

HRSD Commission Meeting Agenda
9:00 a.m. – September 27, 2022

In-person for Commissioners and essential staff at
1434 Air Rail Avenue, Virginia Beach, VA

Electronic attendance via Zoom for all others

Public participation and observation of all HRSD Commission and committee meetings is available electronically via Zoom due to space limitations. To receive a link for virtual attendance/observation or to request accommodations to attend the meeting in-person, please send your request to Jennifer Cascio at commissionsecretary@hrsd.com or by phone to 757.460.7003. Requests must be received by noon one business day prior to the meeting.

<u>No.</u>	<u>Topic</u>	<u>Resource</u>
	Call to Order	Rodriguez
	Roll Call of HRSD Commission	Cascio
1.	Consent Agenda	Bernas
2.	North Shore Gravity Sewer Improvements Phase I Public Hearing on Determination of Public Need for Easement Acquisition and Acquisition Resolution	Husselbee
3.	James River Treatment Plant Shoreline Stabilization Rejection of Low Bid, Additional Appropriation, Contract Award (>\$200,000) and Task Order (>\$200,000)	Husselbee
4.	Conceptual Project Development (FY-2023) Additional Appropriation and Task Order (>\$200,000)	Husselbee
5.	Low Income Household Water Assistance Program (LIHWAP) Vendor Agreement with Third Party (previously Virginia Department of Social Services) Agreement – Updated Terms and Conditions	de Mik
6.	Boat Harbor Treatment Plant Pump Station Conversion Site Improvements New CIP and Initial Appropriation	Husselbee
7.	Central Environmental Laboratory (CEL) Expansion and Rehabilitation Briefing	Husselbee
8.	York River System Isolation Valve Installation and Replacement Additional Appropriation, Contract Award (>\$200,000), and Task Order (>\$200,000)	Husselbee
9.	COVID-19 Wastewater Surveillance Study Update	Curtis
10.	Conflict of Interest, Ethics and FOIA Training	Bernas

No.	Topic	Resource
11.	Unfinished Business	Bernas
12.	New Business	Bernas
13.	Commissioner Comments	Rodriguez
14.	Public Comments – A request to make public comments during the meeting via Zoom or written comments to be read into the minutes should be submitted to Jennifer Cascio by email to commissionsecretary@hrsd.com or by phone to 757.460.7003 and must be received by noon one business day prior to the meeting.	Cascio
15.	Informational Items	Bernas

Next Regular Commission Meeting Date: **October 25, 2022 at 2389 G Avenue, Newport News**

AGENDA ITEM 1. –September 27, 2022

Subject: Consent Agenda

Recommended Action: Approve the Consent Agenda.

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

- a. Approval of Minutes – The draft minutes of the previous Commission Meeting were distributed electronically prior to the meeting.
- b. Contract Awards
 1. [Advancing Ammonia-Based Aeration and Ammonia Versus NOx Control \(ABAC/AVN\): Applying Model-Predictive Controllers and Machine Learning Techniques Research Study and Scholarship](#) \$100,000
 2. [Biofilm Carrier Media](#) \$875,000
 3. [Emerson Process Management Power & Solutions Inc. Dragos Fleet Installation](#) \$469,276
 4. [SUMO® Process Modeling Support Services](#) \$450,000
- c. Contract Change Orders
 1. [James River Treatment Plant MIFAS Conversion Emergency](#) \$330,079
- d. Task Orders
 1. [Gloucester Guinea Road and Mayrus Road Interceptor Force Main Inspections and Repair](#) \$306,620
 2. [Virginia Initiative Plant Incinerator Burner Replacement Project](#) \$300,000
- e. Sole Source
 1. [CCI Cake Software Suite](#)
 2. [Tenco Hydro, Inc Clarifier Parts](#)
- f. HRSD Use of Existing Competitively Awarded Contract Vehicle and Contract Award
 1. [Debt Collection Services](#) \$400,000
 2. [Ford Cargo Vans with Ladder Racks](#) \$253,953
- g. Vacation of Easement
 1. [Newport News Redevelopment and Housing Authority](#)

CONSENT AGENDA ITEM 1.b.1. – September 27, 2022

Subject: Advancing Ammonia-Based Aeration and Ammonia Versus NO_x Control (ABAC/AVN):
Applying Model-Predictive Controllers and Machine Learning Techniques
Research Study and Scholarship
Contract Award (<\$200,000 but >12 months)

Recommended Action: Award a contract to Laval University in the estimated amount of \$50,000 for year one with one annual renewal option and an estimated cumulative value in the amount of \$100,000.

Regulatory Requirement: None

Contract Description: This contract is an [agreement](#) to conduct research and provide two graduate student scholarships to study process control strategies that optimize the application of ABAC, AvN, and partial denitrification-anammox (PdNA). As discussed with the Commission in past meetings, the biggest limitation in PdNA performance is the upstream AvN controls. ABAC and AvN controls are closely linked, and improvements in existing ABAC approaches will lead to future improvements in AvN.

With three exceptions, all of our previous implementations of ABAC and AvN at HRSD have used somewhat limited feed-back (FB) proportional-integral (PI) controllers, and while these approaches have shown significant cost savings, performance improvements are needed to support PdNA. At James River Treatment Plant, we are testing a simple feed forward (FF)/FB AvN controller that considers only diurnal changes in flow. At VIP, we are testing a FF/FB ABAC system that uses a model predictive controller that was developed from a mechanistic model and output correlations from a calibrated plant process model. At Nansmond Plant, we are in the process of developing a FF/FB ABAC system that uses a hybrid FF approach consisting of a mechanistic model, the error for which is continuously predicted by a machine learning/data-driven model. The intent here is to use this project to guide and enhance our efforts, relying on the expertise available at Laval and the opportunity for HRSD staff to collaborate with Laval graduate students pursuing exactly these research topics. This work is also the topic of a federal grant from the US Department of Energy (led by the Water Research Foundation), and Laval University is a partner on that project.

SCHOLARSHIP AGREEMENT
WITH ADDITIONAL FINANCIAL SUPPORT

BETWEEN: **Université Laval**, a private corporation duly incorporated under the provisions of an act of the National Assembly, sanctioned on December 8, 1970 (S.Q. 1970, c. 78), having its head office in Québec, Province of Québec, herein represented by Line Lapointe, Associate Dean, Research, Faculty of Sciences and Engineering, and who declares to be duly authorized to act as representative of the University;

(Hereinafter referred to as the “University”);

AND: **Hampton Roads Sanitation District**, a corporation duly incorporated, having its head office at 1434 Air Rail Avenue, Virginia Beach, Virginia, 23455 herein represented by **Mr Charles B. Bott**, who declares that he is duly authorized to act as representative for the purpose;

(Hereinafter referred to as the “Organization”);

AND: **Laleh Razeh**, a student at the Ph.D. level, registered in the Water Engineering PhD program of the University;

(Hereinafter referred to as the “Student”);

(Hereinafter referred to individually as the “Party” or collectively as the “Parties”).

WHEREAS the University has a mission of contributing to the development of society through the education of competent, responsible persons capable of promoting change and through the advancement and dissemination of knowledge, in a dynamic environment conducive to research and creation;

WHEREAS the Organization accepts to grant a scholarship in a total amount of fifty thousand US dollars (US\$50,000) over two years and applicable taxes to the Student to allow her to participate in the Research Project defined in the Appendix;

WHEREAS the Student accepts to participate in the Research Project under the supervision of Peter Vanrolleghem (hereinafter designated as the “Research Director”) and Charles Bott, employee of the Organization (hereinafter designated as the “Co-Supervisor”);

WHEREAS the University, the Research Director and the Co-Supervisor shall oversee and advise the Student in the performance of the Research Project;

IN CONSIDERATION of the conditions, commitments and agreements set forth herein, the Parties agree to the following:

Article 1 – DEFINITIONS

In this Agreement, including the Appendix hereto, except as otherwise specified, the following expressions shall have the meanings assigned hereafter. The singular shall include the plural and the masculine shall include the feminine and vice versa.

“Confidential Information” means any information disclosed in any verbal, written or electronic form and, namely including in connection with each Party, information concerning customers and suppliers, details of agreements, conventions, commitments, offers, options, proposed contracts and contracts, banking data, financial data, sales data, relations with existing and future customers, sales operations, services, marketing data and methods, plans, research results, production formulae and methods, technologies, inventions, improvements and upgrading, and intellectual property rights. The Parties agree that this list is neither exhaustive nor restrictive.

“Intellectual Property Right(s)” means all registered and/or unregistered intellectual property rights including all rights relating to patents, copyrights, industrial designs, printed circuits, printed circuits, new plant varieties, inventions (whether or not they may be patentable), discoveries, commercial secrets, know-how, domain names, trademarks, brand names and all other rights recognized under law or the ordinary rules of law as applied above, including all applications for the protection of an invention.

“Research Project” means the scientific work to be completed by the Student as defined and more fully described in the Appendix to this Agreement.

“Results” means all results, data, discoveries and information, which may or may not be covered by Intellectual Property Rights, which result from the performance of Research Project.

Article 2 – OBJECT

In compliance with the terms and conditions of the present Agreement, the Organization grants a scholarship to the Student, as described hereinafter, to allow her to participate in the performance of the Research Project, in accordance with the terms and the calendar set forth in **the Appendix**.

Article 3 – EFFECTIVE DATE AND DURATION

The present Agreement shall be effective on July 1st 2022 and shall end on June, 30th 2024 unless it is terminated before that pursuant to Article 12.

Article 4 – RIGHTS AND OBLIGATIONS OF THE ORGANIZATION

4.1 The Organization shall pay to the University a total amount of thirty thousand US dollars (US\$30,000) as a scholarship to be disbursed to the Student at a rate of five thousand US

dollars (US\$5,000) per session, for a maximum of six (6) sessions, in compliance with the following terms and conditions:

- US\$5,000 on signature of the agreement
- US\$5,000 on October 1st 2022
- US\$5,000 on January 1st 2023
- US\$5,000 on July 1st 2023
- US\$5,000 on October 1st 2023
- US\$5,000 on January 1st 2024

except if other payment modalities are fixed, which would prevail.

4.2 The Organization shall also pay to the University for support to the Research Project described in the Appendix, a total amount of ten thousand US dollars (US\$10,000) per year including 15% of incidental research expenses payable at a rate of six thousand US dollars (US\$6,000) the first session, four thousand US dollars (US\$4,000) the second session, six thousand US dollars (US\$6,000) the first session of year 2, four thousand US dollars (US\$4,000) the second session of year two according to the following conditions, :

- US\$6,000 on signature of the agreement
- US\$4,000 on September 1st 2022
- US\$6,000 on July 1st, 2023
- US\$4,000 on September 1st 2023

4.3 The Organization shall comply with the rules and requirements of the Student's study program, which shall be given to it by the University.

4.4 The Organization shall not require that the Student perform activities, which do not concern the Research Project during or following her studies. If the Student considers that an activity requested by the Organization is not directly related to the Research Project, she shall notify his Research Director who shall determine the link with the Research Project. If there is no link, the Student shall not be obliged to perform said activity. Moreover, the Organization shall not require the Student to sign any other agreement that would control, delay, limit, or interfere in her decision to accept an employment opportunity offered by any other organization or enterprise operating in the same sector of activity as the Organization, during or after her studies.

4.5 However, payment required by the Organization will be in proportion to the sessions completed by the Student. The financial contribution by the Organization is equivalent to US\$6,667 per session, and therefore the Organization may be reimbursed for any amount pay in excess.

Article 5 – OBLIGATIONS OF THE STUDENT, THE UNIVERSITY AND THE RESEARCH DIRECTOR

- 5.1 Upon receipt of funds, the University will pay, each year, a total amount of fifteen thousand US dollars (US\$15,000) to be disbursed as a scholarship for the Student and an amount of five thousand US dollars (US\$5,000) for the expenses for supporting the Research Project, in accordance with the terms described in the Appendix. The amount paid to the Student will be fifteen thousand US dollars (US\$15,000) per year, for a maximum of two (2) years.
- 5.2 The Student shall comply with the policies and regulations of the University, and specifically of the *Faculté des études supérieures et postdoctorales*, as they relate to his program of studies. The Student shall submit progress reports in accordance with the terms described in the Appendix.
- 5.3 The Student shall observe the employment conditions established by the Organization concerning working hours, statutory holidays and vacations, and shall furthermore respect all existing regulations, including the ones concerning health and safety. The Student shall report to the Co-Supervisor designated by the Organization.
- 5.4 The Research Director shall act as advisor to the Student and shall monitor her progress in order to ensure the performance of the Research Project in accordance with the conditions and schedule set forth in the Appendix.
- 5.5 In all scientific publications that mention the Research Project, the Student shall give credit to the Organization for its financial contribution.
- 5.6 The University shall promptly notify the Organization if the Student ceases to be a full-time student.

Article 6 – INTELLECTUAL PROPERTY

- 6.1 The University and the Organization shall each remain owner of the Intellectual Property Rights they respectively held prior to the beginning of the Research Project.
- 6.2 The Student is and shall remain owner of all copyrights to her essay, master's thesis or doctoral dissertation, as the case may be, that uses the Results in whole or in part.
- 6.3 The Organization and the Student hereby acknowledge that the University is and shall remain exclusive owner of the Results, and without restricting the scope of the preceding, of all Intellectual Property Rights resulting from the Research Project, except for any Student copyrights pursuant to Article 6.2 hereof. The Organization and the Student shall not contest, either directly or indirectly, in whole or in part, and shall not register for their benefit, any Intellectual Property Right resulting from the Research Project.
- 6.4 The Organization and the Student shall collaborate with the University and shall sign any and all documents required for the application and maintenance of Intellectual Property

Rights. Without limiting the above, the time limit granted to the University to file an application for patent protection shall not be more than six (6) months from the date of the disclosure of the Results to the University.

- 6.5 The University grants to the Organization a non-exclusive, royalty-free and perpetual right to use the Results for the purposes and within the strict limits of its internal activities in research and development excluding any commercial activities.

Article 7 – CONFIDENTIALITY

- 7.1 It is agreed that the Parties may be called upon to exchange Confidential Information as required to ensure the performance of the Research Project. Subject to what is provided in Article 8 – below regarding the publication of Results, the Parties shall take all reasonable and necessary precautions, considering the nature of this information, to preserve the confidentiality of all Confidential Information received and to prevent any inappropriate disclosure thereof.
- 7.2 Each Party shall handle and use this Confidential Information with the same care as if it were its own confidential information, to avoid unauthorized use, disclosure, publication or dissemination of said Confidential Information.
- 7.3 Each Party shall limit disclosure of Confidential Information to their employees, administrators, directors, students, agents or representatives who have a specific need to know for the purposes of the Research Project. These persons shall be notified of the confidential nature of the Confidential Information and of the fact that they are bound to maintain its confidentiality.
- 7.4 The Organization acknowledges that the disclosure of the Results may be prejudicial to their value and may limit their protection, so it shall maintain the confidentiality of the Results until they become of public knowledge pursuant to Article 7.5, that proper measures for their protection have been adopted or until the University authorizes its disclosure.
- 7.5 No Party shall have any obligation of confidentiality concerning information that:
- a) was already lawfully in its possession before it was disclosed to it, as shown by valid material evidence thereof;
 - b) is or becomes public knowledge through no fault or action of the Party;
 - c) is legally received by the Party from a third party who has no obligation of confidentiality;
 - d) is independently developed by the Party without using the Confidential Information delivered under the terms and conditions of this Agreement, as shown by valid material evidence thereof;
 - e) Is disclosed following a court order or in accordance with the requirements of a particular legislative provision provided that, the disclosing Party is contacted by

the receiving Party prior to the disclosure of the disclosing Party's Confidential Information in order to permit the disclosing Party the opportunity to contest such disclosure or obtain an appropriate protective order or

- f) disclosure is authorized in writing by the Party providing the Confidential Information.

Article 8 – PUBLICATION OF RESULTS

- 8.1 The Organization acknowledges and accepts that the University has a role of education, training and research. In respect thereof, and insofar as adequate protection measures have been taken, the University may use the Results for teaching, research and publication purposes in the normal course of the dissemination of knowledge, including the publication of essays, masters' theses or doctoral dissertations.
- 8.2 The University acknowledges that the disclosure of some technical information could be prejudicial to the commercial value of the product, process or Results. The University, shall therefore inform the Organization of any proposed disclosure concerning the Project by forwarding a copy of the text (or texts) prior to any publication or dissemination. If the Organization does not contest the proposed disclosure in writing within thirty (30) days following receipt of the text (or texts), the University may then disclose the information. If the Organization does object to the disclosure, it shall set forth in writing the reasons for the objection, and the Parties shall, in a collaborative effort, protect the Results and/or ensure that the disclosure of the Results shall not cause them to lose their commercial value. In case the Parties cannot agree external experts shall be consulted, including patent specialists, and the Parties shall share payment of all professional fees as the case may be. The maximum delay, regarding the publication, will be of six (6) months from the date the Organization receives the proposed disclosure.
- 8.3 In any event, the Organization acknowledges that it shall not delay the procedure for the evaluation of an essay, thesis or dissertation, and that any publication delay it may demand shall not delay or interfere with the delivery of a diploma to a graduate student.

Article 9 – PUBLICITY

- 9.1 The Organization shall not publicize the University's participation or that of a staff member of the University in any public announcement, publicity, application for financing or information it would like to make public unless it has received prior written authorization from the University.
- 9.2 Each Party shall insure that any public announcement or publicity does not insinuate that a Party supports a product, a process or any practice whatsoever.
- 9.3 Notwithstanding the above, the Parties acknowledge and agree that each Party may render public certain details of the Research Project, that is, the names of the Parties, the name of the Research Director, as well as the name, budget and duration of the Research Project.

Article 10 – LIABILITY AND INDEMNIFICATION

- 10.1 The Organization shall indemnify the University and hold it, its administrators, officers, employees, students or representatives harmless for any legal action, expense, or claim, including judicial and extra-judicial costs related to any such legal action or claim for damage that may result from the performance of the work specified in this Agreement for i) activities under the control of the Organization, or ii) for use of the Results by the Organization, or iii) for any damage resulting from the manufacture or sale of a product or the delivery of a service resulting from the exploitation of the Results by the Organization, except if the aforementioned damage is caused by the negligence of the University or by the fault of a third party who is not under the control of the Organization.
- 10.2 The University shall not be held liable for any damage sustained by the Organization, its representatives, employees, or any other person in the performance of this Research Project or as a result of the use by the Organization of the Results or the manufacture or sale of a product or of the delivery of a service resulting from the exploitation of the Results.
- 10.3 The University shall indemnify the Organization and hold it, its administrators, officers, employees, or representatives harmless for any legal action, expense, or claim, including judicial and extra-judicial costs related to any such legal action or claim for damage that may result from the performance of the work specified in this Agreement for i) activities under the control of the University, or ii) for use of the Results by the Organization, , except if the aforementioned damage is caused by the negligence of the Organization or by the fault of a third party who is not under the control of the University.
- 10.4 The Organization shall not be held liable for any damage sustained by the University, its representatives, employees, students or any other person in the performance of this Research Project or as a result of the use by the University of the Results.

Article 11 – ASSIGNMENT

The Organization shall not in any way whatsoever, assign, transfer, or otherwise dispose of its rights or obligations under this Agreement without the prior written consent of the University, which is subject to the University's entire discretion.

Article 12 – TERMINATION

- 12.1 The University or the Student may terminate this Agreement by giving a prior written notice of termination of thirty (30) days to the Organization if the Research Project is being conducted by the Organization in such a way as to cause prejudice to the University or to the Student or if the Student is unable to attain the objectives of the Research Project.
- 12.2 The Organization may, at any time, terminate the present Agreement by giving a written notice of thirty (30) days to the University. The Organization may not require reimbursement of any amounts previously paid in whole or in part. Even though the Organization terminates this Agreement, it shall make full payment of all amounts owing during the session in which its prior notice is received.

Article 13 – SURVIVAL

- 13.1 Notwithstanding the end or the termination of this Agreement, the Parties shall continue to be bound by the provisions of Article 6 – Intellectual Property, Article 9 – Publicity and Article 10 – Liability and Indemnification of this Agreement.
- 13.2 Notwithstanding the end or the termination of this Agreement, the Parties shall continue to be bound by the provisions of Article 7 – Confidentiality, for a maximum of two (2) years after the end of this Agreement.

Article 14 – NOTICES

- 14.1 Any notice or communication hereunder shall be in writing and sent to the recipient by registered mail, by e-mail, or be delivered by hand, using the contact information below:

FOR THE UNIVERSITY: Line Lapointe
Associate Dean, Research
Faculty of Sciences and Engineering
Université Laval
Pavillon Alexandre-Vachon
145 avenue de la Médecine, room 1036-F
Québec (Québec) G1V 0A6
E-mail: vice-doyenne.recherche @fsg.ulaval.ca
Telephone: (418) 656-7368

FOR THE ORGANIZATION: **Amy Murphy**
Chief of Procurement
Hampton Roads Sanitation District Procurement
Division
1434 Air Rail Avenue
Virginia Beach, Virginia, 23455-3002
E-Mail: amurphy@hrsd.com
Phone: 757- 460-7312
FAX: 757-460-7824

FOR THE STUDENT: **Laleh Razeh**
Ph.D. student
Faculty of Sciences and Engineering
Université Laval
Pavillon Adrien-Pouliot
1065 avenue de la Médecine, room PLT-2957
Québec (Québec) G1V 0A6
E-mail: laleh.razeh@gmail.com

- 14.2 Unless otherwise stated in this Agreement, a notice sent by e-mail is deemed to have been received on the business day following its transmission. If a notice is delivered by registered

mail or by hand, it is deemed to be received when it is delivered to the relevant address. Change of address notices are also covered by this article.

Article 15 – INDEPENDENCE

The present Agreement shall not constitute an agency, partnership, joint operation, or temporary association between the Parties.

Article 16 – PARTIAL INVALIDITY

If a competent tribunal rules that one or more of the provisions of the present Agreement is invalid, in whole or in part, only that portion of the Agreement declared invalid shall be unenforceable, and the remaining valid provisions and the remainder of this Agreement shall fully applied.

Article 17 – APPLICABLE LAWS

The Parties agree that the present Agreement shall be governed and interpreted exclusively pursuant to the laws in force in the Province of Québec, Canada.

Article 18 – DISPUTE SETTLEMENT

In the first case, the Parties will try to reach, in good faith, out-of-court settlement regarding any dispute arising out of this Agreement. If no settlement is reached after a period of sixty (60) days, a procedure for an injunction under the present Agreement may be brought before the competent courts in the judicial district of Québec, Province of Québec, Canada, to the exclusion of any other district likely to have jurisdiction.

Article 19 – COMPLETE AGREEMENT AND AMENDMENTS

The present Agreement and its Appendix shall constitute the entire Agreement binding the Parties and replacing all previous oral and written communications, representations and agreements arising from the Research Project. Moreover, any addition or amendment to the present Agreement shall be made in writing, and shall be signed by all Parties.

Article 20 – WAIVER

The failure of either of the Parties to exercise one or more of its rights under this Agreement on any particular occasion, as set forth in the Agreement, shall not be interpreted as a waiver of its rights, and shall not affect either the Agreement or any of the Parties' rights hereunder.

Article 21 – FORCE MAJEURE

The Parties agree that neither one of them shall be held liable for any default in performance or delay caused by force majeure, which is defined as an outside, unforeseeable, irresistible event. Examples of force majeure include, but are not limited to natural disasters, fires, labour unrest, and the imposition of regulations or ordinances by government authorities.

Article 22 – TIME LIMIT

If the Agreement does not specify the completion time limit applicable for the performance of one or more obligations contained herein, the Parties agree that the time limit for performance shall be thirty (30) days.

Article 23 – SUCCESSORS AND LEGAL REPRESENTATIVES

The present Agreement is binding on and of benefit to all Parties and binds their respective successors, assignees, heirs and legal representatives.

Article 24 – COUNTERPARTS

This Agreement may be executed in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. The Parties acknowledge and agree that the exchange of electronic signatures will have the same legal validity as if the parties exchanged original signatures in hard copy form.

Article 25 – INTERVENTION

The Research Director having read the present Agreement and having accepted its terms and conditions insofar as they are applicable to him, hereby intervenes in the present Agreement. He acknowledges that he is bound thereby and that he shall take whatever steps are required to ensure that all members of his team at the University are informed of their obligations hereunder.

Article 26 – LANGUAGE

The Parties have expressly agreed that this Agreement be drawn up in English only. *Les Parties aux présentes ont expressément requis que la présente entente soit rédigée en anglais.*

IN WITNESS WHEREOF, the Parties have signed this Agreement.

The University
UNIVERSITÉ LAVAL

The Organization
HAMPTON ROADS SANITATION
DISTRICT

Line Lapointe
Associate Dean, Research
Faculty of Sciences and Engineering

Date:

The Student

Amy Murphy
Chief of Procurement
Hampton Roads Sanitation District
Procurement

Date:

The Intervening Party

Laleh Rzeh
student

Date:

Peter Vanrolleghem
Research Director

Date:

APPENDIX

RESEARCH PROJECT

Control Strategies for Energy-Efficient Shortcut Nitrogen Removal in Wastewater Treatment – Short Project Description & Planning for 2022

Water resource recovery facilities (WRRFs) of the future should be energy self-sufficient or even net-positive energy suppliers. One way to achieve this is through the application of shortcut nitrogen (N) removal processes for mainstream wastewater treatment. Such processes reduce the overall energy consumption of WRRFs, mainly attributed to aeration, as well as chemical consumption. To achieve shortcut nitrogen (N) removal, different aeration strategies have been proposed for the biological nitrogen removal process.

Within this PhD project such novel aeration strategies are being investigated to maximize the N-removal with minimal aeration cost while keeping the reactor effluent ammonia ($\text{NH}_4\text{-N}$) and oxidized nitrogen ($\text{NO}_x\text{-N}$) concentrations approximately equal, i.e. Ammonia vs NO_x – AvN control. An additional goal is to achieve N-removal in the aerated tanks through simultaneous nitrification & denitrification (SND) while maintaining favorable effluent for the deammonification process. Significant efforts have already been made for successful application of SND for N-removal in deammonification processes (Regmi et. al., 2014; Han et. al, 2016; Le et. al., 2019). However, mainstream application is still challenged because the controllable SND mechanisms are not yet well understood. Moreover, wastewater characteristics, temperature, $\text{NO}_2\text{-N}$ availability are constantly varying.

In the PhD study, intermittent and continuous AvN control strategies will be applied on the *pileAUte* pilot-scale WRRF and evaluated through detailed modelling. The optimal applicable aerobic fraction for the intermittent AvN aeration strategy is evaluated experimentally and through simulation. It will also be evaluated how high the AvN setpoint can be increased for capacity increment. For the continuous AVN strategy, the minimal applicable sludge retention time (SRT) will be studied (again through simulation and experimental work on the *pileAUte* facility) for further optimization of N-removal. For both strategies, SND performance will be monitored continuously (and modelled appropriately).

Finally, both control strategies will be thoroughly evaluated through adapted models built in the WEST simulation software in order to further optimize the system, as well as to perform additional scenario analysis. For example, the model will allow investigating the effect of dynamic loading and changing wastewater characteristics on the system performance with the scenario analysis. Feedforward control strategies using respirometric wastewater characterization (nitrifiable nitrogen and readily biodegradable COD, Spanjers & Vanrolleghem, 2016) developed in the parallel MSc study of Karen Mesta, will be tested and evaluated in terms of their potential for improved N-removal performance.

Deliverables

- Organization of a workshop at the Watermatex2023 Conference, September, Québec City – ‘Mainstream Shortcut Nitrogen Removal Modelling: From research to full-scale implementation, do we have what we need?’
- Publishing the project outputs in a scientific journal.

References

- Han, M., De Clippeleir, H., Al-Omari, A., Wett, B., Vlaeminck, S. E., Bott, C., & Murthy, S. (2016). Impact of carbon to nitrogen ratio and aeration regime on mainstream deammonification. *Water Science and Technology*, 74(2), 375–384.
- Le, T., Peng, B., Su, C., Massoudieh, A., Torrents, A., Al-Omari, A., Murthy, S., Wett, B., Chandran, K., deBarbadillo, C., Bott, C. & De Clippeleir, H. (2019). Nitrate residual as a key parameter to efficiently control partial denitrification coupling with Anammox. *Water Environment Research* (91), 1455–1465.
- Regmi, P., Miller, M. W., Holgate, B., Bunce, R., Park, H., Chandran, K., Bott, C. B. (2014). Control of aeration, aerobic SRT and COD input for mainstream nitrification/denitrification. *Water Research*, 57, 162–171.
- Spanjers, H., Vanrolleghem, P. A. (2016). Respirometry. In: *Experimental Methods in Wastewater Treatment*. Eds. van Loosdrecht M.C.M., Nielsen P.H., Lopez-Vazquez C.M. and Brdjanovic D., IWA Publishing, London, UK. 133-178.

SCHOLARSHIP AGREEMENT
WITH ADDITIONAL FINANCIAL SUPPORT

BETWEEN: **Université Laval**, a private corporation duly incorporated under the provisions of an act of the National Assembly, sanctioned on December 8, 1970 (S.Q. 1970, c. 78), having its head office in Québec, Province of Québec, herein represented by Line Lapointe, Associate Dean, Research, Faculty of Sciences and Engineering, and who declares to be duly authorized to act as representative of the University;

(Hereinafter referred to as the “University”);

AND: **Hampton Roads Sanitation District**, a corporation duly incorporated, having its head office at 1434 Air Rail Avenue, Virginia Beach, Virginia, 23455 herein represented by **Mr Charles B. Bott**, who declares that he is duly authorized to act as representative for the purpose;

(Hereinafter referred to as the “Organization”);

AND: **Sanaz Moheballi**, a student at the Ph.D. level, registered in the Water Engineering PhD program of the University;

(Hereinafter referred to as the “Student”);

(Hereinafter referred to individually as the “Party” or collectively as the “Parties”).

WHEREAS the University has a mission of contributing to the development of society through the education of competent, responsible persons capable of promoting change and through the advancement and dissemination of knowledge, in a dynamic environment conducive to research and creation;

WHEREAS the Organization accepts to grant a scholarship in a total amount of fifty thousand US dollars (US\$50,000) over two years and applicable taxes to the Student to allow her to participate in the Research Project defined in the Appendix;

WHEREAS the Student accepts to participate in the Research Project under the supervision of Peter Vanrolleghem (hereinafter designated as the “Research Director”) and Charles Bott, employee of the Organization (hereinafter designated as the “Co-Supervisor”);

WHEREAS the University, the Research Director and the Co-Supervisor shall oversee and advise the Student in the performance of the Research Project;

IN CONSIDERATION of the conditions, commitments and agreements set forth herein, the Parties agree to the following:

Article 1 – DEFINITIONS

In this Agreement, including the Appendix hereto, except as otherwise specified, the following expressions shall have the meanings assigned hereafter. The singular shall include the plural and the masculine shall include the feminine and vice versa.

“Confidential Information” means any information disclosed in any verbal, written or electronic form and, namely including in connection with each Party, information concerning customers and suppliers, details of agreements, conventions, commitments, offers, options, proposed contracts and contracts, banking data, financial data, sales data, relations with existing and future customers, sales operations, services, marketing data and methods, plans, research results, production formulae and methods, technologies, inventions, improvements and upgrading, and intellectual property rights. The Parties agree that this list is neither exhaustive nor restrictive.

“Intellectual Property Right(s)” means all registered and/or unregistered intellectual property rights including all rights relating to patents, copyrights, industrial designs, printed circuits, printed circuits, new plant varieties, inventions (whether or not they may be patentable), discoveries, commercial secrets, know-how, domain names, trademarks, brand names and all other rights recognized under law or the ordinary rules of law as applied above, including all applications for the protection of an invention.

“Research Project” means the scientific work to be completed by the Student as defined and more fully described in the Appendix to this Agreement.

“Results” means all results, data, discoveries and information, which may or may not be covered by Intellectual Property Rights, which result from the performance of Research Project.

Article 2 – OBJECT

In compliance with the terms and conditions of the present Agreement, the Organization grants a scholarship to the Student, as described hereinafter, to allow her to participate in the performance of the Research Project, in accordance with the terms and the calendar set forth in **the Appendix**.

Article 3 – EFFECTIVE DATE AND DURATION

The present Agreement shall be effective on July 1st 2022 and shall end on June, 30th 2024 unless it is terminated before that pursuant to Article 12.

Article 4 – RIGHTS AND OBLIGATIONS OF THE ORGANIZATION

4.1 The Organization shall pay to the University a total amount of thirty thousand US dollars (US\$30,000) as a scholarship to be disbursed to the Student at a rate of five thousand US

dollars (US\$5,000) per session, for a maximum of six (6) sessions, in compliance with the following terms and conditions:

- US\$5,000 on signature of the agreement
- US\$5,000 on October 1st 2022
- US\$5,000 on January 1st 2023
- US\$5,000 on July 1st 2023
- US\$5,000 on October 1st 2023
- US\$5,000 on January 1st 2024

except if other payment modalities are fixed, which would prevail.

4.2 The Organization shall also pay to the University for support to the Research Project described in the Appendix, a total amount of ten thousand US dollars (US\$10,000) per year including 15% of incidental research expenses payable at a rate of six thousand US dollars (US\$6,000) the first session, four thousand US dollars (US\$4,000) the second session, six thousand US dollars (US\$6,000) the first session of year 2, four thousand US dollars (US\$4,000) the second session of year two according to the following conditions, :

- US\$6,000 on signature of the agreement
- US\$4,000 on September 1st 2022
- US\$6,000 on July 1st, 2023
- US\$4,000 on September 1st 2023

4.3 The Organization shall comply with the rules and requirements of the Student's study program, which shall be given to it by the University.

4.4 The Organization shall not require that the Student perform activities, which do not concern the Research Project during or following her studies. If the Student considers that an activity requested by the Organization is not directly related to the Research Project, she shall notify his Research Director who shall determine the link with the Research Project. If there is no link, the Student shall not be obliged to perform said activity. Moreover, the Organization shall not require the Student to sign any other agreement that would control, delay, limit, or interfere in her decision to accept an employment opportunity offered by any other organization or enterprise operating in the same sector of activity as the Organization, during or after her studies.

4.5 However, payment required by the Organization will be in proportion to the sessions completed by the Student. The financial contribution by the Organization is equivalent to US\$6,667 per session, and therefore the Organization may be reimbursed for any amount pay in excess.

Article 5 – OBLIGATIONS OF THE STUDENT, THE UNIVERSITY AND THE RESEARCH DIRECTOR

- 5.1 Upon receipt of funds, the University will pay, each year, a total amount of fifteen thousand US dollars (US\$15,000) to be disbursed as a scholarship for the Student and an amount of five thousand US dollars (US\$5,000) for the expenses for supporting the Research Project, in accordance with the terms described in the Appendix. The amount paid to the Student will be fifteen thousand US dollars (US\$15,000) per year, for a maximum of two (2) years.
- 5.2 The Student shall comply with the policies and regulations of the University, and specifically of the *Faculté des études supérieures et postdoctorales*, as they relate to his program of studies. The Student shall submit progress reports in accordance with the terms described in the Appendix.
- 5.3 The Student shall observe the employment conditions established by the Organization concerning working hours, statutory holidays and vacations, and shall furthermore respect all existing regulations, including the ones concerning health and safety. The Student shall report to the Co-Supervisor designated by the Organization.
- 5.4 The Research Director shall act as advisor to the Student and shall monitor her progress in order to ensure the performance of the Research Project in accordance with the conditions and schedule set forth in the Appendix.
- 5.5 In all scientific publications that mention the Research Project, the Student shall give credit to the Organization for its financial contribution.
- 5.6 The University shall promptly notify the Organization if the Student ceases to be a full-time student.

Article 6 – INTELLECTUAL PROPERTY

- 6.1 The University and the Organization shall each remain owner of the Intellectual Property Rights they respectively held prior to the beginning of the Research Project.
- 6.2 The Student is and shall remain owner of all copyrights to her essay, master's thesis or doctoral dissertation, as the case may be, that uses the Results in whole or in part.
- 6.3 The Organization and the Student hereby acknowledge that the University is and shall remain exclusive owner of the Results, and without restricting the scope of the preceding, of all Intellectual Property Rights resulting from the Research Project, except for any Student copyrights pursuant to Article 6.2 hereof. The Organization and the Student shall not contest, either directly or indirectly, in whole or in part, and shall not register for their benefit, any Intellectual Property Right resulting from the Research Project.
- 6.4 The Organization and the Student shall collaborate with the University and shall sign any and all documents required for the application and maintenance of Intellectual Property

Rights. Without limiting the above, the time limit granted to the University to file an application for patent protection shall not be more than six (6) months from the date of the disclosure of the Results to the University.

- 6.5 The University grants to the Organization a non-exclusive, royalty-free and perpetual right to use the Results for the purposes and within the strict limits of its internal activities in research and development excluding any commercial activities.

Article 7 – CONFIDENTIALITY

- 7.1 It is agreed that the Parties may be called upon to exchange Confidential Information as required to ensure the performance of the Research Project. Subject to what is provided in Article 8 – below regarding the publication of Results, the Parties shall take all reasonable and necessary precautions, considering the nature of this information, to preserve the confidentiality of all Confidential Information received and to prevent any inappropriate disclosure thereof.
- 7.2 Each Party shall handle and use this Confidential Information with the same care as if it were its own confidential information, to avoid unauthorized use, disclosure, publication or dissemination of said Confidential Information.
- 7.3 Each Party shall limit disclosure of Confidential Information to their employees, administrators, directors, students, agents or representatives who have a specific need to know for the purposes of the Research Project. These persons shall be notified of the confidential nature of the Confidential Information and of the fact that they are bound to maintain its confidentiality.
- 7.4 The Organization acknowledges that the disclosure of the Results may be prejudicial to their value and may limit their protection, so it shall maintain the confidentiality of the Results until they become of public knowledge pursuant to Article 7.5, that proper measures for their protection have been adopted or until the University authorizes its disclosure.
- 7.5 No Party shall have any obligation of confidentiality concerning information that:
- a) was already lawfully in its possession before it was disclosed to it, as shown by valid material evidence thereof;
 - b) is or becomes public knowledge through no fault or action of the Party;
 - c) is legally received by the Party from a third party who has no obligation of confidentiality;
 - d) is independently developed by the Party without using the Confidential Information delivered under the terms and conditions of this Agreement, as shown by valid material evidence thereof;
 - e) Is disclosed following a court order or in accordance with the requirements of a particular legislative provision provided that, the disclosing Party is contacted by

the receiving Party prior to the disclosure of the disclosing Party's Confidential Information in order to permit the disclosing Party the opportunity to contest such disclosure or obtain an appropriate protective order or

- f) disclosure is authorized in writing by the Party providing the Confidential Information.

Article 8 – PUBLICATION OF RESULTS

- 8.1 The Organization acknowledges and accepts that the University has a role of education, training and research. In respect thereof, and insofar as adequate protection measures have been taken, the University may use the Results for teaching, research and publication purposes in the normal course of the dissemination of knowledge, including the publication of essays, masters' theses or doctoral dissertations.
- 8.2 The University acknowledges that the disclosure of some technical information could be prejudicial to the commercial value of the product, process or Results. The University, shall therefore inform the Organization of any proposed disclosure concerning the Project by forwarding a copy of the text (or texts) prior to any publication or dissemination. If the Organization does not contest the proposed disclosure in writing within thirty (30) days following receipt of the text (or texts), the University may then disclose the information. If the Organization does object to the disclosure, it shall set forth in writing the reasons for the objection, and the Parties shall, in a collaborative effort, protect the Results and/or ensure that the disclosure of the Results shall not cause them to lose their commercial value. In case the Parties cannot agree external experts shall be consulted, including patent specialists, and the Parties shall share payment of all professional fees as the case may be. The maximum delay, regarding the publication, will be of six (6) months from the date the Organization receives the proposed disclosure.
- 8.3 In any event, the Organization acknowledges that it shall not delay the procedure for the evaluation of an essay, thesis or dissertation, and that any publication delay it may demand shall not delay or interfere with the delivery of a diploma to a graduate student.

Article 9 – PUBLICITY

- 9.1 The Organization shall not publicize the University's participation or that of a staff member of the University in any public announcement, publicity, application for financing or information it would like to make public unless it has received prior written authorization from the University.
- 9.2 Each Party shall insure that any public announcement or publicity does not insinuate that a Party supports a product, a process or any practice whatsoever.
- 9.3 Notwithstanding the above, the Parties acknowledge and agree that each Party may render public certain details of the Research Project, that is, the names of the Parties, the name of the Research Director, as well as the name, budget and duration of the Research Project.

Article 10 – LIABILITY AND INDEMNIFICATION

- 10.1 The Organization shall indemnify the University and hold it, its administrators, officers, employees, students or representatives harmless for any legal action, expense, or claim, including judicial and extra-judicial costs related to any such legal action or claim for damage that may result from the performance of the work specified in this Agreement for i) activities under the control of the Organization, or ii) for use of the Results by the Organization, or iii) for any damage resulting from the manufacture or sale of a product or the delivery of a service resulting from the exploitation of the Results by the Organization, except if the aforementioned damage is caused by the negligence of the University or by the fault of a third party who is not under the control of the Organization.
- 10.2 The University shall not be held liable for any damage sustained by the Organization, its representatives, employees, or any other person in the performance of this Research Project or as a result of the use by the Organization of the Results or the manufacture or sale of a product or of the delivery of a service resulting from the exploitation of the Results.
- 10.3 The University shall indemnify the Organization and hold it, its administrators, officers, employees, or representatives harmless for any legal action, expense, or claim, including judicial and extra-judicial costs related to any such legal action or claim for damage that may result from the performance of the work specified in this Agreement for i) activities under the control of the University, or ii) for use of the Results by the Organization, , except if the aforementioned damage is caused by the negligence of the Organization or by the fault of a third party who is not under the control of the University.
- 10.4 The Organization shall not be held liable for any damage sustained by the University, its representatives, employees, students or any other person in the performance of this Research Project or as a result of the use by the University of the Results.

Article 11 – ASSIGNMENT

The Organization shall not in any way whatsoever, assign, transfer, or otherwise dispose of its rights or obligations under this Agreement without the prior written consent of the University, which is subject to the University's entire discretion.

Article 12 – TERMINATION

- 12.1 The University or the Student may terminate this Agreement by giving a prior written notice of termination of thirty (30) days to the Organization if the Research Project is being conducted by the Organization in such a way as to cause prejudice to the University or to the Student or if the Student is unable to attain the objectives of the Research Project.
- 12.2 The Organization may, at any time, terminate the present Agreement by giving a written notice of thirty (30) days to the University. The Organization may not require reimbursement of any amounts previously paid in whole or in part. Even though the Organization terminates this Agreement, it shall make full payment of all amounts owing during the session in which its prior notice is received.

Article 13 – SURVIVAL

- 13.1 Notwithstanding the end or the termination of this Agreement, the Parties shall continue to be bound by the provisions of Article 6 – Intellectual Property, Article 9 – Publicity and Article 10 – Liability and Indemnification of this Agreement.
- 13.2 Notwithstanding the end or the termination of this Agreement, the Parties shall continue to be bound by the provisions of Article 7 – Confidentiality, for a maximum of two (2) years after the end of this Agreement.

Article 14 – NOTICES

- 14.1 Any notice or communication hereunder shall be in writing and sent to the recipient by registered mail, by e-mail, or be delivered by hand, using the contact information below:

FOR THE UNIVERSITY: Line Lapointe
Associate Dean, Research
Faculty of Sciences and Engineering
Université Laval
Pavillon Alexandre-Vachon
145 avenue de la Médecine, room 1036-F
Québec (Québec) G1V 0A6
E-mail: [vice-doyenne.recherche @fsg.ulaval.ca](mailto:vice-doyenne.recherche@fsg.ulaval.ca)
Telephone: (418) 656-7368

FOR THE ORGANIZATION: **Amy Murphy**
Chief of Procurement
Hampton Roads Sanitation District Procurement
Division
1434 Air Rail Avenue
Virginia Beach, Virginia, 23455-3002
E-Mail: amurphy@hrsdc.com
Phone: 757- 460-7312
FAX: 757-460-7824

FOR THE STUDENT: **Sanaz Mohebali**
Ph.D. student
Faculty of Sciences and Engineering
Université Laval
Pavillon Adrien-Pouliot
1065 avenue de la Médecine, room PLT-2957
Québec (Québec) G1V 0A6
E-mail: sanaz.mohebali.1@ulaval.ca

- 14.2 Unless otherwise stated in this Agreement, a notice sent by e-mail is deemed to have been received on the business day following its transmission. If a notice is delivered by registered

mail or by hand, it is deemed to be received when it is delivered to the relevant address. Change of address notices are also covered by this article.

Article 15 – INDEPENDENCE

The present Agreement shall not constitute an agency, partnership, joint operation, or temporary association between the Parties.

Article 16 – PARTIAL INVALIDITY

If a competent tribunal rules that one or more of the provisions of the present Agreement is invalid, in whole or in part, only that portion of the Agreement declared invalid shall be unenforceable, and the remaining valid provisions and the remainder of this Agreement shall fully applied.

Article 17 – APPLICABLE LAWS

The Parties agree that the present Agreement shall be governed and interpreted exclusively pursuant to the laws in force in the Province of Québec, Canada.

Article 18 – DISPUTE SETTLEMENT

In the first case, the Parties will try to reach, in good faith, out-of-court settlement regarding any dispute arising out of this Agreement. If no settlement is reached after a period of sixty (60) days, a procedure for an injunction under the present Agreement may be brought before the competent courts in the judicial district of Québec, Province of Québec, Canada, to the exclusion of any other district likely to have jurisdiction.

Article 19 – COMPLETE AGREEMENT AND AMENDMENTS

The present Agreement and its Appendix shall constitute the entire Agreement binding the Parties and replacing all previous oral and written communications, representations and agreements arising from the Research Project. Moreover, any addition or amendment to the present Agreement shall be made in writing, and shall be signed by all Parties.

Article 20 – WAIVER

The failure of either of the Parties to exercise one or more of its rights under this Agreement on any particular occasion, as set forth in the Agreement, shall not be interpreted as a waiver of its rights, and shall not affect either the Agreement or any of the Parties' rights hereunder.

Article 21 – FORCE MAJEURE

The Parties agree that neither one of them shall be held liable for any default in performance or delay caused by force majeure, which is defined as an outside, unforeseeable, irresistible event. Examples of force majeure include, but are not limited to natural disasters, fires, labour unrest, and the imposition of regulations or ordinances by government authorities.

Article 22 – TIME LIMIT

If the Agreement does not specify the completion time limit applicable for the performance of one or more obligations contained herein, the Parties agree that the time limit for performance shall be thirty (30) days.

Article 23 – SUCCESSORS AND LEGAL REPRESENTATIVES

The present Agreement is binding on and of benefit to all Parties and binds their respective successors, assignees, heirs and legal representatives.

Article 24 – COUNTERPARTS

This Agreement may be executed in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. The Parties acknowledge and agree that the exchange of electronic signatures will have the same legal validity as if the parties exchanged original signatures in hard copy form.

Article 25 – INTERVENTION

The Research Director having read the present Agreement and having accepted its terms and conditions insofar as they are applicable to him, hereby intervenes in the present Agreement. He acknowledges that he is bound thereby and that he shall take whatever steps are required to ensure that all members of his team at the University are informed of their obligations hereunder.

Article 26 – LANGUAGE

The Parties have expressly agreed that this Agreement be drawn up in English only. *Les Parties aux présentes ont expressément requis que la présente entente soit rédigée en anglais.*

IN WITNESS WHEREOF, the Parties have signed this Agreement.

The University
UNIVERSITÉ LAVAL

The Organization
HAMPTON ROADS SANITATION
DISTRICT

Line Lapointe
Associate Dean, Research
Faculty of Sciences and Engineering

Date:

The Student

Amy Murphy
Chief of Procurement
Hampton Roads Sanitation District
Procurement

Date:

The Intervening Party

Sanaz Mohebali
student

Date:

Peter Vanrolleghem
Research Director

Date:

APPENDIX

RESEARCH PROJECT

Fault-tolerant control of nitrogen removal in wastewater treatment – Short Project Description & Planning for 2022

The objective of this PhD project is to develop a practical decision-making algorithm for fault-detection and diagnosis based on the case-based reasoning (CBR) method (utilizing artificial intelligence) as the central building block of an efficient fault-tolerant control system that can deal with different types of faults that might happen in Water Resource Recovery Facilities (WRRF).

The faults in the system will be detected using different multivariate methods that have already shown potential elsewhere. The research will focus on identifying the best method for detecting each type of fault. The root causes of the detected faults must be diagnosed and compared to a database of multivariate time series data that has been developed at the pîlEAUte WRRF at ULaval for over 5 years now. One task will be to create a systematic database containing these historic data and their metadata, the identified faults, and the root causes of these faults. Also, control strategies that depend on information that may be faulty, must be adapted to deal with these specific faults and should be developed and implemented. Therefore, having this robust database allows developing a fault-tolerant control of the WRRF that takes advantage of artificial intelligence to decide about the situation based on recognizing previous similar cases in the past.

Another essential part of this PhD project will be to propose a fallback and recovery control system that will function at the heart of the proposed CBR system. When faults happen, the fallback control system will isolate the fault and act upon it. Thus, the system will go from a normal operation mode to a fallback mode that is not suffering from the isolated fault. The system should recover to a normal and controlled system as soon as possible.

To achieve the objectives of this project, the following first steps are planned:

1. First, background in wastewater treatment plant operations will be strengthened. Modelling WWTP, while not being the core of the work, will be a tool to develop the systems.
2. Second, more knowledge about process monitoring and fault detection techniques will have to be collected and brought to practical use.
3. With all that background, the third step will be to get acquainted with fault diagnosis and fault-tolerant control systems.

Deliverables

- Organization of a workshop at the Watermatex2023 Conference, September, Québec City – ‘Fault-tolerant control of wastewater treatment facilities – where do we stand?’

Prepare a literature review on fault detection and diagnosis in wastewater systems.

CONSENT AGENDA ITEM 1.b.2. – September 27, 2022

Subject: Biofilm Carrier Media for James River Treatment Plant
Contract Award (>\$200,000)

Recommended Action: Award a contract to World Water Works Inc in the amount of \$875,000.

CIP Project: JR013400

Regulatory Requirement: None

Budget	\$273,687,432
Previous Expenditures and Encumbrances	(\$254,763,058)
Available Balance	\$18,924,374

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 August 23, 2022, and two bids were received on September 13, 2022 as listed below:

Bidder	Bid Amount
World Water Works Inc	\$875,000
Veolia Water Technologies, Inc DBA Kruger	\$979,750

HRSD Estimate: \$1,250,000

Project Justification: This project is for the design and construction of improvements to the secondary treatment process at the James River Treatment Plant (JRTP). The scope includes equalization of raw influent, modifications to the Integrated Fixed Film Activated Sludge (IFAS) system, increased IFAS media fill, demolition of existing secondary clarifiers (1, 2, 3 and 4), replacement with new secondary clarifiers, construction of a post denitrification moving bed bio-reactor (MBBR), chemical storage and feed systems, and all pumping, piping, instrumentation, and site work required. Current estimate does not include any upgrades to the treatment plant electrical system backbone. Advanced secondary treatment improvements, including nutrient reduction measures, will be required to provide stable source water quality that meets the influent requirements of the full-scale SWIFT facility at JRTP.

Contract Description and Analysis of Cost: This contract is an agreement for the purchase of Biofilm Carrier Media for the JRTP aerobic integrated fixed film activated sludge (IFAS) process. The current media at JRTP is nearing the end of its design life since being installed in 2011. JRTP is going to consolidate the old media into seven of its aeration tanks and the new media will be used in the remaining two aeration tanks. With this method, all nine tanks will have a higher fill fraction which provides improved nitrification, particularly in cold weather conditions. This improvement is a critical part of the larger nitrogen removal improvements at JRTP. The cost of this purchase consistent with recent similar contracts and is deemed fair and reasonable.

CONSENT AGENDA ITEM 1.b.3. – September 27, 2022

Subject: Emerson Process Management Power & Solutions Inc. Dragos Fleet Installation Contract Award (>\$200,000)

Recommended Actions: Award a contract to Emerson Process Management Power & Solutions Inc. in the amount of \$469,276.

CIP Project: AD012500

Regulatory Requirement: None

Budget	\$15,500,000
Previous Expenditures and Encumbrances	(\$3,730,444)
Available Balance	<u>\$11,769,556</u>

Type of Procurement: Sole Source

All parts and services were previously approved as a sole source with Emerson Process Management Power & Solutions Inc. in January of 2015.

HRSD Estimate: \$469,276

Project Description: This project will place security sensors into our Operational Technology (OT) environment at each HRSD wastewater treatment facility. These sensors will allow for secure connectivity between our treatment plants and our industrial cybersecurity partner, Dragos. This project addresses vulnerability management of our OT through the identification and alarming of malicious behavior and subsequent incident response and remediation.

Project Justification: This project is critical to the protection of our OT infrastructure.

Contract Description and Analysis of Cost: This contract will provide goods and services covering all required hardware, software, installation, configuration, and related testing, necessary to deploy and monitor the sensors. Dragos is a certified business partner of Emerson, as well as one of HRSD's selected cybersecurity solution providers.

Pricing structure includes 7 percent discount in accordance with the HRSD - Emerson Preferred Customer Agreement (PCA).

Details: Includes the purchase of Emerson network monitoring hardware and software. Services include installation and support services for one year.

CONSENT AGENDA ITEM 1.b.4. – September 27, 2022

Subject: SUMO® Process Modeling Support Services
Contract Award (>\$200,000)

Recommended Action: Award a contract for Process Modeling Support Services to Dynamita SARL in the estimated amount of \$90,000 for year one with four annual renewal options and an estimated cumulative value in the amount of \$450,000.

Regulatory Requirement: None

Type of Procurement: Sole Source

All services were previously approved as a sole source with Dynamita SARL in February of 2018.

HRSD Estimate: \$90,000

Contract Description and Analysis of Cost: Services include process modeling, development related tasks, and support within the SUMO® simulation software used by HRSD. SUMO® is a wastewater treatment process simulation package used to tie together biological, chemical, and physical process models. It is used to design, upgrade, and optimize wastewater treatment plants.

This is an estimated use contract. Typically, one treatment plant will be chosen per year for an intense modeling study to answer treatment process questions or prepare for an upcoming capital improvement project. The tasks associated with this would include model development/refinement, calibration, and scenario evaluation.

Details: Services include process modeling, development related tasks, and support within the SUMO® simulation software currently used by HRSD. SUMO® is a wastewater treatment process simulation package used to tie together biological, chemical, and physical process models. It is used to design, upgrade, and optimize wastewater treatment plants. The SUMO® model is owned, developed, and supported exclusively by Dynamita SARL.

CONSENT AGENDA ITEM 1.c.1. – September 27, 2022

Subject: James River Treatment Plant MIFAS Conversion Emergency
Contract Change Order (>25%)

Recommended Action: Approve a change order with Crowder Construction Company (Crowder) in the amount of \$330,079.

CIP Project: JR013401

Regulatory Requirement: None

Budget	\$5,000,000
Previous Expenditures and Encumbrances	(\$3,834,695)
Available Balance	\$1,165,305

Contract Status:	Amount	Cumulative % of Contract
Original Contract with Crowder	\$1,328,425	
Total Value of Previous Change Orders	\$95,577	7.2%
Requested Change Order No. 2	\$330,079	
Total Value of All Change Orders	\$425,656	32%
Revised Contract Value	\$1,754,081	

Time (Additional Calendar Days)	0
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Project Description: This project will modify the James River Treatment Plant (JRTP) integrated fixed-film activated sludge (IFAS) basins 1, 2, 3, 4, 6, 7, and 9 (seven tanks) by adding a second anoxic zone to achieve partial denitrification-annamox (PdNA). The installation in each tank should be identical to the moving-media integrated fixed-film activated sludge (MIFAS) demonstration tank (tank 5).

As part of the James River Treatment Plant Advanced Nutrient Reduction Improvements (ANRI) (JR013400) project, it was decided to upgrade the JRTP aeration tanks from an A2O configuration to a 5-stage with PdNA MIFAS in a newly created second anoxic zone. 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. The only time available for PdNA MIFAS construction to occur is immediately before the JR013400 construction project begins to avoid significant conflicts with the larger design-build project performing construction in the same space to upgrade the secondary clarifiers.

This project was declared an emergency on February 11, 2022.

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: This change order includes modifications from the original design to include piping, electrical, and instrumentation for step feed of primary effluent to the 2nd anoxic zone. This primary effluent carbon will accommodate some of the partial denitrification in the MIFAS zone, an improvement over the initial design concept in terms of methanol demand.

The cost for this change order is reasonable and is based on previously negotiated rates for labor and materials between HRSD and Crowder.

<u>Schedule:</u>	Emergency Declaration	February 2022
	Construction	March 2022
	Project Completion	April 2023

CONSENT AGENDA ITEM 1.d.1. – September 27, 2022

Subject: Gloucester Guinea Road and Mayrus Road Interceptor Force Main Inspections and Repair
Task Order (>\$200,000)

Recommended Action: Approve a task order with Tidewater Utility Construction, Inc. in the amount of \$306,620.

Regulatory Requirement: None

Contract Status:	Amount
Original Contract with Tidewater Utility Construction, Inc.	\$0
Total Value of Previous Task Orders	\$1,108,806
Requested Task Order	\$306,620
Total Value of All Task Orders	\$1,415,426
Revised Contract Value	\$1,415,426

Task Order Description: This task order will provide all traffic control, labor, and equipment to perform exploratory excavation, pipeline inspections, and hardware repair services necessary at nine locations on the interceptor force main on Guinea Road and Mayrus Road. This effort will address the high risk of hardware failure due to corrosive soils in this area and provide necessary condition assessment of the existing 16-inch diameter ductile iron pipe.

Analysis of Cost: The cost for this is based on negotiated rates through the On-Call Sewer Repair and Condition Assessment contract.

CONSENT AGENDA ITEM 1.d.2. – September 27, 2022

Subject: Virginia Initiative Plant Incinerator Burner Replacement Project
Task Order (>\$200,000)

Recommended Action: Approve a task order with REW Corporation in the amount of \$300,000.

CIP Project: VP019100

Regulatory Requirement: None

Budget	\$5,330,000
Previous Expenditures and Encumbrances	(\$3,587,271)
Available Balance	\$1,742,729

Contract Status:	Amount
Original Contract with REW Corporation	\$0
Total Value of Previous Task Orders	\$840,301
Requested Task Order	\$300,000
Total Value of All Task Orders	\$1,140,301
Revised Contract Value	\$1,140,301

Project Description: The Virginia Initiative Plant has two incinerators containing 46 burners total (23 each). This project will replace 42 old burners with new low NO_x North American burners to maintain NO_x levels below permit requirements, to meet modern safety standards and to improve fuel efficiency. New local control panels at each individual burner and two central control panels on the mezzanine level, conduits, wiring and other ancillary electrical components will bring the system up to current electrical safety standards and will allow control of the burners through the plant's Distributed Control System (DCS).

Project Justification: The existing Hauck burners and controls are obsolete making it difficult to find replacement parts. The burners are 40 years old, and, in some instances, the burner pilots have been unsafe to light. The proposed American Burners are reliable with a proven record at HRSD. The specified proposed burners are low-NO_x and are necessary for future incinerator compliance. The new burners and controls will increase VIP incinerator capacity from 30 to 36 dry tons per day which is a requirement when the Army Base Treatment Plant incinerator goes off-line.

Task Order Description: This task order, provided through the electrical on-call service contract, will provide the material and labor to install all the conduit associated with the burner and electrical panel replacements. The burner and electrical panel replacement will be bid out as a separate contract in October.

Analysis of Cost: The cost for this task order is based on current material prices and pre-determined hourly rates from the electrical on-call services contract. Procurement compared both electrical on-call service providers pricing for this project and REW was deemed the low vendor and selected for the job.

Schedule:

Construction	October 2022
Project Completion	January 2025

CONSENT AGENDA ITEM 1.e.1. – September 27, 2022

Subject: CCI Cake Software Suite
Sole Source (>\$10,000)

Recommended Action: Approve the use of the CCI Cake Software Suite by Control Consulting, Inc. by the Operations Department through the Information Technology Department.

Regulatory Requirement: None

Sole Source Justification:

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

Details: Product includes the purchase of CCI Cake Software Suite. This software is used to write python scripts using live data from the Emerson Distributed Control System at the Nansemond Treatment Plant and is part of improvements to ammonia-based aeration control system improvements and other advanced control system development efforts. The data is communicated across an open platform communication (OPC) connection to the server where the software is installed. This software is specifically designed to receive data in this manner from OPC.

CONSENT AGENDA ITEM 1.e.2. – September 27, 2022

Subject: Tenco Hydro, Inc Clarifier Parts
Sole Source (>\$10,000)

Recommended Actions: Approve the use of Tenco Hydro, Inc Clarifier Parts by Tenco Hydro at Williamsburg Treatment Plant.

Regulatory Requirement: None

Sole Source Justification:

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

Details: Product includes the purchase of Tenco Hydro, Inc clarifier parts. The specific clarifier was installed at Williamsburg Treatment Plant (WTP) in the 1980s. This purchase consists of a drive unit which rotates the rake arm of the clarifier and moves the solids to the center of the clarifier tank to be pumped out. The current drive unit has not failed but is showing signs of wear. If this drive does fail, HRSD would no longer be able to accept grease at WTP which would put an excessive load on the other treatment plants that do accept grease. The WTP staff will be responsible for the installation of this drive unit.

CONSENT AGENDA ITEM 1.f.1. – September 27, 2022

Subject: Debt Collection Services
HRSD Use of Existing Competitively Awarded Contract Vehicle and Contract Award
(>\$200,000)

Recommended Actions:

- a. Approve the use of the Virginia Statewide Contract E194-79083 for Debt Collection Services.
- b. Award a contract for Debt Collection Services to Transworld, Inc. in the estimated amount of \$80,000 for year one with four annual renewal options and an estimated cumulative value in the amount of \$400,000.

HRSD Estimate: \$400,000

Regulatory Requirement: None

Contract Description and Analysis of Cost: Services include third party debt collection services for uncollected revenue under HRSD/HRUBS accounts receivable in the Customer Care Center. This will be an estimated use contract. The fee for collections services is approximately 12 percent of any type and dollar amount of debt collected. These fees associated with revenue collection for our other jurisdictional partners, such as Norfolk and Suffolk, are billed to them monthly.

The cost for this service is based on the Virginia Statewide Contract negotiated rates and is in agreement with other similar efforts.

CONSENT AGENDA ITEM 1.f.2 – September 27, 2022

Subject: Ford Cargo Vans with Ladder Racks
 HRSD Use of Existing Competitively Awarded Contract Vehicle and Contract Award
 (>\$200,000)

Recommended Actions:

- a. Approve the use of the Virginia Sheriffs Association Contract #22-05-0917 for Vehicles and Motorcycles.
- b. Award a contract to Hall Automotive LLC DBA Hall Automotive in the amount of \$253,935.

HRSD Estimate: \$218,750

CIP Project: GN018500

Regulatory Requirement: None

Budget	\$2,867,920
Previous Expenditures and Encumbrances	(\$1,378,990)
Available Balance	<u>\$1,488,930</u>

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 Systems Division.

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 and Analysis of Cost: This contract is for the purchase of five Ford Cargo Vans with Ladder Racks to replace aging vehicles #106, #261, #362, #383, and #429. By utilizing the cooperative contract through the Virginia Sheriffs Association Contract #22-05-0917, HRSD is receiving these vehicles at a fair and reasonable cost.

CONSENT AGENDA ITEM 1.g.1. – September 27, 2022

Subject: Newport News Redevelopment and Housing Authority
Deeds of Release
Vacation of Easements

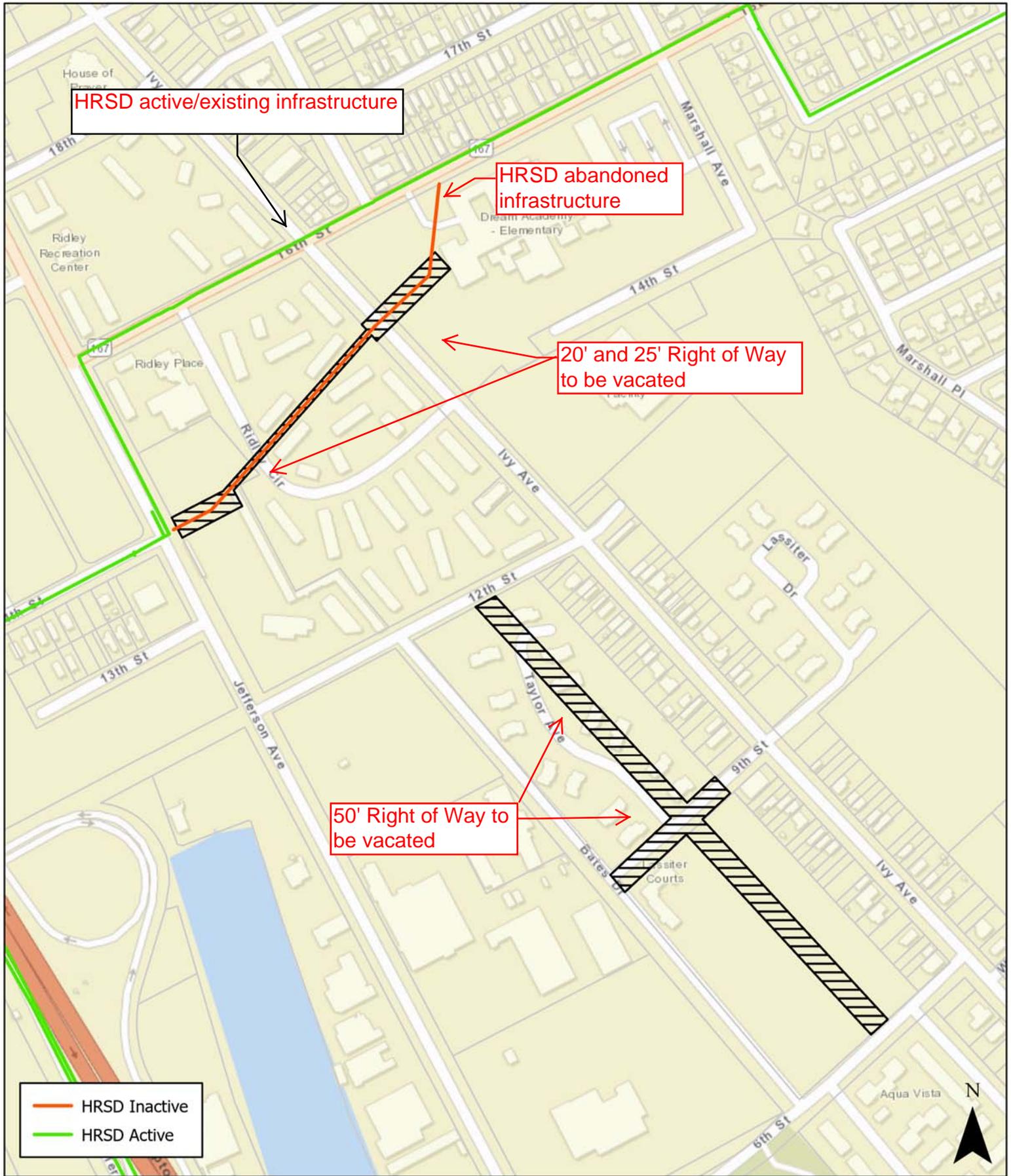
Recommended Action: Accept the terms and conditions of the Deed of Release for a 20-foot sewer easement and 25-foot sewer easement as well as the Deed of Release for a 50-foot easement from Parcel ID#: 316000241 located at 600 Ridley Circle, Newport News, Virginia in connection with planned development by the Newport News Redevelopment and Housing Authority and authorize the General Manager to execute same, substantially as presented, together with such changes, modifications and deletions as the General Manager may deem necessary on behalf of the “Hampton Roads Sanitation District Commission” for “Hampton Roads Sanitation District.”

Project Description: HRSD was granted both a 20-foot and a 25-foot easement as well as a 50-foot easement in the now vacated right-of way at 600 Ridley Circle in Newport News by Order of Declaration of Taking, by the federal government in 1945. These easements were later assigned to HRSD by a Quitclaim Deed dated June 20, 1950 and recorded in the Office of the City Clerk of the City of Newport News, Virginia in Deed Book 160, page 321 and Deed Book 160, page 338.

Because of planned future development, the Newport News Redevelopment and Housing Authority has requested that HRSD formally vacate and extinguish the aforesaid three easements in place.

This request has been reviewed by HRSD staff and because the easement is no longer needed by HRSD, this request is acceptable.

Agreement Description: The attached [Deeds of Release](#) have been reviewed by HRSD real estate legal counsel. Facilities orientation [map](#) and [plats](#) are also provided for clarification purposes.



- HRSD Inactive
- HRSD Active



Newport News Redevelopment and Housing Authority
 Deeds of Release/Vacation of Easements

Recording Requested by:

Ballard Spahr LLP
300 E. Lombard Street, 18th Floor
Baltimore, MD 21202
Attention: Amy M. McClain, Esq.

and when recorded mail to:

Ballard Spahr LLP
300 E. Lombard Street, 18th Floor
Baltimore, MD 21202
Attention: Amy M. McClain, Esq.

Recorder's Stamp

Parcel ID#: 316000241

Property Address: 600 Ridley Circle Road

Consideration: \$10

Assessed Value: \$2,650,000.00

DEED OF RELEASE

THIS DEED OF RELEASE, made and entered into this ___ day of September, 2022, by and between HAMPTON ROADS SANITATION DISTRICT COMMISSION, (“Grantor”), and NEWPORT NEWS REDEVELOPMENT AND HOUSING AUTHORITY, a political subdivision of the Commonwealth of Virginia (“Grantee”).

WHEREAS, by ORDER ON DECLARATION OF TAKING, by the United States of America, dated March 24, 1945 and recorded in the Office of the City Clerk of the City of Newport News, Virginia in Deed Book 198 page 483 and Deed Book 196, page 335 (collectively, the “Declaration”), and later quitclaimed and assigned to Grantor, by virtue of a QUITCLAIM DEED dated June 20, 1950 and recorded in the Office of the City Clerk of the City of Newport News, Virginia in Deed Book 160, page 321 and Deed Book 160, page 338, Grantor was granted a 20’ sewer easement and 25’ sewer easement within the vacated right-of-way within the property, lying and being situate in the City of Newport News, Virginia, which land is more fully described in the aforesaid Deed; and,

WHEREAS, the 20’ easement and 25’ easement are located within the vacated right-of-way in and to the land described below, granted by the aforesaid Deed is no longer required by Grantor; and,

WHEREAS, Grantee has requested that the said 20’ sewer easement and 25’ sewer within the vacated right-of-way be released of record and quitclaimed to Grantee;

NOW, THEREFORE, for and in consideration of the sum of Ten Dollars, cash in hand paid, the receipt of which is hereby acknowledged by the Grantor, the Grantor does hereby surrender, release, quitclaim, grant and convey unto the said Grantee, its successors and assigns, any and all right, title and interest it may possess in and to the following described 20’ sewer

easement and 25' sewer easement, to-wit:

20' sewer easement and 25' sewer easement within the vacated right-of-way in and to the land described as follows, situate and being in the City of Newport News, County of Warwick, Commonwealth of Virginia, and more particularly described as follows:

“Parcel 3”

Being a strip of land 20 feet in width, the center line of which is particularly described as follows:

Part “A”

Beginning at Survey Station 1 plus 08.2, distant North 42 degrees 17 minutes West 30.69 feet from the northerly line of 14th Street, in the property line of Clerk of Corporation Court, Newport News, Virginia, and Taylor Tract (see Plat Book No. 1 at Page 17 and Deed Book No. 153, Page 107), on record in Office of the Clerk of Corporation Court, Newport New, Virginia; running thence across Lot Nos. 12, 11, 10, 9, 7 and 6 of said Taylor Tract, North 42 degrees 52 minutes East 185.67 feet to the west line of Taylor Avenue, at Survey Station 13 plus 93.87, North 42 degrees 17 minutes West 48.0 feet from the northerly line of 14th Street, as shown in Plat “Federal Works Agency Project NO. VA 44-358 – Right of Way Map for Hampton Trunk Sewer acquired from J.P. Tilghman – Newport News, VA, dated April, 1944, revised August, 1944, made by Greeley & Hensen, Engineers, copy of which is attached to the Declaration of Taking filed herein and by reference thereto made a part hereof.

“Part “B”

Beginning at Survey Station 14 plus 54.0 in the easterly line of Taylor Avenue, South 42 degrees 17 minutes East 51.63 feet from the southerly line of 15th Street; running thence, across Lots Nos. 2 and 3 in Block B of said Taylor Tract, North 42 degrees 52 minutes East 100.35 feet to a Survey Station 15 plus 54.44 in the west line of a 20.0 alley, as shown on plat “Federal Works Agency Project No. VA 44-358 – Right of Way Map for Hampton Trunk Sewer Acquired from J. F. Tilghman – Newport News, VA, dated April , 1944, revised August, 1944, made by Greeley & Hensen, Engineers, copy of which is attached to the Declaration of Taking filed herein and by reference thereto made a part hereof.

“Parcel 4”

Being a strip of land 25.0 feet wide within Block No. 5, and being part of Lots 1 and 2, particularly described as follows:

Beginning at a Survey Station 15 plus 74.52, in the easterly line of a 20.0 foot alley between Taylor Avenue and Ivy Avenue, distant South 42 degrees 17 minutes East 41.45 feet from the southerly line of 15th Street; running thence along the easterly line of said alley North 42 degrees 17 minutes West 15.0 feet to a point; thence North 47 degrees 43 minutes East 105.0 feet to the westerly line of Ivy Avenue; thence passing through Survey Station 16 plus 79.89 and along the

westerly line of Ivy Avenue South 42 degrees 17 minutes East 25.0 feet to a point; thence South 47 degrees 43 minutes West 105.0 feet to the easterly line of said alley, thence along the easterly line of said Alley North 42 degrees 17 minutes West 10.0 feet to the point or place of beginning, being a strip of land 5.0 feet in width of Lot No 1 and a strip of land 20.0 feet in width of Lot No. 2, Block 5 on plat filed in Warwick County Court House, dated May 3, 1893, as shown on plat “Federal Works Agency Project No. VA 44-358 – Right of Way Map for Hampton Trunk Sewer Acquired from Andrew W. Johnson Newport News, VA”, dated April, 1944, revised August, 1944, made by Greeley & Hansen, Engineers, copy of which is attached the Declaration of Taking filed herein and by referenced thereto made a part hereof.

[SIGNATURE ON THE FOLLOWING PAGE]

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

GRANTOR:

HAMPTON ROAD SANITATION DISTRICT COMMISSION

By: _____
Name: Jay A. Bernas, P.E.
Title: General Manager

State of Virginia)
)
City/County of _____)

On this ___ day of September, 2022, before me a Notary Public in and for said City/County and State, residing therein, duly commissioned and sworn, personally appeared _____, proved to me on the basis of satisfactory evidence to be the _____ of _____, and the person who executed this instrument on behalf of the Owner.

Notary Public
Commission expires:

Recording Requested by:

Ballard Spahr LLP
300 E. Lombard Street, 18th Floor
Baltimore, MD 21202
Attention: Amy M. McClain, Esq.

and when recorded mail to:

Ballard Spahr LLP
300 E. Lombard Street, 18th Floor
Baltimore, MD 21202
Attention: Amy M. McClain, Esq.

Recorder's Stamp

Parcel ID#: 316000241

Property Address: 600 Ridley Circle Road

Consideration: \$10

Assessed Value: \$2,650,000.00

DEED OF RELEASE

THIS DEED OF RELEASE, made and entered into this ___ day of September, 2022, by and between HAMPTON ROADS SANITATION DISTRICT (“Grantor”), and NEWPORT NEWS REDEVELOPMENT AND HOUSING AUTHORITY, a political subdivision of the Commonwealth of Virginia (“Grantee”).

WHEREAS, by QUITCLAIM DEED dated August 23, 1994 and recorded in the Office of the City Clerk of the City of Newport News, Virginia in Deed Book 1380, page 1328 and re-recorded in Deed Book 1381, page 242 (the “Deed”), Grantor was granted an easement for the placement and maintenance of facilities within the vacated right-of-way within the property, lying and being situate in the City of Newport News, Virginia, which land is more fully described in the aforesaid Deed; and,

WHEREAS, the easement for placement and maintenance of facilities within the vacated right-of-way in and to the land described below, granted by the aforesaid Deed is no longer required by Grantor; and,

WHEREAS, Grantee has requested that the said easement for the placement and maintenance of facilities within the vacated right-of-way be released of record and quitclaimed to Grantee;

NOW, THEREFORE, for and in consideration of the sum of Ten Dollars, cash in hand paid, the receipt of which is hereby acknowledged by the Grantor, the Grantor does hereby surrender, release, quitclaim, grant and convey unto the said Grantee, its successors and assigns, any and all right, title and interest it may possess in and to the following described easement, to-

wit:

Easement for the placement and maintenance of the facilities within the vacated right-of-way in and to the land described as follows, situate and being in the City of Newport News, County of Warwick, Commonwealth of Virginia, and more particularly described as follows:

All that certain lot, piece or parcel of land situate lying and being in the city of Newport News, Virginia, containing 2.6232 acres as shown on the plat entitled “PLAT OF LASSITER DRIVE, 60’ R/W, 12TH ST. 60’ R/W & 9TH ST. 60’ R/W TO BE VACATED, 2.6232 AC., NEWPORT NEWS, VIRGINIA,” dated 5/25/94 and made by C.K. Tutor, Engineers, Inc., a copy of which is attached to the Deed and by reference thereto made a part hereof.

All that certain lot, piece or parcel of land situate lying and being in the City of Newport News, Virginia, containing 2.5625 acres as shown on the plat entitled “PLAT OF TAYLOR AVENUE 60’ R/W & 9TH STREET, 60’ R/W TO BE VACATED, 2.5625 AC., NEWPORT NEWS, VIRGINIA,” dated 3/29/94 and made by C.K. Tutor, Engineers, Inc., a copy of which is attached to the Deed and by reference thereto made a part hereof.

All that certain lot, piece or parcel of land situate lying and being in the City of Newport News, Virginia, containing 1.1556 acres as shown on the plat entitled “PLAT OF RIDLEY CIRCLE 50’ R/W TO BE VACATED, 1.1556 AC., NEWPORT NEWS, VIRGINIA,” dated 3/29/94 and made by C.K. Tutor, Engineers, Inc., a copy of which is attached to the Deed and by reference thereto made a part hereof.

[SIGNATURE ON THE FOLLOWING PAGE]

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

GRANTOR:

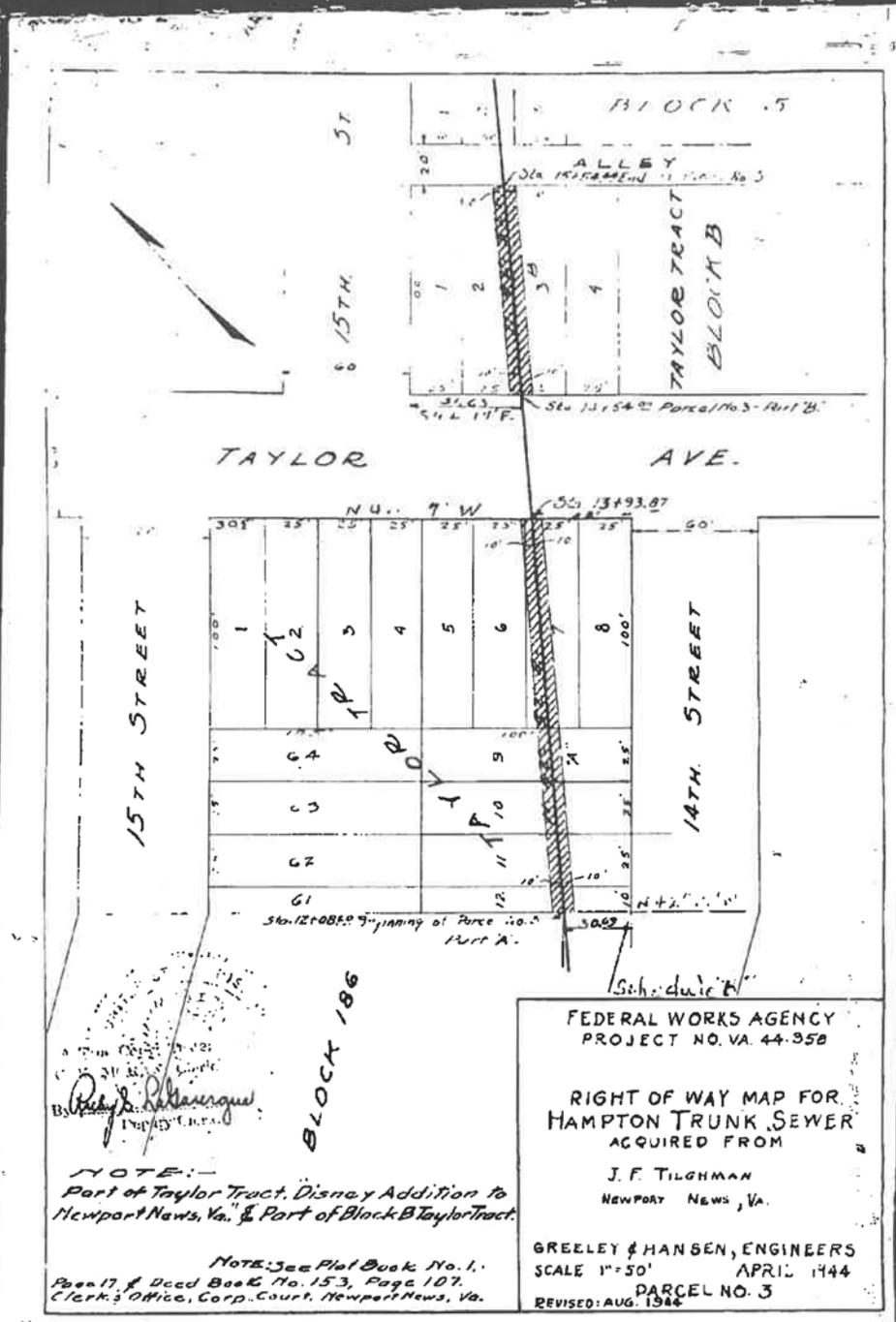
HAMPTON ROADS SANITATION DISTRICT

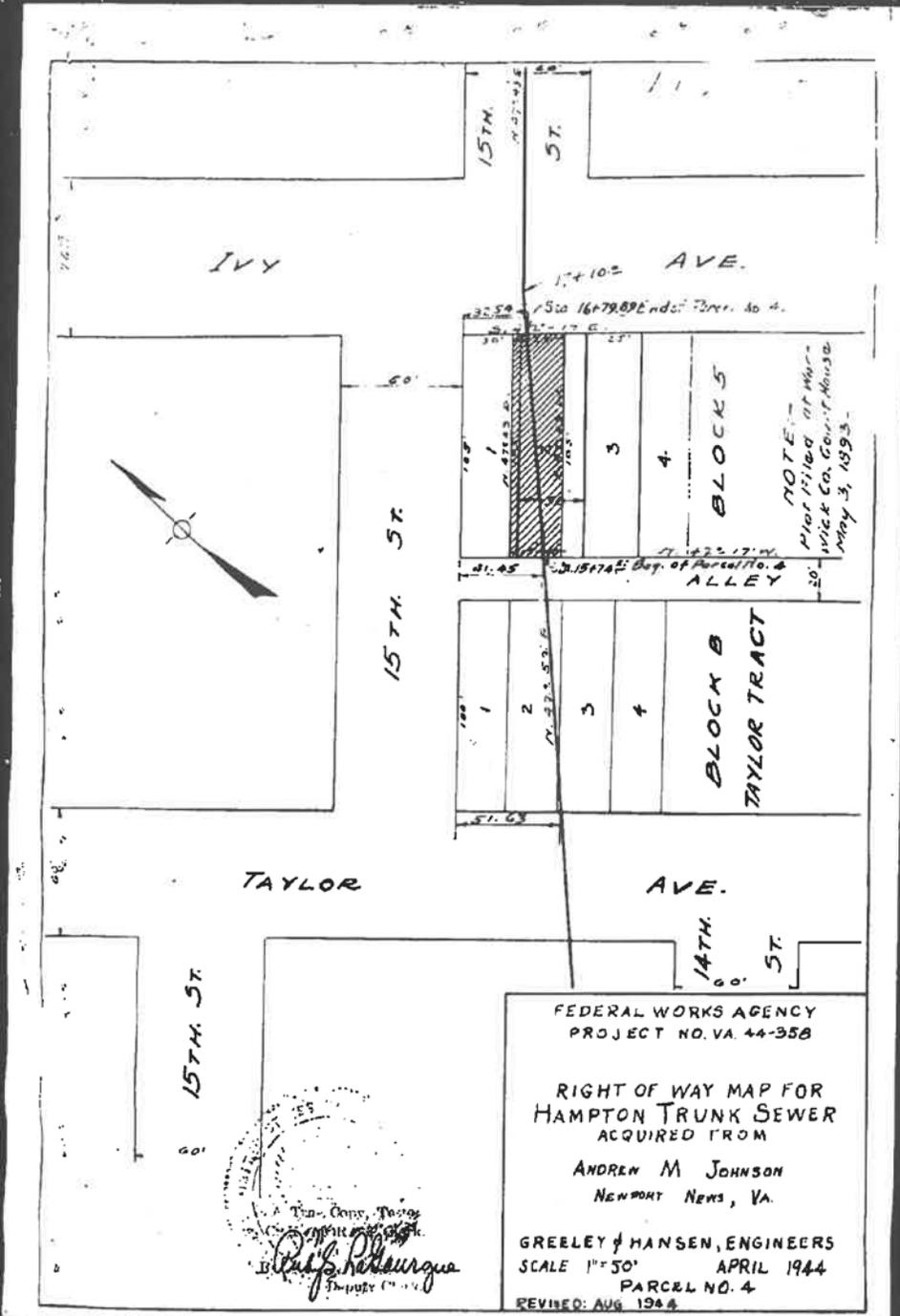
By: _____
Name: Jay A. Bernas, P.E.
Title: General Manager

State of Virginia)
)
City/County of _____)

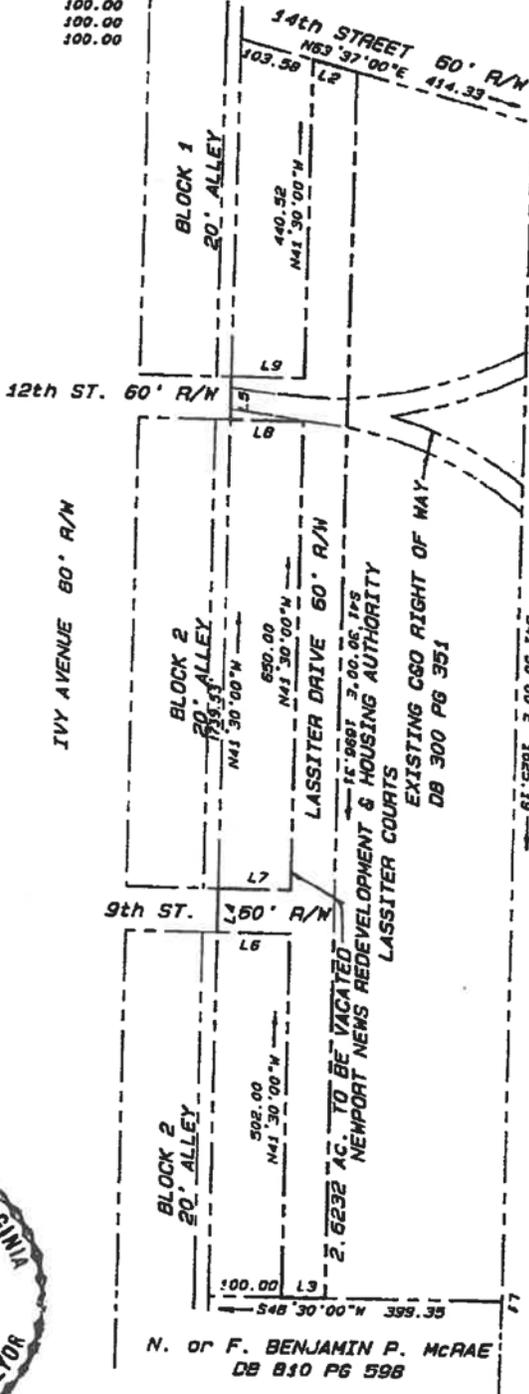
On this ___ day of September, 2022, before me a Notary Public in and for said City/County and State, residing therein, duly commissioned and sworn, personally appeared _____, proved to me on the basis of satisfactory evidence to be the _____ of _____, and the person who executed this instrument on behalf of the Owner.

Notary Public
Commission expires:





No.	Direction	Length
1	S33°37'00"E	6.32
2	N63°37'00"E	62.15
3	S48°30'00"N	60.00
4	N41°30'00"N	60.00
5	N41°30'00"N	60.00
6	S48°30'00"N	100.00
7	N48°30'00"E	100.00
8	S48°30'00"N	100.00
9	N48°30'00"E	100.00



C. K. Tudor
C. K. TUDOR C.E. & C.L.S.

PLAT OF
LASSITER DRIVE 60' R/W,
12th ST. 60' R/W & 9th ST. 60' R/W
TO BE VACATED

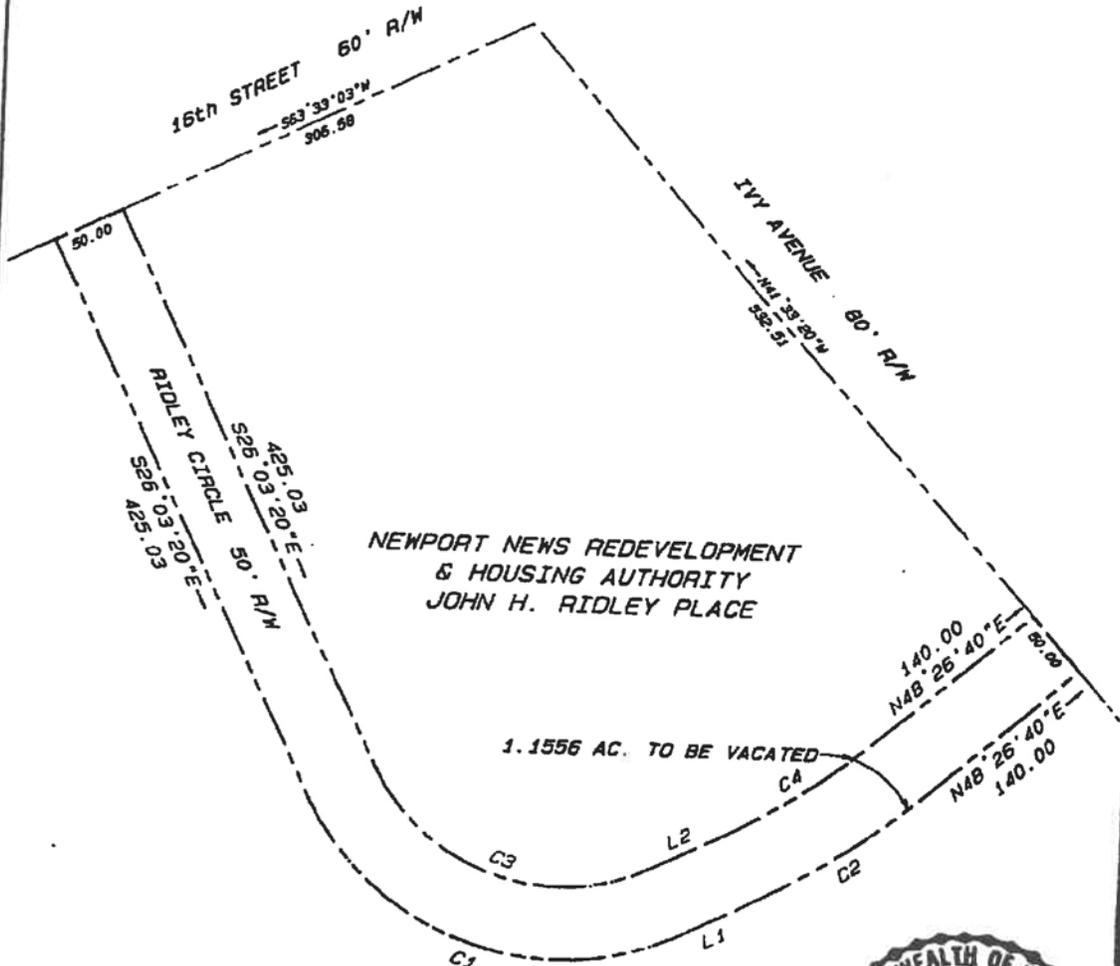
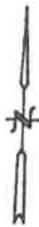
2.6232 Ac.

NEWPORT NEWS, VIRGINIA
C. K. TUDOR ENGINEERS, INC.
NEWPORT NEWS, VIRGINIA
SCALE: 1"=200' DATE: 5/25/94



No.	Bearing	Radius	Arc Length	Tangent	Chord
1	90°00'00"	190.50	289.24	190.50	262.41 S71°03'20"E
2	15°30'00"	518.50	140.54	70.70	140.11 N56°11'40"E
3	90°00'00"	140.50	280.70	140.50	190.70 S71°03'20"E
4	15°30'00"	469.50	127.01	63.90	126.63 N56°11'40"E

No.	Direction	Length
1	N63°56'40"E	48.00
2	N63°56'40"E	48.00



NEWPORT NEWS REDEVELOPMENT
& HOUSING AUTHORITY
JOHN H. RIDLEY PLACE

1.1556 AC. TO BE VACATED

NEWPORT NEWS REDEVELOPMENT
& HOUSING AUTHORITY
JOHN H. RIDLEY PLACE



EASEMENT IS GRANTED TO THE
FOLLOWING UTILITIES FOR
PLACEMENT AND MAINTENANCE
OF FACILITIES WITHIN THE
VACATED RIGHT-OF-WAY.

- NEWPORT NEWS PUBLIC UTILITIES-WATERWORKS
- HAMPTON ROADS SANITATION DISTRICT
- NEWPORT NEWS CABLEVISION
- BELL ATLANTIC
- VIRGINIA NATURAL GAS
- VIRGINIA POWER

C. K. Tudor
C. K. TUDOR C.E. & C.L.S.

PLAT OF RIDLEY CIRCLE 50' R/W TO BE VACATED
1.1556 AC.
NEWPORT NEWS, VIRGINIA C. K. TUDOR ENGINEERS, INC.
NEWPORT NEWS, VIRGINIA SCALE: 1"=100' DATE: 3/29/94

AGENDA ITEM 2. – September 27, 2022

Subject: North Shore Gravity Sewer Improvements Phase I
Public Hearing on Determination of Public Need for Easement Acquisition and
Acquisition Resolution

Recommended Actions:

- a. Conduct public hearing.
- b. Adopt the Resolution approving the public use determination and directing acquisition by condemnation, or other means, of permanent and temporary easements as required for the North Shore Gravity Sewer Improvements Phase I project.

CIP Project: GN014900

Regulatory Requirement: Rehab Action Plan Phase 2 – 2025

Project Description: This project is part of HRSD's overall rehabilitation plan and will provide for replacement and/or restoration of infrastructure throughout Hampton, Newport News and Williamsburg. As part of the project, HRSD anticipates a total of seven temporary and permanent easements.

Staff will provide a short overview for the Commission and the public immediately prior to the Public Hearing.

The attached [resolution](#) meets the requirements of the Code of Virginia should condemnation be necessary.



RESOLUTION

***Providing for the acquisition by condemnation, if necessary,
of parcels and/or easements with respect to
North Shore Gravity Sewer Improvements Phase I; CIP NO. GN014900***

WHEREAS, Hampton Roads Sanitation District (hereinafter "HRSD"), as part of its Capital Improvement Program, is proceeding with the project known as the North Shore Gravity Sewer Improvements Phase I; CIP NO. GN014900 (the "Project"); and

WHEREAS, as a part of the said Project, HRSD has determined that it is necessary to acquire certain property and easements (the "Property") by condemnation (or other means); and

WHEREAS, HRSD provided public notice, duly published in newspapers of general circulation in the City of Newport News, and held a public hearing on this matter at 1434 Air Rail Avenue, Virginia Beach, Virginia on September 27, 2022; and

WHEREAS, at the public hearing, HRSD allowed for public input with respect to the proposed condemnation, as well as considered information provided by HRSD staff, and considered whether the proposed use is a public use and whether the acquisition of the said Property by condemnation (or other means) should be authorized by HRSD; and

WHEREAS, after holding a public hearing on the matter, HRSD has determined that a public necessity exists for the acquisition of the Property for the Project and that the Project is in the public interest;

NOW, THEREFORE, BE IT RESOLVED on the 27th day of September 2022, by the HRSD Commission that:

1. The Project is approved as a public use, necessary for the construction of said Project within HRSD's system; and said Project is further declared to be in the public interest;
2. The acquisition of the Property by purchase or condemnation is necessary for the said Project and is hereby approved;
3. The Property will be used by HRSD in furtherance of its public functions pursuant to the Virginia Code, and that that the acquisition of the Property for that public use: (i) will serve only public interests which dominate any private gain; (ii) are sought for the primary purpose of serving public interests and not private financial gain, private benefit, or an increase in employment; and (iii) otherwise complies with §1-219.1 of the Virginia Code;
4. HRSD previously has made bona fide efforts to acquire the Property from the landowners, but, to date, those efforts have been ineffectual;
5. HRSD authorizes its staff and counsel, respectively, to take all actions for and on behalf of HRSD which are or may be appropriate or necessary for HRSD to acquire the Property through the exercise of its power of eminent domain,

including but not limited to, the filing of any papers or pleadings with the applicable circuit court, and other actions related to the initiation of any legal proceedings necessary or appropriate to acquire the Property by eminent domain, provided, however, that nothing in this Resolution shall be construed as preventing the continued negotiation by HRSD, its staff, and/or counsel for the acquisition by purchase or other means of the Property before the initiation of any such eminent domain proceedings; and

6. This resolution shall take effect immediately upon its adoption.

The undersigned further certifies that the foregoing has been properly approved and adopted in accordance with all applicable requirements of the HRSD Commission.

Stephen C. Rodriguez, Chair

AGENDA ITEM 3. – September 27, 2022

Subject: James River Treatment Plant Shoreline Stabilization
Rejection of Low Bid, Additional Appropriation, Contract Award (>\$200,000) and Task Order (>\$200,000)

Recommended Actions:

- a. Approve rejection of the bid submitted by KBS Earthworks, Inc. and find the bidder non-responsible.
- b. Appropriate additional funding in the amount of \$874,560.
- c. Award a contract to Coastal Design & Construction Inc. in the amount of \$2,326,136.
- d. Approve a task order with Vanasse Hagen Brustlin, Inc. (VHB) in the amount of \$260,025.

CIP Project: JR013800**Regulatory Requirement:** Integrated Plan – SWIFT

Budget	\$2,136,000
Previous Expenditures and Encumbrances	(\$249,939)
Available Balance	\$1,886,061
Proposed Contract to Coastal Design & Construction Inc.	(\$2,326,136)
Proposed Task Order to VHB	(\$260,025)
Proposed Contingency	(\$174,460)
Project Shortage/Requested Additional Funding	(\$874,560)
Revised Total Project Authorized Funding	\$3,010,560

Contract Status with Task Orders:	Amount
Original Contract with Engineer	\$243,970
Total Value of Previous Task Orders	\$0
Requested Task Order	\$260,025
Total Value of All Task Orders	\$260,025
Revised Contract Value	\$503,995
Engineering Services as % of Construction	21.6%

Type of Procurement: Competitive Bid

In accordance with HRSD's competitive sealed bidding procedures, the Engineering Department advertised and solicited bids directly from potential bidders. The project was advertised on June 23, 2022, and five bids were received on July 26, 2022. Bidders were made aware through the Instructions to Bidders (ITB) document that in the comparison of Bids, HRSD would review the base Bid only and the alternate will only be used if in the best interest of the City of Newport News (City). Bidders were committing to the Work of the base Bid even if the Work for the City was not included in the contract. The bids received are listed below:

Bidder	HRSD Bid Amount	NN Alternate Bid Amount	Total Amount of Bid
KBS Earthworks, Inc.	\$557,571.75	\$1,490,800.96	\$2,048,372.71
Coastal Design & Construction Inc.	\$611,136.00	\$1,889,000.00*	\$2,500,136.00*
Henry S Branscome LLC	\$616,315.00	\$1,636,400.00	\$2,252,715.00
J Sanders Construction	\$786,448.00	\$1,630,800.00	\$2,417,248.00
Carolina Marine Structures Inc.	\$876,560.00	\$1,536,230.00	\$2,412,790.00

*see below Contract Description and Analysis of Cost

Engineer Estimate: \$701,556.00 \$1,875,283.00 \$2,576,839.00

Project Description: This project includes stabilization of approximately 1,200 linear feet of eroding shoreline along the James River. The project area is located along HRSD’s property at the James River Treatment Plant (JRTP) (300 linear feet) and along the City’s property at the City Farm section of Riverview Farm Park (900 linear feet). The project will incorporate living and hardened shoreline design elements to stabilize the eroding banks.

The attached [map](#) depicts the project location.

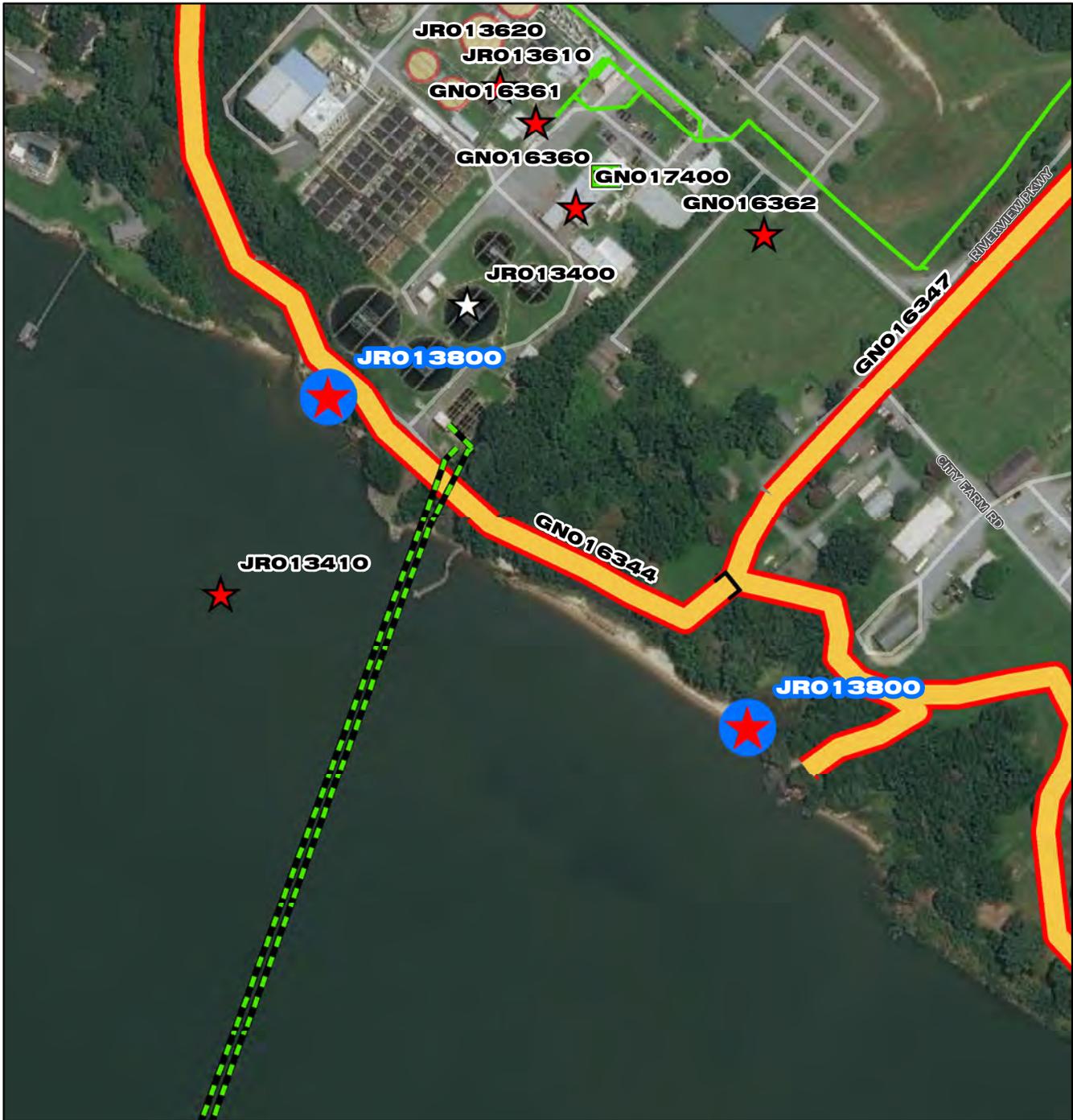
Project Justification: The JRTP and City Farm shorelines are severely exposed soil embankments with heights of approximately 15 to 20 feet. This project’s completion will provide long term protection of existing infrastructure assets necessary for operating JRTP, protection of the City’s infrastructure within City Farm, and will accommodate construction of a new park trail within HRSD’s open space easement as committed to in the land purchase Agreement with the City.

Brief: The low bidder, KBS Earthworks, Inc. has been determined to be non-responsible due to a lack of the required documented experience in the construction of shoreline stabilization projects that include stone revetments and stone breakwaters. The design engineer, VHB, evaluated the bids based upon the requirements in the ITB and recommends award to the lowest responsive and responsible bidder, Coastal Design & Construction Inc.

Contract Description and Analysis of Cost: This contract is an agreement for construction of the complete stabilization project as defined in the contract documents. The City has determined that proceeding with construction of the City’s section of shoreline, as reflected in the negotiated alternative bid, is in their best interest. The final cost of construction for the City’s portion of the project was negotiated between the City and Coastal Design & Construction Inc. to be \$1,715,000. The Engineer’s estimate is within the range of bids received. The cost of the total contract is \$2,326,136, which exceeds the remaining funds appropriated for this project. While additional funds are requested for the project the City’s portion of shoreline construction will be fully reimbursed to HRSD as outlined in the Cost Share Agreement executed between HRSD and the City. This funding request includes a contingency of approximately 8 percent of the total contract value to accommodate any additional unforeseen conditions.

Task Order Description and Analysis of Cost: This task order will provide construction administration and inspection services and will be issued as an Amendment to an existing Professional Services Agreement with VHB. The cost for this task order is based on a detailed estimate of labor hours and direct costs required to execute the negotiated scope of work. The total hours budgeted are appropriate for the proposed services. The lump sum fee for construction administration services is 4.9 percent of the construction cost and time of materials fee for construction inspection services is 5.5 percent of the construction cost. HRSD will be providing all construction administration and inspection services for the project, as outlined in the Cost Share Agreement executed between HRSD and the City.

Schedule: Construction October 2022
Project Completion August 2023

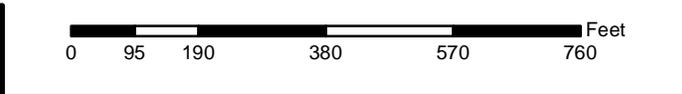


JRO13800

- 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



JRO 13800

James River Treatment Plant Shoreline Stabilization

CIP Location

AGENDA ITEM 4. – September 27, 2022

Subject: Conceptual Project Development (FY-2023)
Additional Appropriation and Task Order (>\$200,000)

Recommended Actions:

- a. Appropriate additional funding in the amount of \$114,274.
- b. Approve a task order with Hazen and Sawyer, P.C. in the amount of \$202,493.

CIP Project: GN018400**Regulatory Requirement:** None

Budget	\$413,000
Previous Expenditures and Encumbrances	(\$304,781)
Available Balance	\$108,219
Proposed Task Order to Hazen and Sawyer	(\$202,493)
Proposed Contingency	(\$20,000)
Project Shortage/Requested Additional Funding	(\$114,274)
Revised Total Project Authorized Funding	\$527,274

Contract Status with Task Orders:	Amount
Original Contract with Hazen and Sawyer	\$0
Requested Task Order	\$202,493
Total Value of All Task Orders	\$202,493
Revised Contract Value	\$202,493

Project Description: This pilot project will utilize on-call engineering annual services contracts for conceptual project development to more accurately determine a scope and budget for a CIP need. This project will serve as a proof of concept showing if investment in development of a project concept early will provide benefits to future planning and delivery. The following potential CIP requests will make up the work in this pilot program: Willoughby Pump Station; Providence Creek Force Main; Plume Street Pump Station; Williamsburg FOG System Improvements; and Williamsburg Clarifier Effluent Improvements.

The expected deliverables of the pilot work will be a project charter, project scope development, project alternative concepts, alternative concept review, and an initial project cost and schedule estimate. The pilot work will not include any preliminary engineering or design of the chosen alternatives.

Project Justification: The Operations, Engineering and Finance Departments have formed a cross-departmental team to look at ways of improving CIP project planning and delivery. A general consensus is that it is difficult to plan for project concepts that have not reached a preliminary level of development and change significantly over time. This pilot project will be a way to show if proactive investment of funds for the purpose of conceptual project development before its included in the CIP will enable better planning outcomes for funding, resources, overall schedule, and prioritization. The intent of the cross-departmental team is to ensure that we are delivering the right projects at the right time.

Task Order Description and Analysis of Cost: This task order is for Hazen and Sawyer to perform a study for a conceptual CIP to rehabilitate, replace or relocate the Plume Street Pump Station. Deliverables include a project charter, project scope development, project alternative concepts, alternative concept review, and an initial project cost and schedule estimate. A meeting was held to discuss the project and scope of services. A fee of \$202,493 was negotiated based upon an estimation of hours to complete the work and rates incorporated in the existing General Engineering Services annual services contract.

Funding Description: This project was appropriated in June 2022 based on a Class 5 cost estimate developed in-house to perform conceptual project development on five different projects for FY-2023. The fee to perform the study for Plume Street Pump Station is \$202,493 and exceeds the balance available for this CIP project.

Schedule: Study Complete June 2023

AGENDA ITEM 5. - September 27, 2022

Subject: Low Income Household Water Assistance Program (LIHWAP)
Vendor Agreement with Third Party (previously Virginia Department of Social Services)
Agreement – Updated Terms and Conditions

Recommended Action: Approve the updated terms and conditions of the vendor agreement with the third party designated by the Virginia Department of Social Services for the provision of water bill payments to assist low-income residential households with water and wastewater arrearages, reconnections, and ongoing services and authorize the General Manager to execute same, substantially as presented, together with such changes, modifications and deletions as the General Manager may deem necessary.

Agreement Description: The previously signed agreement between HRSD and the Virginia Department of Social Services (DSS) has been updated to replace DSS with a contracted third party responsible for the data exchange between HRSD and DSS. The agreement is governed by and subject to federal and state laws and regulations and the Office of Community Services (OCS), U.S. Department of Health and Human Services, LIHWAP Supplemental Terms and Conditions attached as Attachment A and incorporated by reference. The agreement and attachment will be provided to the Commission prior to the meeting.

DSS was awarded a federal grant of \$20 million across the Commonwealth of Virginia to be used on a first-come, first-served basis for low-income residential household accounts involved in the interruption or on the verge of interruption of water service.

DSS has contracted with a third party to expedite data exchange and receipt of financial assistance, and as such HRSD must sign the vendor agreement affirming terms and conditions will be met with the required documentation via the third party to DSS.

We anticipate severance activities for customers applying for LIHWAP relief funding will be suspended for 45 days to allow DSS time for processing.

AGENDA ITEM 6. – September 27, 2022

Subject: Boat Harbor Treatment Plant Pump Station Conversion Site Improvements
New CIP and Initial Appropriation

Recommended Actions:

- a. Approve a new CIP project.
- b. Appropriate total project funding in the amount of \$5,230,000.

CIP Project: BH015701

Regulatory Requirement: Integrated Plan – SWIFT

Project Description: This project includes construction of site improvements to the proposed Boat Harbor Pump Station site and other adjacent areas as needed to meet the agreement with the current landowner. The project will include site clearing, rough grading, removal of excess site spoils, construction entrances, stone stabilization and associated erosion and sediment control measures to ready the site for future pump station construction and laydown yard.

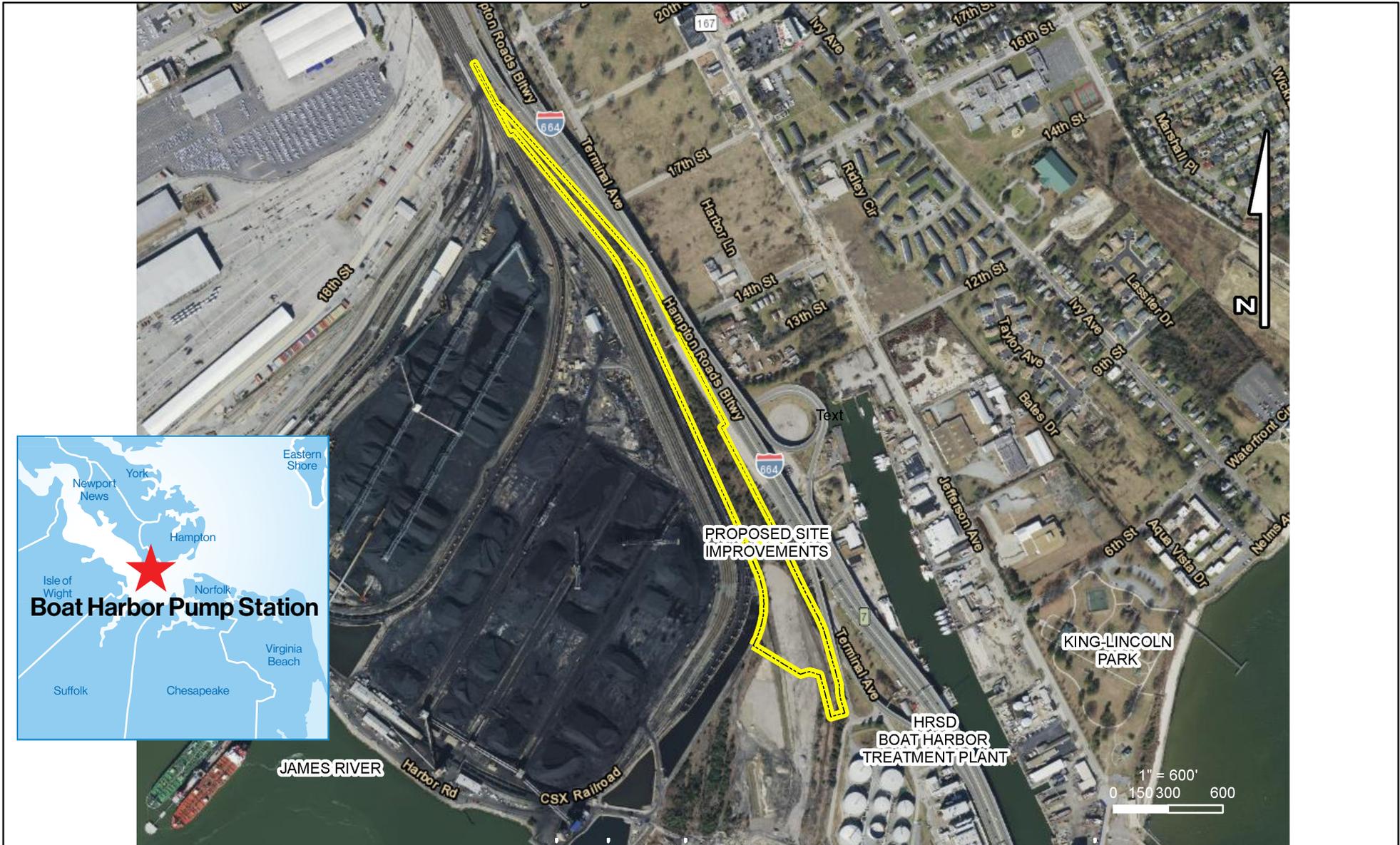
The attached [map](#) depicts the project location.

Project Justification: This work is proposed in advance of pump station construction to reduce potential project schedule risks. This work was originally part of the larger design effort and will facilitate coordination with the current landowner by providing another access point to the site and will provide space that may be used for laydown and storage for the subsequent Boat Harbor Treatment Plant Pump Station Conversion (BH15700) and Boat Harbor Treatment Plant Transmission Force Main Section 1 – Subaqueous Portion (BH015710) projects.

Rummel, Klepper & Kahl, LLP (RK&K) was awarded a contract in July 2021 to provide professional engineering services for the BH015700 project. RK&K is currently providing design services which includes the design scope for the BH015701 project. They will provide construction administration and construction inspection for this project.

Funding Description: The total cost for this project is estimated to be \$5,230,000. This estimate is based on a takeoff of quantities from the design drawings and applying recently collected unit prices from similar projects. Costs for construction administration and construction inspection is included. A 20 percent contingency on anticipated construction costs is also included.

<u>Schedule:</u>	Bid	October 2022
	Construction	January 2023
	Project Completion	May 2023



Boat Harbor Treatment Plant Pump Station Conversion Site Improvements

CIP BH015701

September 2022



AGENDA ITEM 7. – September 27, 2022

Subject: Central Environmental Laboratory (CEL) Expansion and Rehabilitation Briefing

Recommended Action: No action is required.

CIP Project: AD012600

Regulatory Requirement: None

Budget	\$30,000,000
Previous Expenditures and Encumbrances	(\$1,091,800)
Available Balance	\$28,908,200

Project Description: This project will include demolition of the empty, former Technical Services Division (TSD) and Pretreatment and Pollution Prevention (P3) spaces and expansion of the CEL on the site through construction of a multi-story mixed laboratory and administrative wing to the existing CEL. The project also includes renovating a significant portion of the existing CEL.

Brief: During the Preliminary Engineering Report (PER) phase of the project the scope of work, along with associated costs, has escalated. The scope of work now includes demolishing the existing TSD and P3 spaces, renovating and repurposing areas of the existing CEL for administrative, storage and breakroom space, and construction of a multi-story 35,000 square-foot state-of-the-art laboratory.

This briefing will provide the Commission an overview of progress to date before moving to the Design phase. The CIP budget is \$30,000,000, approved based on design alternatives and cost estimates prepared during the Study phase. As the project progressed during the PER phase, which is nearing completion, a preferred alternative was selected with an estimated project cost of \$47,824,000. The revised estimate is based on an AACE Class 4 estimate with a project definition between 1% and 15%. The revised estimate considers the use of the construction management delivery method, not included in the original estimates, and takes into consideration market volatility.

Staff will provide a briefing during the meeting with Stacie Crandall (HRSD) and Gary St. John (CDM Smith, Inc.) presenting.

Schedule:	PER	January 2022
	Design	November 2022
	Bid	November 2023
	Construction	February 2024
	Project Completion	May 2026

AGENDA ITEM 8. – September 27, 2022

Subject: York River System Isolation Valve Installation and Replacement
Additional Appropriation, Contract Award, and Task Order

Recommended Actions:

- a. Appropriate additional funding in the amount of \$6,136,582.
- b. Award a contract to Bridgeman Civil, Inc. in the amount of \$6,874,630.
- c. Approve a task order with Kimley-Horn and Associates, Inc. (Kimley) in the amount of \$507,993.

CIP Project: YR013900

Regulatory Requirement: None

Budget	\$2,242,000
Previous Expenditures and Encumbrances	(\$645,959)
Available Balance	\$1,596,041
Proposed Task Order to Kimley	(\$507,993)
Proposed Contract to Bridgeman Civil, Inc.	(\$6,874,630)
Proposed Contingency	(\$350,000)
Project Shortage/Requested Additional Funding	(\$6,136,582)
Revised Total Project Authorized Funding	\$8,378,582

Contract Status with Task Orders:	Amount
Original Contract with Engineer	\$70,400
Total Value of Previous Task Orders	\$348,800
Requested Task Order	\$507,993
Total Value of All Task Orders	\$856,793
Revised Contract Value	\$927,193
Engineering Services as % of Construction	13.5%

Type of Procurement: Competitive Bid

In accordance with HRSD's competitive sealed bidding procedures, the Engineering Department advertised and solicited bids directly from potential bidders. The project was advertised on July 31, 2022, and one bid was received on August 30, 2022. The bid received is listed below:

Bidder	Bid Amount
Bridgeman Civil, Inc.	\$6,874,630

HRSD/Engineer Estimate: \$6,496,955

The design engineer, Kimley, evaluated the bid based upon the requirements in the invitation for bid and recommends award to the lowest responsive and responsible bidder Bridgeman Civil, Inc. in the amount of \$6,874,630.

Project Description: This project will install twelve new valves and replace three existing valves. These valves are main line and branch isolation valves within the force main system from Coliseum Pressure Reducing Station (PRS) to the proposed Tabb PRS and will provide operational flexibility for isolation and flow diversion.

The attached [map](#) depicts the project location.

Project Justification: On December 20, 2018, North Shore Operations responded to a failure on the force main in the vicinity of Semple Farm Road. Efforts to minimize the effects of environmental and physical damage were extensive. Round the clock operation was necessary to divert flows, minimize spills and restore service. A temporary repair was made to contain lost sewage and pump it back into the force main system. Final repair consisted of an engineer designed replacement of approximately 300 linear feet of force main utilizing linestops. The existing force main system from Coliseum PRS to the proposed Tabb PRS consists of approximately 38,000 linear feet of force main with very few locations for potential isolation.

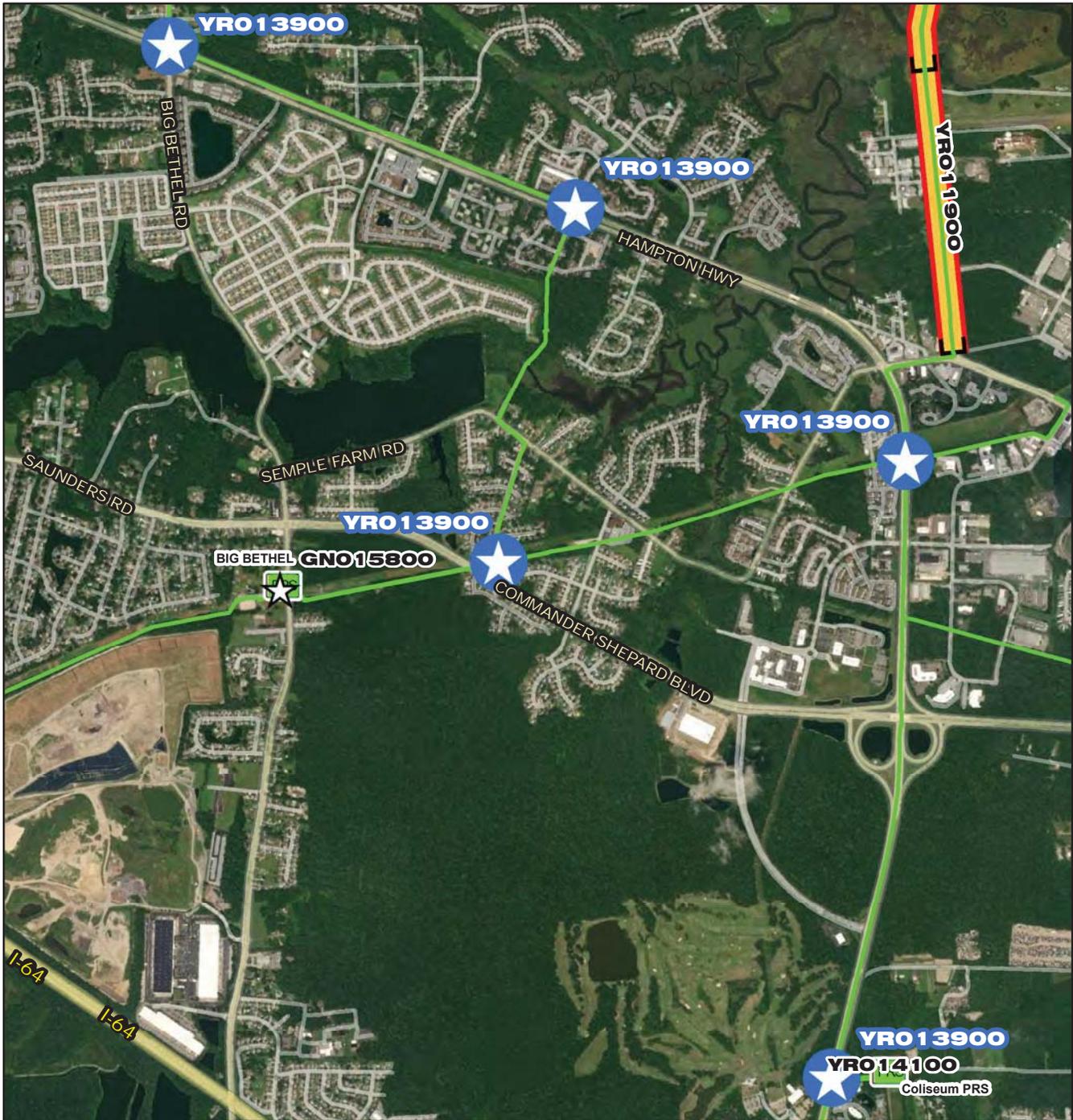
The force main system was primarily installed in the late 1960s and early 1970s and consists of Prestressed Concrete Cylinder Pipe, Ductile Iron and Cast Iron pipe. The lack of isolation valves significantly reduces the ability for isolating and diverting flows during emergencies, as seen during the failure at Semple Farm Road.

Contract Description: This contract is for construction phase services with Bridgeman Civil, Inc. in the amount of \$6,874,630. The original CIP budget did not consider the need to replace additional valves at the Magruder Boulevard site which significantly changed from the original CIP. This site was first initially slated to replace one valve and install an additional valve. When this site was being evaluated it was decided that more of the force main would need to be replaced due to room in the median. This increased the scope to four new valves and realigning the 30-inch force main. Two additional sites were added to the CIP at Hampton Highway and Magruder Boulevard close to the Coliseum PRS. The Hampton Highway site was added due to the need for an isolation valve on the force main located on Hampton Highway. The added valve on Magruder Boulevard at Coliseum PRS was added to the project and moved straight to construction utilizing the On-Call contract with T.A. Sheets, Inc. This valve was damaged and stuck in the open position and requires replacement utilizing this Contract recommendation.

Task Order Description: This task order will provide construction administration and construction inspection services for the subject project. HRSD and the design engineer, Kimley, negotiated a fee in the amount of \$507,993. The fee proposal is comparable to other projects of similar size and complexity.

Analysis of Cost: The task order for Kimley has been reviewed and is reasonable. It is based on proposed contract administration hours and hourly inspection. The fee for contract administration is 3.1% of the construction cost. Construction inspection is 4.2% of the construction cost which is in agreement with other similar efforts of firms. The construction bid amount and the fee for the construction related engineering services exceed the current balance available for the CIP project. The original CIP project estimate did not anticipate or foresee the current workload of local and national construction firms. The lowest responsive and responsible bid amount of \$6,874,630 exceeds the current balance available for the CIP project. A 5% percent construction contingency is also being requested. Therefore, the project requires \$6,136,582 in additional funding.

<u>Schedule:</u>	Construction	November 2022
	Project Completion	December 2023



YRO 13900

- 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

0 700 1,400 2,800 4,200 5,600 Feet

YRO 13900

York River System Isolation Valve Installation and Replacement

N
W E
S

CIP Location

AGENDA ITEM 9. – September 27, 2022

Subject: COVID-19 Wastewater Surveillance Study Update

Recommended Action: No action is required.

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

AGENDA ITEM 10. – September 27, 2022

Subject: Conflict of Interest, Ethics and FOIA Training

Recommended Action: No action is required.

Brief: The Commission General Counsel, Ms. Robyn Hansen, of Sands Anderson will provide an overview of ethics and conflict of interest for the Commission, which will meet the periodic training requirement per the Ethics Policy for Commission members.

In addition, she will provide an overview of the Freedom of Information Act (FOIA) laws related to meetings that must be followed by public servants. The presentation will include an explanation of what constitutes a meeting and the appropriate use of emails by Commission members.

AGENDA ITEM 11. – September 27, 2022

Subject: Unfinished Business

AGENDA ITEM 12. – September 27, 2022

Subject: New Business

AGENDA ITEM 13. – September 27, 2022

Subject: Commissioner Comments

AGENDA ITEM 14. – September 27, 2022

Subject: Public Comments Not Related to Agenda

AGENDA ITEM 15. – September 27, 2022

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](#)
- b. [Strategic Planning Metrics Summary](#)



September 19, 2022

Re: General Manager's Report

Dear Commissioners:

As mentioned in a previous Commission meeting, staff have been hard at work to review CIP project scopes. If you recall from the March 2022 CIP review meeting, the Larchmont project increased from \$21 million to \$71 million due to rising costs. As a result, I asked staff to perform a value engineering analysis. In August, staff presented the Larchmont project's value engineering results to the City of Norfolk since the City agreed to a one-third cost participation share for this project. The results showed that project could potentially be reduced by as much as \$15 to \$20 million by modifying project scopes and delaying lower priority projects while still ensuring regulatory compliance. The City agreed with our proposed changes and staff are implementing the revised project.

The highlights of August's activities are below. The detailed version is in the attached monthly reports.

- A. **Treatment Compliance and System Operations:** The West Point Treatment Plant exceeded its monthly BOD average for August due to Dominion Energy electrical service issues and trickling filter distributor arm bolt failures. The arms are only two months old, and the contractor will be performing a warranty repair as soon as possible.
- B. **Water Quality:** One civil penalty was issued in August. Marva Maid Dairy in Newport News was cited for technical and administration violations resulting in a \$6,000 Civil Penalty. This facility is under a Consent Order to upgrade their pretreatment system.

Staff responded to DEQ's draft permit for the Atlantic Treatment Plant air emissions and objected to the proposed State-Only Enforceable Odor Management Plan as it would set a precedent for other wastewater facilities in the Commonwealth. It is also unnecessary given HRSD's historical and ongoing investments in odor control technologies, including the most recent Commission-approved project at the Atlantic Treatment Plant.

Staff started sampling for Monkeypox as part of our wastewater surveillance program. Results should be available in September.

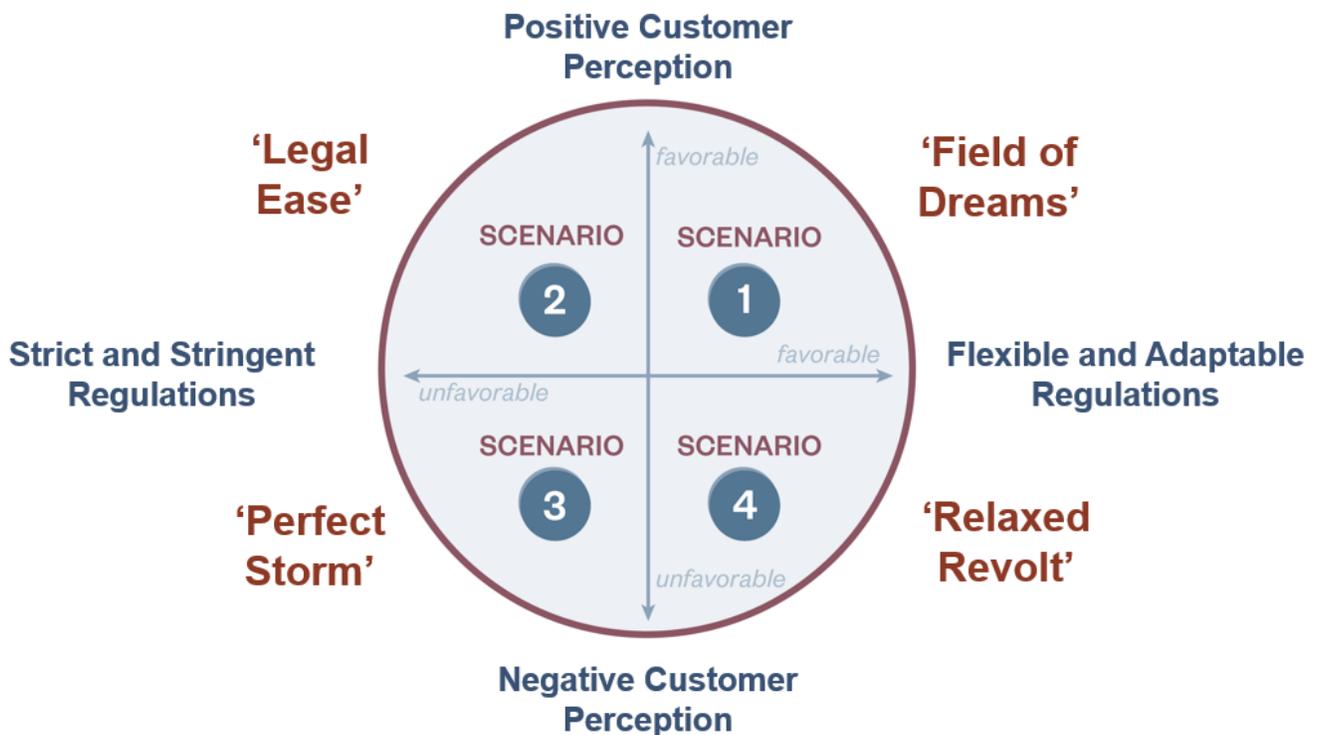
- C. **Internal Communications:** I participated in the following meetings/activities with HRSD personnel:
 - 1. General Manager briefing to the VIP plant staff
 - 2. General Manager briefing to the Army Base plant staff
 - 3. Strategic Plan Workshop #2 was held

PO Box 5911, Virginia Beach, VA 23471-0911 • 757.460.7003

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

1. Met with the City of Norfolk to present the Larchmont value engineering results
2. Attended Congresswoman Luria's Chesapeake Bay Advisory Board meeting
3. Met with members of the TCC Foundation on the proposed property acquisition for the Nansemond SWIFT project

Strategic Plan: On August 23rd and 24th, the second Strategic Planning workshop was held to develop the Scenarios (see below). The next workshop on September 20 will include the Commission and Division Leaders to develop strategies.



Thanks for your continued dedicated service to HRSD, the Hampton Roads region, the Commonwealth, and the environment. **I look forward to seeing you in person in Virginia Beach at 9 am on Tuesday, September 27, 2022.**

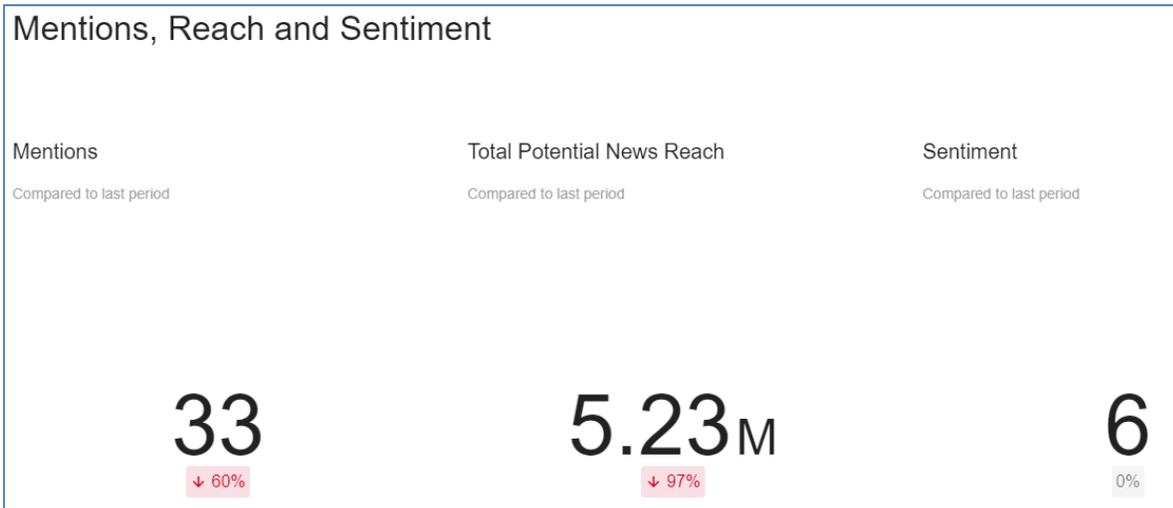
Respectfully submitted,

Jay Bernas, P.E.
General Manager

TO: General Manager
FROM: Director of Communications
SUBJECT: Monthly Report for August 2022
DATE: September 13, 2022

A. Publicity and Promotion

1. HRSD and/or SWIFT were mentioned or featured in four news stories or media/social media mentions on topics that included:
 - a. HRSD Atlantic Treatment Plant machinery fire
 - b. Governor's announcement of key administration appointments
 - c. Lane closures scheduled in Portsmouth for sewer pipeline work
2. Analysis of media coverage:



What is the top performing news content?

Top Article by Reach

Highest reach



G Global Political and Economic Organizations News via PUBT - Powered by Dow Jones
US | Aug 28, 2022, 8:00 PM

WEF - Water Environment Federation Recognizes Operational and Design Excellence

Road Offline Storage Facility and Woodstock Park Improvements Honorees: **Hampton Roads Sanitation District** (HRSD), Hazen and Sawyer and ...

Top Article by Reach and Volume

Most syndicated



G Global Political and Economic Organizations News via PUBT - Powered by Dow Jones
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Top Article by Social Echo

Top social echo



T The Augusta Free Press • All content written ...
US | Aug 4, 2022, 11:06 AM

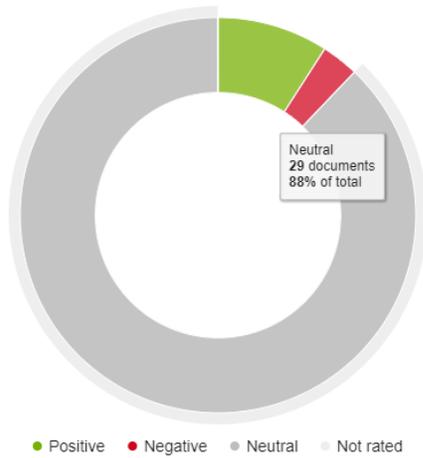
Governor announces additional key administration appointments

Brian K. Jackson of Richmond, Partner, Hirschler Law Firm
Hampton Roads Sanitation District Frederick N. Eloffson, CPA, of Newport News ...

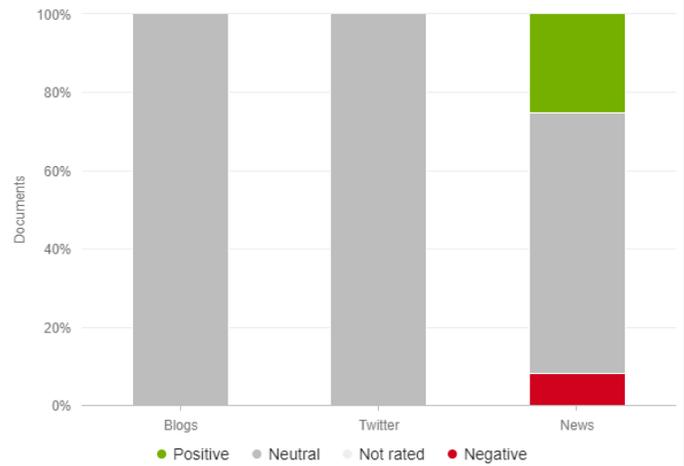
113k Reach Social Echo Neutral O

How favorable is the content?

Sentiment Share of Voice

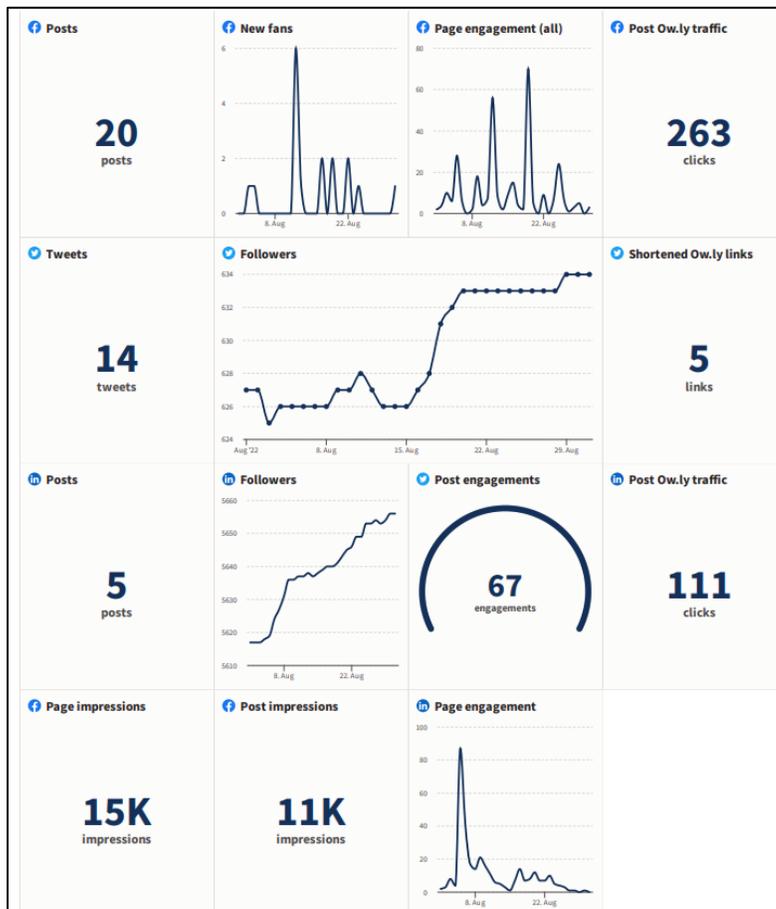


Sentiment by Source Type



B. Social Media and Online Engagement

1. Metrics – Facebook, Twitter and LinkedIn



2. YouTube



2. Top posts on Facebook, Twitter, and YouTube

a. Top Facebook post

HRSD
Published by Hootsuite · August 12 at 8:03 AM · 🌐

Feature Friday: Our current project Wythe Creek Road Sewer Replacement in Poquoson. For this project, we're installing a 20-inch HDPE (High-density polyethylene) pipe in the right-of-way along Wythe Creek Road. This project started in April 2022 and is expected to be completed in early 2023.

🚧 Engineering Consultant for this project is [RK&K](#)
🚧 General Contractor for this project is [MEB](#)

Find out more about the project here: <http://ow.ly/BAnc50Kg50i>



Reach more people with this post ✕
People are boosting posts like "Feature Friday: Our ..." to reach more people. Try boosting this post.

See insights and ads [Boost post](#)

👍 14 1 Comment 5 Shares

👍 Like 💬 Comment ➦ Share

b. Top Tweet



c. Top YouTube Videos

- [The Wastewater Treatment Process](#) (383 views)
- [HRSD Employee Testimonials - Robert](#) (46 views)
- [SWIFT Research Center Ribbon Cutting Ceremony](#) (45 views)
- [SWIFT Research Center: What is the Potomac Aquifer](#) (43 views)
- [What's the impact of stormwater on wastewater systems?](#) (40 views)

3. Website and Social Media Impressions and Visits

a. Facebook:

- 14,952 page impressions
- 11,332 post impressions reaching 10,617 users
- Facebook Engagement of 317 (223 reactions, 62 shares, and 32 comments)

b. Twitter:

- 2,202 tweet impressions
- 1,765 profile visits
- 4 mentions

c. HRSD.com/SWIFTVA.com: 1,122 page visits

d. LinkedIn Impressions:

- 10,993 page impressions
- 9,980 post impressions

e. YouTube: 794 views

- f. Next Door unique impressions: 2,605 post impressions from 11 targeted neighborhood posting shared with 25,604 residents
- g. Blog Posts:
 - (1) [Learning About Our Amazing Aquifer! What is the Potomac Aquifer?](#)
- h. Construction Project Page Visits – 1,853 total visits (not including direct visits from home page, broken down as follows:
 - (1) 1407 visits to individual pages
 - (2) 446 to the status page

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

- 1. News Releases: 1
- 2. Traffic Advisories: 0
- 3. Construction Notices and or notices to neighbors: 15
- 4. Advertisements: 0
- 5. Project Notices: 17 (via door hangings, reaching 793 residents)
- 6. Project/Community Meetings: 0
- 7. New Project Web Pages: 0
- 8. New Project Videos: 0

D. Special Projects and Highlights

- 1. Communications Director is working with Deputy General Manager to develop an HRSD Crisis Communications Plan that will integrate with existing HRSD policies and procedures and work in tandem with the HRSD Incident Response Plan and Crisis Management Plan.
- 2. Planning is underway to produce HRSD's first Annual Report which will highlight HRSD accomplishments and provide financial information within more of a Popular Annual Financial Report (PAFR) format to better inform and educate customers of how HRSD protects public health and the environment and the financial details that support that endeavor.

E. Internal Communications

- 1. Director participated in the following internal meetings and events:
 - a. SWIFT Industry Day 2023 planning meetings

- b. SWIFT Community Commitment Plan Steering Committee meetings
 - c. Meeting with Customer Care to begin developing a communications plan for future Model 3 billing customers
 - d. Strategic planning workshops
 - e. HRSD Internal Conference planning meetings
 - f. Weekly meetings with Atlantic Treatment Plant (ATP) and Technical Services (TSD) staff related to recent odor issues at the plant
 - g. Focus group interview for UNIFIED Council research
 - h. Discharge Monitoring Report (DMR), SWIFT Quality Steering Team (QST) and QST meetings
 - i. Open house planning meetings for the Tabb Pressure Reducing Station
 - j. Communications meetings for the Larchmont Project and upcoming Portsmouth I/I Project
2. Director also conducted biweekly communications department status meetings and weekly team and one-on-one check-in meetings.
 3. Staff attended project progress and outreach development meetings with various project managers.

F. Metrics

1. Educational and Outreach Activities: 31 virtual, 6 in-person
 - a. Self-guided SWIFT Virtual Tours – 31 views (analytics specify number of times “Take a Tour” button was selected)
 - b. 08/03/2022 – SWIFT tour, Elizabeth River Project | 6 participants
 - c. 08/03/2022 – SWIFT and Nansemond Treatment Plant Tour, Chesapeake Environmental Improvement Council | 12 participants
 - d. 08/03//2022 – SWIFT Tour, Nansemond River Preservation Alliance | 8 participants
 - e. 08/04/2022 – SWIFT Tour, Draper and Associates | 2 participants
 - f. 08/10/2022 – SWIFT Tour, HRSD employees | 7 participants
 - g. 08/17/2022 – SWIFT Tour, ForKids | 15 participants
2. Number of Community Partners: 4
 - a. Chesapeake Environmental Improvement Council
 - b. Elizabeth River Project
 - c. ForKids, Inc.
 - d. Nansemond River Preservation Alliance
3. Additional Activities Coordinated by Communications Department: 2

4. Monthly Metrics Summary

Item #	Strategic Planning Measure	Unit	August 2022
M-1.4a	Total Training Hours per Full Time Employee (4) - Current Month	Hours / #FTE	0.5
M-1.4b	Total Training Hours per Full Time Employee (4) - Cumulative Fiscal Year-to-Date	Hours / #FTE	3.06
M-5.2	Educational and Outreach Events	Number	37
M-5.3	Number of Community Partners	Number	4

Respectfully,

Leila Rice, APR
Director of Communications

TO: General Manager
FROM: Director of Engineering
SUBJECT: Engineering Monthly Report for August 2022
DATE: September 14, 2022

A. General

1. Capital Improvement Program (CIP) spending for the first month of Fiscal Year (FY) 2023 was above the planned spending target.

CIP Spending (\$M):

	Current Period	FYTD
Actual	16.55	16.55
Plan	14.25	14.25

2. Discussions continue with members of the Virginia Department of Environmental Quality (VDEQ) to review the pending Water Quality Improvement Fund (WQIF) grant request for the Eastern Shore Infrastructure Improvements - Transmission Force Main Phase I project to convey flow from Nassawadox to Onancock. This grant is expected to be finalized in the coming month. Forecast information for other WQIF grants from HRSD has also been reviewed with VDEQ staff. This information is needed to better align state resources with HRSD's projects which could qualify for future funding.

B. Asset Management Division

1. The Interceptor System Replacement Planning Model was recently completed and integrated into the Asset Management Plan. This model will be used to prioritize the replacement of aging infrastructure assets within the interceptor sewer system. To integrate this model, interfaces were needed with the GIS, ERP and CMMS. Data validation is ongoing to make sure the information is accurate and complete. This model includes both a visual interface and a dynamic tool to assist with the prioritization, maintenance, and CIP project implementation.
2. The effort to identify the most critical buried pipe assets at each treatment plant was recently completed. A risk evaluation was conducted based on a set of previously agreed upon criteria. The results of this study have been shared and are under review by the Operations Department. Condition assessment efforts, including the inspection of 1,000 linear feet of buried pipe, will be conducted this fiscal year. Future condition assessment efforts will be conducted based on the results of this first effort and future risk ratings of buried pipe assets at each plant.

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

1. The construction for the Surry Hydraulic Improvements and Interceptor Force Main project is nearing completion. The interceptor force main pipe work is complete and efforts to finish the pump stations is nearing completion. Final installation and testing of the electrical systems at each pump station are underway. Testing of the new

generators is underway and should be completed in October. The current schedule indicates that both the Surry County and Town of Surry Treatment Plants should be able to be taken out of service in November. There is still work to be done at two other pump stations along with the demolition of each treatment plant once the project has been fully tested and accepted by HRSD. This Design-Build project has been very successful and is an example of close collaboration resulting in meeting a very aggressive project schedule.

2. Due to rising costs, a value engineering design review for the Larchmont Area Sanitary Sewer project was recently completed. This review allowed for a reduction in project scope, while still meet the previously agreed upon regulatory requirements, and will result in millions of dollars in savings. Changes to the design can now be finalized and coordination with the City of Norfolk can continue. A modified scope of work will be issued to both the design engineer and the construction manager for this project. Once the design is coordinated with the revised scope of work, a meeting will be held to review the project with the Larchmont Edgewater Civic League.
3. The emergency repair on the Bowers Hill Section I Interceptor Force Main continues moving forward. The commission authorized this effort and approved a new CIP project to make the needed repairs in July. The contractor (Bridgeman Civil) has mobilized on site and has begun installing the needed by-pass piping. Approvals from VDOT and the City of Chesapeake have been acquired. The work is expected to take three months to complete and is being managed by the newly formed Design & Construction - Special Projects Division.
4. Staff continue to work closely with the Tidewater Community College Real Estate Foundation to negotiate terms for needed land to install pipe and recharge wells as part of the SWIFT Program. Discussions related to alignment of future facilities, architectural features and schedule concerns are underway. We expect to resolve these issues by the end of 2022 to allow for the SWIFT Program to stay on schedule.

D. Planning & Analysis Division

1. The Data Analysis Section is working with the Operations Department to better understand a flow meter concern at the Atlantic Treatment Plant. Flows at the plant began to show a measurable increase in June 2022. A flow meter was replaced in that timeframe and efforts are underway to determine if flows were low or are now reading too high.
2. Staff is working with the Procurement Division to acquire a new Records Management System. This system is used to archive and update construction-related documents for use by all HRSD staff. The existing system is over 20 years old and needs to be replaced. Four proposals were recently received and will be evaluated further in the coming months. Once a new vendor is selected, it is expected that implementation of a new records management system will take 6 to 12 months to complete.

E. Strategic Planning Metrics Summary

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

3. Number of Research Partners: 0

4. Monthly Metrics Summary:

Item #	Strategic Planning Measure	Unit	August 2022
M-1.4a	Total Training Hours per Full Time Employee (53) - Current Month	Hours / #FTE	0.42
M-1.4b	Total Training Hours per Full Time Employee (53) - Cumulative Fiscal Year-to-Date	Hours / #FTE	2.22
M-5.2	Educational and Outreach Events	Number	0
M-5.3	Number of Community Partners	Number	0
M-5.4	Number of Research Partners	Number	0

Bruce W. Husselbee

Bruce W. Husselbee, PhD, P.E., DBIA

TO: General Manager
 FROM: Director of Finance
 SUBJECT: Monthly Report for August 2022
 DATE: September 13, 2022

A. General

- Staff met with representatives from Standard and Poor’s (S&P) to discuss the sufficiency of HRSD’s self-liquidity program for its \$50 million of variable rate demand bonds outstanding. Those bonds’ interest rates are adjusted and re-marketed (sold) to investors weekly. In the event of a failed remarketing, HRSD will repurchase the bonds using its own capital (self-liquidity). Since their issuances, there haven’t been any failed re-marketing. S&P did not express any concerns with HRSD’s current procedures or financial position.
- As outlined in the Financial Policy, valid, outstanding encumbrances (those for which performance under a contract is expected in the next fiscal year) are re-appropriated without further approval by the Commission and become part of the subsequent year’s budget (the Amended Budget). The August Interim Financial Report now includes approximately \$18.9 million in Transfers from Reserves and a corresponding increase in the 2023 annual operating budget representing the value of the unperformed, outstanding contractual commitments as of the end of the 2022 fiscal year. The following summarizes the change in the 2023 operating budget:

	Adopted Budget	Amended Budget	CarryForward	Percent Change
Operating Expenses				
Personal Services	\$ 63,288,297.00	\$ 63,288,297.00	\$ -	
Fringe Benefits	26,513,570.00	26,520,561.00	6,991.00	0.0%
Materials & Supplies	12,309,985.00	13,385,885.00	1,075,900.00	8.7%
Transportation	1,790,611.00	1,797,226.00	6,615.00	0.4%
Utilities	14,948,819.00	15,055,652.00	106,833.00	0.7%
Chemical Purchases	12,472,034.00	13,026,120.00	554,086.00	4.4%
Contractual Services	44,910,988.00	57,808,888.00	12,897,900.00	28.7%
Major Repairs	8,497,970.00	12,409,035.00	3,911,065.00	46.0%
Capital Assets	447,684.00	625,737.00	178,053.00	39.8%
Miscellaneous Expense	3,463,076.00	3,594,334.00	131,258.00	3.8%
Total Operating Expenses	\$ 188,643,034.00	\$ 207,511,735.00	\$ 18,868,701.00	10.0%

- Arrearages in the 90 plus and 31 to 60-day groups showed a slight decrease in August.
- Beginning in October, the Call Center will change it operating hours to close at 5:00 PM. Customers will be advised that if payment is received by 4:00 PM, HRSD will guarantee same-day water service restoration. After-hours restoration services will be available for emergencies only and will no longer include an afterhours restoration fee. Field staff delivered 3,479 warning door tags and disconnected water service to 1,010 accounts during August, more than 1,000 field activities than the previous month.

5. Customer calls increased along with the increase in field activity. A daily average of 40 percent staffing shortages created by planned leave, unexpected leave, technical issues, employee transfers and extended vacancies due a tight labor market continue to contribute to staff's inability to meet customer demand, resulting in a drop to 26 percent of calls answered within three minutes. The Department of Talent Management helped with the recent hiring of new Customer Service Representatives to improve staffing levels. Training is underway and expected to improve service over time.

B. Interim Financial Report

1. Operating Budget for the Period Ended August 31, 2022

	Amended Budget	Current YTD	Current YTD as % of Budget (17% Budget to Date)	Prior YTD as % of Prior Year Budget
Operating Revenues				
Wastewater	\$ 366,882,000	\$ 66,555,499	18%	18%
Surcharge	1,755,000	275,147	16%	14%
Indirect Discharge	3,200,000	677,380	21%	17%
Fees	2,910,000	613,798	21%	1%
Municipal Assistance	800,000	142,262	18%	20%
Miscellaneous	1,254,000	148,554	12%	5%
Total Operating Revenue	376,801,000	68,412,640	18%	18%
Non Operating Revenues				
Facility Charge	7,150,000	1,267,405	18%	14%
Interest Income	1,570,000	262,070	17%	10%
Build America Bond Subsidy	2,026,000	-	0%	0%
Other	302,000	100,740	33%	59%
Total Non Operating Revenue	11,048,000	1,630,215	15%	14%
Total Revenues	387,849,000	70,042,855	18%	18%
Transfers from Reserves	18,868,701	3,144,784	17%	17%
Total Revenues and Transfers	\$ 406,717,701	\$ 73,187,639	18%	18%
Operating Expenses				
Personal Services	\$ 63,288,297	\$ 11,988,373	19%	19%
Fringe Benefits	26,520,561	4,007,629	15%	17%
Materials & Supplies	13,385,885	1,362,407	10%	10%
Transportation	1,797,226	192,323	11%	13%
Utilities	15,055,652	2,055,180	14%	12%
Chemical Purchases	13,026,120	1,668,169	13%	14%
Contractual Services	57,808,888	5,970,426	10%	10%
Major Repairs	12,409,035	989,141	8%	5%
Capital Assets	625,737	11,397	2%	14%
Miscellaneous Expense	3,594,334	486,288	14%	14%
Total Operating Expenses	207,511,735	28,731,333	14%	14%
Debt Service and Transfers				
Debt Service	69,533,000	21,154,839	30%	32%
Transfer to CIP	129,412,966	21,568,828	17%	21%
Transfer to Risk management	260,000	43,334	17%	17%
Total Debt Service and Transfers	199,205,966	42,767,001	21%	25%
Total Expenses and Transfers	\$ 406,717,701	\$ 71,498,334	18%	19%

2. Notes to Interim Financial Report

The Interim Financial Report summarizes the results of HRSD’s operations on a basis of accounting that differs from generally accepted accounting principles. **Revenues are recorded on an accrual basis, whereby they are recognized when billed**, and expenses are generally recorded on a cash basis. No provision is made for non-cash items such as depreciation and bad debt expense.

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

Transfers represent certain budgetary policy designations as follows:

- a. Transfer to CIP: represents current period’s cash and investments that are designated to partially fund HRSD’s capital improvement program.
- b. Transfers to Reserves: represents the current period’s cash and investments that have been set aside to meet HRSD’s cash and investments policy objectives.

3. Reserves and Capital Resources (Cash and Investments Activity) for the Period Ended August 31, 2022

HRSD - RESERVE AND CAPITAL ACTIVITY							August 31, 2022
	General Reserve				Capital		
	General	CARES - ARPA	Debt Service	Risk Mgmt Reserve	Paygo	Debt Proceeds	
	Unrestricted	Restricted	Restricted	Unrestricted	Unrestricted	Restricted	
Beginning - July 1, 2021	\$ 189,168,885	\$ 420	\$ 33,134,065	\$ 4,279,547	\$ 32,535,033	\$ -	
Current Year Sources of Funds							
Current Receipts	68,417,507						
Line of Credit							
VRA Draws					3,173,349		
CARES Transfer In	730,692						
Days Cash on Hand Transfer In							
Transfers In	-			43,334	21,568,828		
Sources of Funds	69,148,199	-	-	43,334	24,742,177	-	
Total Funds Available	\$ 258,317,084	\$ 420	\$ 33,134,065	\$ 4,322,881	\$ 57,277,210	\$ -	
Current Year Uses of Funds							
Cash Disbursements	58,940,040				45,275,275	-	
CARES Transfer Out		-					
Days Cash on Hand Transfer Out							
Transfers Out	21,612,162						
Uses of Funds	80,552,202	-	-	-	45,275,275	-	
End of Period - August 31, 2022	\$ 177,764,882	\$ 420	\$ 33,134,065	\$ 4,322,881	\$ 12,001,935	\$ -	
Unrestricted Funds	\$ 194,089,698						

4. Capital Improvements Budget and Activity Summary for Active Projects for the Period Ended August 31, 2022

HRSD - PROJECT ANALYSIS							August 31, 2022
Classification/ Treatment Service Area	Appropriated Funds	Expenditures prior to 7/1/2022	Expenditures Year to Date FY2023	Total Project Expenditures	Encumbrances	Available Funds	
Administration	73,738,240	24,017,666	965,814	24,983,480	1,617,600	47,137,160	
Army Base	163,448,800	124,990,776	88,475	125,079,251	930,420	37,439,129	
Atlantic	223,483,198	79,968,839	698,149	80,666,988	3,143,903	139,672,307	
Boat Harbor	385,426,520	56,493,327	3,643,570	60,136,897	197,302,468	127,987,155	
Ches-Eliz	183,285,621	118,083,285	774,014	118,857,299	5,570,824	58,857,498	
Eastern Shore	28,167,651	3,409,844	8,007,808	11,417,652	14,345,170	2,404,829	
James River	335,749,024	41,947,605	10,837,579	52,785,184	243,818,791	39,145,049	
Middle Peninsula	101,335,187	20,701,425	1,351,769	22,053,194	10,730,672	68,551,321	
Nansemond	465,790,657	42,047,584	2,388,301	44,435,885	323,864,856	97,489,916	
Surry	57,612,528	38,362,111	1,402,796	39,764,907	4,248,320	13,599,301	
VIP	165,969,940	17,792,976	1,074,147	18,867,123	31,712,614	115,390,203	
Williamsburg	28,356,619	20,951,191	1,269,067	22,220,258	3,245,981	2,890,380	
York River	71,119,281	13,910,493	308,959	14,219,452	10,429,613	46,470,216	
General	1,196,577,195	212,260,993	13,463,622	225,724,615	359,526,116	611,326,464	
	\$ 3,480,060,461.00	\$ 814,938,115.00	\$ 46,274,070.00	\$ 861,212,185.00	\$ 1,210,487,348.00	\$ 1,408,360,928.00	

5. Debt Management Overview

HRSD - Debt Outstanding (\$000's)						August 31, 2022
	Principal July 2022	Principal Payments	Principal Draws	Principal Aug 2022	Interest Payments	
Fixed Rate						
Senior	172,074	-	-	172,074	-	
Subordinate	621,148	(3,672)	9	617,485	(4,281)	
Variable Rate						
Subordinate	50,000	-	-	50,000	(35)	
Line of Credit	33,721			33,721	(63)	
Total	<u>\$ 876,943</u>	<u>\$ (3,672)</u>	<u>\$ 9</u>	<u>\$ 873,280</u>	<u>\$ (4,379)</u>	

HRSD- Series 2016VR Bond Analysis				September 02, 2022
	SIFMA Index	HRSD	Spread to SIFMA	
Maximum	4.71%	4.95%	0.24%	
Average	0.39%	0.50%	0.11%	
Minimum	0.01%	0.01%	0.00%	
As of 09/02/22	1.50%	1.47%	-0.03%	

* Since October 20, 2011 HRSD has averaged 50 basis points on Variable Rate Debt

6. Financial Performance Metrics for the Period Ended August 31, 2022

HRSD - UNRESTRICTED CASH

August 31, 2022

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
Total Unrestricted Cash	\$ 194,089,698		341
Risk Management Reserve	\$ (4,322,881)	(7)	334
Capital (PAYGO only)	\$ (12,001,935)	(21)	313
Adjusted Days Cash on Hand	\$ 177,764,882		313

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

August 31, 2022

Primary Source	Beginning Market Value July 1, 2022	YTD Contributions	YTD Withdrawals	YTD Income Earned	Ending Market Value August 31, 2022	Allocation of Funds	Credit	Current Mo Avg Yield
BAML Corp Disbursement Account	25,498,734	82,849,280	85,228,966	13,312	23,132,360	14.7%	N/A	0.55%
VIP Stable NAV Liquidity Pool	144,268,153	-	10,000,000	449,637	134,717,790	85.3%	AAAm	2.19%
Total Primary Source	\$ 169,766,887	\$ 82,849,280	\$ 95,228,966	\$ 462,949	\$ 157,850,150	100.0%		

VIP Stable NAV Liquidity Pool performed 0.01% below Va Local Government Investment Pool's (the market benchmark) in the month of August 2022.

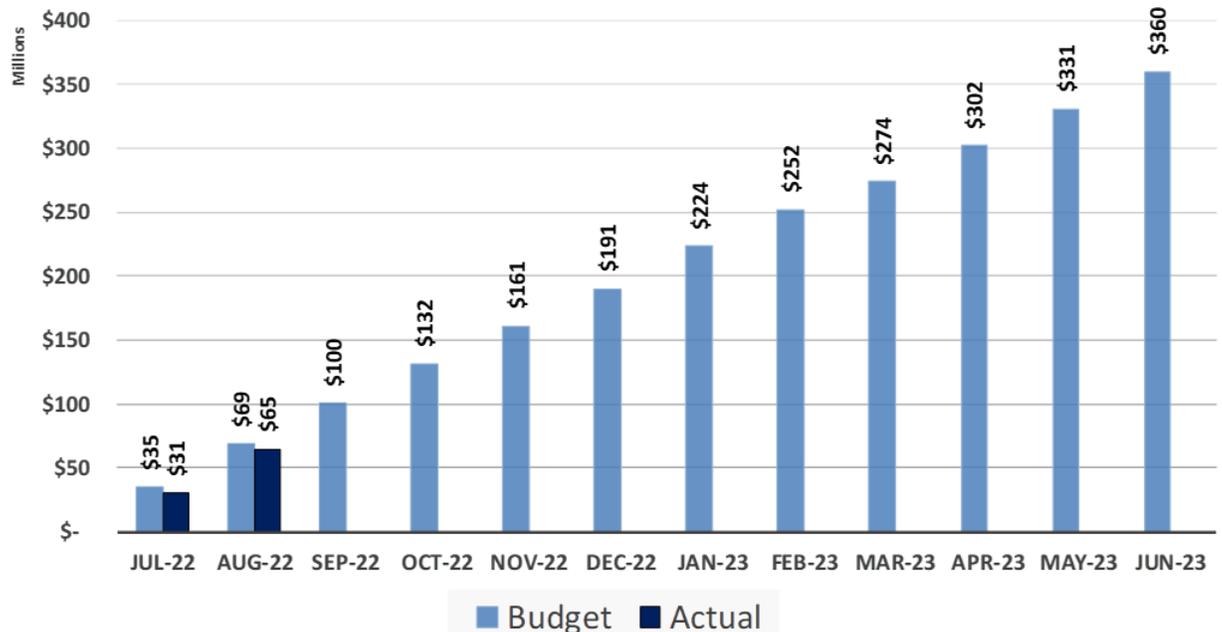
Secondary Source	Beginning Market Value July 1, 2022	YTD Contributions	YTD Withdrawals	YTD Income Earned & Realized G/L	Ending Market Value August 31, 2022	Ending Cost	LTD Mkt Adj	Yield to Maturity at Market
VIP 1-3 Year High Quality Bond Fund	62,932,017	-	2,102	106,249	62,721,354	63,848,164	(1,126,810)	3.45%
Total Secondary Source	\$ 62,932,017	\$ -	\$ 2,102	\$ 106,249	\$ 62,721,354	\$ 63,848,164	\$ (1,126,810)	

VIP 1-3 Year High Quality Bond Fund performed 0.03% below ICE BofA ML 1-3 yr AAA-AA Corp/Gov Index (the market benchmark) in August 2022.

	Total	Fund Alloc
Total Primary Source	\$ 157,850,150	71.6%
Total Secondary Source	\$ 62,721,354	28.4%
TOTAL SOURCES	\$ 220,571,504	100.0%

7. Summary of Billed Consumption

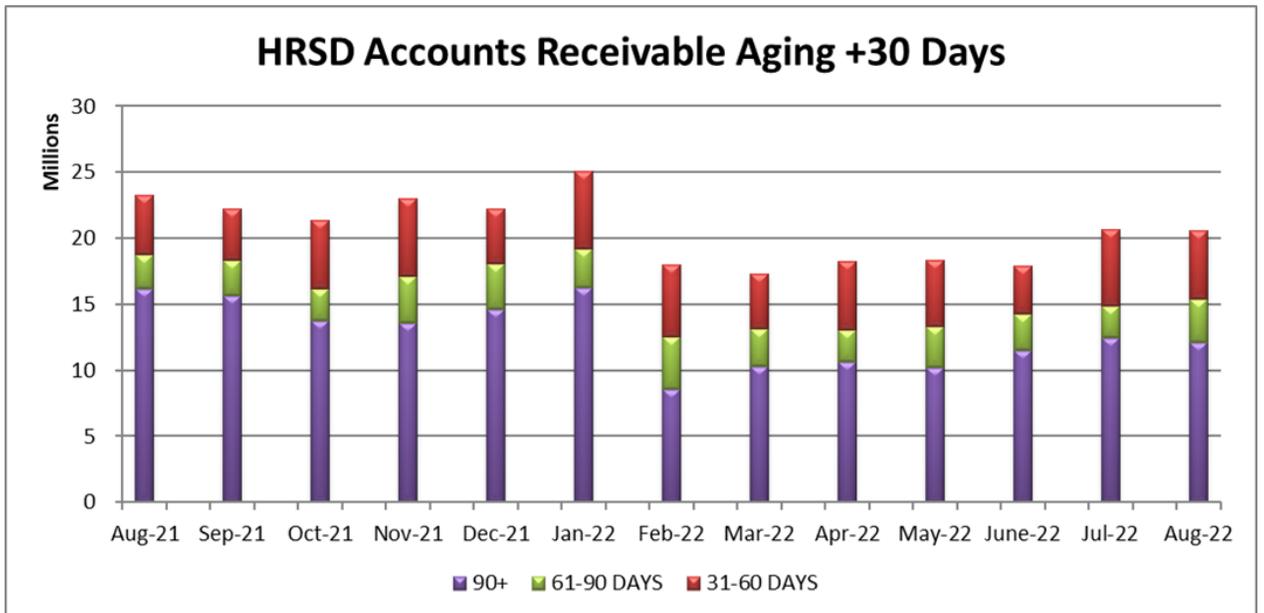
Wastewater Service Charges - Budget to Actual

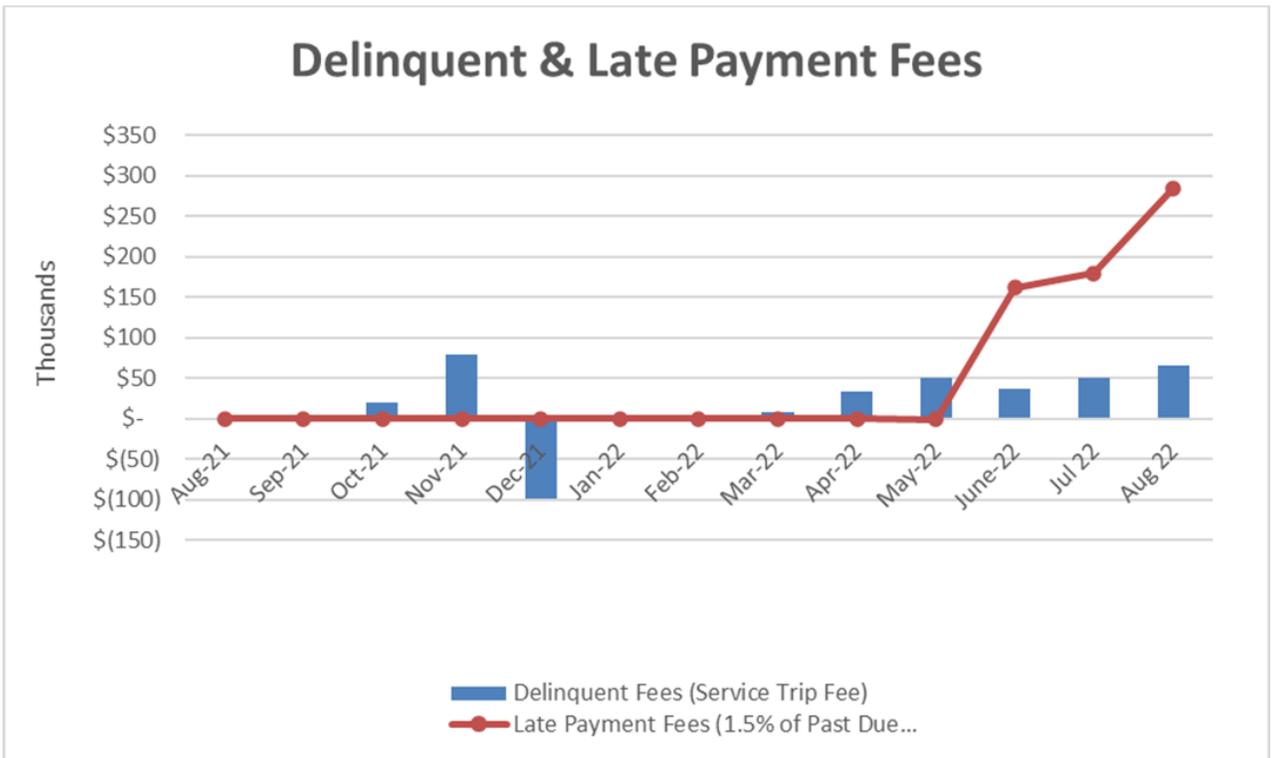


Summary of Billed Consumption (,000s ccf)							
Month	FY2023 Cumulative Budget Estimate	FY2023 Cumulative Actual	% Difference		% Difference		% Difference
			From Budget	Cumulative FY2022 Actual	From FY2022	Cumulative 3 Year Average	From 3 Year Average
July	5,015	4,682	-6.6%	4,976	-5.9%	4,947	-5.4%
Aug	9,883	9,651	-2.3%	9,518	1.4%	9,641	0.1%
Sept	14,413	-	N/A	14,347	N/A	14,345	N/A
Oct	18,892	-	N/A	19,048	N/A	18,955	N/A
Nov	23,125	-	N/A	22,953	N/A	22,412	N/A
Dec	27,336	-	N/A	27,541	N/A	27,558	N/A
Jan	32,088	-	N/A	31,865	N/A	32,148	N/A
Feb	36,182	-	N/A	36,188	N/A	36,087	N/A
March	39,309	-	N/A	40,229	N/A	40,452	N/A
Apr	43,360	-	N/A	44,569	N/A	44,644	N/A
May	47,508	-	N/A	48,315	N/A	48,656	N/A
June	51,620	-	N/A	53,243	N/A	53,324	N/A

C. Customer Care Center

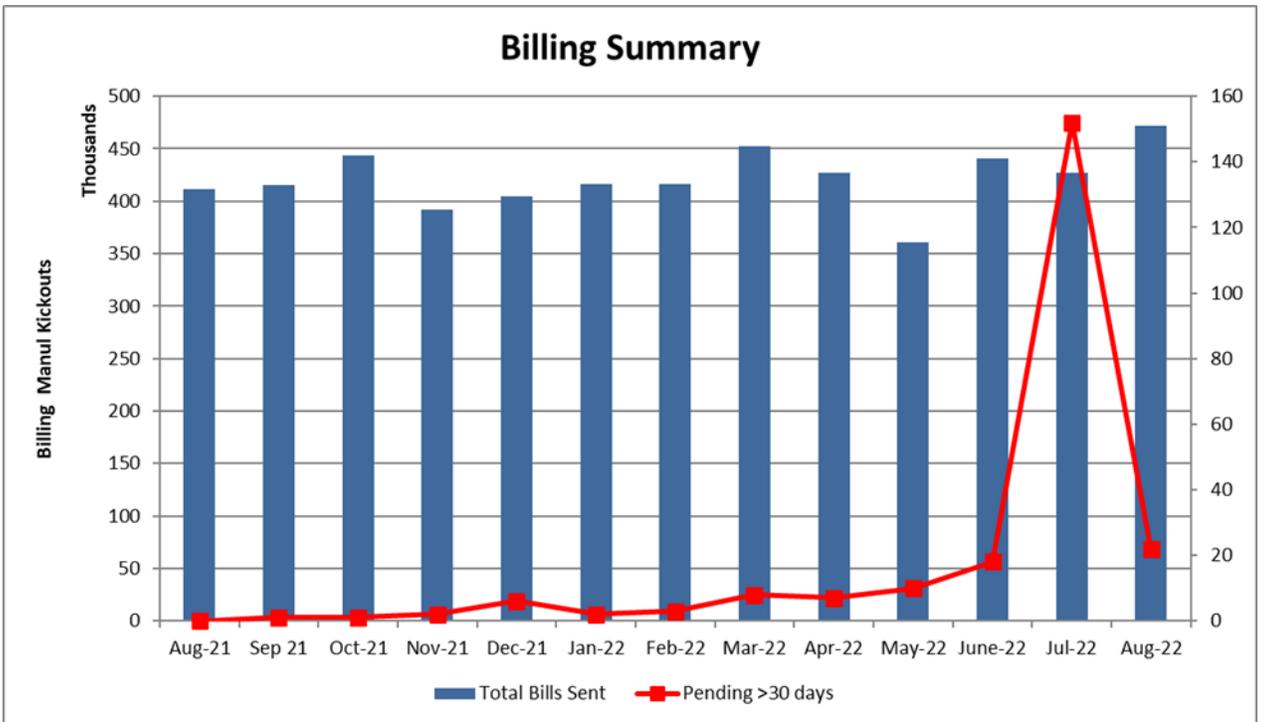
1. Accounts Receivable Overview

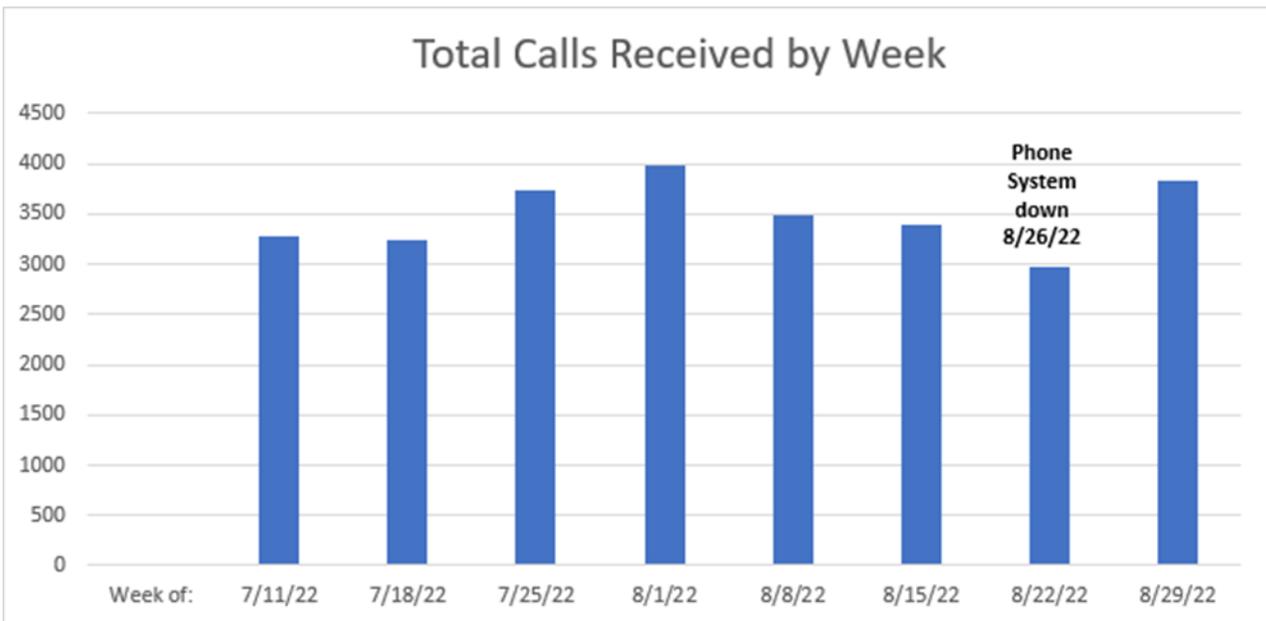
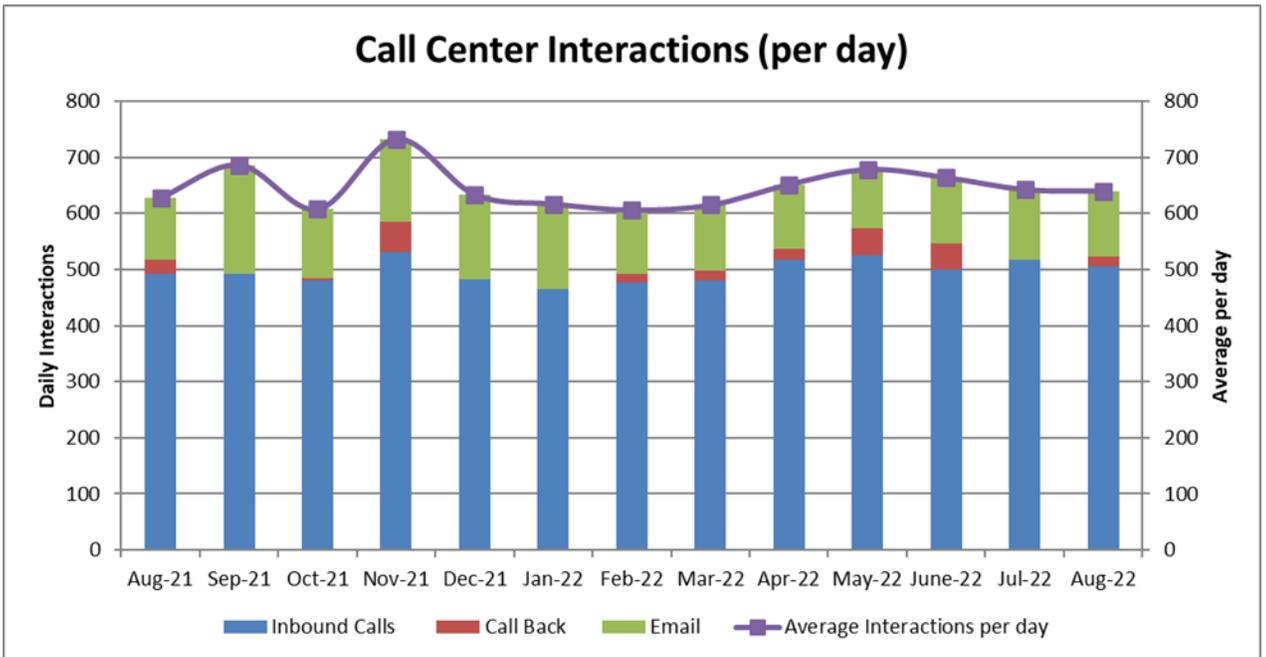


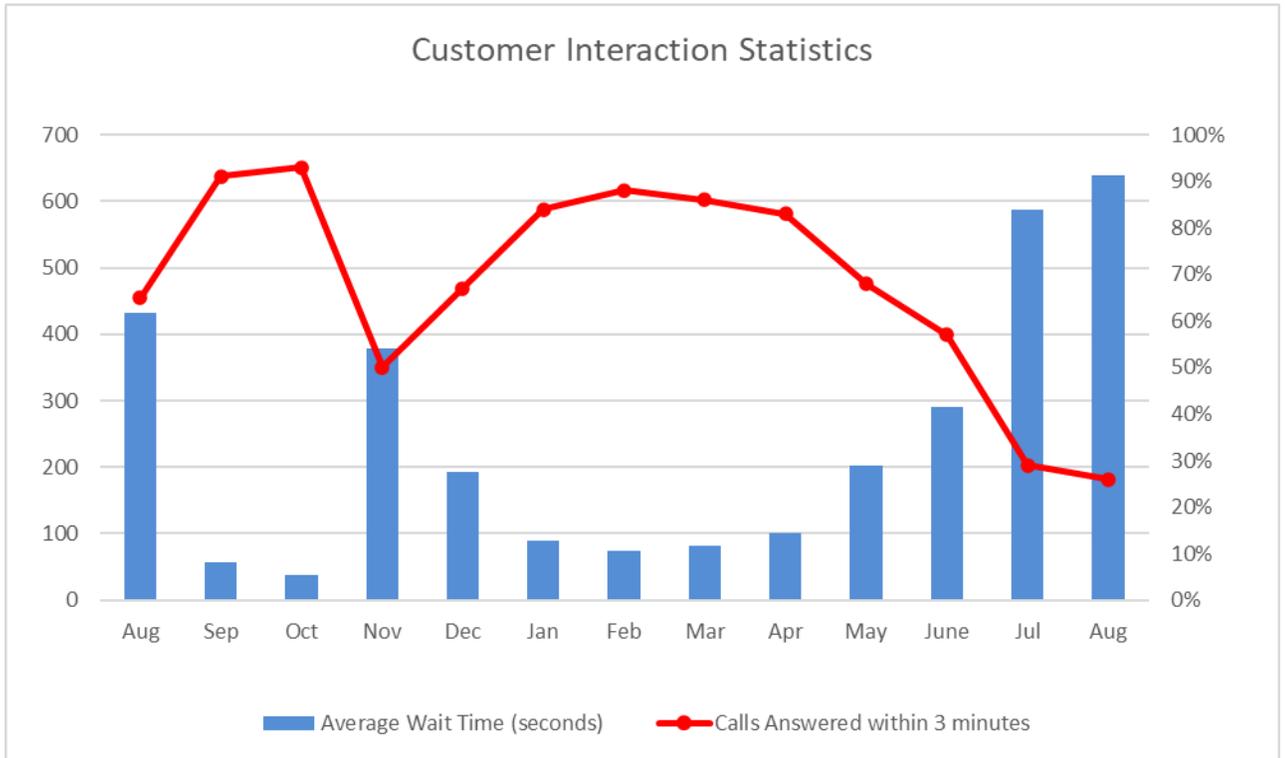


Apr 20-Feb 22 Field Activity was suspended late March 2020 in response to COVID-19.

2. Customer Care Center Statistics



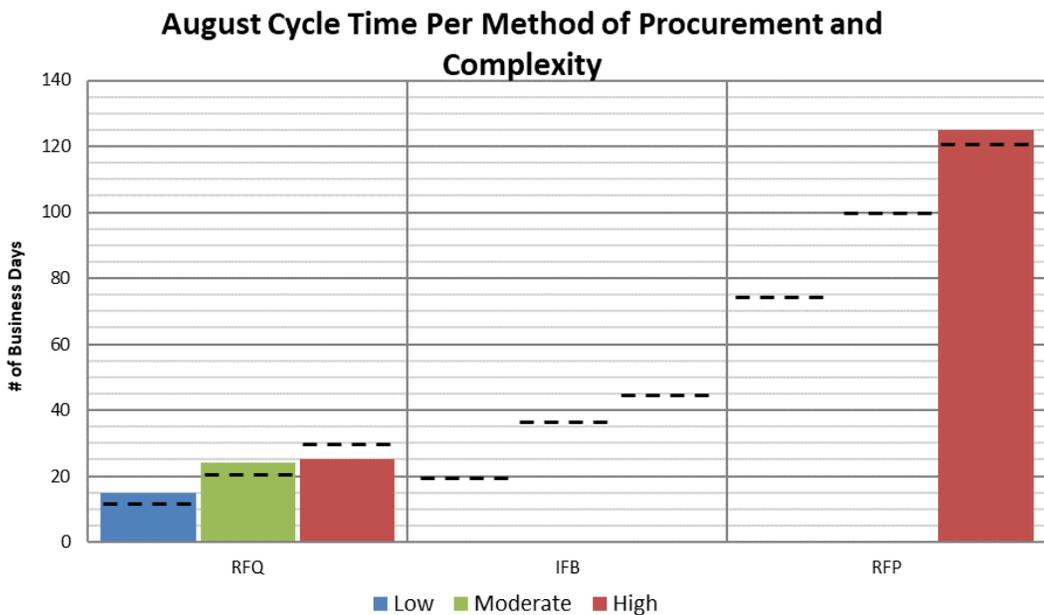




D. Procurement Statistics

ProCard Fraud	External Fraud Transactions *	Comments
July	0	
August	6	Caught by Cardholder.
Total	6	

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



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

E. Strategic Planning Metrics Summary

1. Educational and Outreach Events: 1

08/20/2022-08/24/2022 – NIGP Forum

2. Community Partners: 0

3. Monthly Metrics

Item #	Strategic Planning Measure	Unit	August 2022
M-1.4a	Training During Work Hours Per Full Time Employee (103) – Current Month	Hours / #FTE	0.58
M-1.4b	Total Training During Work Hours Per Full Time Employee (103) – Cumulative Fiscal Year-to-Date	Hours / #FTE	1.23
M-5.2	Educational and Outreach Events	Number	1
M-5.3	Number of Community Partners	Number	0
	Wastewater Revenue	Percentage of budgeted	105%
	General Reserves	Percentage of Operating Budget less Depreciation	102%
	Liquidity	Days Cash on Hand	341 Days
	Accounts Receivable (HRSD)	Dollars	\$42,978,332
	Aging Accounts Receivable	Percentage of receivables greater than 90 days	28%

4. Annual Metrics

Item #	Strategic Planning Measure	Unit	FY-2022
M-2.4	Infrastructure Investment	Percentage of Total Cost of Infrastructure	*
M-4.3	Labor Cost/MGD	Personal Services + Fringe Benefits/365/5-Year Average Daily Flow	*
M-4.4	Affordability	6.5 CCF Monthly Charge/Median Household Income ^[1]	*
M-4.5	Operating Cost/MGD	Total Operating Expense /365/5-Year Average Daily Flow	*
	Billed Flow	Percentage of Total Treated	*
	Senior Debt Coverage	Cash Reserves/ Senior Annual Debt Service	*
	Total Debt Coverage		*

* These metrics will be reported upon completion of the annual financial statements.

Respectfully,

Steven G. de Mik

Steven G. de Mik, CPA

Deputy General Manager/CFO

TO: General Manager
FROM: Director of Information Technology
SUBJECT: Information Technology Department Report for August 2022
DATE: September 14, 2022

A. General

1. Staff are working with third party vendors and internal resources to implement a Water Information Management Solution (WIMS). The WIMS is designed to receive data from various systems and sources and then securely store the data in a centralized database. The data can then be used to design templates for internal and regulatory reporting, populate dashboards, perform complex analyses and projections, provide alarms in response to defined parameters, and generally facilitate more informed operational business decisions.
2. Supply chain issues continue to hinder timely delivery of the equipment necessary to upgrade numerous conference rooms across the organization. Efforts to identify alternate components have not been successful.
3. The IT Help Desk processed 489 work orders in August, ensuring availability of computing resources to those working locally and remotely.
4. Systems engineers are installing and configuring several firewalls and related network components which are due for replacement. This will ensure that HRSD's networked infrastructure remains current and eligible for all relevant support and maintenance coverage.
5. Staff have been working with members of the Operations department to further integrate and upgrade IT hardware and software at several locations on the Eastern Shore.
6. Microsoft issued a critical security advisory strongly recommending that impacted platforms be scanned and patched immediately. Consequently, 35 of HRSD's network servers were identified, scanned, and patched, with minimal impact to operations, and no degradation of data or systems security.

B. Strategic Planning Metrics Summary

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

C. Metrics Summary

Item #	Strategic Planning Measure	Unit	August 2022
M-1.4a	Training During Work Hours Per Full-Time Employee (54) – Current Month	Total Training Hours / # FTE	2.93
M-1.4b	Total Training During Work Hours Per Full-Time Employee (54) – Cumulative Fiscal Year-to-Date	Total Training Hours / # FTE	6.33
M-5.2	Educational and Outreach Events	Number	0
M-5.3	Number of Community Partners	Number	0

Respectfully,
Don Corrado

TO: General Manager
FROM: Director of Operations
SUBJECT: Operations Report for August 2022
DATE: September 20, 2022

A. Interceptor Systems

1. North Shore (NS) Interceptors

- a. The Supervisory Control and Data Acquisition (SCADA) project remained highly active with several cutovers, factory acceptance tests, and global changes completed. Completed to date:
 - (1) Temporary Control Panel (TCP) installation and cutover for Lodge Road Pump Station (PS)
 - (2) Cutover and Site Demonstration Testing (SDT) for Hardy Elementary School PS
 - (3) The Advanced Prime Guard (APG) testing for Colonial Williamsburg, Kingsmill, Rolling Hills, and Williamsburg PSs
 - (4) Router and switch Gold Configurations for all NS sites
- b. Staffing challenges continue to have operational impacts as we currently have six vacant interceptor technician positions and the one vacant interceptor engineer position. In August, duties were re-assigned, and NS Operations separated from covering Small Communities Division duties.
- c. There were no Sanitary Sewer Overflows (SSO).
- d. There was one odor complaint, one interceptor complaint, and 10 system alarms during the month. These complaints and system alarms were fully resolved by NS Operations staff.
- e. There were no Miss Utility 'no shows' and 10 after-hour emergency tickets reported for the month.
- f. NS operations and engineering staff continue to support the numerous capital projects under design and construction.
- g. Performed a caustic injection at Beaver Dam PS for the Gloucester Interceptor Force Main (IFM)

2. South Shore (SS) Interceptor Systems

- a. There were no SSOs reported this month.

- b. There were no odor complaints reported this month.
- c. There were 10 interceptor complaints reported this month. Three issues were with the City of Virginia Beach Public Utilities Department, two issues with Norfolk Department of Utilities, one issue with the City of Portsmouth Public Utilities, one issue with the City of Suffolk Public Utilities, and one with the City of Chesapeake Public Utilities.
- d. On August 11, City of Chesapeake staff reported a broken test station lid near 1000 Fentress Road. Staff found a cracked casting and displaced lid. Staff replaced the casting and sealed the lid.
- e. On August 30, City of Chesapeake staff reported a sink hole near the intersection of Bainbridge Boulevard and Rosemont Avenue. Staff filled the void and applied a cold pavement patch.
- f. Staff responded to and resolved 19 system alarms this month.
- g. On August 8, staff assisted Water Quality (WQ) staff with supplying an odor control system and product for the Atlantic Treatment Plant (ATP).
- h. On August 23, staff operated system valves to support the City of Chesapeake Public Utilities Department with a valve repair and pump station repair.
- i. Staffing challenges continue to have operational impacts as we currently have nine vacant interceptor technician positions and the one vacant interceptor engineer position.

B. Major Treatment Plant Operations

- 1. Army Base (ABTP) Treatment Plant and Virginia Initiative Treatment Plant (VIP) (ACV Group)
 - a. All plants met the Virginia Pollutant Discharge Elimination System (VPDES) permit requirements with no odor complaints.
 - b. There was a MACT 129 deviation for use of the bypass stack at both ABTP and VIP. There was also an odor scrubber deviation due to a caustic supply line failure at scrubber A at ABTP.
 - c. ABTP
 - (1) The Biological Nitrogen and Phosphorus Removal (BNR) 1/2 Phosphax analyzer at ABTP is being converted to high range phosphorus analysis and placed into the anaerobic zone to monitor Phosphorus-Accumulating Organisms (PAO) phosphorus release and recognize potential upsets to Biological Phosphorus (Bio-P) at an earlier stage. The reaeration analyzer sink has been redesigned to provide a more representative and reliable sample analysis to monitor effluent phosphorus more accurately while requiring less operator attention for upkeep.

- (2) Daily monitoring of ABTP trends led to the recognition of a weeks-long nitrification inhibition trend and an increase in turbidity, as was observed in the upset at the end of May. A swift response was coordinated with Superintendents, Lead Operators (LO) and Plant Operators (PO) that recovered nitrification as well as Bio-P and allowed the plant to secure alum dosing.
- (3) A large discrepancy was identified and demonstrated at ABTP in Waste Activated Solids/Returned Activated Solids (WAS/RAS) concentrations. This was due to the WAS pump pulling off one side of the RAS header caused upstream by different weir heights in the secondary clarifier distribution box. Plant staff have already identified a WAS connection point on the common RAS line and should have the new connection installed in September.

d. VIP

- (1) There was one reportable air permit event. There was a Non-Potable Water (NPW) low pressure alarm on August 30 that caused the induced draft fan to shut down, opening the bypass damper for 21 minutes.
- (2) The Nitrification Enhancement Facility (NEF) was taken out of service in July to facilitate annual inspection, aeration tank coating work, and replacement of the clarifier sweep drive gear and motor. Taking the NEF out of service had a detrimental effect on plant process, requiring longer solids retention time and higher dissolved oxygen levels in the aeration tanks. Higher oxygen levels in the aeration tanks and recycle flows caused a degradation in phosphorus release and uptake. Work has been completed on the NEF and it will be returned to service in September.
- (3) Maintenance staff received training from an outside contractor to rebuild the upper and lower gearboxes on a spare secondary clarifier sweep arm drive unit.
- (4) Plant Operations and electrical staff received annual “black start” training on the standby power generator system.
- (5) Maintenance staff completed rehabilitation of one biosolids receiving pump.
- (6) Rehabilitation work on the primary clarifiers has been suspended awaiting repair parts, some of which have been on backorder for several months.

2. Atlantic (ATP), Boat Harbor (BHTP), and Nansmond (NTP) Treatment Plant (ABN Group)

- a. There were no odor exceptions or odor complaints this month. Staff continue to work on minimizing the potential for offsite odors.
- b. All plants met the VPDES permit requirements.

ATP

- (1) Two MACT 129 deviations occurred this month. Both deviations were for using the emergency bypass stack. The first use of the emergency bypass was due to a power loss, the second was due to loss of NPW flow during a plant flow diversion.
- (2) Three 503e, Total Hydrocarbons (THC) monitoring reportable events occurred this month.
- (3) A contractor cleaned all four of the Thermal Hydrolysis Process (THP) reactors. This cleaning is necessary for the removal of all the scale buildup inside the reactors to prevent the solids from plugging the reactor. This will become an annual maintenance to fall under contractual services.

c. BHTP

- (1) Staff found the clamp on the main suction line of the RAS in poor condition. The maintenance team successfully replaced the clamp with minimal impact on the overall treatment process.
- (2) The THC monitoring system caused three reportable events this month. The THC unit failed calibration all three times due to the AC unit blowing directly on components that affect calibration. This may have contributed to the initial failed calibrations according to the service contractor. The Electrical & Instrumentation (E&I) staff were able to adjust the AC unit settings to mitigate this issue, and the unit has been working correctly since.
- (3) On August 19, outside contractors installed two 30-inch EIM automatic actuators for the aeration influent north side and south side valves. The actuators were installed as part of the Sidestream Upgrade to meet more stringent nitrification limits in the future. Contractors required the plant staff to perform a small flow diversion to install the actuators with minimal impact to treatment.

d. NTP

- (1) Contractors continue construction of the Fats, Oils, and Grease (FOG) handling facility, with substantial completion planned for late 2022.
- (2) On August 15, contractors finished repairs on secondary #5 and placed the clarifier in service on August 18 for performance testing.
- (3) On August 23, plant maintenance staff completed the reinstallation of centrifuge #2.
- (4) The total volume of Sustainable Water Initiative For Tomorrow (SWIFT) recharge into the Potomac aquifer was 14.70 million gallons (MG), 66.4% Recharge Time based on 500 gallons per minute (gpm).

2. James River (JRTP), Williamsburg (WTP), and York River (YRTP) Treatment Plant (JWY Group)
 - a. All plants met the VPDES permit requirements.
 - b. There were no reportable wastewater events or odor scrubber deviations.
 - c. JRTP
 - (1) Staff performed routine maintenance and repairs including the installation of a sample pump at contact tank #2.
 - (2) Contract work to make minor repairs and coat the steel rake arm in primary clarifier #4 is complete. A second contractor started replacing the outside scum raceway with new skirting, extended from four feet to eight feet. The extended raceway should improve scum removal by preventing scum from going under the raceway and becoming trapped between the raceway and the clarifier effluent weirs. Modifications previously completed on primary clarifier #3 resulted in no scum build up across the surface. Maintenance staff completed modifications to the scum trough as part of this project.
 - (3) A contractor continued coating the fiberglass odor duct from the grit tanks and primary clarifiers to the odor scrubbers.
 - (4) The contractor modifying the #5 reactor of the Integrated Fixed Film Activated Solids (IFAS) tanks for improved nutrient removal completed work in IFAS tanks #2, #3 and #4 and continued work in IFAS tank #1. JRTP staff installed media in the #5 reactors of all completed IFAS tanks. Staff also evaluated alternatives for feeding about one Million Gallons Per Day (MGD) of primary clarifier effluent to the #5 reactor of each IFAS tanks to provide a carbon source. The recommended alternative is to pump primary effluent from utility access hole #7 through overhead piping that will be installed on existing pipe supports.
 - (5) Progress on the Advanced Nutrient Removal Improvements (ANRI)/ SWIFT project is as follows:
 - (a) The contractor completed removal of the earth berm to the east of the gymnastics facility, allowing for construction of a new gymnastics' facility entrance.
 - (b) Demolishing the old City of Newport News Riverview Farm Park Visitors Center and shooting range tower, constructing stormwater ponds, relocating chemical lines, installing temporary NPW water lines to the IFAS tanks, and providing temporary power feeds to the NPW, disinfection, dichlorination, and return activated solids buildings.

d. WTP

- (1) There was one reportable wastewater event and there were seven incinerator air deviations. The wastewater event was three consecutive low 30-minute contact tank effluent chlorine residuals. This was caused by operators having to make manual sodium hypochlorite feed adjustments due to issues with the five-minute chlorine analyzer. Six incinerator air deviations resulted from a failure of the total hydrocarbon monitor to record two valid readings per hour due to a malfunction of the equipment or a loss of feed cake. One deviation was a missed feed solids percent moisture content sample while the operator was trying to resolve operational problems with the centrifuge.
- (2) Maintenance staff drained and cleaned pre-aeration-grit tank #2 to perform annual preventive maintenance.
- (3) A contractor is still planning for proper disposal of approximately 7,900 gallons of methanol contaminated with Aqueous Film Forming Foam (AFFF). The contractor is having difficulty finding a disposal site.

3. Incinerator Operations Events Summary

- a. Total Hydrocarbon (THC) monthly averages (not to exceed 100 ppm) were met by all four Multiple Hearth Incinerators (MHI) plants (Army Base, Boat Harbor, Virginia Initiative, and Williamsburg) with a THC continuous emissions monitoring (CEM) valid data captured of greater than 96%.
- b. The MHIs had three deviations from the required 129 SSI rule minimum operating parameters and four minor bypass events (<60 minute). All three deviations were from one MHI malfunction event at Army Base that involved a power failure and loss of Distributed Control System (DCS) control on August 1. One other 129 deviation occurred at Williamsburg when a cake sample was not taken and analyzed for total percent solids on August 1.

C. Small Communities (SC)

During the last two weeks of August, there were several electrical issues at the West Point Treatment Plant (WPTP) which caused the trickling filter and the tertiary pump station pumps to fail. Staff were quick to respond, but one instance resulted in a Sanitary Sewer Overflow (SSO). The trickling filter issues also led to high Biochemical Oxygen Demand (BOD) levels and the average monthly permitted value was exceeded. Staffing is a concern for the Middle Peninsula work center which currently has seven vacant positions.

1. Middle Peninsula

- a. On August 28, the Tertiary Filter Pump Station control panel tripped. The alarm system was also down. Lightening is believed to be the cause given storms in the area. After the pumps were reset, the spill was neutralized with pelletized lime. The SCADA and E&I Departments replaced the pump station PLC. Approximately

400 gallons of partially treated pre-disinfection wastewater was released on the ground.

- b. The monthly average BOD permit level was exceeded in August. The permitted level is 30mg/L and the August value was 36mg/L. Dominion Energy confirmed electrical service issues on several of the VFD trips and it was recently discovered that the mounting bolts for the trickling filter #2 distributor arms had all been sheared. These arms are only two months old, and the contractor will be performing a warranty repair as soon as possible. We believe at this time that the trickling filter issues led to above-normal BOD levels but will be monitoring sample results and equipment performance to lower BOD levels back into compliance.
- c. There were 14 new connections in the Middle Peninsula Service area this month.
- d. Operations staff continue to work on cleaning the offline pond, and staff coordinated with NS Interceptors personnel on removing the surface aerators from the Lawnes Point ponds to the WPTP. They will be installed in the pond to increase DO in the offline pond and hopefully increase the water quality to the point where we can treat the pond water instead of pumping and hauling it offsite.
- e. Both Membrane Filtration Modules were replaced this month at King William Treatment Plant (KWTP).

2. Surry Systems

- a. The Hardy Elementary School PS was brought online this month and will start accepting flow from the elementary school as soon as the grease trap is repaired and inspected.
- b. Town Plant PS was functionally tested.

3. Lawnes Point (LP)

Atlantic Heating and Cooling performed four days of pump and haul of the Sequential Batch Reactor (SBR) tank this month.

4. Eastern Shore (ES)

a. Onancock Collection System

Staff replaced a damaged utility access hole and installed multiple new cleanouts in the collection system.

D. Electrical & Instrumentation (E&I)

- 1. Staff continue to work with Carlton Scale representatives, the equipment vendor, to automate the FOG delivery at ATP and NTP. E&I have solicited the contractor, Saunders Contracting, for installation of conduit and wire from the ATP Scale House to the nearest DCS drop in the Primary Building.

2. Staff worked with Saunders Contracting and Jon Swan to begin work on the new Electrical Shop at ATP. They will be installing a new panel board and transformer to feed the new office and workshop space. They are also performing all contracted electrical work associated with this project.
3. Staff replaced a failed VFD for the IPS Pump #4 at BHTP.
4. Staff continue to work with REW to replace the Medium Voltage (MV) transformer for Unit Sub Station 1B (USS1B) due to an existing transformer failure. This transformer provides power to the Solids Handling (SH) Building at NTP and is associated with emergency Capital Improvement Project (CIP) (NP015300).
5. Staff installed a temporary flow meter on the influent pipe creek crossing for testing purposes of technology as part of (NP013820) ANRI project at NTP.
6. The Electrical Manager, plant staff, and E&I staff participated in a 75% design review meeting with HDR Engineering for the Motor Control Center (MCC) Replacements CIP (VIP0192) at VIP. The project involves the replacement of MCCs located in the blower building and incinerator building.
7. The Electrical Manager coordinated with Saunders Contracting, the electrical contractor, to install the second Heating, Ventilation, Air Conditioning (HVAC) system in the electrical room of the headworks building at YRTP. The CIP project (YR014500) is now complete and will be closed out.
8. SCADA staff were presented with serious communication difficulties in the KWTP area. The Motorola SCADA system experienced extreme interference from an unknown source. This radio interference shut down all alarms in the King William (KW) radio hub nightly for almost two weeks between the hours of 10:00 pm and 7:00 am. Staff deployed to the area on two occasions to change frequencies on the KW repeater radio sites and additional repeaters communicating on that communication hub. After the second attempt, nightly communications were restored to normal operation.
9. Staff installed additional network drops and an outside antenna for the IAPs to give plant staff and others access to the new SCADA system being rebuilt at OTP.
10. Staff assisted contractor Systems East Inc. (SEI) with programming the temporary alarm box for the temporary control panel being used for the SCADA upgrade until the permanent control panel is put into service at Lodge Road PS. This upgrade has been completed.
11. Staff worked with contractor SEI to replace the transfer switch controller at Atlantic Pressure Reducing Station (PRS). The controller was repaired and replaced under warranty.
12. The Windsor Pressure Control Valve (PCV) site utilized a pneumatically operated Bermad valve that opened in the event of high pressure or when the EIM actuator in the line failed to operate. This valve was originally designed to operate using large, compressed air cylinders and a solenoid valve. The replacement of these compressed air cylinders was labor intensive for SS Interceptors, so they asked E&I staff to develop an alternate solution. Staff designed and installed an air compressor, compressed air tank and the associated automation equipment that replaced the compressed air

cylinders and removed the burden of replacing them. They also provided alarms and data via the Telog Data Recorder to capture and transmit alarms for High/Low pressures and Air Compressor On/Off status of the new automated system.

13. Staff participated in the successful completion of cutover testing for the new Ovation SCADA System at Lodge Road, Virginia Beach Boulevard, Seay, Hardy Elementary, and Surry (PSs). The final site testing was completed by SEI staff, CEC staff, Emerson staff, SS and NS Interceptors. These sites are now active on the new Ovation SCADA systems.
14. Staff assisted automotive with diesel generator load bank testing at Big Bethel, Greensprings, North Shore Road, and Richmond Crescent PSs, Pinetree PRS, and portable generator #316. The generators operated as designed and were returned to service.
15. The Electrical Manager and Automotive Superintendent witnessed load bank generator testing at Mount Ray and Surry PSs located in Surry. The load bank tests were successful, and the generators operated as designed.
16. Staff responded to 24 SCADA communication failures and five Telog communication failures. A communication failure is defined as a total loss of communication at a site that may require staff to respond to the site location during and/or after normal working hours.
17. Chief of E&I and Electrical Manager met with Eaton Corporation, the electrical equipment manufacturer, to discuss the root cause of Automatic Transfer Switch (ATS) control board failures and the contingency plan moving forward to prevent delays in the schedule for upcoming PS startups.

E. Support Systems (SS)

1. Facilities Maintenance (FM) staff continue to work on repairs to the ABTP incinerator building elevator. Renovation of the Electrical Shop at ATP continues with the replacement of exterior glass.
2. The Water Research Intern House in Hampton was hit by a lightning strike, causing electrical issues with the HVAC and damaging the chimney. The HVAC was repaired, and the chimney is scheduled for repair in mid-September.
3. The Carpentry Shop started a 150-gallon aquarium stand for the new Water Quality building.
4. The Machine Shop completed 21 projects with four of the projects being total pump rebuilds for NS and SS Interceptors. There was one notable project in which the staff completed a new handrail system for the Operations Challenge Safety platform. The old handrail had a mix of missing rails and PVC piping as replacements.
5. The Infrastructure Assessment (IA) staff have issued requisitions for work orders for the Closed-Circuit Television (CCTV) inspection of 42,544 Linear Feet (LF) for NS and SS Interceptors for FY-2023. The staff have issued requisitions for CCTV totaling 31,440 LF for FY23.

6. The Concrete Coatings staff oversaw several coating, concrete, and roof projects.

F. Resource Recovery (RR)

1. Equipment research is in progress designed to remove methane and handle hydrogen sulfide (H₂S) within the collection system.
2. Met with TSD staff to start transferring the role of handling Waste Management (WM) special permits.
3. Carbon Footprint: By removing methane at the plants' influent or in the collection systems, HRSD's Carbon Footprint can be effectively reduced. Three technologies for reducing methane in the collection system are currently being investigated: flaring or burning the methane; Catalytic Destruction Module (CDM), and Regenerative Thermal Oxidizer (RTO). Flaring seems to be the most effective technology to remove methane since it has been widely used for this purpose. To date, I have not been successful in finding a manufacturer who utilizes flaring equipment at the air vents within the collection system. CDM technology is still in the developmental stages. It is utilized to remove methane in the mining industry in Canada. It does not seem to be promising due to its inability to handle hydrogen sulfides (H₂S). The most promising technology is the RTO. This technology is the most expensive and has the largest footprint. It makes it the most challenging to test and the most expensive option to install at multiple locations within the collection system. But it has been proven to remove methane and is designed for H₂S. It might be a suitable option to be tested at the plants' influent. I will further investigate the RTO technology and provide cost estimates for potential units.
4. The department is currently providing support to both Chiefs of Treatment (COT) and of Small Communities in their new roles.

G. Water Technology and Research

Improving 1,4-dioxane removal is an important aspect of SWIFT, both for the Research Center and the design of full-scale SWIFT facilities. The application of propane for enhancing co-metabolic removal of 1,4-dioxane through biofiltration at the pilot scale has been successful, and this work is continuing with several research questions remaining. Since this is such a promising technology from a capital and operating cost standpoint, we decided to move forward with full-scale pilot testing at the Research Center. A custom system has been designed and constructed to safely feed propane to two of the four parallel biofilters at the SWIFT Research Center. The propane feed system was started up in May, and intensive sampling and analysis has been initiated to evaluate 1,4-dioxane removal and other potential impacts of propane addition, both positive and negative. This is a completely novel technology development, and to the best of our knowledge, has never been attempted previously in a pilot or full-scale biofiltration process. Recent data has suggested a dramatic enhancement in the removal of 1,4-dioxane in the two full-scale biofilters receiving propane. This is an exciting development and may soon lead to a modification of the JRTP SWIFT project to add propane feed capability.

I. Strategic Measurement Data

1. Education and Outreach Events: 10

- a. 08/03/2022 – NTP Tour for Chesapeake Environmental Improvement Council (CEIC) – Lacie Weaver and Garrett Clower
- b. 08/04/2022 – SWIFT RC Tour for Draper and Associates – Lacie Wever and Germano Salazar-Benites
- c. 08/05/2022 – ATP Tour for HDR – Dana Gonzalez, Jeff Nicholson, and Chris Wilson
- d. 08/08/2022 – ATP Tour for Architecture, Engineering, Construction, Operations, and Management (AECOM) – Dana Gonzalez, Jeff Nicholson, and Chris Wilson
- e. 08/17/2022 – Veteran’s Job Fair – Robert Beavers and Scott Mattice
- f. 08/17/2022 – ATP Tour for Jacobs Engineering – Dana Gonzalez, Jeff Nicholson, and Chris Wilson
- g. 08/19/2022 – ATP Tour for Black and Veatch – Dana Gonzalez, Jeff Nicholson, and Chris Wilson
- h. 08/23/2022 – ATP Tour for Drishti Composting Team – Christel Dyer
- i. 08/25/2022 – ATP Tour for Brown and Caldwell – Dana Gonzalez, Jeff Nicholson, and Chris Wilson
- j. 08/29/2022 – ATP Tour for Stantec – Dana Gonzalez, Jeff Nicholson, and Chris Wilson

2. Community Partners: 3

- a. Chesapeake Bay Foundation-Oyster Cage Maintenance at BHTP for Oyster Garden Project
- b. DOE Jefferson Lab
- c. Old Dominion University (ODU)

3. Monthly Metrics

Item #	Strategic Planning Measure	Unit	August 2022
M-1.4a	Training During Work Hours per Full Time Employee (FTE) (524) – Current Month	Hours / FTE	2.05
M-1.4b	Total Training During Work Hours per FTE (524) – Cumulative Year-to-Date	Hours / FTE	3.43
M-2.3a	Planned Maintenance Total Maintenance Hours	Total Recorded Maintenance Labor Hours	27,788.25
M-2.3b	Planned Maintenance – Preventive and Condition Based	percent of Total Maintenance Hours	66.83%
M-2.3c	Planned Maintenance - Corrective Maintenance	percent of Total Maintenance Hours	11.10%
M-2.3d	Planned Maintenance - Projects	percent of Total Maintenance Hours	22.07%
M- 4.1a	Energy Use: Treatment	kWh/MG	2,439
M-4.1b	Energy Use: Pump Stations	kWh/MG	218
M-4.1c	Energy Use: Office Building	kWh/MG	136
M-5.2	Educational and Outreach Events	Number	10
M-5.3	Number of Community Partners	Number	3

4. Annual Metrics

Item #	Strategic Planning Measure	Unit	FY-2023
M-2.3a	Planned Maintenance Total Maintenance Hours	Total Recorded Maintenance Labor Hours(average)	28,030
M-2.3b	Planned Maintenance – Preventive and Condition Based	% of Total Maintenance Hours (average)	61%
M-2.3c	Planned Maintenance-Corrective Maintenance	% of Total Maintenance Hours (average)	15%
M-2.3d	Planned Maintenance-Projects	% of Total Maintenance Hours (average)	24%
M-3.6	Alternate Energy	Total kWh	*
M- 4.1a	Energy Use: Treatment	kWh/MG	2,439
M-4.1b	Energy Use: Pump Stations	kWh/MG	218
M-4.1c	Energy Use: Office Building	kWh/MG	136

* To be provided once data is reported

Respectfully submitted,
Eddie M. Abisaab, PE
 Director of Operations

TO: General Manager

FROM: Director of Talent Management (TM)

SUBJECT: Monthly Report for August 2022

DATE: September 14, 2022

A. Talent Management Executive Summary

1. Recruitment Summary

New Recruitment Campaigns	5
Job Offers Accepted – Internal Selections	15
Job Offers Accepted – External Selections	21
Internal Applications	33
External Applications	228
Average Days to Fill Position	88.55

2. Employee Separation Summary

	August 2022	Total (April 2022-August 2022)
Career/Better Opportunity	3	5
Content of work	0	2
Family circumstances	1	2
Dismissal	0	4
Going to school	0	1
Lack of Opportunity for Advancement	0	1
Moving from the area	1	2
Salary	0	4
Retirement	0	6
End of Assignment (PT)	6	10
Unknown	0	1

3. Continued addressing and monitoring suspected COVID-19 cases and potential exposures based on Virginia Department of Health (VDH) guidelines:

Description	August 2022	Total (March 2020 – August 2022)
Quarantines due to illness or direct exposure (household or external)	5	452
Work Related Quarantines	0	106
Personal Travel Quarantines	0	61
Confirmed Employee COVID-19 Cases	22	290
Work Related Confirmed COVID-19 Cases	0	13
Contractor COVID-19 Cases on HRSD Sites*	0	12
Work Related exposure no quarantine required*	0	63
Vaccine Acknowledgements	2	875
Booster Acknowledgements	6	411
Vaccination Rate	96%	
Boosted*	45%	

*Added May 2022

4. Human Resources continued work with the consultant on system changes to benefit interfaces and benefit plan changes.
5. Benefits and Compensation
- a. The Compensation and Classification (C&C) team evaluated one existing position.
 - b. Renewed the Medicare and Prescription drug benefits with an effective date of January 1, 2023. There is a 3% increase in cost for the coming plan year.
6. Wellness Program
- a. Participation

Year Ten Participation Activities	Unit	August 2022	Year to Date (March 2022– February 2023)
Biometric Screenings	Number	6	66
Preventive Health Exams	Number	3	58
Preventive Health Assessments	Number	18	73
Online Health Improvement Programs	Number	*	35
Web-MD Online Health Tracking	Number	*	621
New Challenges “ <i>Team to Team</i> ”	Number	0	30
Fit-Bit Promotion	Number	*	34

*Numbers not provided from Optima

- b. The Wellness Specialists requested current participants to send in completed wellness activities by August 18. Optima Health's wellness contract ended August 31.
- c. The final wellness activity files from Optima were sent via a secure portal to HRSD and then to the new Wellness provider, WellSpark.
- d. HRSD conducted weekly implementation calls as WellSpark prepares to launch several communications to the organization regarding their company and how wellness information will be submitted.
- e. Chanda Giles, Brenda Matesig, and Dorissa Pitts-Paige interviewed two candidates for the onsite Wellness Specialist from WellSpark. The search will continue as neither candidate was selected.

7. Organizational Development and Training

- a. Worked with consultant Hicks-Carter-Hicks (H-C-H) and the HRSD sponsor on several Diversity, Equity, and Inclusion (DE&I) initiatives.
- b. Worked with consultant H-C-H on the Leadership Ethical Accountability Program (LEAP) supervisor training program. The topic was Diversity, Equity, and Inclusion.
- c. Continued working on the LAMA Cohort 2022- 2023 program. The topic was Strengthsfinder.
- d. Facilitated the two-day TAPS workshop.
- e. Continued work with the Customer Care Division to curate online learning paths and integration of available Corporate Training courses.
- f. Continued work with the Water Quality Department to increase quality assurance training courses.
- g. Continued work with Boat Harbor Treatment plant leadership to conduct a StrengthsFinder workshop for their team.
- h. Continued work on the Corporate Training software. We successfully created badges for courses.
- h. Coordinated a cross-departmental team to advance the functionality of Canvas. And held the kick-off meeting.

9. Apprenticeship Program

- a. Continued work on the *Youth Summer Intensive (YSI) Program*. ODT Staff are currently working with high school administrators, apprenticeship instructors and work center staff to develop and prepare for the summer internship.
- b. Continued developing the new math instructor, Gina Foote.
- c. Work continued on the following:
 - (1) Apprenticeship Graduation planning meetings
 - (2) Request for Proposals for a Student Information System and Attendance and Assessment applications.

- (3) Developing Standard Operating Procedures for ODT responsibilities
- (4) Trade curricula revisions and course development to update and enhance course offerings
- (5) Term reconciliation to include entering grades, and ratifying attendance records.

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

	<u>2021</u>	<u>2022</u>
Mishaps	33	27
Lost Time Mishaps	12	3
<i>Numbers subject to change pending HR review of each case.</i>		

11. Safety Division Monthly Activities

Safety Training Classes	14
Work Center Safety Inspections	6
Reported Accident Investigations	5
Construction Site Safety Evaluations	10
Contractor Safety Briefings	9
Hot Work Permits Issued	2
Confined Space Permits Issued/Reviewed	94
Industrial Hygiene Monitoring Events	4

B. Monthly Strategic Planning Metrics Summary

1. Education and Outreach Events (1):

- a. 8/28/22 "It Takes a Village" Back to School Job Fair 8/28 Boo Williams Sportsplex Hampton

2. Community Partners: (5)

- a. VWEA Leadership Academy
- b. Virginia Values Veterans (V3) Core Curriculum Webinar
- c. Virginia Water Environment Association (VWEA) WaterJAM subcommittee
- d. VWEA/AWWA Joint DE&I Committee
- e. Water Environment Federation (WEF) Utility Management Committee Leadership Workgroup

3. Monthly Metrics

Item #	Strategic Planning Measure	Unit	August 2022
M-1.1a	Employee Turnover Rate (Total)	Percentage	0.51
M-1.1b	Employee Turnover - Service Retirements	Percentage	0%
M-1.4a	Total Training Hours Per Full Time Employee (18)	Total Training Hours/ FTE	0.78
M-1.4b	Total Training During Work Hours Per Full Time Employee (18) – Cumulative Fiscal Year-to-Date	Hours / FTE	1.33
M-5.2	Educational and Outreach Events	Number	1
M-5.3	Community Partners	Number	5

Respectfully submitted,

Dorissa Pitts-Paige
Director of Talent Management

TO: General Manager
FROM: Director of Water Quality (DWQ)
SUBJECT: Monthly Report for August 2022
DATE: September 14, 2022

A. General

1. The Pretreatment and Pollution (P3) Division issued one civil penalty.

Marva Maid Dairy – Newport News

An Enforcement Order was issued to Marva Maid Dairy in August 2022 for two technical violations and one administrative violation related to permit limit exceedances. The Enforcement Order contained a \$6,000 Civil Penalty invoice. The technical violations consisted of an exceedance of their oil and grease (SGT-HEM) permit limit and failure to collect a required grab sample during a low pH reading lasting more than consecutive 15 minutes. The administrative violation resulted from failing to report an April 2022 low pH reading. The Permittee is under a Consent Order to upgrade their pretreatment system to address ongoing compliance issues associated with oil and grease, pH, and solids accumulation in the sewerage system. The Permittee has reported difficulty sourcing equipment for the upgrade which has significantly delayed progress. The Enforcement Order was accepted, and the Civil Penalty was paid in full on August 29, 2022.

2. WQ continued work with the General Manager, Operations, and Communications staff to address ongoing odor issues at the Atlantic Treatment Plant (ATP).
 - a. Technical Services Division (TSD) maintained increased odor surveillance and their work with ATP staff to identify and mitigate odor sources and immediate response to odor complaints.
 - b. Provided sampling and analytical support for a pilot biosolids curing study
3. WQ provided comment to the Department of Environmental Quality (DEQ) on a draft State Operating Permit (SOP) for ATP air emissions. The draft permit was issued based on a request for a permit modification to increase the allowable facility-wide emissions limits. The resulting draft permit included a requirement for a State-Only Enforceable Odor Management Plan. HRSD objected to this permit condition, finding such a condition unacceptable due to concerns with establishing a precedent for other HRSD SOPs and potentially other wastewater agency SOPs in Virginia. To HRSD's knowledge, this permit condition is currently not present in any other Virginia SOPs. The condition is also unnecessary given HRSD's historical and ongoing investments in Best Available Control Technology and commitment to being good neighbors to the communities we serve. HRSD provided DEQ with information on recent HRSD Commission-approved Atlantic Reliability and Odor Control Capital Improvement Projects as well as the Commission-Adopted Odor Management Policy.

4. The ATP Class A Biosolids Demonstration project was completed and the product registration process with Virginia Department of Agriculture and Consumer Services was initiated.
5. TSD restructured data management roles and systems to implement DEQ's new electronic Discharge Monitoring Report (e-DMR) system.
6. WQ continued working with Safety to finalize Emergency Response Procedures and a policy regarding the use of earbuds to incorporate into Chemical Hygiene Plan updates.
7. The Central Environmental Laboratory (CEL) implemented reorganization of Laboratory Manager roles in response to staffing changes, increases in workload, and implementation of new technology.
8. Advocacy and External Activities:
 - a. Stacie Crandall, Chief of the Laboratory Division, accepted a nomination to serve as the Proficiency Testing Program Executive Committee chair for the National Environmental Laboratory Accreditation Conference (NELAC) Institute.
 - b. An Environmental Improvement Fund grant application was reviewed, and a grant awarded to the Back Bay Wildlife Refuge Society for a Monarch Butterfly Habitat Restoration project.
 - c. CEL representatives attended the National Environmental Monitoring Conference and participated as technical session chair, attended accreditation committee meetings and provided comments on draft laboratory accreditation standards.
 - d. To ensure source control issues are addressed, the Chief of P3 participated in the final meeting of a workgroup commissioned by the Virginia Board of Funeral Directors and Embalmers pertaining to legalizing, implementing, and regulating a proposed new method. Workgroup recommendations will be sent to the General Assembly.
 - e. DWQ attended Water Environment Federation (WEF) webinar, *PFOA/PFAS is Here to Stay: Utilities' Perspectives and Task Force Updates*.
 - f. DWQ participated in a WEF Utility Management Workforce Sustainability Leadership subcommittee meeting.
9. DWQ participated in the following HRSD Activities:
 - a. HRSD Strategic Planning Workshops
 - b. A meeting with Deputy General Manager, Human Resources and Accounting staff to provide input for Remote Work policy updates

- c. HRSD SWIFT Strategy Meeting
- d. UNIFIED Council's Diversity Equity and Inclusion Assessment interviews

B. Quality Improvement and Strategic Activities

The WQ Communication team began evaluating survey results to assess ways to facilitate communication and collaboration within WQ.

C. Municipal Assistance Program (MAP)

HRSD provided sampling and analytical services to the following to support monitoring required for their respective VPDES permits:

- 1. City of Chesapeake
- 2. City of Franklin
- 3. Northumberland County
- 4. Town of Lawrenceville
- 5. Western Virginia Water Authority
- 6. Westmoreland County

D. Microbial Source Tracking (MST)

Hampton Roads Projects - HRSD provided sampling and analytical services to:

- 1. City of Chesapeake (Southern Branch)
- 2. City of Hampton (New Market Creek)
- 3. City of Newport News (Lucas Creek/Southeast Newport News)
- 4. City of Norfolk (Mason Creek)
- 5. City of Suffolk (downtown)
- 6. City of Virginia Beach (Thalia Creek)
- 7. James City County

E. Strategic Planning Metrics Summary

- 1. Educational and Outreach Events: (0)
- 2. Community Partners: (5)
 - a. Hampton Roads Planning District Commission
 - b. City of Virginia Beach
 - c. City of Chesapeake, Chesapeake Local Health District
 - d. Virginia Department of Health
 - e. Lynnhaven Now Citizen Monitoring project

- 3. Odor Complaints:

See attached [Effluent and Air Emissions Summary](#)

4. Monthly Metrics

Item #	Strategic Planning Measure	Unit	August 2022
M-1.4a	Training During Work Hours Per Full Time Employee (120) (Current Month)	Total Hours / # FTE	4.27
M-1.4b	Total Training During Work Hours Per Full Time Employee (120) (Cumulative Fiscal Year-to-Date)	Total Hours / # FTE	10.15
M-2.5	North Shore/South Shore Capacity Related Overflows	# within Level of Service	0
M-3.1	Permit Compliance	# of Exceedances: # of Permitted Parameters	3:10,706
M-3.2	Odor Complaints	#	3
M-3.4	Pollutant Removal (Cumulative Fiscal Year-to-Date)	Total Pounds Removed	34,084,601
M-3.5	Pollutant Discharge (Cumulative Fiscal Year-to-Date)	% Pounds Discharged/ Pounds Permitted	14%
M-5.2	Educational and Outreach Events	#	0
M-5.3	Community Partners	#	5
	Average Daily Flow	Total MGD for all Treatment Plants	131.22
	Pretreatment Related System Issues	#	0

5. Annual Metrics

Item #	Strategic Planning Measure	Unit	FY-2022
M-3.3	Carbon Footprint	Tons per MG	*
M-4.2	R & D Budget	Percentage of Total Revenue	*%
M-5.4	Value of Research	Number	*
M-5.5	Number of Research Partners	Number	*
	Rolling 5 Year Average Daily Flow	MGD	145.75
	Rainfall reported at Norfolk International Airport	Inches	38.18"

*These metrics will be reported upon closeout of fiscal year financials.

Respectfully submitted,

Paula A Hogg

Director of Water Quality

EFFLUENT SUMMARY FOR AUGUST 2022

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	7.53	42%	0	1.8	2	3	1.7	0.71	4.6	4.5	2
ATLANTIC	46.01	85%	8	9.7	2	3	NA	NA	NA	NA	19
BOAT HARBOR	9.51	38%	5	6.6	18	1	0.86	0.67	32	25	10
CENT. MIDDLESEX	0.012	48%	<2	<1.0	1	<1	NA	NA	NA	NA	NA
JAMES RIVER	11.95	60%	4	3.7	1	1	0.42	0.68	8.3	9.5	17
KING WILLIAM	0.073	73%	<2	0.26	NA	1	0.048	0.18	2.4	2.6	NA
NANSEMOND	14.99	50%	3	4.7	2	3	0.69	0.64	3.1	3.8	0
NASSAWADOX	0.013	13%	<2	6.8	<1	1	0.67	0.75	16	15	NA
ONANCOCK	0.155	21%	<2	0.11	1	1	0.088	0.25	0.78	1.5	NA
SURRY, COUNTY	0.039	60%	6	1.3	NA	NA	NA	NA	NA	NA	0
SURRY, TOWN	0.035	58%	2	9.0	NA	4	NA	NA	NA	NA	NA
URBANNA	0.068	68%	2	6.6	2	2	6.1	2.3	18	12	NA
VIP	20.39	51%	6	1.7	2	1	1.2	0.49	6.5	3.8	11
WEST POINT	0.300	50%	36	12	2	2	2.6	2.7	20	18	1
WILLIAMSBURG	9.72	43%	5	3.7	14	3	1.5	0.93	2.1	2.9	23
YORK RIVER	10.43	70%	1	0.98	1	2	0.17	0.28	4.5	5.0	1
	<u>131.22</u>										

Tributary Summary								
	% of Capacity	<u>Annual Total Nitrogen</u>			<u>Annual Total Phosphorus</u>			
		Discharged	Operational		Discharged	Operational		
		YTD	Projection	CY22	YTD	Projection		
Tributaries		YTD	Lbs	%	%	Lbs	%	
James River		36%	2,184,388	62%		34%	198,649	63%
York River		49%	227,532	79%		48%	14,853	77%
Rappahannock		42%	NA	NA		35%	NA	NA

Permit Exceedances: Total Possible Exceedances, FY23 to Date: 3:10,706
Pounds of Pollutants Removed in FY23 to Date: 34,084,601
Pollutant Lbs Discharged/Permitted Discharge FY23 to Date: 14%

	Rainfall (inch)		
	<u>North Shore (PHF)</u>	<u>South Shore (ORF)</u>	<u>Small Communities (FYJ)</u>
Month	2.90"	1.21"	3.31"
Normal for Month	6.26"	5.99"	5.10"
Year to Date Total	33.63"	27.26"	28.79"
Normal for YTD	35.37"	33.50"	33.79"

*Small Communities includes Eastern Shore

AIR EMISSIONS SUMMARY FOR AUGUST 2022

MHI PLANT	No. of Permit Deviations below 129 SSI Rule Minimum Operating Parameters								Part 503e Limits		
	Temp	Venturi(s) PD	Precooler Flow	Spray Flow	Venturi Flow	Tray/PBs Flow	Scrubber	Any	THC	THC	BZ Temp
	12 hr ave (F)	12 hr ave (in. WC)	12 hr ave (GPM)	12 hr ave (GPM)	12 hr ave (GPM)	12 hr ave (GPM)	pH 3 hr ave	Bypass Stack Use	Mo. Ave (PPM)	DC (%)	Daily Ave Days >Max
ARMY BASE	1	1	0	0	1	0	0	1	58	99	0
BOAT HARBOR	0	0	0	n/a	0	0	0	2	25	98	0
VIP	0	0	0	n/a	0	0	0	1	29	97	0
WILLIAMSBURG	0	0	0	n/a	0	0	0	0	28	96	0

ALL OPERATIONS

DEQ Reportable Air Incidents:	0
DEQ Request for Corrective Action:	0
DEQ Warning Letter:	0
DEQ Notice of Violation:	0
Other Air Permit Deviations:	1
Odor Complaints Received:	3
HRSD Odor Scrubber H2S Exceptions:	5

Items of Interest – August 2022

MULTIPLE HEARTH INCINERATION (MHI)

Total Hydrocarbon (THC) monthly averages (not to exceed 100 ppm) were met by all four MHI plants (Army Base, Boat Harbor, Virginia Initiative, and Williamsburg) with a THC continuous emissions monitoring (CEM) valid data captured of greater than 96%.

The MHIs had three deviations from the required 129 SSI rule minimum operating parameters and four minor bypass events (<60 minute). All three deviations were from one MHI malfunction event at Army Base that involved a power failure and loss of DCS control on August 1. One other 129 deviation occurred at Williamsburg when a cake sample was not taken and analyzed for total percent solids on August 1.

The annual air permit fees were paid for HRSD's eight main treatment plants with air permits to DEQ on August 10.

The Title V semi-annual reports for the four MHI plants were submitted to DEQ on August 30.

AIR PERMITS and ODOR CONTROL

On August 29, HRSD responded to DEQ's Atlantic Plant draft air permit dated August 22 wherein HRSD objected to draft permit condition # 30 the State Only Enforceable (SOE) Odor Management Plan (OMP). DEQ acknowledged the submittal and said they would review and provide a response accordingly.

Atlantic Plant received one odor complaint during August. In the wake of the scrubber fire at scrubber train 1 of Odor Control Station D, scrubber train # 4 was placed into service and two days into operation (and by the morning of August 7) was malfunctioning and exhausting sulfides that an Ocean Lakes neighbor observed. Train # 4 was taken out of service at that time for media cleaning and service on a chemical pump. Train # 4 was placed back into service with sulfides being properly controlled at all three scrubber trains Nos. 2-4. No additional complaints were received in August.

North Shore Operations received two complaints from a City of Hampton resident at 913 Chesapeake Avenue on August 25 and 29. The initial concern was potential odors from Claremont pump station as they are ten houses from the station. NS Ops and TSD responded. Based on investigation (including observations, sample collection and CEL data) sewage has been identified in the storm water outfall just north of the pump station. The City of Hampton has been notified and no further complaints have been received.

Five odor control scrubber system hydrogen sulfide exceptions were measured in August.

TREATMENT

DEQ was notified of the following reportable events:

Williamsburg

On August 4th, three consecutive low chlorine residual readings were recorded. A Maintenance Operator was training on dayshift alongside a new Plant Operator when the Maintenance Operator got the first exception at 12:20 and the new Operator got the second at 14:15, neither were aware they each had one. When the evening shift operator obtained the third exception at 16:20, he was unaware of the first two exceptions. Additionally, the 5-minute analyzer was in manual at the time due to persistent issues over the previous 2 days, so all hypo adjustments were made by the operator. Upon discovery, hypo flow was increased to the contact tanks. Operators received additional training and steps will be taken to prevent future occurrences.

SMALL COMMUNITIES/SURRY/EASTERN SHORE

West Point

On August 28th, the Tertiary Filter Pump Station control panel tripped. The alarm system was also down. Lightening is believed to be the cause given storms in the area. After the pumps were reset, the spill was neutralized with pelletized lime. Electrical and Instrumentation Staff (EIS) troubleshooted and replaced the pump station Programmable Logic Controller (PLC). Approximately 400 gallons of partially treated pre-disinfection wastewater was released on the ground.

For the month of August 2022, the monthly maximum BOD concentration was exceeded at the West Point STP (VA0075434). The permitted monthly maximum average concentration for the West Point STP is 30 mg/L. The average BOD concentration value for the month of August was 36 mg/L. Although a trickling filter rehabilitation project was recently completed, mechanical and electrical issues throughout the month are believed to be the cause of the above normal BOD concentration. During the month, the variable frequency drives (VFDs) for the recirculation pumps were tripping frequently. Several of these events were attributed to electrical service issues confirmed by Virginia Dominion Power. In addition, replacement of the VFDs for one trickling filter is complete and replacement of VFDs for the second trickling filter is planned. All trickling filter mechanical parts were new as part of the rehab project. However, Operators discovered a trickling filter distributor was not spinning and found the new mounting bolts had sheared between the distributor and the motor. Since the contractor was not immediately available to make warranty repairs, HRSD staff repaired and returned the trickling filter to service. Staff believe the trickling filter problems led to the above-normal BOD concentrations and the corrective actions taken will resolve the issues but will closely monitor the equipment performance and data to ensure BOD levels are back in compliance.

2022 Metals, Ammonia, and TKN

		Limit	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Central Middlesex	Ammonia	0.56	0.03	NA	NA	0.23	NA	NA	0.19	NA				
	TKN	3.0	<0.50	NA	NA	<0.50	NA	NA	0.52	NA				
King William	Zinc	*	75	NA	NA	18	NA	NA	NA	25				
	TKN	3.0	1.3	2.6^	0.44	0.40	0.26	0.27	0.24	0.13				
Nassawadox Riverside	Cadmium	2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50				
	Copper	23	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0				
	Nickel	38	17	23	14	15	<10	<10	<10	<10				
	Zinc	150	<50	<50	<50	<50	<50	<50	<50	<50				
	Ammonia	1.7	2.2^	0.09	0.07	0.09	0.07	0.08	0.06	0.06				
Onancock	Copper	12	2.0	NA	NA	1.3	NA	NA	2.7	NA				
	Ammonia	0.90, 2.0	0.29	0.16	0.02	0.04	0.10	0.18	0.49	0.06				
Surry County	Copper	5.9	3.0	2.0	1.0	4.0	4.0	5.5^	3.0	5.6				
	Zinc	56	24	33	11	31	28	37	16	21				
	Ammonia	0.77	NA	NA	NA	NA	NA	**	1.9^	0.09			NA	NA
	TKN	3.0	0.55	NA	0.57	NA	2.7	NA	<0.50	NA				
Town of Surry	Copper	12	2.0	6.0	3.0	5.0	4.0	2.0	3.0	2.0				
	Zinc	39	14	12	12	14	11	10	11	10				
	Ammonia	4.5	0.11	0.10	0.11	0.11	<0.10	<0.10	<0.10	0.16				
	TKN	6.7	2.0	1.9	1.8	1.3	0.57	1.2	1.6	0.71				
Urbanna	Ammonia	3.83, 9.08	7.76	0.05	1.26	0.08	0.41	0.14	<0.02	0.08				

*No limit. Treatment objective 53 ug/L

Units: TKN, Ammonia: mg/L. Metals: ug/L

^ NR monthly average 2.2, weekly Jan 23 3.4

^ KW monthly average 2.6, weekly Feb 6 9.95

^ CSY monthly average 5.5, weekly June 5 7.0

** CSY weekly ammonia samples not collected during the month of June

^ CSY monthly average 1.9, weekly July 3 7.7

2022 MONTHLY FLOW AVERAGES

	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	YR AVG	FY AVG
Army Base	8.38	8.29	9.12	8.56	8.56	8.05	8.01	7.53					8.31	7.77
Atlantic	42.47	42.46	42.81	40.26	42.88	43.58	46.32	46.01					43.35	46.17
Boat Harbor	15.64	13.78	13.31	12.04	11.66	10.17	10.10	9.51					12.02	9.80
C.Middlesex	0.005	0.006	0.006	0.010	0.011	0.011	0.011	0.012					0.009	0.012
Ches-Eliz	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00
James River	14.47	13.70	14.65	13.10	12.12	11.39	11.97	11.95					12.92	11.96
King William	0.064	0.050	0.066	0.070	0.069	0.073	0.071	0.073					0.067	0.072
Lawnes Point	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000					0.000	0.000
Nansemond	16.32	15.78	16.16	15.46	15.54	14.53	14.64	14.99					15.43	14.81
Nassawadox	0.020	0.013	0.022	0.023	0.017	0.016	0.016	0.013					0.017	0.014
Onancock	0.177	0.160	0.208	0.174	0.171	0.175	0.174	0.155					0.17	0.165
Surry, County	0.047	0.043	0.057	0.046	0.040	0.036	0.039	0.039					0.043	0.039
Surry, Town	0.043	0.044	0.057	0.047	0.039	0.032	0.041	0.035					0.042	0.038
Urbanna	0.041	0.034	0.038	0.059	0.068	0.074	0.075	0.068					0.057	0.072
VIP	25.64	26.17	27.83	23.85	23.53	20.25	20.27	20.39					23.49	20.33
West Point	0.433	0.385	0.429	0.415	0.345	0.312	0.297	0.300					0.365	0.298
Williamsburg	8.25	7.59	8.41	8.51	8.64	8.49	9.36	9.72					8.62	9.54
York River	14.08	12.97	13.66	12.81	12.35	11.02	10.87	10.43					12.27	10.65
North Shore	52.45	48.03	50.03	46.45	44.76	41.07	42.30	41.60					45.84	41.95
South Shore	92.81	92.70	95.92	88.13	90.52	86.40	89.24	88.93					90.58	89.08
Small Communities	0.83	0.73	0.88	0.84	0.76	0.73	0.72	0.70					0.77	0.71
TOTAL	146.09	141.47	146.84	135.42	136.04	128.20	132.26	131.22					137.19	131.74

Bold values indicate monthly plant flow average >95% of permitted design flow



The following Internal Audit Status document has been prepared by SC&H for the HRSD Commission. Below is a summary of projects in process, upcoming audits, and the status of current management action plan monitoring.

I. Projects in Process

Family Medical Leave Act (FMLA)

- **Task Completed (August 2022)**
 - Continued fieldwork procedures
 - Began draft report
- **Upcoming Tasks (September 2022)**
 - Finalize fieldwork procedures
 - Finalize draft report

Freedom of Information Act (FOIA)

- **Task Completed (August 2022)**
 - Continued review of federal, state, and regional compliance and regulations
 - Continued benchmarking research
- **Upcoming Tasks (September 2022)**
 - Summarize results and analysis
 - Develop draft report

Grants Management

- **Task Completed (August 2022)**
 - Provided point of contact with audit objectives, timing, and planning procedures
 - Paused the project per direction from point of contact
- **Upcoming Tasks (September 2022)**
 - Commence planning in October 2022

Personally Identifiable Information

- **Upcoming Tasks (September 2022)**
 - Begin planning procedures



II. Management Action Plan Monitoring

SC&H is performing on-going management action plan (MAP) monitoring for internal audits previously conducted for HRSD. SC&H begins MAP follow-up approximately one year following the completion of each audit and will assess bi-annually.

For each recommendation noted in an audit report, SC&H gains an understanding of the steps performed to address the action plan and obtains evidence to confirm implementation, when available.

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

Audit	Report Date	Next Follow-up	Recommendations		
			Closed	Open	Total
Biosolids Recycling	10/8/16	September 2022	7	1	8
Treatment Plant Operations	10/15/18	September 2022	8	1	9
Safety Division	9/12/19	September 2022	2	1	3
SWIFT Program	2/24/2021	September 2022	9	3	12
Succession Planning	6/4/2021	September 2022	0	4	4
Emergency Repairs	1/18/2022	February 2023	0	3	3
Unifier/ERP Integration	6/27/2022	June 2023	0	4	4
D&C: CIP Project Management	5/11/16	Closed	13	0	13
HR Benefits	11/22/16	Closed	15	0	15
Inventory	4/20/17	Closed	5	0	5
Procurement/ProCard	8/23/17	Closed	11	0	11
Engineering Procurement	4/20/18	Closed	8	0	8
Corporate Governance: Ethics Function	3/21/18	Closed	5	0	5
Permitting	2/4/20	Closed	2	0	2
Payroll	3/27/20	Closed	3	0	3
Customer Care Division	7/26/19	Closed	4	0	4
Pollution Source Control	6/2/20	Closed	8	0	8
Fleet Services	2/24/2021	Closed	17	0	17
Totals			117	17	134

Annual Metrics																
Item	Strategic Planning Measure	Unit	Target	FY-10	FY-11	FY-12	FY-13	FY-14	FY-15	FY-16	FY-17	FY-18	FY-19	FY-20	FY-21	FY-22
M-1.1a	Employee Turnover Rate (Total)	Percentage	< 8%	5.63%	4.09%	6.64%	7.62%	8.22%	9.97%	6.75%	6.66%	9.99%	6.63%	6.78%	6.31%	16.04%
M-1.1b	Employee Turnover Rate within Probationary Period		0%		2.22%	8.16%	14.58%	9.68%	0.66%	0.13%	0.90%	1.01%	2.10%	3.08%	5.44%	1.64%
M-1.2	Internal Employee Promotion Eligible	Percentage	100%		59%	80%	70%	71%	64%	69%	68%	85%	85%	63%	78%	65%
M-1.3	Average Time to Fill a Position	Calendar Days	< 30		70	60	52	43.76	51	56	67	67	66	60	95	74.52
M-1.4	Training Hours per Employee - cumulative fiscal year-to-date	Hours	> 40		30.0	43.8	37.5	35.9	42.8	49.0	48.4	41.1	40.9	39.3	28.2	32.3
M-1.5a	Safety OSHA 300 Incidence Rate Total Cases	# per 100 Employees	< 3.5	6.57	6.15	5.8	11.2	5.07	3.87	7	5.5	5.7	4.1	4.8	4.1	4.53
M-1.5b	Safety OSHA 300 Incidence Rate Cases with Days Away	# per 100 Employees	< 1.1	0.74	1.13	1.33	0.96	1.4	0.82	1.9	1	1.1	0.8	1.34	1.3	1.09
M-1.5c	Safety OSHA 300 Incidence Rate Cases with Restriction, etc.	# per 100 Employees	< 0.8	3.72	4.27	2.55	4.5	2	1.76	3.6	2.8	2.8	1.8	1.6	4.1	3.43
M-2.1	CIP Delivery - Budget	Percentage			113%	96%	124%	149%	160%	151%	156%	160%	170%	170%	123%	120%
M-2.2	CIP Delivery - Schedule	Percentage			169%	169%	161%	150%	190%	172%	173%	167%	159%	159%	155%	152%
M-2.3a	Total Maintenance Hours	Total Available Mtc Labor Hours Monthly Avg			16,495	22,347	27,615	30,863	35,431	34,168	28,786	28,372	31,887	29,596	28,722	28,300
M-2.3b	Planned Maintenance	Percentage of Total Mtc Hours Monthly Avg			20%	27%	70%	73%	48%	41%	43%	44%	59%	59%	62%	61%
M-2.3c	Corrective Maintenance	Percentage of Total Mtc Hours Monthly Avg			63%	51%	12%	10%	18%	25%	24%	18%	19%	16%	15%	15%
M-2.3d	Projects	Percentage of Total Mtc Hours Monthly Avg			18%	22%	20%	18%	32%	34%	32%	32%	27%	25%	22%	24%
M-2.4	Infrastructure Investment	Percentage of Total Cost of Infrastructure	2%		8.18%	6%	6%	4%	7%	7%	5%	5%	4	5%	7%	*
M-3.3	Carbon Footprint	Tons per MG Annual Total			1.61	1.57	1.47	1.46	1.44	1.45	1.58	1.66	1.58	1.7	1.75	*
M-3.6	Alternate Energy (Incl. Green Energy as of FY19)	Total KWH		0	0	0	5,911,289	6,123,399	6,555,096	6,052,142	5,862,256	47,375,940	56,473,800	58,044,110		*
M-4.1a	Energy Use: Treatment	kWh/MG Monthly Avg			2,473	2,571	2,229	2,189	2,176	2,205	2,294	2,395	2,277	2,408	2,459	*
M-4.1b	Energy Use: Pump Stations	kWh/MG Monthly Avg			197	173	152	159	168	163	173	170	181	174	170	*
M-4.1c	Energy Use: Office Buildings	kWh/MG Monthly Avg			84	77	102	96	104	97	104	104	95	102	82	*
M-4.2	R&D Budget	Percentage of Total Revenue	> 0.5%		1.0%	1.4%	1.0%	1.3%	1.0%	0.8%	1.3%	1.4%	1.8%	1.3%	1.4%	*
M-4.3	Total Labor Cost/MGD	Average Daily Flow		\$1,028	\$1,095	\$1,174	\$1,232	\$1,249	\$1,279	\$1,246	\$1,285	\$1,423	\$1,348	\$1,487	\$1,545	*
M-4.4	Affordability	Median Household Income	< 0.5%		0.48%	0.48%	0.41%	0.43%	0.53%	0.55%	0.59%	0.60%	0.64%	0.71%	0.67%	*
M-4.5	Total Operating Cost/MGD	365/5-Year Average Daily Flow		\$2,741	\$2,970	\$3,262	\$3,316	\$3,305	\$3,526	\$3,434	\$3,592	\$3,959	\$3,823	\$4,048	\$4,311	*
M-5.1	Name Recognition	Percentage (Survey Result)	100%	67%	71%	N/A	62%	N/A	60%	N/A	N/A	53%	N/A	53%	N/A	N/A
M-5.4	Value of Research	Percentage - Total Value/HRSD Investment			129%	235%	177%	149%	181%	178%	143%	114%	117%	143%	138%	*
M-5.5	Number of Research Partners	Annual Total Number			42	36	31	33	28	35	15	20	26	32	27	*
	Rolling 5 Year Average Daily Flow	MGD		157.8	155.3	152	154.36	155.2	151.51	153.09	154.24	152.8	152.23	149.84	149.72	145.75
	Rainfall	Annual Total Inches		66.9	44.21	56.21	46.65	46.52	51.95	54.14	66.66	49.24	53.1	48.49	54.04	38.18
	Billed Flow	Annual Percentage of Total Treated		71.9%	82.6%	78%	71%	73%	74%	72%	73%	76%	72%	78%	72%	*
	Senior Debt Coverage	Net Revenue/Senior Annual Debt Service	> 1.5	2.51%	2.30%	2.07%	1.88%	1.72%	1.90%	2.56%	3.10%	3.59%	4.84%	5.80%	6.03%	*
	Total Debt Coverage	Net Revenue/Total Annual Debt	>1.4	1.67%	1.67%	1.46%	1.45%	1.32%	1.46%	1.77%	1.93%	2.03%	2.62%	2.81%	2.66%	*

*to be reported

Monthly Updated Metrics																	FY-23	FY-23
Item	Strategic Planning Measure	Unit	Target	FY-10	FY-11	FY-12	FY-13	FY-14	FY-15	FY-16	FY-17	FY-18	FY-19	FY-20	FY-21	FY-22	Jul-22	Aug-22
	Average Daily Flow	MGD at the Plants	< 249		136	146.5	158.7	156.3	153.5	155.8	153.5	145.8	152.7	141.5	155.3	131.3	132.3	131.2
	Industrial Waste Related System Issues	Number	0		3	6	6	6	2	4	7	4	7	1	2	4	0	0
	Wastewater Revenue	Percentage of budgeted	100%		97%	96%	98%	107%	102%	104%	103%	103%	104%	106%	106%	100%	100%	105%
	General Reserves	Percentage of Operating and Improvement Budget	75% - 100%		72%	82%	84%	92%	94%	95%	104%	112%	117%	119%	108%	106%	111%	102%
	Accounts Receivable (HRSD)	Dollars (Monthly Avg)			\$17,013,784	\$17,359,488	\$18,795,475	\$20,524,316	\$20,758,439	\$22,444,273	\$22,572,788	\$22,243,447	\$23,900,803	\$27,335,100	\$34,060,154	\$39,539,639	\$41,723,530	\$42,978,332
	Aging Accounts Receivable	Percentage of receivables greater than 90 days			21%	20%	18%	19%	21%	20%	18%	18%	17%	18%	29%	33%	30%	28%
M-2.5	Capacity Related Overflows	Number within Level of Service	0		25	1	30	5	11	16	6	10	5	2	25	0	0	0
M-3.1	Permit Compliance	# of Exceedances to # of Permitted Parameters	0		12:55,045	1:51995	2:52491	1:52491	2:52491	2:52,491	9:53236	9:58338	2:60879	9:60879	23:60879	9:60879	2:5353	3:10,706
M-3.2	Odor Complaints	Number	0		6	2	7	11	5	9	7	6	9	15	31	51	8	3
M-3.4	Pollutant Removal (total)	Total Pounds Removed			178,163,629	171,247,526	176,102,248	185,677,185	180,168,546	193,247,790	189,765,922	190,536,910	187,612,572	182,759,003	183,123,855	177,322,331	16,626,599	34,084,601
M-3.5	Pollutant Discharge (% of permitted)	Pounds Discharged/Pounds Removed	< 40%		25%	22%	25%	22%	22%	20%	22%	17%	17%	17%	18%	14%	14%	14%
M-5.2	Educational and Outreach Events	Number			302	184	238	322	334	443	502	432	367	256	145	687	52	53
M-5.3	Number of Community Partners	Number			280	289	286	297	321	354	345	381	293	230	128	125	17	18