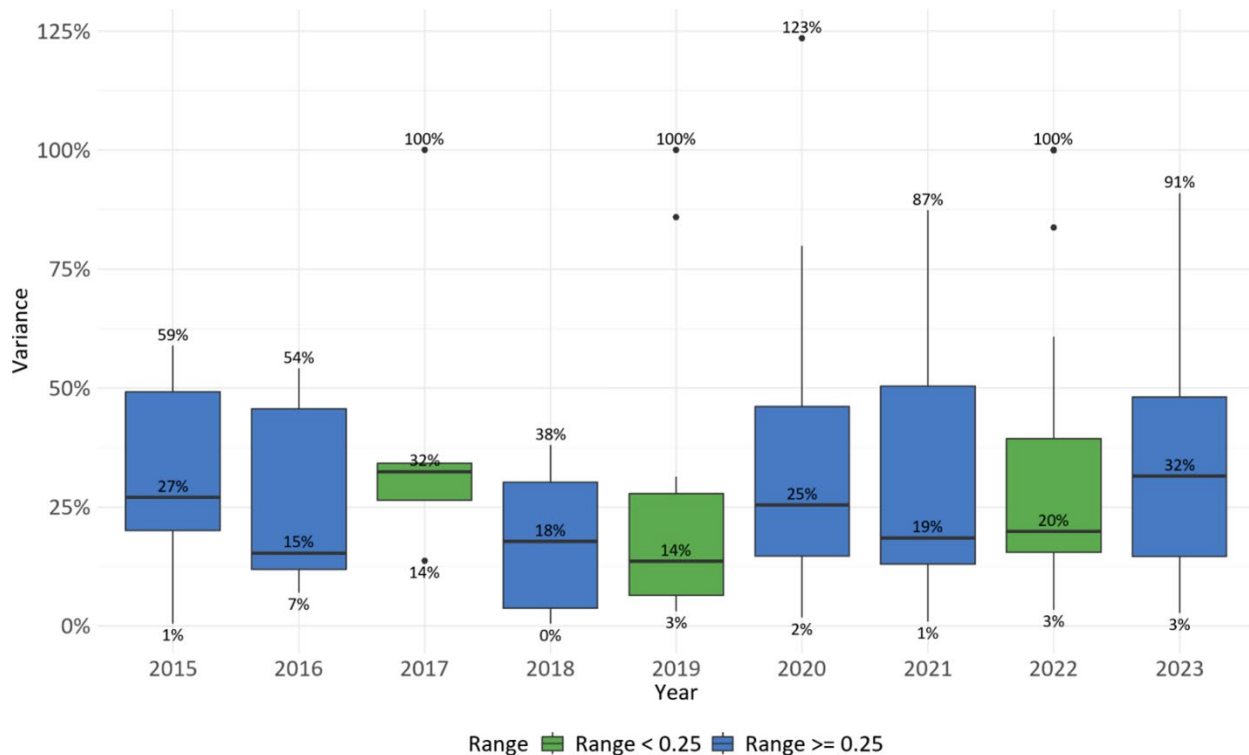
As a baseline for research, SC&H wanted to obtain an understanding of the changes in bid prices received versus the engineer's OPCC by year. **Graph II** below is a collection of boxplots that illustrates this change. A box plot illustrates the first, second, third, and fourth quartiles of a collection of data, showing the variability of the data based on the size of the "boxes and whiskers" for each year. All other values above or below the box and whisker are outliers.

**Graph II** shows a sustained percentage variance for all years in the scope period between the low bid and the OPCC during the scope period of the review. From 2015 to 2019, the medians had an average variance of 21% with an upper extreme averaging 70%. 2020 to 2023 showed an increased variance of



24% and an upper extreme averaging 100% showing a positive trendline which one can infer that variance will continue to increase year over year.

Based on information gathered during the assessment, it can be assumed that one reason for the sustained increase in variance between the OPCC and low bid that was experienced in 2020 and continues through to current projects out for bid is a direct result of market constraints that developed following the COVID-19 pandemic and additional construction in the Hampton Roads region.



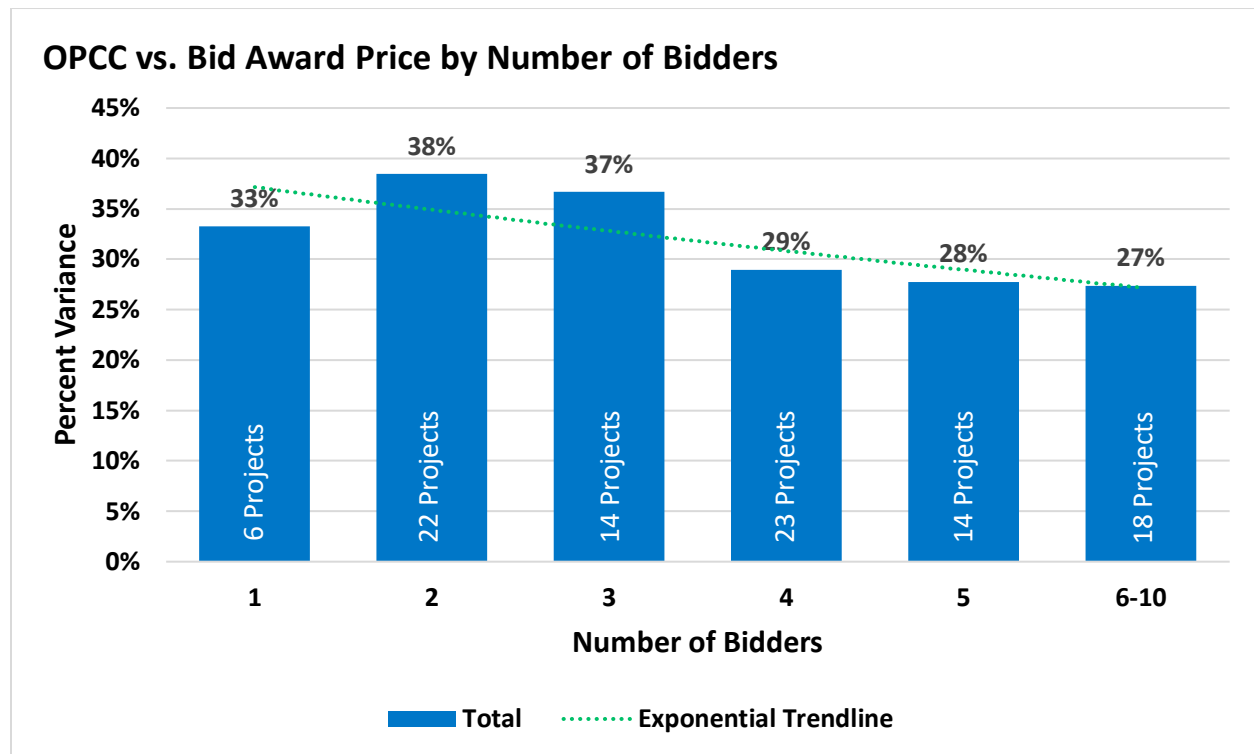
**Graph II – Boxplot of Variance in Bidder Price vs. Estimate Price**

Year	Q1	Median	Q3	Min	Max
2015	20%	27%	49%	1%	59%
2016	12%	15%	46%	7%	54%
2017	26%	32%	34%	14%	100%
2018	4%	18%	30%	0%	38%
2019	6%	14%	28%	3%	100%
2020	15%	25%	46%	2%	123%
2021	13%	19%	50%	1%	87%
2022	15%	20%	39%	3%	100%
2023	15%	32%	48%	3%	91%

**Graph III: OPCC vs. Bid Award Price by Number of Bidders**

Similar to **Graph I**, **Graph III** shows the average variance of the projects compared to their accepted bid price. SC&H compared the number of contractors that bid to the average variance of the project to illustrate the effects of a low number of bidders on a price variance for projects from 2015 to 2023. The average variance of having fewer than five bidders on a project results in a larger variance; in this case, one less bidder increases the average variance by approximately 2%. Based on information learned

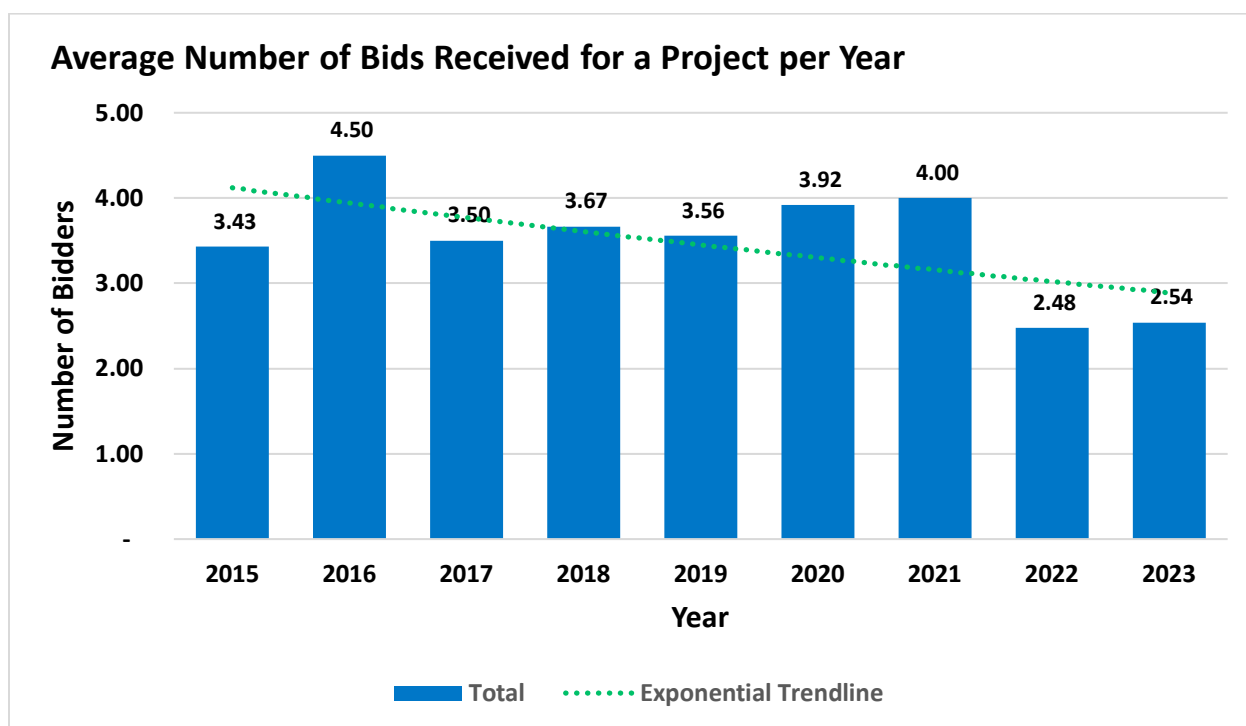
during the assessment, construction projects have been receiving fewer bids due to an increase in construction projects within the Hampton Roads region.



**Graph III – OPCC vs. Bid Award Price by Number of Bidders**

#### Graph IV: Average Number of Bids Received for a Project per Year

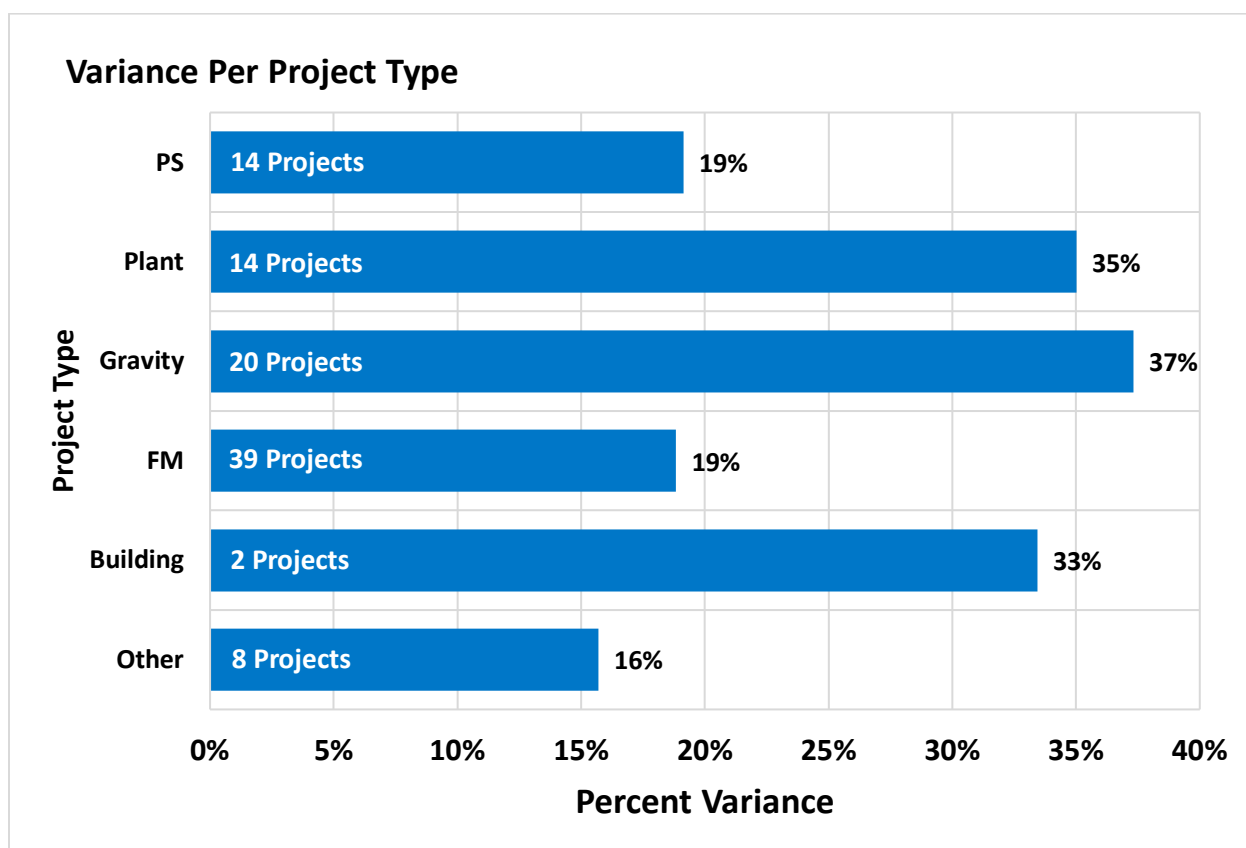
In collaboration with **Graph III**, **Graph IV** below shows the average number of bids received for a project per year. The average number of bids per project from 2015 to 2021 was 3.80 bids which was higher than the average of the more recent years of 2022 and 2023. The number of bids decreases in 2022 and 2023, averaging 2.51 bid per project.



**Graph IV: Average Number of Bids Received for a Project per Year**

#### Graph V: Variance Per Project Type

To further understand trends in the bid versus estimate environment, **Graph V** below shows the different types of projects HRSD contracts for and the average percent variance of each for projects between 2015 and 2023. In doing so, SC&H was able to understand the project types that have the highest bid variance.



**Graph V – Variance Per Project Type**

#### Breakdown

During the data analytical procedures, SC&H requested line-item data to break down and understand details and timing of cost changes and deltas throughout the design process. It was confirmed via inquiry with HRSD that the requested data is tracked on an individual project basis but is not collected or maintained in a centralized repository. Further the data was not available in a manner to analyze/evaluate as initially intended for the assessment. Refer to **Observation 1** for more information.

#### External Engineering Firm Discovery

SC&H conducted benchmarking exercises to understand how organizations outside of HRSD have been addressing similar issues. SC&H first met with engineering firms that HRSD regularly works with to understand their portion of the cost estimating process and the challenges that they experience when completing construction cost estimates for HRSD. SC&H met with the following firms:

1. Gannett Fleming
2. HDR Engineering
3. Hazen & Sawyer
4. RK&K

These firms operate in the consulting space, allowing them to understand prices and areas that can cause variances between a final stage estimate and bids received. SC&H inquired about firms processes for the completion of an estimate when selected by HRSD, including initial estimate creation, estimate development throughout the lifecycle of an estimate, communications with HRSD, and discussed any challenges or process improvement opportunities.

Communication themes aligned with SC&H's understanding of current bid estimating challenges, external research completed for the assessment, and the assessment's recommendations. Themes included the following.

1. There has been an increase in bid values received after the COVID-19 pandemic. Per feedback, estimators must now conduct more active monitoring of current market values for materials to attempt to foresee trends in pricing when an estimate is scheduled to be completed. Estimators also monitor market pricing of non-construction material supported by historical trends in attempts to anticipate market fluctuations at a macroeconomic level.
2. There is a need for active monitoring of construction company's workload and skillsets, as well as the current environment of construction projects in the surrounding geographical area. Firms know construction companies in the area, their abilities to complete specialized construction requirements often included in HRSD construction projects, and their current appetite to take on additional projects. This allows them to understand how many bids a project may receive and who could potentially place those bids. Per feedback, when construction companies have ample work for their current workforce, the creation of an estimate seems to be more focused on what the construction companies may bid, rather than what the project may cost.

During conversations, SC&H presented proposed recommendations/solutions that included additional data retention and increased communication between engineering firms which the firms agreed could improve current estimate creation and interaction with HRSD.

### Benchmarking Questionnaire and Interview

SC&H developed a benchmarking questionnaire that was provided to similar organizations to HRSD in services provided, size, and geographical location. The questionnaire included inquiries surrounding the organization's construction cost estimating process, their understanding and interaction with the current bidding environment, communication methods, and challenges they currently face.

The respondents had similar processes for bid estimating and expressed similar challenges to HRSD regarding the increases in bids received for construction projects. The respondents also completed similar research into bids received when large variances occurred and discussed these with the external consulting firms utilized when applicable. Per feedback, there was an instance of a project cancellation to bids received that were far above the estimated cost.

As part of the benchmarking exercise, SC&H presented proposed recommendations/solutions that included additional data retention and increased communication between engineering firms which the organizations agree could improve estimate creation and interactions with external consulting firms.

SC&H received responses from a limited number of organizations. Per discussion with HRSD, HRSD plans to continue contacting organizations following this assessment to gain additional information to help further understand variances and potential solutions.

## Summary of Work

HRSD manages a significant amount of information and transactions. The overall construction cost estimating processes appear to be conducted in a formalized, consistent, and structured manner. Throughout the assessment, the team members operated in a professional manner and offered detailed responses to questions and clarifying items in addition to obtaining requested documentation in a timely manner.

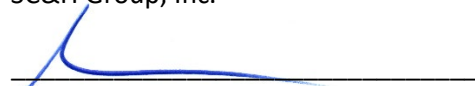
HRSD has acknowledged the challenges with project estimating and has been taking actions in attempts to mitigate those variances. The following provides a summary of steps HRSD's performed, that were discussed with SC&H during the assessment. SC&H evaluated these actions during the assessment, and conducted procedures in a manner that complemented them, and not duplicate them (e.g., targeted questions during external communications, specific in-depth data review criteria, etc.).

1. Administering benchmarking exercises with similar organizations to identify challenges experienced and possible improvement opportunities.
2. Performing:
  - a. internal research on bids received compared to estimates created from 2015 to current bids received.
  - b. market research on the current construction environment in the Hampton Roads region areas including active and planned projects surrounding water sanitation, transportation, infrastructure, etc.
3. Conducting consultant coordination meetings with engineering firms to receive input on the current bidding environment and challenges experienced.
4. Reviewing estimates created compared to bids received with the engineering firms when large deltas are received.
5. Monitoring:
  - a. bid price received compared to the actual costs incurred during and at the completion of a project.
  - b. monitoring of market pricing for material and labor.

Based on the assessment procedures, there appear to be opportunities to help further HRSD's progress to mitigate bid variances. These opportunities are categorized into two areas of focus: data organization and evaluation and proactive, actionable communication. Details are in the "Observations and Recommendations" section of this report.

We appreciate the assistance and cooperation of the management and staff involved in HRSD's construction cost estimating functions. Please contact us if you have any questions or comments regarding any of the information contained in the assessment report.

SC&H Group, Inc.



Matthew Simons, CPA, CIA, CGAP  
Principal

# Observations and Recommendations

## Observation 1

### Summary

Current and historic cost estimating data details are limited and not centrally maintained to serve as a tool to analyze details and evaluate trends that impact project pricing and timing.

### Detail

HRSD maintains its own construction cost estimating data in the Oracle system. When a project is sent to bid, HRSD records the OPCC and the bids it receives. SC&H conducted analytic procedures on all projects with an accepted bid in the period of January 1, 2015, through December 31, 2023 (124 projects). The goals of the procedures were to:

1. Compare estimate versus bid line items to understand what criteria/items have the largest difference (percentage and dollar value).
2. Identify material changes in scope and pricing of projects with similar scopes.
3. Review the evolution of an estimate and the associated pricing over time.
4. Review trends in the evolution of previous estimates to identify possible improvement opportunities in developing future estimates.
5. Evaluate data that shows the total percentage of delta over a period of time, using multiple factors/criteria, to present what a potentially reasonable delta could be.

SC&H worked with HRSD personnel to collect data, attempting to receive and aggregate from multiple sources. Certain data was available, which HRSD maintains for certain analytical procedures. During the collection and understanding process, it became known that detailed data was not reasonably accessible which impacted the ability to perform all attempted analytical procedures. For instance, unavailable data included the following:

1. Estimate values when utilizing different estimate creation methods (CMAR vs Design Bid Build).
2. Estimate values at each stage of the estimate process.
3. Uniformity of detail within line-item values for all bids received for appropriate contract types.

Further, because detailed estimate costs/data/changes are not maintained throughout the lifecycle, the timing of estimate procedures at each stage of the estimate could not be determined.

### Risk

Lack of an organized system of detailed data to evaluate estimate details during each stage could impact the ability to:

1. Identify, monitor, and address factors impacting bid values.
2. Identify trends that cause pricing variances.

### Recommendation 1

HRSD should consider implementing a documentation and data organization function to assist with its estimating processes. This implementation may require updates to the HRSD Design and Construction Standards, where applicable. For instance, this can include, but is not necessarily limited to the following:

1. Create a centralized database to store current and historic project data. The data elements should estimate phase, estimate creation date, and line-item costing.

2. Determine data elements and criteria to store and monitor over time to help with project estimations. For instance:
  - a. Pricing and changes throughout the lifecycle of the development of an estimate
  - b. Line-item pricing/costs
  - c. Project delivery method
  - d. Risk register and scoring
3. Consult with engineering firms/contractors on the level of data that could be readily available and helpful.
4. Determine if there are opportunities to request additional, detailed specifications in bids/proposals for HRSD to use for comparisons.
5. Include processes that encourage more communication and record keeping with engineering firms. For instance, include records of communications, action items, and status:
  - a. When unanticipated changes occur throughout the development of an estimate.
  - b. When unique equipment would be required for the project that was not previously identified in the creation of the estimate.
  - c. When specialized skillsets are needed for the completion of a project that was not previously identified in the creation of the estimate.

### Management Action Plan 1

We agree with the recommendations included in Recommendation 1. HRSD will create a more detailed database of project cost information, share it with the Consultants, and create a new Policy assuring this information has been reviewed prior to finalizing all OPCC's.

### Implementation Date/Period 1

1. HRSD will update the Construction Cost Database and share it with the consultants by April 1, 2025.
2. HRSD will create a Policy for Construction Cost Estimating by April 1, 2025.



## Observation 2

### Summary

Improved strategic communication and coordination can exist between HRSD and engineering firms during the project development and estimating process.

### Detail

HRSD and engineering firms collaborate during the development of an estimate for a construction project and the resulting deliverable, a final estimate, is provided from the firm to HRSD for advertisement. There are milestones throughout the estimate creation process where conversations surrounding elements of an estimate are discussed. During interviews with engineering firms and HRSD, additional communication during the development of an estimate would benefit both HRSD and the engineering firm.

For instance:

1. Both HRSD and engineering firms believe there are similar factors to the variances in the bid versus estimate amounts.
2. All firms interviewed felt the economic forecast, the stage at which the engineering firm gets involved in estimating, and the cost estimating database being used (PPI Index vs ENR Index) would help lower the bid versus estimate values.

### Risk

Limited communication, both internally and externally, inhibits HRSD's ability to improve the construction cost estimating process, identify opportunities to improve future bids, and decrease the difference in bids received compared to estimates created in the future.

### Recommendation 2.1

HRSD's processes are guided by design and construction standards that are developed internally and utilize external organizational recommendations, such as the AACE. HRSD uses these standards to set expectations with its designers and contractors regarding how to conduct business with HRSD. For instance:

1. Expectations of timely service provided to HRSD for estimate creation.
2. Expectations of deliverables to be presented during the lifecycle of an estimate creation.
3. Expectations of baseline communications during an estimate creation.

HRSD also allows its outsourced firms to operate with a level of autonomy that enables them to conduct their procedures and apply their expertise to achieve contractual obligations. In other words, HRSD relies on contracted firms to effectively execute contracts and does not tell them how to do their jobs. HRSD also does not have the desire to have all control over its contracted firms and wants to allow them to operate most effectively and apply their expertise.

However, HRSD should consider agreeing upon certain criteria with its contracted firms that will offer mutual benefits related to estimating projects. This may be communicated and agreed upon during 1) the contracting processes (e.g., stated within request documentation) and/or upon commencement of contractual engagements. Examples include, but are not necessarily limited to the following:

1. Request periodic information that would aid with transparency and clarity for HRSD.
2. Establish and agree upon:

- a. A frequency to meet and discuss estimate, bid, or other contractual information.
- b. An agenda and criteria to discuss during meetings.
- c. Action items, responsibilities, and timelines as a result of meeting discussions.

Recommendation 2.1 is not intended for HRSD to control its contracted firms. Rather, it provides HRSD and contracted firms with an opportunity to improve transparency and strategic decisions.

HRSD may consider incorporating suggestions in recommendation 2.1 with information within recommendations 1 and 2.2.

#### Management Action Plan 2.1

HRSD will create a Construction Cost Estimating Policy to address the recommendations listed above.

#### Implementation Date/Period 2.1

HRSD will develop this policy by April 1, 2025.

#### Recommendation 2.2

HRSD should consider establishing a consultant user group who meet on a regular basis to discuss concerns about the current bidding and estimating environment, and present solutions to that enable all parties involved to improve current processes. Potential agenda items include the following factors that could influence the bid processes:

1. Current and upcoming and current trends.
2. Economic factors, and process improvement opportunities.

HRSD currently holds consultant coordination meetings with external firms to discuss regulation updates. This consultant user group could be added to these meetings or be a separate similar meeting with a focus on improving bid creation.

#### Management Action Plan 2.2

HRSD will create a Consultant Cost Estimating User Group.

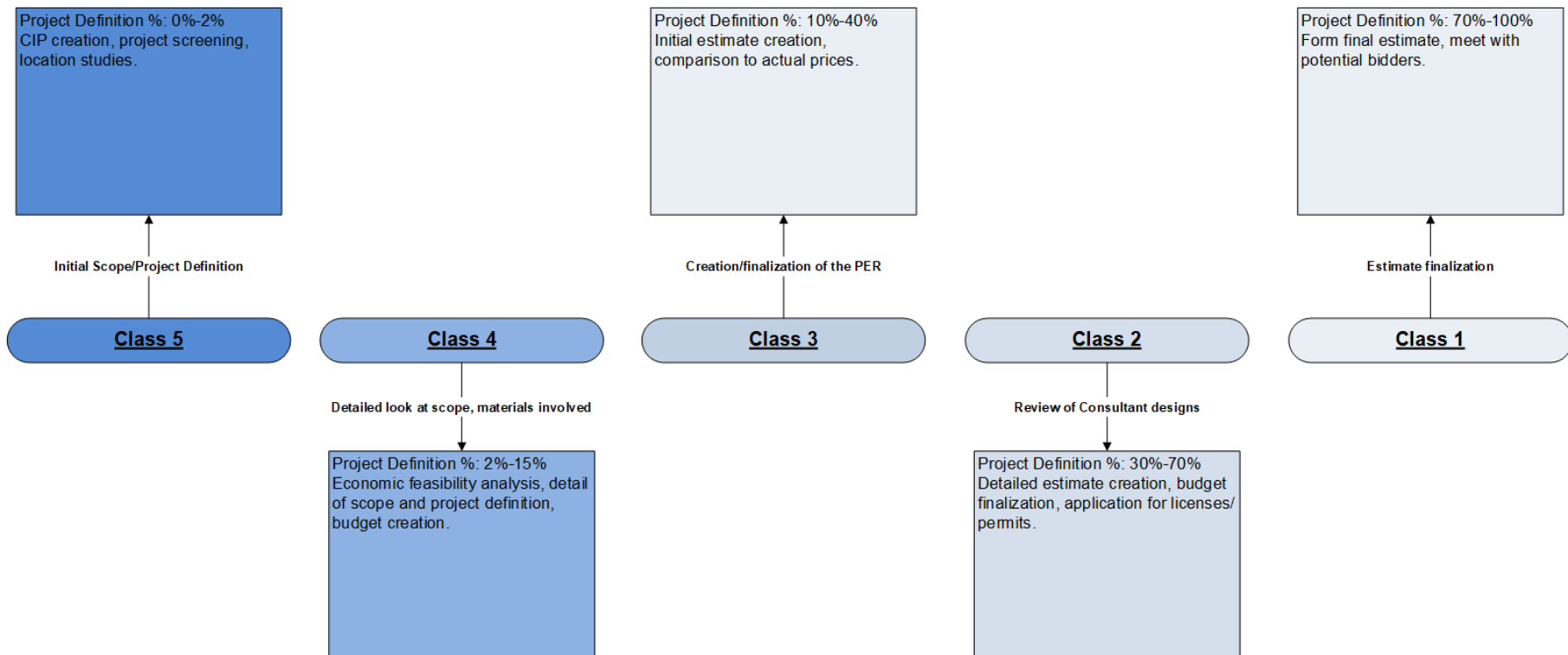
#### Implementation Date/Period 2.2

Create the CCEUG and hold the first meeting by Feb. 1, 2025.

# Appendix A: Flow Diagrams

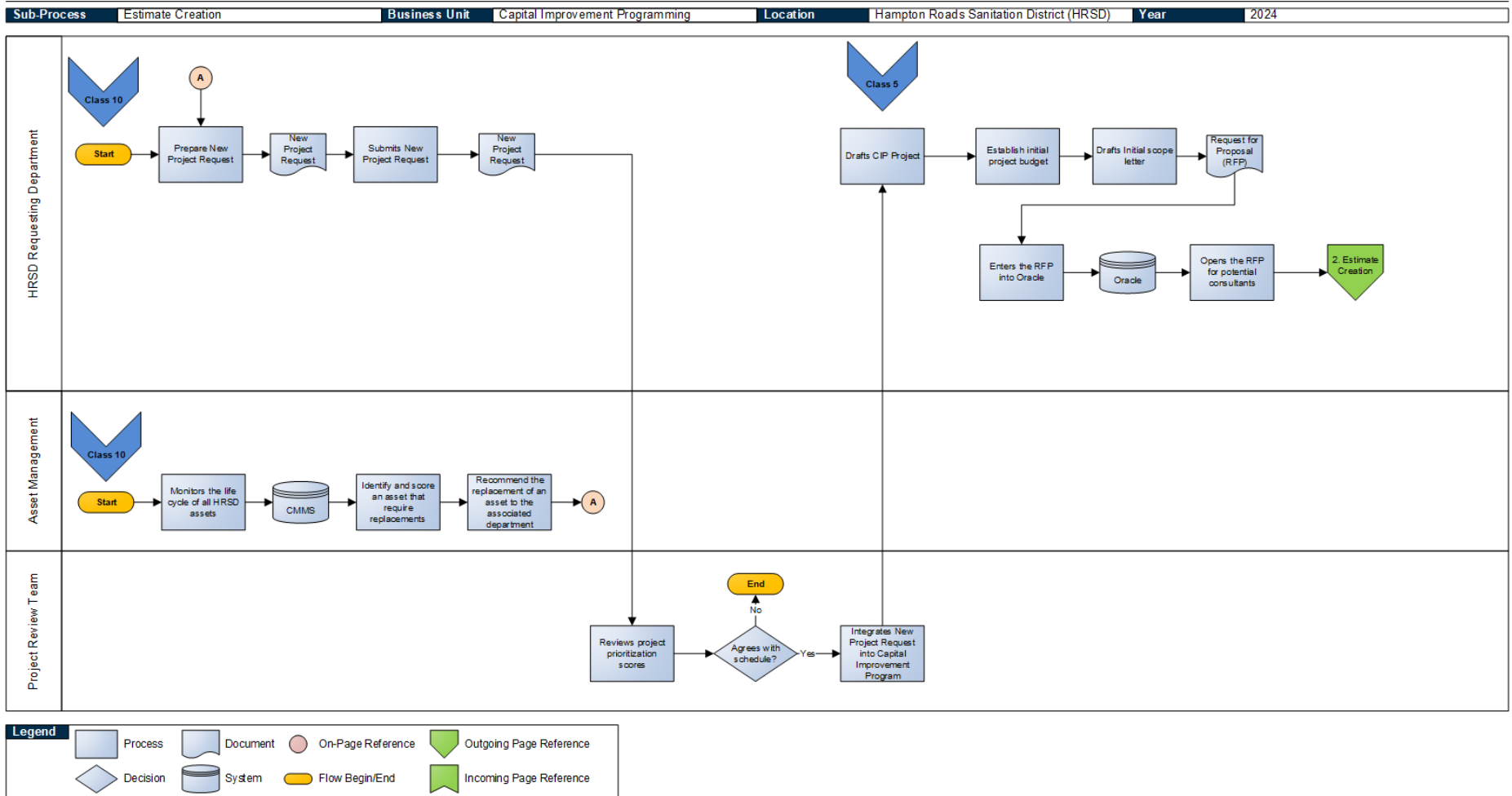


## Hampton Roads Sanitation District Design and Construction



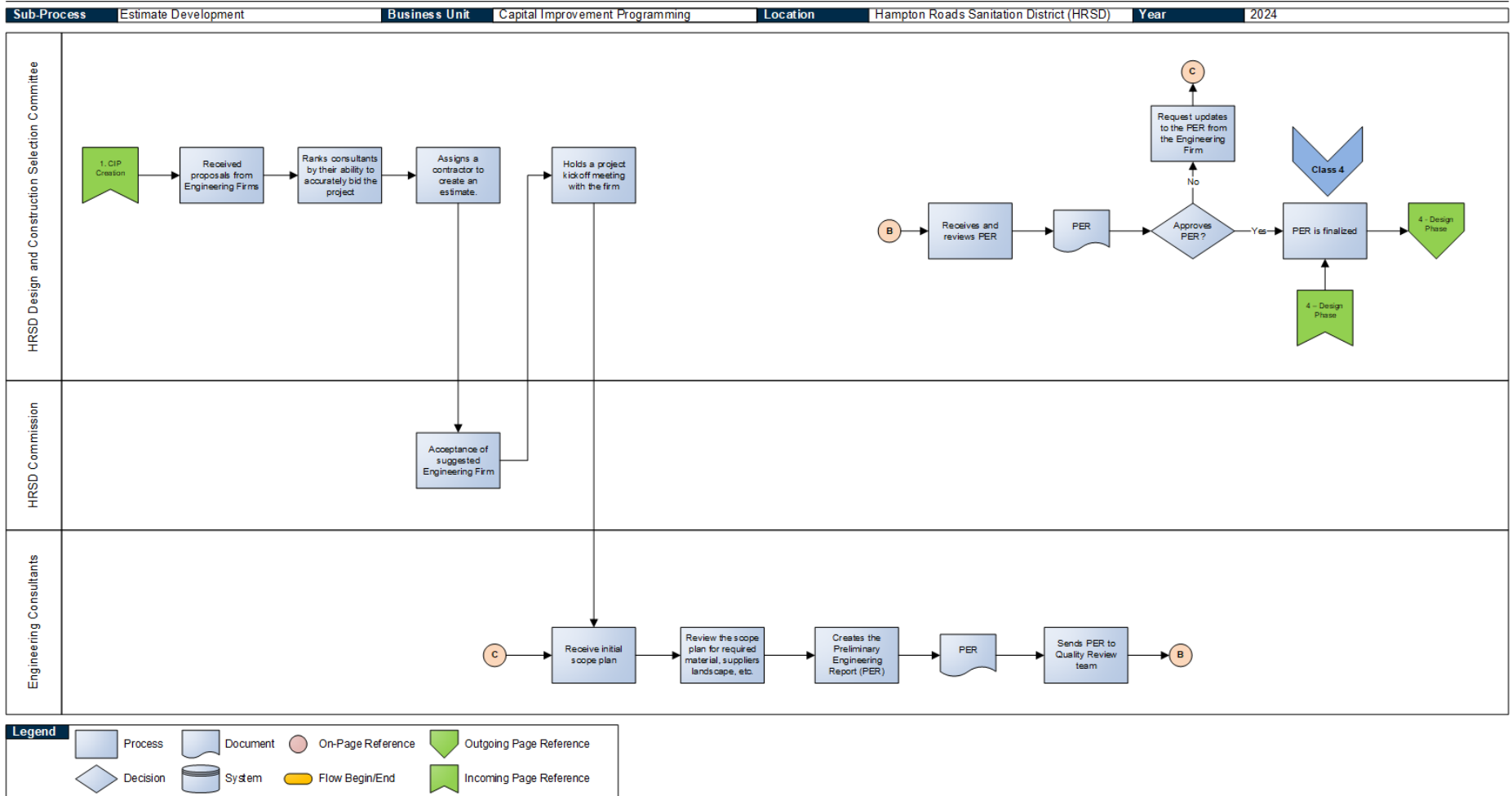


## Hampton Roads Sanitation District Design and Construction



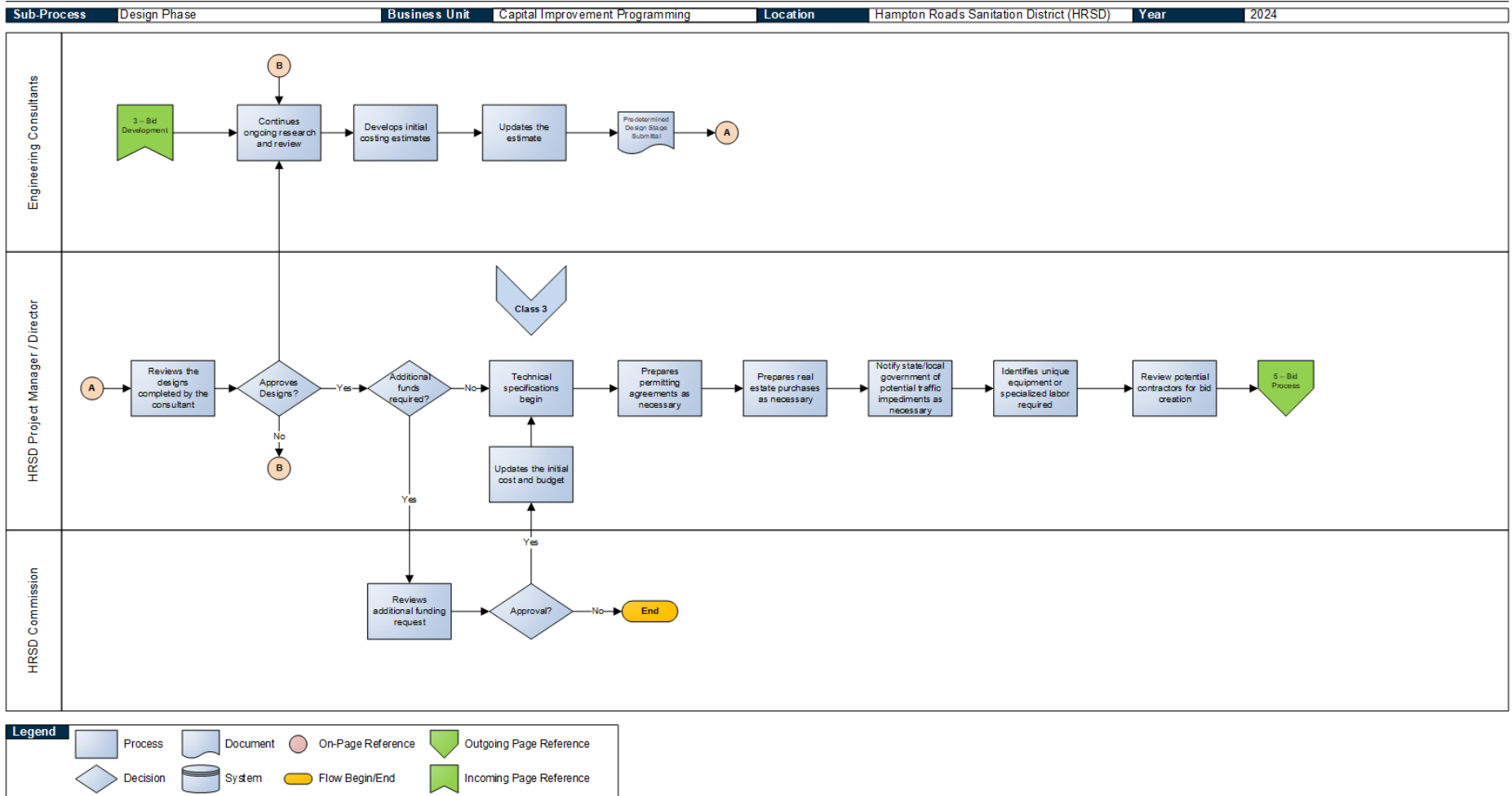


## Hampton Roads Sanitation District Design and Construction



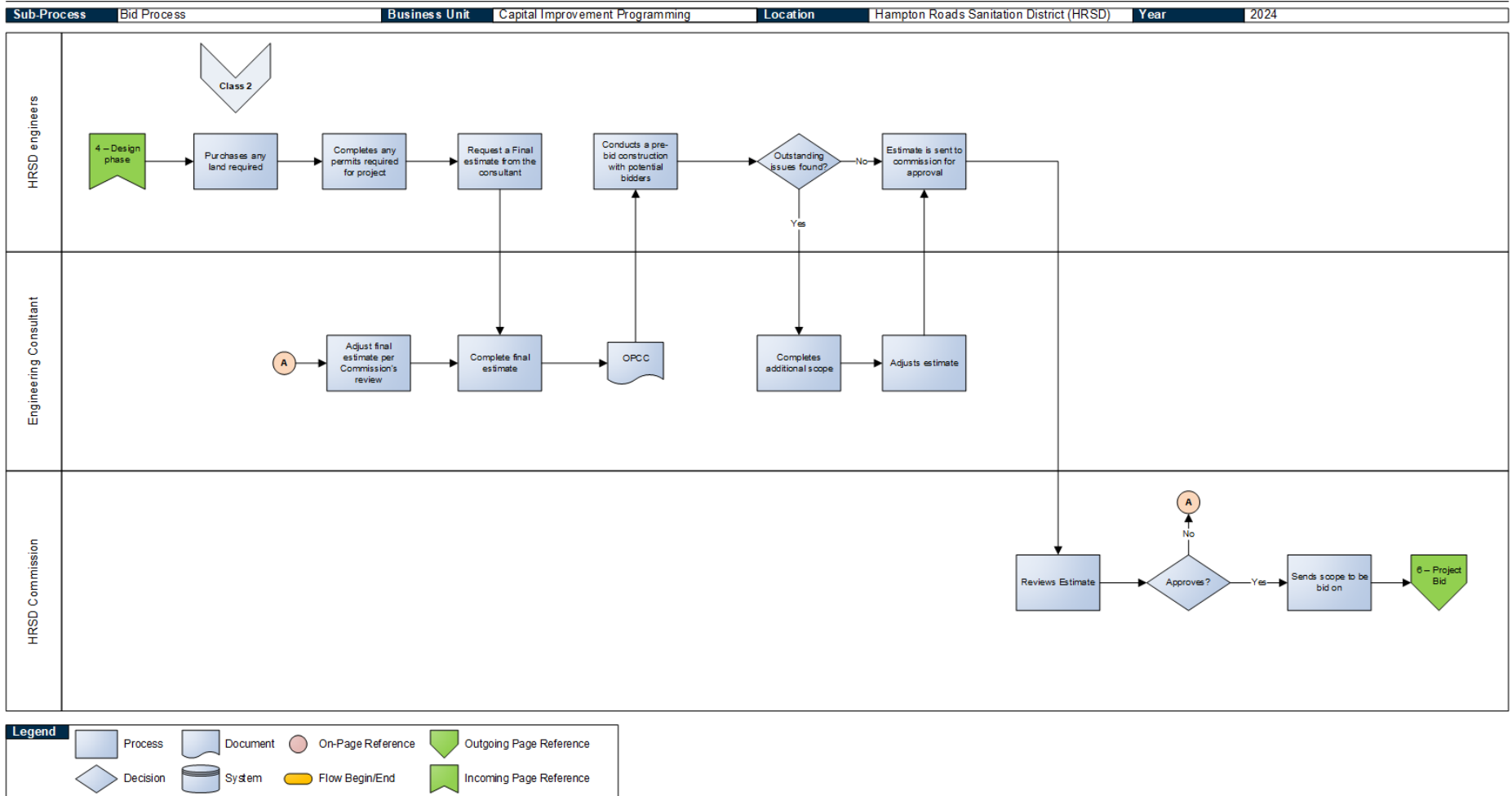


## Hampton Roads Sanitation District Design and Construction



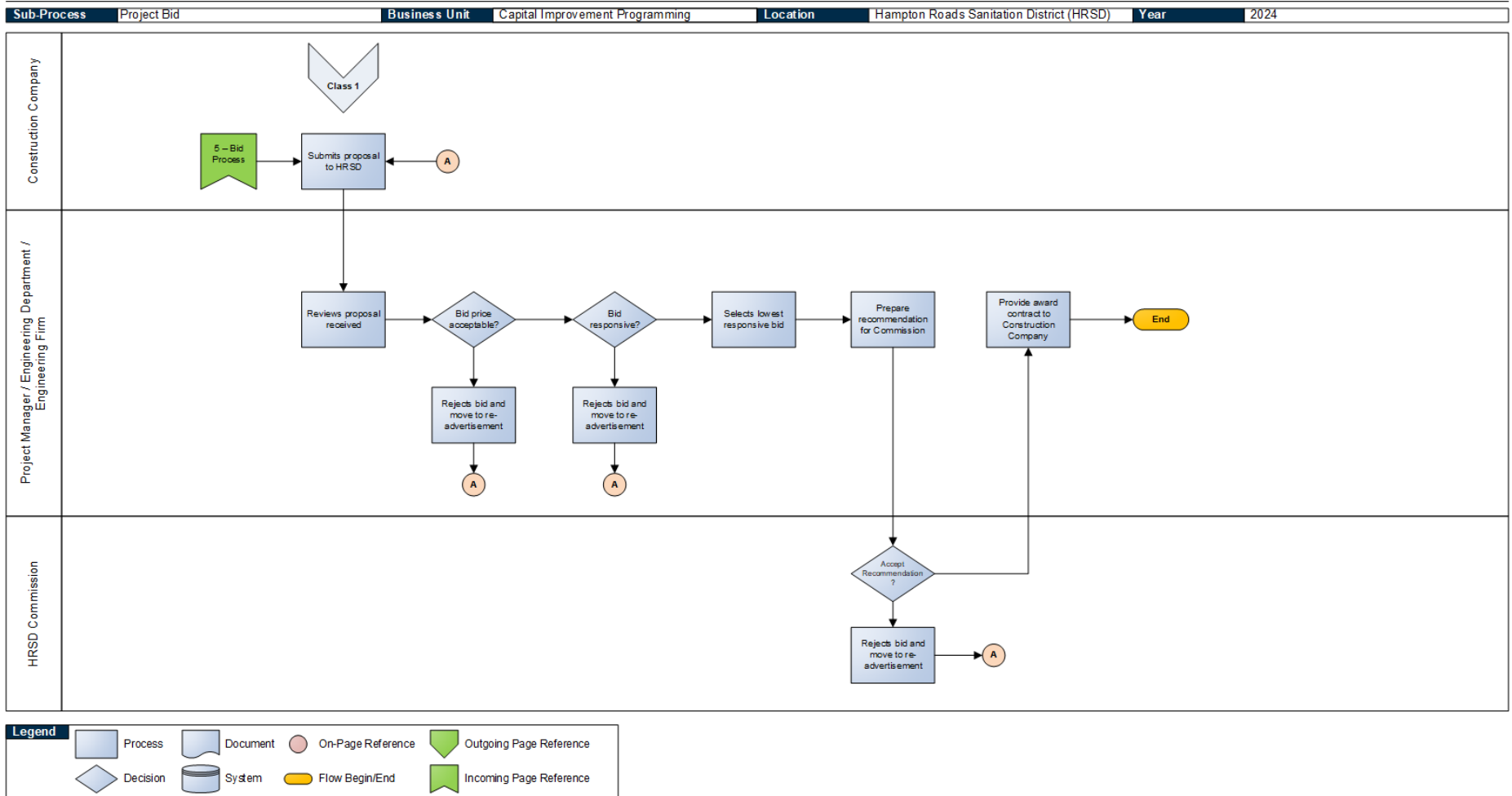


## Hampton Roads Sanitation District Design and Construction





## Hampton Roads Sanitation District Design and Construction









HRSD Commission Meeting Minutes  
December 17, 2024  
Attachment #5

8. Providence Road Interceptor Force Main (SF-165) Segmental Replacement at Depositor Lane  
Initial Appropriation – Non-Regulatory



#### AT016700

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

#### Legend

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

0 55 110 220 330 440 Feet

## AT016700

Providence Road Interceptor Force Main (SF-165)  
Segmental Replacement at Depositor Lane



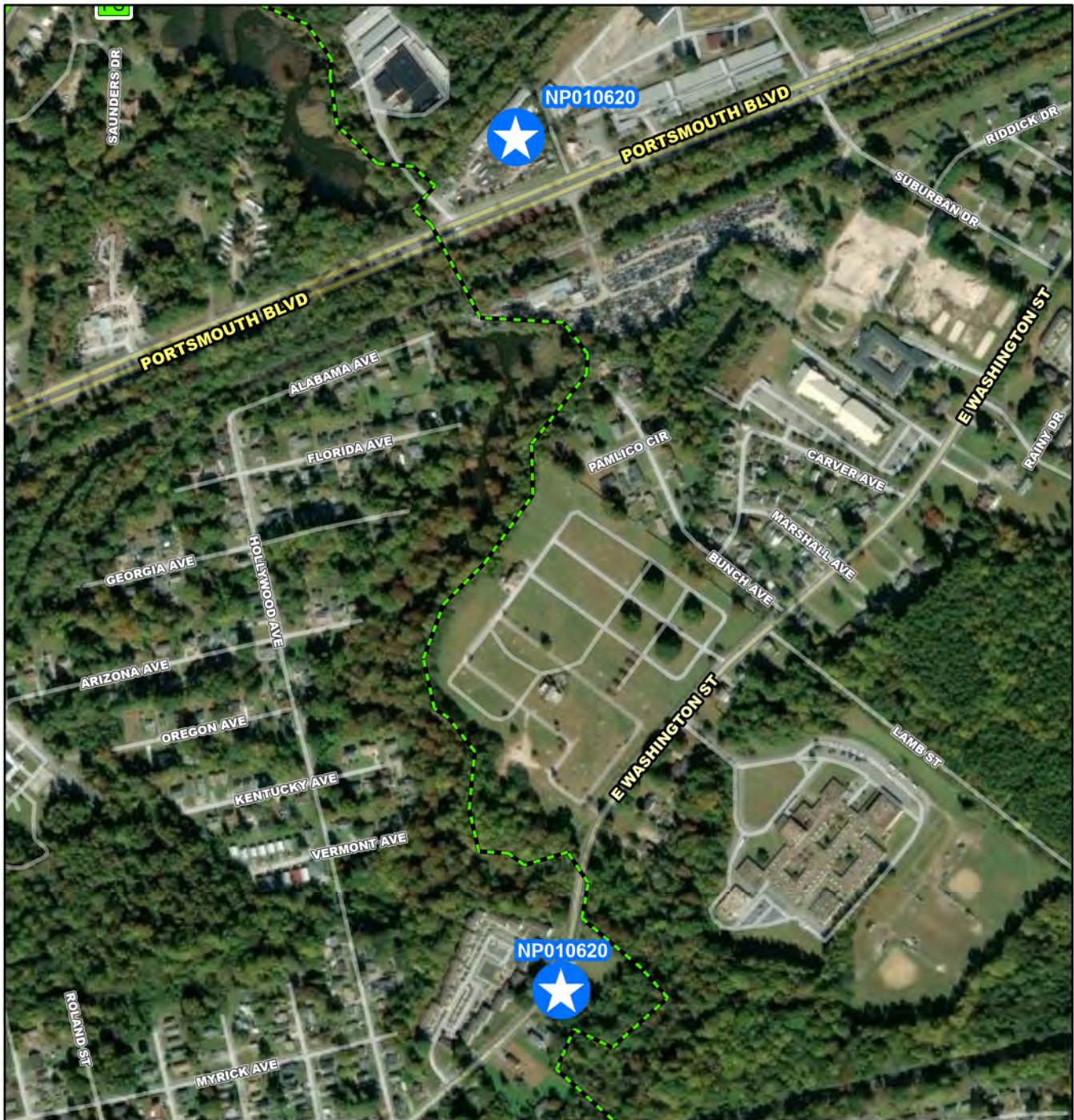
CIP Location



HRSD Commission Meeting Minutes  
December 17, 2024  
Attachment #6

9. Suffolk Pump Station Replacement  
Additional Appropriation – Regulatory Required (>\$10,000,000), Contract Award (>\$200,000), Task Order (>\$200,000)





- NP010620**
- Project Interceptor Line
  - Project Interceptor Point
  - Project Pump Station Point
  - Project Area
- Legend**
- CIP Interceptor Point
  - CIP Pump Station Point
  - CIP Interceptor Line
  - CIP Abandonment
  - CIP Project Area
  - HRSD Interceptor Force Main
  - HRSD Interceptor Gravity Main
  - HRSD Treatment Plant
  - HRSD Pressure Reducing Station
  - HRSD Pump Station

0 195 390 780 1,170 1,560 Feet

**NP010620**

**Suffolk Pump Station Replacement**



CIP Location



HRSD Commission Meeting Minutes  
December 17, 2024  
Attachment #7

10. Larchmont Area Sanitary Sewer Improvements  
Acquisition of Real Property for a Public Purpose – 900 Jamestown Crescent, Norfolk



ACCT NO.: 02371000 (Portion of)  
PROJECT: Larchmont Area Sanitary Sewer Improvements; CIP # VP015320  
ROUTE/STREET: JAMESTOWN CRESCENT  
CITY/COUNTY: NORFOLK

## PURCHASE AND SALE AGREEMENT

**THIS PURCHASE AND SALE AGREEMENT** (this "Agreement") made this 19<sup>th</sup> day of December 2024, by and between, **SHAUNE W. MEREDITH, Trustee of the Shaune W. Meredith Revocable Trust** whose mailing address is 900 Jamestown Crescent, Norfolk, VA 23508 ("Landowner" or "Seller"), and **HAMPTON ROADS SANITATION DISTRICT** ("HRSD" or "Buyer"), a political subdivision of the Commonwealth of Virginia, located at 1434 Air Rail Avenue, Virginia Beach, Virginia 23455, the ("Buyer"). Collectively, Buyer and Seller shall be referred to as the "Parties."

### RECITALS

- A. WHEREAS, Seller currently owns a parcel of land off Jamestown Crescent in the City of Norfolk, Virginia containing 30,103 square feet of land, known as 900 Jamestown Crescent, Norfolk, Virginia, Tax Account: 02371000;
- B. WHEREAS, HRSD wishes to acquire a portion of Seller's parcel, containing approximately 492 square feet, or .011 acres, more or less, land lying, situate, and being in the City of Norfolk, and shown and labeled as "PARCEL BB (TO BE CONVEYED TO HRSD)" on that certain draft subdivision plat entitled "SUBDIVISION PLAT OF LOTS 37, 38, 39, 40, 41, 89, 90, 91, AND 92 IN BLOCK 25, THE NORTHERN 16' OF CLOSED 25' LANE, AND CLOSED '12 PORTION OF CAMBRIDGE WALK AMENDED PLAT OF LARCHMONT (M.B. 9, PG. 1 – CHESAPEAKE) PROPERTY OWNED BY SHAUNE W. MEREDITH REVOCABLE TRUST (INST. #200032548) CITY OF NORFOLK, VIRGINIA" prepared by Johnson, Mirmiran & Thompson, and dated September 8, 2023 (revised March 18, 2024 per City comments), a copy of which is attached hereto as **EXHIBIT A**;
- C. WHEREAS, HRSD desires to purchase the fee simple property (Parcel BB) shown on **EXHIBIT A** and all structures and improvements thereon and appurtenances thereto, from the Seller for the purpose of the Larchmont Area Sanitary Sewer Improvements; CIP # VP015320; the real property, together with all such rights, improvements, and appurtenances thereto, and any such personal property is hereinafter collectively referred to as "the Property";
- D. WHEREAS, Seller is willing to sell the Property to HRSD subject to the terms and conditions set forth in this Agreement;

- E. WHEREAS, Seller will cooperate with HRSD and use best efforts in all ways necessary to ensure the finalization, signature, approval, and recordation of the subdivision plat;
- F. WHEREAS, these recitals are incorporated by this reference into this Agreement.

NOW, THEREFORE, in consideration of the purchase price and the mutual promises contained in this Agreement, the parties agree as follows:

1. SALE. Seller agrees to sell and HRSD agrees to purchase the Property.
2. PURCHASE PRICE AND CONSIDERATION. The purchase price (the Purchase Price) for the Property is **\$41,200** (FORTY-ONE THOUSAND TWO HUNDRED DOLLARS) and shall be paid to the Seller at settlement, by certified check or wired funds at closing. Consideration for the Property described in this Agreement and for all damages, if any also includes terms in EXHIBIT C.
3. CONVEYANCE.
  - a. At the Closing, Seller shall convey title to the Property in fee simple, by general warranty deed, free and clear of any and all liens, mortgages, deeds of trust, security interests, leases, covenants, conditions, restrictions, easements, rights-of-way, licenses, encroachments, judgments or encumbrances of any kind, except for the following permitted exceptions: (a) the lien of real estate taxes not yet due and payable; (b) zoning and building restrictions and other laws, ordinances, and regulations of governmental bodies having jurisdiction over the Property; and (c) matters of record affecting title to the property, as reviewed and approved (or deemed approved) by HRSD in accordance with this Agreement. Except as expressly stated in this Agreement, the Property shall be conveyed in "AS IS" condition. Seller will convey the Property to HRSD via deed the form of which is attached hereto as EXHIBIT B and incorporated herein by this reference.
  - b. Title to the Property shall be good and marketable and, if HRSD chooses to obtain title insurance, insurable by a nationally recognized ALTA title insurance company of HRSD's choice at or below normal rates. In the event that a title examination discloses defects of title or other matters unsatisfactory to HRSD at HRSD's sole determination, HRSD shall notify Seller in writing (an "Objection Notice"), prior to Closing of such title defects or other matters to which HRSD objects. Seller covenants that it shall cure all monetary encumbrances and all title objections which may be

cured by execution of a document requiring the signature of no party other than Seller (including any affidavits which may reasonably be required by the title insurer). Seller may notify HRSD in writing (an "Objection Response"), within ten (10) business days after receiving an Objection Notice if it believes that the Objection Notice makes reference to any title defect or other matter that Seller cannot or elects not to cure. Upon receipt of an Objection Response from Seller, HRSD shall have the option either to (i) terminate this Agreement by notice to Seller given within ten (10) business days of the Objection Response or (ii) accept the defects, exceptions or other matters referenced in such Objection Response and proceed to Closing hereunder with no reduction of the Purchase Price. Seller shall have the period until the Closing date within which to correct all defects, exceptions or other matters that it is required or elects to cure. Seller shall provide such documents (including evidence of authority), affidavits, and other instruments that may be reasonably required for the issuance of a title insurance policy to HRSD.

- c. Seller will deliver possession of the Property to HRSD at Closing, except that HRSD will also have unimpeded access to the Property at all times after execution of this Agreement and prior to Closing.
  - d. Seller agrees to pay proration of real estate taxes and storm water fees. HRSD will pay all other fees charged in connection with preparation and recordation of the deed, including grantor's tax, and other applicable closing costs, if any.
  - e. Seller and HRSD agree that the attorney selected by HRSD shall act as the Settlement Agent at HRSD's expense.
4. RIGHT OF ENTRY. Immediately upon execution of this Agreement, HRSD and HRSD's authorized representatives will have unimpeded access to the Property at all times. HRSD will exercise this right of entry in such a way so as to not cause unreasonable damage to the Property.
5. CONDITIONS AND CONTINGENCIES.
- a. HRSD's obligations are expressly conditioned upon the waiver or satisfaction of each of the following conditions in the sole determination of HRSD. If any one of the following conditions are not or cannot be met prior to Closing, HRSD may unilaterally terminate this Agreement or, in HRSD's sole discretion, extend the date of Closing:



- i. Receipt of a satisfactory title commitment, with all unacceptable title exceptions, encumbrances, and conditions as deemed by HRSD removed or cured at Seller's cost; however, if Seller chooses not to remove or cure any such title exception, HRSD's sole remedy shall be to terminate this Agreement;
  - ii. Receipt of a Phase I Environmental Assessment and Report (Phase I Report) conducted and prepared by an environmental engineering and inspection company selected by HRSD at HRSD's expense and such other testing and reports as may be reasonably required by HRSD or recommended in the Phase I Report;
  - iii. Seller's compliance with all of Seller's obligations under this Agreement.
  - iv. Results of all surveys, testing, and inspections conducted by HRSD of the Property being to HRSD's satisfaction in HRSD's sole discretion.
- b. This Agreement is expressly conditioned upon the completion of all title and environmental "due diligence" by HRSD to the satisfaction of HRSD in HRSD's sole discretion.
  - c. Seller agrees that any mortgage, deed of trust, security agreement or monetary lien against the Property shall be removed and released as liens on the Property on or before Closing.
  - d. This Agreement is contingent on the review and approval of the purchase by the Hampton Roads Sanitation District Commission and upon such Commission granting authorization to the General Manager/CEO to proceed under the terms of this Agreement.

6. ENVIRONMENTAL AND RELATED MATTERS.

- a. As a condition precedent to HRSD's obligation to purchase, HRSD, at HRSD's expense, may have a Phase I Environmental Assessment of the Property performed by a qualified environmental consultant (the Consultant) selected by HRSD and reasonably acceptable to Seller, conducted in accordance with standard commercial practice at the time of the assessment. A copy of the Phase I Environmental Assessment will be made available to Seller, together with copies of any supplemental reports or assessments.

- b. If the Consultant recommends soil, water, or structural remediation or further assessment activity after or as a result of performing a Phase I Environmental Assessment or if HRSD otherwise determines, in its reasonable judgment, that further assessment activity (including, but not limited to, a Phase II Environmental Assessment) is desirable, HRSD may at its option:
- (i) Terminate this Agreement; or
  - (ii) Extend the time for closing for an additional period of sixty (60) days in order to perform any such additional assessment at HRSD's expense; or
  - (iii) Have any necessary further assessment or remediation activity (including but not limited to a Phase II and/or III) conducted and reduce the Purchase Price by the cost thereof, and/or
  - (iv) Waive the environmental defect and proceed to Closing.

In the event HRSD chooses to perform any additional assessment, such as a Phase II, and determines that the results of such assessment are not satisfactory, HRSD may at its option:

- (i) Terminate this Agreement; or
- (ii) Have any necessary further assessment or remediation activity conducted and reduce the Purchase Price by the cost thereof, and/or
- (iii) Waive the environmental defect and proceed to Closing.

7. REPRESENTATIONS AND WARRANTIES BY SELLER. Seller represents and warrants as of the date of this Agreement and as of the date of Closing that: Seller has the right, title, and authority to enter into this Agreement and to perform its obligations hereunder. Seller warrants that they are the sole owner in fee simple of the land in interest and further warrants that title to the property is, and at settlement will be, marketable and good of record and in fact, free and clear of all liens, encumbrances, leases, and any of those existing to be removed at or prior to settlement.

Seller further represents and warrants, and shall deliver to HRSD at or prior to the Settlement, an Owner's Affidavit prepared by HRSD and all other documents required by the title company to issue an owner's policy evidencing, the following facts:

- (i) Other than this Agreement, there are no other contracts for sale or options involving the Property now in effect;

(ii) To the best of Seller's knowledge, no other party has any right, title, or interest in the Property;

(iii) There are no unrecorded leases, options, licenses or easements existing in connection with the property of which the Seller has knowledge;

(iv) There are no adverse government notifications or proceedings and there is no pending or threatened litigation or any other potentially adverse claims affecting the property of which the Seller has knowledge.

(v) Foreign Status. Seller is not a foreign corporation, person or entity and is a "United States Corporations, Person or Entity" as such terms is defined in Section 1445 and in Section 7701 (a)(30) of the Internal Revenue Code of 1986, as amended (the "Code") and shall deliver to HRSD at or prior to the Settlement an Affidavit prepared by HRSD evidencing such fact and such other documents as may be required under the Code.

(vi) From and after the date of this Agreement, Seller has not and shall not transfer any portion of the Property, or interest in the Property, or grant any easements or enter into any contractual agreement or understanding, written or oral, with respect to the Property or any portion thereof or make any changes at all that require recordation and therefore modifications to title, without the prior written consent of HRSD.

(vii) The Seller warrants that to the best of his knowledge there are no wetlands or hazardous wastes, which would prevent HRSD's intended use of the land. To the best of the Seller's knowledge: (i) none of the Property has been excavated (except for standard grading related to site development); (ii) no hazardous materials, toxic chemicals, or similar substances, as defined by 42 U.S.C. §1251, et seq. or 42 U.S.C. §6901, et seq. or 42 U.S.C. §9601, et seq., or 33 U.S.C. §1317(1), or 15 U.S.C. §2606(f), or 49 U.S.C. §1801, et seq., or regulations adopted pursuant thereto, or any similar provision of any applicable state, Federal, or local law (collectively "Hazardous Materials"), are or were stored or used on or under or otherwise were or are in existence or were in any way dealt with on or under the Property; and (iii) no owner or occupant of the Property has received any notice from any

governmental agency with regard to such Hazardous Materials.

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. The Landowner agrees to accept their legal proportionate share of such total consideration for their interest and right in the said land.

The Landowner hereby covenants and agrees for themselves, their heirs and assigns and successors, that the consideration herein mentioned shall be in lieu of any and all claims to compensation and damages by reason of this acquisition or use of the Property by HRSD.

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

Landowner acknowledges that HRSD has relied upon these covenants, representations and warranties in purchasing the property from Landowner

All of Seller's representations and warranties remain true and correct through the actual date of settlement.

8. NOTICES. All notices to the parties hereto will be delivered by hand, via certified mail return receipt requested, or via facsimile and all be deemed effective upon delivery if by hand and upon confirmation of receipt if by other means, to the following address until the address is changed by notice in writing to the other party:

HRSD: Jay Bernas, P.E., M.B.A.  
General Manager/CEO  
P.O. Box 5911  
Virginia Beach, Virginia 23471-0911

Copy to: D. Rossen S. Greene, Esq.  
Pender & Coward, P.C.  
117 Market Street  
Suffolk, VA 23434

Seller: SHAUNE W. MEREDITH, Trustee of the Shaune W.  
Meredith Revocable Trust  
900 Jamestown Crescent Norfolk, VA 23508

9. CLOSING. Unless this Agreement is terminated pursuant to its terms or by mutual agreement of the parties, or unless the Closing date is extended pursuant to the terms of this Agreement or by mutual agreement of the parties, Closing will be made at the offices of the Settlement Agent on or

about 60 days from the Effective Date of this Agreement (Effective Date being defined as the date on which both the Seller and HRSD have endorsed this Agreement).

10. [RESERVED]
11. PRORATIONS. All rents, interest, taxes, insurance premiums, utility bills, and fuel oil, if any, will be prorated as of the date of Closing.
12. RISK OF LOSS. All risk of loss or damage to the Property by fire, windstorm, casualty, or other cause is assumed by Seller until Closing. In the event of substantial loss or damage to the Property before Closing, HRSD will have the option of either:
  - a. Terminating this Agreement, or
  - b. Affirming this Agreement and proceeding to Closing.
13. BROKERS. Seller and HRSD both represent and warrant to the other that it has not hired, engaged, or consulted with any broker or agent in regard to this transaction. Seller agrees to indemnify and hold harmless HRSD from any and all costs, expenses, or damages resulting from any claim for brokerage fees or other similar forms of compensation made by any real estate broker or other person or entity with whom Seller has dealt, and who is not expressly named herein.
14. CONDEMNATION. Seller covenants and warrants that Seller has not heretofore received any notice of any condemnation proceeding or other proceeding in the nature of eminent domain in connection with the Property. If prior to Settlement any such proceeding is commenced or any change is made, or proposed to be made, to the Property or to the roads or driveways adjoining the Property, Seller agrees immediately to notify HRSD thereof. HRSD then shall have the right, at HRSD's option, to terminate this Agreement by giving written notice to Seller within thirty (30) days after receipt of such notice.
15. DEFAULT AND REMEDIES.
  - a. If the sale and purchase contemplated by this Agreement is not consummated because of Seller's default, HRSD may do the following:
    - i Terminate this Agreement;
    - ii Seek and obtain specific performance of this Agreement;

- iii Pursue all other rights or remedies available at law or in equity, including an action for damages.
  - b. If Seller defaults under this Agreement, Seller will be liable for any fees and expenses incurred by HRSD in connection with the enforcement of its rights under this Agreement, including but not limited to reasonably attorney's fees.
  - c. These remedies are cumulative and non-exclusive and may be pursued at the option of HRSD without a requirement of election of remedies.
  - d. If the sale and purchase contemplated by this Agreement is not consummated because of HRSD's default, Seller's sole and exclusive remedy shall be termination of this Agreement.
16. ENTIRE AGREEMENT. This Agreement contains the entire agreement of the parties and will supersede the terms and conditions of all prior written and oral agreements, if any, concerning the matters it covers. The parties acknowledge there are no oral agreements, understandings, representations, or warranties that supplement or explain the terms and conditions contained in this Agreement. This Agreement may not be modified except by an agreement in writing signed by the parties.
17. WAIVER. Failure to insist upon strict compliance with any of the terms, covenants, or conditions hereof will not be deemed a waiver of the term, covenant, or condition, nor will any waiver or relinquishment of any right or power at any one time or more times be deemed a waiver or relinquishment of the right or power at any other time or times.
18. SEVERABILITY. This Agreement will be construed in its entirety and will not be divisible, except that the invalidity or unenforceability of any provision hereof will in no way affect the validity or enforceability of any other provision.
19. CAPTIONS. Captions are used in this Agreement for convenience only and will not be used to interpret this Agreement or any part of it.
20. GOVERNING LAW. This Agreement is to be construed in accordance with the laws of the Commonwealth of Virginia.
21. CHOICE OF FORUM/JURISDICTION. The parties hereby consent to the jurisdiction and venue of the courts of the Commonwealth of Virginia, specifically to the courts of the City of Norfolk, Virginia, and to the jurisdiction and venue of the United States District Court for the Eastern District of Virginia in connection with any action, suit, or proceeding arising

out of or relating to this Agreement and further waive and agree not to assert in any action, suit, or proceeding brought in the City of Norfolk, Virginia, or the Eastern District of Virginia that the parties are not personally subject to the jurisdiction of these courts, that the action, suit, or proceeding is brought in an inconvenient forum or that venue is improper.

22. WAIVER OF TRIAL BY JURY. THE PARTIES WAIVE TRIAL BY JURY IN ANY ACTION, PROCEEDING, OR COUNTERCLAIM BROUGHT BY EITHER PARTY AGAINST THE OTHER ON ANY MATTER WHATSOEVER ARISING OUT OF OR IN ANY WAY CONNECTED WITH THIS AGREEMENT OR ANY RELATED AGREEMENTS OR INSTRUMENTS AND THE ENFORCEMENT THEREOF, INCLUDING ANY CLAIM OF INJURY OR DAMAGE TO ANY PARTY OR THE PROPERTY OF ANY PARTY.
23. SUCCESSOR/ASSIGNMENT. This Agreement will be binding upon and the obligations and benefits hereof will accrue to the parties hereto, their heirs, personal representatives, successors, and assigns.
24. COUNTERPARTS. This Agreement may be executed in any number of counterparts, each will be considered an original, and together they will constitute one Agreement.
25. FACSIMILE SIGNATURES. Facsimile signatures will be considered original signatures for the purpose of execution and enforcement of the rights delineated in this Agreement.
26. ETHICS IN PUBLIC CONTRACTING. By executing this Agreement, the undersigned Seller 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.

This Agreement is contingent on the review and approval of the purchase by Hampton Roads Sanitation District Commission and upon such Commission granting authorization to the General Manager/CEO to proceed under the terms of this Agreement.

[THE REMAINDER OF THIS PAGE WAS INTENTIONALLY LEFT BLANK]

IN WITNESS WHEREOF, the Hampton Roads Sanitation District Commission has caused this Agreement to be signed on its behalf by its General Manager/CEO in accordance with authorization granted at its regular meeting held on December 17, 2024. This Agreement is expressly subject to approval by the HRSD Commission

WITNESS the following signatures and seals:

**BUYER:**

**HAMPTON ROADS SANITATION DISTRICT (HRSD)**

By: [Signature] (SEAL)  
Date: 12/19/2024  
Name: Jay Bernas, P.E., M.B.A.  
Title: General Manager/CEO  
Contact Address: 1434 Air Rail Avenue, Virginia Beach, Virginia 23455

COMMONWEALTH OF VIRGINIA  
City of Virginia Beach, to-wit:

The foregoing instrument was acknowledged before me this 19<sup>th</sup> day of December, 2024, by Jay Bernas, P.E., M.B.A., General Manager/CEO, Hampton Roads Sanitation District.

[Signature]  
Notary Public

Notary Public Registration No. 7837081  
My commission expires: April 30, 2027

KAREN CHRISTINE RUSSO-SCARANO NOTARY PUBLIC REG. #7837081 COMMONWEALTH OF VIRGINIA MY COMMISSION EXPIRES APRIL 30, 2027
---



WITNESS the following signatures and seals:

**SELLER:**

**SHAUNE W. MEREDITH, Trustee of the Shaune W. Meredith Revocable Trust**

By: Shaune W Meredith (SEAL)  
Date: Dec. 8. 2024  
Name: Shaune W Meredith  
Title: Mrs.

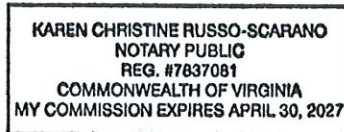
COMMONWEALTH OF VIRGINIA

City/County of Virginia Beach to-wit:

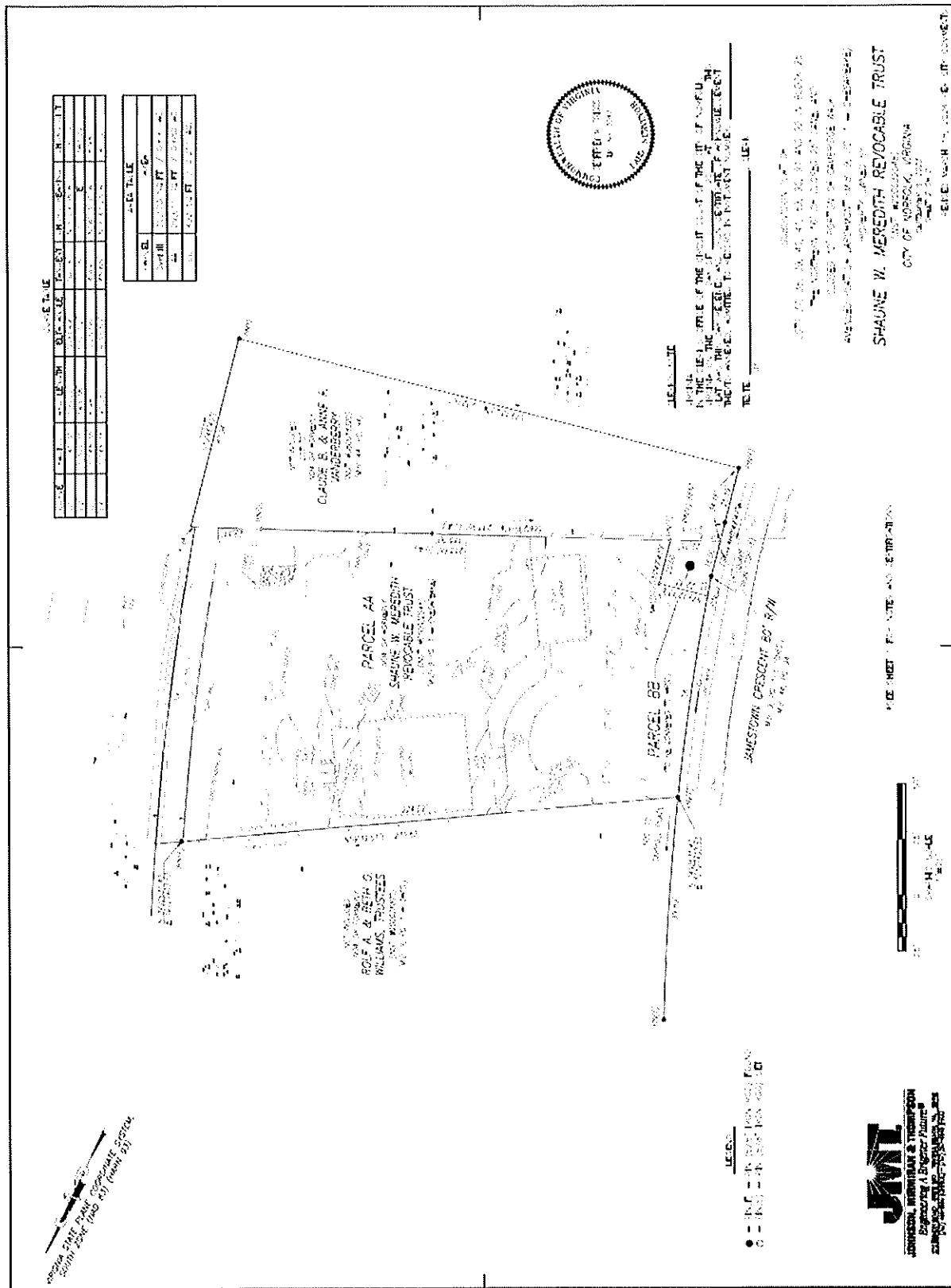
The foregoing instrument was acknowledged before me this 8 day of December, 2024, by SHAUNE W. MEREDITH, Trustee of the Shaune W. Meredith Revocable Trust.

Karen Christine Russo-Scarano  
Notary Public

Notary Public Registration No. 1837081  
My commission expires April 30 2027



**EXHIBIT A**



**EXHIBIT B – FORM OF DEED**

PREPARED BY & RETURN TO:  
D. Rossen S. Greene, Esq. (VSB #74940)  
PENDER & COWARD, P.C.  
117 Market Street  
Suffolk, VA 23434

Account No. \_\_\_\_\_  
Insured by: Fidelity  
Consideration: \$41,200

**TAX EXEMPT PURSUANT TO  
SECTIONS 58.1-811(A)(3), 17.1-266, and 17.1-279(E)  
OF THE CODE OF VIRGINIA (1950), AS AMENDED.**

**DEED**

This **Deed**, made this \_\_\_\_\_ day of \_\_\_\_\_, 202\_\_, by and between **SHAUNE W. MEREDITH, Trustee of the Shaune W. Meredith Revocable Trust**, their successors and assigns, (hereinafter called **GRANTOR**), and **HAMPTON ROADS SANITATION DISTRICT**, a political subdivision of the Commonwealth of Virginia, its successors and assigns (hereinafter called HRSD or **GRANTEE**), whose mailing address is Hampton Roads Sanitation District, Post Office Box 5911, Virginia Beach, Virginia 23471-0911.

**WITNESSETH:**

That for the sum of TEN DOLLARS (\$10.00) and other good and valuable consideration, the receipt of which is hereby acknowledged, **GRANTOR** does hereby grant and convey unto **GRANTEE**, its successors and assigns, with general warranty, the following described real property in fee simple, to wit:

All that certain piece or portion of land in fee simple, containing approximately 492 square feet, or 0.11 acres, more or less, land, lying, situate, and being in the City of Norfolk, and shown and labeled as "PARCEL BB (TO BE CONVEYED TO HRSD)" on that certain subdivision plat entitled "SUBDIVISION PLAT OF LOTS 37, 38, 39, 40, 41, 89, 90, 91, AND 92 IN BLOCK 25, THE NORTHERN 16' OF CLOSED 25' LANE, AND CLOSED 12' PORTION OF CAMBRIDGE WALK AMENDED PLAT OF LARCHMONT (M.B. 9, PG 1 – CHESAPEAKE) PROPERTY OWNED BY SHAUNE W. MEREDITH REVOCABLE TRUST (INST. #200032548) CITY OF NORFOLK, VIRGINIA", prepared by Johnson, Mirmiran & Thompson and dated September 8, 2023 (revised March 18, 2024 per city comments)

a copy of which is attached hereto as **EXHIBIT A**, and incorporated herein by this reference, and recorded herewith.

GRANTOR by execution of this instrument acknowledges that the plans of HRSD as they affect the subject property have been fully explained to the Landowner.

The GRANTOR hereby covenants and agrees for themselves, their heirs and assigns and successors, that the consideration herein mentioned is in lieu of any and all claims to compensation and damages by reason of this acquisition or use of the property by HRSD.

This Deed is made subject to all easements, reservations, restrictions and conditions, if any, contained in duly recorded deeds, plats and other instruments constituting constructive notice in the chain of title to the above-described property which have not expired by a time limitation contained therein or have not otherwise become ineffective.

**WITNESS** the following signatures and seals:

**SHAUNE W. MEREDITH,**  
**Trustee of the Shaune W. Meredith Revocable Trust**

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

Name: \_\_\_\_\_

Title: \_\_\_\_\_

COMMONWEALTH OF VIRGINIA  
CITY/COUNTY OF \_\_\_\_\_, to-wit:

The foregoing Deed of Easement was acknowledged before me this \_\_\_\_\_ day of \_\_\_\_\_, 202\_, by SHAUNE W. MEREDITH, Trustee of the Shaune W. Meredith Revocable Trust.

\_\_\_\_\_  
Notary Public

My commission expires: \_\_\_\_\_ ID#: \_\_\_\_\_

**ACCEPTED:**

**HAMPTON ROADS SANITATION DISTRICT (HRSD)**

By: \_\_\_\_\_(SEAL)

Date: \_\_\_\_\_

Name: Jay Bernas, P.E., M.B.A.

Title: General Manager/CEO

Contact Address: 1434 Air Rail Avenue, Virginia Beach, Virginia 23455

**COMMONWEALTH OF VIRGINIA**

City of Virginia Beach, to-wit:

The foregoing instrument was acknowledged before me this \_\_\_\_ day of \_\_\_\_\_, 202\_, by Jay Bernas, P.E., M.B.A., General Manager/CEO, Hampton Roads Sanitation District, and accepted by Hampton Roads Sanitation District.

\_\_\_\_\_  
Notary Public

Notary Public Registration No. \_\_\_\_\_

My commission expires: \_\_\_\_\_

### **EXHIBIT C**

The Parties agree that the total consideration paid or contracted to be paid pursuant to this Agreement shall also include:

HRSD will fund the removal of trees on Parcel BB in the amount of \$5,060.00 plus increases due to market supply and labor increases.

HRSD will fund the purchase of landscaping services on Parcel BB in the amount of \$8,590.00 plus increases due to market supply and labor costs. This effort fulfills a desire by the Parties that Parcel BB continues to blend in with the main parcel.

HRSD will fund the relocation of the existing irrigation system on Parcel BB in the amount of \$5,147.47 plus increases due to market supply and labor costs.

HRSD will fund the installation of a new irrigation system in the amount of \$7,336.64 plus increases due to market supply and labor costs. This effort will benefit Parcel BB and the surrounding landscaping, and which fulfills a desire by the Parties for Parcel BB to continue to blend in with the main parcel.

HRSD will coordinate and fund the installation of new, or the modification or relocation of the existing city waterline and water meter that supplies the existing irrigation system for this property. The property owner will provide assistance placing the request and authorizations, as needed, to the City for this action.

Estimates for all the actions noted above were solicited from by the property owners preferred vendors and these vendors and shall be used for these services noted. All estimates have been reviewed and approved by the Seller. These estimates are included and made part of Exhibit C, on the following pages.

HRSD / Karen Russo - Secretary  
Name 900 Junefawn Cres.  
Address N218.  
City 419-1772 Zip Code Map Page  
Phone Work Fax  
Billing Address KRUSSO SECRETARY @ HRSD.COM colonialtreecare@aol.com

# Colonial Tree Care

Integrity, Inc.  
1756 Mt. Pleasant Road  
Chesapeake, VA 23322  
757-479-0080  
Fax 757-479-5198



## TREE(S)

SPECIES  
COMPLETE REMOVAL  
PUT ON GROUND  
CROWN CLEAN  
CROWN RAISE  
CROWN THIN  
LIMB(S) REMOVED  
OTHER

2

1	2	3	4	5	6	7	8	9	10

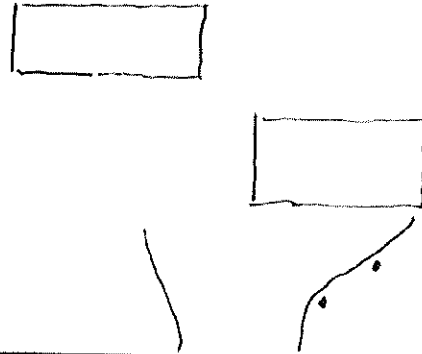
## OPTIONAL STUMP WORK: (PLEASE "X" BOXES FOR OPTIONS)

REGULAR (6" 12" DEPTH)  
FOUNDATION (20" DEPTH)  
REMOVE STUMP CHIPS  
DRESS WITH TOPSOIL  
OTHER  
LG GRINDER  
SM GRINDER

TREE # "X" COST

2 ☐ \$  
☐ \$  
☐ \$  
☐ \$  
☒ \$

## DIAGRAM



## PLANT HEALTH CARE

FERTILIZATION Method Amount  
CABLING CABLE  
BRACING CABLE

## SPECIFIC NOTES:

Remove and grind stumps - Magnolia and Tycamore.

Optional - Remove stump chips - \$500

Replace Topsoil - \$220

CREW 4  
EQUIPMENT ☒ CHIP TRUCK ☒ GRAPPLE ☐ FERT RIG  
☐ BUSH LOG ☐ SWINGER ☐ BUCKET

CUSTOMER SIGNATURE DATE  
ESTIMATED BY Bob Johnson DATE 2/26/24  
CONTRACT MODIFICATION INITIAL AMOUNT \$

WHITE COPY - OFFICE PLEASE SIGN AND RETURN YELLOW COPY

TREE WORK COST	\$ 4160
DISPOSAL/HAULING FEE	\$ 300
SPECIALIZED EQUIPMENT	\$ 200
CRANE/MANLIFT/BUCKET TRUCK	\$
FERTILIZATION	\$
STUMP WORK	\$ 400
ESTIMATED COST	\$ 5060
OPTIONAL(S) COST	\$
TOTAL ESTIMATED COST	\$

# WINN NURSERY OF VIRGINIA, INC.

October 18, 2024

Karen Scarano  
HRSD

Email to: [kscarano@hrsd.com](mailto:kscarano@hrsd.com)

RE: HRSD Jamestown Crescent

Dear Karen,

Winn Nursery of Virginia, Inc. submits a price of \$3,700.00 to furnish and install 1 Bloodgood Japanese Maple, 3 Variegated Aucuba, 3 Blue Muffin Viburnum, 4 Fatsia Japonica, 1 Serviceberry, 24 Dwarf 'Schillings' Yaupon Holly, 150 sq. ft. of sod or Liriope groundcover per revised plan dated 10/18/24.

Proposal includes fine grading of topsoil installed by others, compost, double shredded hardwood mulch, fertilizer, staking and guying, and all applicable taxes. Proposal does not include topsoil, removing existing plant material or debris, grading, irrigation or maintenance.

There is a one-time landscape fee of \$275.00. This is for the landscape plan already in place.

For a one-year warranty add \$650.00. The plants will still need to be properly maintained by others during this period to insure the warranty. We would require the name of the maintenance company and a copy of their yearly maintenance schedule.

Maintenance should include adequate watering, weeding, pruning, mulching, and insect control for the plants. We can provide one year plant maintenance for an extra \$3,965.00. This includes the above mentioned, with one remulch and one fertilizer application. Does not include mowing lawn. We recommend that your plumber install an exterior source of water off the building. A lockable faucet or stand alone 3-foot-tall frost proof yard hydrant would work nicely.

Total cost to provide all landscape services is \$8,590.00.

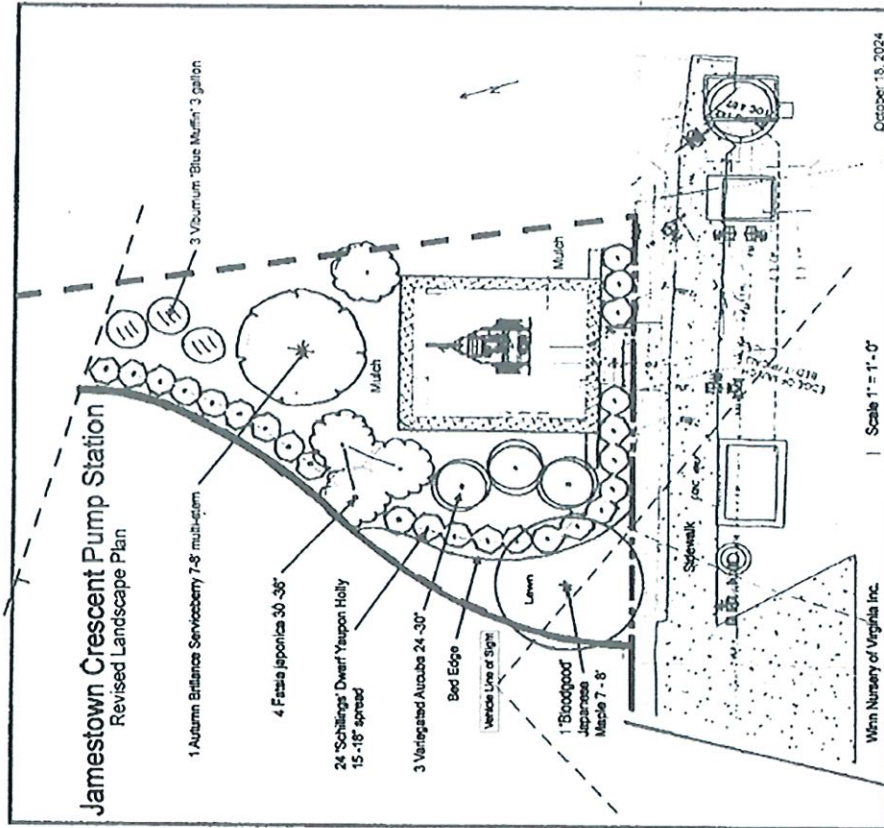
I appreciate the opportunity to submit this bid. If there are any questions, please contact me.

Sincerely,

WINN NURSERY OF VIRGINIA, INC.

*James M. Winn*

James M. Winn  
President



Winn Nursery of Virginia Inc.

1221 LIBERTY ST

NORFOLK, VA 23523

CLASSIFICATION: LSC

NUMBER: 270101500

EXPIRES: 00-31

WINN NURSERY OF VIRGINIA INC

1221 LIBERTY ST

NORFOLK, VA 23523

CONTRACTOR

SEAL FOR THE STATE OF VIRGINIA

October 18, 2024





Contract No. - 20814 (v. D)

WORKING WITH NATURE

October 08, 2024

KAREN SCARANO

HRSD (CUSTOMER)

HRSD PUMP STATION 900 JAMESTOWN CRESCENT

900 JAMESTOWN CRESCENT

NORFOLK, VA 23508

Contract No. - 20814 (v. D)

Class A Contractor # 2705-038213A

### Proposal

New Pump Station Irrigation System  
900 Jamestown Crescent

K&D Round's proposes to provide all materials and install an irrigation system for the landscaped, and turf areas as discussed,

- All underground piping will be PVC pressure rated 200 psi
- All sprinkler heads will be on flex tubing to allow for grade changes
- All valves, and wire splices will be set in plastic valve boxes with covers, set to grade level
- All wire connections, and splices will be made with weather proof connectors
- All debris uncovered during our excavation will be removed
- Irrigation system water supply will be city water
- A back flow preventor will be installed prior to water entering irrigation system
- Irrigation system to be operated by a programmable irrigation controller

Contract No. - 20814 (v. D) HRSD PUMP STATION 900 JAMESTOWN CRESCENT October 08, 2024

\*\*\*Any encounter of unforeseen obstructions that require additional labor and/or materials to mitigate will require additional charges and will not be executed without approval.

\*A 50% down payment is required to secure scheduling with the balance due upon completion of this project  
\*A 3% charge will be added to all payments made with a credit card. This is the fee K&D Round's is charged for processing.

SECTION	DESCRIPTION	SALE
Landscape Enhancements:		
Clean-up		\$63.87
New Pump Station Irrigation System: 900 Jamestown Crescent		\$7,272.77
Total (Excluding Tax)		\$7,336.64

SALE: \$7,336.64  
SALES TAX: \$0.00  
YOU AGREE TO PAY: \$7,336.64

All Materials is guaranteed to be as specified but will be subject to availability at time of installation. All work to be completed in a workman like manner according to standard practices. Any alteration of materials or methods of installation will be at the customer's expense. K&D Round's is not responsible for any damage to property or persons caused by the use of any equipment or materials. All customers are responsible for securing proper permits, accident or delays beyond our control. K&D Round's Landscape Services will not be held liable for damage to any utility, service pipe or wire not marked by X-Mark Utility marking service or by the customer.

\*This proposal will become void if not signed within 7 days of the origination date.

### Warranty

K & D Round's Landscape Services, Inc. warrants all landscape installations for workmanship and plant quality at time of installation for a period of three (3) months from the date of completion. The warranty does not include Acts of God, disease, transplanting, plant, mechanical destruction, careless use, and lack of proper care by customer.

Please Sign and Return the Original Copy. Thank You.

Buyer	Date	KEVIN BUSHEE	Date
		kbushee@kdrOUNDS.com	

For Office Use Only:

Date Received: \_\_\_\_\_ Deposit Received: \_\_\_\_\_ Check #: \_\_\_\_\_ Initial: \_\_\_\_\_

3478 Westminister Avenue • Norfolk, VA 23504-4619  
(Phone) 757-557-4277 • (Fax) 757-557-4405 • (Email) information@kdrOUNDS.com

Page 1 of 2

3478 Westminister Avenue • Norfolk, VA 23504-4619  
(Phone) 757-557-4277 • (Fax) 757-557-4405 • (Email) information@kdrOUNDS.com

Page 2 of 2

Contract No. - 20072 (v. 0) HRSD PUMP STATION 900 JAMESTOWN CRESCENT October 22, 2024

- \*\*\*Any encounter of unforeseen obstructions that require additional labor and/or materials to mitigate will require additional charges and will not be executed without approval.
- \*A 50% down payment is required to secure scheduling with the balance due upon completion of this project.
- \*A 3% charge will be added to all payments made with a credit card. This is the fee K&D Rounds is charged for processing.

SECTION	DESCRIPTION	SALE
irrigation main water line re-location around new construction area		\$5,147.47
Total (Excluding Tax)		\$5,147.47

SALE: \$5,147.47  
SALES TAX: \$0.00  
YOU AGREE TO PAY: \$5,147.47

All Material is guaranteed to be as specified but will be subject to availability at time of installation. All work to be completed in a workman like manner according to standard practices. Any alteration or deviation from the above specifications involving proposal cost changes will be executed only upon written order and customer acceptance of cost differences. All specifications are contingent upon install, accident or delays beyond our control. K&D Round's Landscapes Services will not be held liable for damage to any utility, service pipe or tree not marked by N&S Utility marking service or by the customer.

\*This proposal will become void if not signed within 7 days of the origination date.

#### Warranty

K & D Rounds Landscapes Services, Inc. warrants all landscape installations for workmanship and plant quality at time of installation for a period of three (3) months from the date of completion. The warranty does not include Acts of God, disease, transplanted plants, mechanical destruction, careless use, and lack of proper care by customer.

Please Sign and Return the Original Copy. Thank You.

Buyer	Date	KEVIN BUSHEE	Date
		kbushee@krounds.com	

For Office Use Only:

Date Received: \_\_\_\_\_ Deposit Received: \_\_\_\_\_ Check #: \_\_\_\_\_ Initial: \_\_\_\_\_



Contract No. - 20072 (v. 0)  
Class A Contractor # 2705-039213A

WORKING WITH NATURE

KAREN SCARANO  
HRSD (CUSTOMER)  
HRSD PUMP STATION 900 JAMESTOWN CRESCENT  
900 JAMESTOWN CRESCENT  
NORFOLK, VA 23508

#### Proposal

irrigation main water line re-location  
around new construction area

K&D Round's proposes to provide all materials to re-route irrigation main water line from new water meter location (meter moved by the city of Norfolk) to existing backflow location, around new construction of H.R.S.D. pumping station.

3478 Westminister Avenue • Norfolk, VA 23504-4619  
(Phone) 757-857-4277 • (Fax) 757-857-4405 • (Email) information@krounds.com

3478 Westminister Avenue • Norfolk, VA 23504-4619  
(Phone) 757-857-4277 • (Fax) 757-857-4405 • (Email) information@krounds.com







# Current Property Layout and Structures on site

## HRSD existing control panels and PS below-ground access hatch right corner





# Rendering of the HRSD Enclosed Structure at 900 Jamestown Crescent





HRSD Commission Meeting Minutes  
December 17, 2024  
Attachment #8

11. Section W Force Main Replacement  
Real Property - Easement Acquisition for a Public Purpose – 1612 W Little Creek Road,  
Norfolk

GPIN #: 1520406924; 1520405653  
ACCT #: 0540100; 42837500  
ROUTE/STREET: 1600 W Little Creek Road  
Norfolk, VA 23505  
HRSD PROJECT: Army Base Section W Force Main Replacement (AB010500)  
PROJECT PARCEL #: E-002, E-003

### **EASEMENT PURCHASE AGREEMENT**

**THIS EASEMENT PURCHASE AGREEMENT** (this "Agreement"), is made this \_\_\_\_\_ day of \_\_\_\_\_ 2024, by and between **HAMPTON ROADS SANITATION DISTRICT** ("HRSD"), a political subdivision of the Commonwealth of Virginia, located at 1434 Air Rail Avenue, Virginia Beach, Virginia 23455, and **HAMPTON CREEK LLLP**, a Virginia limited liability limited partnership, whose mailing address is 150 W Main St Ste 1650, Norfolk, VA, 23510 ("Landowner").

WITNESSETH: That for and in consideration of Ten Dollars (\$10.00) and other good and valuable consideration, including as set forth below, the receipt and sufficiency of which is hereby acknowledged, Landowner agrees to convey to HRSD (and its successors), non-exclusive, perpetual easements (whether over, on, across, under, or through) to lay, erect, construct, operate, and/or maintain (the "**Permanent Utility Easements**") underground wastewater, water reuse force mains, and/or gravity mains, together with above- and/or below-ground equipment, accessories, and other appurtenances (the "**Facilities**"). The "**Easement Areas**" are described as follows:

Being in the City of Norfolk, Virginia, and shown on the attached plat prepared by Rouse-Sirine Associates, Ltd., entitled "PLAT SHOWING 25' & VARIABLE WIDTH PERMANENT HRSD UTILITY EASEMENT TO BE ACQUIRED FROM HAMPTON CREEK, LLLP BY HAMPTON ROADS SANITATION DISTRICT," dated September 12, 2023, as "25' PERMANENT HRSD UTILITY EASEMENT AREA = 1,997 S.F. / 0.046 ACRE" and "VARIABLE WIDTH PERMANENT HRSD UTILITY EASEMENT AREA = 1,027 S.F. / 0.024 ACRE".

The Permanent Utility Easements include reasonably unimpeded access to and use of the Easement Areas (whether over, on, across, under, or through) and of any Facilities.

Landowner agrees to convey the Permanent Utility Easements to HRSD, its successors and assigns, by deed of easement, properly executed, acknowledged, and delivered, the form of which is attached hereto as **Exhibit A**. The areas subject to the Permanent Utility Easements are shown on the Plat attached hereto as **Exhibit B**.

The total consideration for conveyance of the Permanent Utility Easements, collectively, is:

**CONSIDERATION: SIXTY-FOUR THOUSAND AND 00/100 DOLLARS (\$64,000.00)** (the "Consideration"). The Consideration is deemed compensation to Landowner for granting the Permanent Utility Easements. Landowner will provide all necessary tax documents for HRSD to be able to process payment of the Consideration to Landowner, including but not limited to forms W9 and 1099S.

Landowner represents, covenants, and warrants that (i) Landowner is the sole, fee simple owner of the Easement Areas, (ii) Landowner has all necessary authority to convey the Permanent Utility Easements to HRSD, and (iii) the Permanent Utility Easements will be conveyed free and clear of all, liens, mortgages and deeds of trust, unpaid taxes, and other encumbrances(except those other encumbrances of record as of the date of the recording of the Permanent Utility Easements). Anything to the contrary in the aforesaid notwithstanding, Landowner will cause its lender or lenders to also sign the Easement in order to document that any existing liens, mortgages, or deeds of trust are subordinate to the Easement.

The terms and conditions of the grant of the Permanent Utility Easements are more particularly set forth in the Easement Agreement. Upon recordation of the Easement Agreement, the terms of the Easement Agreement shall supersede the terms of this Agreement and the terms of the Easement Agreement shall govern.

**RIGHT TO ENTER:** HRSD, its employees, contractors, other agents, assigns, and successors will, upon execution of this Agreement and with at least twenty-one (21) days written notice prior to entering the property to commence the initial construction of the Project, have the absolute right to enter and use the Easement Areas, and to traverse so much of the open space, roads and drive aisles on Landowner's lands as needed for access to the Easement Areas, and will obey all ordinances, codes, and other laws pertaining thereto. HRSD (its employees, contractors, or other agents) will use reasonable commercial efforts not to block any drive aisles, roads or parking areas located on the property owned by Landowner, other than those within the Easement Areas. Landowner will not construct or otherwise place or allow on the Easement Areas any permanent improvements, including without limitation fences, signs, houses, sheds, or other buildings, or pools, or other structures, without the express written permission of HRSD or its assigns or successors, provided however, Landowner may install driveways, pavement, and landscaping, including tree and shrub varieties that do not exceed 20-feet tall at maturity. Landowner will not use his property for any purpose that materially interferes with HRSD's use and enjoyment of the Permanent Utility Easements.

**ETHICS IN PUBLIC CONTRACTING:** By executing this Agreement, the undersigned Landowner and its duly-authorized representative, if any, and the representative of HRSD, certify that the Consideration was arrived at without collusion or fraud and that none of them has offered or received any payment, kickback, or other inducement from any other party to this Agreement or its employee or other agent 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, in entering into this Agreement, relied upon Landowner's representations, covenants, and warranties, and Landowner agrees that those representations, covenants, and warranties will survive settlement and will not merge into any deed of easement or otherwise.

Settlement will be within sixty (60) days or as soon thereafter as necessary to allow a title search and correction of any title defects, and preparation and execution of the necessary documents, which will include without limitation the Easement Agreement.

Execution of and settlement under this Agreement is contingent upon approval of the Hampton Roads Sanitation District Commission, and its authorization for HRSD's General Manager to proceed.

Regardless of what venue would otherwise be permissive or required, the parties stipulate that all actions arising under or affecting this Agreement will be brought in the Circuit or General District Courts of the City of Norfolk, Virginia, or the United States District Court for the Eastern District of Virginia, Norfolk Division, the parties agreeing that such forums are mutually convenient and bear a reasonable relationship to this Agreement.

[THE REMAINDER OF THIS PAGE WAS INTENTIONALLY LEFT BLANK]

WITNESS the following signatures and seals:

**LANDOWNER:**

**HAMPTON CREEK LLLP,**  
a Virginia limited liability limited partnership

By: HC GP, LLC, a Virginia limited liability company,  
Its General Partner

By: \_\_\_\_\_  
Steven E. Lawson, Manager

COMMONWEALTH OF VIRGINIA  
CITY/COUNTY OF \_\_\_\_\_, to-wit:

The foregoing Deed of Easement was acknowledged before me this \_\_\_\_\_ day  
of \_\_\_\_\_, 2024, by Steven E. Lawson in his capacity as Manager of HC GP,  
LLC, the General Partner of HAMPTON CREEK LLLP, a Virginia limited liability limited  
partnership, who has sworn and affirmed that they have the authority to sign on behalf of  
and bind HAMPTON CREEK LLLP.

\_\_\_\_\_  
Notary Public

My commission expires: \_\_\_\_\_

ID#: \_\_\_\_\_

IN WITNESS WHEREOF, the Hampton Roads Sanitation District Commission has caused this Agreement to be signed on its behalf by its General Manager / CEO in accordance with authorization granted at its regular meeting held on \_\_\_\_\_, 202\_. This Agreement is expressly subject to approval by the HRSD Commission.

WITNESS the following signatures and seals:

**BUYER:**

**HAMPTON ROADS SANITATION DISTRICT**

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

Date: \_\_\_\_\_

Name: Jay Bernas, P.E.

Title: General Manager / CEO

Contact Address: 1434 Air Rail Avenue, Virginia Beach, Virginia 23455

**COMMONWEALTH OF VIRGINIA**

City of Virginia Beach, to-wit:

The foregoing instrument was acknowledged before me this \_\_\_\_ day of \_\_\_\_\_, 2024, by Jay Bernas, P.E., General Manager / CEO, on behalf of Hampton Roads Sanitation District.

\_\_\_\_\_  
Notary Public

Notary Public Registration No. \_\_\_\_\_

My commission expires: \_\_\_\_\_

**EXHIBIT A  
FORM OF DEED OF EASEMENT**

PREPARED BY & RETURN TO:  
D. Rossen S. Greene, Esq. (VSB #74940)  
PENDER & COWARD, P.C.  
117 Market Street  
Suffolk, VA 23434

Tax Map Parcel No.: 1520405653 (portion of), 1520406924 (portion of)  
Account No. 05040100; 42837500  
HRSD PROJECT: Army Base Section W Force Main Replacement (AB010500) (the  
"Project")  
PROJECT PARCEL #: E-002, E-003  
Insured by: Unknown  
Consideration: \$64,000.00

**TAX EXEMPT PURSUANT TO  
SECTIONS 58.1-811(A)(3), 17.1-266, and 17.1-279(E)  
OF THE CODE OF VIRGINIA (1950), AS AMENDED.**

**DEED OF EASEMENT**

This **Deed of Easement**, made this \_\_\_\_\_ day of \_\_\_\_\_, 2024, by and between **HAMPTON CREEK LLLP**, a Virginia limited liability limited partnership, their successors and assigns, (hereinafter called **GRANTOR**), and **HAMPTON ROADS SANITATION DISTRICT**, a political subdivision of the Commonwealth of Virginia, its successors and assigns (hereinafter called **HRSD** or **GRANTEE**), whose mailing address is Hampton Roads Sanitation District, Post Office Box 5911, Virginia Beach, Virginia 23471-0911. **U.S. BANK NATIONAL ASSOCIATION** as Trustee for the Commonwealth Annuity and Life Insurance Company and RiverSource Life Insurance Company Trust (hereinafter called **Lender**) joins as party to this Deed of Easement solely to acknowledge its consent pursuant to Section M below.

**WITNESSETH:**

That for the sum of Ten Dollars (\$10.00) and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, Grantor does hereby grant and convey unto Grantee (and its successors), non-exclusive, perpetual easements (whether over, on, across, under, or through) to lay, erect, construct, operate, and/or maintain (the "**Permanent Utility Easements**") underground wastewater, water reuse force mains, and/or gravity mains, together with above- and/or below-ground equipment, accessories, and other appurtenances (the "**Facilities**"). The "**Easement Areas**" are described as follows:

Being in the City of Norfolk, Virginia, and shown on the attached plat

prepared by Rouse-Sirine Associates, Ltd., entitled "PLAT SHOWING 25' & VARIABLE WIDTH PERMANENT HRSD UTILITY EASEMENT TO BE ACQUIRED FROM HAMPTON CREEK, LLLP BY HAMPTON ROADS SANITATION DISTRICT," dated September 12, 2023, as "25' PERMANENT HRSD UTILITY EASEMENT AREA = 1,997 S.F. / 0.046 ACRE" and "VARIABLE WIDTH PERMANENT HRSD UTILITY EASEMENT AREA = 1,027 S.F. / 0.024 ACRE".

A copy of the above-mentioned plat showing the Easement Areas is attached hereto as Exhibit A.

The Permanent Utility Easements include reasonably unimpeded access to and use of the Easement Areas (whether over, on, across, under, or through) and of any Facilities.

The Permanent Utility Easements are perpetual. The Permanent Utility Easements are subject to the following conditions and provisions:

A. All of the Facilities, regardless of when constructed, will remain the property and responsibility of Grantee. All construction, operation, and maintenance of the Facilities will comply with applicable regulations, ordinances, codes, and other laws.

i. Upon completion of the Project, Grantee or its contractor will restore the Easement Areas, and any paving or landscaping or other improvements, physically damaged by construction of the Project, as closely as is reasonably possible to their condition immediately prior to construction, in a manner causing as little inconvenience and disruption to Grantor and its invitees, licensees, and occupants as is reasonably possible, within six months after completion of the Project.

ii. If physical damage is caused to the buildings or other improvements outside of the Easement Area by HRSD or its agents as a result of the Project, and the damage is reasonably determined by the Grantor to materially affect the operations of the business on Grantor's property, and Grantee cannot or will not repair said damage within a time frame acceptable to Grantor, the Grantor may repair said damage, at a reasonable fair market cost. If the damage is caused by HRSD or its agents as a result of the Project, then the cost of repair of said damage will be reimbursed to Grantor by HRSD or its agents.

iii. To be eligible for reimbursement of restoration or repair pursuant to paragraph ii above, said physical damage must be proven to be caused by HRSD or its agents as a result of the Project. Grantor must allow HRSD to inspect the buildings and property to HRSD's satisfaction in advance of the Project and also inspect said buildings and property in response to any claim.

C. Grantee has the right to trim, cut, and remove trees, shrubbery, and other obstructions in the Easement Areas (and area immediately adjacent thereto) that interfere

with or threaten the efficient and safe construction of the Project, or operation and maintenance of the Facilities. Brush, branches, and other debris resulting from cutting, trimming, or clearing by Grantee will be promptly removed and disposed of by Grantee.

D. Grantee shall provide Grantor with at least twenty-one (21) days written notice prior to commencing the initial construction of the Project within the Easement Areas. Thereafter, Grantee, its employees, contractors, other agents, assigns, and successors shall have, without notice to Grantor, the absolute right to cross and use for access, upon so much of the open space (located immediately adjacent to the Easement Areas), roads, and drive aisles on Grantor's lands as needed for construction of the Project and the operation and maintenance of the Facilities. Grantor will not construct or otherwise place or allow on the Easement Areas any permanent improvements, including without limitation houses, sheds, or other buildings, pools, fences, signs, or other structures, without the express written permission of Grantee or its assigns or successors; provided Grantee's consent will not be required for Grantor to install driveways, pavement, and landscaping, including tree and shrub varieties that do not exceed 20-feet tall at maturity.

E. The consideration paid to Grantor for the conveyance hereunder includes (i) the value of the Permanent Utility Easements, (ii) any damages that would sound in eminent domain, including but not limited to severance damages or damages to the residue that might accrue to the residue of Grantor's property beyond the specific enhancement in value to such residue caused by the conveyances and use of the Easements, and (iii) any and all elements of just compensation in an eminent domain case, including but not limited to lost profits or lost access. Grantor relinquishes any and all claims that could be brought in eminent domain or condemnation proceedings, including but not limited to just compensation. Grantor agrees that if Grantee institutes condemnation proceedings, this deed may be introduced in such proceedings as evidence in determining just compensation.

F. HRSD shall have the right to assign, transfer, apportion or divide, without limitation, all or any parts of the rights or easements granted to HRSD in this Deed of Easement. HRSD shall have all other rights and privileges as are reasonably necessary or convenient for the full enjoyment and use of the easement granted to HRSD in this Deed of Easement. Subject to the terms of this Deed of Easement, HRSD may exercise all rights granted in this Deed of Easement without further notice to the Grantor.

G. Grantor covenants that it has the right to convey the rights, right of way, and easements conveyed in this Deed of Easement, and Grantor shall not do anything that would prevent HRSD from having quiet and peaceable possession, use and enjoyment thereof, free from all encumbrances (except those encumbrances lawfully affecting Grantor's property as of the date this Deed of Easement is recorded), and that Grantor shall execute such further assurances as may be reasonably required by HRSD (all of which assurances shall be in form reasonably acceptable to Grantor).

H. Grantor by execution of this instrument acknowledges that the plans of HRSD as they affect the Grantor's property have been explained to the Grantor.

I. It is further agreed between the parties hereto that during any period of construction, reconstruction, alteration, operation or maintenance of the Facilities: (i) Grantee shall not use any other portion of the Grantor's property outside of the Easement Areas for parking or for the storage of any materials, equipment or vehicles of any kind; (ii) Grantee shall not interfere with the Grantor's use of any parking lot or access drive on the Grantor's property outside of the Easement Areas; (iii) subject to Paragraph C above, Grantee shall not remove any trees located on the Grantor's property which are not within the Easement Areas; (iv) Grantee shall store its equipment, tools and property and keep the portion of the Easement Area affected by such construction or maintenance in a workmanlike manner; (v) Grantee shall promptly repair any utilities serving the Grantor's property that may be damaged or affected by the Project; and (vi) upon completion of any construction, reconstruction, alteration, operation and maintenance of the the Facilities, Grantee shall (a) promptly remove any equipment, tools and property placed on the Grantor's property, (b) remove all construction debris and trash, and (c) repair the areas of the Grantor's property affected by such construction, reconstruction, alteration, operation and maintenance to as close to its original condition as reasonably possible. Any construction equipment, tools, and personal property owned by Grantee (or its agents) that is located or left on Grantor's property is done so at Grantee's sole risk and expense. Unless caused by the negligence or willful or intentional misconduct of Grantor or Grantor's agents, Grantor will not be liable for any damaged, lost or stolen construction equipment, tools, or personal property located or left on the Grantor's property by Grantee (or its agents). Under no circumstances will Grantor be liable or responsible for any damage to any property or injury to any person solely caused by Grantee's use of the Permanent Utility Easements or the Easement Areas, all such damage or injury being the sole liability and responsibility of Grantee.

J. Grantor shall have full and free access and use of the Easement Areas for any purpose and in any manner that does not violate the terms of this Deed of Easement and is not inconsistent with the Grantee's use of the Easement Areas and rights granted hereunder.

K. The provisions of this Deed of Easement are intended to benefit only the parties to this Deed of Easement and their successors or assigns. There are no intended third-party beneficiaries of this Deed of Easement.

L. Regardless of what venue would otherwise be permissive or required, the parties stipulate that all actions arising under or affecting this Deed of Easement will be brought in the Circuit or General District Courts of the City of Norfolk, Virginia, or the United States District Court for the Eastern District of Virginia, Norfolk Division, the parties agreeing that such forums are mutually convenient and bear a reasonable relationship to this Deed of Easement.

M. The Grantor's property is subject to the lien of that certain Deed of Trust, Security Agreement and Fixture Financing Statement with Assignment of Leases and Rents dated November 1, 2013 and recorded in the Clerk's Office of the Circuit Court of the City

of Norfolk as Instrument Number 130029520 (as amended from time to time, the "Deed of Trust"). Lender as Trustee for the Commonwealth Annuity and Life Insurance Company and RiverSource Life Insurance Company Trust (as successor by assignment from RiverSource Life Insurance Company), is the sole beneficiary of the Deed of Trust, and hereby joins a party to this Deed of Easement in order to evidence its consent to the execution and recordation of this Deed of Easement, and agrees to subordinate the liens and provisions of the Deed of Trust to the easements, covenants and agreements set forth in this Deed of Easement. Otherwise, the Deed of Trust shall remain in full force and effect.

(Signature Pages to Follow)

EXHIBIT



**DEED OF EASEMENT**  
(Signature Page)

**WITNESS** the following signatures and seals:

**GRANTOR:**

**HAMPTON CREEK LLLP,**  
a Virginia limited liability limited partnership

By: HC GP, LLC, a Virginia limited liability company,  
Its General Partner

By: \_\_\_\_\_  
Steven E. Lawson, Manager

COMMONWEALTH OF VIRGINIA  
CITY/COUNTY OF \_\_\_\_\_, to-wit:

The foregoing Deed of Easement was acknowledged before me this \_\_\_\_\_ day  
of \_\_\_\_\_, 2024, by Steven E. Lawson in his capacity as Manager of HC GP,  
LLC, the General Partner of HAMPTON CREEK LLLP, a Virginia limited liability limited  
partnership, who has sworn and affirmed that they have the authority to sign on behalf of  
and bind HAMPTON CREEK LLLP.

\_\_\_\_\_  
Notary Public

My commission expires: \_\_\_\_\_

ID#: \_\_\_\_\_

**GRANTEE:**

**HAMPTON ROADS SANITATION DISTRICT**

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

Date: \_\_\_\_\_

Name: Jay Bernas, P.E.

Title: General Manager

Contact Address: 1434 Air Rail Avenue, Virginia Beach, Virginia 23455

**COMMONWEALTH OF VIRGINIA**

City of Virginia Beach, to-wit:

The foregoing instrument was acknowledged before me this \_\_\_\_ day of \_\_\_\_\_, 2024, by Jay Bernas, P.E., General Manager, on behalf of Hampton Roads Sanitation District.

\_\_\_\_\_  
Notary Public

Notary Public Registration No. \_\_\_\_\_

My commission expires: \_\_\_\_\_

**LENDER:**

**U.S. Bank National Association  
as Trustee for the Commonwealth Annuity and Life  
Insurance Company and RiverSource Life Insurance  
Company Trust**

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

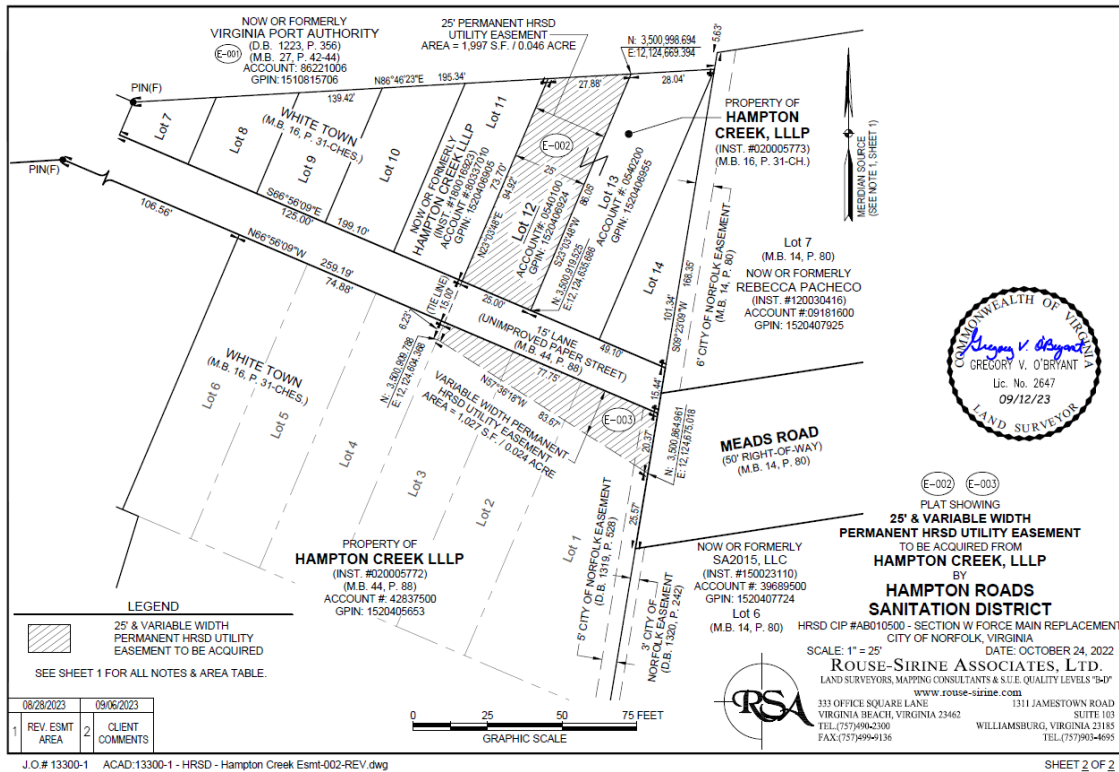
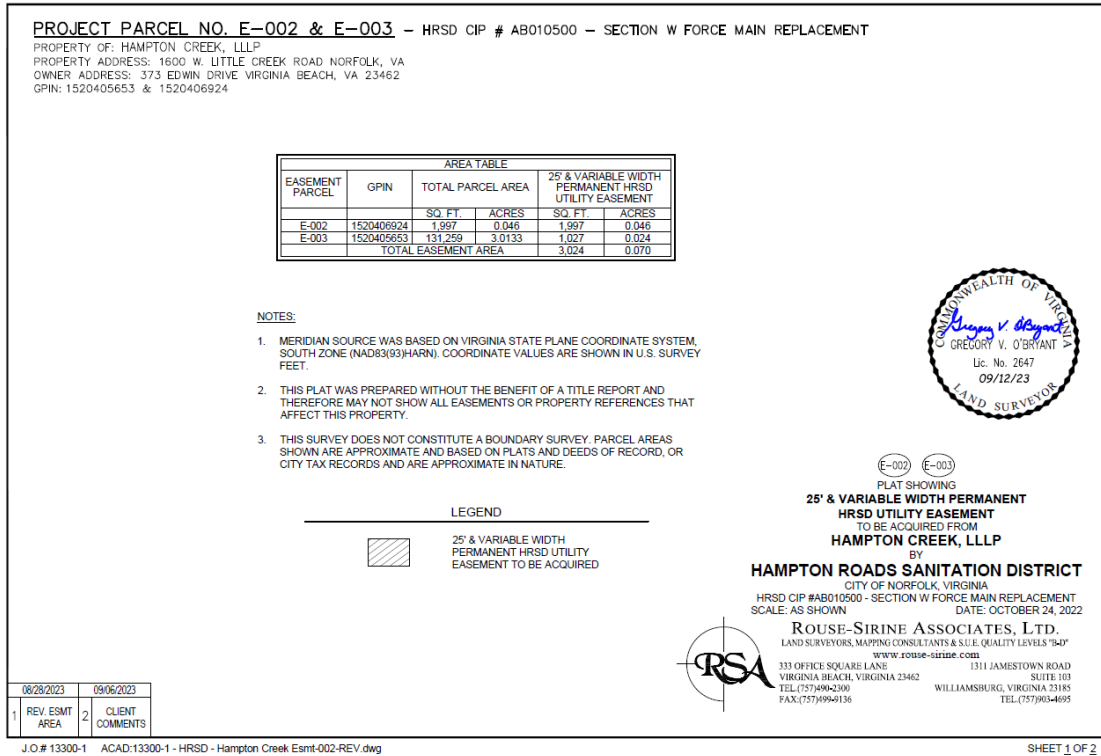
STATE OF \_\_\_\_\_  
CITY/COUNTY OF \_\_\_\_\_, to-wit:

The foregoing Deed of Easement was acknowledged before me this \_\_\_\_\_ day  
of \_\_\_\_\_, 2024, by \_\_\_\_\_ as  
\_\_\_\_\_ of U.S. Bank National Association as Trustee for  
the Commonwealth Annuity and Life Insurance Company and RiverSource Life Insurance  
Company Trust, who has sworn and affirmed that they have the authority to sign on behalf  
of and bind said company.

\_\_\_\_\_  
Notary Public

My commission expires: \_\_\_\_\_ ID#: \_\_\_\_\_

## EXHIBIT B – EASEMENT PLAT



LOCATION MAP

HAMPTON CREEK APARTMENTS  
1612 W LITTLE CREEK ROAD, NORFOLK VA, 23505



LEGEND

- PERMANENT EASEMENT
- EXISTING PROPERTY LINE
- SANITARY SEWER FORCE MAIN
- SUBJECT PROPERTY

HRSD SECTION W FORCE MAIN REPLACEMENT PROJECT

SCALE: 1" = 20'





# Aerial view of Hampton Creek Apartment Complex



HRSD's pipeline will follow the yellow line entering through the City's paper street and exiting onto the Virginia Port Authority property.

One entrance/exit for the complex.

Temporary loss of parking spaces for tenants.



Pipe installation path through paper street (fence) and loss of parking spaces in this side of the property.

Note: pool house on the right within 40 ft of work



HRSD Commission Meeting Minutes  
December 17, 2024  
Attachment #9

12. Hampton Roads Water Technology Innovation Ecosystem  
Briefing





**Jay Bernas, P.E.**  
**GM/CEO**  
**December 17, 2024**

---

## Who's seen this presentation in the last two months

---

- Radhika Fox, former Asst Administrator for Water, EPA
- Jefferson Labs
- NASA
- BluTerra
- Imagine H2O
- 757Collab
- Virginia Tech
- ODU State of the Region Professors
- Xylem
- Water Research Foundation
- Rappahannock River Commission
- Hampton Roads Alliance
- Hampton Roads Executive Roundtable
- Peninsula Economic Resource Team
- Aqualaw
- McGuire Woods
- Hampton Roads Planning District Commission staff
- Hampton Roads Chamber
- Regional Directors of Utilities Committee



# We are Eastern Virginia's Wastewater Treatment Utility



Population served: 1.9 million  
14<sup>th</sup> Largest Wastewater Utility in the US



Political Subdivision created in 1940  
Serves 20 Cities and Counties



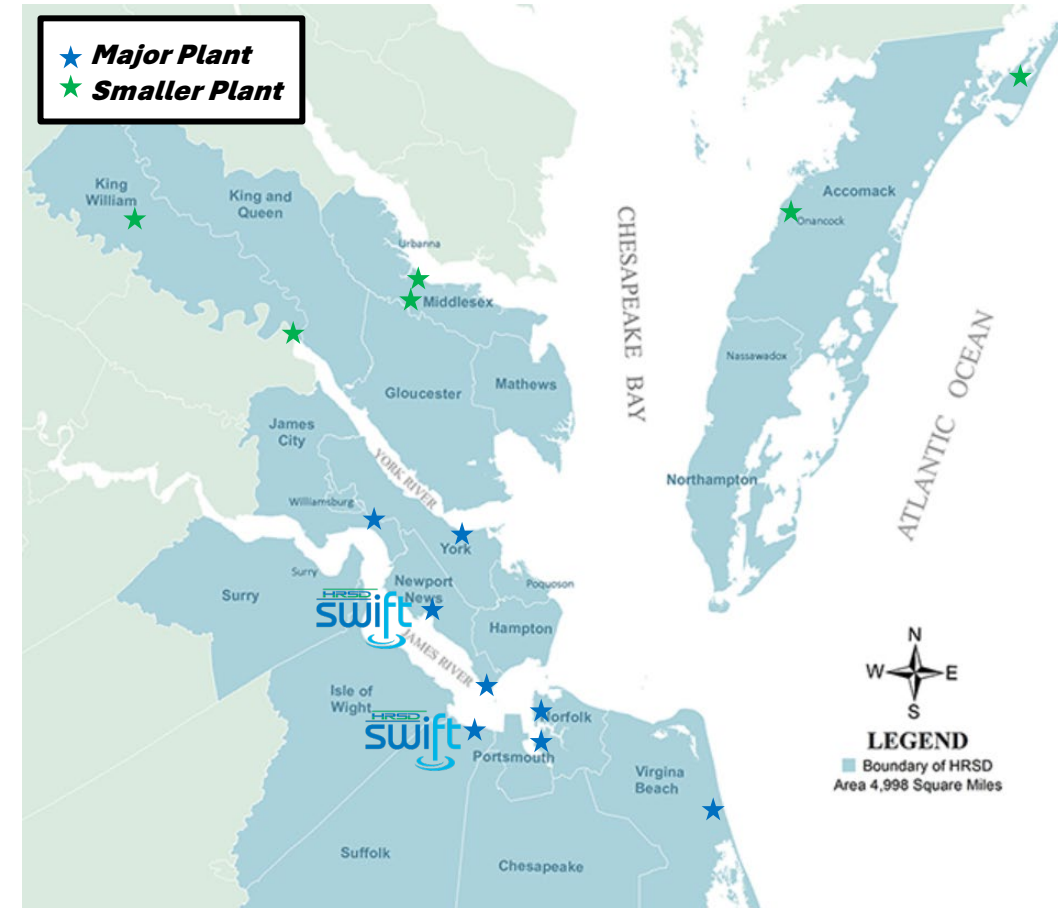
Combined wastewater treatment capacity: 225 million gallons/day



Operate 8 major and 6 smaller treatment plants and more than 100 pump stations



FY2025 Revenues \$467 million  
10-year Capex \$3.9 Billion



*Service area is approx. 5,000 square miles*



# BLUF - HRSD saved the region \$5.0 billion

**Total Compliance Cost = \$7.8 B**

**\$4.1 B**



## **Clean Water Act Compliance**

- Each Locality builds wet weather capacity = \$2.7B
- HRSD builds wet weather capacity = \$1.4B

**\$3.7 B**



## **Chesapeake Bay Restoration**

- Each Locality builds stormwater retrofits = \$2.2 B
- HRSD builds treatment upgrades = \$1.5 B

**Saves the  
region  
~\$5.0B\***

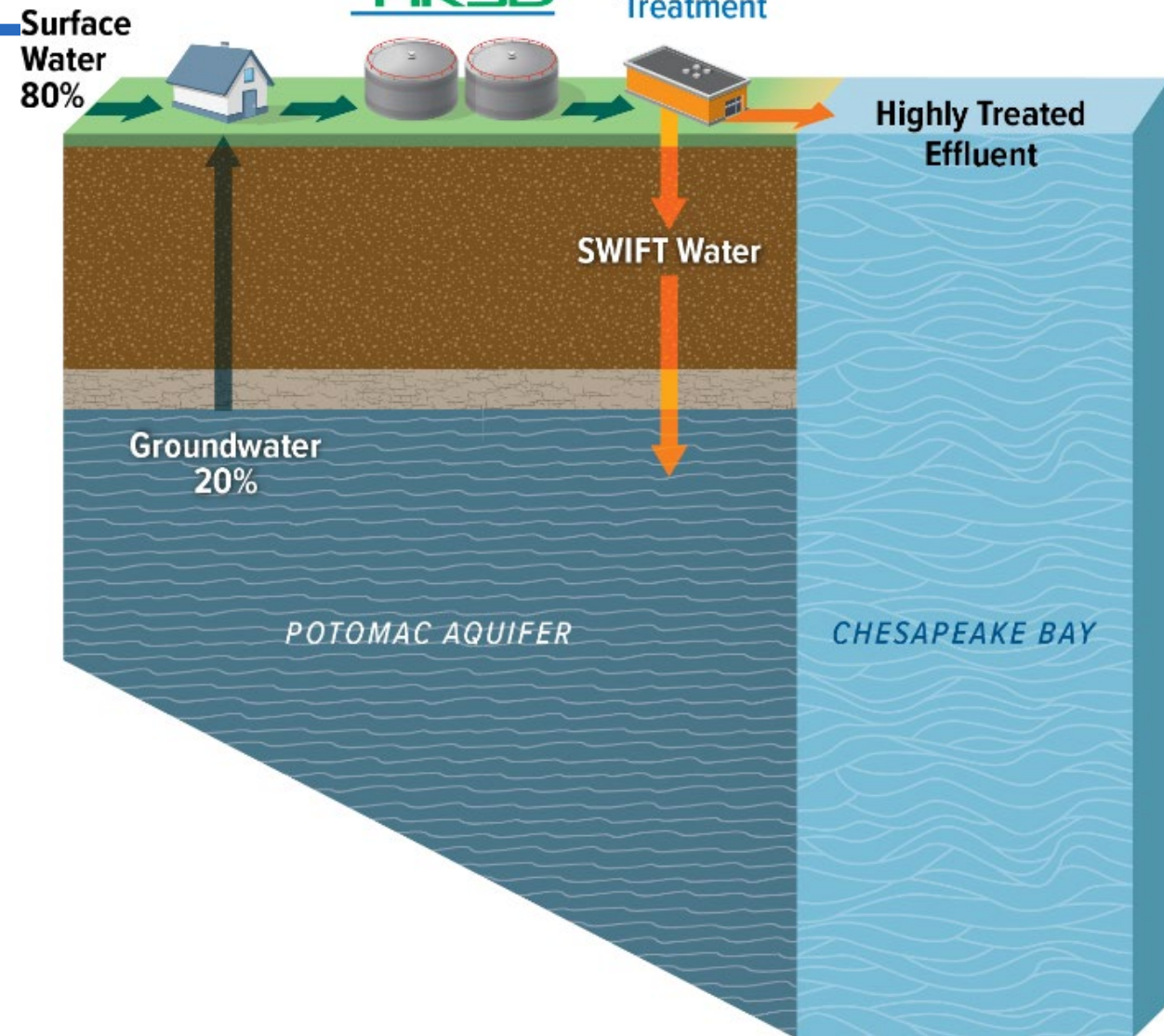
**HRSD's EPA Approved  
Integrated Plan = \$2.8 B**

**~ dual compliance benefits ~**

**HRSD**

## SWIFT water that meets drinking water standards:

- Reduce nutrient discharge
- Sustainable groundwater supply
- Reduce land subsidence
- Protect from saltwater contamination

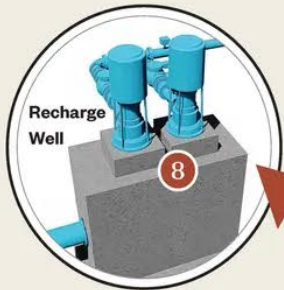




# Multi-barrier Advanced Water Treatment

## Advanced Water Treatment Process

Highly treated water from the Nansemond Treatment Plant is pumped to the Research Center's advanced treatment facility where it undergoes an 8-step process to prepare the water for addition into the aquifer.



- 1 Flocculation and Sedimentation**  
Removes suspended solids by settling large particles to the bottom of the water column.

- 2 Ozone Contact**  
Breaks down organic material and provides disinfection.

- 3 Biologically Active Filtration**  
Filters out suspended particles, pathogens, and removes dissolved organic compounds through microbiological activity.

- 4 Granular Activated Carbon Contactors**  
Removes trace organic compounds and prepares the water for ultraviolet disinfection.

- 5 Ultraviolet Disinfection**  
Provides a barrier to pathogens by disinfecting the water with high intensity ultraviolet light.

- 6 Chlorine Contact**  
Disinfection of finished water using chlorine serves as an additional barrier to pathogens.

- 7 Chemical Addition**  
Disinfected water is adjusted by small chemical doses to more closely match the geochemistry of the water already in the aquifer.

- 8 Aquifer Recharge**  
Finished water from the treatment train is pumped into the recharge well, where the well conditions and surrounding aquifer water quality can be constantly monitored.

**Chemical Feed Systems**  
Supports Advanced Water Treatment operations and optimizes the chemical makeup of the finished water.

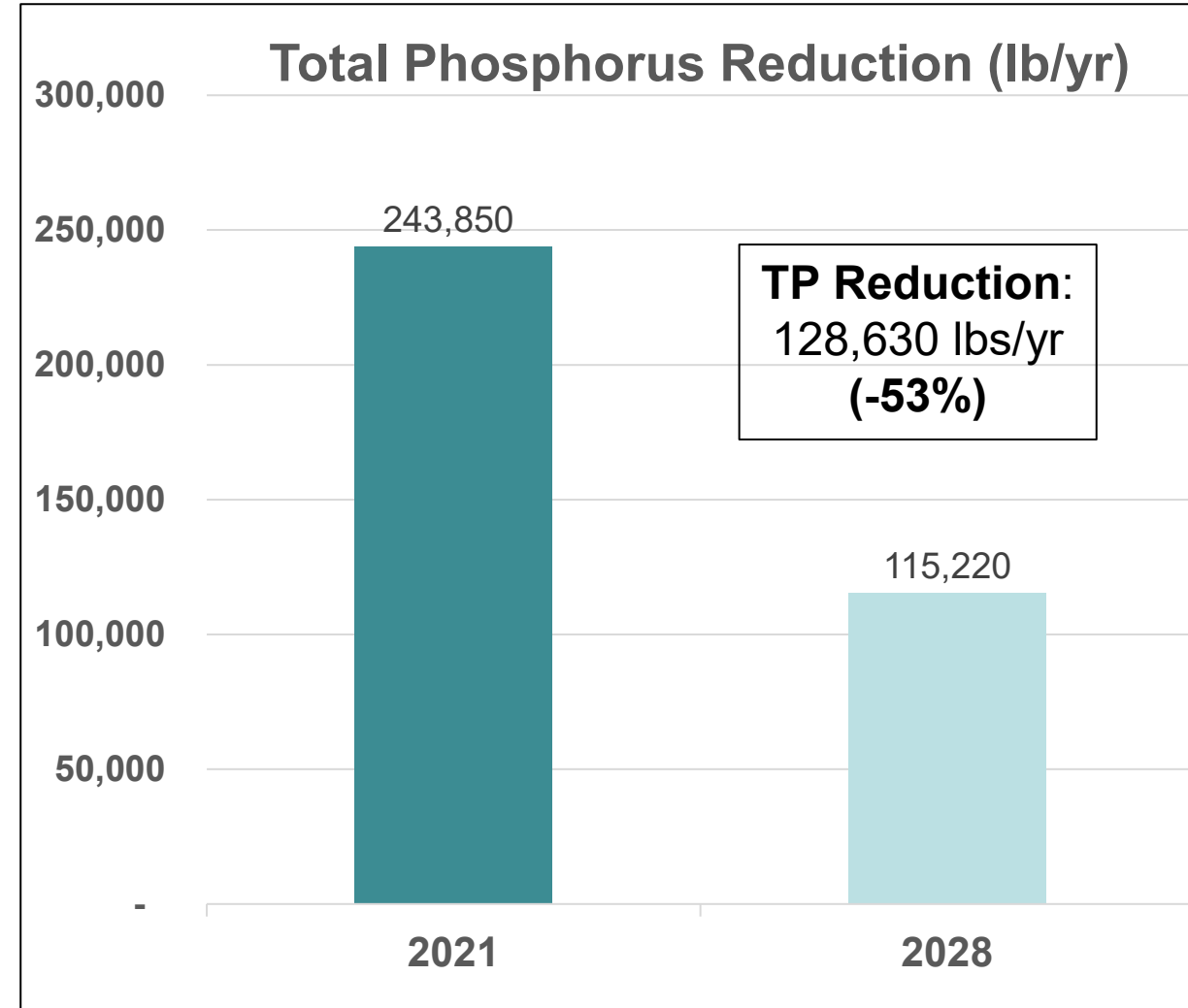
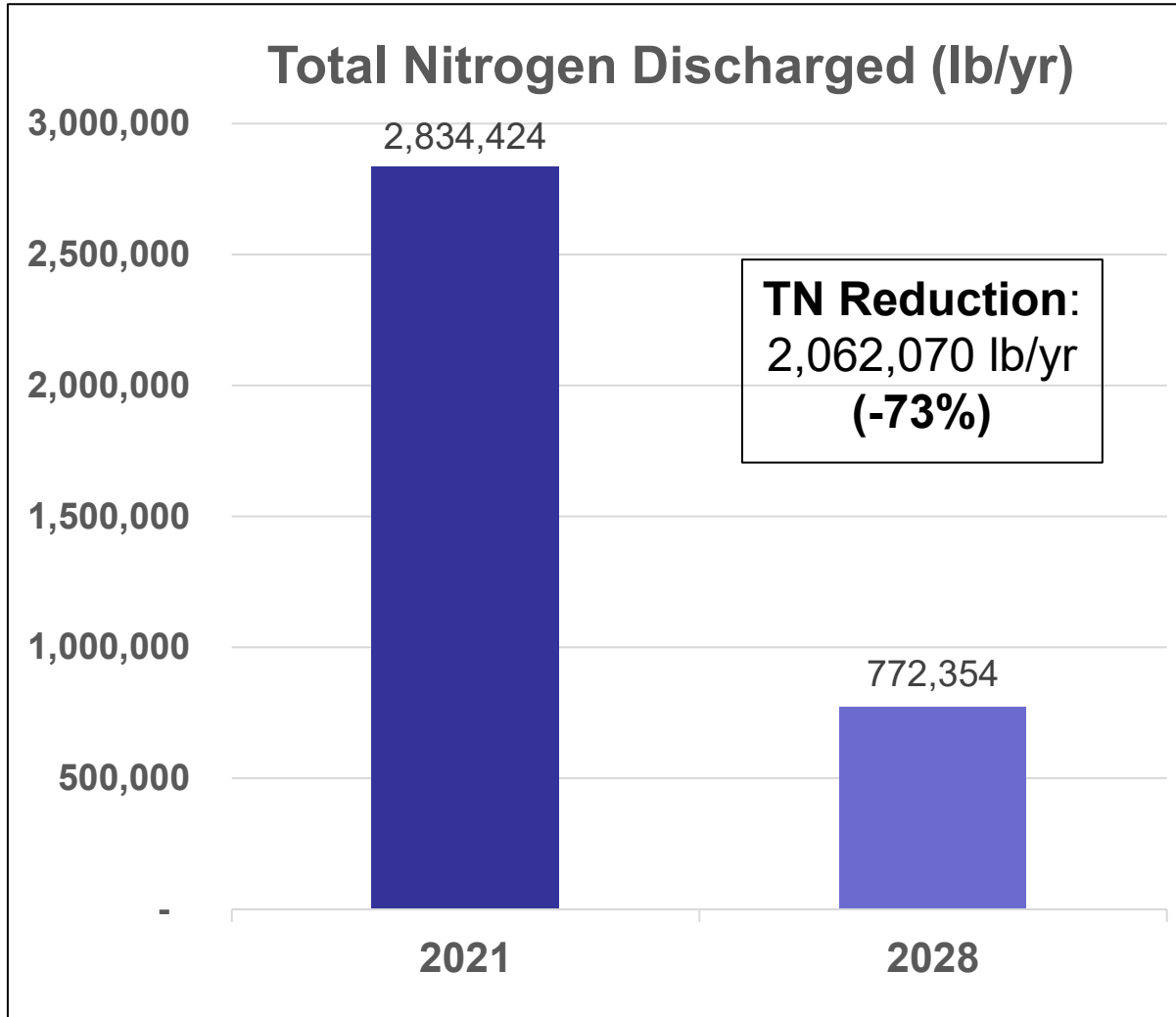
**Reduced-scale Water Treatment Pilot Equipment**  
Allows plant operators and researchers to test treatment techniques at reduced scale before applying them to the main process, and provides flexibility to research new treatment technologies.

Secondary Effluent from Plant

Process Line Pipes  
Chemical Line Pipes

**Demonstration Facility**

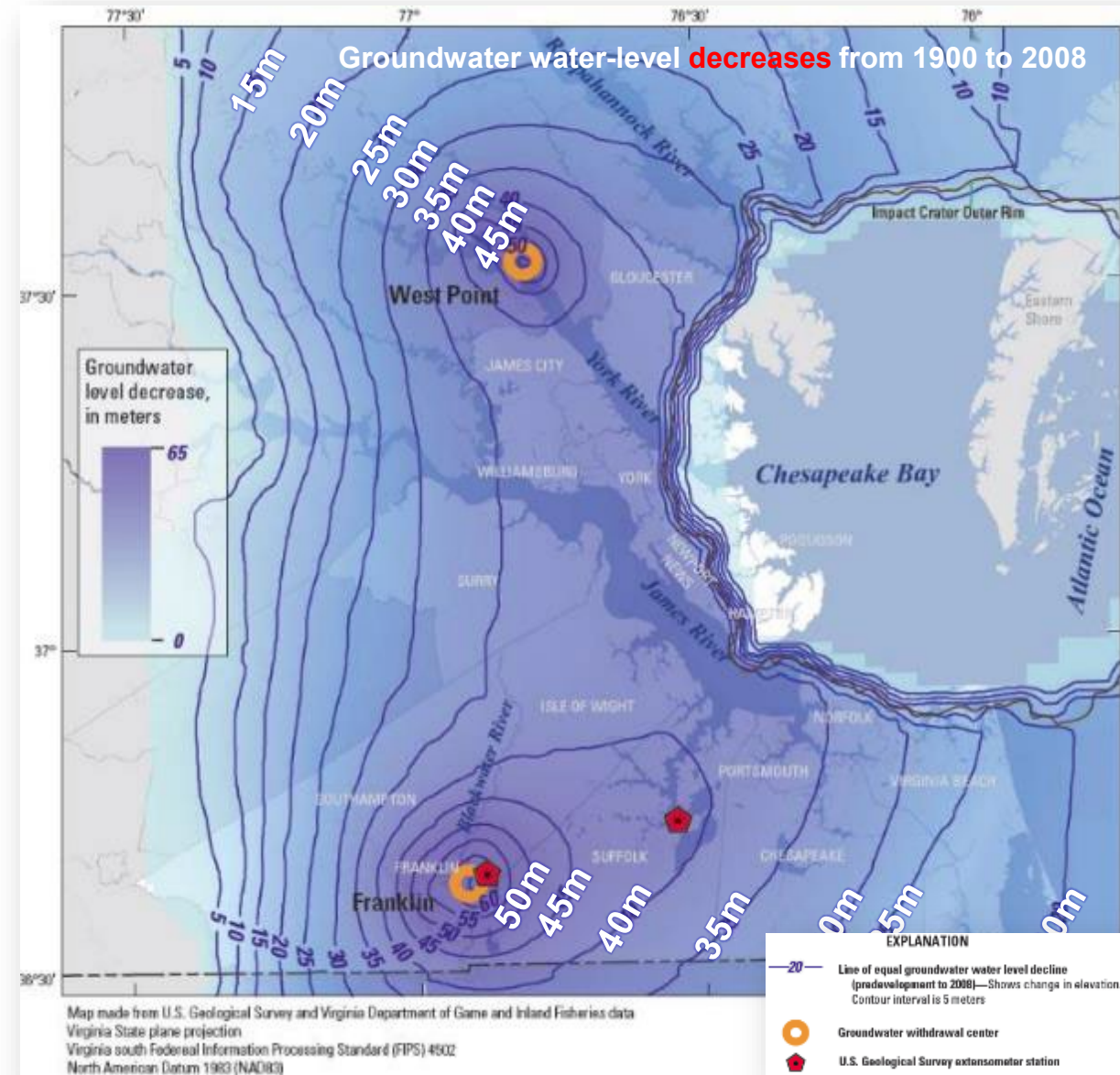
## Significant Reduction in Nutrients discharged by 2028 – Lower James River Basin





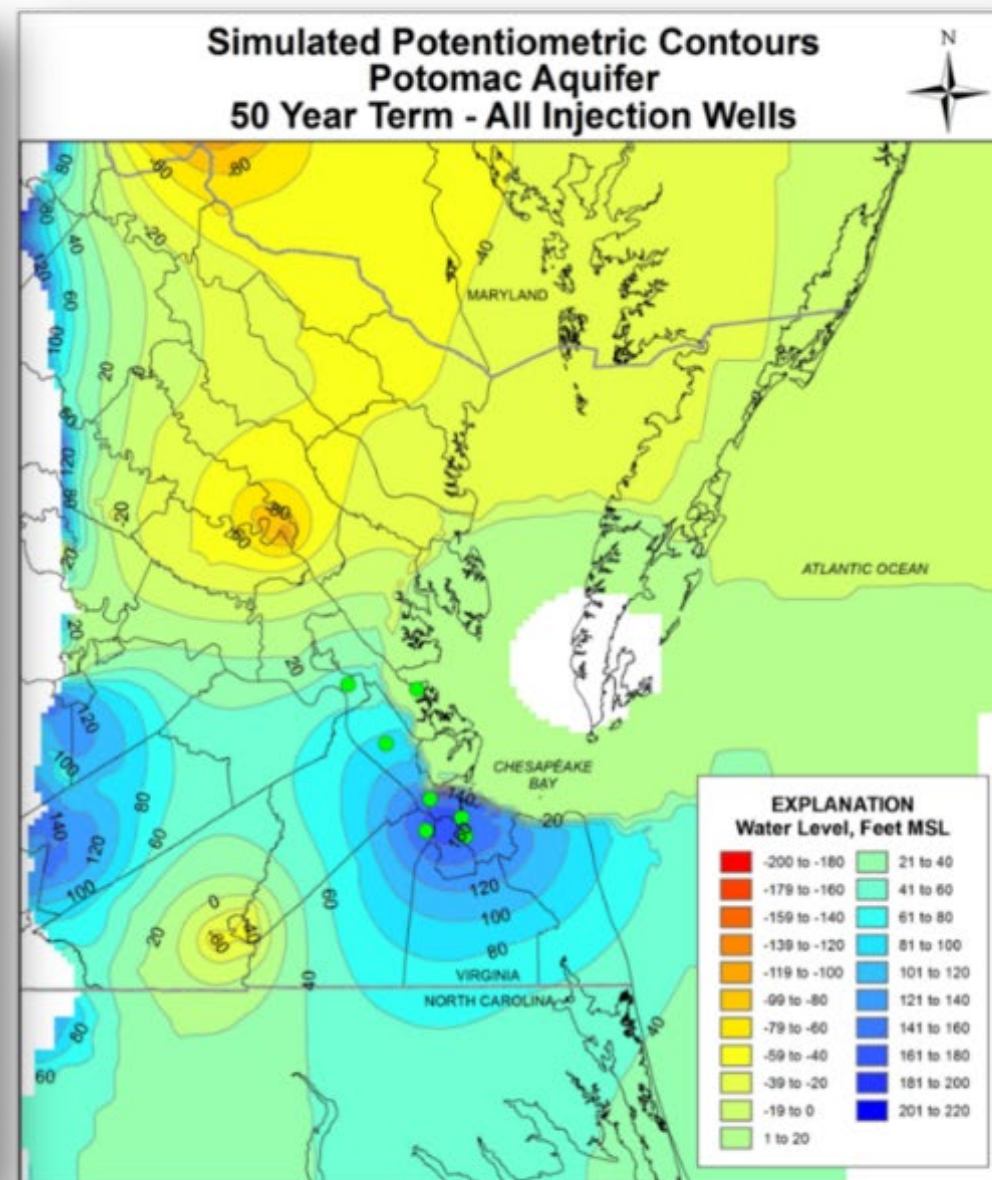
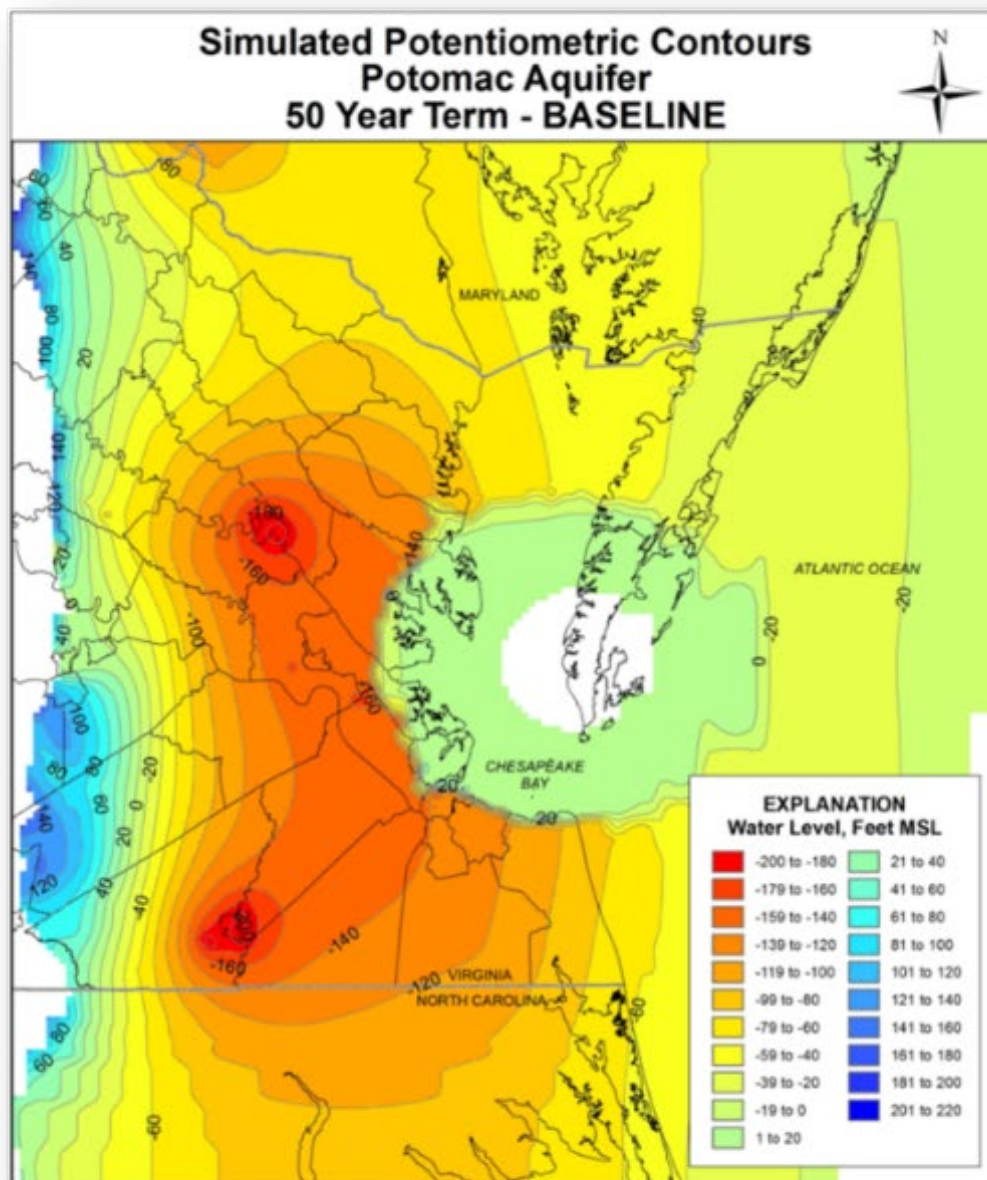
# Unsustainable Aquifer Withdrawals

- Over-allocated permitted withdrawal
  - Water levels falling several feet/yr
  - Some water levels below the aquifer tops in western Coastal Plain
- Total permitted withdrawals are **unsustainable**
  - Areas below regulatory criteria
  - Areas experience aquifer dewatering





# Potomac Aquifer water levels before and after injection



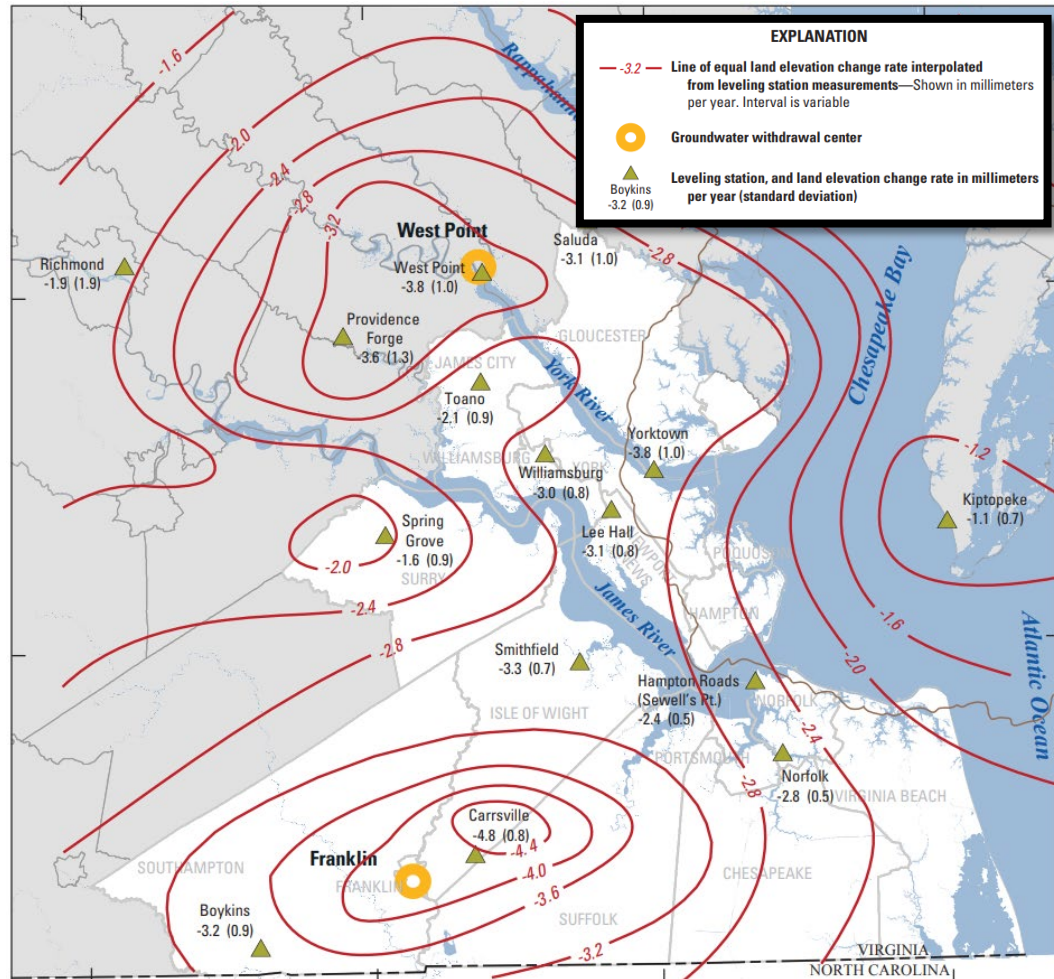


# OECD ranks Hampton Roads 10<sup>th</sup> in the world for value of assets at risk from sea-level rise

Organization for Economic Cooperation and Development

**50% of observed sea level rise is attributed to land subsidence**

**More than half of the land subsidence is associated with unsustainable groundwater withdrawals - USGS**



Map made from U.S. Geological Survey and Virginia Department of Game and Inland Fisheries data  
Virginia State plane projection  
Virginia south Federal Information Processing Standard (FIPS) 4502  
North American Datum 1983 (NAD83)

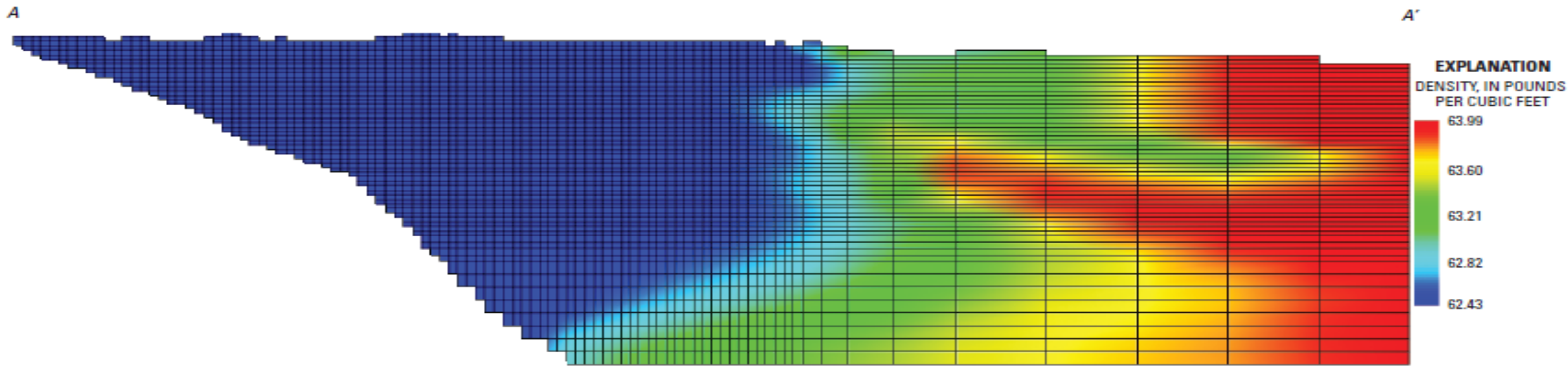
0 5 10 15 20 MILES  
0 10 20 KILOMETERS

Geodetic leveling from Holdahl and Morrison (1974)



## Saltwater contamination of groundwater

- Potentially irreversible contamination



**Figure A3.** Simulated water density near the saltwater transition zone of the Virginia Coastal Plain. (Location of cross section shown in figure A2.)

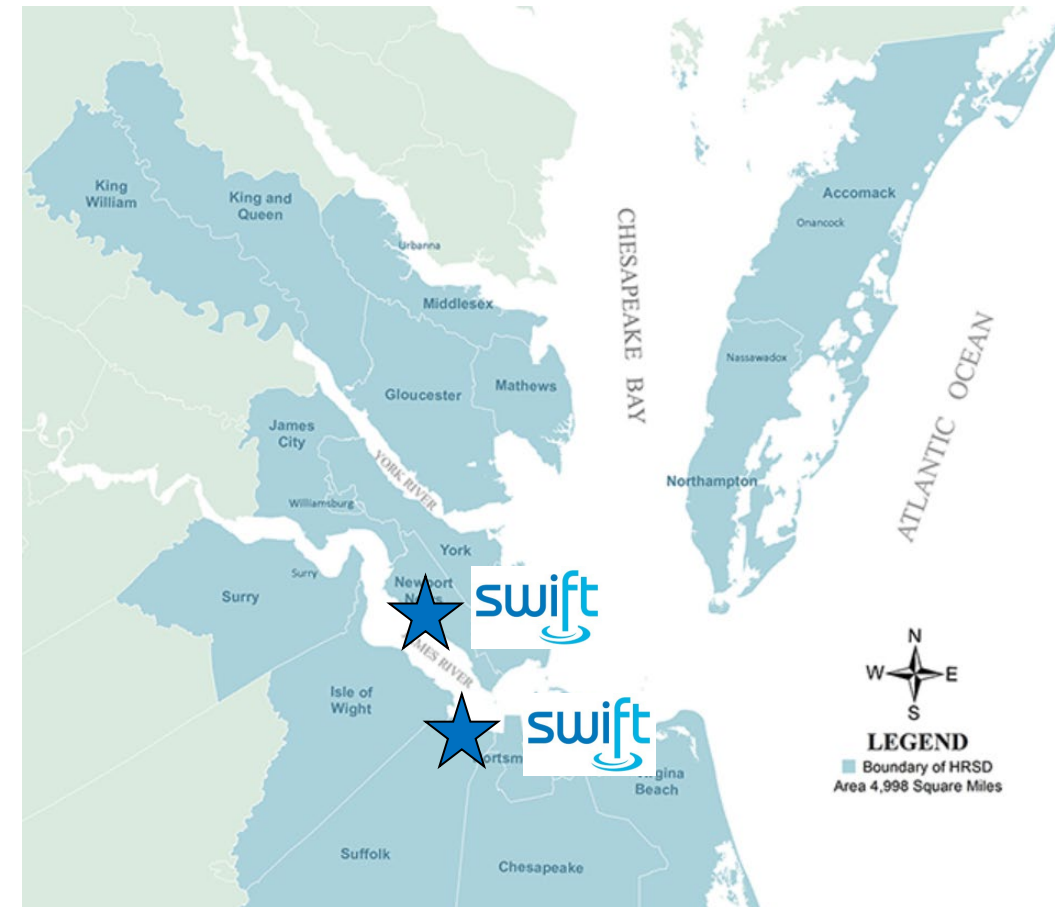
## Enhanced Nutrient Certainty Program (ENRCP) – WQIF Needs thru 2030

ENRCP Projects	Total Project Cost	WQIF Eligible Cost	Est. Grant Amount (% of Eligible)
James River SWIFT	\$630M	\$460M	\$345M
Boat Harbor Closure and Conveyance to Nansemond	\$453M	\$415M	\$311M
Nansemond SWIFT - Phase 1	\$401M	\$170M	\$128M
Nansemond SWIFT – Phase 2	\$632M	\$237M	\$178M
	\$2,116M	\$1,282M	<b>\$962M</b>



# Construction Update

- James River SWIFT
  - Under Construction
  - 57% Complete
  - Substantially Complete 2026
- Nansemond SWIFT
  - Phase 1 Under Construction
    - 54% Complete
    - Substantially Complete 2026
  - Phase 2 Under Design
    - 30% Design Complete
    - Substantially Complete 2029







# HRSD


**One of the most Innovative  
Utilities in the Country**




# IDEA – Hampton Roads Water Technology Innovation Ecosystem

How can we leverage HRSD as a water tech anchor for Economic Development







HAMPTON ROADS  
EXECUTIVE ROUNDTABLE



WATER  
TECHNOLOGIES



Attracts new firms and institutions in architecture, urban planning, and coastal and climate research to create sustainable water technologies. Region 5 produces new goods, services, and breakthroughs to develop smart water management and resource conservation—for less waste and better water usage.





## Alignment with our Strategic Priorities



**Financial  
Stewardship**



**Environmental  
Responsibility**



**Talent**



**Innovation**



**Community  
Engagement**

# Water Tech Economic Development Opportunities



**Incubator/  
Accelerator**



**Attract  
Companies**



**Collaborate  
Regionally**

- **Mentor/Protégé Program**



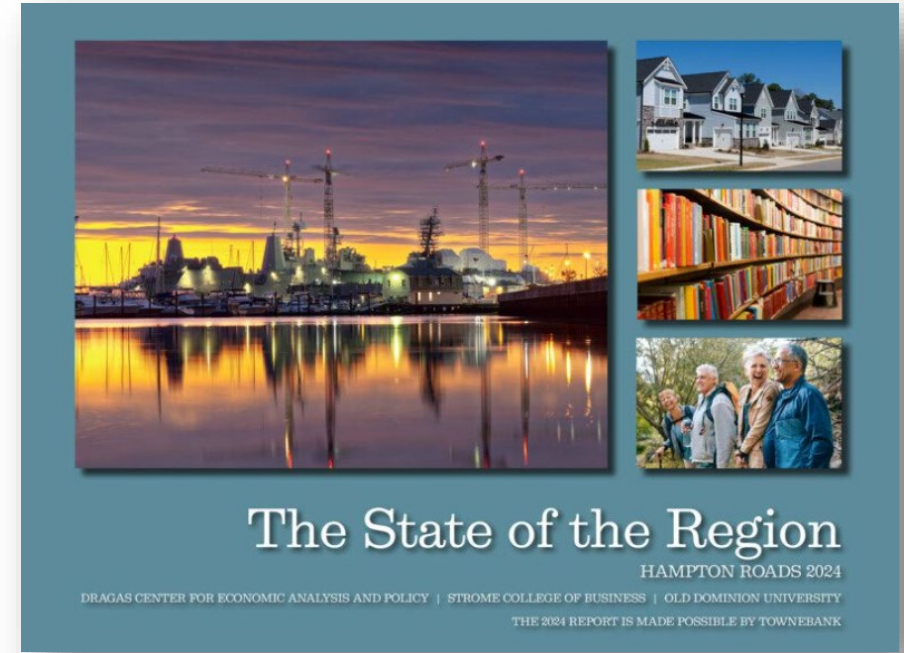
**Provide  
Recycled  
Water/Green  
Energy**

- **Co-location?**
- **SWIFT**

- Better integrate in the regional water innovation and management space
- HRSD's Brand = Innovation
  - Attract businesses/manufacturing to the region
  - Cluster water tech companies in Hampton Roads
- HRSD is a test bed for innovation
  - Incubate/Accelerate

# 2024 State of the Region – Water Technology Cluster

- Avg Annual wage = \$91,435
  - 3<sup>rd</sup> Highest
- Higher than
  - Clean Energy \$87,452
  - Cyber Security, Data Analytics and Mod-Sim \$78,115
  - Advanced Manufacturing \$74,634
- 38,000 jobs
  - Double port operations cluster (18,000 jobs)
- Growth rate 0.9%
- Working with ODU on a SWIFT Economic Impact Study

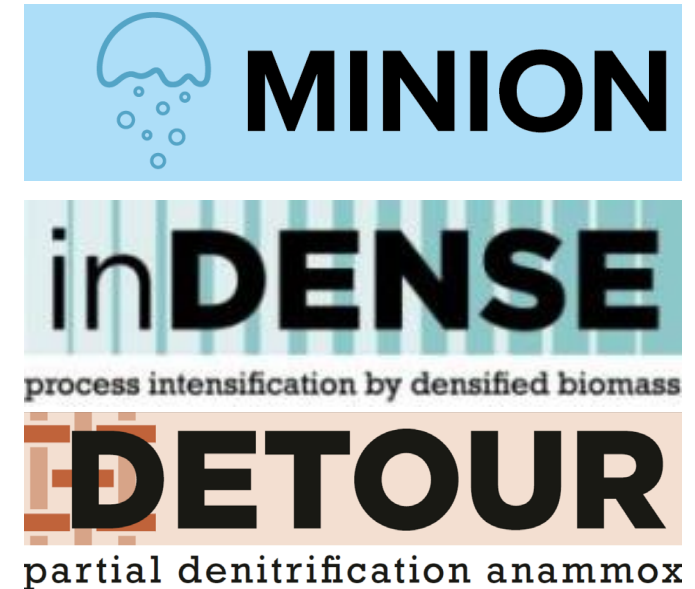


Clusters	Employment	Average Wages	Average Annual Employment Growth 2013 Q4 - 2023 Q4	Employment Location Quotient
Advanced Manufacturing	10,353	\$74,634	0.3%	2.5
Clean Energy	24,069	\$87,452	1.3%	1.2
Cyber Security, Data Analytics and Mod-Sim	5,053	\$78,115	4.2%	0.6
Life Sciences	7,345	\$109,812	-0.1%	0.7
Port Operations, Logistics, and Warehousing	17,936	\$73,067	2.4%	1.1
Ship Repair and Ship Building	41,056	\$83,327	1.1%	43.7
Uncrewed Systems and Aerospace	14,864	\$96,488	1.1%	1.7
Water Technologies	38,135	\$91,435	0.9%	1.2
All Industries	799,281	\$58,593	0.1%	---

Sources: JobsEq and the Dragas Center for Economic Analysis and Policy. For more detail about key industry cluster definitions, see GO Virginia Region 5 2023 biennial update of the Region 5 Growth and Diversification Plan.

# HRSD Tech Portfolio – Researching ways to keep Ratepayer bills low

- Regulations drive innovation
- Process Intensification (PI)
  - Enhance existing wastewater processes
- Reduce O&M costs
  - Improve efficiency
- Lower/eliminate Capex
  - Use existing infrastructure or smaller footprint
- Reduce environmental impact



(12) <b>United States Patent</b> Bott et al.		(10) Patent No.: <b>US 9,902,635 B2</b>
		(45) Date of Patent: <b>Feb. 27, 2018</b>
(54) <b>METHOD FOR DEAMMONIFICATION PROCESS CONTROL USING PH, SPECIFIC CONDUCTIVITY, OR AMMONIA</b>	(56) <b>References Cited</b>	
	U.S. PATENT DOCUMENTS	
(71) Applicant: <b>Hampton Roads Sanitation District, Virginia Beach, VA (US)</b>	4,056,465 A 11/1977 Spector	
	5,582,733 A 12/1996 Denbo et al.	(Continued)
(72) Inventors: <b>Charles Bott, Virginia Beach, VA (US); Stephanie Klaus, Virginia Beach, VA (US)</b>	FOREIGN PATENT DOCUMENTS	
	DE 3628203 2/1988	
(73) Assignee: <b>Hampton Roads Sanitation District, Virginia Beach, VA (US)</b>	DE 4016457 2/1992	(Continued)

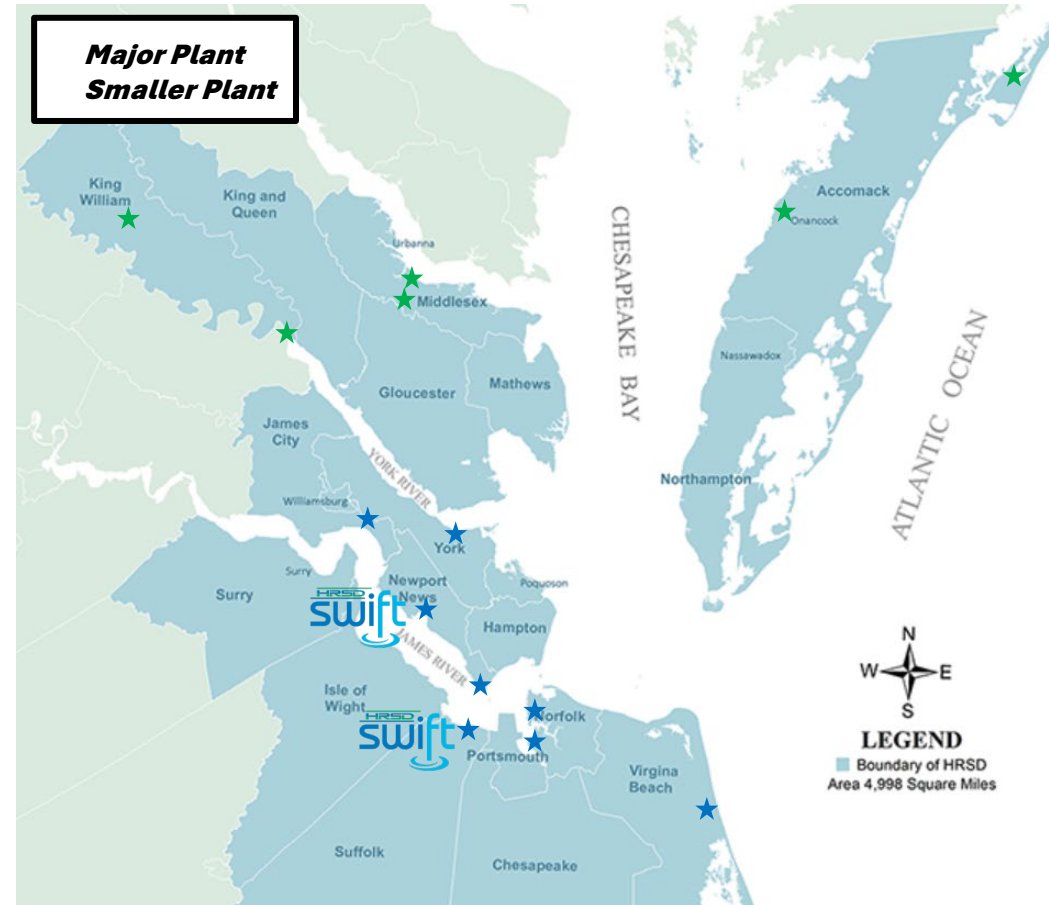


## Water Technology and Research Department

- *Researching ways to keep costs low*
- Dr. Charles Bott, P.E. – Chief Technology Officer
- Dr. Chris Wilson, P.E. – Director of Process Engineering
- 23 Staff
  - 8 Treatment Process Engineers
  - 15 Graduate Students
- 5 PhDs, 8 PhDs in progress
- Millions in research grants
  - Dept of Energy
  - EPA



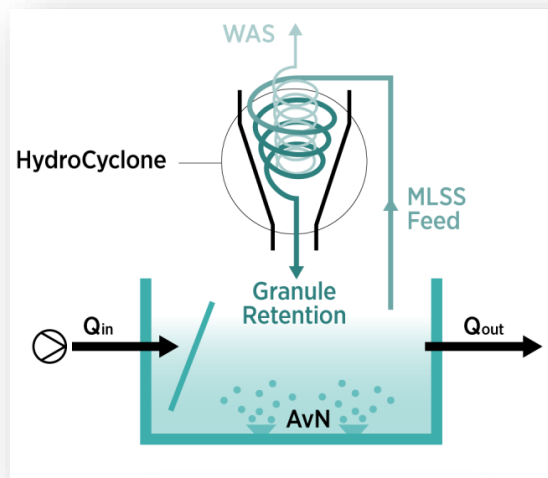
# DIFFERENTIATOR - Multiple Plants for Pilots/Incubation



*Service area is approx. 5,000 square miles*



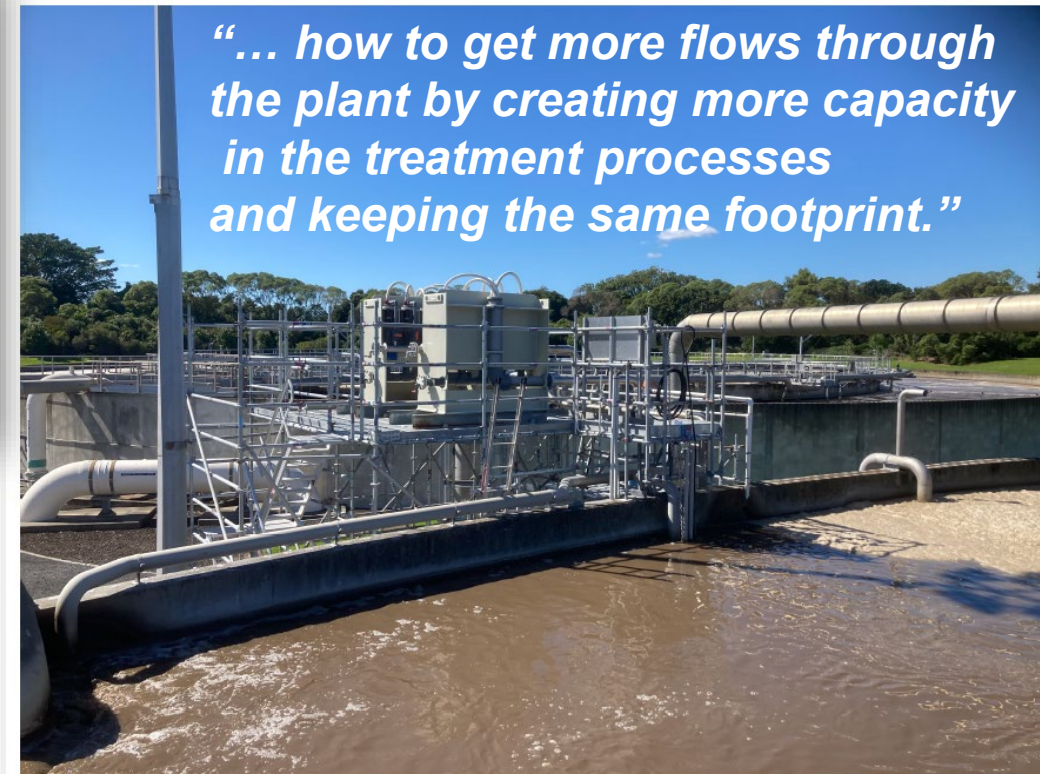
- Gravimetric Selector - Increases existing plant capacity without new tanks
- More than 100 operational, active or expected projects
- Pending and new Installations around the world
  - US (Denver saved \$66 million)
  - Singapore
  - Germany
  - Poland
  - Austria
  - Belarus
  - France
  - Korea
  - Australia/New Zealand
  - Hungary
  - India



The new technology making a big difference at Māngere WWTP **New Zealand**

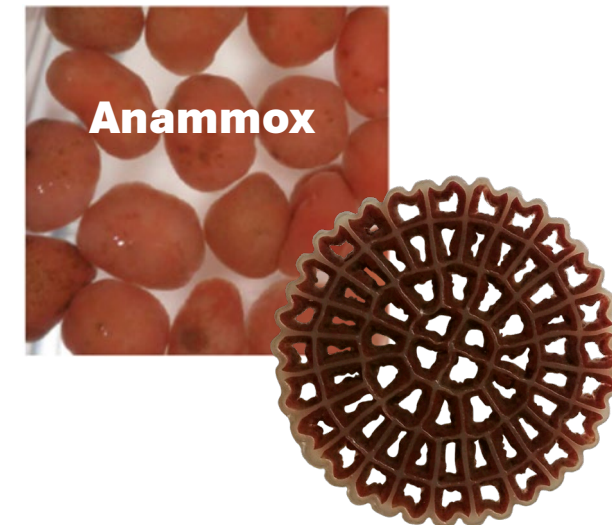
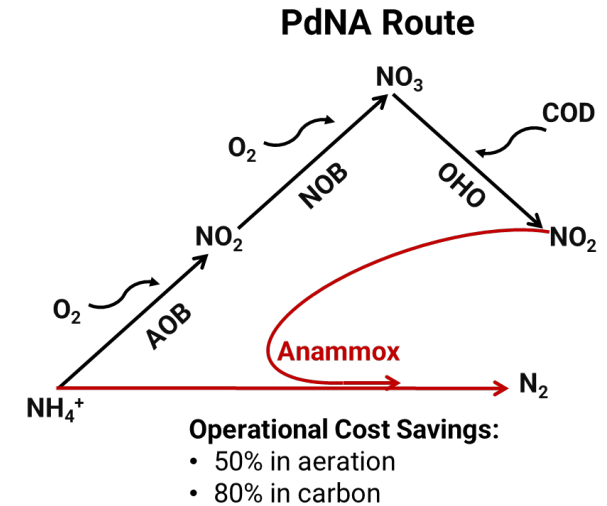
20/03/2024

*“... how to get more flows through the plant by creating more capacity in the treatment processes and keeping the same footprint.”*

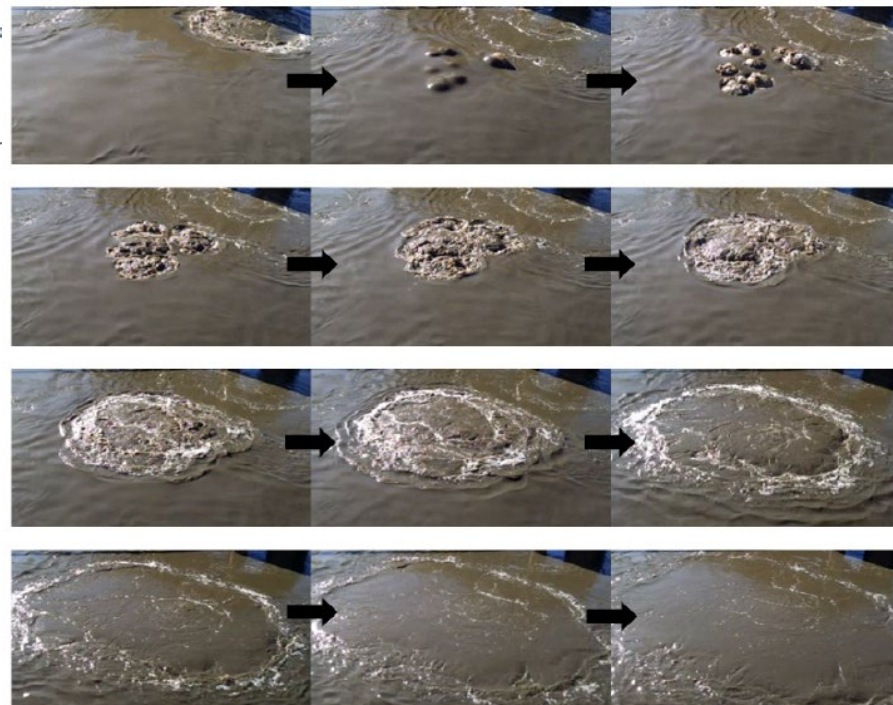


The inDENSE technology is housed in two units on the side of the reactor/clarifier.

- **Partial Denitrification-Anammox (PdNA)** – mainstream deammonification
- Harnessing relatively newly discovered (1999) Anammox bacteria
  - Over a decade's worth of research
- First plant in the world – York County
  - Saves \$1 million/year in chemical and power
  - **\$100 million capex avoided**
- PdNA Plants under construction
  - James River SWIFT (Newport News)
  - Nansemond SWIFT (Suffolk)



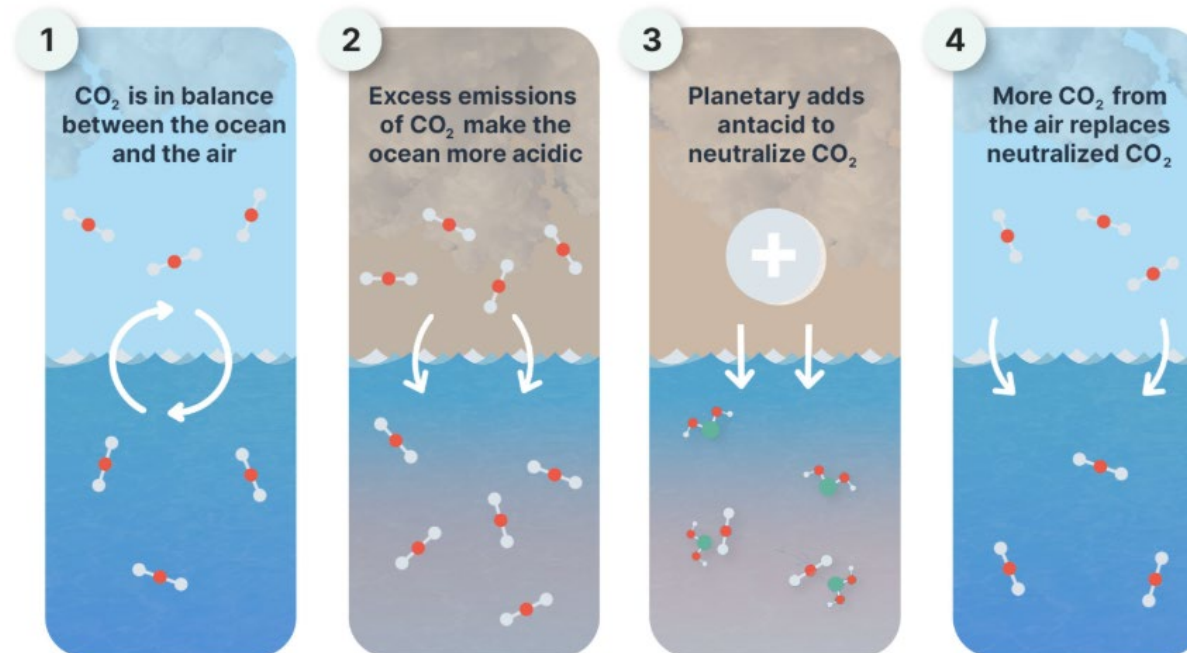
- Big bubble mixer
  - Flexible locations
  - Low capex
  - Low maintenance
  - Uses existing power
- 445 installed at HRSD plants





## Resiliency/Climate Change - Decarbonization Start-Ups

- Permanently capture greenhouse gases from wastewater treatment
- Carbon removal from ocean alkalinity enhancement



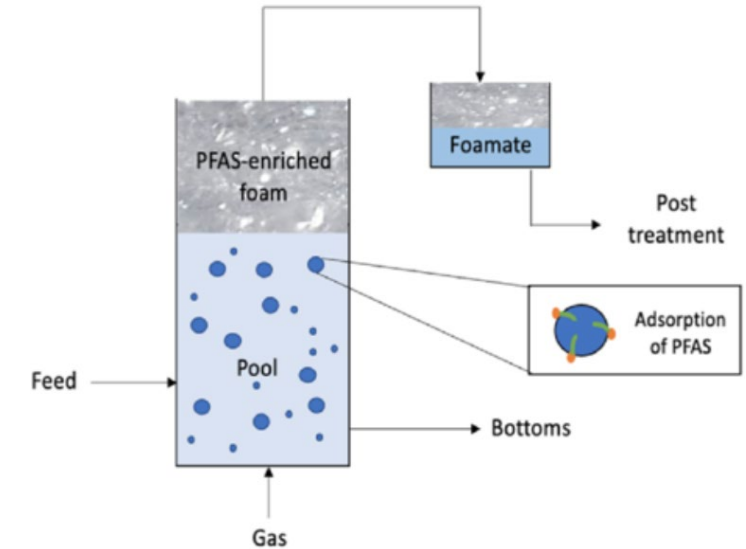
PR Newswire

CREW Carbon raises \$5.3mm seed round to capture carbon at wastewater treatment facilities

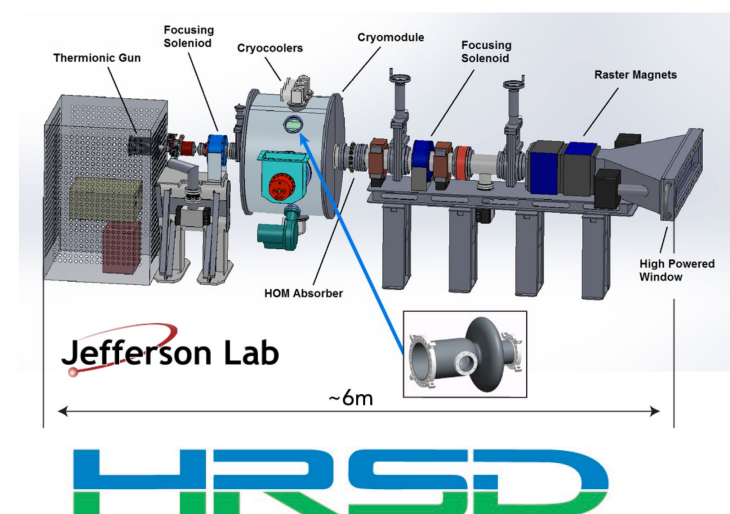


# Regional PFAS Destruction Facility – Waste Management/Jefferson Labs

- Phase 0
  - Lab treatability for foam fractionation of pretreated leachate (ongoing)
- Phase 1 – Pilots at Bethel
  - Foam fractionation
  - Concentrate PFAS destruction (possible alts)
    - Electrochemical oxidation
    - Hydrothermal alkaline treatment
    - Supercritical water
    - Advanced reduction
    - Electron beam (Jefferson Lab)
- Phase 2 - Implementation



ELECTRON BEAM IRRADIATION OF FOREVER CHEMICALS



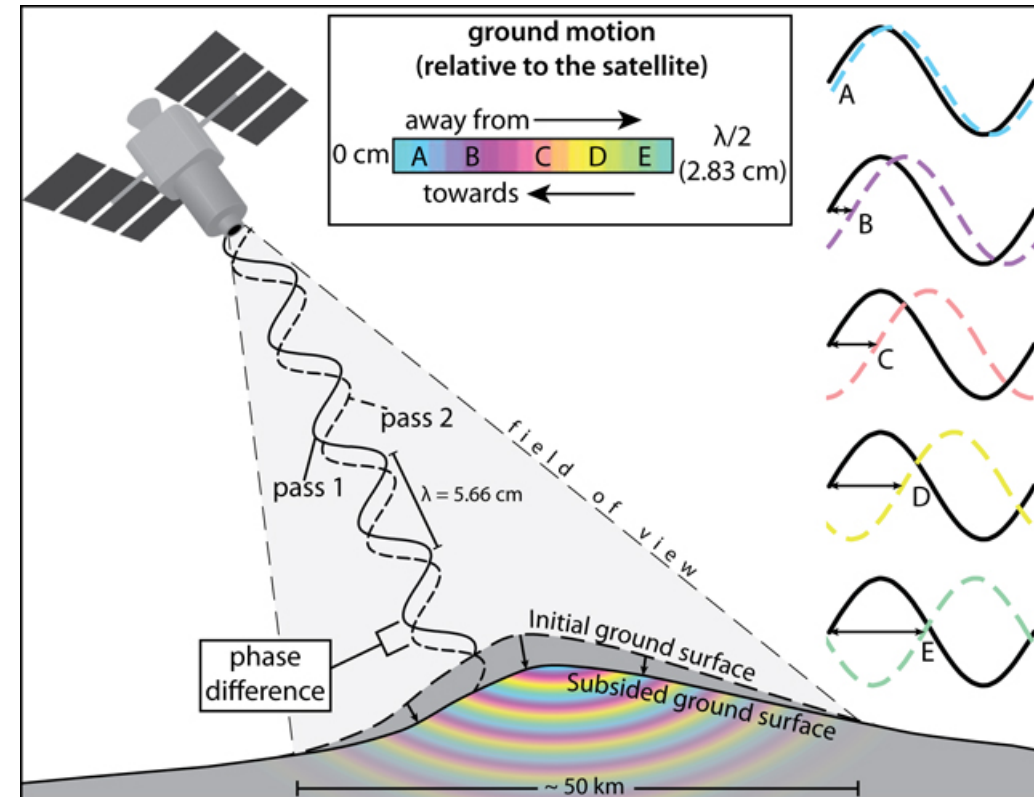
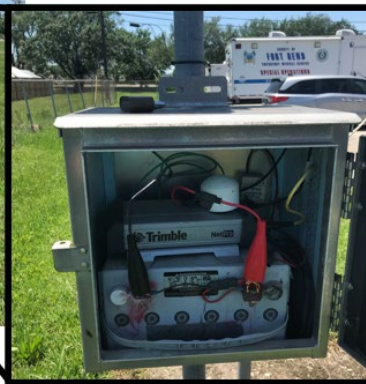
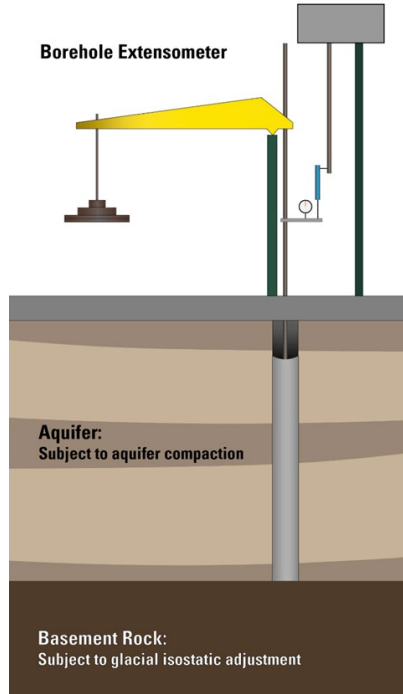
## US Geological Survey (USGS) Super Stations

- Resiliency
- Does SWIFT work to slow/stop land subsidence?
- Data to calibrate the model
- **NASA** NISAR – Synthetic Aperture Radar Satellite
  - Complete picture of the Earth's surface moving vertically and horizontally
  - Including sea-level rise and groundwater



# USGS Super Station

- **Dual** Extensometer – metal rod to bedrock
- GNSS – Global Navigational Satellite System (GPS)
- InSAR – remote sensing using satellites
- Geodetic surveying - benchmarks





# MEGAreion - The World's Next Global Internet Hub

## TRIFECTA

- Power
- Fiber
- Water

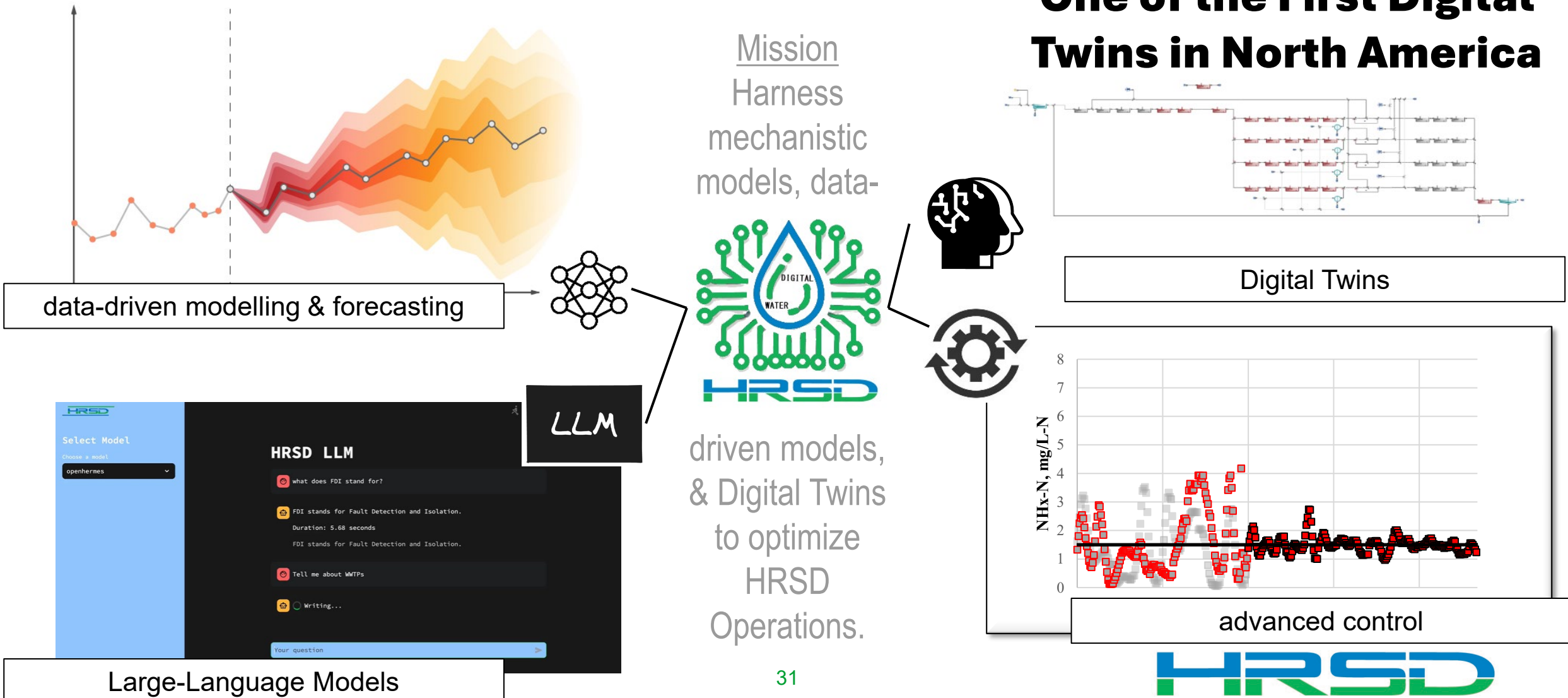
## VIRGINIA'S I-64 INNOVATION CORRIDOR: RICHMOND REGION AND HAMPTON ROADS

The World's Next Global Internet Hub



# HRSD Digital Water (Artificial Intelligence/Machine Learning)

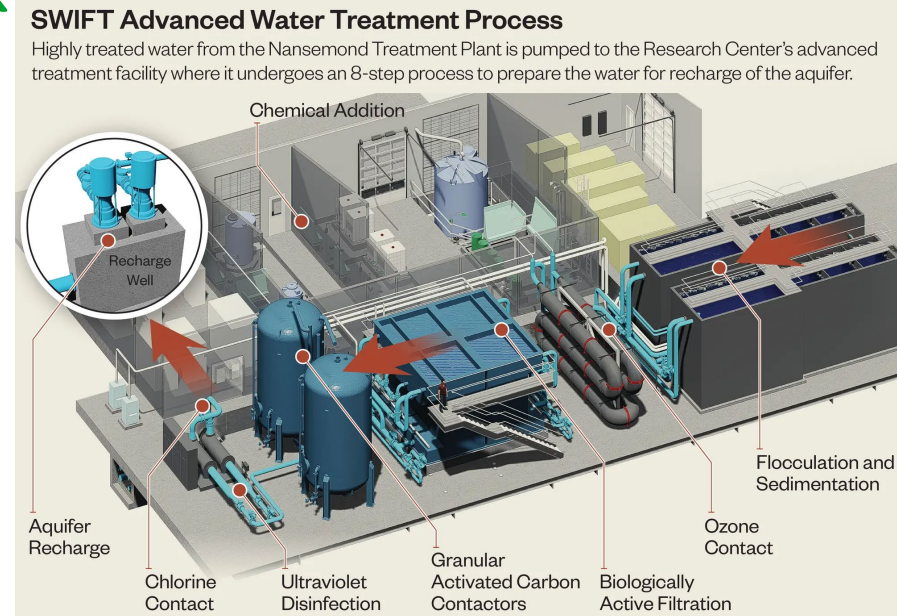
## One of the First Digital Twins in North America



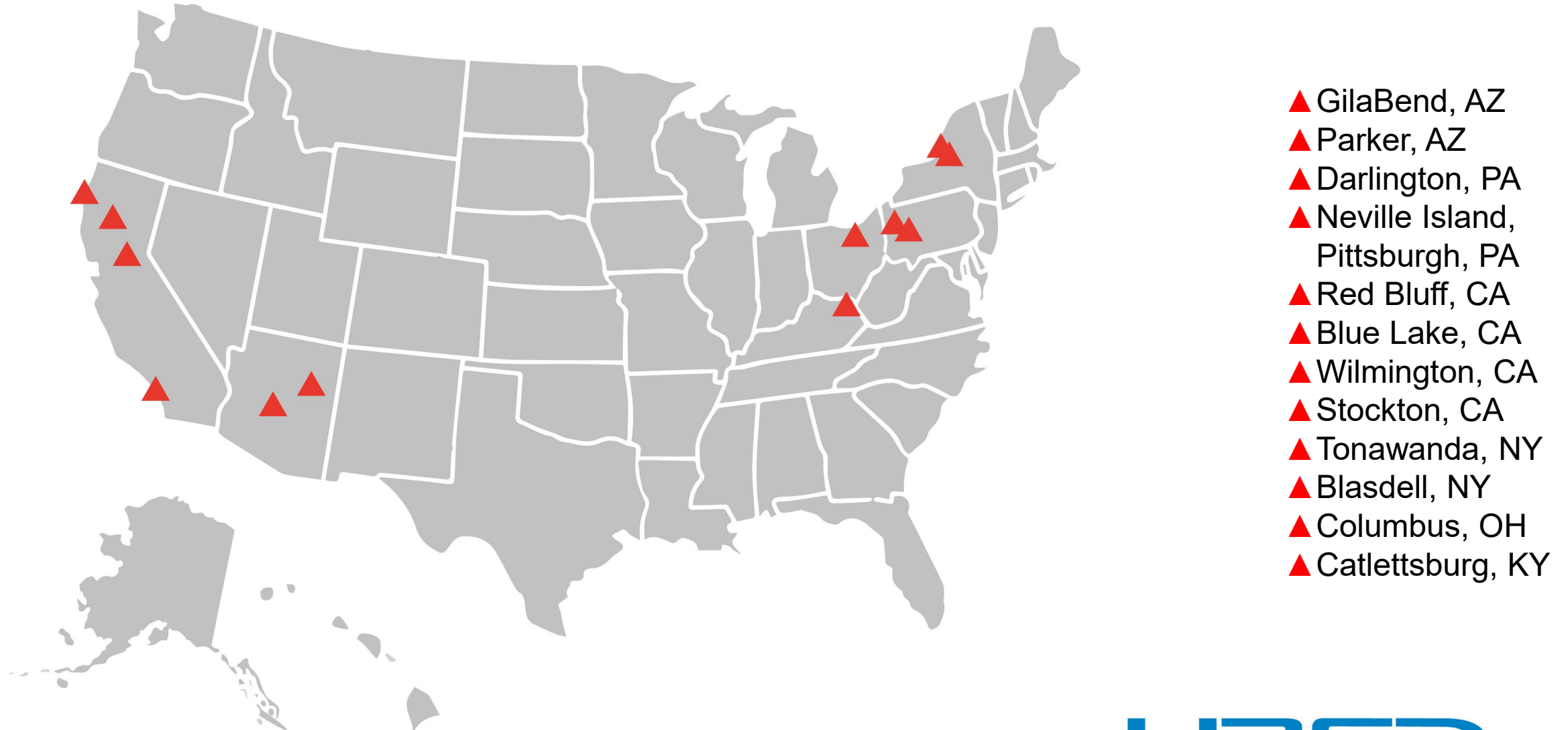


# PFAS - Granular Activated Carbon (GAC) Facility Needed in Virginia

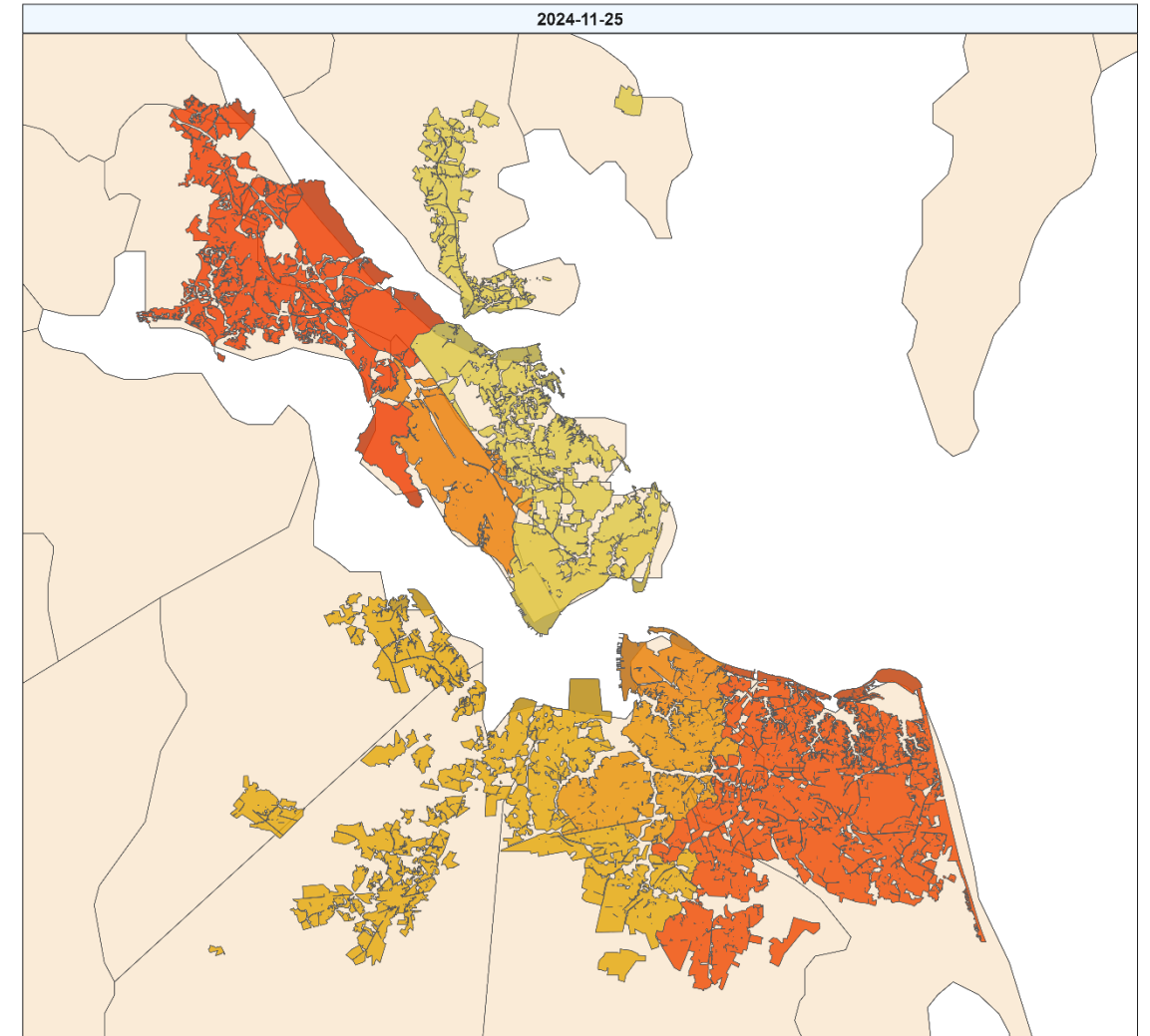
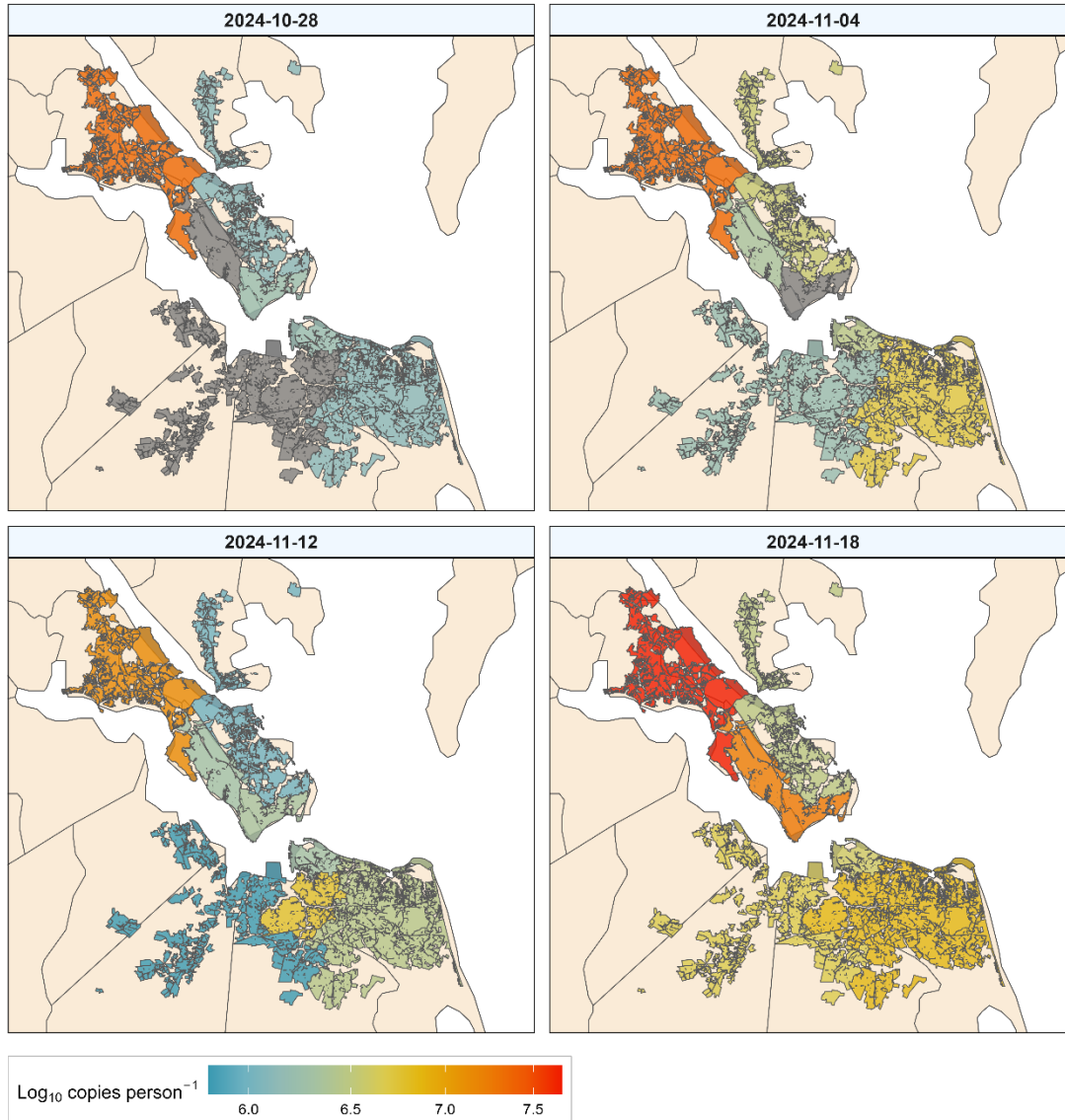
- EPA released PFAS (forever chemicals) regulations in 2024 – **all water utilities will need to comply by 2029**
- **7,000 tons per year needed regionally**
- Starting material is the same coal being shipped out of Newport News and Norfolk
- Only technologies proven to remove PFAS
  - GAC
  - Ion Exchange (IX)
- Either Virgin GAC or Regeneration Facility



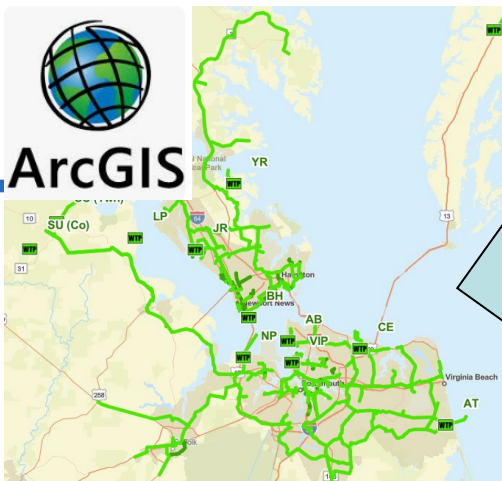
## Third Party GAC Reactivation Facilities in the US – only 3 NSF Certified



# First in the country to do Wastewater Surveillance for COVID – Feb 2020





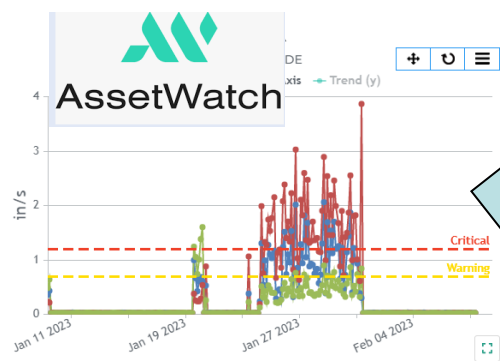


Fleetistics

DCS

Runtime data for prev maint. planning

Vibration data for corrective maint



ORACLE  
ERP

Labor and financial data

Labor and financial data

HEXAGON  
EAM

CIP Asset Data

ORACLE  
Primavera  
Unifier

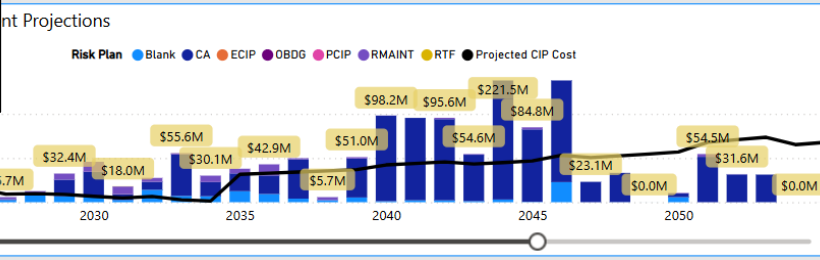
# Asset Management Program



World-Class System of Systems  
Data-Driven/Risk-Based Decisions

## Condition-Based Replacement Planning

Power BI



## Computerized Maintenance Management System (CMMS)

- Asset Inventory (age, material, location, cost, etc.)  
~76000 assets / ~\$5B replacement cost
- Spare Parts Inventory (usage, turnover, cost, etc.)  
~23,000 parts / ~\$26M in stock
- Work Order Management (Prev Maint., Corrective, Projects)
- Condition Assessment Data
- Lifecycle and O&M Cost/Staffing Projections based on maintenance history



- Aligns perfectly with our Strategic Plan
- This is a big idea but has lots of potential
- HRSD's Brand = Innovation
- Commission Guidance:
  - Agree?
  - Pursue site assessments and co-location?







**HRSD**

**Questions?**

**Jay Bernas, P.E.**  
**GM/CEO**  
**December 17, 2024**



HRSD Commission Meeting Minutes  
December 17, 2024  
Attachment #10

16. Informational Items

AGENDA ITEM 16. – December 17, 2024

**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 – Design & Construction Cost Estimating Internal Assessment](#)
- b. [Strategic Measures Summary](#)

December 6, 2024

Re: General Manager's Report



## Environmental Responsibility

Staff continues to make every effort to reduce offsite odors at the Atlantic Treatment Plant. Our plan to haul biosolids before sunrise has been going very well. Our new covered trucks and drivers have been a game-changer. In addition, a temporary odor control misting system was installed around the pads. We are hopeful that this will help reduce off-site odors.

**Treatment Compliance and System Operations:** Multiple events were reported this month. Additional details are available in the Air and Effluent Summary in the Water Quality monthly report.

- From Fiscal Year (FY) 2025 to date, there has been one Permit Exceedance out of 23,553 Total Possible Exceedances.
- Pounds of Pollutants Removed in FY 2025 to date: 91.3 million pounds.

**Water Quality:** No civil penalties were issued in November.



## Financial Stewardship

Revenues were above budget as water consumption was much higher than expected. Interest Income continues to be strong as the Federal Reserve is taking their time lowering interest rates to ensure a soft landing. Expenses remain under control and below budget.

I met with the ODU State of the Region Economic Professors and presented SWIFT and our Water Tech Innovation Ecosystem concept. They were very intrigued and see multiple threads that we can pursue for an Economic Impact analysis. More to come after they analyze the information we send them, and we are hopeful to be included in the 2025 State of the Region report.



## **Talent**

It is bittersweet to announce Don Corrado's retirement after 25 years of his visionary leadership. Mary Corby was recently promoted to Chief Information Officer (CIO) in the Information Technology Department (ITD). She has been with HRSD for over 28 years and was recently the Director of Enterprise Application Services.



## **Community Engagement**

As you know, the SWIFT Program's consultants and contractors develop Community Commitments Plans. Part of this program includes a Mentor-Protégé Program, and there are currently eight pairs working together. We are hoping that this can spur economic development by giving the proteges help to grow their business.

I met with the following people/groups to discuss potential partnerships and our Water Tech Innovation Ecosystem concept:

- Jeff Tanner, former ODU Business Dean
- Xylem
- Jefferson Labs
- Hampton Road Military and Federal Facilities Alliance
- BluTerra
- Google, Meta, Amazon, Intel
- NASA
- Imagine H2O – water tech incubator/accelerator



## **Innovation**

I was asked to be a judge for Imagine H2O's Coastal Innovation challenge. This is a global competition for water and ocean entrepreneurs to pilot and scale their coastal solutions. Imagine H2O is a well-known group focused on incubating/accelerating innovative water solutions that I met at WEFTC.

I was invited by Radhika Fox, former Assistant Administrator for Water at EPA, and the Xylem's CEO to participate in a CEO-only Water Sector Disruption Study Group. Meetings will take place through 2025 in conjunction with national conferences. This is perfect timing as this aligns perfectly with our innovation ecosystem initiative.



Staff are starting to see the benefits in continuously monitoring vibrations in critical plant equipment so we can detect problems before they fail.

Ms. Christie Cole, part of the very prestigious [Churchill Fellowship program](#), visited HRSD from Australia recently. Churchill Fellows travel the world discovering new ideas in the hopes of bringing them back to their home country. She could have picked anywhere in the world to visit the latest wastewater innovations and picked HRSD. I asked her how she heard of HRSD from Australia, and she responded, "HRSD is world-renowned!"

**I look forward to seeing you in Virginia Beach at 9:00 a.m. on Tuesday, December 17, 2024.**

Respectfully submitted,

Jay Bernas, P.E.  
General Manager

TO: General Manager

FROM: Chief Communications Officer

SUBJECT: Monthly Report for November 2024

DATE: December 4, 2024


A. Publicity and Promotion

1. HRSD and Sustainable Water Initiative For Tomorrow (SWIFT) were mentioned or featured in six stories this month. Topics included:
  - a. Can Human Urine Fertilize our Crops? (Multi-university research with HRSD)
  - b. Water Research Foundation research with HRSD on Molecular evidence of Internal Carbon-driven Partial Denitrification in a Mainstream Pilot A-b System
  - c. 2024 Trenchless Technology Project of the Year New Installation Honorable Mention – James River Crossing Sewage Force Main HDD
  - d. Critical Infrastructure that Inspires Confidence and Delivers Results
2. Analysis of Media Coverage
  - a. Key results for November



## b. Top performing news content

**Top Article by Reach**  
Nov 1 - Nov 30



**College of William and Mary** • by Staff  
Editorial | US | Nov 18 · 5:32 PM


**Critical Infrastructure that Inspires Confidence and Delivers Results**

Roads Alliance Hampton Roads Military and Federal Facilities Alliance **Hampton Roads Sanitation District** James City County, Virginia National

Social Echo 0 0 0  
471k Reach

Neutral

**Top Article by Social Echo**  
Nov 1 - Nov 30



**Ambrook Research**  
Editorial | US | Nov 1 · 3:11 PM

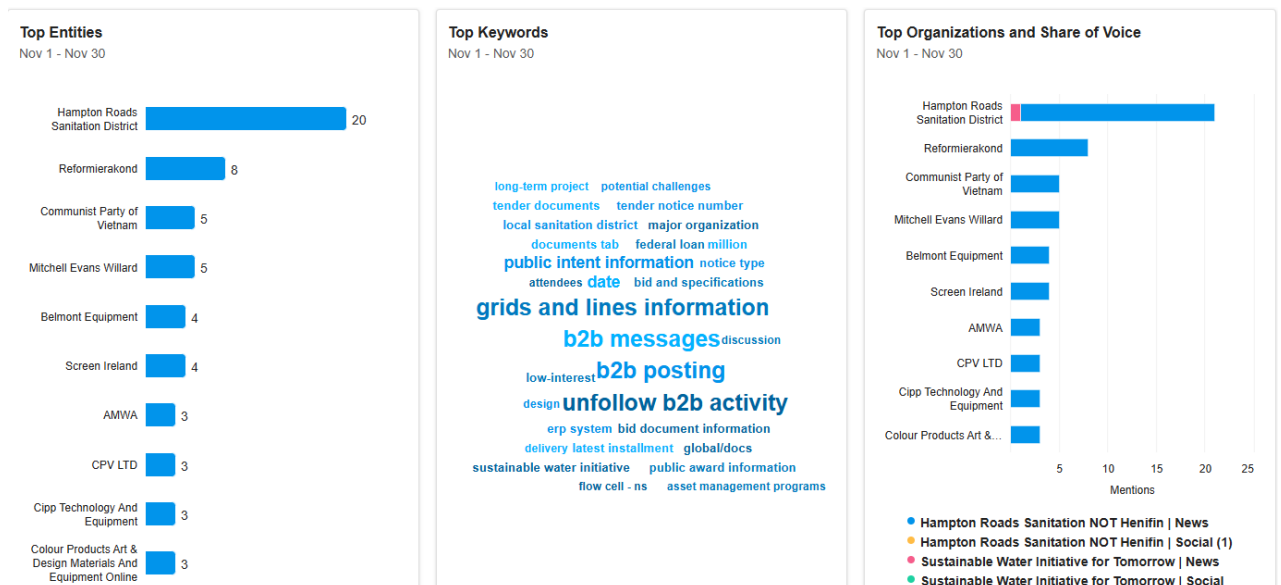
**Can Human Urine Fertilize our Crops?**

of Michigan, the University at Buffalo, and the **Hampton Roads Sanitation District** in Virginia, detected no significant buildup in crop

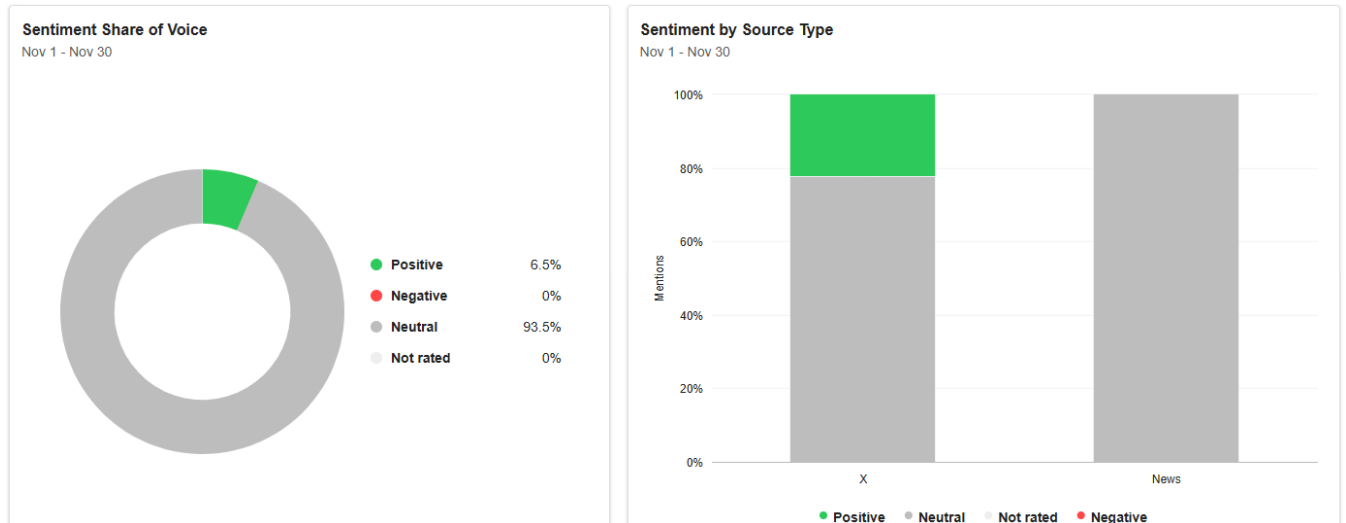
Social Echo 0 15 0  
27.9k Reach

Neutral

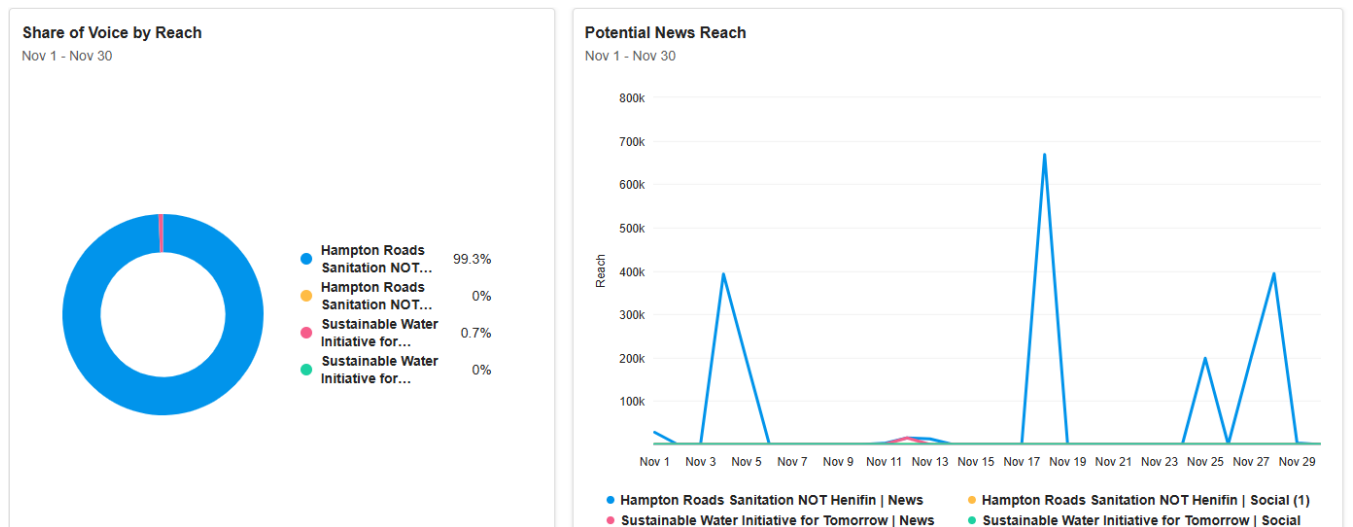
## c. Top entities and keywords



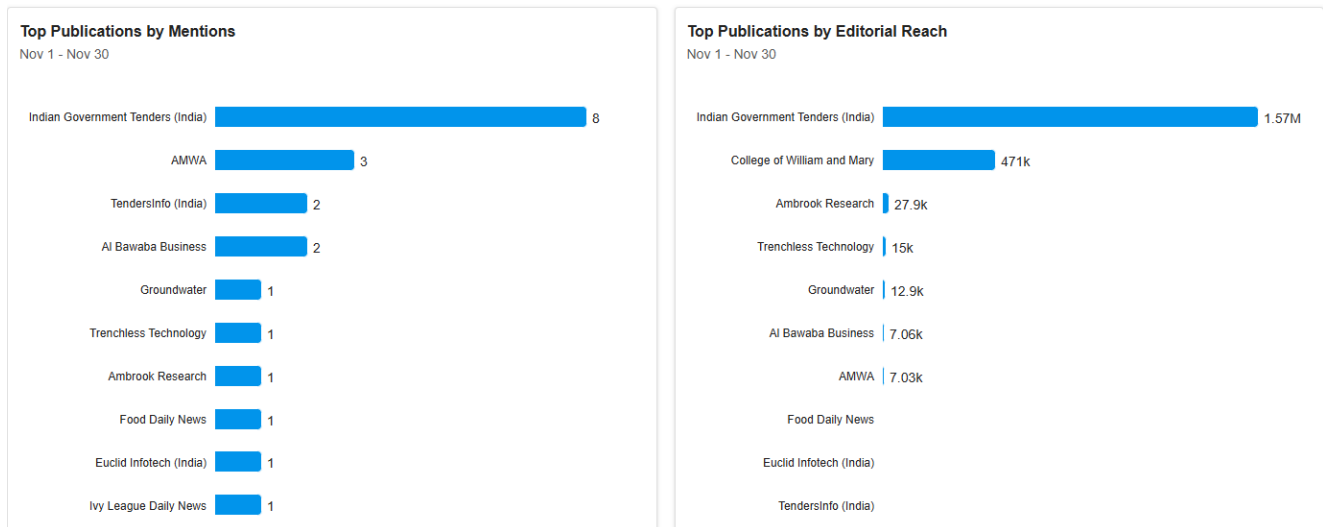
d. How favorable is the content?



e. What is the potential reach?



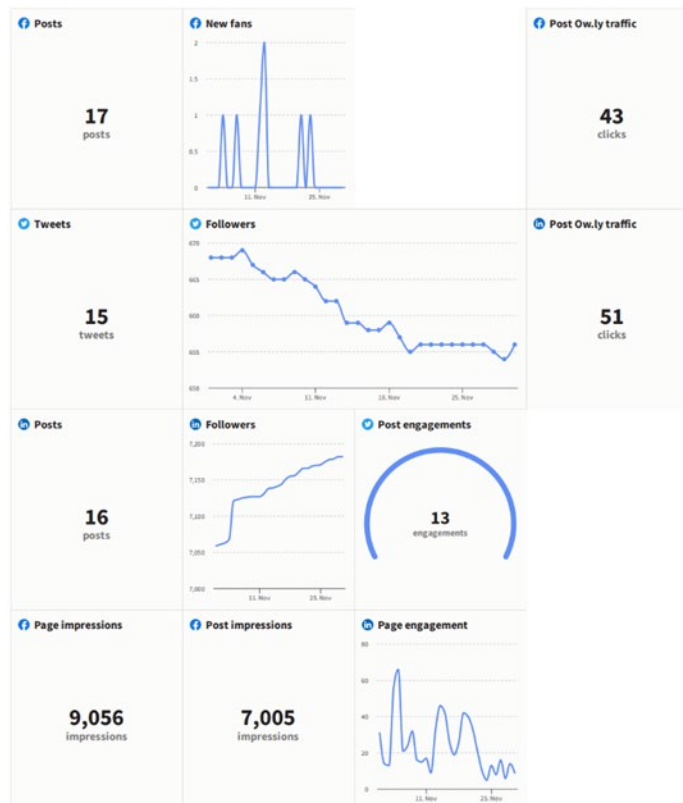
## f. Top publishers



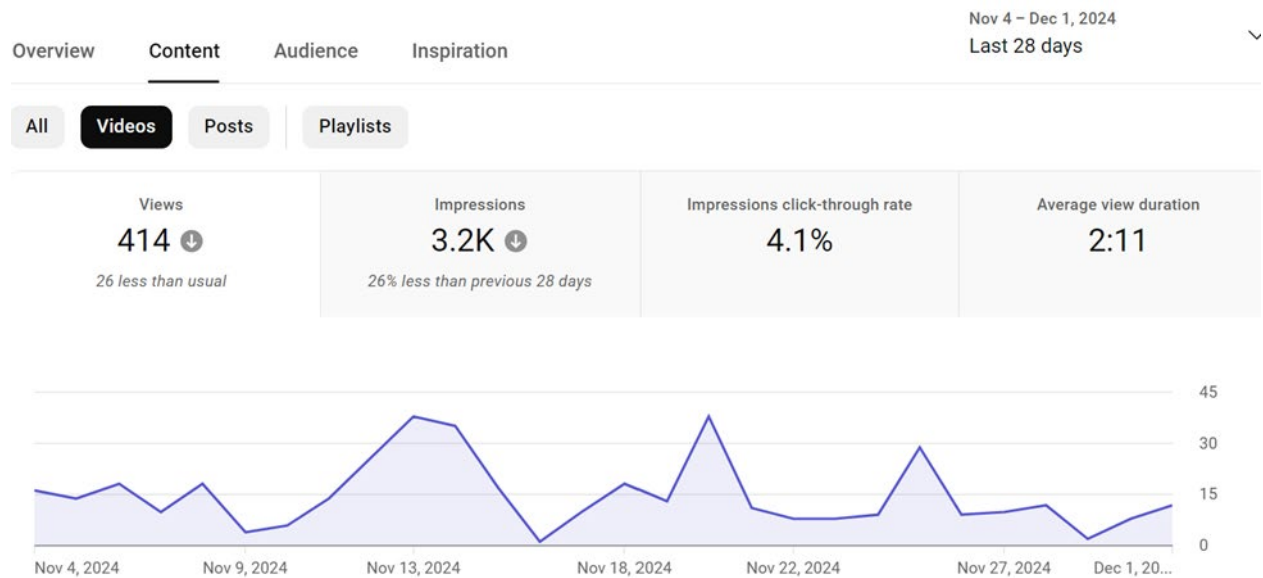
## Community Engagement

### B. Social Media and Online Engagement

#### 1. Metrics – Facebook, X and LinkedIn

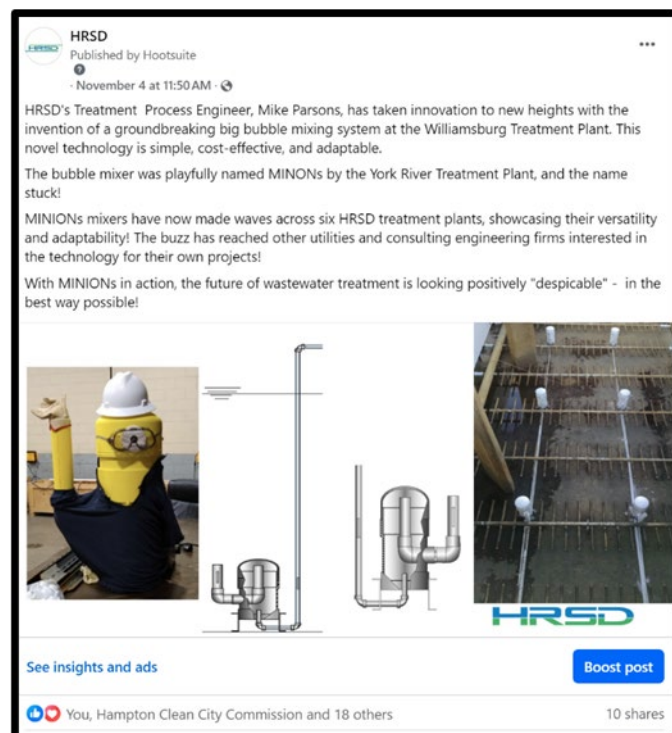


## 2. YouTube



## 3. Top posts on Facebook, Twitter, and YouTube

### a. Top Facebook post





b. Top X Post



c. Top YouTube Videos (based on views in the month)

- (1) [The Wastewater Treatment Process](#)
- (2) [SWIFT Industry Day 2024](#)
- (3) [HRSD Atlantic Treatment Plant Cambi THP Tour](#)
- (4) [SWIFT Research Center: What Is the Potomac Aquifer](#)
- (5) [Why SWIFT Matters](#)

4. Website and Social Media Impressions and Visits

a. Facebook:

- (1) 9,056 page impressions
- (2) 7,005 post impressions reaching 6,657 users.
- (3) Facebook Engagement of 255 (228 reactions, 23 shares, and 4 comments)

b. X: 3.28% engagement rate

c. HRSD.com/SWIFTVA.com: 769 page visits

d. LinkedIn Impressions:

- (1) 23,327 page impressions

- (2) 19,293 post impressions
- e. YouTube: 414 views
- f. Next Door unique impressions: 33,789 post impressions from 12 targeted neighborhood postings and one regionwide posting shared with 668,332 neighbors
- g. Blog Posts: (0)
- h. Construction Project Page Visits – 1091 total visits (not including direct visits from home page, broken down as follows:
  - (1) 778 visits to individual pages
  - (2) 313 to the status page

C. Education and Outreach Activity Highlights

Community Outreach and Education Specialists coordinated and participated in 15 different outreach events this month. Community partners included Chesapeake Public Schools, City of Hampton, Mariners Museum and Park, Newport News Public Schools, Norfolk Public Schools, Old Dominion University, and VA Challenge Academy

Project notices were distributed to 277 customers for three different projects across the service area this month. The department distributed and posted four construction notices to the HRSD.com Newsroom.

D. Internal Communications

CCO participated in the following internal meetings and events:

1. Interview panel for Chief of Information Technology Department (ITD) position
2. HRSD Public Engagement workshop for upcoming Inflow and Infiltration program work
3. Reliability and Odor Control Improvements (ROCI) weekly design call
4. Atlantic Treatment Plant (ATP) monthly communications check-in meeting
5. SWIFT Industry Day 2025 planning meetings
6. ATP Odor taskforce check-in meeting
7. Bi-weekly General Manager (GM) briefings
8. Discharge Monitoring Report (DMR), SWIFT Quality Steering Team (QST), and HRSD QST meetings
9. Check-in meetings with Deputy General Manager (DGM)

10. CCO conducted biweekly Communications department status meetings and weekly one-on-one check-in meetings.
11. Staff participated in 25 project progress and/or construction meetings along with additional communication planning meetings with various project managers, plant staff and external stakeholders.



## **Talent**

Professional development activities and pursuits for October included the following:

1. Staff participated in HRSD Security Training
2. Public Information Specialist completed Basic Incident Command System for Initial Response training

Respectfully,

*Leila Rice, APR*

Chief Communications Officer

TO: General Manager

FROM: Chief Engineer

SUBJECT: Monthly Engineering Report for November 2024

DATE: December 8, 2024



### Environmental Responsibility

HRSD staff and our consultant, Brown & Caldwell, has been working with the U.S. Fish and Wildlife Service to review options and consider an approach to verify the existence of endangered bats at the site for the future Wilroy Road Pressure Reducing Pump Station site. Two species are of concern; the northern long-eared bat (federally protected) and the tricolored bat (state endangered). The existence of these bats is determined by listening for their chirps. A trained specialist can differentiate the chirps of these bats. This survey will continue over the next few months. If these bats are found to exist in the area of the future pump station, limitations will be required on clearing and disturbance of trees during certain times of year.

Hurricane season officially ended on November 30<sup>th</sup>. The year brought an above-average number of named storm events with National Oceanic and Atmospheric Administration (NOAA) documenting 18 storms that reached hurricane strength in the Atlantic Basin. Hampton Roads was fortunate this year to have no significant impact from hurricanes. Responsibilities for managing future emergency related events will transition to the new Emergency/Security Manager once this position is filled.



### Financial Stewardship

Capital Improvement Program (CIP) spending for the fourth month of FY2025 was slightly below the planned spending target.

CIP Spending (\$M):

	Current Period	FYTD
Actual	67.52	217.93
Plan	69.30	241.60

SC&H has completed the internal audit of HRSD's construction cost estimating procedures. HRSD typically uses the consulting engineering firm conducting the project design to provide a cost estimate at the time of the construction bid. These estimates have often been problematic since they are not always aligned with the prices provided by the various contractors doing work for HRSD. SC&H has reviewed the cost estimates provided in recent years, reached out to the firms to better understand the methods they use to estimate costs, and discussed these issues with other public utilities that are faced with similar challenges. The audit and suggested remedies will be provided to HRSD at the December Commission Meeting.



## Talent

We have recently selected two individuals to fill important positions within the Engineering Division. Ms. Jasmine Anderson will become the new Administrative Coordinator. Ms. Anderson was previously the Plant Clerk at the Nansemond Treatment Plant and brings a strong knowledge of HRSD's policies and procedures. Mr. Calvin Morissette will become the new Condition Assessment Superintendent. His duties will include overseeing HRSD's internal efforts to inspect coatings, concrete and roofing. His previous role as a Coatings Inspector at HRSD will allow him to quickly move into his new position. The Engineering Division's last open position is to backfill Mr. Morissette's previous role as a Coating Inspector. Recruitment for this open position has begun.

The Engineering Division has completed both Team Building exercises and Strategic Planning Alignment Results in Change (SPARC) Sessions with staff. This effort allowed the organization and the Engineering Division specifically to work more closely to address continuous improvement goals and form closer ties with staff members. This effort also facilitated a closer relationship with many of the new staff members that have been hired in recent months. These meetings were also valuable to facilitate small group discussions and build a renewed sense of comradery with team members that often work remotely.



## Community Engagement

HRSD's Sustainable Water Initiative for Tomorrow (SWIFT) Program includes a significant initiative involving community engagement at many levels. This program includes a number of elements including:

- Environmental Stewardship
- Economic Development
- Growth of the Industry Through Education
- Workforce Development
- Equitable Water Future
- Support of Community Basic Needs

One unique aspect of this effort is to facilitate mentor-protégé relationships between SWIFT firms and small and/or minority firms to better compete and deliver on specific tasks within this large program. Four protégé firms have requested to join this program to date and we continue to promote this effort as we procure the services needed to build the various SWIFT projects across the region.

Engineering Division staff participated in the recent Junior Achievement; "Women for the Win" event designed to empower female high school students interested in traditionally male-dominated fields. The event helped local business professionals gain insights and explore career opportunities and pathways with local high school students.



## Innovation

A recent effort to continuously monitor vibration in critical plant equipment has resulted in determining problems prior to failure. Two centrifuges at the Virginia Initiative Plant (VIP) and an induced draft fan at the Williamsburg Treatment Plant (WTP) were found to have excessive vibration that could have

caused a significant failure of this equipment and the resulting process. Finding these issues before a catastrophic failure lets the staff address the problem in a proactive way. This proactive approach saves money and time.

Computational fluid dynamics (CFD) is being used to model many complex processes in the water industry. The Design-Build Team at the Nansemond SWIFT facility is using this technology to determine the benefits of various Ozone Contactor Chamber configurations. The CFD model is a very cost-effective way to verify that the planned system will work as intended. Since many of the systems at the Nansemond SWIFT facility are unique, simple hydraulic models are not sufficient to assure success. These models were historically expensive to develop and time consuming to create. CFD models are quickly becoming a standard way to better understand very complex biological and hydraulic processes.

*Bruce W. Husselbee*

Bruce W. Husselbee, PhD, P.E., BCEE, DBIA



TO: General Manager

FROM: Deputy General Manager and Chief Financial Officer

SUBJECT: Monthly Report for November 2024

DATE: December 9, 2024



## **Financial Stewardship**

Staff is negotiating with DEQ on the potential for more American Rescue Plan Act (ARPA) grant funding to allocate to HRSD's Enhanced Nutrient Removal Certainty Program (ENRCP) projects.

Staff presented at the Society of American Military Engineers (SAME) Regional Infrastructure Seminar to identify solutions to regional challenges.

Overall past due accounts remained static for the month of November 2024, with an increase in 90+ days, and a decrease in 31-60 and 61-90 days.

Field staff delivered 4,956 warning door tags and disconnected water service to 624 accounts during November 2024. Reduced disconnection activity is due to staffing shortages and the reduced number of disconnection days permitted in the 2024 legislative requirement effective July 1<sup>st</sup> suspending disconnection activities on or around holidays, Fridays, and weekends within 24 hours of scheduled disconnection.

Staff has been working throughout October and November to reestablish field activities and collaborate with partner localities to determine the most effective collection efforts for our mutual customers. A significant effort has included outbound collections calls, arranging pay plans, leaving additional financial assistance information in addition to a pre-emptive warning tag, and third-party collections for closed accounts. A recalibration of collection and severance process is under review by staff to determine the best way forward.

Customer call and email volumes decreased in November due to two holiday weeks, widely ranging from 1,500 to 3,000 interactions per week.

## A. Interim Financial Report

### 1. Operating Budget for the Period Ended November 30, 2024.

	Amended Budget	Current YTD	Current YTD as % of Budget (42% Budget to Date)	Prior YTD as % of Prior Year Budget
<b>Operating Revenues</b>				
Wastewater	\$ 442,031,000	\$ 194,991,846	44%	43%
Surcharge	1,400,000	741,437	53%	37%
Indirect Discharge	3,970,000	1,842,701	46%	43%
Fees	3,172,000	1,610,251	51%	53%
Municipal Assistance	837,000	294,849	35%	57%
Miscellaneous	1,982,000	678,745	34%	90%
Total Operating Revenue	453,392,000	200,159,829	44%	44%
<b>Non Operating Revenues</b>				
Facility Charge	6,170,000	2,916,240	47%	48%
Interest Income	7,300,000	10,924,315	150%	184%
Build America Bond Subsidy	-	-	0%	51%
Other	330,000	426,143	129%	20%
Total Non Operating Revenue	13,800,000	14,266,698	103%	82%
<b>Total Revenues</b>	467,192,000	214,426,527	46%	45%
Transfers from Reserves	19,475,990	8,114,996	42%	42%
<b>Total Revenues and Transfers</b>	\$ 486,667,990	\$ 222,541,523	46%	44%
<b>Operating Expenses</b>				
Personal Services	\$ 80,140,274	\$ 32,506,053	41%	38%
Fringe Benefits	30,767,169	11,247,151	37%	40%
Materials & Supplies	15,245,514	5,187,853	34%	28%
Transportation	2,382,779	759,380	32%	34%
Utilities	16,643,039	6,002,404	36%	40%
Chemical Purchases	16,974,110	5,635,632	33%	36%
Contractual Services	57,868,703	15,958,173	28%	27%
Major Repairs	16,778,801	2,906,214	17%	19%
Capital Assets	2,361,019	189,657	8%	15%
Miscellaneous Expense	4,171,177	2,274,878	55%	34%
<b>Total Operating Expenses</b>	243,332,585	82,667,395	34%	33%
<b>Debt Service and Transfers</b>				
Debt Service	87,700,000	44,998,052	51%	58%
Transfer to CIP	155,635,405	64,848,085	42%	42%
Transfer to Risk management	-	-	0%	42%
Total Debt Service and Transfers	243,335,405	109,846,137	45%	47%
<b>Total Expenses and Transfers</b>	\$ 486,667,990	\$ 192,513,532	40%	40%

## 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 Project (CIP).

Transfers represent certain budgetary policy designations as follows:

- a. Transfer to CIP: represents the 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 November 30, 2024.

### HRSD - RESERVE AND CAPITAL ACTIVITY

November 30, 2024

	General Reserve			Capital		
	General	Debt Service	Risk Mgmt Reserve	Paygo	SNAP	CIP Proceeds
	Unrestricted	Restricted	Unrestricted	Unrestricted	Restricted	Restricted
<b>Beginning - July 1, 2024</b>	\$ 240,258,497	\$ 22,307,000	\$ 4,799,555	\$ 37,468,922	\$ -	\$ -
<b>Current Year Sources of Funds</b>						
<b>Current Receipts</b>	208,454,840					
Line of Credit						-
VRA Draws						18,881,137
WIFIA Draws						136,084,862
Grants						14,887,693
Series 2024B					268,087,870	
Series 2024B Interest					4,217,879	
Transfers In				64,848,085		
<b>Sources of Funds</b>	208,454,840	-	-	64,848,085	272,305,749	169,853,692
<b>Total Funds Available</b>	\$ 448,713,337	\$ 22,307,000	\$ 4,799,555	\$ 102,317,007	\$ 272,305,749	\$ 169,853,692
<b>Current Year Uses of Funds</b>						
Cash Disbursements	134,026,057			45,925,616	32,432,253	169,853,692
Transfers Out	64,848,085					
<b>Uses of Funds</b>	198,874,142	-	-	45,925,616	32,432,253	169,853,692
<b>End of Period - November 30, 2024</b>	\$ 249,839,195	\$ 22,307,000	\$ 4,799,555	\$ 56,391,391	\$ 239,873,496	\$ -
Unrestricted Funds	\$ 311,030,141					

4. Capital Improvements Budget and Activity Summary for Active Projects for the Period Ended November 30, 2024.

HRSD - PROJECT ANALYSIS

November 30, 2024

Classification/ Treatment Service Area	Appropriated Funds	Expenditures prior to 7/1/2024	Expenditures Year to Date FY2025	Total Project Expenditures	Encumbrances	Available
Administration	126,148,101	32,741,525	3,893,272	36,634,797	2,255,900	87,257,404
Army Base	176,442,597	126,238,488	156,951	126,395,439	9,777,049	40,270,109
Atlantic	191,716,320	17,798,654	8,201,326	25,999,980	28,891,241	136,825,099
Boat Harbor	512,142,360	183,558,580	41,457,676	225,016,256	230,548,701	56,577,403
Ches-Eliz	29,678,787	5,844,306	99,503	5,943,809	9,663,719	14,071,259
Eastern Shore	63,812,749	41,487,070	2,065,511	43,552,581	2,729,269	17,530,899
James River	363,603,177	185,970,412	32,713,740	218,684,152	104,688,256	40,230,769
Middle Peninsula	84,362,822	21,437,085	1,221,409	22,658,494	4,653,092	57,051,236
Nansemond	477,690,000	210,086,668	47,879,096	257,965,764	162,104,097	57,620,139
Surry	57,978,543	45,155,705	627,686	45,783,391	6,648,570	5,546,582
VIP	268,184,340	66,659,267	20,988,924	87,648,191	93,643,019	86,893,130
Williamsburg	87,334,019	22,399,476	454,043	22,853,519	6,289,738	58,190,762
York River	99,995,557	40,083,206	8,966,420	49,049,626	32,688,834	18,257,097
General	1,506,568,277	336,602,844	64,989,046	401,591,890	813,660,810	291,315,577
	\$ 4,045,657,649	\$ 1,336,063,286	\$ 233,714,603	\$ 1,569,777,889	\$ 1,508,242,295	\$ 967,637,465

5. Active Capital Grants

Active Capital Grants Activities							
Grant Name	Funder	Project	CIP#	Application Submitted	Amount Requested	HRSD Award Amount	
American Rescue Plan Act	VDEQ	James River Treatment Plant Advanced Nutrient Reduction Improvements	JR013400	10/7/2022	\$ 50,000,000	\$	36,124,859
American Rescue Plan Act	VDEQ	Nansemond Treatment Plant Advanced Nutrient Reduction Improvements Phase II	NP013820	10/7/2022	\$ 50,000,000	\$	31,693,207
American Rescue Plan Act	VDEQ	Eastern Shore Infrastructure Improvements - TFM Phase I (Accomac)	ES010100	11/28/2022	\$ 8,367,000	\$	4,183,500
Community Flood Preparedness Fund	VDCR	Onancock Treatment Plant Administrative Building Design	ES010300	10/30/2024	\$ 374,400	\$	-
FHWA Recreational Trails Program	VDCR	Flax Mill Creek Trail at James River Treatment Plant (FCT 42230)	GN016344	6/1/2021	\$ 300,000	\$	300,000
FY2024 Congressionally Directed Funding / EPA Community Grants Program	CDF	Eastern Shore Wastewater Improvements, Chincoteague	ES010500	3/7/2023	\$ 9,677,112	\$	1,250,000
FY2024 Congressionally Directed Funding, Warner/Kaine, Kiggans	CDF FY24	Onancock Treatment Plant Solids Handling Improvements	ES010800	3/21/2024	\$ 6,624,248	\$	-
Water Quality Improvement Fund, Conveyance	VDEQ	Eastern Shore TFM Phase 1 and Nassawadox Treatment Plant Conveyance	ES010100 ES010900	5/2/2022	\$ 4,900,000	\$	4,936,538
Water Quality Improvement Fund, Conveyance	VDEQ	Chesapeake-Elizabeth Treatment Plant Conveyance	Multiple	2/7/2023	\$ 100,647,746	\$	78,276,470
Water Quality Improvement Fund, Nutrient Reduction	VDEQ	James River SWIFT - Advanced Nutrient Reduction Improvements	JR013400	3/23/2023	\$ 344,741,547	\$	-
Water Quality Improvement Fund, Nutrient Reduction	VDEQ	Boat Harbor Pump Station and Conveyance	BH015700 BH015710 BH015720 BH015730	3/4/2024	\$ 311,286,392	\$	-
Water Quality Improvement Fund, Nutrient Reduction	VDEQ	Nansemond Treatment Plant Advanced Nutrient Reduction Improvements Phase II	NP013820 GN016380	3/4/2024	\$ 127,657,505	\$	-
					\$ 1,014,575,950	\$	156,764,574

## 6. Debt Management Overview

### HRSD - Debt Outstanding (\$000's)

November 30, 2024

	Oct 2024	Nov 2024				
	Principal Balance	Payments	Draws	Principal Capitalized Interest	Balance	Interest Payments
<b>Fixed Rate</b>	\$ 1,602,166	\$ (17,315)	\$ 26,198	\$ 448	\$ 1,611,497	\$ (2,536)
<b>Variable Rate</b>	50,000	-	-	-	50,000	(138)
<b>Line of Credit</b>	100,000	-	-	-	100,000	(368)
<b>Total</b>	\$ 1,752,166	\$ (17,315)	\$ 26,198	\$ 448	\$ 1,761,497	\$ (3,042)

### HRSD- Series 2016VR Bond Analysis

November 29, 2024

	SIFMA Index	HRSD Series 2016VR	Deviation to SIFMA
Maximum	4.71%	4.95%	0.24%
Average	1.40%	0.95%	-0.45%
Minimum	0.01%	0.01%	0.00%
As of 11/29/24	2.86%	2.80%	-0.06%

Since October 20, 2011 HRSD has averaged 95 basis points on Variable Rate Debt

### Subsidised Debt Activity

Source	Funder	Loan Amount	Current Drawn Total	% Remain	Initial Draw Date - Projected
WIFIA Tranche 1	EPA	\$ 225,865,648	\$ 225,865,648	0%	Closed Out
WIFIA Tranche 2	EPA	\$ 476,581,587	\$ 324,413,576	32%	Ongoing
WIFIA Tranche 3	EPA	\$ 346,069,223	\$ -	100%	July 2025
Clean Water Program 2024	DEQ	\$ 80,000,000	\$ 20,354,871	75%	March 2024

# 7. Financial Performance Metrics for the Period Ended November 30, 2024.

## HRSD - UNRESTRICTED CASH

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

		Days Cash on Hand	Adjusted Days Cash on Hand
<b>Total Unrestricted Cash</b>	<b>\$ 311,030,141</b>		<b>467</b>
Risk Management Reserve	(4,799,555)	(8)	459
Capital (PAYGO only)	(56,391,391)	(84)	375
<b>Adjusted Days Cash on Hand</b>	<b>\$ 249,839,196</b>		<b>375</b>

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

November 30, 2024

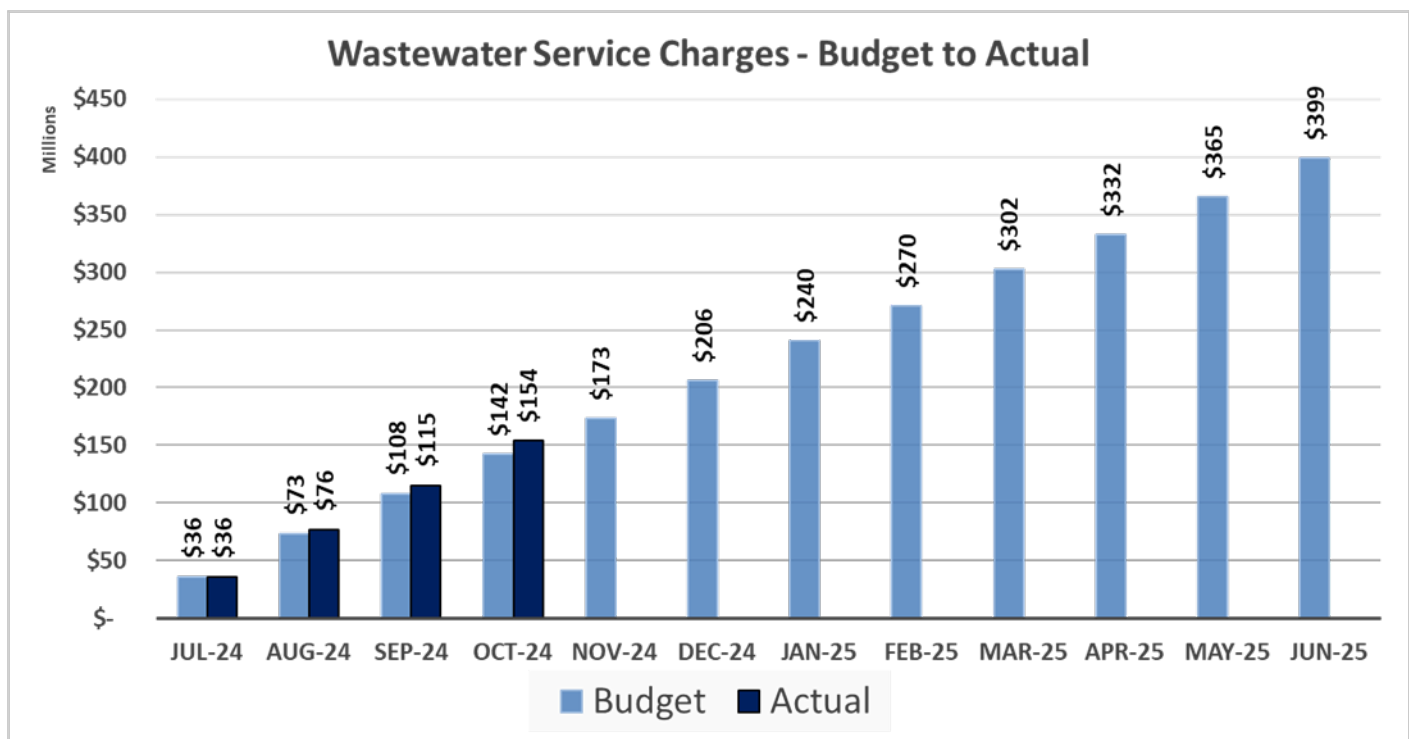
Primary Source	Beginning Market Value July 1, 2024	YTD Contributions	YTD Withdrawals	YTD Income Earned	Ending Market Value November 30, 2024	Allocation of Funds	Credit Quality	Current Mo Avg Yield
BOA Corp Disbursement Account	31,786,393	473,682,826	484,639,083	496,037	21,326,173	8.4%	N/A	0.55%
VIP Stable NAV Liquidity Pool	178,789,050	100,000,000	50,000,000	4,440,755	233,229,805	91.6%	AAAm	4.85%
<b>Total Primary Source</b>	<b>\$ 210,575,443</b>	<b>\$ 573,682,826</b>	<b>\$ 534,639,083</b>	<b>\$ 4,936,792</b>	<b>\$ 254,555,978</b>	<b>100.0%</b>		

Secondary Source	Beginning Market Value July 1, 2024	YTD Contributions	YTD Withdrawals	YTD Income Earned & Realized G/L	Ending Market Value November 30, 2024	Ending Cost	LTD Mkt Adj	Yield to Maturity at Market
VIP 1-3 Year High Quality Bond Fund	65,915,924	-	5,587	1,191,693	67,567,655	68,492,233	(924,578)	
<b>Total Secondary Source</b>	<b>\$ 65,915,924</b>	<b>\$ -</b>	<b>\$ 5,587</b>	<b>\$ 1,191,693</b>	<b>\$ 67,567,655</b>	<b>\$ 68,492,233</b>	<b>\$ (924,578)</b>	

	Total	Fund Alloc
Total Primary Source	\$ 254,555,978	79.0%
Total Secondary Source	67,567,655	21.0%
<b>TOTAL SOURCES</b>	<b>\$ 322,123,633</b>	<b>100.0%</b>

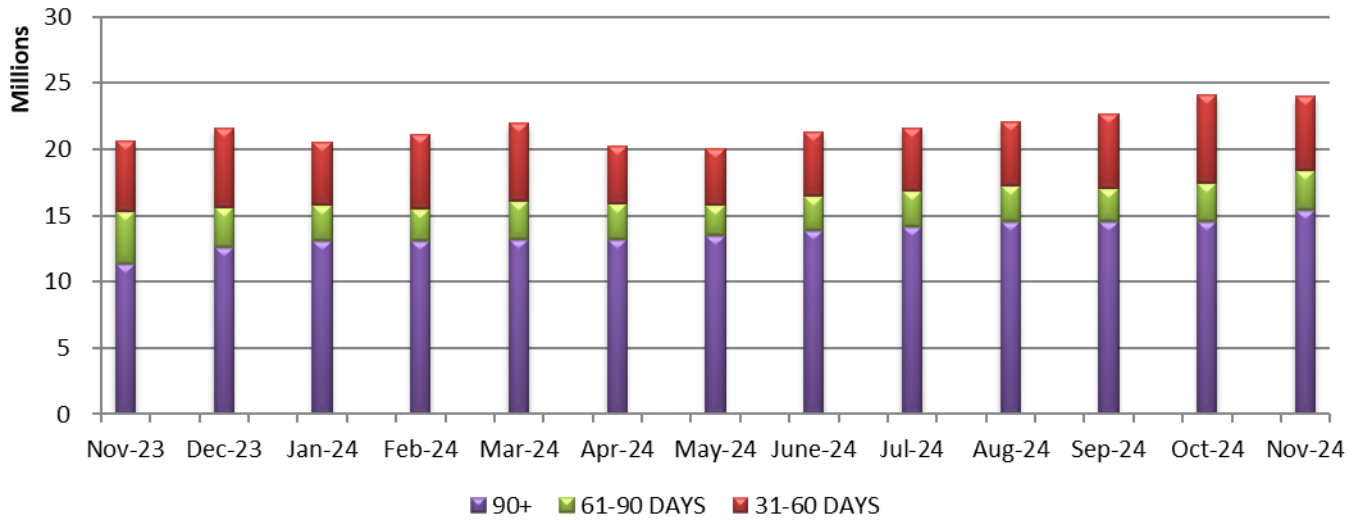


## 8. Summary of Billed Consumption



Summary of Billed Consumption (,000s ccf)							
Month	% Difference			% Difference		% Difference	
	FY2025 Cumulative Budget Estimate	FY2025 Cumulative Actual	From Budget	Cumulative FY2024 Actual	From FY2024	Cumulative 3 Year Average	From 3 Year Average
July	4,678	4,630	-1.0%	4,504	2.8%	4,721	-1.9%
Aug	9,644	9,518	-1.3%	9,432	0.9%	9,534	-0.2%
Sept	14,196	14,223	0.2%	13,965	1.9%	14,173	0.4%
Oct	18,663	18,870	1.1%	18,854	0.1%	18,861	0.0%
Nov	22,756	23,421	2.9%	23,004	1.8%	22,911	2.2%
Dec	27,109	-	N/A	27,127	N/A	27,267	N/A
Jan	31,641	-	N/A	31,819	N/A	31,784	N/A
Feb	35,568	-	N/A	36,182	N/A	35,990	N/A
March	39,770	-	N/A	39,826	N/A	39,954	N/A
Apr	43,694	-	N/A	44,054	N/A	44,119	N/A
May	48,027	-	N/A	48,760	N/A	48,383	N/A
June	52,500	-	N/A	53,206	N/A	52,999	N/A

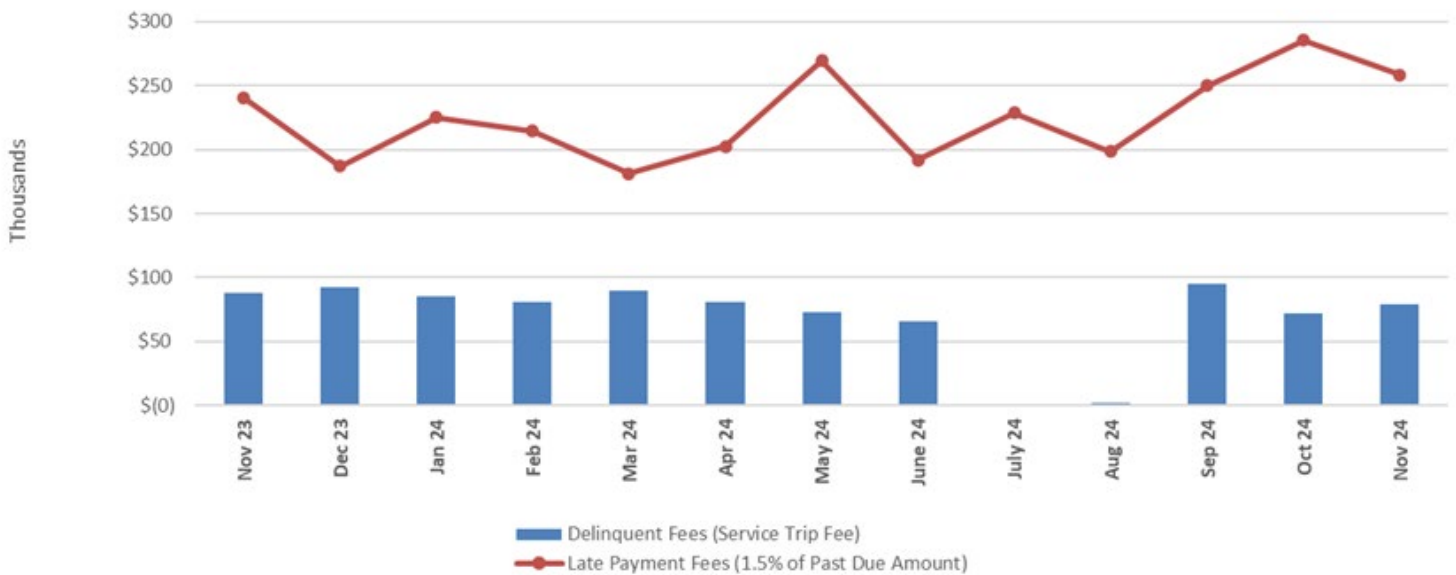
## HRSD Accounts Receivable Aging +30 Days



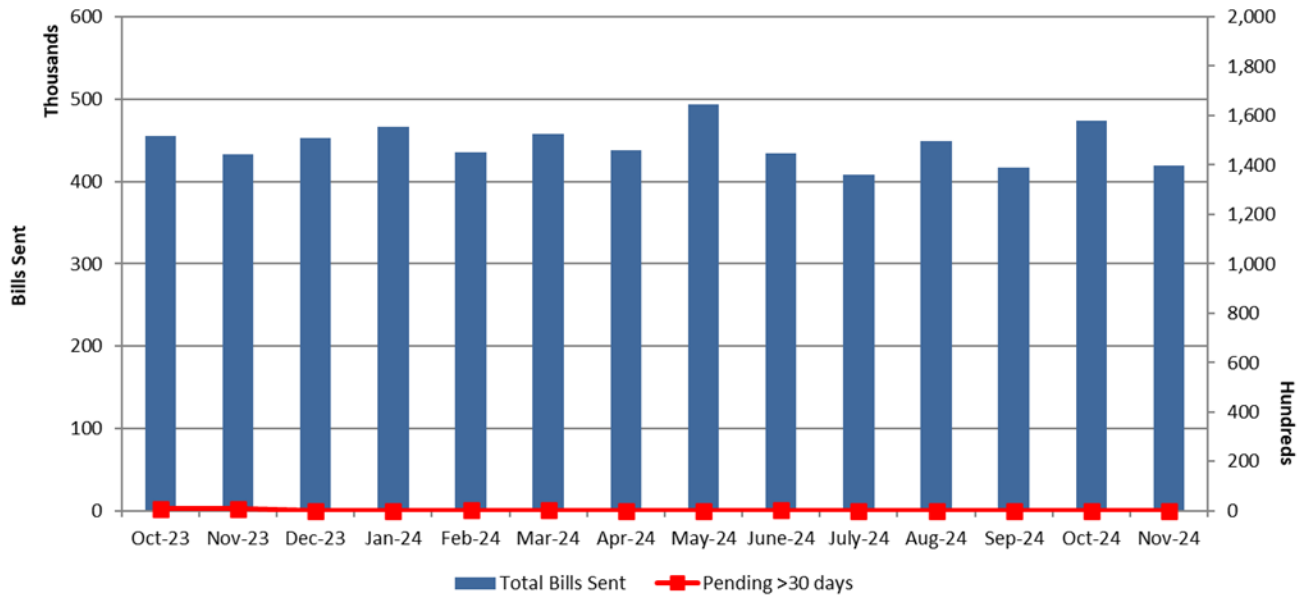
### B. Customer Care Center

#### 1. Accounts Receivable Overview

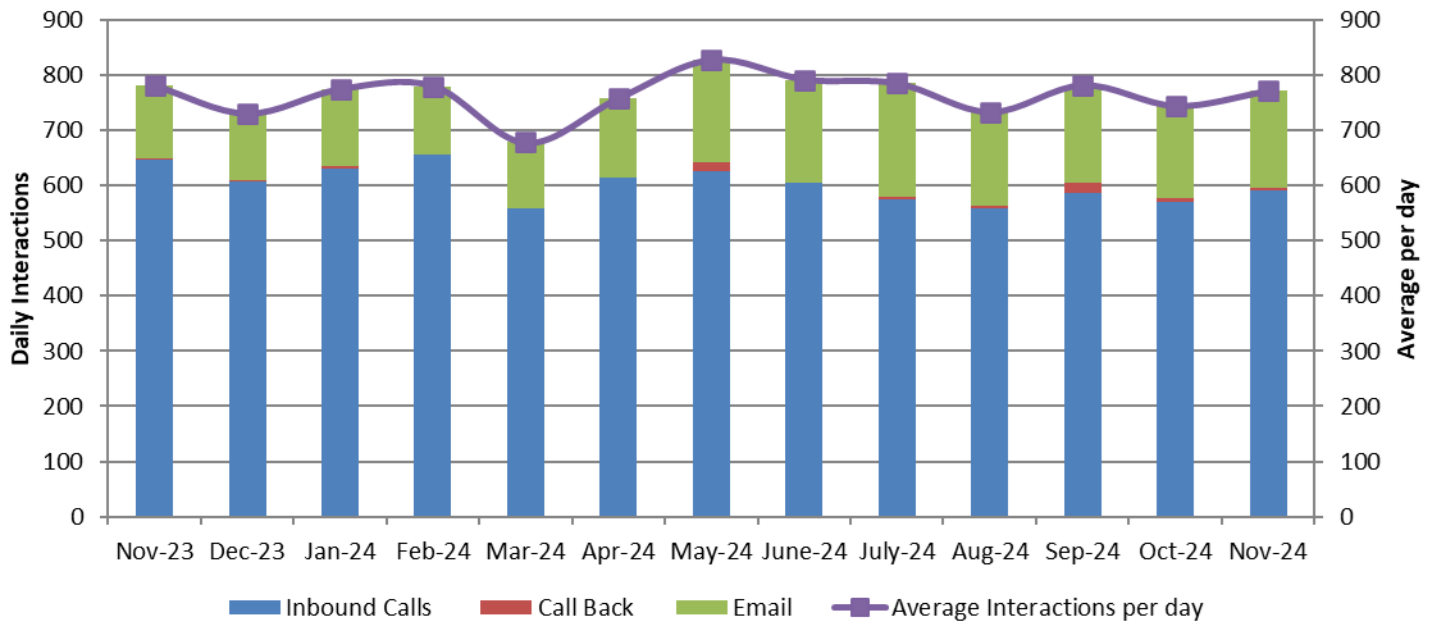
## Delinquent & Late Payment Fees



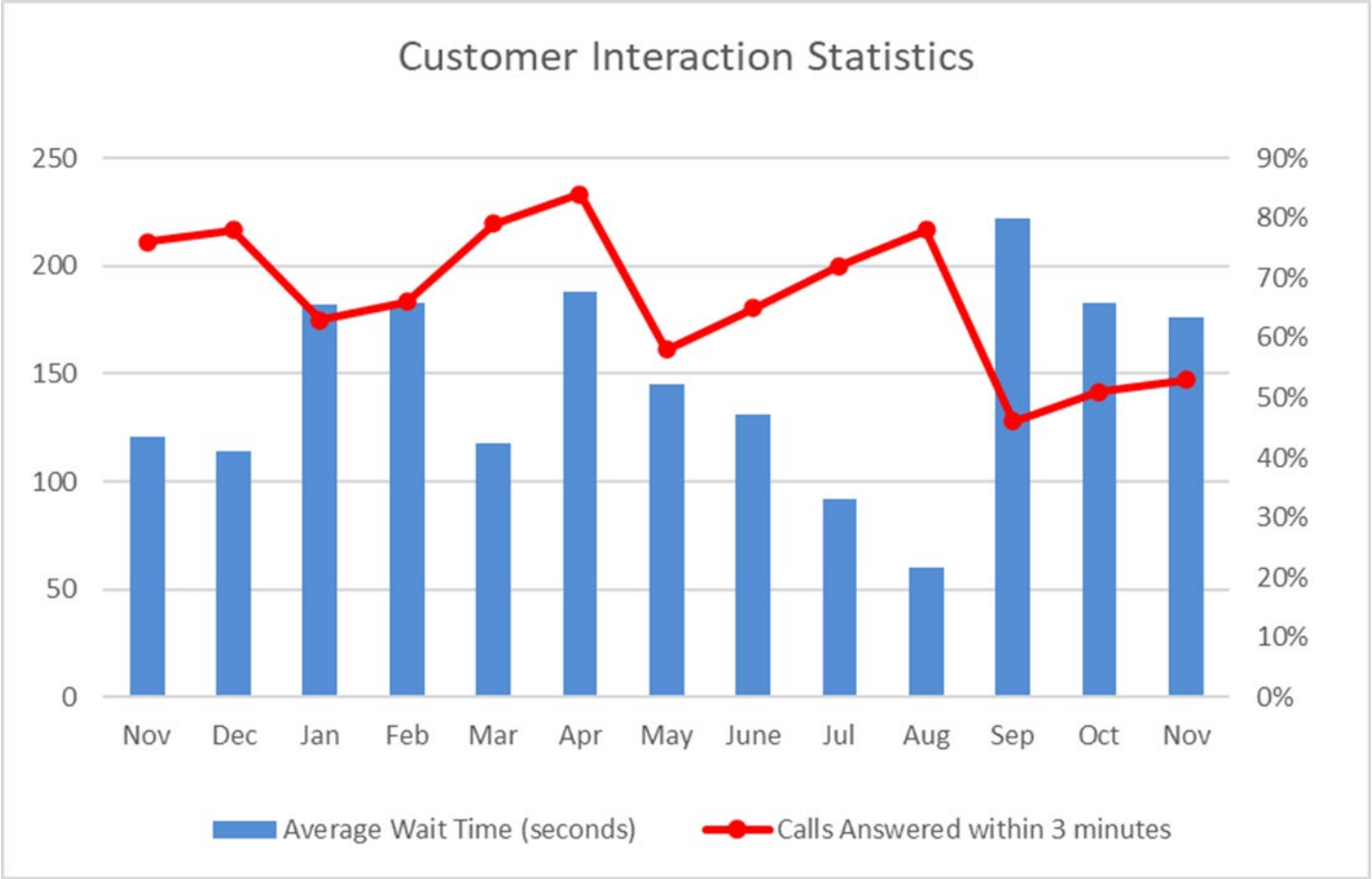
## Billing Summary



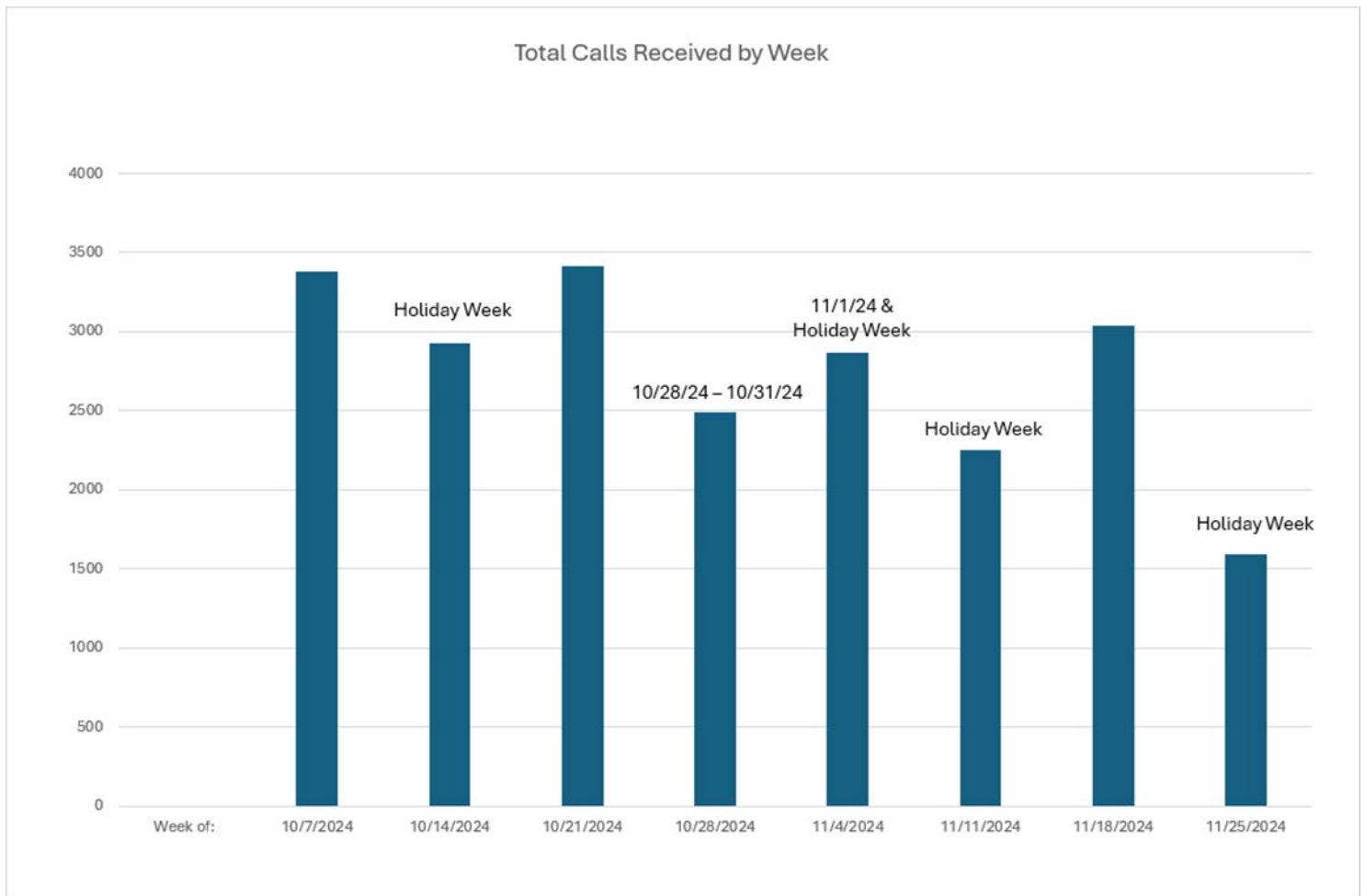
## Call Center Interactions (per day)



2. Customer Care Center Statistics



Customer Interaction Statistics	Nov	Dec	Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sep	Oct	Nov
Calls Answered within 3 minutes	76%	78%	63%	66%	79%	84%	58%	65%	72%	78%	46%	51%	53%
Average Wait Time (seconds)	121	114	182	183	118	188	145	131	92	60	222	183	176
Calls Abandoned	10%	9%	13%	12%	10%	8%	15%	11%	9%	6%	18%	16%	16%



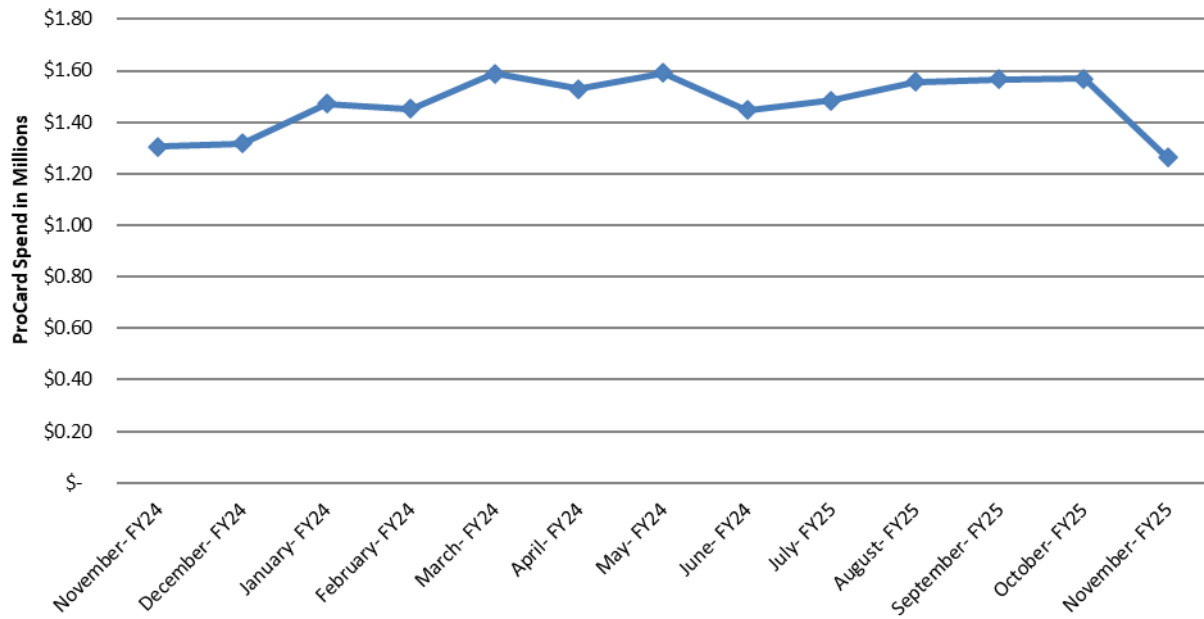
**C. Procurement Statistics**

Savings	Current Period	FYTD
Competitive Savings <sup>1</sup>	\$70,363	\$915,398
Negotiated Savings <sup>2</sup>	\$334	\$6,784
*Salvage Revenues	\$21,186	\$189,312
Corporate VISA Card - Estimated Rebate	\$18,818	\$110,830

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

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

### ProCard Spend FY25



Respectfully,

*Steven G. de Mik*

Steven G. de Mik  
Deputy General Manager/Chief Financial Officer



TO: General Manager

FROM: Chief Information Officer

SUBJECT: Information Technology Monthly Report for November 2024

DATE: December 5, 2024



## **Innovation**

Desktop support staff completed imaging of 165 mini-computers and are preparing for deployment of them in early December.

Upgrading of operating systems for mid-tier computing platforms within the data center are at 75% completion. Instances of incompatibility or anomalous performance associated with the upgrade continue to be addressed as part of the process to ensure data and systems integrity.

Programming staff continue working with Finance on requisite changes within eBusiness Suite to accommodate end-of-year and new year data processing and reporting. Testing began and will continue through most of December.

Programming staff began working with Customer Care and jurisdiction business partners on end-of-year and new year data processing and reporting changes for Customer Care and Billing system (CC&B).

Staff completed the upgrade of the Customer Care reporting system for Customer Care and Billing system (CC&B).

Upgrade work on the Pre-treatment Information Management System (PIMS) and Biosolids Management System are underway. The installation of the test and development database platforms are completed.

Web portal programming staff continues working with Communications division staff and Tyler Tech on redesign and enhancements to the HRSD.com website.

The IT Help Desk processed 304 work orders and requests for assistance in November, ensuring the availability of computing resources to those working locally and remotely.



## **Community Engagement**

Information Technology staff continue to work closely with Customer Care Center staff on testing of the new Customer Engagement Portal. Go-live is planned for January 2025.



**Talent**

Information Technology welcomed two new employees to our team in November. Mr. Shaun Long, Desktop Support Analyst, began on November 12 and Mr. William Wasley, Database Administrator, on November 25.

Respectfully,

***Mary Corby***

Chief Information Officer

TO: General Manager/Chief Executive Officer

FROM: Chief Operating Officer

SUBJECT: Operations Monthly Report for November 2024

DATE: December 04, 2024



## Community Engagement

Staff participated in several community events as follows:

1. South Shore (SS) Interceptor Operations held a series of locality collaboration meetings in November with City of Norfolk, Suffolk, and Virginia Beach Public Utilities Department Operation's staff to discuss operational issues, initiatives, and projects.
2. On November 7, Mr. David Ewing, Atlantic Treatment Plant (ATP) Operations Superintendent, provided a tour of the ATP to the Boeh Agency, a local digital marketing firm. Later, on November 19 and 20, he met with members of the Navy Expeditionary Intelligence Command, who were training on determining vulnerability assessments of utility plants. The information they gathered will help better prepare the Navy, with a written report of their findings to be provided later to plant leadership. On November 21, David Johnson also led a plant tour for students at the Virginia Commonwealth Challenge.
3. On November 18, Mr. Bob Trovato, York River Treatment Plant (YRTP) Operations Superintendent provided a tour for fire fighters from York County Fire Station's #1 and #7. Fourteen fire fighters attended the tour which emphasized hazardous materials locations.
4. Small Communities Division (SCD) staff met with Planning and Analysis and King William County Staff to discuss the King William Treatment Plant (KWTP) Upgrade schedule.
5. HRSD hosted a wastewater process engineer visiting from Australia as part of the very prestigious [Churchill Fellowship](#) program. Ms. Christie Cole spent several days touring the innovative technologies that HRSD is developing and deploying at several of our treatment plants. An important part of the visit was also learning about the Water Technology and Research Division and meeting HRSD Operations staff. It appears that this will serve as an important link with similarly interested wastewater innovators in Australia.



## Environmental Responsibility

### Treatment and Interceptor System Reportable Items:

There were multiple events reported this month. Additional details are available in the Air and Effluent Summary in the Water Quality monthly report.

### Internal Air and Odor Compliance:

There were multiple events reported this month. Additional details are available in the Air and Effluent Summary in the Water Quality monthly report.

1. There were two odor complaints received by North Shore (NS) Interceptor Operations. One complaint was received from a resident along Rolling Hills Road in York County. Staff in conjunction with York County investigated the issue and did not find a cause related to HRSD infrastructure. The other complaint was received from a resident in Hampton in close proximity to the Hampton Trunk 'K' Gravity Rehabilitation Project (BH014900). The contractor, Kiewit, made corrections to the bypass system to address the issue.
2. Virginia Initiative Plant (VIP) reported one event on November 30 for invalid total hydrocarbon (THC) readings due to an automatic calibration failure, remedied by manual calibration.
3. There were five odor complaints related to ATP, and with that, the plant continues to put a large focus on reducing off site odors.
  - a. The hauling of uncured biosolids by HRSD's transportation team to McGill continues to help make room on the storage pads for proper curing operations. The trucks are loaded the day before to help allow odors to dissipate, with the tarp covers proving optimal to keep odors contained. The trucks leave plant site around 5am as an added precaution to prevent impacting the public.
  - b. Contractors completed work installing the temporary odor control misting system around both storage pads, and the units were active this month. The verdict is still out on its effectiveness, and the temporary system is easily damaged by normal winds. The design firm is actively working to optimize the design.
4. Boat Harbor Treatment Plant (BHTP) had one THC reportable event this month. The continuous emissions monitoring system (CEMS) unit failed during the autocalibration on November 9. Staff evaluated the unit which passed calibration November 11.
5. The Williamsburg Treatment Plant (WTP) had several reportable incinerator deviations. There were eleven uses of the incinerator emergency bypass stack, three less than the minimum twelve-hour pressure drops, and one less than the twelve-hour average burn zone temperature. Two events were caused by the induced draft (ID) fan tripping out from a power blip. The others were due to excessive ID fan vibration which necessitated repairs. There were five odor scrubber hydrogen sulfide (H<sub>2</sub>S) exhaust concentrations of over two parts per million. The first was caused by elevated influent hydrogen sulfide concentrations to the odor scrubber system during a rain event and a loss of chemical feed to the scrubber when the feed line became air bound. The chemical feed line was bled of air, and chemical feed was increased to return odor scrubber operations to normal. The second issue was caused by a scrubber recirculation pump failure, which required switching to an out of service odor scrubber train. Two were caused by the pH set point being too low, for which adjustments were made and operating conditions returned to normal. The last required an increase in chemical feed. The incinerator THC analyzer had a low total data capture percentage due to calibration issues.
6. The YRTP had an odor scrubber hydrogen sulfide exhaust concentration of over two parts per million. While switching odor scrubbers it was noticed the pH probe was not providing accurate data needed to control chemical feed to the scrubbers. The pH probe was calibrated and operations returned to normal.

## **Additional Topics of Interest:**

1. On November 16, SS Interceptor Operations staff worked with the City of Virginia Beach Public Utilities Department to install a city isolation valve near the intersection of Lemon Way Drive and Little Neck Road.
2. On November 18, SS Interceptor Operations staff took advantage of the linestop and bypass that was installed by a City of Virginia Beach contractor to install an offset on the HRSD 42-inch prestressed concrete cylinder pipe (PCCP) force main. Staff also replaced a severely corroded HRSD twelve-inch branch valve and additional appurtenances.
3. Army Base Treatment Plant (ABTP) and Technical Services Department staff investigated the cause of the offsite odor complaint received in October and discovered H<sub>2</sub>S spiking associated with solids hauling truck loading. ABTP maintenance staff installed connections to the odor control system that can be utilized during filling operations at both loading stations. Through recent monitoring, this appears to have made a significant impact on mitigating the odors. Several quotes were received for treated waste activated sludge tank cover options and additional monitoring is being set up to assess tank odors.
4. In preparation for the annual thermal hydrolysis process (THP) turnaround, ATP staff began reducing solids holding tank levels, lowering the pre-dewatering hopper level, and thinning out the primaries and waste activated sludge to prepare for the THP shutdown next month. These efforts aimed to maximize shutdown time and prevent solids loadout. Additionally, staff disassembled the fuels, oils, and grease (FOG) screening unit, the Flow Beast, inspected the machine, replaced worn parts, and reassembled it. Staff from the Nansemond Treatment Plant (NTP) also observed this activity, as they were preparing to start up the same equipment at the new FOG receiving facility.
5. On the Advanced Nutrient Removal Improvement (ANRI)/SWIFT Project at the James River Treatment Plant (JRTP), the contractor completed the excavation for the new #2 secondary clarifier and will start installation of screw piles. The secondary clarifier effluent flow distribution structure foundation is complete and construction of the walls for the Integrated Fixed Film Activated Solids (IFAS) effluent channel at IFAS tanks #7 through #9 was started. The contractor worked inside the south electrical building installing equipment, conduit, and wire. Panel and rock face siding, along with roof panels were installed on the new administration building. Extensive work on inside mechanical, electrical, and finishing out rooms was also performed inside the building. On the SWIFT side, concrete work continued on building #2. Most work has shifted to installing equipment inside SWIFT process buildings with notable equipment installed being new generators in the main electrical building.
6. SCD staff successfully repaired a force main break in Mt. Olive that was caused by a private contractor directionally boring communications cable that struck the 2-inch force main pipe carrying flow to the Mt. Olive drain field. Staff was able to recover all spilled wastewater, preventing it from being a reportable sanitary sewer overflow (SSO).
7. Electrical and Instrumentation (E&I) staff met with Cummins sales and service representative to discuss options for upgrading generator controls equipment that is approaching end of life at ATP. Staff will contact additional generator controls vendors to ensure future equipment upgrades are sustainable and provide best value.

8. E&I staff installed new Distributed Control System (DCS) equipment in the FOG at NTP. This upgrade ensures accurate and reliable level readings, which will improve operational efficiency and monitoring capabilities.
9. The Industrial Automation Programmers (IAP's) participated in the successful completion of cutover testing for the new SCADA at McCauley Park, Wachapreague, and Park Avenue Pump Stations (PS's). The final site testing was completed, and these sites are now active on the new Ovation SCADA systems.



## Financial Stewardship

1. Operations Project Team is continuing to work on various projects at the West Point Treatment Plant (WPTP) and KWTP. In WPTP they are installing a new pump, piping, and valves on the wasting well. In KWTP they are installing hydro-cyclones. Both projects will greatly enhance operations and save costs associated with hiring contractors to perform the work.
2. The Machine Shop had 10 projects during this month. Notable completed projects include two pump rebuilds and a total gearbox rebuild from YRTP. Staff also completed the fabrication of a new stainless pump shaft for Freeman Drive PS. The original shaft broke, dropping the impeller and destroying several parts of the pump. Staff is also in the process of rebuilding a gear box with a seized shaft in the gearbox.
3. Carpenter Shop staff continues to work on upgrading the NS Carpenter Shop. Staff is also in the process of adding two offices in the Human Resources workspace.
4. Material Transportation & Logistics staff transported 26 loads of Ash for a total of 213.66 dry tons, 27 loads of primary clarifier solids, and 46 loads of total waste activated biomass for a total of 2,948.48 wet tons. Staff also transported 27 loads of solids from ATP to McGill's compost facility in Waverly, for a total weight of 576.8 wet tons.



## Innovation

1. VIP and Water Technology and Research (WT&R) staff continued to operate and monitor a ballasted sedimentation and a cloth media filtration pilot for tertiary phosphorus removal. During the month of November, broad conclusions were drawn for each pilot and a decision was made to test the pilot in series operation, which consists of running ballasted sedimentation followed by cloth media filtration. In late November, VIP maintenance staff completed the process piping connections to achieve this configuration, and the pilots will be re-started in early December.
2. HRSD completed hosting a modified chemical dosing ratio study at VIP which will further research on safely and effectively removing carbon dioxide from the ocean to help combat climate change and protect marine ecosystems specifically using water resource recovery facilities (WRRF) as a point source for addition of the alkalinity. VIP is serving as the WRRF for the study led by University of Maryland, University of Delaware, and Planetary Technologies Inc. WT&R and VIP staff have played a significant role in assisting with this effort and helping HRSD gain an understanding of the associated benefits if HRSD were to pursue similar technologies at full scale.



3. ABTP Treatment Process Engineer, Mr. Jeff Nicholson and plant staff worked to optimize the performance of the gravity belt thickeners (GBT's). With this optimization, the GBT's now produce a consistent 7% solids. This will reduce tank volume and the number of loads needing to be hauled to VIP daily.
4. The total volume of SWIFT Research Center recharge into the Potomac aquifer for the month of October was 9.8 million gallons (MG) (32.86% Recharge Time based on 660 gallons per minute). Several factors interfered with recharge operations this month to include process configuration and maintenance related efforts.
5. Testing and final startup for the Greasezilla FOG Process is planned for the week of December 9 at NTP.
6. SCD and E&I staff, are continuing work on a system to enable remote monitoring of the Mathews County Vacuum System. HRSD is collaborating with FloVac on a proposal to develop a system that meets HRSD's needs. Additionally, SCD and E&I staff have been working on a project to install a radar level measurement device at the storage pond of the WPTP. This device will allow the pond to be used for influent flow equalization.



## **Talent**

1. NS Interceptor Operations would like to congratulate and welcome Mr. Aaron Wheeler as an Interceptor Specialist. Aaron was previously an E&I Specialist.
2. Mr. Carl Ames, Mr. Jaden Bowlen, and Ms. Mackenzie Rickard joined SS Interceptor Operations on November 25 as an Interceptor Technician, Interceptor Assistant, and Interceptor Specialist, respectively.

Respectfully submitted,

Eddie M. Abisaab, PE, PMP, ENV SP  
Chief Operating Officer

[Attachment: MOM Reporting](#)

## MOM Reporting Numbers

MOM #	Measure Name	Measure Target	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June
2.7	# of PS Annual PMs Performed (NS)	37	3	2	5	3	3							
2.7	# of PS Annual PMs Performed (SS)	53	2	3	5	3	1							
2.7	# of Backup Generator PMs Performed	4.6	6	10	5	8	3							
2.8	# of FM Air Release Valve PMs Performed (NS)	234	397	483	515	539	273							
2.8	# of FM Air Release Valve PMs Performed (SS)	1,550	208	164	64	83	99							
2.9	# of Linear Feet of Gravity Clean (NS)	2,417	1,614	2,402	3,996	5,300	2,197							
2.9	# of Linear Feet of Gravity Clean (SS)	2,417	730	810	2,370	3,087	1,350							
2.9	# of Linear Feet of Gravity CCTV Inspection	3,300	0	0	0	0	0							

TO: General Manager

FROM: Chief People Officer

SUBJECT: Talent Management Monthly Report for November 2024

DATE: December 4, 2024



## Talent

Staff retention and recruitment continue to be key priorities for the Talent Management (TM) Division. To support these efforts, the division has initiated targeted strategies to enhance workforce engagement, reinforce safe work practices, and attract high-quality candidates across the HR, Safety, and Learning and Development departments.

**Human Resources (HR):** The team is actively working to fill critical vacancies, including positions such as HR Generalist, Benefits Specialist, and Talent Acquisition Specialist, while ensuring a streamlined and efficient hiring process. Recent progress includes the successful selection of a candidate for the HR Business Partner Employee Relations role.

Participation in HRSD's Wellness Program continues to grow. Plan education, wellness-related presentations, individual and group coaching, and virtual guided meditation sessions continue. HR staff worked with our Benefit Consultants to start the process to create a roadmap for our Wellness Program.

Additionally, HR kicked off an internal audit on Investigations with SC&H to review our current process and receive feedback from SC&H on potential improvements to our process.

**Learning and Development (L&D):** L&D celebrated National Apprenticeship Week by hosting appreciation luncheons for apprentices and instructors, as well as organizing an apprentice t-shirt design competition. The winning t-shirt design was submitted by Alex Reyes, Interceptor Technician from North Shore Interceptor Operations, and all apprentices will receive a t-shirt with the winning design.

In addition, L&D has continued to expand and enhance current programs, including the Career Pathways Program which has exceeded 50 participants, the grant sub-award program for apprenticeship, and LAMA which is entering into a new 2025 cohort.

**Safety:** The Safety Department focused on enhancing workplace safety through comprehensive inspections, training, and specialized testing. A total of seven work center safety inspections were conducted, addressing identified issues to ensure compliance with OSHA and internal safety standards. Thirteen safety training sessions

were held, covering critical topics such as CPR/First Aid/AED Training, Stop the Bleed, Methanol Safety, Forklift Training, and Asbestos O&M Training, with strong participation from employees. Audiometric testing for stragglers was completed as part of the Hearing Conservation Program. Industrial Hygiene sampling events were also conducted in November. First, quarterly ash screenings for VIP, Boat Harbor, and Williamsburg were successfully carried out to mitigate respiratory health risks, and lab hood inspections ensured proper ventilation and containment, with corrective actions recommended where needed. On construction sites, the team conducted 13 walk-arounds to enforce safety protocols and resolve on-site hazards. Additionally, one contractor safety briefing was delivered, emphasizing site-specific hazards and providing essential safety orientation materials.

Interviews were conducted to fill the Emergency & Security Manager and Occupational Health and Safety Professional positions, vital roles that will support the department's ongoing efforts to maintain and enhance safety and security across all areas.

There were three reported auto accidents/property damage incidents and five work-related injuries requiring medical attention, all of which are under review to identify root causes and implement preventative measures.



## **Community Engagement**

Staff participated in the Hampton Roads Making Strides Against Breast Cancer Walk and provided outreach at career events. This outreach was focused on the variety of career fields represented at HRSD. Information was shared about our open positions, the Apprenticeship Program, how we positively impact the local waterways and our generous benefits. Staff also explained how to apply for a position at HRSD and answered questions about what it's like to work at HRSD.

Respectfully submitted,

*Dorissa Pitts-Paige*

Chief People Officer

TO: General Manager/ Chief Executive Officer

FROM: Chief of Water Quality (CWQ)

SUBJECT: Monthly Report for November 2024

DATE: December 4, 2024



## Environmental Responsibility

### 1. HRSD's Regulatory Activities:

- a. Monthly Discharge Monitoring Report (DMR) Summary and Items of Interest: [Effluent and Air Emissions Summary](#).
- b. From Fiscal Year (FY) 2025 to date, there has been one Permit Exceedance out of 23,553 Total Possible Exceedances.
- c. Pounds of Pollutants Removed in FY 2025 to date: 91.3 million pounds.

### 2. Pretreatment and Pollution Prevention (P3) Program Highlights:

No civil penalties were issued in November.

### 3. Environmental and Regulatory Advocacy

- a. The Sustainable Environment Advocacy (SEA) Team hosted a cleanup event at the Nansemond Treatment Plant. The areas of focus were the access roads and gravel parking lot at the North end of the plant property. Five volunteers collected 9 bags of trash weighing approximately 77.9 lbs.
- b. Chief participated in the following advocacy and external activities:
  - (1) Attended the Elizabeth River Project's (ERP) Technical Advisory Committee meeting which included a presentation on the Planetary Technologies, Inc and the University of Maryland Center for Environmental Science pilot study at HRSD's Virginia Initiative Plant. This pilot study is evaluating opportunities for alkalinity enhancement at a wastewater facility to support marine carbon dioxide removal.
  - (2) Attended ERP's River Restoration Advisory Committee meeting to evaluate applications for River Star Business annual recognition and first-time recognition of resiliency projects within the Norfolk Innovation Corridor (NIC).
  - (3) Attended the Hampton Roads Planning District Commission's (HRPDC) regional environmental subcommittee meeting.

- (4) Attended the National Association of Clean Water Agencies (NACWA) fall leadership meeting and the NACWA Clean Water Law and Enforcement Symposium.
- (5) Co-chaired the NACWA Water Quality committee's meeting to discuss emerging topics affecting wastewater utilities nationwide. The highlights of the agenda included updates on nutrient regulations for the Puget Sound and a discussion on on-going and pending regulatory activity around Per- and Polyfluoroalkylsubstances (PFAS).
- (6) Participated in the Virginia Department of Environmental Quality (DEQ) and the Virginia Department of Health (VDH) PFAS Expert Advisory Panel. This panel is a required element of legislation passed in 2024. This expert advisory panel is established to assist DEQ and VDH in identifying sources of PFAS that are contributing to exceedances of the National Primary Drinking Water Standards for PFAS. This work is largely focused on industrial source control.
- (7) Participated in the Virginia Agribusiness Council's annual business meeting as a panelist for a PFAS discussion. In addition to HRSD, panel members included representation from AquaLaw and the Southern Environmental Law Center.
- (8) Participated in the One Water Council's One Water Resources Advisory Group meeting. Advisory group members are tasked with supporting the development of a Guide for Effective One Water Messaging.
- (9) Attended a meeting between the City of Norfolk's Coastal Resiliency Office and HRSD Engineering staff to discuss updates on Norfolk's Resilience Strategy and further strengthen lines of communication between the two groups.



## Financial Stewardship

1. Staff supported the generation of high-quality data for use in permitting and environmental management decisions through our Municipal Assistance Program (MAP), which offers services to other municipal and regional authorities throughout the state. HRSD costs for this program are reimbursed by the customer. Below are program highlights for the month.

HRSD provided sampling and analytical services to the following to support monitoring required for their respective Virginia Permit Discharge Elimination System (VPDES) permits:

- a. New Kent County
- b. Northumberland County
- c. Town of Drakes Branch



- d. Town of Hopewell
  - e. Westmoreland County
2. HRSD completed its first reimbursement of locality infrastructure repairs associated with the Microbial Source Tracking program. As part of HRSD's Integrated Plan, HRSD committed to a spend of \$10M before 2030 for both MST investigations and for funding repairs that were identified as a result of an investigation. Two more locality reimbursements are in the queue for reimbursement.



## **Community Engagement**

1. Staff supported Microbial Source Tracking (MST) investigations in partnership with Hampton Roads localities. This work is required as part of HRSD's Integrated Plan. Sampling and analytical services were provided for the localities and projects identified below:
- a. City of Chesapeake (Southern Branch)
  - b. City of Newport News (Southeast Newport News)
  - c. City of Norfolk (Pretty Lake)
  - d. City of Suffolk (downtown)
  - e. City of Virginia Beach (Thalia Creek)
  - f. James City County
2. The Central Environmental Laboratory continues to coordinate with the Virginia Beach Public Schools Environmental Science Program to provide students with an environmentally relevant internship to gain skills and experience that may guide future career paths. The program has reported that previous interns have successfully earned paid positions in college based on the experience gained while working at HRSD.

Respectfully submitted,

*Jamie Heisig-Mitchell*  
Chief of Water Quality

# EFFLUENT SUMMARY FOR NOVEMBER 2024

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	CONTACT TANK EX
ARMY BASE	7.45	41%	2	2.1	2	3	0.24	0.59	5.1	4.6	27
ATLANTIC	38.78	72%	8	11	3	<1	NA	NA	NA	NA	8
BOAT HARBOR	9.12	36%	14	10	27	4	1.4	0.92	33	25	4
CENT. MIDDLESEX	0.014	57%	<2	<1.0	<1	<1	NA	NA	NA	NA	NA
JAMES RIVER	10.28	51%	7	7.3	2	4	0.58	0.55	13	11	11
KING WILLIAM	0.093	93%	<2	0.53	NA	<1	0.10	0.14	2.8	2.2	NA
NANSEMOND	14.68	49%	5	6.5	2	3	1.1	1.4	5.7	4.7	0
ONANCOCK	0.191	26%	<2	<1.0	<1	1	0.09	0.22	2.0	3.2	NA
SUNSET BAY	0.010	25%	2	1.5	3	3	NA	NA	NA	NA	0
URBANNA	0.048	48%	7	18	3	4	4.5	3.9	16	16	NA
VIP	22.79	57%	3	3.0	1	<1	1.1	0.68	4.5	3.9	3
WEST POINT	0.285	47%	21	7.4	1	1	4.5	3.1	23	16	0
WILLIAMSBURG	7.69	34%	3	3.7	3	17	0.88	0.98	3.2	3.1	19
YORK RIVER	9.49	63%	3	0.58	<1	1	0.86	0.31	5.4	5.1	3
	120.93										

% of  
Capacity

North Shore 44%  
South Shore 59%  
Small Communities 36%

# AIR EMISSIONS SUMMARY FOR NOVEMBER 2024

	No. of Permit Deviations below 129 SSI Rule Minimum Operating Parameters							Part 503e Limits		
	Temp 12 hr ave (F)	Venturi(s) PD 12 hr ave (in. WC)	Precooler 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
MHI PLANT										
ARMY BASE	*	*	*	*	*	*	*	*	*	*
BOAT HARBOR	0	0	0	0	0	0	0	14	92	0
VIP	0	0	0	0	0	0	0	38	100	0
WILLIAMSBURG	1	3	0	0	0	0	4	28	34	0

\* ABTP MHIs shuttered 9/27/24

## **Items of Interest – November 2024**

### **MULTIPLE HEARTH INCINERATION (MHI)**

Total Hydrocarbon (THC) monthly averages (not to exceed 100 ppm) were met by all three MHI plants (Boat Harbor, Virginia Initiative, and Williamsburg). The THC continuous emissions monitoring (CEM) valid data capture was 34% or greater.

Williamsburg's MHI had four (4) deviations from the required 129 SSI rule minimum operating parameters, one (1) reportable bypass event (> 60 minutes), and three (3) other days with minor uses of the bypass stack. The air regulatory reports between November 24 through the 26<sup>th</sup> were caused by a failing outer bearing on the MHI # 1's ID fan. The furnace was ultimately shut down to replace the fan bearing. Once completed normal MHI operations resumed with no further deviations. DEQ was notified accordingly of the bypass on November 26 that had excess emissions for more than one hour.

Boat Harbor and VIP had no deviations or uses of the emergency bypass stack.

### **AIR PERMITS and ODOR CONTROL**

DEQ issued the air permit to James River for the new diesel engine emergency generators on November 22.

There was a total of nine (9) odor control complaints this month.

Atlantic Plant received five (5) complaints from Ocean Lakes and Lago Mar neighbors. Plant Staff responded to all complaints. Communications continues to provide responses to the neighbors as needed. TSD recorded all complaints in the air permit required complaint log.

Small Communities Eastern Shore received three (3) complaints from the Town of Exmore regarding odors from Carolyn Avenue pump station. SCD and TSD responded and found the most likely source of odors were three unsealed manholes that had some observed hydrogen sulfide and odor. SCD sealed the manholes to abate the odorous discharge. No further complaints have been received to date. H<sub>2</sub>S monitoring of the Wager passive odor control system has also been established to ensure odors at the station are being properly controlled from that source.

South Shore Operations received a complaint of odors from Chesapeake Public Schools regarding odors at Rena B. Wright primary school. The school is located across HRSD's Park Avenue pump station. The source of odors that are being reported inside the school are still being investigated. SS Ops and TSD are working together to determine the exact way in which odors are getting inside the building. Smoke testing of the schools plumbing system is expected to help make an odor source determination.

## **CENTRAL ENVIRONMENTAL LABORATORY**

The required frequency of valid BOD sample analysis for York River TP was not met for the week of November 10<sup>th</sup>, 2024, due to an analytical error. All required samples were collected for the week, but the sample collected on November 12, 2024, was flagged due to the quality control data being outside of the acceptable limits. The issue was discovered later in the month and a resample was not possible. All other weekly BOD monitoring requirements were met and in permit compliance for the month.

## **TREATMENT**

DEQ was notified of the following reportable events:

### Nansemond

On November 21, a crack was found in a non-potable water (NPW) line when water was seen bubbling up from the ground. It was initially believed to be potable water but discovered later to be NPW from a building sump. Approximately 1,000 gallons of chlorinated NPW were released to the ground.

On November 22, a sump pump collecting water from an expansion joint leak at the anaerobic/anoxic tanks overflowed due to the pumps clogging. Approximately 175 gallons of anaerobic effluent were released to the ground and stormwater pond.

### Virginia Initiative

On November 20, power to the chemical feed room was interrupted resulting in a loss of dechlorination (sodium bisulfite) to occur from 01:31- 04:15. Staff started the bisulfite feed in manual at the variable frequency drive (VFD) to restore dechlorination.

## **SYSTEM/TREATMENT, SMALL COMMUNITIES, AND EASTERN SHORE**

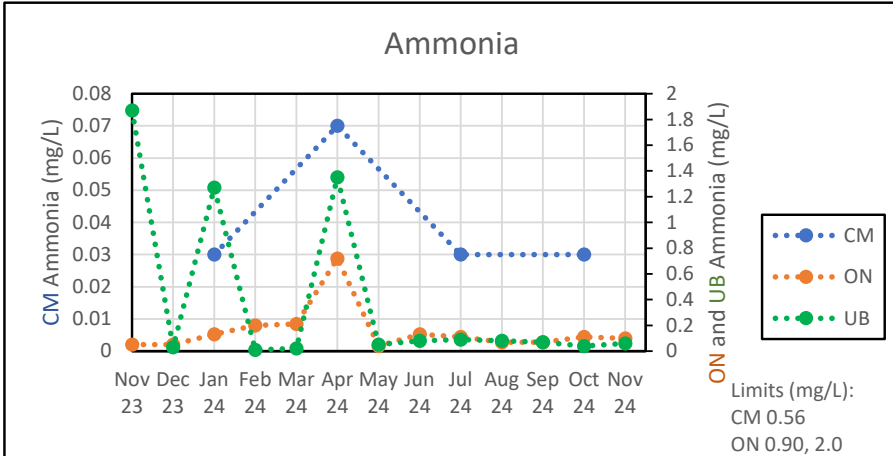
### King William

On November 6, staff found the UV system channel overflowing, and while observing, the overflow stopped on its own. The potential cause was due to high flows in both membrane bioreactor (MBR) treatment trains at 80 gpm combined. At the same time, the effluent wet well level was creating a head loss condition that raised the water surface in the UV channel. Staff reduced flow output and observed the UV channel to assure levels did not elevate again. Approximately 60 gallons of MBR filtrate and partial UV effluent were released to the ground. The weir plate that was causing the hydraulic bottleneck has been removed.

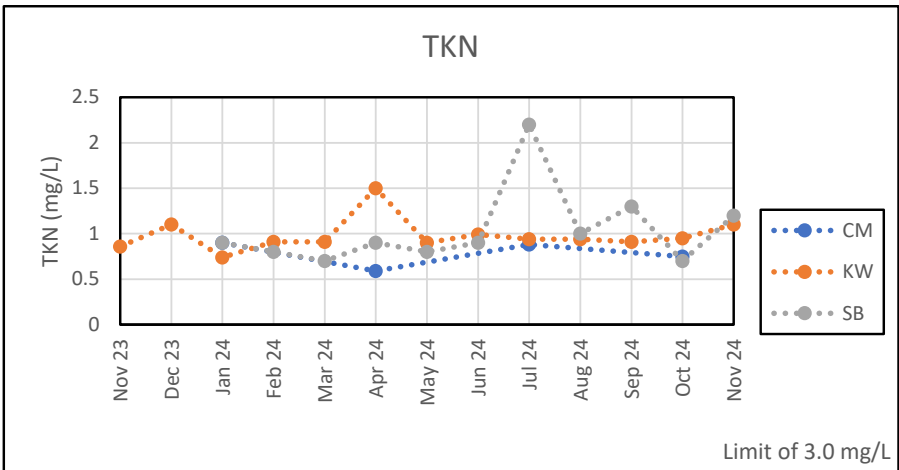
### Lawnes Point

On November 19, while Interceptor crews were performing maintenance, a PVC glued coupling came undone releasing raw wastewater. Staff inserted a plug to slow the leak until the Vactor truck arrived and staff completed temporary repairs. Approximately 300 gallons of raw wastewater were released to the ground and ditch. Final repairs were completed, the site was cleaned of debris, and lime was spread.

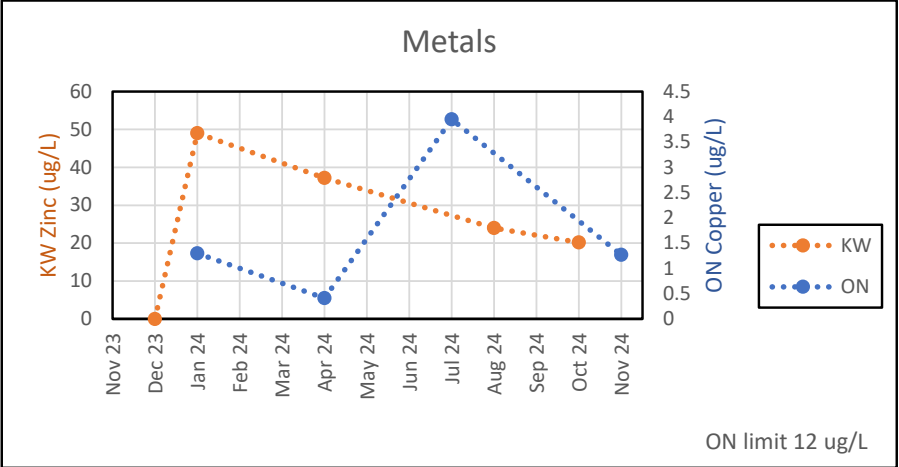
	Ammonia		
	CM	ON	UB
Nov 23		0.05	1.87
Dec 23		0.05	0.03
Jan 24	0.03	0.13	1.27
Feb 24		0.2	0.01
Mar 24		0.21	0.02
Apr 24	0.07	0.72	1.35
May 24		0.04	0.05
Jun 24		0.13	0.08
Jul 24	0.03	0.11	0.09
Aug 24		0.07	0.08
Sep 24		0.07	0.07
Oct 24	0.03	0.11	0.04
Nov 24		0.10	0.06



	TKN		
	CM	KW	SB
Nov 23		0.86	
Dec 23		1.1	
Jan 24	0.90	0.74	0.90
Feb 24		0.91	0.80
Mar 24		0.91	0.70
Apr 24	0.59	1.5	0.90
May 24		0.90	0.80
Jun 24		0.99	0.90
Jul 24	0.88	0.94	2.2
Aug 24		0.94	1.0
Sep 24		0.91	1.3
Oct 24	0.75	0.95	0.70
Nov 24		1.1	1.2



	Zinc	Copper
	KW	ON
Nov 23		
Dec 23	<5.0	
Jan 24	49	1.3
Feb 24		
Mar 24		
Apr 24	37	0.41
May 24		
Jun 24		
Jul 24		4.0
Aug 24	24	
Sep 24		
Oct 24	20	
Nov 24		1.3







The following Internal Audit Status document has been prepared by SC&H for the HRSD Commission. Below is a summary of projects in process, upcoming projects, and the status of current management action plan monitoring.

## ***I. Projects in Process***

---

### **Operational Technology Security and Resilience**

- **Completed Tasks (November 2024)**
  - Conducted internal report reviews.
- **Upcoming Tasks (December 2024)**
  - Issue draft and final report.

### **Design and Construction Estimating**

- **Completed Tasks (November 2024)**
  - Issued updated draft report to POC.
- **Upcoming Tasks (December 2024)**
  - Issue final report.
  - Present results to the Commission (12/17).

### **IT Governance**

- **Completed Tasks (November 2024)**
  - Initiated the audit program and test procedures.
  - Conducted manager review of the audit program.
  - Requested additional documentation from points of contact (POCs).
  - Performed test/review procedures and documented results of testing/review.
- **Upcoming Tasks (December 2024)**
  - Finalize fieldwork audit testing.
  - Perform Director review.
  - Draft the audit report.

### **Talent Management Investigations (planning only)**

- **Completed Task (November 2024)**
  - Prepared planning documentation.
  - Conducted external research.
- **Upcoming Tasks (December 2024)**
  - Conduct process understanding meetings (starting 12/6).
  - Draft process flowcharts, risks, controls, challenges, etc.

### **Model 3**

- **Completed Task (November 2024)**
  - Conducted entrance meeting and two walkthroughs.
  - Performed internal planning procedures.
  - Drafted the fieldwork provided by client (PBC) request listing.
- **Upcoming Tasks (December 2024)**
  - Provide PBC listing to POCs.
  - Conduct meeting walkthrough the fieldwork PBC listing with POCs (12/4).
  - Perform fieldwork testing.



### **Risk Assessment Refresh**

- **Completed Tasks (November 2024)**
  - Drafted initial notification and risk assessment survey.
  - Updated Risk Assessment Matrix
- **Upcoming Tasks (December 2024)**
  - Commence risk assessment refresh.
  - Prepare communication and survey material: To be administered in early January due to limited schedules during holiday season.

### **II. Management Action Plan Status**

SC&H performs on-going management action plan (MAP) monitoring for completed internal audits/projects. SC&H begins MAP follow-up approximately one year following the completion of each audit and periodically follows up until conclusion.

For each recommendation noted in an audit report, SC&H gains an understanding of the steps performed to address the action plan and obtains evidence to confirm implementation, when available.

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

Audit / Project	Next Follow-up	Recommendations		
		Closed	Open	Total
Safety Division	December 2024	2	1	3
Freedom of Information Act (FOIA)	January 2025	0	1	1
Personally Identifiable Information (PII)	December 2024	0	3	3
AP, ProCard	July 2025	1	2	3
Closed Audit/Projects (x21)	Closed	135	0	135
Totals		138	7	145

Strategic Measures  
November 2024

Strategic Planning Measure	Oct-24	Nov-24	FY-25
Educational and Outreach Events	15	22	65
Number of Community Partners	4	2	31
Number of Technical Presentations	11	5	37
Revenue vs. Budget	37%	46%	28%
Wastewater Expenses vs. Budget	26%	34%	20%
Accounts Receivable (HRSD)	\$48,291,106	\$52,626,009	\$48,501,819
Aging Accounts Receivable	30.50%	30.50%	30.74%
Turnover Rate wo Retirements	0.11%	0.34%	2.52%
Turnover Rate w Retirements	0.11%	0.56%	2.86%
Avg Time to Hire	2 months 27 days	2 months 28 days	2 months 29 days
Number of Vacancies	67	64	58
Average number of applicants per position	5.8	16.1	12.7
Percentage of positions filled with internal applicants	18.2%	19.1%	27.3%
Recruitment source Return on Investment	*	*	*
Average time required (days) to onboard new employees, including from initial posting of position to candidates' first day	*	*	*
Customer Call Wait Time (mins)	3.08	2.56	2.28
Capacity Related Overflows with Stipulated Penalties (Reported Quarterly)	*	*	*
Non-Capacity Related Overflows with Stipulated Penalties (Reported Quarterly)	*	*	*
TONS OF CARBON: Tons of carbon produced per million gallons of wastewater treated Energy consumed (gas (scfm) and electricity (kWh)) per million gallons of wastewater treated.	*	*	*
GAS CONSUMPTION: Tons of carbon produced per million gallons of wastewater treated Energy consumed (gas (scfm) and electricity (kWh)) per million gallons of wastewater treated.	*	*	*
ELECTRICITY CONSUMPTION: Tons of carbon produced per million gallons of wastewater treated Energy consumed (gas (scfm) and electricity (kWh)) per million gallons of wastewater treated.	*	*	*
Monthly CIP Spending	\$217,930,000		\$467,180,000

**\*Not currently tracking due to constraints collecting the data.**

**\*\* Updated after EPA Quarterly Report submittal.**

**\*\*\*Billing is one month behind**

Strategic Measures  
November 2024

Technical Presentations			
Date	Presentation	Presenter	Departments
11/18/2024	HRSD's Journey from pilot to full scale implementation of mainstream partial denitrification/Anammox (PdNA) IFAS	Megan Bachmann	Operations
11/18/2024	Elucidating the impact of low DO on enhanced biological phosphorus removal under aerobic and anoxic conditions at full-scale	Riley Doyle	Operations
11/19/2024	Reduced-order modelling to tune ammonia-based aeration control at a full-scale WRRF	Ali Gagnon	Operations
11/19/2024	Utility Innovation	Charles Bott	Operations
11/20/2024	Elucidating the impact of low DO on enhanced biological phosphorus removal under aerobic and anoxic conditions at full-scale	Lily McIntosh	Operations

Education Outreach and Community Partners			
Date	Event	Community Partner	Departments
11/01/2024	VIP Tour - ODU Environmental Pollution & Control Class	Old Dominion University	Operations and Communications
11/02/2024	Mariners Fall Festival	Mariners Museum and Park	Communications
11/02/2024	VA AWWA Model Water Tower Competition at ODU	VA AWWA	Engineering
11/04/2024	Invisible Infrastructure Activity - Deep Creek HS	Chesapeake Public Schools	Communications
11/04/2024	Larchmont Elementary Career Day	Norfolk Public Schools	Engineering
11/06/2024	SWIFT Tour - HRSD Employees/friends & family	HRSD Employees	Communications
11/07/2024	Atlantic Treatment Plant Tour	Boeh Agency	Operations
11/07/2024	Virginia Beach Minority Business Council Outreach	VA Beach Minority Business Council	Finance
11/11/2024	iSTEM Lab Activity - Newsome Park Elementary	Newport News Public Schools	Engineering
11/13/2024	6th Grade STEM Expo	Hampton City Schools	Communications
11/14/2024	SWIFT Tour - VA Challenge Academy	VA Challenge Academy	Communications
11/14/2024	SWIFT Tour - Boeh Agency	Boeh Agency	Communications
11/16/2024	Shellebration Event	City of Hampton	Communications
11/18/2024	York River Treatment Plant Tour	York County Fire Station's #1 and #7	Operations
11/18/2024	SWIFT Tour - Former Mayor of Suffolk	Commissioner Taraski	Communications
11/18/2024	York River Treatment Plant Tour - York County Fire Station 1	York County Fire & Life Safety	Operations
11/19/2024	Atlantic Treatment Plant Tour	Navy Expeditionary Intelligence Command	Operations
11/19/2024	CEL Tour	VA Challenge Academy	Water Quality
11/21/2024	Atlantic Treatment Plant Tour	Virginia Commonwealth Challenge	Operations
11/21/2024	Christopher Newport Univeristy SWaM Fair	Christopher Newport University	Finance
11/21/2024	Discovery STEM Day iSTEM Lab activity		Engineering
11/21/2024	Newport News Discovery STEM Academy	Newport News Discovery STEM Academy	Engineering