

Eastern Shore Sanitary Sewer Transmission Force Main Project - Phase 1 Overview for Accomack and Northampton Counties



Challenges for the Eastern Shore

- Adequate sewage treatment facilities are essential for the environment and economy of Virginia's Eastern Shore.
- The reliance on septic systems and aging treatment facilities will certainly stifle the growth of the Eastern Shore. Planning for the future is critical.
- Adequate sewage treatment facilities would increase regional capacity to expand and start new businesses. A regional wastewater transmission line will reduce the need for individual businesses to manage their own wastewater requirements.
- Only a small portion of the Eastern Shore of Virginia is served by public sewer facilities, with many of the facilities requiring upgrades or alternatives. It is important to provide residents with reliable and environmentally friendly centralized sewers.

Eastern Shore Sanitary Sewer Transmission Force Main Project - Phase 1

About Eastern Shore Sanitary Sewer Transmission Force Main - Phase 1

The Beginning:

The Eastern Shore Sanitary Sewer Transmission Force Main Project was formed at a “Learning the Shore Discussion on Major Infrastructure Needs” held in April of 2018, when then Congressman Scott Taylor suggested moving forward with development of the specific wastewater treatment and collection needs under the Omnibus Infrastructure Spending Bill passed in 2018-2019.

The discussions:

Spring 2018 – Spring 2019 community stakeholder meetings were convened to gain insight and expertise into the standards of practices and the treatment technologies available. Through this process, it was decided that HRSD was the right partner to further help in bringing the Force main Project forward. It was also recognized that in addition to the mid Shore specific project needs, that southern Northampton County and northern Accomack County also needs to assess what would be evaluated at a later time.

The Study:

HRSD worked with HDR under their annual General Engineering Services contract to develop a project scope and estimate for project design cost, including operation and maintenance cost for the project. HDR engaged the firm of Davis Bowen & Friedel, Inc. as an engineering firm familiar with the Eastern Shore.

Project Funding:

The project was funded by a combination of the Phase 1 impacted municipalities and Go VA.

The Project Scope:

Phase 1 of this project will connect and serve the existing sanitary sewer collection systems along the route that serves Nassawadox in the southern end of Northampton County north to the Town of Accomac. The existing treatment plant in Onancock has the capacity to treat future flows from these collection systems and from new service areas along the Force main route.

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Background Spring 2018 Highlights:

- The initiative began early in April 2018, when Congressman Scott Taylor hosted a “Learning the Shore” discussion on major infrastructure needs. It was then determined that we should focus on a force main transmission line from Nassawadox through Exmore to the Onancock Wastewater Treatment Plant (WWTP).
- May 22, 2018 - The focus was developed through interactions of affected towns and senior officials from both counties.

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Background Summer 2018 Highlights:

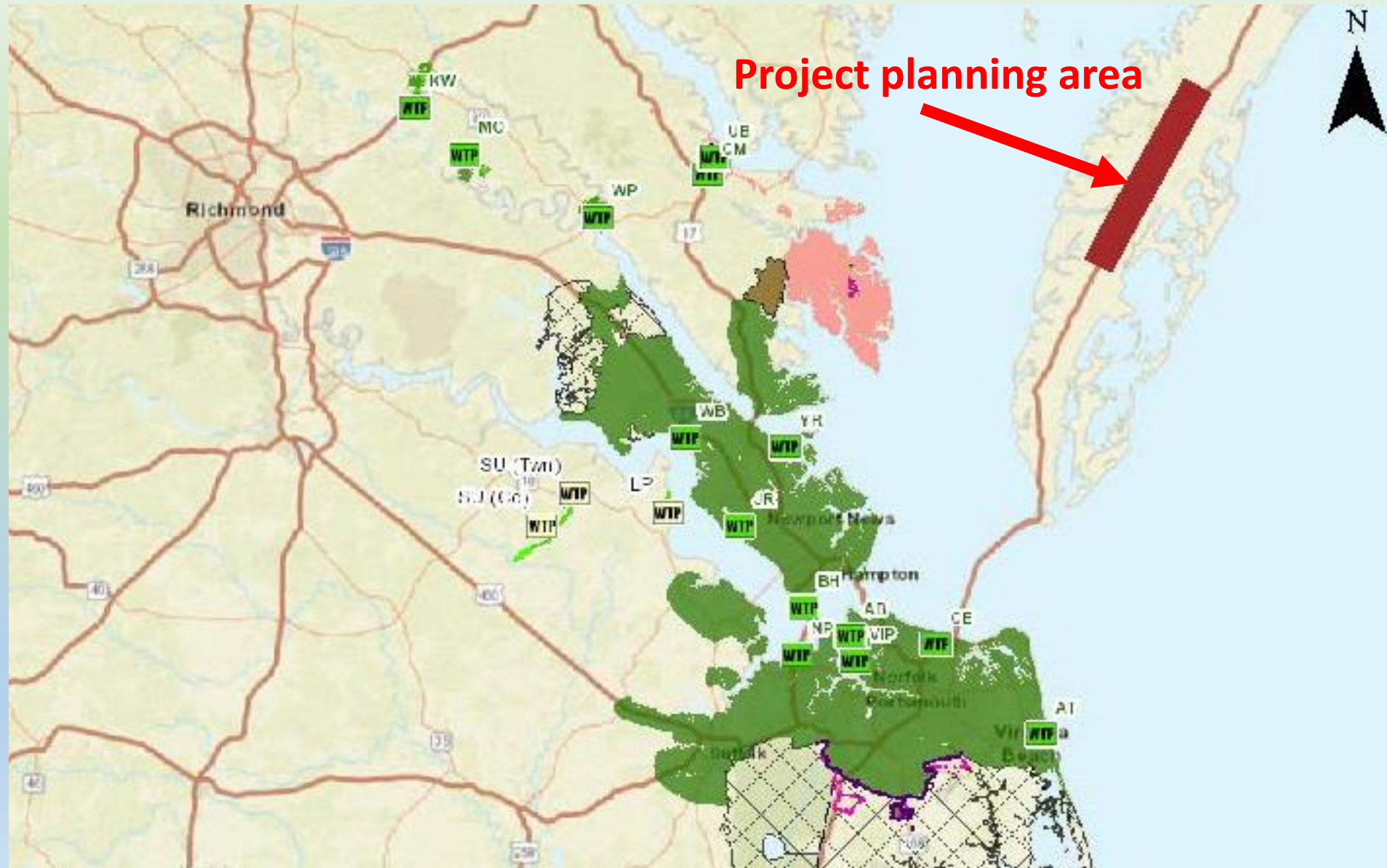
- June 5, 2018 - Steering committee meets with Charles Bott, of Jamesville, the Director of Water Technology and Research at Hampton Roads Sanitation District on how best to proceed to develop a conceptual force main sewer line study. After a full discussion of what the capacities of HRSD are that a direct contact with Ted Henifin is recommended.
- June 29, 2018 - meeting at the HRSD Sustainable Water Infrastructure For Tomorrow (SWIFT) complex in Suffolk. As a result of this meeting, discussions commenced with Ted Henifin, the General Manager of HRSD, about developing the Eastern Shore Sewer Project and how HRSD might assist in the study.
- August 13, 2018 - The Steering Committee met with Ted Henifin and Charles Bott to review the Eastern Shore challenges of waste water transportation, treatment and the specific needs in the near and long term. Clean water, economic development, aquaculture growth, pollution, funding, were all reviewed as were the specific needs of the Towns with their WWTP's.

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EXISTING FACILITIES:

- A private wastewater collection and treatment system is currently in use in Nassawadox. The system is owned and operated by Riverside Health. The WWTP currently receives approximately 25,000 gallons per day (GPD). The treatment plant utilizes extended aeration for its treatment method and is only able to treat for conventional pollutants. The owner must purchase nutrient credits to offset their inability to treat to their permit requirements.
- The Town of Exmore operates two independent wastewater collection systems and a treatment plant. The main sewer system, and the focus of this study, is on the east side of Town, and is also called the “Downtown” system. The treatment plant which serves the Downtown system is experiencing issues with their sequencing batch reactor (SBR). The system has only a single train and is unable to be disconnected for repairs or renovations. The western sewer system in Exmore is known as the “New Roads” system. Wastewater is discharged through a mass drainfield. Although it is in better condition, it is noted as an alternative in this project.
- The Town of Accomac is currently served by septic systems. The Town and Accomack County desires to have centralized sewage collection facilities to serve the government buildings.
- The Town of Onley currently has sewer service to the commercial properties along US Route 13. The sewer system is maintained by Accomack County. There are no centralized sewage facilities in the residential portions of the Town of Onley. Replacement of the sewer service to the commercial properties is provided in the base study. A centralized pump station for the unserved residential portions of Town are provided as an alternate.
- The commercial area to the south of Melfa is served by public sewer and is maintained by Accomack County. The service area includes the airport, the businesses in the industrial park, and businesses along US Route 13. The commercial users, within the industrial park, wastewater flows to a pumping station and discharges into the forcemain which ultimately flows to the Onancock gravity system and then to the Onancock WWTP. Other commercial properties along US Route 13 connect with grinder style pumps which connects to the same force main which serves the industrial park and also flows to Onancock WWTP. Replacement of the piping is included as part of the base project.
- The Town of Onancock currently maintains a sanitary sewer collection system, several wastewater pumping stations and a WWTP. They currently collect wastewater from Accomack County and Riverside Hospital into their collection system which is then transported through their collection system and pumping stations to their WWTP.

Eastern Shore Force Main Sewer Project Phase 1



Eastern Shore Sanitary Sewer Transmission Force Main Project - Phase 1 **HRSD & the Eastern Shore Joint Venture**

After much research and discussion, it was apparent that HRSD was the right partner to align with on this initiative.

- Estimated Project Study Cost = \$108,458.
- 11/6/18 HRSD and their consultants toured the Shore WWTP's in Onancock and Nassawadox.
- 12/13/18 HRSD and consultants met with Onancock WWTP personnel to begin plant assessment.
- 12/13/18 HRSD, HDR, DBF presented the Main Force Transmission Line Conceptual Study.

HRSD & the Eastern Shore Joint Venture

Hampton Roads Sanitation District Overview:

- HRSD a political subdivision of the Commonwealth.
- Governed by an 8 member Commission appointed by the Governor.
- Independent rate setting authority with appeal rights through State Corporation Commission.
- Very focused mission – We protect public health and the waters of Hampton Roads by treating wastewater effectively.

Eastern Shore Sanitary Sewer Transmission Force Main Project - Phase 1

HRSD History What was created...

- A political subdivision of the Commonwealth.
- Truly a regional entity – no direct connection to local governments.
- Governed by an 8 member Commission appointed by the Governor.
- Independent rate setting authority with appeal rights through State Corporation Commission
- Very focused mission – *We protect public health and the waters of Hampton Roads by treating wastewater effectively.*

THURSDAY, OCTOBER 15, 1940 THE VIRGINIAN-PILOT, NORFOLK

POLLUTION IS POISON

AN EMPHATIC DENIAL

to untrue and misleading statements made in some quarters by persons opposed to the creation of the Hampton Roads Sanitation District... as THE FIRST STEP in the development of a sewage disposal system.

The politicians of Portsmouth and Norfolk County are again fighting the move of the State and the other Hampton Roads communities to make an end of pollution in this area. Their charges are, as in 1938, are untrue and misleading, and we trust that no situation will be said to them. They maintain that sewage disposal plants would be futile. In this they are contradicted by authorities of the United States and the Virginia Public Health Service, as well as by private engineering firms. They also charge that the moving force in the anti-pollution campaign is the ability of bond brokers for fat commissions. In this they are contradicted by the record of many years standing. Pollution has been fought in Norfolk, Newport News and Hampton for many years and those who have been leading the fight are interested in the health of the community and not in bond commissions. Nor have they any connection with bond brokers.

Over Thirty Million Gallons of raw sewage is being dumped into Hampton Roads area every day. The result—a definite POLLUTION of our local waters.

VOTE YES

In the General Election, Tuesday, November 5, 1940, for the creation of the Hampton Roads Sanitation District.

The only question before the voters will be the creation of the Sanitation District. The question of financing sewage disposal will come later—and the voters will have to approve any financing plan before it can go into effect. If the creation of this district is approved a permanent commission will be created to consider plans for the actual sewage disposal development—plans for financing as well as for construction. Then the sources of any outside financial assistance can be fully explored. This community will be ill advised if it fails to support this proposal.

Shall we ACT NOW, or wait for a possible epidemic that will necessitate this action, at greater cost, and deal with an economic blow of manifold consequences?

The United States Health Service, the Department of Health for the State of Virginia, the Norfolk County Medical Society, including physicians from Norfolk, Portsmouth, Norfolk County and vicinity, the Warwick County Medical Society and health officials of the Cities of Norfolk, Newport News, Hampton and others have publicly proclaimed the condition of the waters of Hampton Roads and its tributaries as being polluted to such an extent as to endanger the health of the communities, and are urging the creation of a Sanitation District.

Pollution is a steadily growing menace to which we cannot close our eyes, and with the population about to be increased by 50,000 or more, this menace will be even greater. Expert opinion predicts it to be merely a matter of time before Public Health Safeguards will demand that Hampton Roads pollution be remedied—and it is only common sense that this be done NOW.

to the unhealthy and unsightly conditions, not only on the bathing beaches but along the shores of the polluted area.

The cost per average family of five has been figured at a maximum of \$50 a month. This will be materially reduced if financial aid can be secured from the Federal Government, and we are confident that such aid will be forthcoming.

The United States Public Health Service made a comprehensive survey of the waters of the Hampton Roads Area, under the supervision of expert Sanitary Engineers, which required over a year to complete. They analyzed 7,000 samples of water from all parts of the area, subjecting them to scientific and extensive laboratory tests. Their report says that a serious condition of pollution exists in many areas.

Reports of the Commission of Fisheries, supported by the Virginia Department of Health, cited the cumulative effect of pollution in establishing the fact that in 1927 there had been restricted some 10,000 acres of bottoms from which oysters could not be taken for direct delivery to the markets for human consumption, and that at present the restricted areas approximated 45,000 acres.

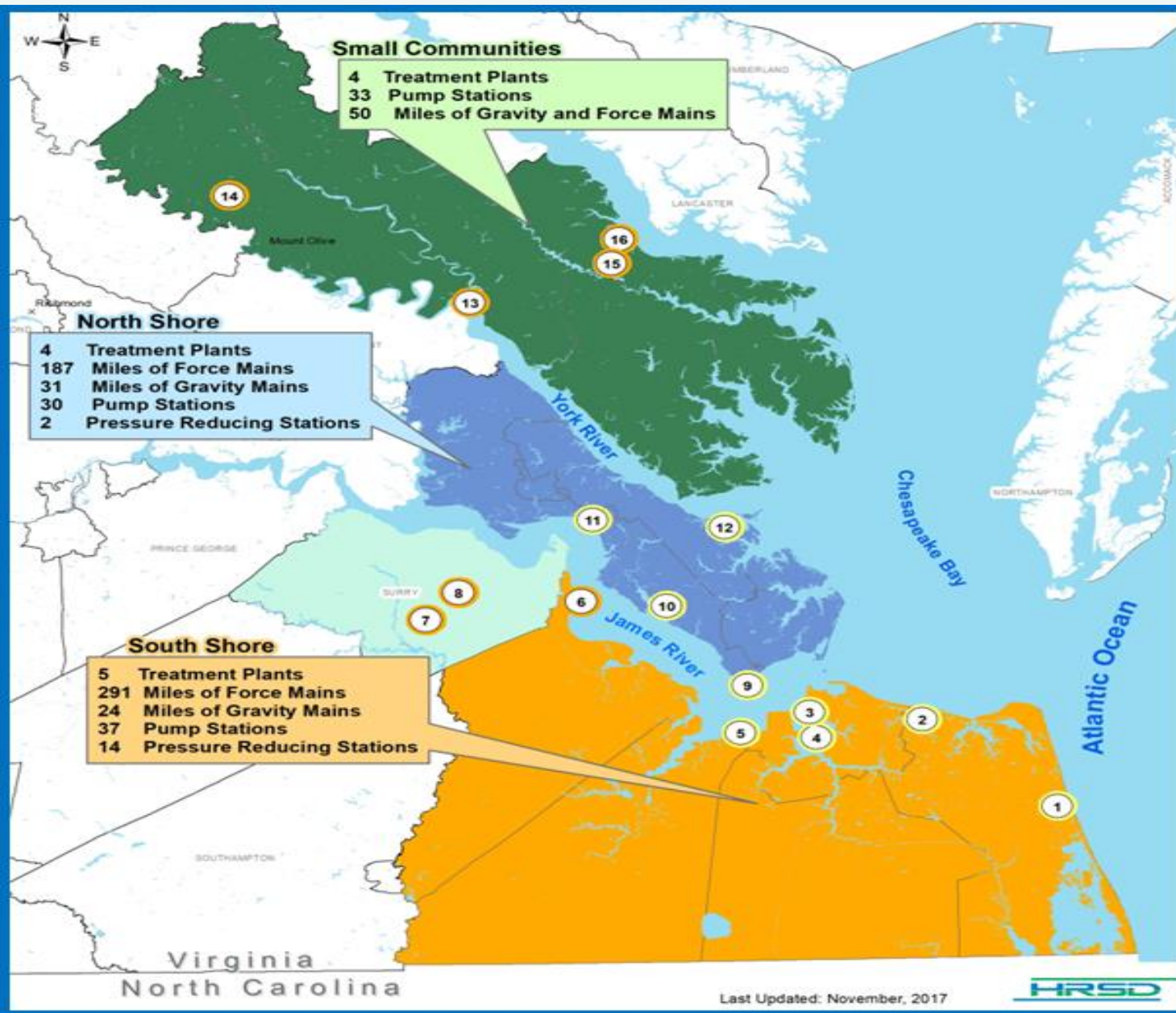
Unless these conditions are remedied and pollution controlled, the result will undoubtedly be the ultimate destruction of the seafood industry in this area, with resultant loss of employment to thousands of people, and with a loss estimated at \$500,000 per year to tradesmen supplying the industry with equipment, and finally the lowering of real estate values, due

A STUDY OF THIS KIND IS NOT BASED ON ASSUMPTION, BUT IS A COLD BLOODED ANALYSIS OF EXISTING CONDITIONS

The Following Citizens of This Section Favor The First Step Towards Sewage Disposal . . . the Establishment of A Sanitation District.

JOHN S. ALFRIEND	DR. LOMAX GWATHMEY	JOHN W. NEW	A. B. SCHWARZKOPF	DR. M. H. TODD
D. BAKER AMES	S. D. HARDY	SAMUEL T. NORTHERN	GOLDSBOROUGH	JOHN TWOHY, 20
DR. JAMES W. ANDERSON	M. A. HARTIGAN	T. J. O'CONNOR	SERPELL	I. T. VAN PATTEN, JR.
ROBERT F. BALDWIN	MRS. R. C. HERBERT	VIVIAN L. PAGE	DR. J. C. SLEET	MICHAEL D. WAGENHEIM
ALEX H. BELL	P. S. HUBER	MRS. H. E. PAGE	S. L. SLOVER	I. T. WALKER, JR.
J. FRANK BELL	CARLETON HUDSON	IVOR A. PAGE, JR.	OSCAR F. SMITH, 3D	DR. R. E. WHITEHEAD
W. FRED BONNEY	CHARLES L. KAUFMAN	HENRY G. PARKER	DR. R. A. STATA	BENJAMIN T. WILLIS
EDWARD L. BREEDEN	GEORGE H. LEWIS	WALTER C. PLUNKETT	DR. P. B. STOKES	WILEY W. WOOD
CHAS. F. BURROUGHS, SR.	W. H. T. LOYAL	J. DAVIS REED	W. MEADE STONE	P. B. YOUNG
ALLEN M. COOK	COL. JAMES S. MANN	WILLIAM C. RIDAY	MAJOR S. HETH TYLER	
COLGATE W. DARDEN, JR.	RICHARD M. MARSHALL	RICHARD W. RUFFIN		
RALPH H. DAUGHTON	J. E. MEGINLEY	F. SHELTON SARGEANT		
WALTER L. FENTRESS	DR. SPARKS W. MELTON	TOY D. SAVAGE		
A. H. FOREMAN	DR. L. D. MENDOZA	A. E. SCHAEFFERT		

HAMPTON ROADS SEWAGE DISPOSAL COMMISSION
Richard B. Piverton, Chairman—J. J. Brimbor, Vice Chairman—J. S. Darling, Secretary—A. E. S. Stephens, Member—Charles W. Johnston, Member.



HRSD Existing Service Area

- Virginia Beach
- Chesapeake
- Norfolk
- Portsmouth
- Suffolk
- Hampton
- Newport News
- York County
- James City County
- Williamsburg
- Poquoson
- Gloucester County
- Isle of Wight County
- King William County
- Middlesex County
- Mathews County
- Surry County/Town of Surry

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Rural Counties Currently Serviced by HRSD faced Similar challenges as the Eastern Shore faces

- HRSD enabling legislation has provision for adding territory to the sanitation district
- 5 counties and the Town of West Point have used this process to become part of HRSD over the past 20 years
 - King William
 - Middlesex
 - Mathews
 - King and Queen
 - Surry

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December 2018 Study funding committed as follows:

- \$10,000 each from Accomack and Northampton Counties, Town of Onancock and Town of Exmore, Riverside Health Systems and Heritage Hall.
- Local Funding Total = \$60,000
- \$48,458 from Go Virginia - first Go Virginia grant to the Eastern Shore.



Eastern Shore Sanitary Sewer Transmission Force Main Study

HRSD

April 5, 2019

Revised:

May 13, 2019

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Transmission Force Main System & Pump Stations

A proposed transmission force main system will consist of 6- and 12-inch diameter pipe and three pumping stations.

- One in Nassawadox at WWTP
- One in Exmore
- One in Accomac at the County facilities

The force main is sized to convey the projected Year 2050 flows to the Onancock WWTP.

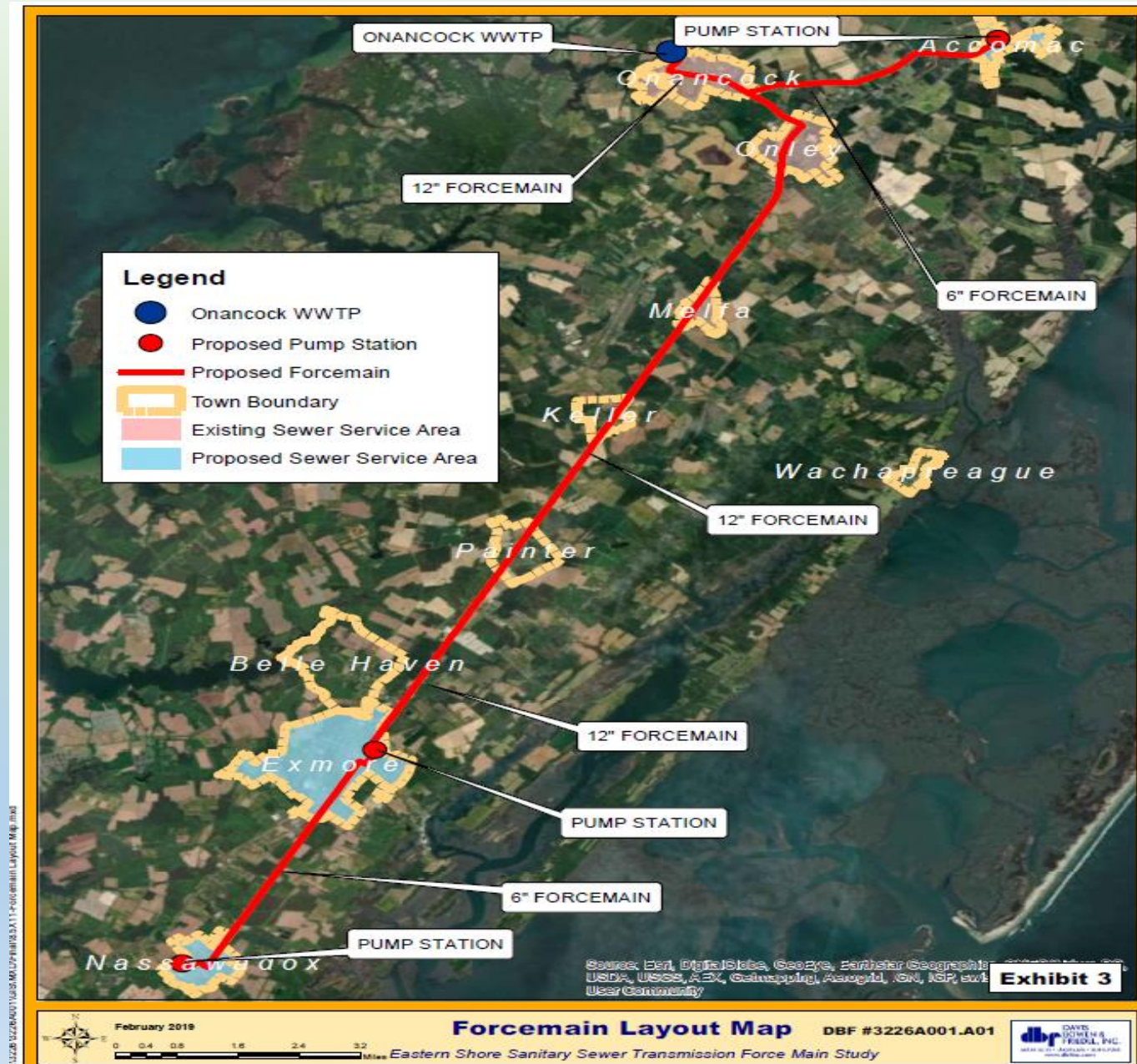
In addition, the existing force main that serves the commercial and government area south of Melfa and the commercial area in Onley will be replaced.

Alternatives have been developed to construct new pump stations and connections to the transmission force main from the Exmore New Roads system and the Onley residential area.

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Forcemains Layout Map

- The proposed forcemains will be nominal diameter of 6 and 12 inches.
- Where the forcemain will need to cross Rt. 13 trenchless technology will be used in order to not affect the flow of traffic.
- Any pavement Restoration for the installation of the forcemain will be in accordance with VDOT Standards.
- Actual alignment will vary from the conceptual design.



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Nassawadox Layout Map with Forcemain & Pump Station

- A pump station is proposed just upstream of the Nassawadox WWTP. The flows will be conveyed via a 6" forcemain to the Town of Exmore. The Exmore pump station would receive flow from the Nassawadox pump station and then transport the flow to the Onancock WWTP.



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Exmore Layout Map

with Forcemain & Pump Station

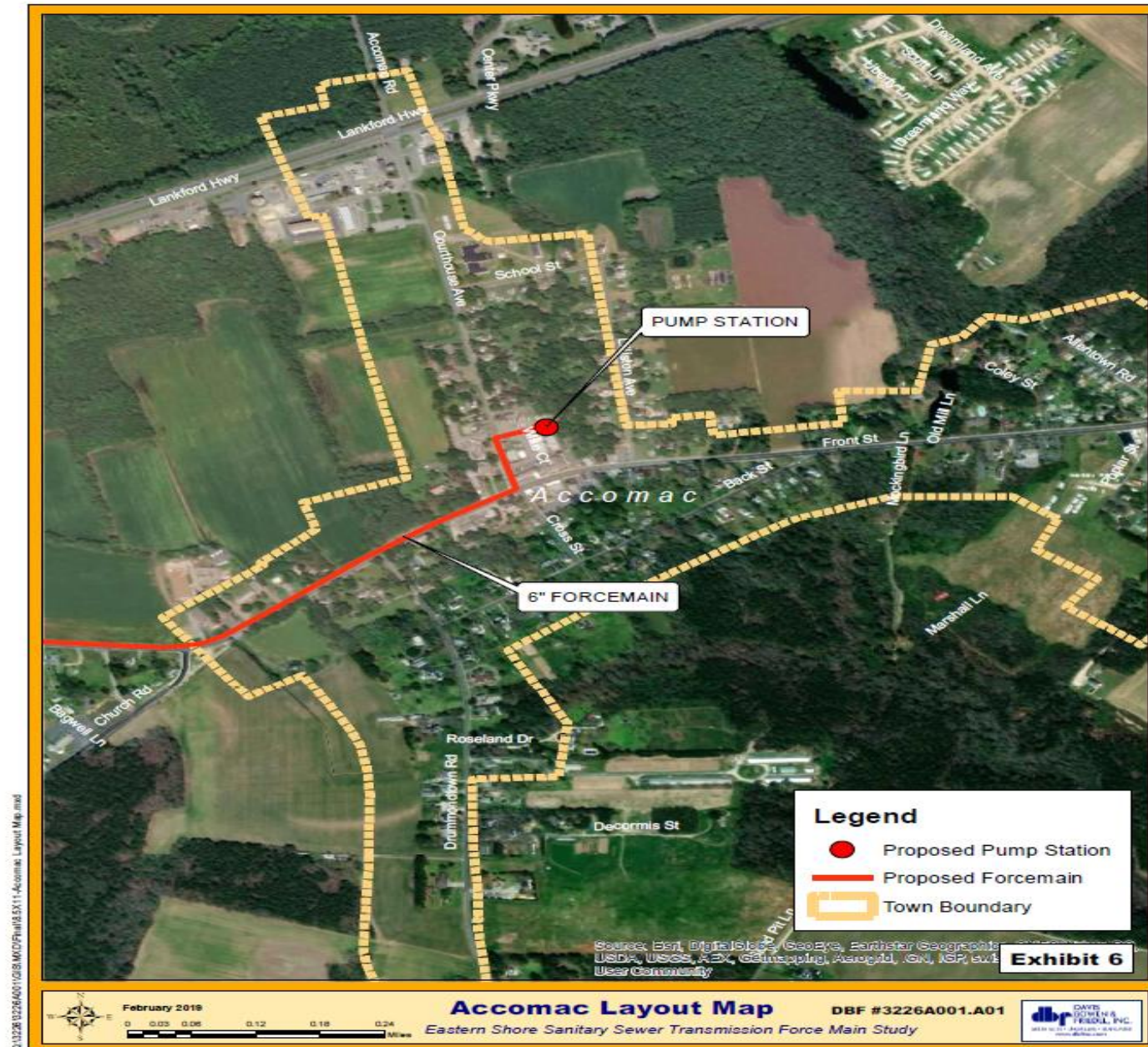
- The proposed plan is to replace an existing pumping station in Exmore. The proposed pump station will transmit sewage with a 12" forcemain following the railroad right-of-way. The forcemain will pass near Belle Haven, Painter, Keller, Melfa and Onley. Once entering Onley the forcemain will be routed to the Onancock WWTP.



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Accomac Layout Map with Forcemain & Pump Station

- In Accomac, the proposed pump station is planned to be placed near the Accomack County government buildings to replace the existing drainfield. The forcemain will be 6" in diameter and will run through Tasley on Tasley Road. The forcemain will be connected into the 12" forcemain from Nassawadox and Exmore and be transported to the Onancock WWTP.



Eastern Shore Sanitary Sewer Transmission Force Main Project - Phase 1

Summary of the story

- Smaller treatment plants challenged to keep staff, meet permit requirements, reinvest in aging facilities.
- Study of central sewer pipe to connect Nassawadox, Accomac and Exmore to Onancock WWTP.
- Would consolidate treatment for the middle ES and take advantage of capacity at Onancock.
- \$24 Million estimate to construct.
- \$75,000 per year to operate and maintain.
- *Who would own and operate?*
HRSD could own and operate the Project if the Eastern Shore becomes part of the Hampton Roads Sanitation District.
- *Who would fund construction?*
HRSD could fund the construction of the Project if the Eastern Shore becomes part of the Hampton Roads Sanitation District.



Pipeline along the Shore and how many it will serve



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HRSD – How it Works

- Becoming part of the territory is the first step. Nothing changes at that point.
- Local sewer services continue to be owned and operated by local operator (typically local government).
- Once part of the sanitation district – local government has new option available – work with HRSD to operate or own and operate sewer system.
- Individual agreements are required between HRSD and each community with an existing sewer system to establish transfer of assets or operation agreements.
- Historically all added territories have transferred their sewer assets to HRSD and HRSD is now fully responsible for collection, conveyance and treatment of sanitary sewer in these communities.
- Local governing body retains full control of land use decisions.

Eastern Shore Sanitary Sewer Transmission Force Main Project - Phase 1

Frequently Asked Questions

Questions:	Answers:
<i>Will I be forced to connect?</i>	No, however this is a decision that is the responsibility of each town.
<i>What will my cost be compared to what I pay now?</i>	Please see the respective locality manager that is identified on the next page.
<i>How long will the total legal and construction process take?</i>	See the timeline on the last page.
<i>Who is paying for the Transmission Project?</i>	If we decide to contract with Hampton Roads Sanitation District (HRSD), HRSD will fund the construction.
<i>Is this a help for the environment?</i>	Yes, Phil Hubbard will explain.
<i>Is this good for economic development?</i>	Yes, this will allow new business to create new jobs more effectively.

Rate Schedule

Fiscal Year 2020

(July 1, 2019 - June 30, 2020)



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A single treatment rate is established for an entire service area:

- Total cost to convey and treat divided by total expected amount of water consumed in the region – FY 2020 \$7.83/1,000 gallons. This is an estimate only; see your respective Town Manager for debt recovery fees that may apply. We have yet to decide how debt is to be apportioned, in particular Onancock's plant debt of \$4.5M. A cursory allocation of this debt among all project participants based on day one flow comes out to an additional \$3.33 to be added to the HRSD rate.

A collection system maintenance rate for HRSD owned collection systems is established as the average charged by localities with collection systems within service area. Population weighted average – FY 2020 \$5.60/1,000 gallons. This is an estimate only; see your respective Town Manager for debt recovery fees that may apply.

- Total FY 2020 Rate \$13.43/1,000 gallons. This is an estimate only; see your respective Town Manager for fees that may apply.

For specific questions regarding your town, contact:

- Town of Onancock (William H. Kerbin, Jr., Town Manager (757) 787-3363)
- Accomack County and all other Accomack County Towns (Mike Mason, CPA County Administrator (757) 787-5700)
- Town of Exmore (Robert G. Duer, Town Manager (757) 442-3114, ext. 13)
- Northampton County and all other Northampton County Towns (Charles Kolakowski, County Administrator (757) 678-0440, x515)

HRSD Projected Rate Increases

	Fiscal Year 2020	<i>FY2021</i>	<i>FY2022</i>	<i>FY2023</i>	<i>FY2024</i>	<i>FY2025</i>
HRSD Projected Rate Increases	9.1%	9.0%	9.1%	9.0%	7.0%	7.0%
HRSD Wastewater Treatment Rate per 1000 gallons	\$ 7.83	\$ 8.53	\$ 9.31	\$ 10.15	\$ 10.86	\$ 11.62
Avg water consumption @ 4000 gallons per month	\$ 31.32	\$ 34.12	\$ 37.24	\$ 40.60	\$ 43.44	\$ 46.48
Metro Collection Rate Projected Rate Increases	1.3%	1.0%	1.0%	1.0%	1.0%	1.0%
Weighted Average Metro Collection Rate per 1000 gallons	\$ 5.60	\$ 5.66	\$ 5.72	\$ 5.78	\$ 5.84	\$ 5.90
Avg water consumption @ 4000 gallons per month	\$ 22.40	\$ 22.64	\$ 22.88	\$ 23.12	\$ 23.36	\$ 23.60
Total Wastewater Bill	\$ 53.72	\$ 56.76	\$ 60.12	\$ 63.72	\$ 66.80	\$ 70.08
Projected Rate Total Wastewater Increase		5.7%	5.9%	6.0%	4.8%	4.9%

- HRSD treatment rate increases are required to support regulatory requirements and appropriate renewal and replacement of existing infrastructure. HRSD receives no other revenue – full cost recovery through wastewater rates. Increases are for planning purposes. Actual increases require Commission approval with the annual budgeting process.
- Metro collection system rate increases are based on historical increases by localities for collection system maintenance and are subject to change based upon actual increases approved by the various Boards of Supervisors and City Councils.

Eastern Shore Sanitary Sewer Transmission Force Main Project - Phase 1

Project Milestones

- **Winter 2018 – Spring 2019:** HDR evaluation of the Force Main Transmission Line
- **April 2019:** HDR/HRSD Summary of the Evaluation Report to the Eastern Shore Force Sewer Transmission Committee
- **June 17, 2019:** Planning and preparation for the public information sessions to be conducted
- **August 14-15, 2019:** Public Information Sessions conducted in Accomack and Northampton Counties
- **August 28, 2019:** Town Council and Accomack/Northampton County Supervisors combined meeting
- **October 2019 - March 2020:** Petition of the 2nd Circuit Court by Accomack and Northampton Counties to amend HRSD enablement
- **October 2019 - March 2020:** Plan of Finance Prioritization with Project Sources
- **January 2020 - June 2020:** Joint Operating Agreement Negotiation and Completion
- **March 2020 - December 2020:** Project Sources Contracted
- **January 2021 - April 2021:** Transmission Line R.F.B. Procurement
- **April 2021 - April 2023:** Transmission Line Construction