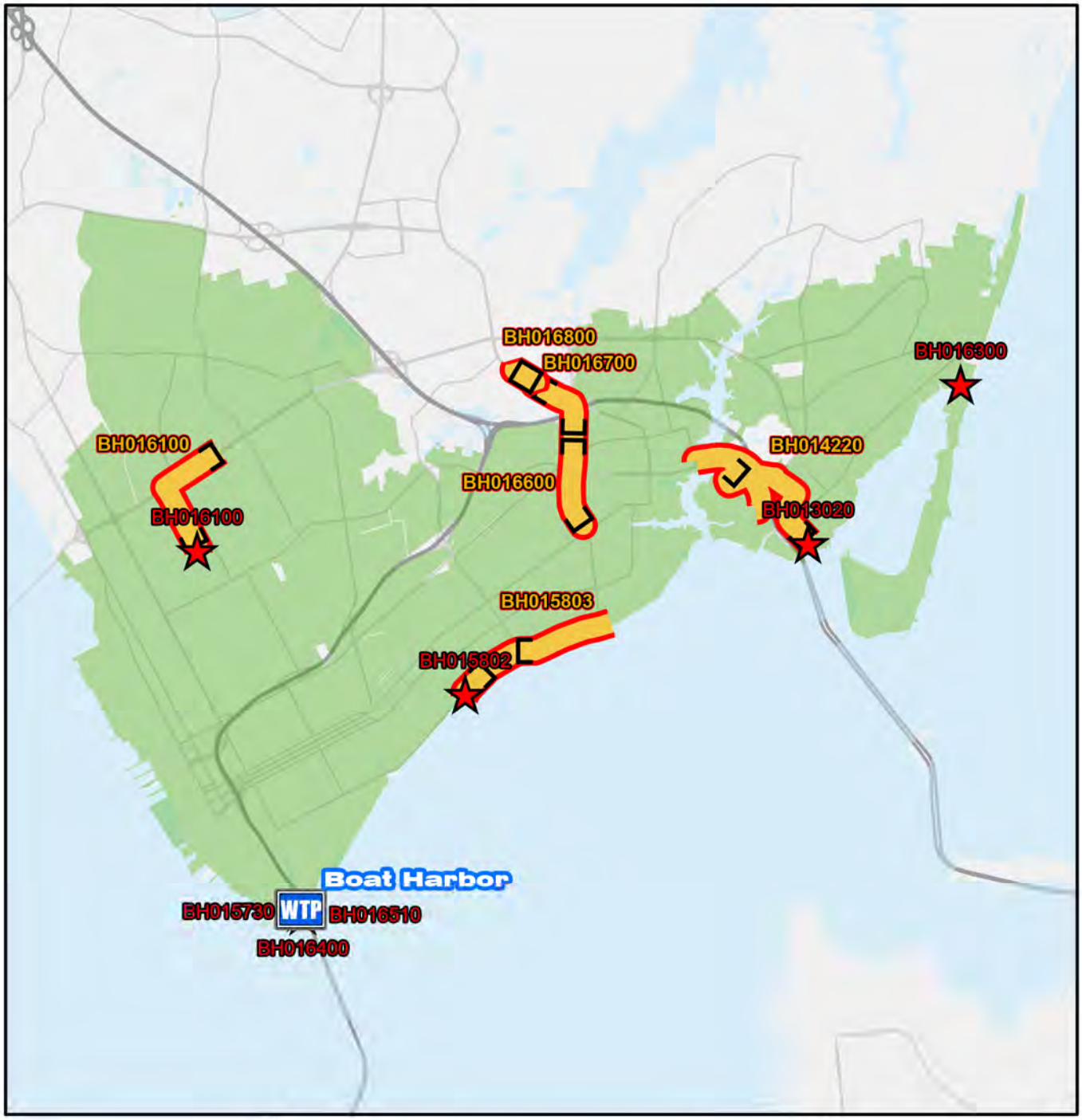
Boat Harbor Treatment Plant



Legend

- WTP Boat Harbor
- CIP Interceptor Point
- CIP Pump Station Point
- CIP Interceptor Line
- CIP Abandonment
- Treatment Plant Service Area
- HRSD Interceptor Force Main
- HRSD Interceptor Gravity Main
- WTP HRSD Treatment Plant
- PRS HRSD Pressure Reducing Station
- PS HRSD Pump Station

0 2,200 4,400 8,800 13,200 17,600 Feet

Boat Harbor Treatment Plant Service Area CIP Projects

Treatment Plant Projects

BH015700

HRSD

N

CIP Location

Service Area

BH013020

- Project Interceptor Line
- Project Interceptor Point
- Project Location 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
- WTP HRSD Treatment Plant
- PRS HRSD Pressure Reducing Station
- PS HRSD Pump Station

0 25 50 100 150 200 Feet

N
W E
S

CIP Location

BH013020

Willard Avenue Pump Station Replacement

HRSD

Willard Avenue Pump Station Replacement

PR_BH013020

System: Boat Harbor
Type: Pump Stations

Driver Category: Capacity Improvements
Project Phase: Construction
Regulatory: None

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	FY35	FY36
$17,497	$16,412	$1,084	$1	$0	$0	$0	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

This project includes the replacement of the Willard Avenue Pump Station (PS) to address conditional issues. The proposed replacement will include a relocated pump station and new gravity and force main connections to the existing systems.

PROJECT JUSTIFICATION

This project will improve pump station capacity for the service area and reduce operation and maintenance demands. The existing Willard Avenue Pump Station is located at 219 National Avenue in Hampton, Virginia. The Station serves portions of Buckroe, Woodland and Phoebus including Fort Monroe and receives flow from multiple City Pump Stations and the HRSD Bay Shore Lane Pump Station. Flows can be diverted from the York River WWTP collection system to the Willard Avenue Pump Station through a valved connection at the HRSD Woodland Road Pump Station. The station discharges flows through a 30-inch force main to a gravity sewer manhole in downtown Hampton. A new force main is planned to realign the Hampton Trunk Sewer Extension Divisions I & J Phase II to remove the pipeline from the Hampton University campus. A new pump station will accommodate a wide range of wet weather flows as well as offer operational flexibility during dry weather periods. The following items are justification for completing this project: The existing pump station was constructed in 1944 and is nearing the end of its anticipated useful life. The existing pump station parcel is only 0.14 acres, which does not allow for any expansion and does not meet our current parcel size standards for a new pump stations site. Furthermore, building a new pump station at this location will be challenging given the close proximity to residents. HRSD will need to acquire a new parcel in the vicinity of the existing PS to build a new one. Upon completion of the new PS, the existing PS will be demolished and the parcel transferred or sold.

FUNDING TYPE

Funding Type: Revenue Bond

CONTACTS

Contacts-Requesting Dept: Operations-Interceptors
Contacts-Dept Contacts: Ted Denny
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	01/01/2019
PER	04/01/2019
Design Delay	09/16/2019
Design	09/16/2019
Bid Delay	02/25/2022
PreConstruction	02/25/2022
Construction	05/01/2022
Closeout	08/01/2026

COST ESTIMATE

Cost Estimate Class:	**Class 1 (-3% to +15%)**
PrePlanning	$2,030
PER	$102,410
Design	$1,342,406
PreConstruction	$13,390
Construction	$16,021,466
Closeout	$15,000
Est. Program Cost	**$17,496,703**
Contingency Budget	$800,000
Est. Project Costs	**$18,296,703**

BH014220

- Project Interceptor Line
- Project Interceptor Point
- Project Location 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
- WTP HRSD Treatment Plant
- PRS HRSD Pressure Reducing Station
- PS HRSD Pump Station

0 305 610 1,220 1,830 2,440 Feet

BH014220

Hampton Trunk Sewer Extension Divisions I and J Relocation Phase II

HRSD

N
W E
S

CIP Location

Hampton Trunk Sewer Extension Divisions I and J Relocation Phase II

PR_BH014220

System: Boat Harbor
Type: Pipelines

Driver Category: Relocation
Project Phase: Construction
Regulatory: None

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	FY35	FY36
$17,273	$16,423	$848	$2	$0	$0	$0	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

This project includes the replacement of 7,500 linear feet (LF) of 30-inch force main (FM) from the new Willard Avenue Pump Station (PS) with 6,800 LF of new 24-inch FM. The new force main will originate from the new Willard Avenue PS to the connection at E. Queen Street and Eaton Street. The location of the new Willard Avenue PS is still pending and may impact the alignment of the FM. The following ancillary work will be required as part of this project: A 600 LF extension of the 10-inch FM from City of Hampton PS 003; A 1,000 LF relocation of the 4-inch FM from the privately owned Hampton Harbor PS; Conveyance of Hampton University PS (Sta. #211) to Hampton University or the Veteran Affairs Medical Center.

PROJECT JUSTIFICATION

In combination with CIP BH014210, this project will address critical areas within the City of Hampton with significant wet weather capacity issues as identified in the Hampton Study completed by Brown and Caldwell (BC). The Hampton Study was a collaborative effort between BC, the City of Hampton and HRSD to identify, evaluate, and select the preferred alternatives to address the identified capacity issues. The existing Willard Avenue PS 30-inch discharge FM was originally installed in the 1945-46 timeframe, with a portion of the main relocated in 1956 as part of the Interstate-64 (I-64) project. Given the age of this line, the documented failure near the I-64 sound wall, limited diversion options, its depth in the vicinity of the interstate off ramp, and Hampton University's request for HRSD to abandon this pipe, replacement is necessary.

FUNDING TYPE

Funding Type: Revenue Bond

CONTACTS

Contacts-Requesting Dept: Operations-Interceptors
Contacts-Dept Contacts: Ted Denny
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	04/30/2015
PER	01/01/2016
Design Delay	05/31/2018
Design	06/25/2018
Bid Delay	11/05/2021
PreConstruction	11/12/2021
Construction	01/25/2022
Closeout	11/03/2026

COST ESTIMATE

Cost Estimate Class:	**Class 1 (-3% to +15%)**
PrePlanning	$1,462
PER	$85,020
Design	$1,000,131
PreConstruction	$29,242
Construction	$15,900,000
Closeout	$15,000
Est. Program Cost	**$17,030,855**
Contingency Budget	$200,000
Est. Project Costs	**$17,230,855**

BH015700

- Project Interceptor Line
- Project Interceptor Point
- Project Location 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
- WTP HRSD Treatment Plant
- PRS HRSD Pressure Reducing Station
- PS HRSD Pump Station

0 55 110 220 330 440 Feet

BH015700

Boat Harbor Treatment Plant Pump Station Conversion

HRSD

N
W E
S

CIP Location

Boat Harbor Treatment Plant Pump Station Conversion

PR_BH015700

System: Boat Harbor
Type: SWIFT

Driver Category: Nutrient Reduction
Project Phase: Construction
Regulatory: Integrated Plan-SWIFT

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	FY35	FY36
$194,433	$179,916	$14,511	$6	$0	$0	$0	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

The Boat Harbor Treatment Plant will be converted to a pumping station, including equalization and headworks facilities while remaining in operation for wastewater treatment during conversion. The new infrastructure will be designed to meet HRSDs resiliency standards and consider remote operation and access in future conditions including sea level rise.

PROJECT JUSTIFICATION

The James River Waste Load Allocation (WLA) requires HRSD to continue reducing the mass of nutrients discharged from associated treatment plant outfalls. The planned reduction of nutrients is largely completed through implementation of the SWIFT program. The SWIFT master planning effort has determined that advanced water treatment and injection at Boat Harbor has significant physical limitations including site availability and resiliency to sea level rise. In addition, a financial analysis indicates there is significant long term cost savings associated with consolidating wastewater treatment and SWIFT facilities at Nansemond Treatment Plant. This project will allow HRSD to further reduce the amount of nutrients contributed to the James River basin. Upgrades to Nansemond Treatment Plant to accommodate the additional flow will be completed under a separate capital project.

FUNDING TYPE

Funding Type: Cash

CONTACTS

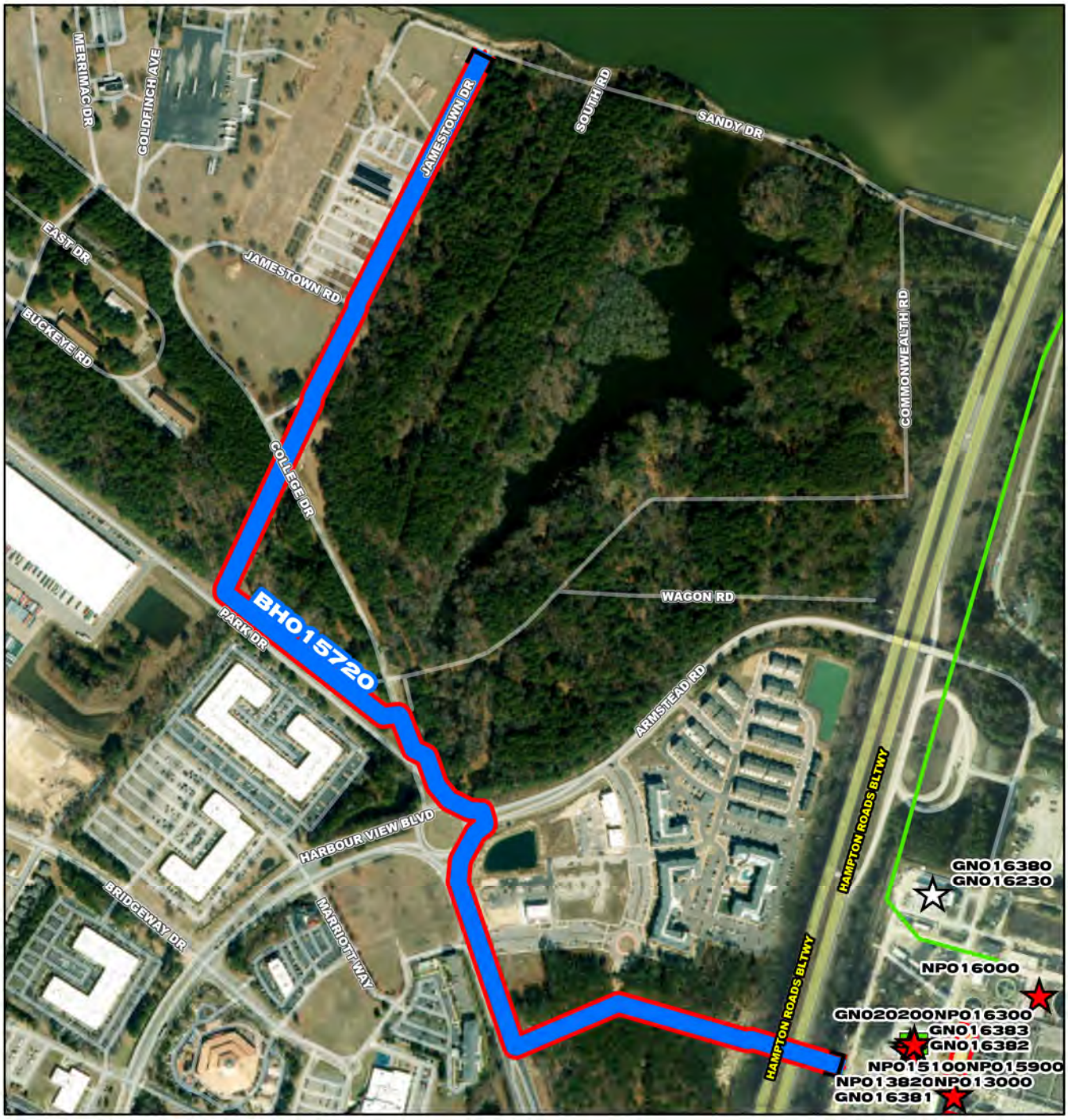
Contacts-Requesting Dept: Engineering
Contacts-Dept Contacts: David Steele
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	05/01/2020
PER	10/27/2020
Design Delay	
Design	08/05/2021
Bid Delay	
PreConstruction	12/21/2022
Construction	05/15/2023
Closeout	03/01/2027

COST ESTIMATE

Cost Estimate Class:	**Class 1 (-3% to +15%)**
PrePlanning	$874,598
PER	$1,134,658
Design	$4,689,167
PreConstruction	$139,568
Construction	$187,559,552
Closeout	$35,594
Est. Program Cost	**$194,433,138**
Contingency Budget	$4,759,461
Est. Project Costs	**$199,192,599**



BH015720

- Project Interceptor Line
- Project Interceptor Point
- Project Location 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
- WTP HRSD Treatment Plant
- PRS HRSD Pressure Reducing Station
- PS HRSD Pump Station

0 220 440 880 1,320 1,760 Feet

N W E S

CIP Location

BH015720

Boat Harbor Treatment Plant Transmission Force Main Section 2 (Land)

HRSD

Boat Harbor Treatment Plant Transmission Force Main Section 2 (Land)

PR_BH015720

System: Boat Harbor
Type: SWIFT

Driver Category: Nutrient Reduction
Project Phase: Construction
Regulatory: Integrated Plan-SWIFT

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	FY35	FY36
$57,125	$52,316	$4,808	$0	$0	$0	$0	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

This project consists of the on-land transmission force main section connecting the subaqueous force main Section 1 (separate project under BH015710) to the Nansemond Treatment Plant. This project will provide an interceptor force main to be installed using both open cut methods and a trenchless crossing of I-664. HRSD desires to construct this section of force main separate from Section 1 to accommodate coordination with on-going and proposed development of the multiple privately-owned properties that will be traversed. This project includes the SWIFT Water and backflush piping from the future Nansemond SWIFT Facility to each of the proposed well sites located west of I-664.

PROJECT JUSTIFICATION

The James River Waste Load Allocation (WLA) requires HRSD to continue reducing the mass of nutrients discharged from associated treatment plant outfalls. The planned reduction of nutrients is largely completed through implementation of the SWIFT program. The SWIFT master planning effort has determined that advanced water treatment and injection at Boat Harbor has significant physical limitations including site availability and resiliency to sea level rise. In addition, a financial analysis indicates there is significant long term cost savings associated with consolidating wastewater treatment and SWIFT facilities at Nansemond Treatment Plant. This project will allow HRSD to further reduce the amount of nutrients contributed to the James River basin. Upgrades to Nansemond Treatment Plant to accommodate the additional flow will be completed under a separate capital project.

FUNDING TYPE

Funding Type: Cash

CONTACTS

Contacts-Requesting Dept: Engineering
Contacts-Dept Contacts: David Steele
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	05/01/2020
PER	09/29/2021
Design Delay	09/29/2021
Design	12/31/2020
Bid Delay	10/31/2024
PreConstruction	02/28/2024
Construction	05/07/2024
Closeout	07/01/2026

COST ESTIMATE

Cost Estimate Class:	**Class 1 (-3% to +15%)**
PrePlanning	$1,438
PER	$442,502
Design	$2,441,657
PreConstruction	$38,284
Construction	$54,200,865
Closeout	$0
Est. Program Cost	**$57,124,747**
Contingency Budget	$2,000,000
Est. Project Costs	**$59,124,747**

BH015730

- Project Interceptor Line
- Project Interceptor Point
- Project Location 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
- WTP HRSD Treatment Plant
- PRS HRSD Pressure Reducing Station
- PS HRSD Pump Station

0 25 50 100 150 200 Feet

BH015730

Boat Harbor Treatment Plant Decommission and Demolition

HRSD

N
W E
S

CIP Location

Boat Harbor Treatment Plant Decommission and Demolition

PR_BH015730

System: Boat Harbor
Type: SWIFT

Driver Category: I&I Abatement-IP/RWWMP
Project Phase: Proposed
Regulatory: Integrated Plan-SWIFT

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	FY35	FY36
$43,001	$1,349	$12,564	$15,617	$11,298	$2,174	$0	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

Boat Harbor Treatment Plant will be converted to a pumping station under a separate capital project. Once wastewater collected from the Boat Harbor service area is diverted to the new Boat Harbor pump station, the treatment plant will be shut down, decommissioned, and demolished, as needed for a potential future land use.

PROJECT JUSTIFICATION

Continued operation of the Boat Harbor Treatment Plant presents challenges to HRSD, including vulnerability to flooding and limited site availability for required wastewater nutrient reduction improvements and SWIFT facilities. HRSD evaluated multiple options to overcome these challenges and found diversion to the Nansemond Treatment Plant provides the most resilient and economical solution to meet HRSD's goals.

FUNDING TYPE

Funding Type: Revenue Bond

CONTACTS

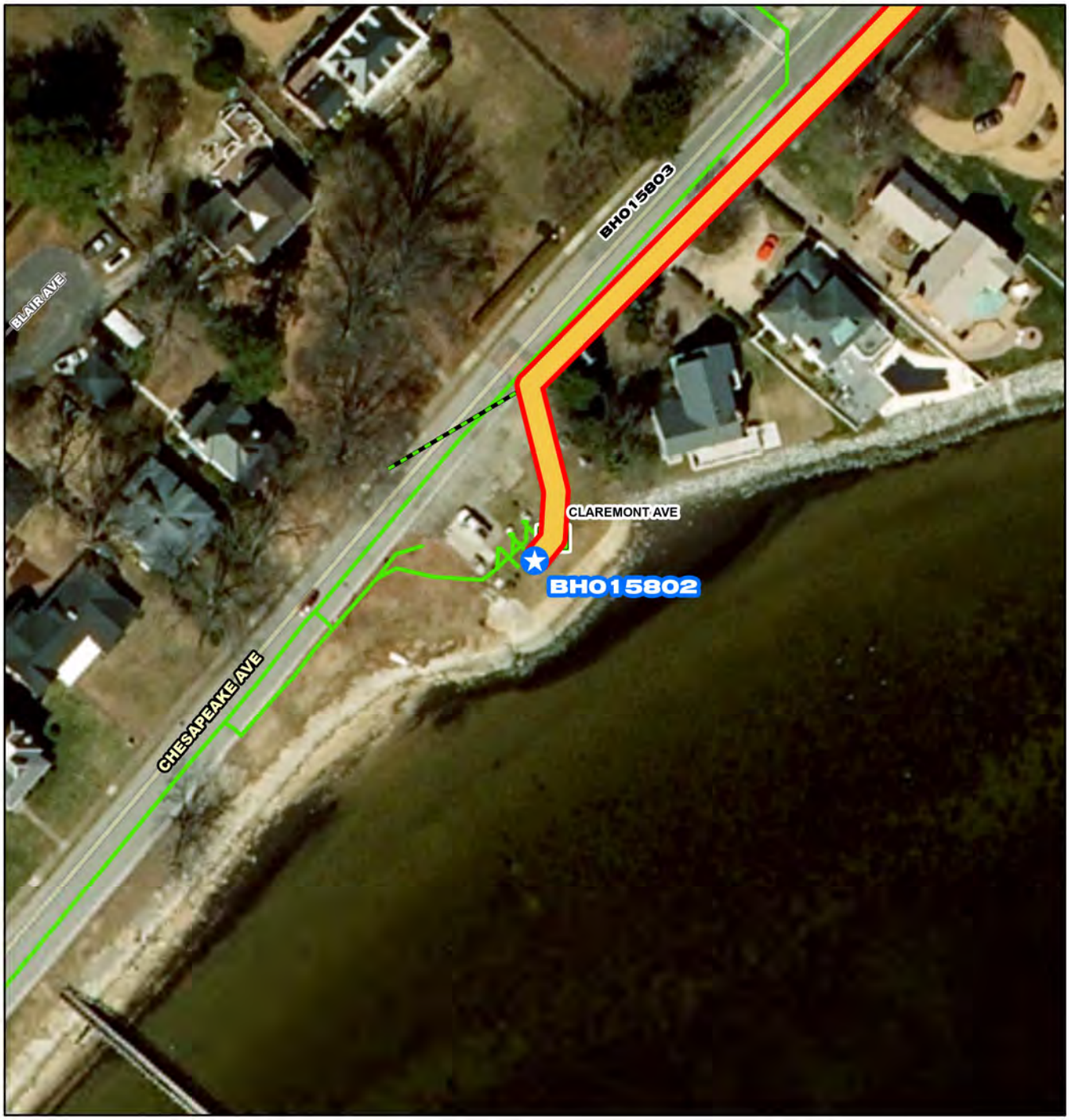
Contacts-Requesting Dept: Engineering
Contacts-Dept Contacts: David Steele
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	10/01/2025
PER	01/01/2026
Design Delay	
Design	03/01/2027
Bid Delay	08/01/2027
PreConstruction	08/01/2027
Construction	12/01/2025
Closeout	03/01/2030

COST ESTIMATE

Cost Estimate Class:	**Class 4 (-15% to +50%)**
PrePlanning	$0
PER	$787,000
Design	$3,147,000
PreConstruction	$67,000
Construction	$39,000,000
Closeout	$0
Est. Program Cost	**$43,001,000**
Contingency Budget	$8,600,000
Est. Project Costs	**$51,601,000**



BH015802

- Project Interceptor Line
- Project Interceptor Point
- Project Location 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
- WTP HRSD Treatment Plant
- PRS HRSD Pressure Reducing Station
- PS HRSD Pump Station

0 25 50 100 150 200 Feet

BH015802

Claremont Pump Station Upgrade (BH-HPP-01B)

HRSD

N
W E
S

CIP Location

Claremont Pump Station Upgrade (BH-HPP-01B)

PR_BH015802

System: Boat Harbor
Type: Pump Stations

Driver Category: I&I Abatement-IP/RWWMP
Project Phase: Proposed
Regulatory: Integrated Plan-HPP 2

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	FY35	FY36
$3,835	$0	$0	$0	$0	$0	$0	$0	$243	$510	$583	$2,498

PROJECT DESCRIPTION

Claremont Pump Station Upgrade (NS-PS-208).

PROJECT JUSTIFICATION

As part of the RWWMP submitted to the DEQ and EPA, HRSD developed an approach to recognize the highest-priority system improvements with the greatest relative environmental benefit. The result being the identification of High-Priority Projects (HPPs).
Rounds 1 and 2 of High-Priority Projects were scheduled with consecutive 10-year implementation periods starting with Round 1 being completed between plan approval and 2030. Prior to commencement, HRSD will review the Round 2 projects to confirm that they are still expected to meet the desired result and confirm this in a check in with the EPA/DEQ. To modify the list of specific Round 2 HPP projects, HRSD will show that the revised set of projects will attain a minimum of the same percent reduction, or better.

FUNDING TYPE

Funding Type: Revenue Bond

CONTACTS

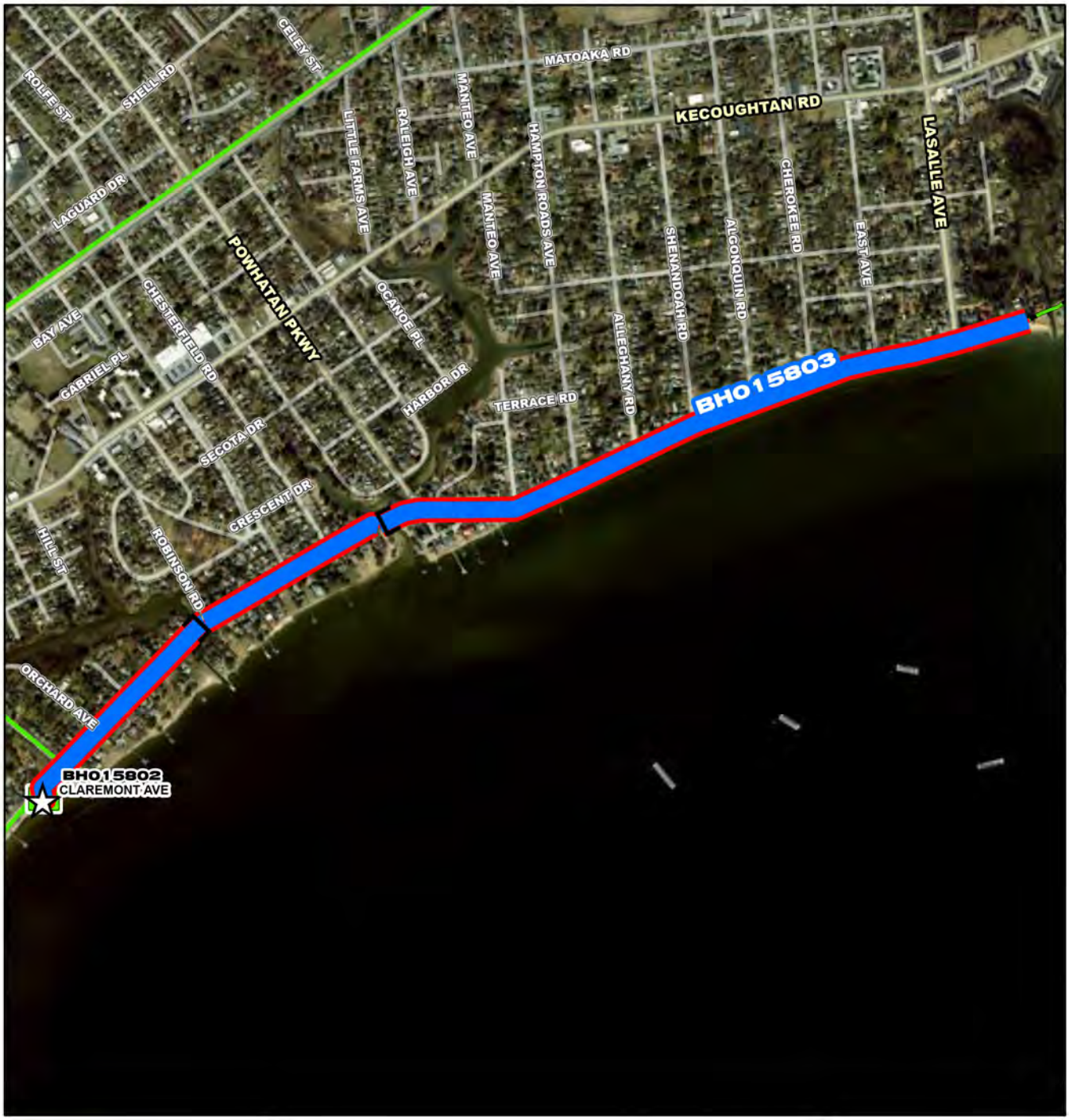
Contacts-Requesting Dept: Engineering
Contacts-Dept Contacts: John Dano
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	01/03/2028
PER	11/02/2032
Design Delay	11/02/2033
Design	11/02/2033
Bid Delay	11/02/2035
PreConstruction	11/02/2035
Construction	01/02/2036
Closeout	01/03/2039

COST ESTIMATE

Cost Estimate Class:	**Class 10**
PrePlanning	$0
PER	$364,619
Design	$1,166,704
PreConstruction	$218,798
Construction	$12,506,418
Closeout	$0
Est. Program Cost	**$14,256,540**
Contingency Budget	$3,126,604
Est. Project Costs	**$17,383,143**



BH015803

- Project Interceptor Line
- Project Interceptor Point
- Project Location 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
- WTP HRSD Treatment Plant
- PRS HRSD Pressure Reducing Station
- PS HRSD Pump Station

0 387.5 775 1,550 2,325 3,100 Feet

N
W E
S

CIP Location

BH015803

Chesapeake Avenue Interceptor Improvements (BH-HPP-01C)

HRSD

Chesapeake Avenue Interceptor Improvements (BH-HPP-01C)

PR_BH015803

System: Boat Harbor
Type: Pipelines

Driver Category: I&I Abatement-IP/RWWMP
Project Phase: Proposed
Regulatory: Integrated Plan-HPP 2

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	FY35	FY36
$5,179	$0	$0	$0	$0	$0	$0	$0	$383	$680	$732	$3,385

PROJECT DESCRIPTION

Upgrade 6,490 linear feet (LF) to 42-inch gravity main (GM); Upgrade 2,180 LF of 24-inch GM to 36-inch GM; Upgrade 70 LF of 42-inch inverted siphon along Chesapeake Avenue upstream of NS-PS-208; Upgrade 70 LF of 42-inch inverted siphon along Chesapeake Avenue upstream of NS-PS-208.

PROJECT JUSTIFICATION

As part of the RWWMP submitted to the DEQ and EPA, HRSD developed an approach to recognize the highest-priority system improvements with the greatest relative environmental benefit. The result being the identification of High-Priority Projects (HPPs).
Rounds 1 and 2 of High-Priority Projects were scheduled with consecutive 10-year implementation periods starting with Round 1 being completed between plan approval and 2030. Prior to commencement, HRSD will review the Round 2 projects to confirm that they are still expected to meet the desired result and confirm this in a check in with the EPA/DEQ. To modify the list of specific Round 2 HPP projects, HRSD will show that the revised set of projects will attain a minimum of the same percent reduction, or better.

FUNDING TYPE

Funding Type: Revenue Bond

CONTACTS

Contacts-Requesting Dept: Engineering
Contacts-Dept Contacts: John Dano
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	01/03/2028
PER	11/02/2032
Design Delay	11/02/2033
Design	11/02/2033
Bid Delay	11/02/2035
PreConstruction	11/02/2035
Construction	01/02/2036
Closeout	01/03/2039

COST ESTIMATE

Cost Estimate Class:	**Class 10**
PrePlanning	$0
PER	$573,865
Design	$1,464,849
PreConstruction	$324,416
Construction	$16,895,660
Closeout	$0
Est. Program Cost	**$19,258,790**
Contingency Budget	$4,223,914
Est. Project Costs	**$23,482,705**

BH016100

- Project Interceptor Line
- Project Interceptor Point
- Project Location 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
- WTP HRSD Treatment Plant
- PRS HRSD Pressure Reducing Station
- PS HRSD Pump Station

0 250 500 1,000 1,500 2,000 Feet

N
W E
S

CIP Location

BH016100

High Priority Projects Round 2
Project 3

HRSD

High Priority Projects Round 2 Project 3

PR_BH016100

System: Boat Harbor
Type: Pipelines

Driver Category: I&I Abatement-IP/RWWMP
Project Phase: Proposed
Regulatory: Integrated Plan-HPP 2

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	FY35	FY36
$28,597	$0	$0	$0	$0	$0	$449	$1,348	$1,910	$5,787	$9,551	$9,551

PROJECT DESCRIPTION

High Priority Project (HPP) Round 2 Project 3 consists of the following Regional Wet Weather Management Plan (RWWMP) Project IDs and general descriptions:
BH-RWWMP-04 58th Street Storage Tank
BH-RWWMP-07 Newmarket Creek Pump Station Upgrade
BH-RWWMP-08 Mercury Boulevard and Newmarket Gravity Main Improvements

PROJECT JUSTIFICATION

As part of the RWWMP submitted to the DEQ and EPA, HRSD developed an approach to recognize the highest-priority system improvements with the greatest relative environmental benefit. The result being the identification of High-Priority Projects (HPPs). Rounds 1 and 2 of High-Priority Projects were scheduled with consecutive 10-year implementation periods starting with Round 1 being completed between plan approval and 2030. Prior to commencement, HRSD will review the Round 2 projects to confirm that they are still expected to meet the desired result and confirm this in a check in with the EPA/DEQ. To modify the list of specific Round 2 HPP projects, HRSD will show that the revised set of projects will attain a minimum of the same percent reduction, or better.

FUNDING TYPE

Funding Type: Revenue Bond

CONTACTS

Contacts-Requesting Dept: Engineering
Contacts-Dept Contacts: John Dano
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	11/01/2030
PER	11/03/2031
Design Delay	11/02/2032
Design	11/02/2032
Bid Delay	11/02/2033
PreConstruction	11/02/2033
Construction	01/02/2034
Closeout	01/02/2037

COST ESTIMATE

Cost Estimate Class:	**Class 10**
PrePlanning	$674,187
PER	$1,685,469
Design	$2,022,563
PreConstruction	$337,094
Construction	$28,652,975
Closeout	$337,094
Est. Program Cost	**$33,709,381**
Contingency Budget	$0
Est. Project Costs	**$33,709,381**

Inflow Reduction Program-Phase II

PR_BH016200

System: Boat Harbor
Type: Locality and Private Property

Driver Category: I&I Abatement-IP/RWWMP
Project Phase: Design
Regulatory: None

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	FY35	FY36
$1,556	$1,224	$332	$0	$0	$0	$0	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

This project includes the identification and reduction of points of inflow into locality and HRSD owned sanitary sewer systems within the Boat Harbor service area. Identification may include data analysis, smoke testing, flow and conductivity monitoring and other field investigations. Inflow reduction strategies may include sealing of manholes, elimination of direct connections, as well as, sealing and replacement of laterals and cleanouts. The Regional Wet Weather Management Plan (RWWMP) has identified basins in current need of inflow reductions and areas of saltwater inflow have been identified through data analysis. Areas to implement inflow reduction strategies will be targeted based on susceptibility to saltwater inflow and through further data analysis of the basins identified in RWWMP. HRSD will coordinate identification and reduction of inflow with locality partners. This project will benefit from the piloted strategies and analysis performed in Phase I.

PROJECT JUSTIFICATION

Hydrographs, flow monitoring, and conductivity monitoring indicate that rapid increases in flow occur during wet weather and high tide events. The rapid inflow of water into the system increases the risk of overflows due to limited hydraulic capacity and increases the risk of force main failures due to increased force main operating pressures. Peak flow reduction in the Boat Harbor service area is desirable to mitigate sanitary sewer overflow (SSO) risk. In addition, reduction of saltwater inflow will protect downstream SWIFT operations.

FUNDING TYPE

Funding Type: Cash

CONTACTS

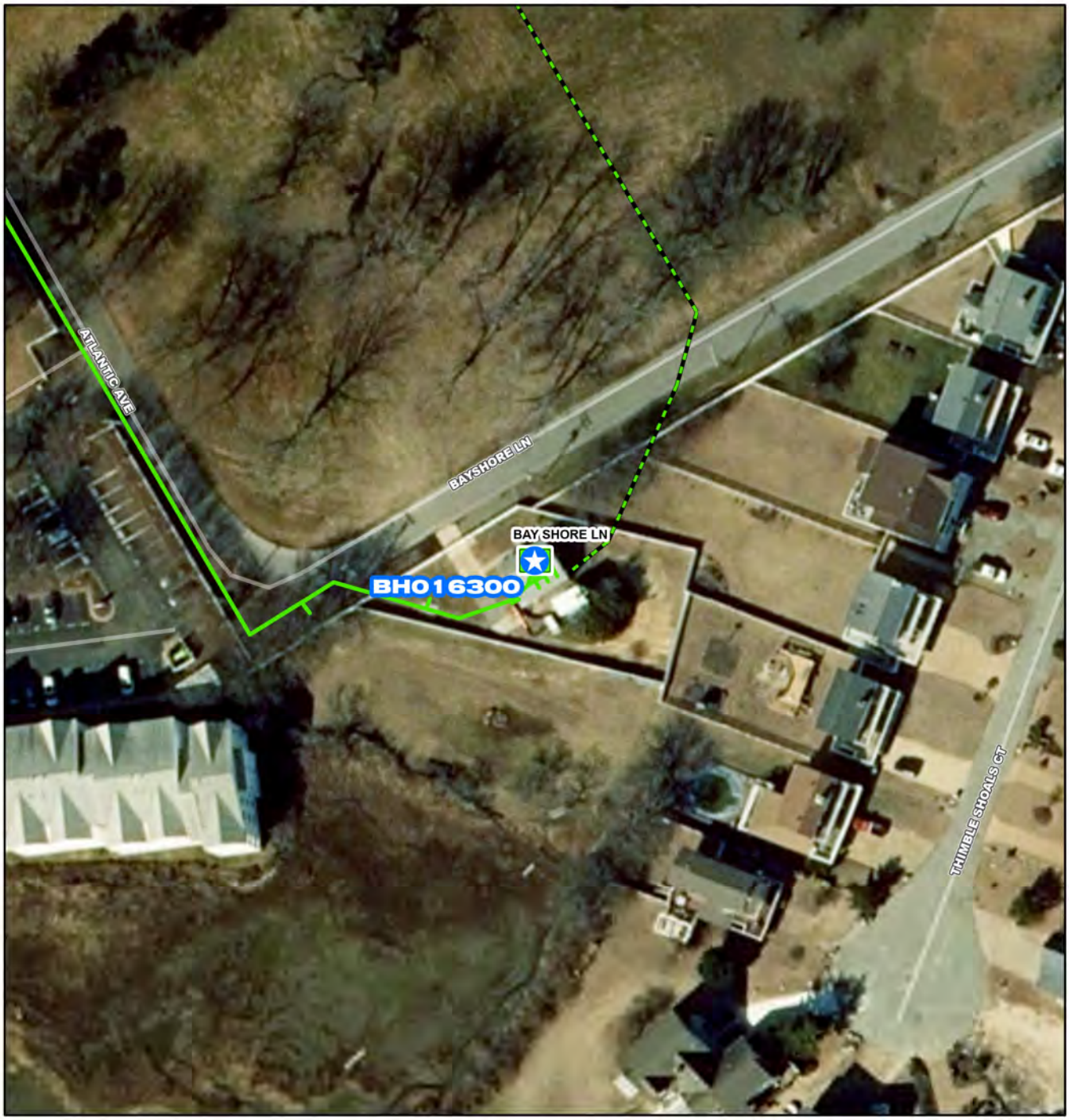
Contacts-Requesting Dept: Engineering
Contacts-Dept Contacts: Shirley Smith
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	04/03/2023
PER	12/01/2023
Design Delay	03/03/2025
Design	12/01/2025
Bid Delay	09/01/2026
PreConstruction	09/01/2026
Construction	11/01/2026
Closeout	11/01/2028

COST ESTIMATE

Cost Estimate Class:	**Class 5 (-20% to +100%)**
PrePlanning	$3,201
PER	$557,612
Design	$994,812
PreConstruction	$0
Construction	$0
Closeout	$0
Est. Program Cost	**$1,555,625**
Contingency Budget	$223,000
Est. Project Costs	**$1,778,625**



BH016300

Project Interceptor Line
Project Interceptor Point
Project Location 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
WTP HRSD Treatment Plant
PRS HRSD Pressure Reducing Station
PS HRSD Pump Station

0 25 50 100 150 200 Feet

BH016300

Bayshore Pump Station Replacement

HRSD

N
W E
S

CIP Location

Bayshore Pump Station Replacement

PR_BH016300

System: Boat Harbor
Type: Pump Stations

Driver Category: Capacity Improvements
Project Phase: Proposed
Regulatory: None

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	FY35	FY36
$14,661	$0	$0	$0	$0	$0	$333	$902	$6,713	$6,713	$0	$0

PROJECT DESCRIPTION

This project includes the replacement of the Bayshore Pump Station (PS) to address hydraulic and age-related conditional issues. The proposed replacement will include a relocated pump station and new gravity and force main connections to the existing systems.

PROJECT JUSTIFICATION

Bayshore Pump Station was constructed in 1944. During moderate wet weather events, the station has experienced capacity issues resulting in numerous Sanitary Sewer Overflows (SSO). Over the past decade, this pump station has averaged one SSO per calendar year. In 2021, North Shore Interceptors installed an interim pump to provide additional hydraulic capacity for the station but SSOs still occur as this is not a permanent solution. The pumping configuration of this pump station is also limiting. With only one small pump and two larger pumps, the smaller pump is in operation the vast majority of the time for dry weather flows with no redundancy, and the two larger pumps only run during wet weather events. Due to this configuration, the firm capacity of this station is limited to just one of the larger pumps and is not sufficient for influent flows. In almost all wet weather events, both pumps run at full speed and again have no redundancy. In 2013, an electrical upgrade moved the generator to the exterior of the building. The elevated platform for this generator, combined with the permanently mounted external interim pump, has created an eye sore for the community. The station is near the City of Hampton's Buckroe Beach, and the densely populated neighboring parcels and adjacent community are adversely affected by these structures. Historically, there have been other age-related issues, including an electrical fire in 2008 where one of the internal breaker panels was completely lost.

FUNDING TYPE

Funding Type: Revenue Bond

CONTACTS

Contacts-Requesting Dept: Operations-Interceptors
Contacts-Dept Contacts: Santino Granato
Contacts-Managing Dept: Operations-Interceptors

PROPOSED SCHEDULE START DATE

PrePlanning	07/01/2030
PER	11/04/2030
Design Delay	07/02/2031
Design	07/02/2031
Bid Delay	07/02/2032
PreConstruction	07/02/2032
Construction	09/02/2032
Closeout	05/02/2034

COST ESTIMATE

Cost Estimate Class:	**Class 5 (-20% to +100%)**
PrePlanning	$0
PER	$332,717
Design	$901,555
PreConstruction	$5,366
Construction	$13,416,000
Closeout	$5,366
Est. Program Cost	**$14,661,005**
Contingency Budget	$2,511,475
Est. Project Costs	**$17,172,480**

BH016400

- Project Interceptor Line
- Project Interceptor Point
- Project Location 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
- WTP HRSD Treatment Plant
- PRS HRSD Pressure Reducing Station
- PS HRSD Pump Station

0 25 50 100 150 200 Feet

BH016400

Jefferson Avenue Pump Station Electrical Improvements

HRSD

N
W E
S

CIP Location

Jefferson Avenue Pump Station Improvements

PR_BH016400

System: Boat Harbor
Type: Electrical

Driver Category: I&I Abatement-IP/RWWMP
Project Phase: Pre Planning
Regulatory: None

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	FY35	FY36
$920	$200	$720	$0	$0	$0	$0	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

This project will design and install a new standby generator, automatic transfer switch (ATS), independent utility service, and motor control center (MCC) at the Jefferson Avenue Pump Station. This equipment is required to ensure continuity of service at the pump station due to the planned decommissioning of the Boat Harbor Treatment Plant.

PROJECT JUSTIFICATION

This project will ensure continuity of service at Jefferson Avenue Pump Station, prior to the decommissioning of Boat Harbor Treatment Plant. The pump station currently receives utility and emergency back-up power from the 13.8 kV Medium Voltage utility switchgear (i.e. electrical distribution system) at Boat Harbor Treatment Plant, which will be disconnected in December 2026 and reconfigured for the full-scale SWIFT facility at Nansemond Treatment Plant. This project will include the installation of underground cabling, conduit, and transformer for the new Dominion Energy utility service. In addition, the project will also include installation of a new standby generator, automatic transfer switch (ATS), motor control center (MCC), and associated electrical equipment.

FUNDING TYPE

Funding Type: Revenue Bond

CONTACTS

Contacts-Requesting Dept: Operations-E&I
Contacts-Dept Contacts: David Steele
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	06/02/2025
PER	06/02/2025
Design Delay	06/02/2025
Design	07/01/2025
Bid Delay	06/02/2026
PreConstruction	06/02/2026
Construction	09/02/2026
Closeout	10/02/2026

COST ESTIMATE

Cost Estimate Class:	**Class 5 (-20% to +100%)**
PrePlanning	$0
PER	$0
Design	$200,000
PreConstruction	$0
Construction	$720,000
Closeout	$0
Est. Program Cost	**$920,000**
Contingency Budget	$46,000
Est. Project Costs	**$966,000**

BH016510

- Project Interceptor Line
- Project Interceptor Point
- Project Location 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
- WTP HRSD Treatment Plant
- PRS HRSD Pressure Reducing Station
- PS HRSD Pump Station

0 25 50 100 150 200 Feet

BH016510

Jefferson Avenue Pump Station Replacement Study

HRSD

N
W E
S

CIP Location

Jefferson Avenue Pump Station Replacement Study

PR_BH016510

System: Boat Harbor
Type: Pump Stations

Driver Category: Aging Infrastructure/Rehabilitation
Project Phase: Proposed
Regulatory: None

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	FY35	FY36
$200	$0	$74	$126	$0	$0	$0	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

This project includes the replacement and relocation of HRSD's existing Jefferson Avenue Pump Station (1944) currently located on Boat Harbor Treatment Plant Property. The project includes the acquisition of property and building a new pump station near King Lincoln Park in Newport News, Virginia. To accomplish this project approximately 1,200 linear feet of 8" gravity main will need to be installed and a new 2,200 LF 8" force main within the right-of-way of Jefferson Avenue will be required. Additionally, 2 private connections on the BH TP side of the Small Boat Harbor channel will need to be addressed with private grinder stations.

PROJECT JUSTIFICATION

This project is to replace and relocate HRSD's existing Jefferson Avenue Pump Station off the treatment plant property to a location more conducive to current development conditions and to mitigate tidal flooding potential. This project will completely abandon all remaining infrastructure on the Boat Harbor Treatment Plant site to include a significant amount of old gravity piping and manholes, the old cast iron force main, the inverted siphon that traverses the entrance of Small Boat Harbor, and all facilities associated with the pump station. As part of the preplanning for this project, it is recommended that property acquisition and coordination with the City of Newport News be initiated. It is expected that the replacement infrastructure sizing would be in-line with typical locality-owned infrastructure and ultimate ownership should be identified early in the planning stages. The project costs have been scoped for replacement with HDPE force main and smaller diameter gravity lines to account for appropriate pipe material and existing sewage flows.

FUNDING TYPE

Funding Type: Revenue Bond

CONTACTS

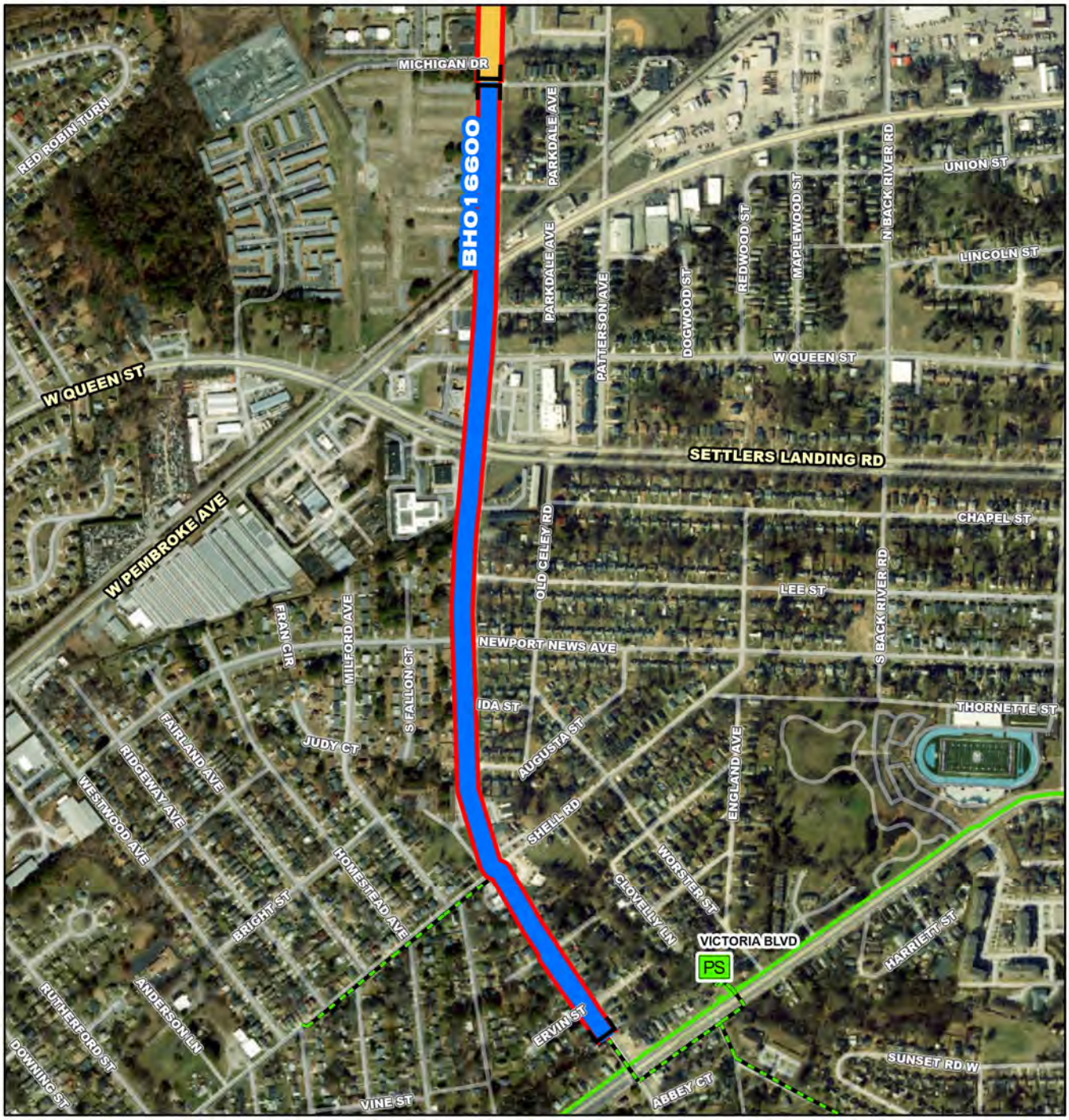
Contacts-Requesting Dept: Operations-Interceptors
Contacts-Dept Contacts: Chris Stephan
Contacts-Managing Dept: Operations-Interceptors

PROPOSED SCHEDULE START DATE

PrePlanning	12/01/2026
PER	07/01/2028
Design Delay	07/01/2028
Design	07/01/2028
Bid Delay	07/02/2028
PreConstruction	07/02/2028
Construction	07/02/2028
Closeout	07/02/2028

COST ESTIMATE

Cost Estimate Class:	
PrePlanning	$200,000
PER	$0
Design	$0
PreConstruction	$0
Construction	$0
Closeout	$0
Est. Program Cost	**$200,000**
Contingency Budget	$0
Est. Project Costs	**$200,000**



BH016600

- Project Interceptor Line
- Project Interceptor Point
- Project Location 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
- WTP HRSD Treatment Plant
- PRS HRSD Pressure Reducing Station
- PS HRSD Pump Station

0 250 500 1,000 1,500 2,000 Feet

N
W E
S

CIP Location

BH016600

LaSalle Avenue Interceptor Force Main Replacement Phase I

HRSD

LaSalle Avenue Interceptor Force Main Replacement Phase I

PR_BH016600

System: Boat Harbor
Type: Pipelines

Driver Category: Aging Infrastructure/Rehabilitation
Project Phase: Proposed
Regulatory: None

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	FY35	FY36
$8,061	$0	$285	$1,295	$3,482	$2,999	$0	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

This project will replace approximately 5,200 linear feet of 14-inch cast iron force main (NF-085) located within the right-of-way of LaSalle Avenue in Hampton, Virginia. The relocation will be from BH2001 where Hampton PS 107 connects to the HRSD force main to three terminations on the southern end of the project to enhance diversion capabilities. The southern terminus shall include connections to the gravity at Shell Road, connection to the Victoria Boulevard FM, and connection to the Victoria Blvd PS. These additional connections will allow for various diversions and improved control of flows. Provisions for control valves to automate the flow path should also be provided. In combination with the other phases, the entirety of this project will allow for diversions by and between York River and Boat Harbor Treatment Plant service areas.

PROJECT JUSTIFICATION

This 14" CI force main was put into service in 1956. During the installation of new natural gas service lines to residents along LaSalle Avenue, Virginia Natural Gas' contractor exposed HRSD's 14" CI line to verify clearance. Upon excavation and uncovering HRSD's force main, it was observed that this line was completely corroded on the top of the pipe to the point of failure. As HRSD's crews worked to repair this line, further holes in the force main developed due to extremely frail pipe wall conditions. The hydraulic conditions of this force main are such that severe internal H2S corrosion is highly likely. There are no air vents on pipe between stations 134+50 and 152+50 and the profile of this line dictates that it does not run full. As such, it is anticipated that vast majority of this line from station 134+50 to station 152+50, is in similar deteriorated condition as experienced during the emergency repair of our line. Similarly, there is another unvented high spot at station 122+50, between the C&O Railroad tracks and Pembroke Avenue. The City of Hampton is under redevelopment requirements necessitating upgrades to both PS 107 and PS 017. These upgrades will change flow contributions and place this force main into a highly likelihood of failure in the near future. The complete replacement of this section of pipe is warranted.

FUNDING TYPE

Funding Type: Revenue Bond

CONTACTS

Contacts-Requesting Dept: Operations-Interceptors
Contacts-Dept Contacts: Chris Stephan
Contacts-Managing Dept: Operations-Interceptors

PROPOSED SCHEDULE START DATE

PrePlanning	01/01/2027
PER	01/01/2027
Design Delay	09/01/2027
Design	09/01/2027
Bid Delay	06/01/2028
PreConstruction	06/01/2028
Construction	08/01/2028
Closeout	04/01/2030

COST ESTIMATE

Cost Estimate Class:	**Class 5 (-20% to +100%)**
PrePlanning	$0
PER	$380,000
Design	$1,200,000
PreConstruction	$0
Construction	$6,331,000
Closeout	$150,000
Est. Program Cost	**$8,061,000**
Contingency Budget	$1,475,000
Est. Project Costs	**$9,536,000**

BH016700

- Project Interceptor Line
- Project Interceptor Point
- Project Location 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
- WTP HRSD Treatment Plant
- PRS HRSD Pressure Reducing Station
- PS HRSD Pump Station

0 137.5 275 550 825 1,100 Feet

BH016700

LaSalle Avenue Interceptor Force Main Replacement Phase II

HRSD

N
W E
S

CIP Location

LaSalle Avenue Interceptor Force Main Replacement Phase II

PR_BH016700

System: Boat Harbor
Type: Pipelines

Driver Category: Aging Infrastructure/Rehabilitation
Project Phase: Proposed
Regulatory: None

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	FY35	FY36
$5,218	$0	$0	$550	$1,535	$3,033	$100	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

This project will replace approximately 3,700 linear feet of 12-inch ductile iron and 14" cast iron force main (NF-075/NF-085) located within the right-of-way of North Armistead Avenue and LaSalle Avenue in Hampton, Virginia. The relocation will be from the end the replacement of Phase III near Freeman Avenue PS to the valve complex at BH-2001 where Hampton PS 107 connects to HRSD's force main. Included within the scope of this project is the replacement of the force main under I-64 and an aerial section that crosses Newmarket Creek on pilings. Additional diversion capabilities should be incorporated into this replacement to include a means to dump to the Freeman Ave PS gravity system via a new control valve and force main.

PROJECT JUSTIFICATION

This force main was put into service in 1956 and has had several failures resulting in SSOs and emergency repairs. Currently this section has been partially abandoned via emergency repair and plugged due to the difficulties of crossing both Newmarket Creek and Interstate I-64. No interconnect between the YR and BH system is currently available as emergency repairs did not allow for reconnection of the systems. This infrastructure was originally part of the original YR014200 project. The project costs have been scoped for replacement with a 16" diameter line to account for York River to Boat Harbor interconnectivity and development driven sewage flows.

FUNDING TYPE

Funding Type: Revenue Bond

CONTACTS

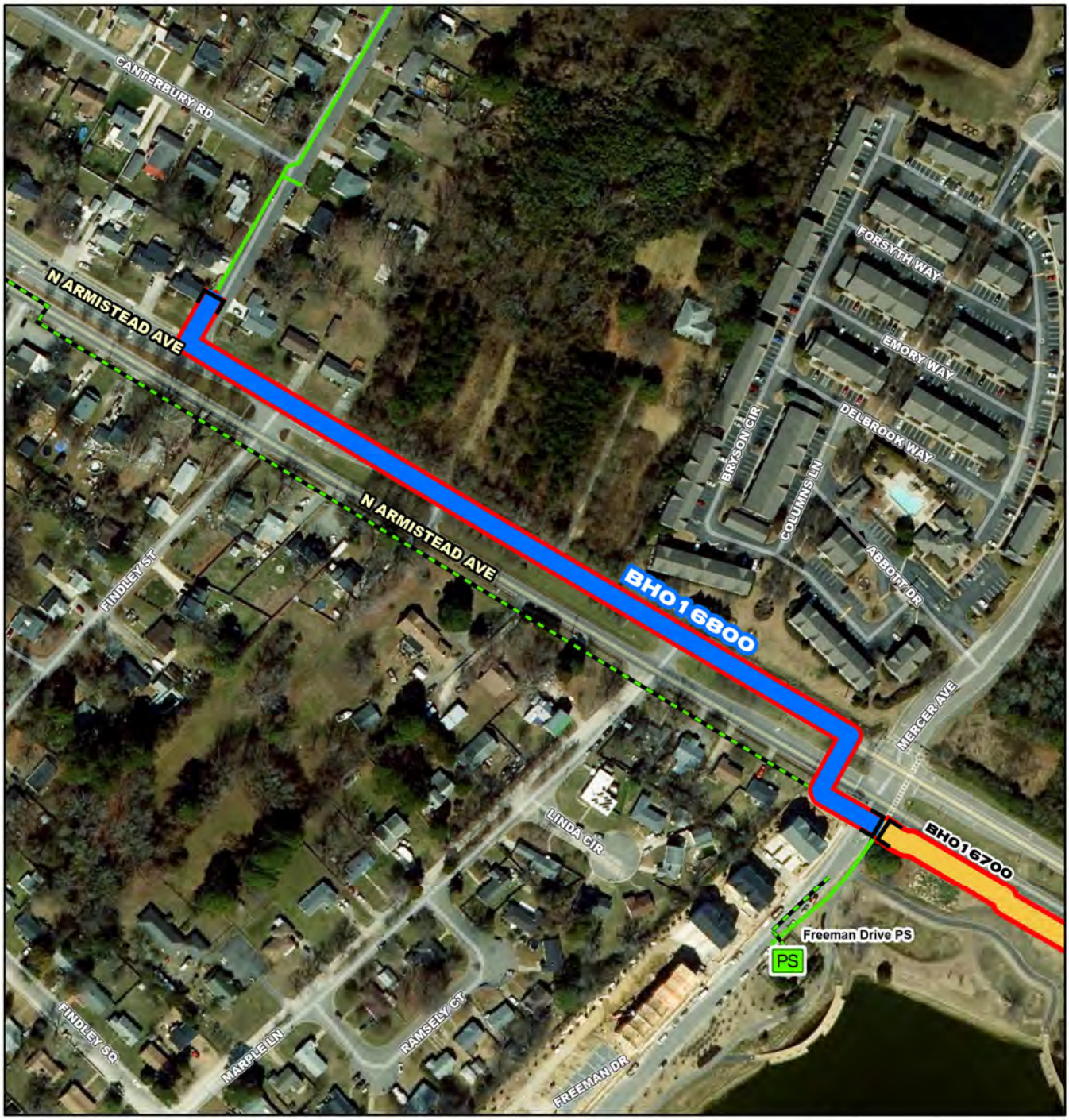
Contacts-Requesting Dept: Operations-Interceptors
Contacts-Dept Contacts: Chris Stephan
Contacts-Managing Dept: Operations-Interceptors

PROPOSED SCHEDULE START DATE

PrePlanning	07/01/2027
PER	07/01/2027
Design Delay	03/01/2028
Design	03/01/2028
Bid Delay	01/01/2029
PreConstruction	01/01/2029
Construction	03/01/2029
Closeout	06/01/2030

COST ESTIMATE

Cost Estimate Class:	**Class 5 (-20% to +100%)**
PrePlanning	$0
PER	$250,000
Design	$750,000
PreConstruction	$0
Construction	$4,068,000
Closeout	$150,000
Est. Program Cost	**$5,218,000**
Contingency Budget	$1,100,000
Est. Project Costs	**$6,318,000**



BH016800

- Project Interceptor Line
- Project Interceptor Point
- Project Location 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
- WTP HRSD Treatment Plant
- PRS HRSD Pressure Reducing Station
- PS HRSD Pump Station

0 80 160 320 480 640 Feet

BH016800

LaSalle Avenue Interceptor Force Main Replacement Phase III

HRSD

N
W E
S

CIP Location

LaSalle Avenue Interceptor Force Main Replacement Phase III

PR_BH016800

System: York River
Type: Pipelines

Driver Category: Aging Infrastructure/Rehabilitation
Project Phase: Proposed
Regulatory: None

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	FY35	FY36
$1,150	$0	$0	$0	$667	$483	$0	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

This project will replace approximately 1,700 linear feet of 12-inch asbestos cement force main NF-085 (1970) located within the right-of-way of North Armistead Avenue in Hampton, Virginia. The relocation will be from YR-4032-1 to fitting NF-229-114632 (roughly 100 LF north of the intersection of Westminster and N Armistead) and will be completed as part of the roadway improvements proposed by the City of Hampton. Included in this scope is the potential betterment costs of increasing the line size to 16" and providing new connection and tie-in points to Freeman Avenue PS force main. Project costs are projected to be a one-time reimbursement to the City of Hampton during or just after construction is complete.

PROJECT JUSTIFICATION

This 12" AC force main was put into service in 1970 and requires replacement due to the City of Hampton roadway improvement project. This force main is possibly slated for betterment to increase the diameter of this line. This infrastructure was originally part of the original YR014200 project. The project costs have been scoped for replacement with a 16" diameter line to account for York River to Boat Harbor interconnectivity and development driven sewage flows.

FUNDING TYPE

Funding Type: Revenue Bond

CONTACTS

Contacts-Requesting Dept: Operations-Interceptors
Contacts-Dept Contacts: Chris Stephan
Contacts-Managing Dept: Operations-Interceptors

PROPOSED SCHEDULE START DATE

PrePlanning	07/01/2026
PER	07/01/2026
Design Delay	07/01/2026
Design	07/01/2026
Bid Delay	07/01/2026
PreConstruction	07/01/2028
Construction	07/01/2028
Closeout	01/01/2030

COST ESTIMATE

Cost Estimate Class:	**Class 5 (-20% to +100%)**
PrePlanning	$0
PER	$0
Design	$0
PreConstruction	$0
Construction	$1,000,000
Closeout	$150,000
Est. Program Cost	**$1,150,000**
Contingency Budget	$250,000
Est. Project Costs	**$1,400,000**