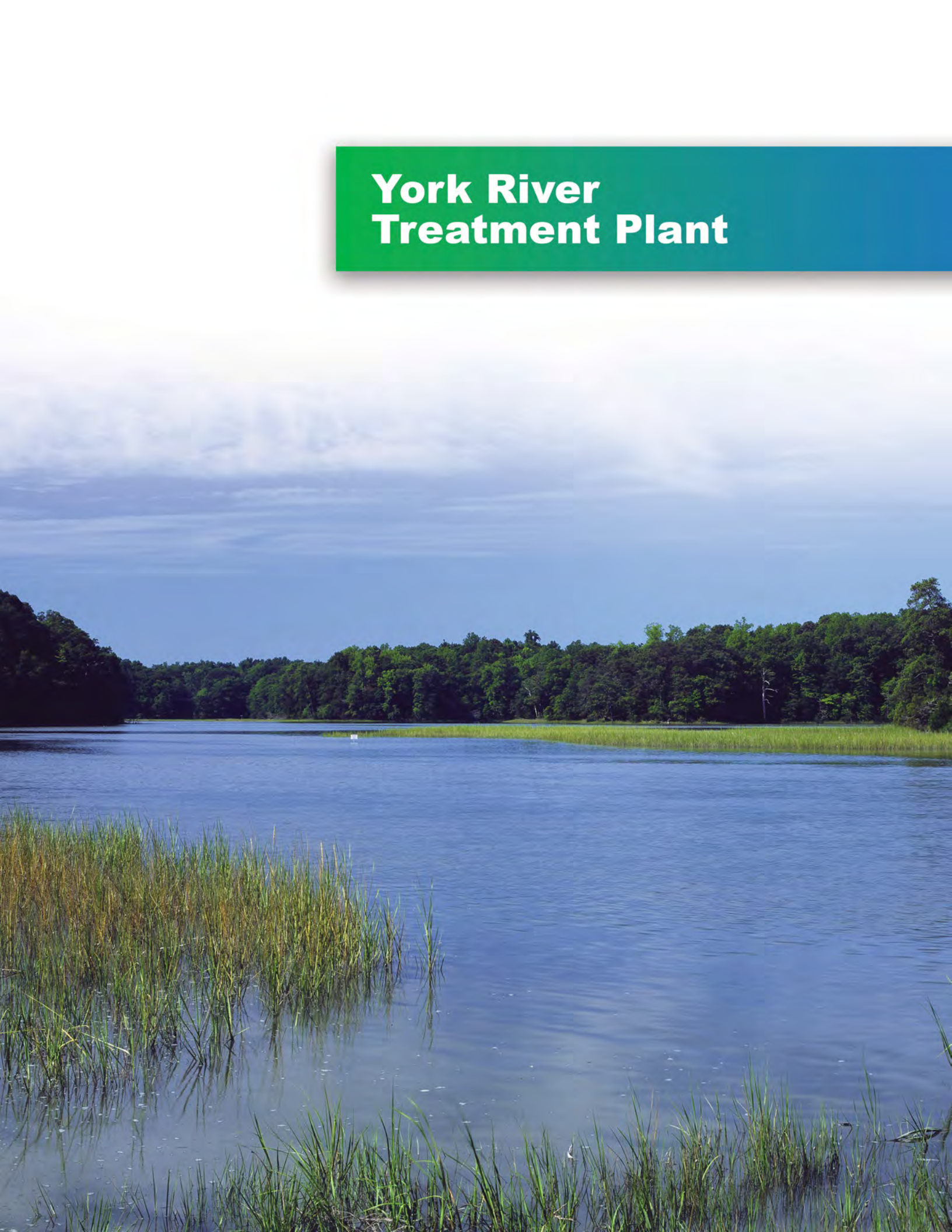
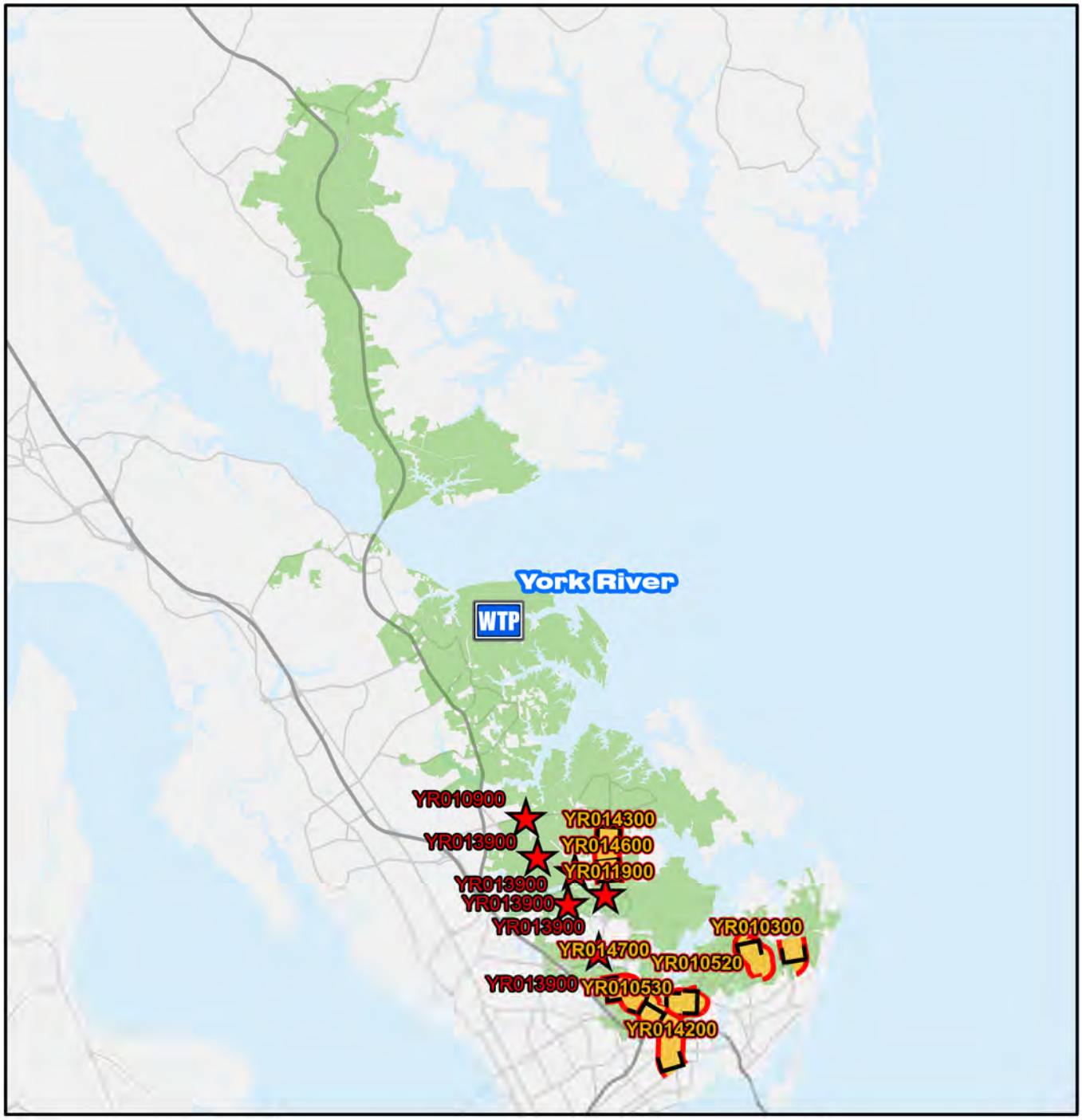
York River Treatment Plant





Legend

- WTP — York River Treatment Plant
- ★ 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 5,000 10,000 20,000 30,000 40,000 Feet

York River Treatment Plant Service Area CIP Projects

Treatment Plant Projects

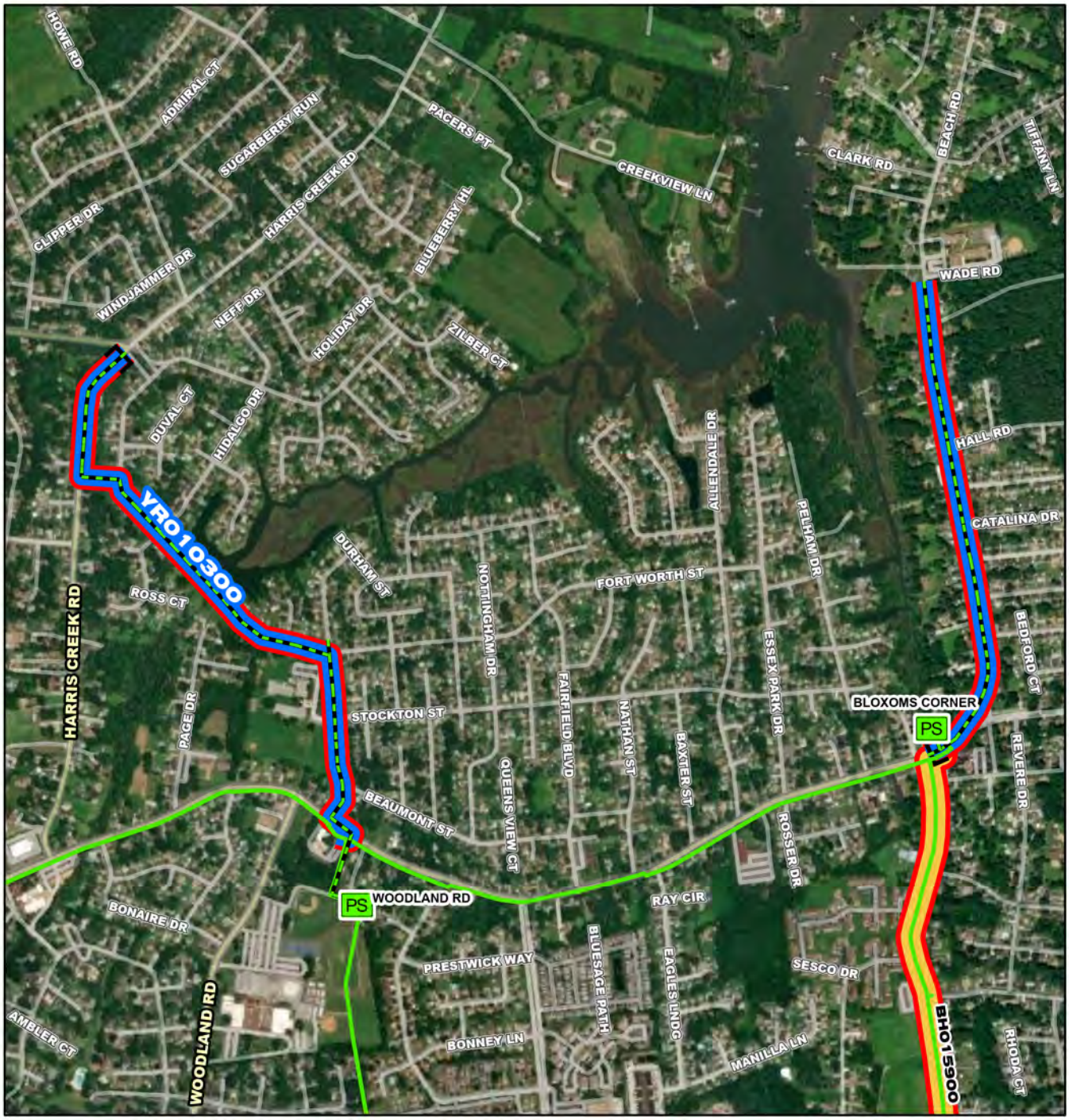
GN016370
GN016371
YR014000
YR014100
YR014800
YR014900

HRSD

N

CIP Location

Service Area



YRO10300

- 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
- WTP HRSD Treatment Plant
- PRS HRSD Pressure Reducing Station
- PS HRSD Pump Station

0 400 800 1,600 2,400 3,200 Feet

YRO10300

Foxridge, Woodland Road and Fox Hill Road Gravity Sewer Rehabilitation

HRSD

N
W E
S

CIP Location

Foxridge, Woodland Road and Fox Hill Road Gravity Sewer Rehabilitation

PR_YR010300

System: York River
Type: Pipelines

Driver Category: I&I Abatement-Rehabilitation Plan
Project Phase: Design
Regulatory: Rehab Plan Phase Two

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33
$3,285	$316	$1,610	$1,356	$3	$0	$0	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

This project involves the rehabilitation and/or replacement of (length dimensions approximate):
(1) NG-086: 2,920 linear feet (LF) of 15-inch and 410 LF of 14-inch, from the terminus manhole at the intersection of Little Back River and Harris Creek to the intersection of Fort Worth Street and Waco Court
(2) NG-087: 1,523 LF of 18-inch pipe
(3) NG-088: 2,060 LF of 10-inch pipe from Beach Road and Catalina Drive to Bloxoms Corner Pump Station
(4) NG-092: 509 LF of 21-inch and 228 LF of 24-inch pipe

Line rehabilitation will also include the rehabilitation/replacement of at least fifty four (54) manholes. This project has been updated to reflect work removed from the CIP and added to the find and fix requirements of the Federal EPA Consent Decree.

PROJECT JUSTIFICATION

The Foxridge, Bloxoms Corner and Woodland/Fox Hill Road gravity systems are primarily collection systems that require rehabilitation/replacement. Upon completion of the rehabilitation/replacement, these systems should be transferred to the City of Hampton. Approximately 1935 LF of existing 10-inch Vetrified Clay pipe was replaced along Beach Road with new 10-inch PVC pipe as part of the Prompt Repair program. This portion of new gravity pipe will also be transferred over to the City of Hampton for operation and maintenance.

FUNDING TYPE

Funding Type: Cash

CONTACTS

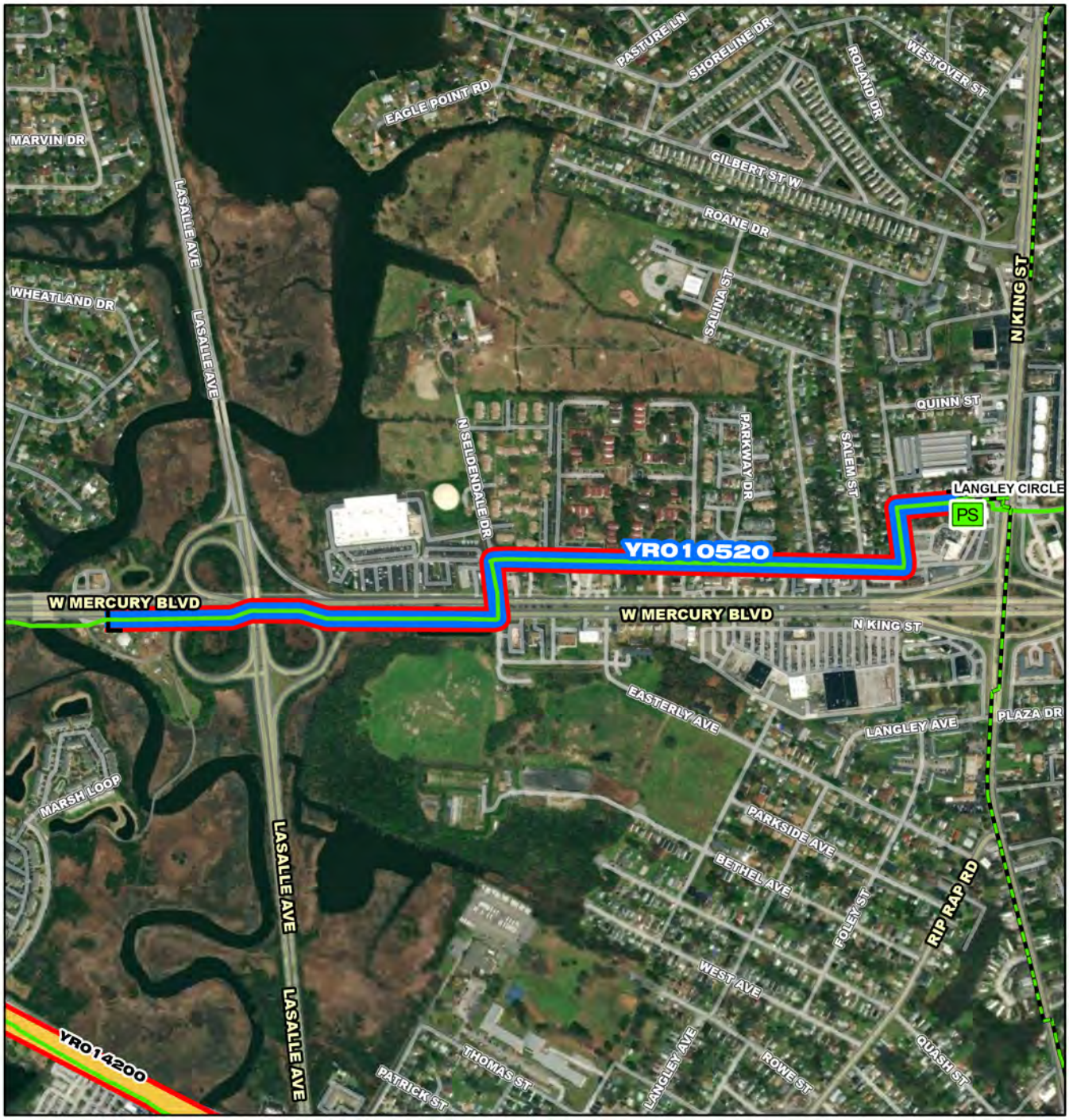
Contacts-Requesting Dept: Operations-Interceptors
Contacts-Dept Contacts: Ted Denny
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	02/01/2021
PER	07/21/2021
Design Delay	06/07/2022
Design	06/01/2022
Bid Delay	08/22/2023
PreConstruction	08/22/2023
Construction	11/01/2023
Closeout	02/04/2025

COST ESTIMATE

Cost Estimate Class:	**Class 2**
PrePlanning	$0
PER	$77,733
Design	$294,442
PreConstruction	$7,268
Construction	$2,900,000
Closeout	$5,514
Est. Program Cost	**$3,284,957**
Contingency Budget	$400,000
Est. Project Costs	**$3,684,957**



YR010520

- 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
- WTP HRSD Treatment Plant
- PRS HRSD Pressure Reducing Station
- PS HRSD Pump Station

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

YR010520

Magruder Mercury Interceptor Force Main Replacement - Section B

HRSD

N
W E
S

CIP Location

Magruder Mercury Interceptor Force Main Replacement-Section B

PR_YR010520

System: York River
Type: Pipelines

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

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33
$8,645	$947	$3,357	$4,338	$3	$0	$0	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

This project will consist of design and construction for the replacement of the Langley Circle Pump Station yard piping and the targeted replacement of approximately 3,800 linear feet (LF) of the 6,200 LF of 30-inch prestressed concrete cylinder pipe (PCCP) and ductile iron (DI) force main (NF-058) from the Langley Circle Pump Station to just east of the Newmarket Creek Crossing in Hampton identified in the Preliminary Engineering Report as high-risk segments. The target replacement will start at the intersection of North Seldendale Drive and Doolittle Road to a downstream connection location near Air Power Park, located on W. Mercury Boulevard. This project will require bypass pumping and temporary piping to facilitate maintenance of existing flows during construction.

PROJECT JUSTIFICATION

There are a number of infrastructure issues providing the justification for this project and each one will be addressed during the design of the replacement. A force main break and emergency repair occurred on this line in the vicinity of Langley Circle Pump Station due to crown corrosion, and condition assessment efforts performed during the preliminary engineering phase identified which portions of the force main were installed in corrosive soils with no existing corrosion protection and elevated risk of internal crown corrosion.

FUNDING TYPE

Funding Type: VCWRLF

CONTACTS

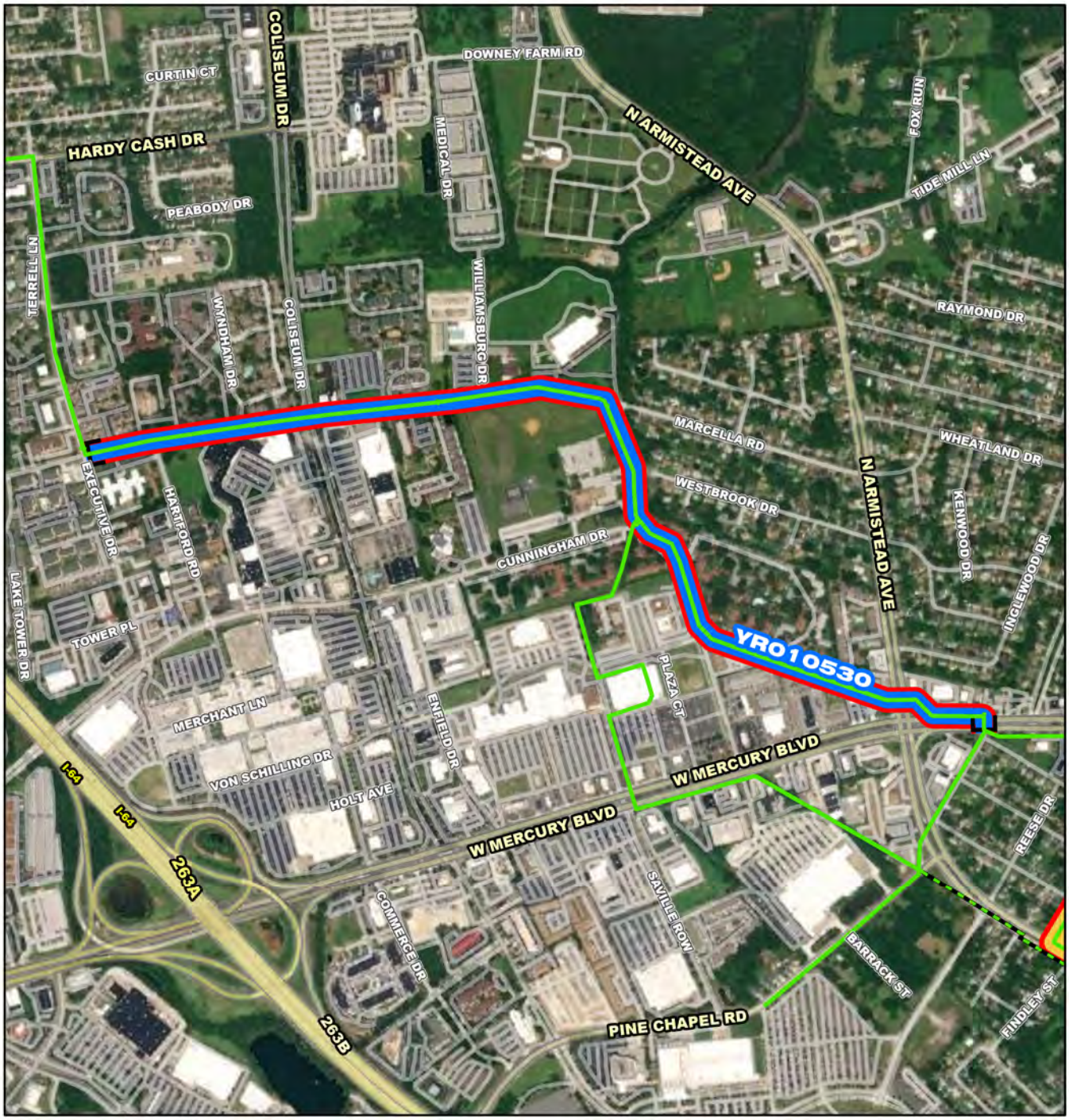
Contacts-Requesting Dept: Operations-Interceptors
Contacts-Dept Contacts: Angela Weatherhead
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	07/01/2019
PER	12/16/2020
Design Delay	05/27/2022
Design	01/01/2023
Bid Delay	09/01/2023
PreConstruction	09/01/2023
Construction	02/01/2024
Closeout	02/01/2025

COST ESTIMATE

Cost Estimate Class:	**Class 5**
PrePlanning	$61,785
PER	$233,712
Design	$883,264
PreConstruction	$18,359
Construction	$7,442,400
Closeout	$5,000
Est. Program Cost	**$8,644,520**
Contingency Budget	$1,488,480
Est. Project Costs	**$10,133,000**



YR010530

- 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
- WTP HRSD Treatment Plant
- PRS HRSD Pressure Reducing Station
- PS HRSD Pump Station

0 375 750 1,500 2,250 3,000 Feet

N
W E
S

CIP Location

YR010530

Magruder Mercury Interceptor Force Main Replacement - Section C

HRSD

Magruder Mercury Interceptor Force Main Replacement-Section C

PR_YR010530

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	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33
$6,648	$712	$0	$0	$0	$5,935	$0	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

This project will consist of design and construction for the replacement of 8,300 linear feet (LF) of 30-inch prestressed concrete cylinder pipe (PCCP) force main (NF-058) from the intersection of Mercury Boulevard and Windsor Drive to just east of the intersection of Executive Drive and Marcella Road. This project will require bypass pumping and temporary piping to facilitate maintenance of existing flows during construction.

PROJECT JUSTIFICATION

There are a number of infrastructure issues providing the justification for this project and each issue should be considered during the design of the replacement. During the by-pass operation required during the VDOT relocation in the late 1980s, significant debris and sedimentation was observed. The as-built profile and the construction methods used during the original installation of this line provide indication that numerous locations of this force main are at elevated risk for internal crown corrosion. Lastly, there are numerous locations where building structures and/or lack of vehicular and equipment access present significant operational response difficulties.

FUNDING TYPE

Funding Type: Revenue Bond

CONTACTS

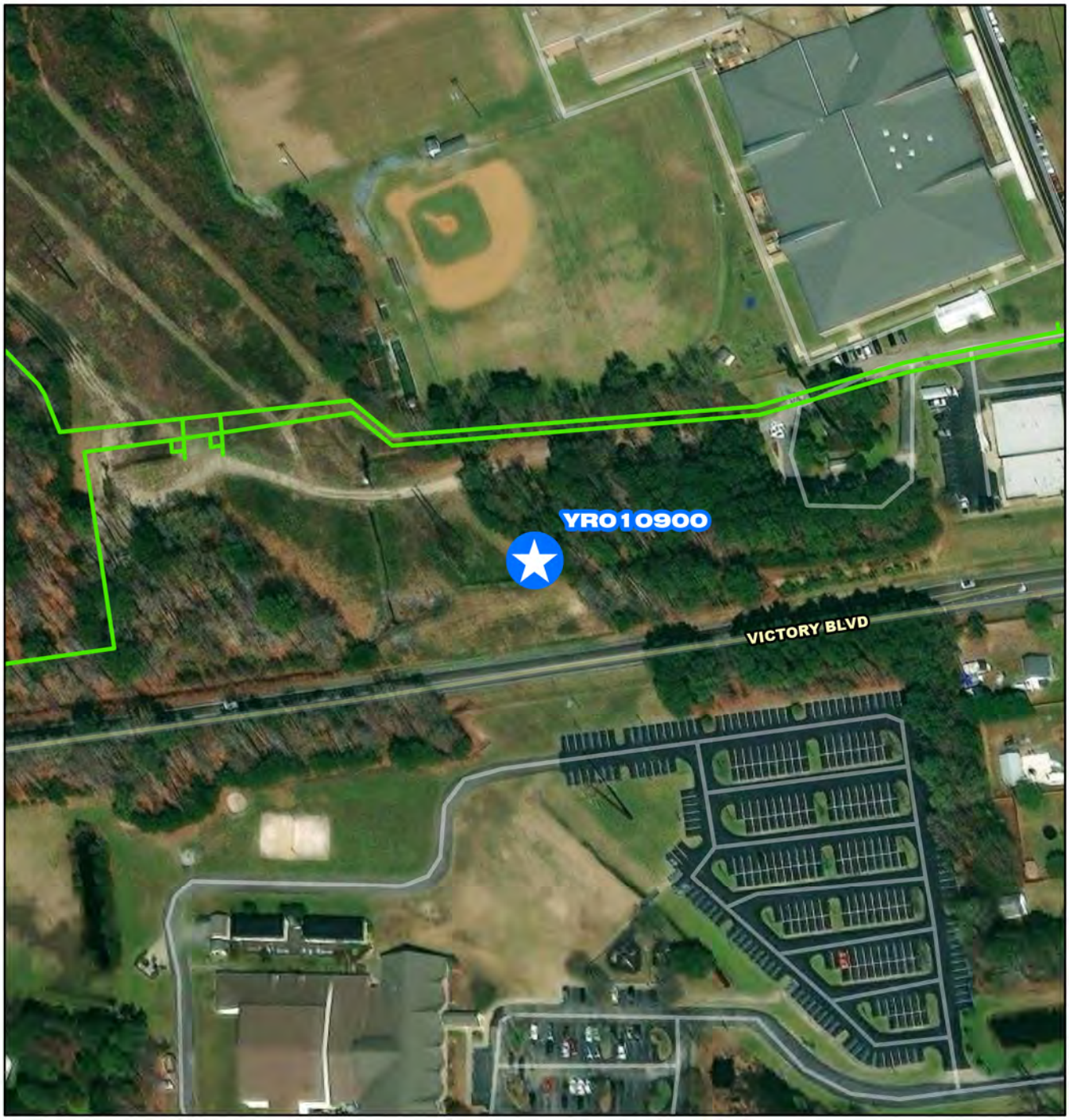
Contacts-Requesting Dept: Operations-Interceptors
Contacts-Dept Contacts: Chris Stephan
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	09/01/2021
PER	09/29/2021
Design Delay	11/18/2021
Design	08/01/2022
Bid Delay	10/31/2022
PreConstruction	07/01/2026
Construction	09/01/2026
Closeout	06/01/2027

COST ESTIMATE

Cost Estimate Class:	
PrePlanning	$0
PER	$106,844
Design	$605,443
PreConstruction	$5,936
Construction	$5,929,325
Closeout	$0
Est. Program Cost	**$6,647,548**
Contingency Budget	$1,482,331
Est. Project Costs	**$8,129,879**



YRO10900

- 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
- WTP HRSD Treatment Plant
- PRS HRSD Pressure Reducing Station
- PS HRSD Pump Station

0 55 110 220 330 440 Feet

YRO10900

Tabb Pressure Reducing Station and Offline Storage Facility

HRSD

N
W E
S

CIP Location

Tabb Pressure Reducing Station and Offline Storage Facility

PR_YR010900

System: York River
Type: Offline Storage

Driver Category: Capacity Improvements
Project Phase: Design
Regulatory: Integrated Plan-HPP 2

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33
$34,327	$3,084	$10,826	$14,405	$6,008	$4	$0	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

This project will construct a new Pressure Reducing Station (PRS) and Offline Storage Tank in the vicinity of Tabb High School in York County, Virginia. The precise capacity of the station and volume of the tank will be determined during the preliminary design.

PROJECT JUSTIFICATION

Staff determined the Tabb PRS and Offline Storage Facility project would eliminate the need for an onsite storage vessel at the James River Treatment Plant (JRTP). The facility will provide flow equalization to both York River and James River Treatment plants and also provide system relief during wet weather events.

FUNDING TYPE

Funding Type: VCWRLF

CONTACTS

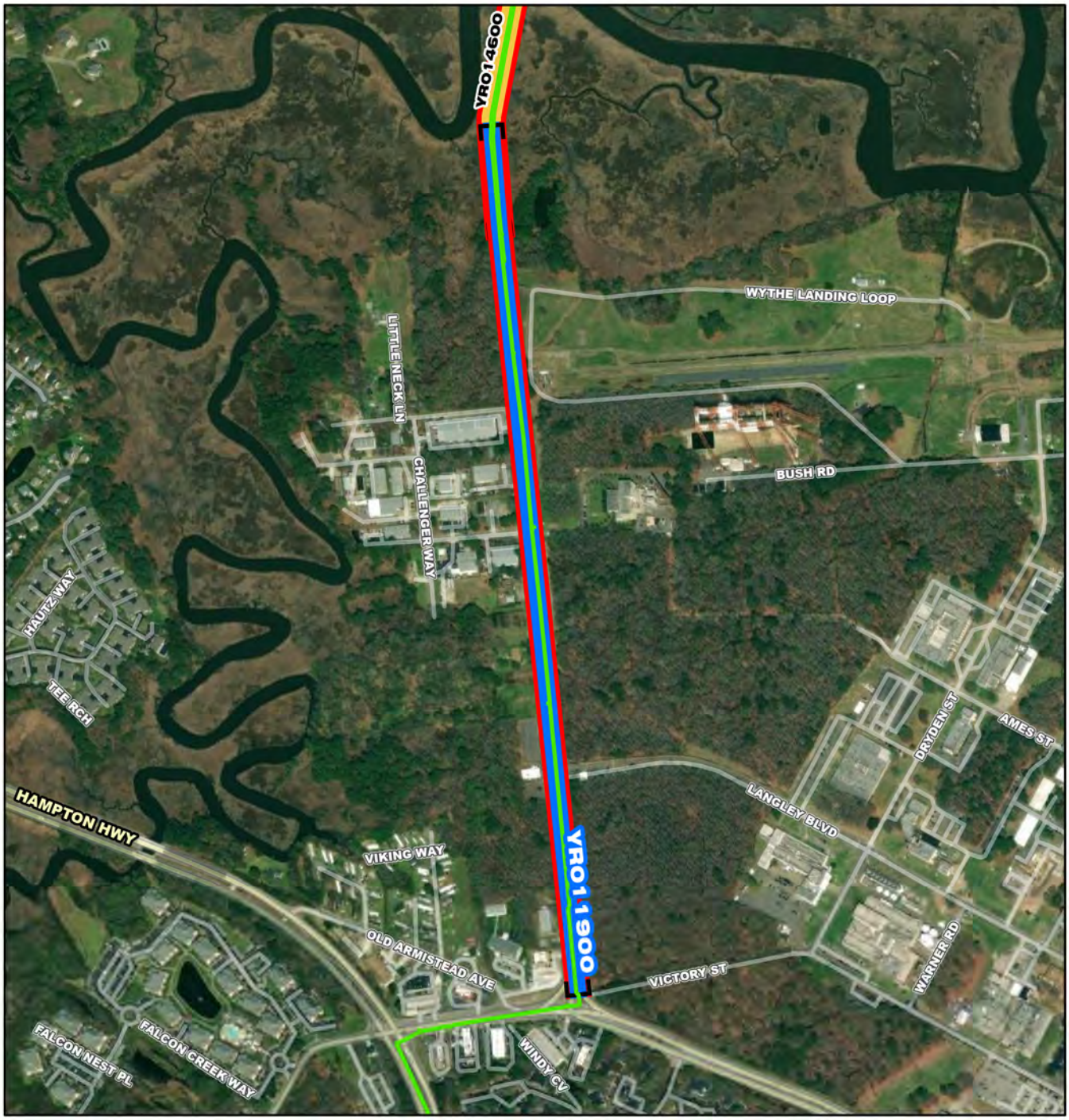
Contacts-Requesting Dept: Operations-Interceptors
Contacts-Dept Contacts: Angela Weatherhead
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	02/28/2020
PER	06/01/2020
Design Delay	02/01/2021
Design	02/01/2021
Bid Delay	07/01/2023
PreConstruction	07/01/2023
Construction	10/01/2023
Closeout	12/01/2025

COST ESTIMATE

Cost Estimate Class:	**Class 3**
PrePlanning	$1,229
PER	$582,388
Design	$2,500,000
PreConstruction	$22,681
Construction	$31,210,997
Closeout	$10,000
Est. Program Cost	**$34,327,295**
Contingency Budget	$3,121,100
Est. Project Costs	**$37,448,395**



YRO11900
- 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
- WTP HRSD Treatment Plant
- PRS HRSD Pressure Reducing Station
- PS HRSD Pump Station

0 260 520 1,040 1,560 2,080 Feet

N W E S

CIP Location

YRO11900

Bethel-Poquoson Force Main Part III Replacement

HRSD

Bethel-Poquoson Force Main Part III Replacement

PR_YR011900

System: York River
Type: Pipelines

Driver Category: Relocation
Project Phase: Pre Construction
Regulatory: None

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33
$1,017	$612	$118	$202	$84	$0	$0	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

This work will be constructed as part of a Virginia Department of Transportation (VDOT) roadway improvements project. Portions of the existing pipeline will be relocated at VDOT project expense and some portions will be relocated at HRSD expense. This project will replace and/or rehabilitate approximately 4,400 linear feet of existing 20-inch pre-stressed concrete cylinder pipe (PCCP) along the eastern edge of Wythe Creek Road. VDOT will replace approximately 2,650 feet of pipe at project cost and HRSD will be responsible for replacement of 1,750 feet of pipe at HRSD's cost.

PROJECT JUSTIFICATION

The relocation of this pipeline is due to a VDOT roadway project to widen Wythe Creek Road.

FUNDING TYPE

Funding Type: Revenue Bond

CONTACTS

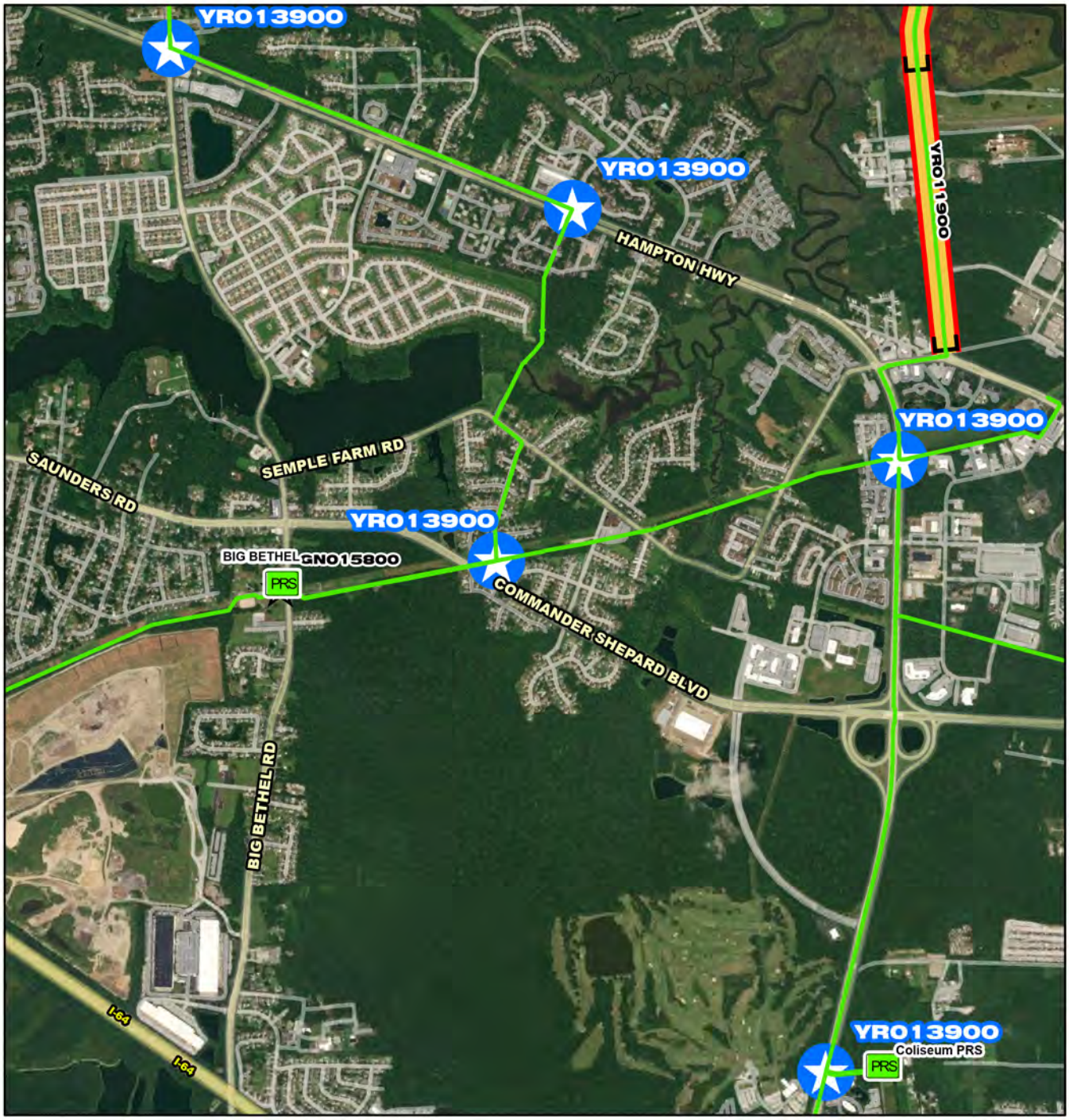
Contacts-Requesting Dept: Operations-Interceptors
Contacts-Dept Contacts: Jeremiah Burford
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	01/01/2015
PER	01/01/2015
Design Delay	01/01/2015
Design	01/01/2015
Bid Delay	08/21/2020
PreConstruction	04/15/2022
Construction	12/01/2023
Closeout	12/01/2025

COST ESTIMATE

Cost Estimate Class:	**Class 2**
PrePlanning	$0
PER	$0
Design	$17,998
PreConstruction	$465
Construction	$998,094
Closeout	$0
Est. Program Cost	**$1,016,557**
Contingency Budget	$199,619
Est. Project Costs	**$1,216,176**



YR013900

- 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
- WTP HRSD Treatment Plant
- PRS HRSD Pressure Reducing Station
- PS HRSD Pump Station

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

YR013900

York River System Isolation Valve Installation and Replacement

HRSD

N
W E
S

CIP Location

York River System Isolation Valve Installation and Replacement

PR_YR013900

System: York River
Type: Pipelines

Driver Category: Aging Infrastructure/Rehabilitation
Project Phase: Pre Construction
Regulatory: None

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33
$7,811	$6,608	$1,204	$0	$0	$0	$0	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

This project will install eight 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.

PROJECT JUSTIFICATION

On December 20th, 2018, North Shore Operations responded to a failure along NF-047 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 (LF) of force main utilizing linestops. The existing force main system from Coliseum PRS to Tabb PRS consists of approximately 38,000 LF of force main with very few locations for potential isolation.
The force main system was primarily installed in the late 1960's and early 1970's and consists of Prestressed Concrete Cylinder Pipe (PCCP), Ductile Iron (DI) and Cast Iron (CI) 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.

FUNDING TYPE

Funding Type: Revenue Bond

CONTACTS

Contacts-Requesting Dept: Operations-Interceptors
Contacts-Dept Contacts: Michael Johnson
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	07/01/2019
PER	11/28/2019
Design Delay	04/25/2020
Design	04/25/2020
Bid Delay	03/23/2022
PreConstruction	04/15/2022
Construction	07/13/2022
Closeout	08/13/2023

COST ESTIMATE

Cost Estimate Class:	**Class 1**
PrePlanning	$0
PER	$65,023
Design	$343,964
PreConstruction	$9,900
Construction	$7,382,623
Closeout	$9,900
Est. Program Cost	**$7,811,410**
Contingency Budget	$350,000
Est. Project Costs	**$8,161,410**

YRO14000

- 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
- WTP HRSD Treatment Plant
- PRS HRSD Pressure Reducing Station
- PS HRSD Pump Station

0 65 130 260 390 520 Feet

N
W E
S

CIP Location

YRO14000

York River Treatment Plant Administration Building Renovation

HRSD

York River Treatment Plant Administration Building Renovation

PR_YR014000

System: York River
Type: Facilities, Buildings and Capital Equipment

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

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33
$7,157	$3,373	$3,780	$5	$0	$0	$0	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

This project is to renovate the existing 1980's Administration Building at the York River Treatment Plant.

PROJECT JUSTIFICATION

This project will provide for an expanded men's and women's restroom and locker facilities as well as a unisex restroom and shower. Existing toilets, sinks, showers and lockers will be replaced as needed. Much needed office space for plant staff including electrical and instrumentation staff, an expanded lunch room and a conference room will also be provided. A larger plant lab and a larger operations control room capable of meeting existing and future SWIFT needs will be constructed along with secured rooms for control systems. An upgraded fiber optic business loop will also be provided.

FUNDING TYPE

Funding Type: Revenue Bond

CONTACTS

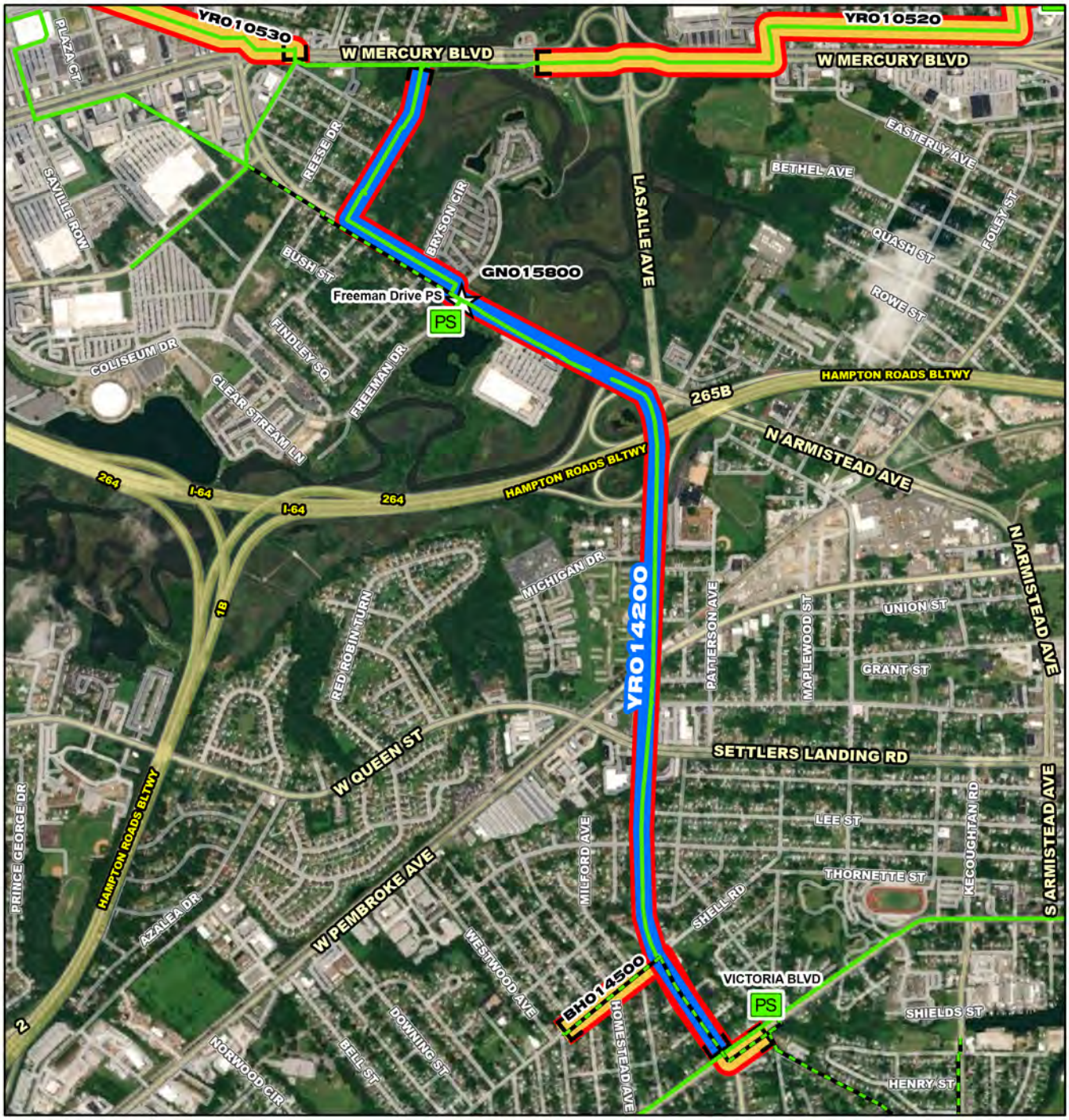
Contacts-Requesting Dept: Operations-Treatment
Contacts-Dept Contacts: Ann Copeland
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	07/01/2020
PER	09/15/2020
Design Delay	05/06/2021
Design	03/23/2021
Bid Delay	02/01/2022
PreConstruction	02/01/2022
Construction	05/01/2022
Closeout	06/01/2024

COST ESTIMATE

Cost Estimate Class:	**Class 1**
PrePlanning	$0
PER	$39,730
Design	$288,992
PreConstruction	$7,182
Construction	$6,816,275
Closeout	$5,000
Est. Program Cost	**$7,157,179**
Contingency Budget	$340,800
Est. Project Costs	**$7,497,979**



YRO14200

- 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
- WTP HRSD Treatment Plant
- PRS HRSD Pressure Reducing Station
- PS HRSD Pump Station

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

N
W E
S

CIP Location

YRO14200

LaSalle Avenue Boat Harbor to York River Interconnect Force Main

HRSD

LaSalle Avenue Boat Harbor to York River Interconnect Force Main

PR_YR014200

System: York River
Type: Pipelines

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

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33
$16,943	$127	$0	$595	$1,020	$7,618	$7,580	$3	$0	$0	$0	$0

PROJECT DESCRIPTION

This project will involve the study, design and construction of 10,000 linear feet (LF) of 30-inch Interceptor Force Main (IFM) from the intersection of LaSalle Avenue and Victoria Boulevard to the intersection of LaSalle Avenue and Mercury Boulevard. A gravity interconnect will be installed between this new force main (FM) and NG-142 Ivy Home Shell Road Sewer Extension Division I and an interconnect between the proposed FM and the existing NF-77 LaSalle Avenue Sanitary Sewer IFM will allow for system flexibility.

PROJECT JUSTIFICATION

This newly proposed force main interconnect is needed to shift peak flows currently in the Boat Harbor Treatment Plant service area by diverting these flows through the Coliseum Pressure Reducing Station (PRS). With the scheduled future shutdown of the Boat Harbor Treatment Plant, this project will maximize the wet weather capabilities at York River Treatment Plant (YRTP) while minimizing the peak flows within the Boat Harbor system. This project, along with newly proposed storage tanks at Coliseum PRS, will allow for flows from the Bridge Street and Victoria Boulevard Pump Station service areas to be diverted north through the Coliseum PRS.

FUNDING TYPE

Funding Type: VCWRLF

CONTACTS

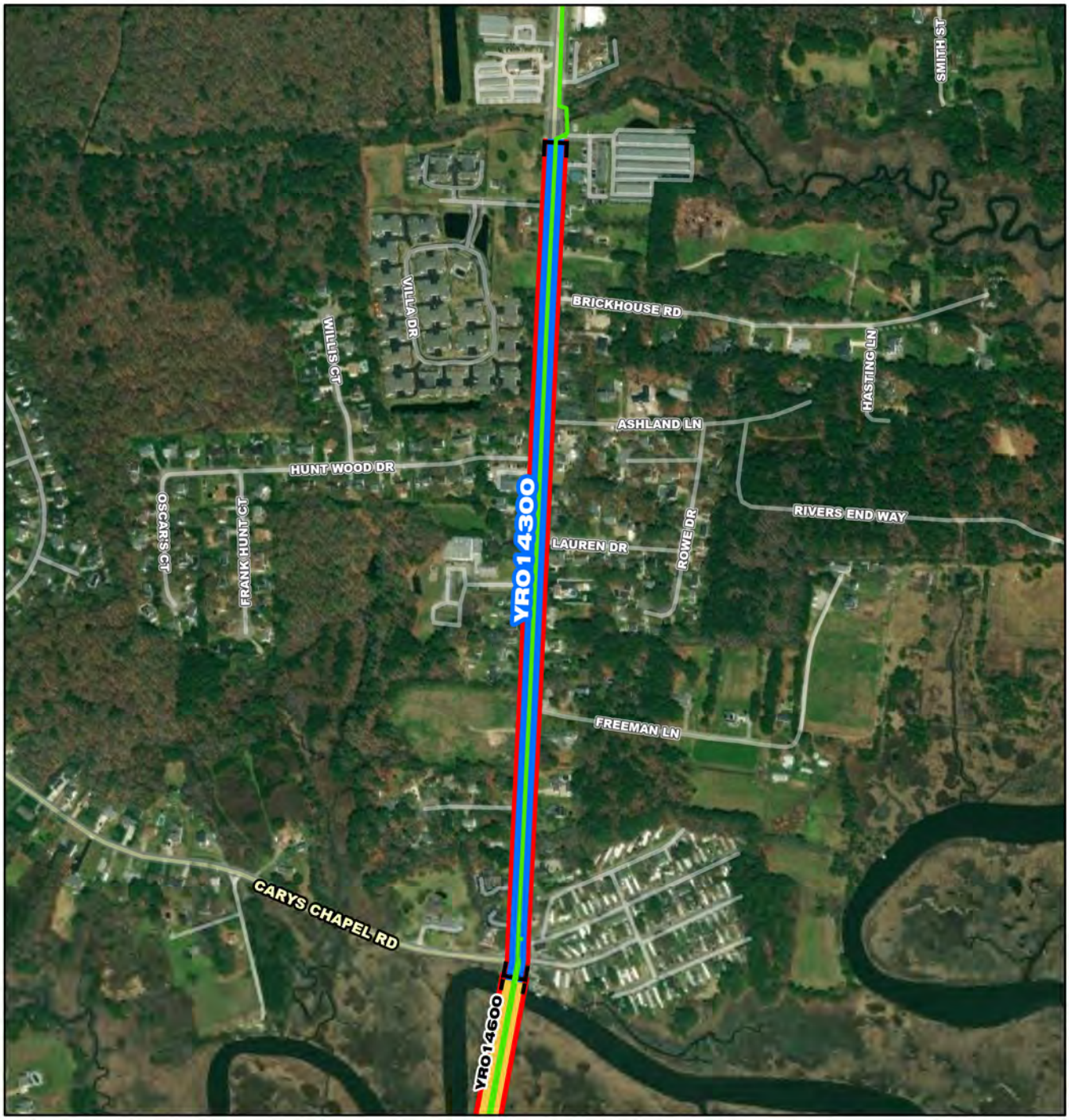
Contacts-Requesting Dept: Operations-Interceptors
Contacts-Dept Contacts: Ted Denny
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	03/26/2019
PER	12/02/2021
Design Delay	07/03/2023
Design	12/17/2024
Bid Delay	07/17/2026
PreConstruction	07/17/2026
Construction	11/10/2026
Closeout	03/16/2028

COST ESTIMATE

Cost Estimate Class:	
PrePlanning	$1,454
PER	$125,580
Design	$1,615,000
PreConstruction	$40,000
Construction	$15,156,000
Closeout	$5,100
Est. Program Cost	**$16,943,134**
Contingency Budget	$2,692,000
Est. Project Costs	**$19,635,134**



YR014300

- 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
- WTP HRSD Treatment Plant
- PRS HRSD Pressure Reducing Station
- PS HRSD Pump Station

0 230 460 920 1,380 1,840 Feet

YR014300

Bethel-Poquoson Force Main Phase II (Wythe Creek Road) Replacement

HRSD

N
W E
S

CIP Location

Bethel-Poquoson Force Main Phase II (Wythe Creek Road) Replacement

PR_YR014300

System: York River
Type: Pipelines

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

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33
$3,017	$2,701	$316	$0	$0	$0	$0	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

This project will require the replacement of approximately 3,700 linear feet (LF) of 20-inch prestressed concrete cylinder pipe (PCCP) along Wythe Creek Road from north of Huntlandia Way to Wythe Creek.

PROJECT JUSTIFICATION

On February 11, 2020, North Shore Operations personnel removed and replaced 16 feet of PCCP that failed. The failure was caused by severe crown corrosion. A CCTV inspection was performed during the repair, and approximately 80 LF downstream and 100 LF upstream the pipe was found to be severely corroded. The CCTV inspection showed additional areas of corrosion both upstream and downstream, specifically at pipe joints. During the repair, a steady flow of clear, unscented water was flowing out of the upstream pipe. The source of the clear, unscented water is unknown and unusual in a force main/pressurized system. The presence of the water is of concern as it may be the result of unknown upstream issues.

FUNDING TYPE

Funding Type: VCWRLF

CONTACTS

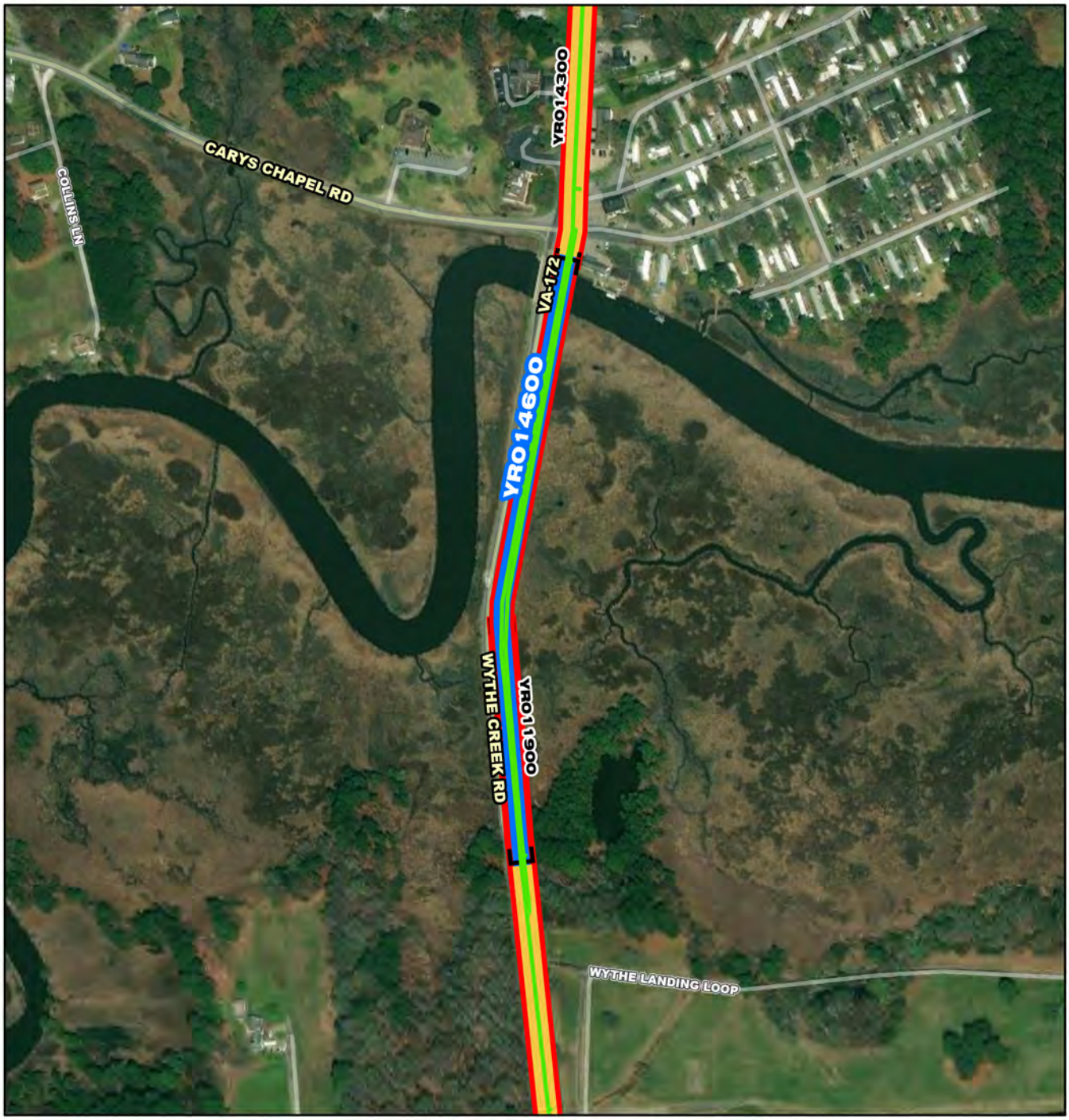
Contacts-Requesting Dept: Operations-Interceptors
Contacts-Dept Contacts: Shirley Smith
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	07/06/2020
PER	04/23/2019
Design Delay	09/05/2020
Design	09/30/2021
Bid Delay	04/01/2022
PreConstruction	04/01/2022
Construction	08/01/2022
Closeout	08/01/2023

COST ESTIMATE

Cost Estimate Class:	**Class 1**
PrePlanning	$0
PER	$71,681
Design	$208,273
PreConstruction	$14,290
Construction	$2,545,350
Closeout	$5,000
Est. Program Cost	**$2,844,594**
Contingency Budget	$254,353
Est. Project Costs	**$3,098,947**



YRO14600

- 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
- WTP HRSD Treatment Plant
- PRS HRSD Pressure Reducing Station
- PS HRSD Pump Station

0 120 240 480 720 960 Feet

N
W E
S

CIP Location

YRO14600

Bethel-Poquoson Force Main Part IV Replacement-Wythe Creek Exposed Crossing

HRSD

Bethel-Poquoson Force Main Part IV Replacement- Wythe Creek Exposed Crossing

PR_YR014600

System: York River
Type: Pipelines

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

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33
$3,158	$99	$3,059	$0	$0	$0	$0	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

This project will replace approximately 1,600 linear feet (LF) of 20-inch prestressed concrete cylinder pipe (PCCP) and approximately 1,600 LF of 18-inch HDPE pipe running above the marsh adjacent to the Wythe Creek Bridge. The existing cantilever beams will be removed and the original pile bents will be used for the replacement 20-inch HDPE pipe.

PROJECT JUSTIFICATION

In 2007, a temporary 18-inch HDPE force main was installed along the existing aerial crossing of New Market Creek on Wythe Creek Road in Hampton. This pipe was installed due to the failure of the adjacent 20-inch PCCP that was installed in the 1970s.
At that time, the newer HDPE pipe was installed on the original aerial support system. This aerial support was utilized by extending wooden cantilever beams from the existing pile bents adjacent to the 20-inch PCCP. In December of 2019, Collins Engineering performed an inspection of the aerial crossing supports and found deterioration and defects along several pile supports and bents. The cantilevers have had numerous repairs over the last decade and are in need of repair again. The existing 18-inch HDPE pipe also requires the counterbalance weight of the PCCP pipeline to support the cantilever, thus requiring the old 20-inch PCCP to remain in place as long as this cantilever system exists.
This project will remove the 20-inch PCCP along with the 18-inch HDPE pipelines, make repairs to the aerial crossing supports, and install a new 20-inch DIPS HDPE pipeline across Wythe Creek.
Bethel-Poquoson Force Main Phase II (Wythe Creek Road) Replacement (YR014300) and Bethel-Poquoson Force Main Part III Replacement (YR011900) CIP projects will be replacing the existing 20-inch force main to the North and South of this section of pipe. YR011900 is being performed as part of the VDOT roadway widening project. The VDOT roadwork requires the closure of the Wythe Creek Bridge for an extended period of time. This closure provides an excellent opportunity to remove the existing pipelines and install the new replacement pipe, creating a completely revitalized interceptor system in this area.

FUNDING TYPE

Funding Type: Revenue Bond

CONTACTS

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

PROPOSED SCHEDULE START DATE

PrePlanning	09/28/2021
PER	03/29/2021
Design Delay	04/28/2022
Design	04/28/2022
Bid Delay	04/01/2023
PreConstruction	04/01/2023
Construction	08/01/2023
Closeout	03/01/2024

COST ESTIMATE

Cost Estimate Class:	**Class 4**
PrePlanning	$0
PER	$17,945
Design	$73,253
PreConstruction	$10,000
Construction	$3,051,630
Closeout	$5,000
Est. Program Cost	**$3,157,828**
Contingency Budget	$157,000
Est. Project Costs	**$3,314,828**

YR014800

- 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
- WTP HRSD Treatment Plant
- PRS HRSD Pressure Reducing Station
- PS HRSD Pump Station

0 55 110 220 330 440 Feet

YR014800

York River Treatment Plant Primary Clarifier Influent and Effluent Pipe Rehabilitation

HRSD

N
W E
S

CIP Location

York River Treatment Plant Primary Clarifier Influent and Effluent Pipe Rehab

PR_YR014800

System: York River
Type: Pipelines

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

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33
$9,569	$334	$6,150	$3,080	$5	$0	$0	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

This project will repair or replace corroded, primary clarifier influent and effluent, cylinder pipes from distribution chamber #1 to the aeration tanks. There are nine pipes varying in size from 36-inch to 72-inch. A by-pass pipeline and pumping may be required to maintain treatment plant operations.

PROJECT JUSTIFICATION

On September 17, 2020 the 60-inch concrete, cylinder pipe between the headworks and primary clarifier distribution chamber #1, in service since 1984, failed during a significant rain event due to corrosion. The break resulted in a spill of approximately 6.8 million gallons. The break prompted the inspection of piping from primary clarifier distribution chamber #1 to the aeration tanks. These pipes are of the same construction, years of service, and operating conditions. The resulting inspection revealed corrosion and broken off sections of concrete at the crown of the pipes, like the failed 60-inch pipe.

FUNDING TYPE

Funding Type: Revenue Bond

CONTACTS

Contacts-Requesting Dept: Operations
Contacts-Dept Contacts: Ann Copeland
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	
PER	12/01/2021
Design Delay	05/20/2022
Design	05/20/2022
Bid Delay	04/01/2023
PreConstruction	04/01/2023
Construction	07/01/2023
Closeout	01/01/2025

COST ESTIMATE

Cost Estimate Class:	**Class 2**
PrePlanning	$0
PER	$86,863
Design	$234,310
PreConstruction	$12,940
Construction	$9,224,500
Closeout	$10,000
Est. Program Cost	**$9,568,613**
Contingency Budget	$922,500
Est. Project Costs	**$10,491,113**

YR014900

- 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
- WTP HRSD Treatment Plant
- PRS HRSD Pressure Reducing Station
- PS HRSD Pump Station

0 55 110 220 330 440 Feet

YR014900

York River DEMON Upgrades

HRSD

N
W E
S

CIP Location

York River DEMON Upgrades

PR_YR014900

System: York River
Type: Wastewater Treatment

Driver Category: Performance Upgrades
Project Phase: Proposed
Regulatory: None

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33
$530	$88	$265	$177	$0	$0	$0	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

Currently, the DEMON process is a sequencing batch reactor with anammox granules retained in the system with a screen and partial nitration occurring in the mixed liquor. The goal of this project is to incorporate biofilm carriers for anammox to increase process reliability and stability. We will be evaluating a fixed media option vs moving media in a full-scale demonstration at James River Treatment Plant (JRTP). If fixed-film is successful at JRTP we would prefer this option for DEMON, otherwise the fall back option will be moving media.

PROJECT JUSTIFICATION

The goal is to improve reliability and stability of the process by making it more resistant to upsets from high influent Total Suspended Solids (TSS) by switching from a hybrid granular/suspended growth process to an attached growth process. Currently, there are frequent upsets from influent TSS that causes temporary shut downs and sometimes restarts which require a significant amount of operator time and attention. When DEMON is offline, the nitrogen loading is increased on the plant which uses more aeration, alkalinity, and methanol. In order to maintain low final effluent TIN quality required for SWIFT, DEMON needs to be more reliable.

FUNDING TYPE

Funding Type: Revenue Bond

CONTACTS

Contacts-Requesting Dept: Operations-Treatment
Contacts-Dept Contacts: Mike Parsons
Contacts-Managing Dept: Operations-Treatment

PROPOSED SCHEDULE START DATE

PrePlanning	03/01/2023
PER	03/01/2023
Design Delay	03/01/2023
Design	03/01/2023
Bid Delay	03/01/2023
PreConstruction	03/01/2023
Construction	03/01/2023
Closeout	03/03/2025

COST ESTIMATE

Cost Estimate Class:	
PrePlanning	$0
PER	$0
Design	$0
PreConstruction	$0
Construction	$530,000
Closeout	$0
Est. Program Cost	**$530,000**
Contingency Budget	$0
Est. Project Costs	**$530,000**