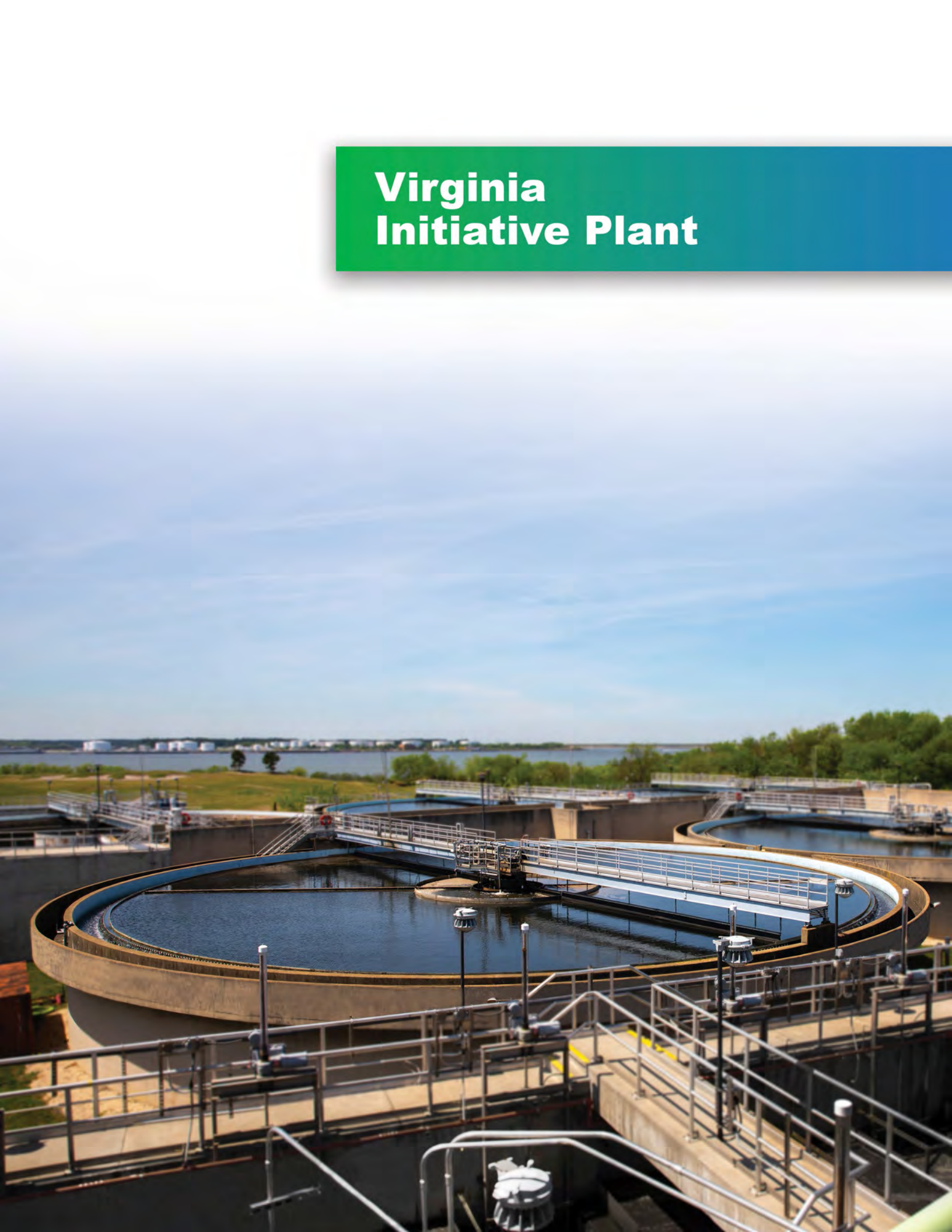
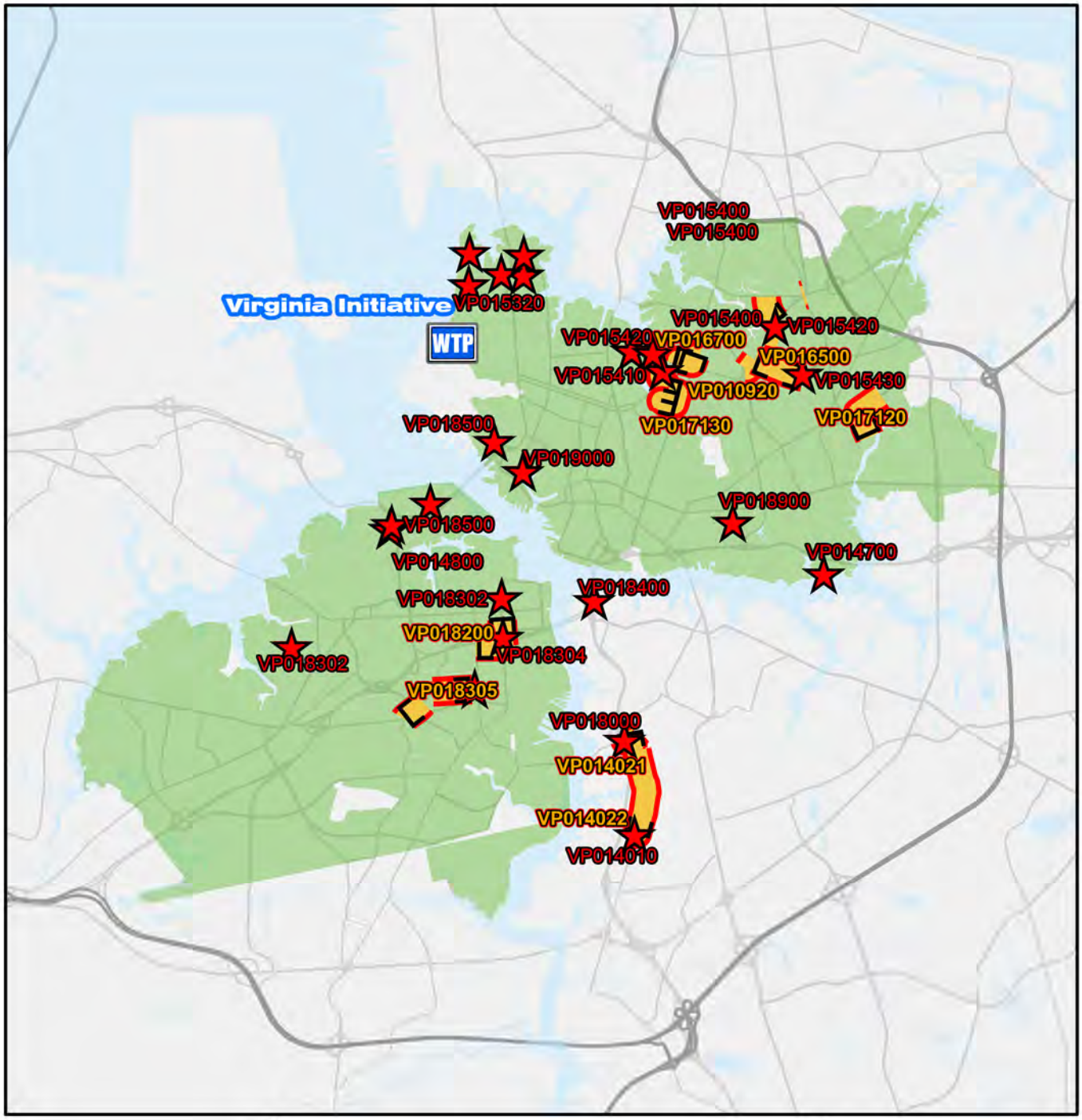
Virginia Initiative Plant





Legend

- Virginia Initiative 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
- HRSD Treatment Plant
- HRSD Pressure Reducing Station
- HRSD Pump Station

0 2,500 5,000 10,000 15,000 20,000 Feet

Virginia Initiative Treatment Plant Service Area CIP Projects

Treatment Plant Projects

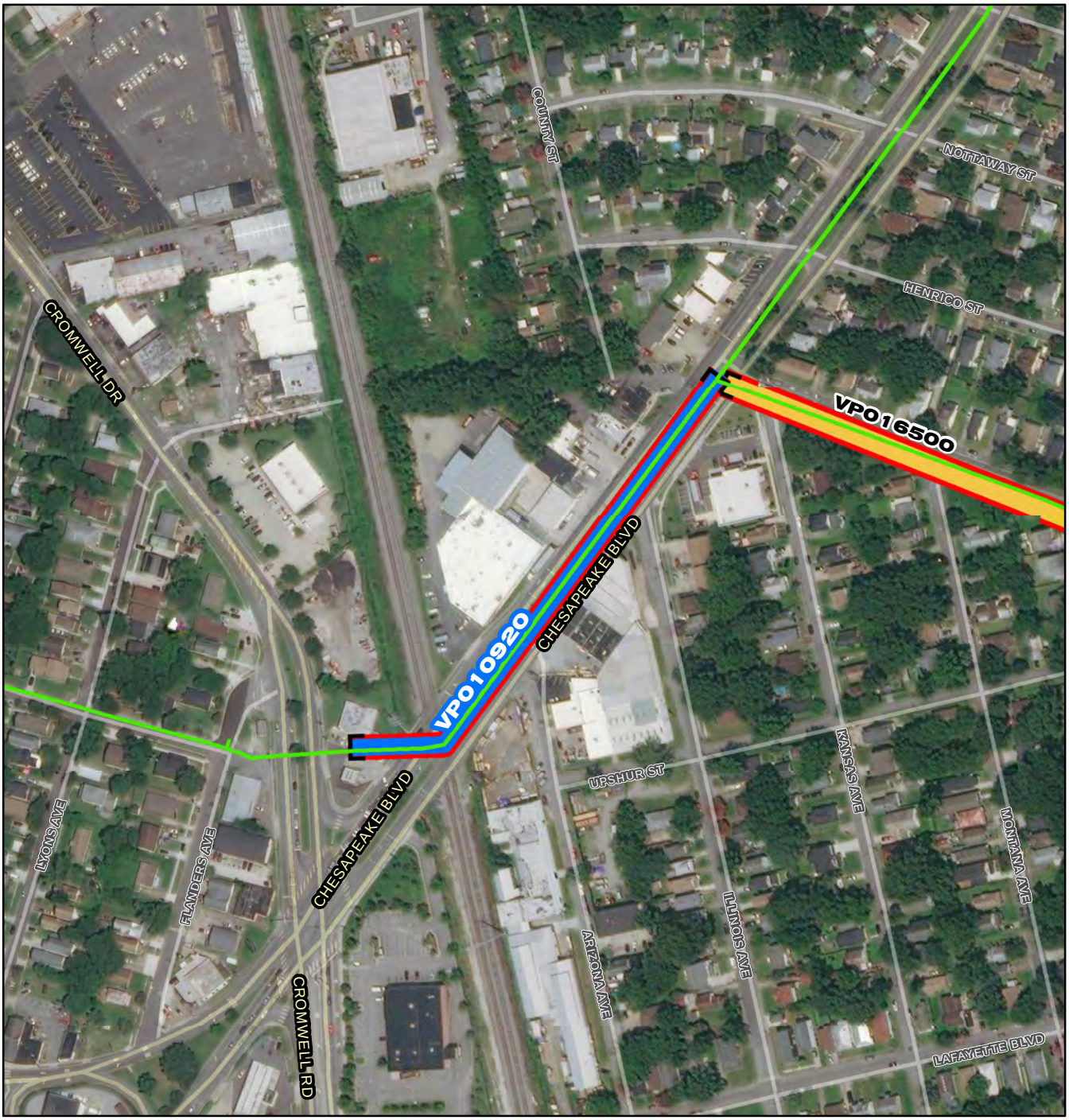
GN016390	VP018301	VP019600
GN016391	VP018303	
GN016392	VP018800	
GN017900	VP019100	
VP017130	VP019200	

HRSD

N

CIP Location

Service Area



VPO10920

- 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 90 180 360 540 720 Feet

N W E S

CIP Location

VPO10920

Norview Estabrook Division I 18-Inch Force Main Replacement Phase II, Section 2

HRSD

Norview Estabrook Division I 18-Inch Force Main Replacement Phase II, Section 2

PR_VP010920

System: VIP
Type: Pipelines

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

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
$3,771	$673	$1,119	$1,397	$582	$0	$0	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

This project is to rehabilitate and/or replace a portion of SF-066 Norview-Estabrook Division I 18-Inch Force Main. The project extents are approximately 900 linear feet (LF) of 18-inch force main that stretches between Cromwell Drive and Robin Hood Road along Chesapeake Boulevard. One railroad crossing, under multiple Norfolk Southern tracks, is required.

PROJECT JUSTIFICATION

The pipe material and age are similar to other portions of the interceptor system in which HRSD has experienced multiple failures due to the tendency of cast iron to lose integrity with age. Construction activity for the new City lines also presents a significant risk to HRSD pipe lead joints, which are very sensitive to vibration. HART analysis has been completed for this system. This project must be completed before upgrades to the Chesapeake Boulevard Pump Station are completed (VP015400).

FUNDING TYPE

Funding Type: Revenue Bond

CONTACTS

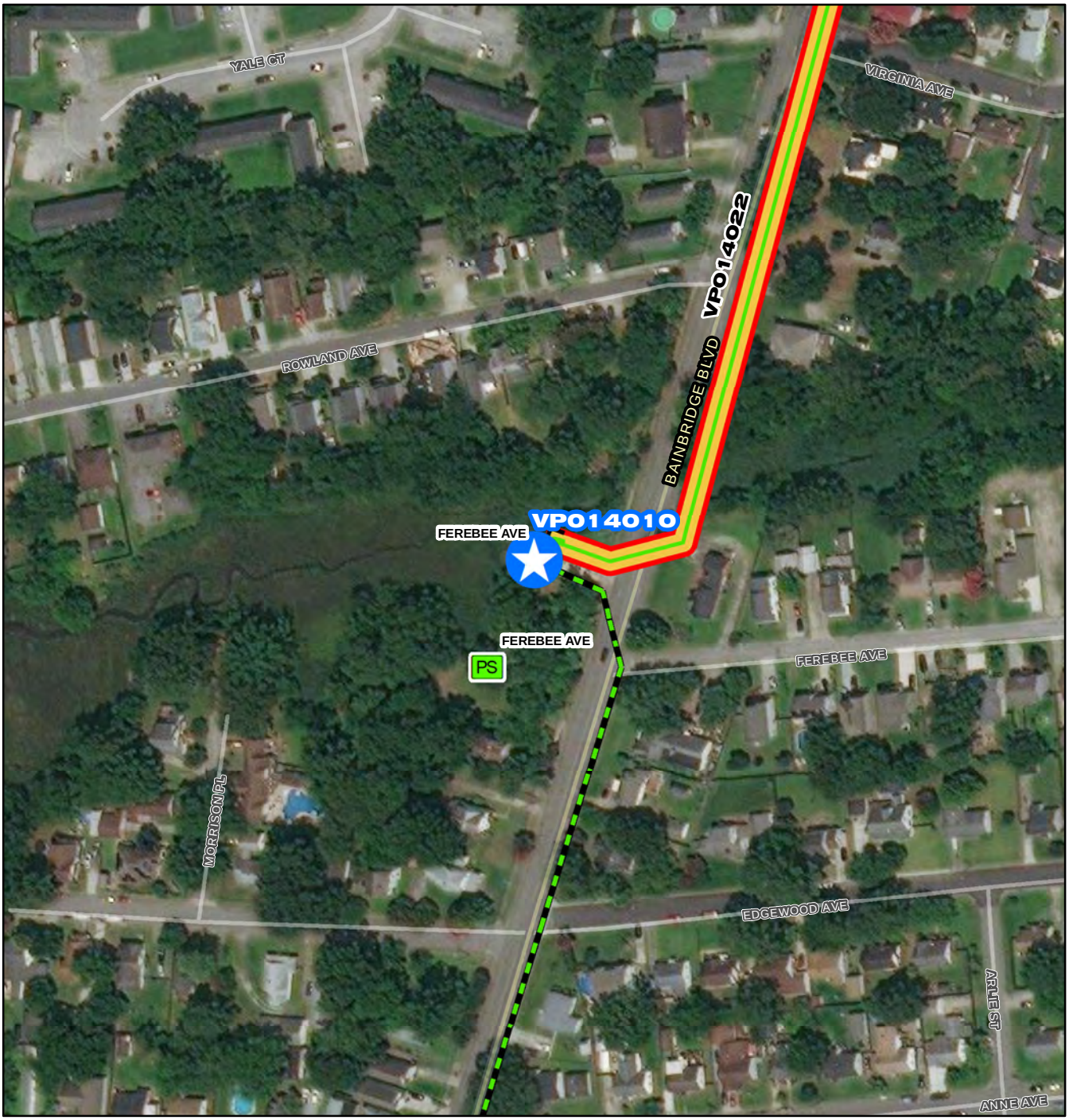
Contacts-Requesting Dept: Operations-Interceptors
Contacts-Dept Contacts: Tim Marsh
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	01/01/2020
PER	10/20/2020
Design Delay	05/04/2021
Design	12/01/2021
Bid Delay	09/01/2022
PreConstruction	09/01/2022
Construction	12/01/2022
Closeout	12/01/2024

COST ESTIMATE

Cost Estimate Class:	
PrePlanning	$0
PER	$84,680
Design	$882,294
PreConstruction	$10,000
Construction	$2,793,567
Closeout	$0
Est. Program Cost	**$3,770,541**
Contingency Budget	$624,220
Est. Project Costs	**$4,394,761**



VP014010

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

Legend

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

0 55 110 220 330 440 Feet

VP014010

Ferebee Avenue Pump Station Replacement

HRSD

N
W E
S

CIP Location

Ferebee Avenue Pump Station Replacement

PR_VP014010

System: VIP
Type: Pump Stations

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	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
$8,183	$1,145	$2,584	$3,818	$636	$0	$0	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

This project is to design and construct a replacement pump station for the 1951 Ferebee Pump Station.

PROJECT JUSTIFICATION

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

FUNDING TYPE

Funding Type: Revenue Bond

CONTACTS

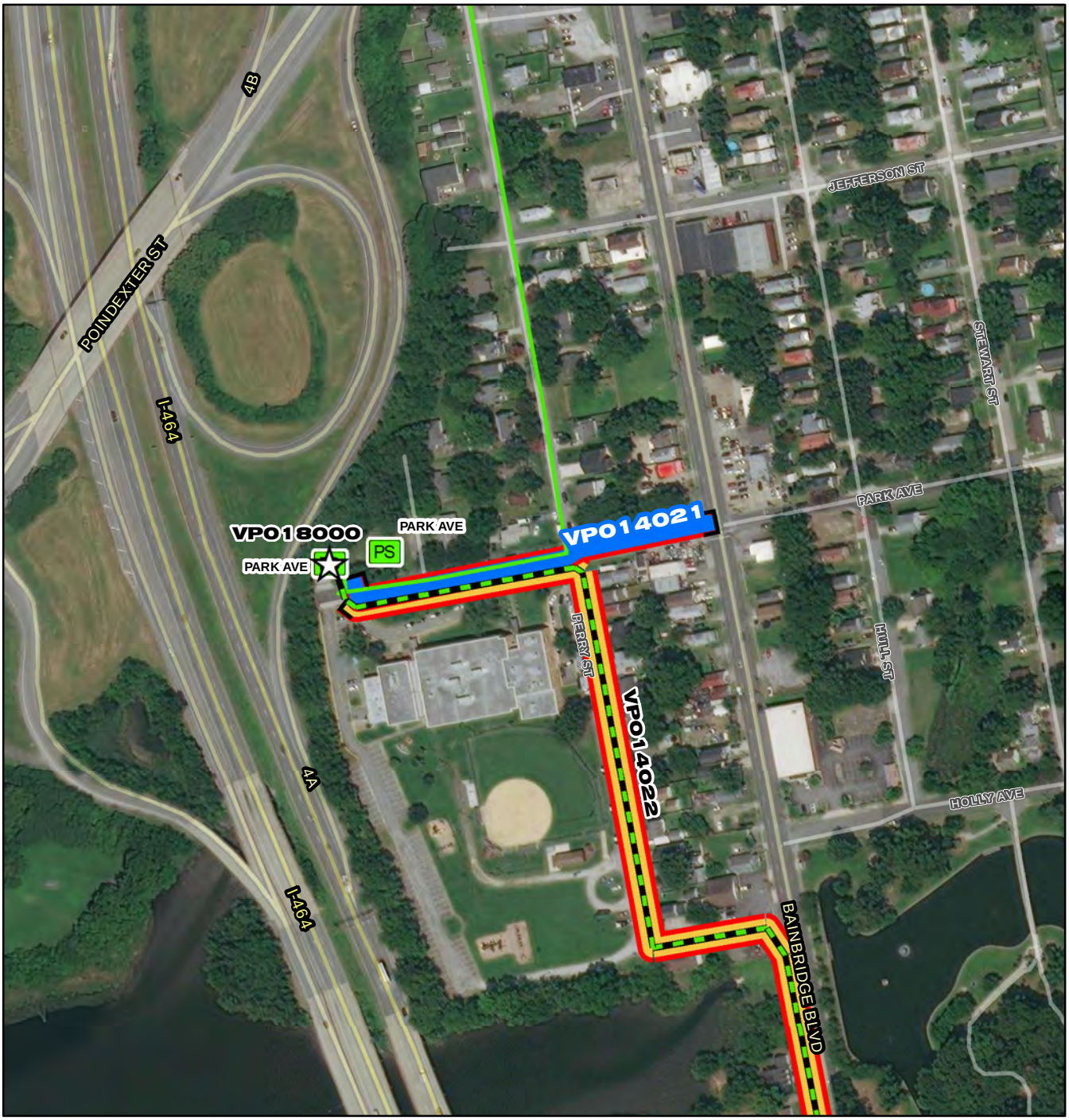
Contacts-Requesting Dept: Operations-Interceptors
Contacts-Dept Contacts: Jeff Layne
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	07/01/2015
PER	04/28/2017
Design Delay	10/31/2019
Design	11/04/2019
Bid Delay	07/01/2022
PreConstruction	08/01/2022
Construction	11/01/2022
Closeout	09/01/2024

COST ESTIMATE

Cost Estimate Class:	**Class 2**
PrePlanning	$0
PER	$240,158
Design	$902,942
PreConstruction	$40,000
Construction	$7,000,000
Closeout	$0
Est. Program Cost	**$8,183,100**
Contingency Budget	$900,000
Est. Project Costs	**$9,083,100**



VP014021

- 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 87.5 175 350 525 700 Feet

VP014021

Sanitary Sewer Project 1950-Part 1
30-Inch Gravity Sewer

HRSD

N
W E
S

CIP Location

Sanitary Sewer Project 1950-Part 1 30-Inch Gravity Sewer

PR_VP014021

System: VIP
Type: Pipelines

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

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
$1,750	$1,167	$583	$0	$0	$0	$0	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

This project will construct a 30-inch gravity sewer along Park Avenue from the new Park Avenue Pump Station to Bainbridge Boulevard.

PROJECT JUSTIFICATION

This new gravity sewer piping is required to handle the additional flows from the new Ferebee Avenue Pump Station and additional flow from the Park Avenue service area.

FUNDING TYPE

Funding Type: Cash

CONTACTS

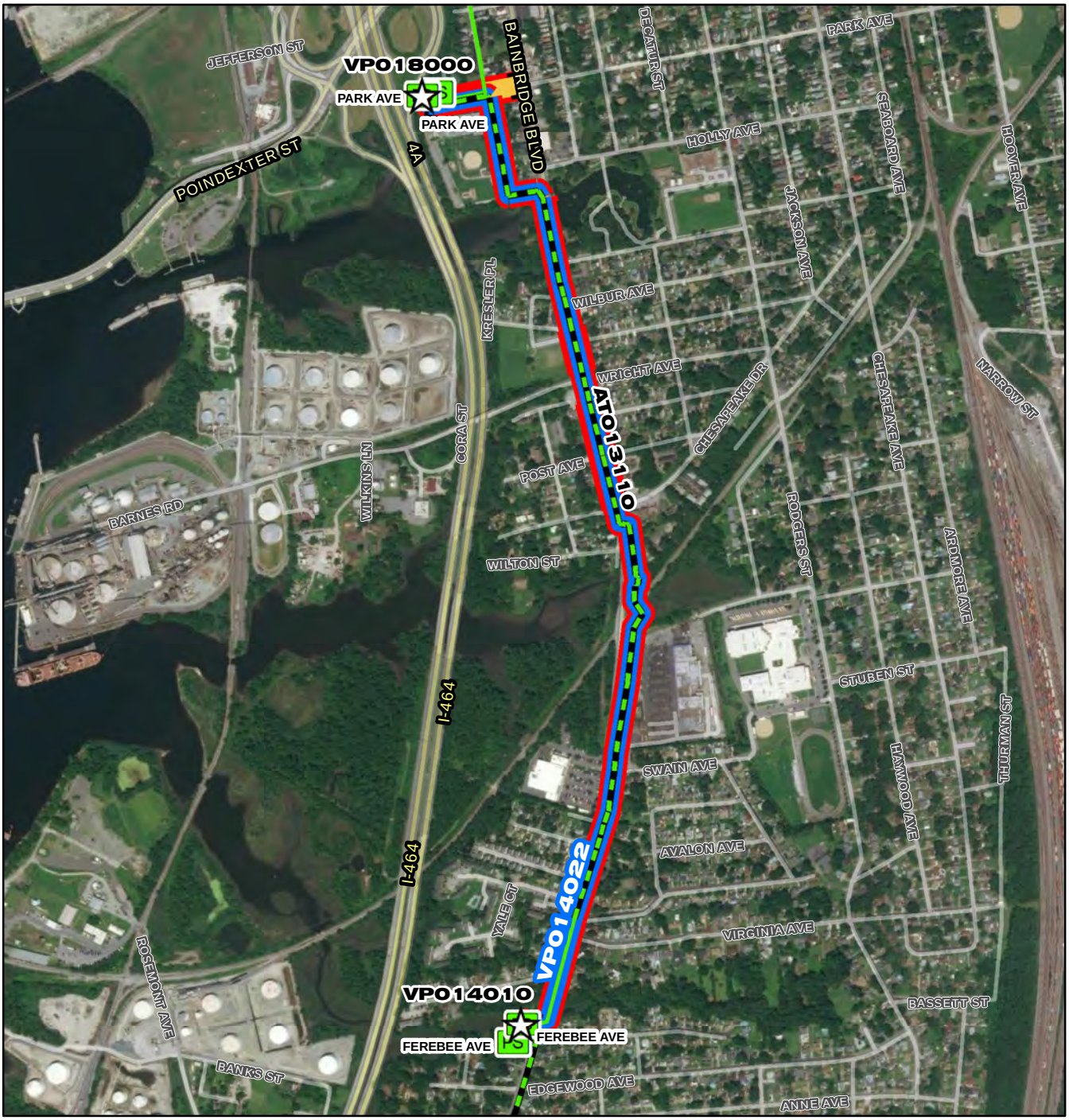
Contacts-Requesting Dept: Engineering
Contacts-Dept Contacts: Jeff Layne
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	01/01/2022
PER	01/01/2022
Design Delay	01/01/2022
Design	01/01/2022
Bid Delay	01/01/2022
PreConstruction	01/01/2022
Construction	04/01/2022
Closeout	09/01/2022

COST ESTIMATE

Cost Estimate Class:	**Class 1**
PrePlanning	$0
PER	$0
Design	$0
PreConstruction	$0
Construction	$1,750,000
Closeout	$0
Est. Program Cost	**$1,750,000**
Contingency Budget	$250,000
Est. Project Costs	**$2,000,000**



VP014022

- 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

0 337.5 675 1,350 2,025 2,700 Feet

N
W E
S

CIP Location

VP014022

Sanitary Sewer Replacement 1950 - Part 2

HRSD

Sanitary Sewer Replacement 1950-Part 2

PR_VP014022

System: VIP
Type: Pipelines

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

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
$10,810	$0	$4,060	$5,400	$1,350	$0	$0	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

This project is to design and construct a force main to replace the 850 feet cast iron discharge force main SF-155 Sanitary Sewer Project 1950 12-inch Force Main. This project will also replace 2,900 feet 18-inch gravity line 1960 SG-153 and replace 2,700 feet 24-inch 1960 SG-149.

PROJECT JUSTIFICATION

This project will evaluate and implement the replacement of HRSD force main and gravity sewer between Ferebee Avenue Pump Station and Park Avenue Pump Station.

FUNDING TYPE

Funding Type: Revenue Bond

CONTACTS

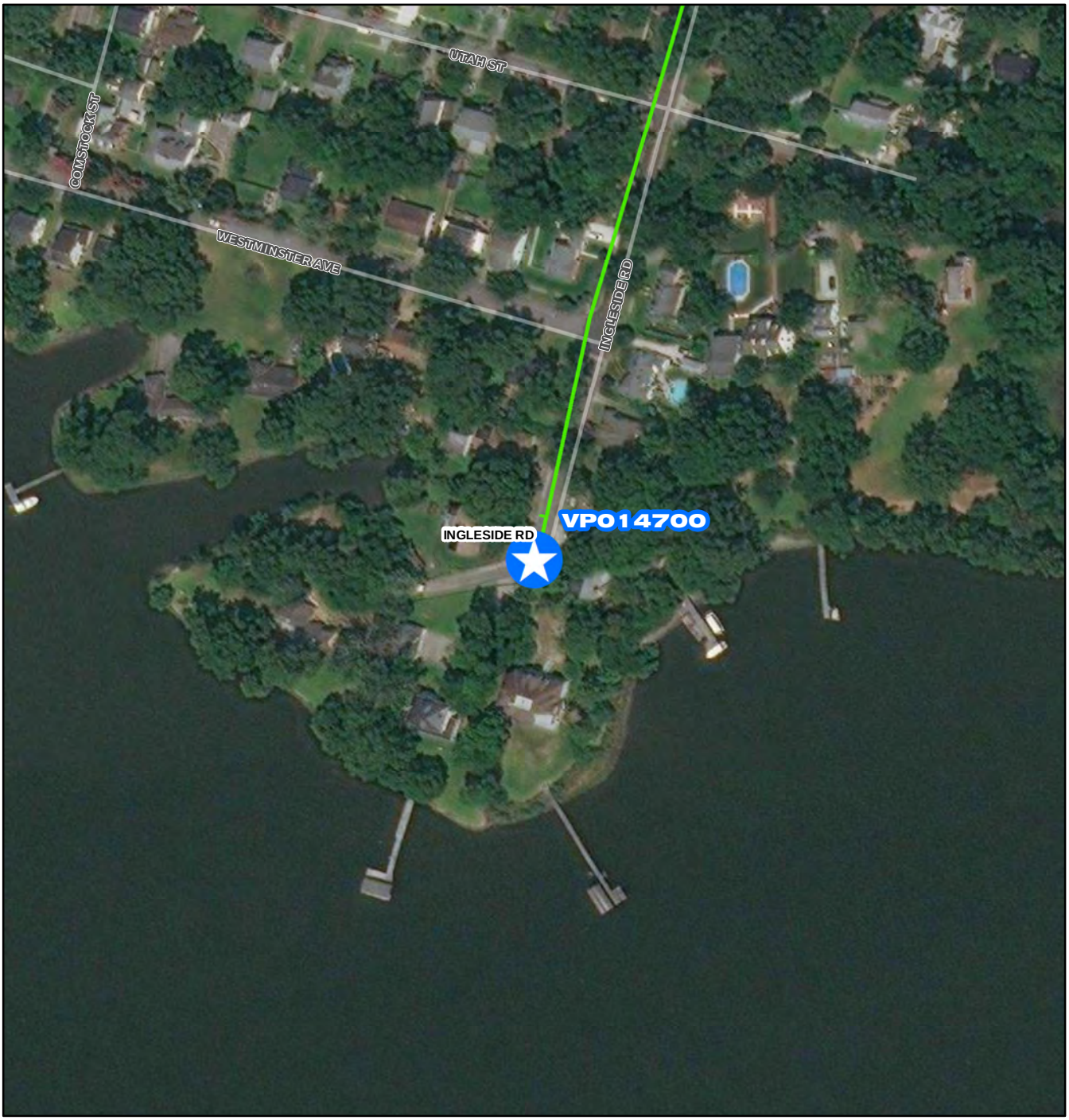
Contacts-Requesting Dept: Engineering
Contacts-Dept Contacts: Jeff Layne
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	
PER	
Design Delay	
Design	
Bid Delay	
PreConstruction	07/01/2022
Construction	10/01/2022
Closeout	10/01/2024

COST ESTIMATE

Cost Estimate Class:	**Class 2**
PrePlanning	$0
PER	$0
Design	$0
PreConstruction	$10,000
Construction	$10,800,000
Closeout	$0
Est. Program Cost	**$10,810,000**
Contingency Budget	$475,000
Est. Project Costs	**$11,285,000**



VP014700

- 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

VP014700

Ingleside Road Pump Station Replacement

N
W E
S

CIP Location

Ingleside Road Pump Station Replacement

PR_VP014700

System: VIP
Type: Pump Stations

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

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
$5,173	$262	$1,773	$3,131	$7	$0	$0	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

This project is to rehabilitate and/or replace Ingleside Road Pump Station. This project also includes the design and installation of a new emergency generator/pump.

PROJECT JUSTIFICATION

This project will replace the submersible pump station experiencing pump failures, as well as, deteriorating structural and electrical systems.

FUNDING TYPE

Funding Type: Revenue Bond

CONTACTS

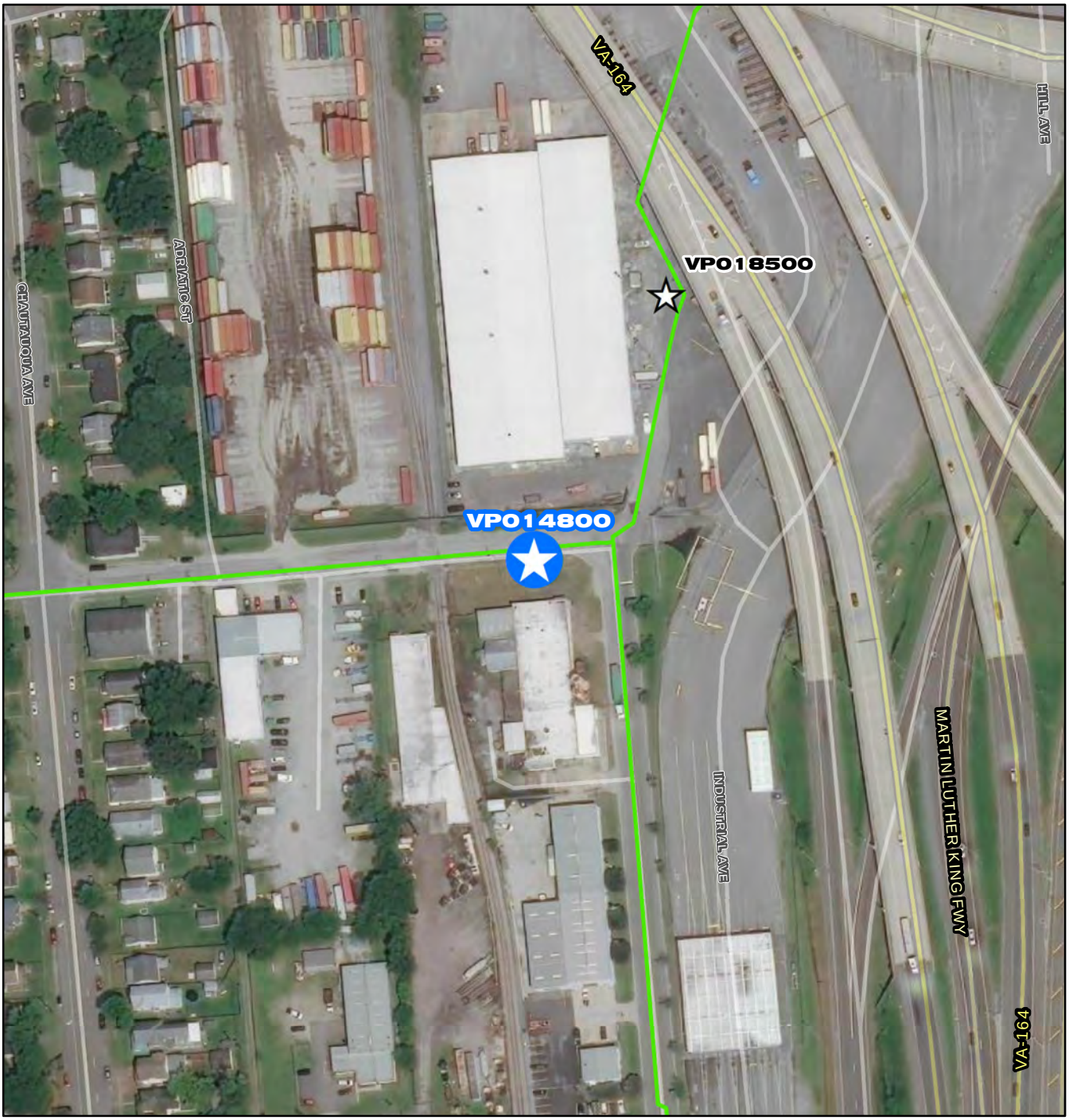
Contacts-Requesting Dept: Operations-Interceptors
Contacts-Dept Contacts: Tim Marsh
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	07/01/2019
PER	04/01/2020
Design Delay	11/02/2020
Design	12/01/2021
Bid Delay	01/01/2023
PreConstruction	01/01/2023
Construction	03/01/2023
Closeout	03/01/2024

COST ESTIMATE

Cost Estimate Class:	
PrePlanning	$0
PER	$92,056
Design	$365,922
PreConstruction	$13,088
Construction	$4,691,904
Closeout	$10,000
Est. Program Cost	**$5,172,970**
Contingency Budget	$1,036,663
Est. Project Costs	**$6,209,633**



VP014800

- 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

VP014800

Lee Avenue-Wesley Street Horizontal Valve Replacement

HRSD

N
W E
S

CIP Location

Lee Avenue/Wesley Street Horizontal Valve Replacement

PR_VP014800

System: VIP
Type: Pipelines

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

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
$3,267	$0	$114	$431	$2,722	$0	$0	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

This project will replace the inoperable 36-inch horizontal gate valve and install a new 48-inch valve at the intersection of Lee Avenue and Wesley Street in the City of Portsmouth. A Preliminary Engineering Report was completed in November 2007 making these recommendations.

PROJECT JUSTIFICATION

The 36-inch horizontal gate valve is currently stuck in the open position and, due to the configuration of the valve, will not close to allow flow isolation of SF-220 in case of a failure. SF-220 is a 36-inch reinforced concrete pipe (RCP) force main that was constructed in 1946. The installation of a new 48-inch valve on SF-221 where SF-221 intersects with SF-220 will allow flow isolation of SF-221 to the north and south of the intersection. SF-221 is a 48-inch RCP force main approximately 15,000 linear feet (LF) constructed in 1946 with isolation valves only located at each end. The valves will insure proper operation in the event of a failure on these aged force mains.

FUNDING TYPE

Funding Type: Revenue Bond

CONTACTS

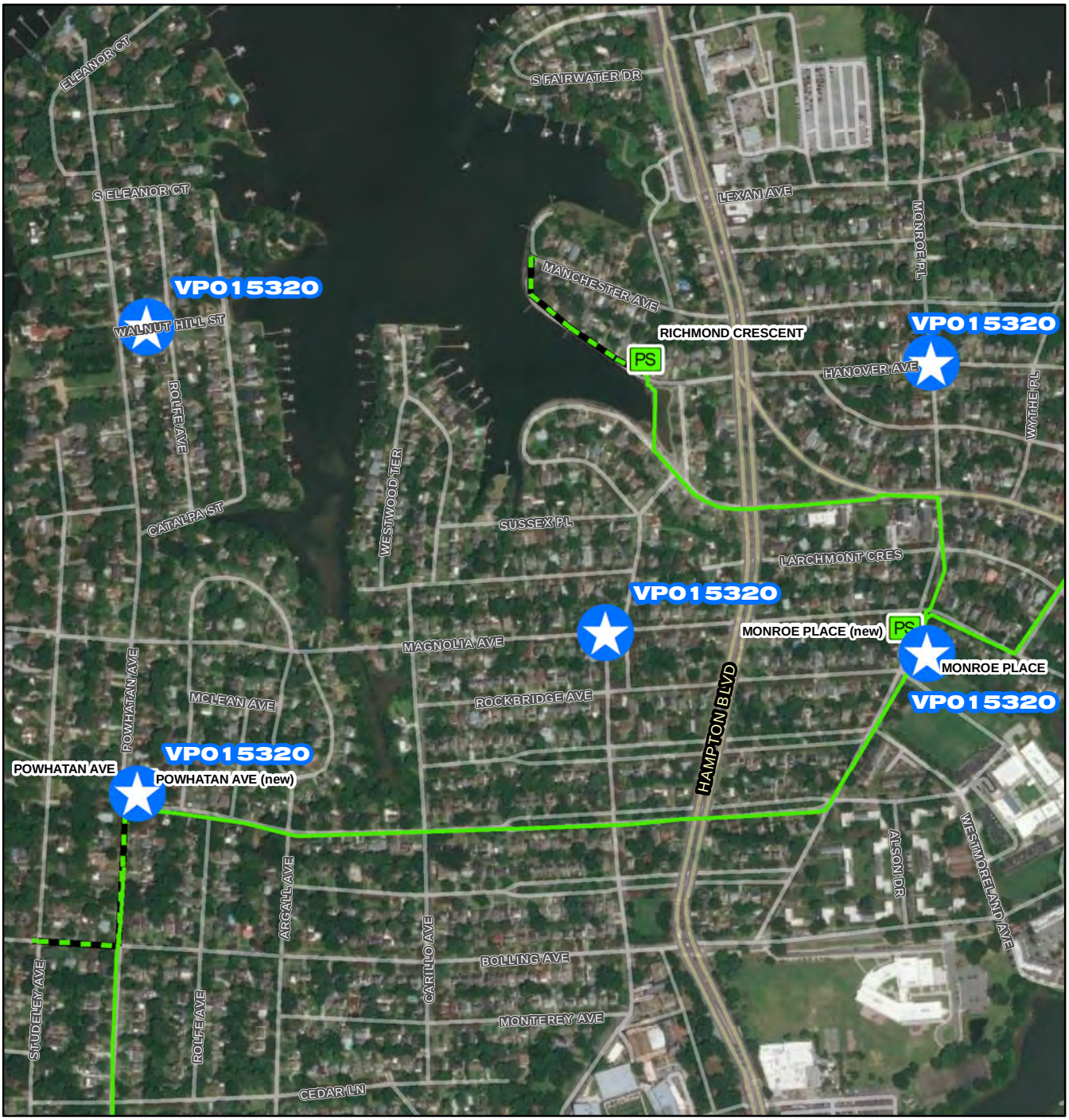
Contacts-Requesting Dept: Operations-Interceptors
Contacts-Dept Contacts: Jeff Scarano
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	01/01/2022
PER	12/01/2022
Design Delay	06/01/2023
Design	06/01/2023
Bid Delay	03/01/2024
PreConstruction	03/01/2024
Construction	06/01/2024
Closeout	05/01/2025

COST ESTIMATE

Cost Estimate Class:	**Class 5**
PrePlanning	$0
PER	$96,216
Design	$160,359
PreConstruction	$16,036
Construction	$2,994,572
Closeout	$0
Est. Program Cost	**$3,267,183**
Contingency Budget	$814,287
Est. Project Costs	**$4,081,470**



VP015320

- 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

N W E S

CIP Location

VP015320

Larchmont Area Sanitary Sewer Improvements

HRSD

Larchmont Area Sanitary Sewer Improvements

PR_VP015320

System: VIP
Type: Pump Stations

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	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
$68,230	$5,789	$15,165	$21,774	$21,774	$3,685	$44	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

This project involves design and construction of five new sanitary sewer pump stations, approximately 3,700 linear feet of 6-inch, 8-inch, and 10-inch force mains, and approximately 10,000 linear feet of 8-inch and 10-inch gravity mains and appurtenances. The new infrastructure will replace (a) five existing HRSD pump stations: Monroe Place PS # 114, Powhatan Avenue PS #122, Richmond Crescent #124, Hanover Avenue PS #141, and Jamestown Crescent PS #142, (b) City of Norfolk (City) pump stations: Larchmont Eleanor Court PS #112; Larchmont Walnut Hill Street PS #113; and Larchmont Westwood Terrace PS #114, and (c) install new gravity trunk lines to divert the flow to the new pump station locations. The two new pump stations replacing Powhatan Avenue and Monroe Place will be terminal stations and will remain under HRSD ownership while the other three new pump stations will be non-terminal and ownership will be transferred to the City at the completion of the project.

PROJECT JUSTIFICATION

This project was initially identified by HRSD as part of a condition assessment program to address aging infrastructure concerns related to structural, electrical, and pump performance operation. It was also identified to mitigate the risks from tidal flooding during wet weather conditions and from sea level rise due to climate change. HRSD and City jointly funded a comprehensive sanitary sewer master plan for the Larchmont sanitary sewer service area that encompassed pump station facilities and gravity collection systems associated with these pumping facilities. Hazen was commissioned to perform the comprehensive study on behalf of HRSD and City. HRSD and City are entering into a cost sharing agreement with the intent to plan, design, and construct the recommended improvements. Elements of the Project identified under the VIP-R10 in HRSD's EPA Rehabilitation Action Plan Phase 2 will need to reach Substantial Completion by May 5, 2025.

FUNDING TYPE

Funding Type: Cash

CONTACTS

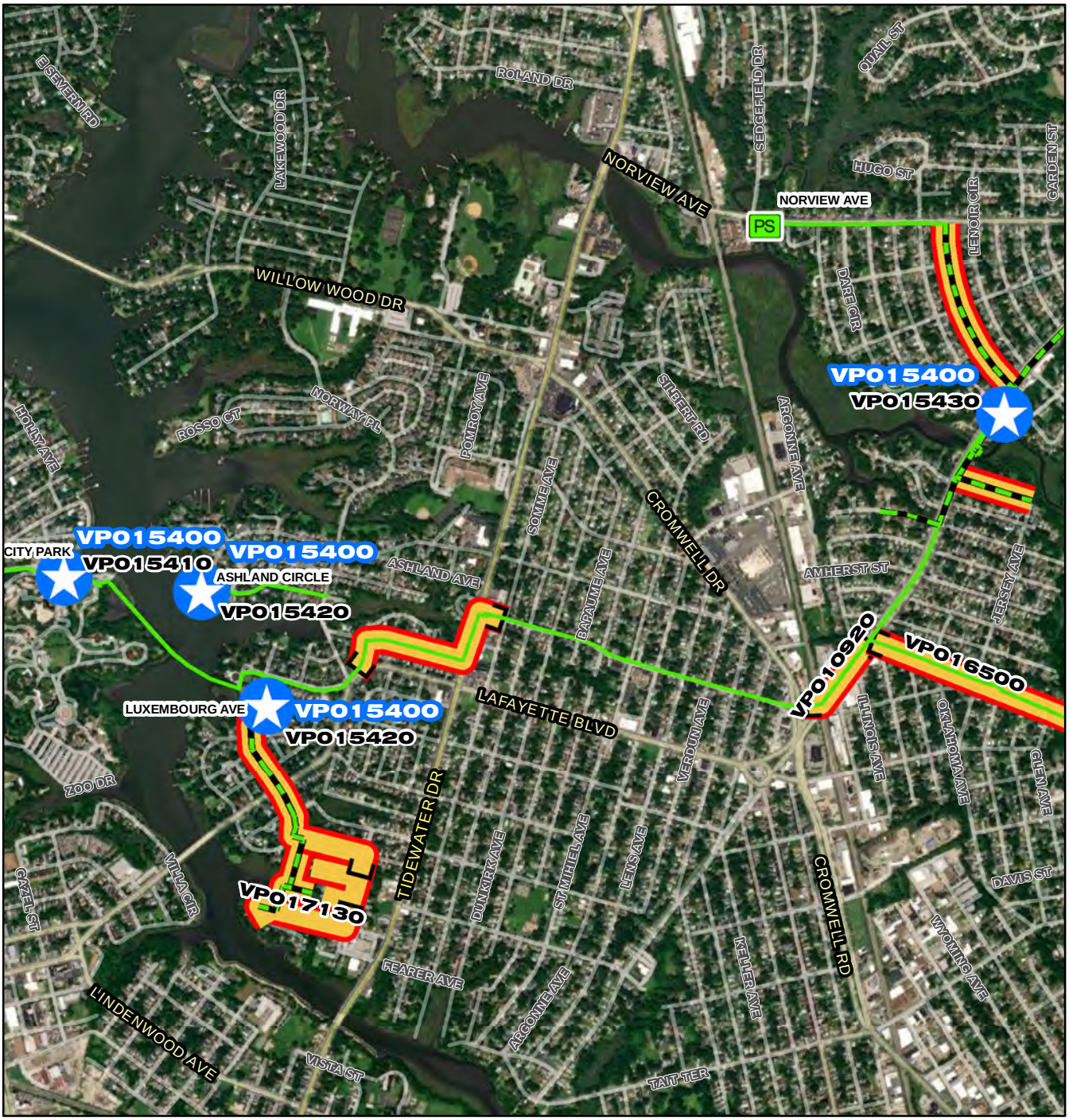
Contacts-Requesting Dept: Operations-Interceptors
Contacts-Dept Contacts: Holly Anne Matel
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	06/03/2019
PER	06/01/2020
Design Delay	06/15/2021
Design	06/15/2021
Bid Delay	11/09/2022
PreConstruction	11/09/2022
Construction	12/15/2022
Closeout	09/08/2025

COST ESTIMATE

Cost Estimate Class:	
PrePlanning	$0
PER	$473,069
Design	$7,607,000
PreConstruction	$50,000
Construction	$60,000,000
Closeout	$100,000
Est. Program Cost	**$68,230,069**
Contingency Budget	$9,000,000
Est. Project Costs	**$77,230,069**



VP015400

- 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

VP015400

Lafayette Norview-Estabrook Pump Station Replacements

HRSD

Lafayette Norview-Estabrook Pump Station Replacements

PR_VP015400

System: VIP
Type: Pump Stations

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	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
$2,789	$2,772	$17	$0	$0	$0	$0	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

This project is to rehabilitate and/or replace four pump stations, and their associated force mains, in the Lafayette-Norview-Estabrook areas of the City of Norfolk (City Park Pump Station #106, Chesapeake Boulevard Pump Station #105, Luxembourg Avenue Pump Station #113, and Ashland Circle Pump Station #102).

PROJECT JUSTIFICATION

This project will address aging infrastructure pertaining to the condition of the wet wells, pumps, motors, controls, appurtenances, and emergency generator/pump for the facilities. The pumps, motors, and controls are nearing the end of their useful life and replacement parts are not available. The Luxembourg Pump Station building is experiencing differential settlement. Ashland Circle Pump Station is in a low-lying area and condition assessment activities gave evidence that tidal flooding likely occurs during severe wet weather events.

FUNDING TYPE

Funding Type: VCWRLF

CONTACTS

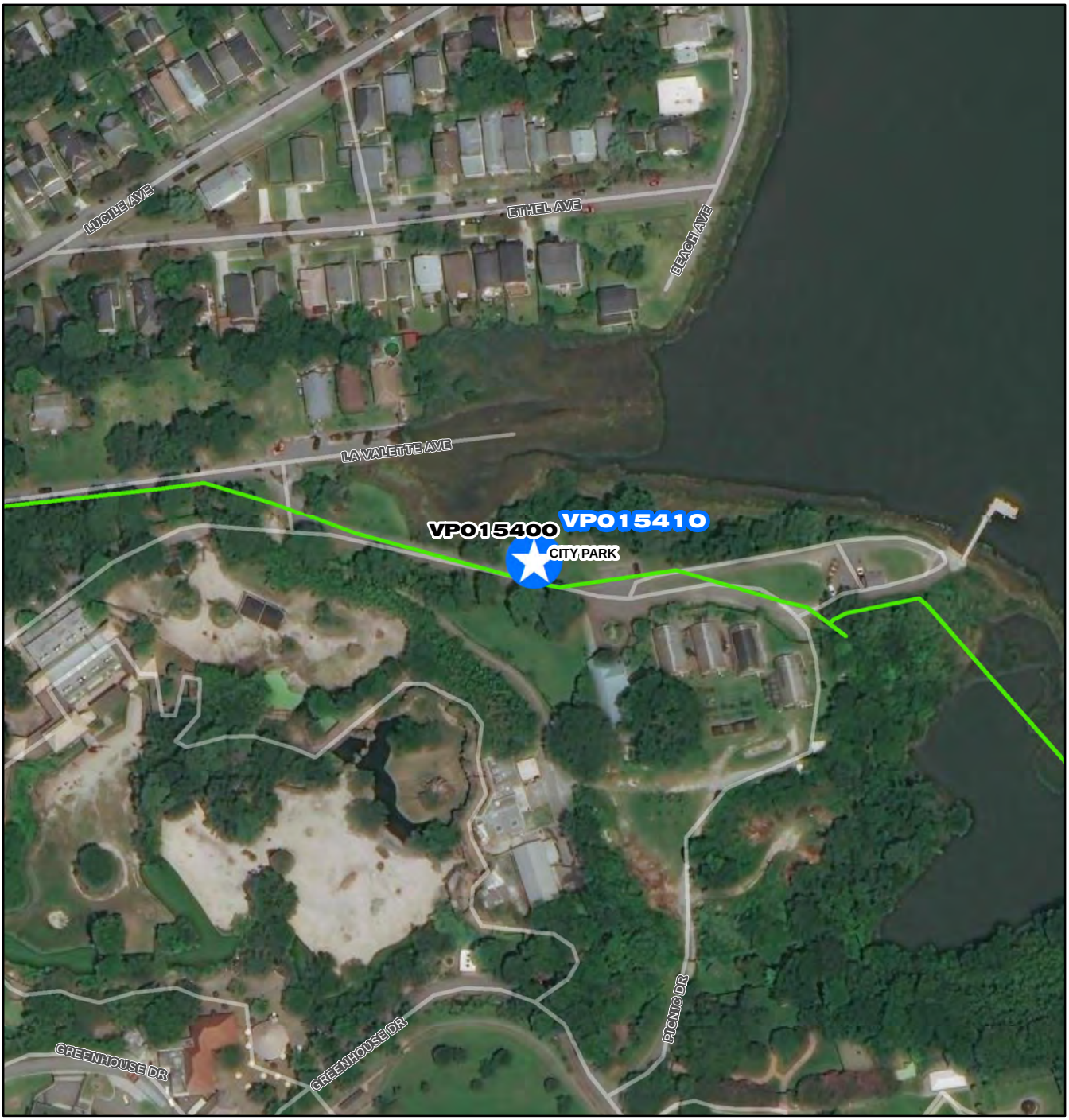
Contacts-Requesting Dept: Operations-Interceptors
Contacts-Dept Contacts: Jeff Layne
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	11/01/2017
PER	01/01/2018
Design Delay	10/01/2019
Design	10/01/2019
Bid Delay	10/01/2022
PreConstruction	10/01/2022
Construction	10/01/2022
Closeout	10/01/2022

COST ESTIMATE

Cost Estimate Class:	
PrePlanning	$0
PER	$719,047
Design	$2,186,311
PreConstruction	$0
Construction	$0
Closeout	$0
Est. Program Cost	**$2,905,358**
Contingency Budget	$0
Est. Project Costs	**$2,905,358**



VP015410

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

N
W E
S

CIP Location

VP015410

City Park Pump Station (PS 106) Replacement

HRSD

City Park Pump Station (PS 106) Replacement

PR_VP015410

System: VIP
Type: Pump Stations

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

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
$2,910	$3	$1,381	$1,526	$0	$0	$0	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

This project will construct a new HRSD City Park Pump Station to replace the old existing pump station.

PROJECT JUSTIFICATION

This project will address aging infrastructure pertaining to the condition of the wet wells, pumps, motors, controls, appurtenances, and emergency generator/pump for the facilities. The pumps, motors, and controls are nearing the end of their useful life and replacement parts are not available.

FUNDING TYPE

Funding Type: Revenue Bond

CONTACTS

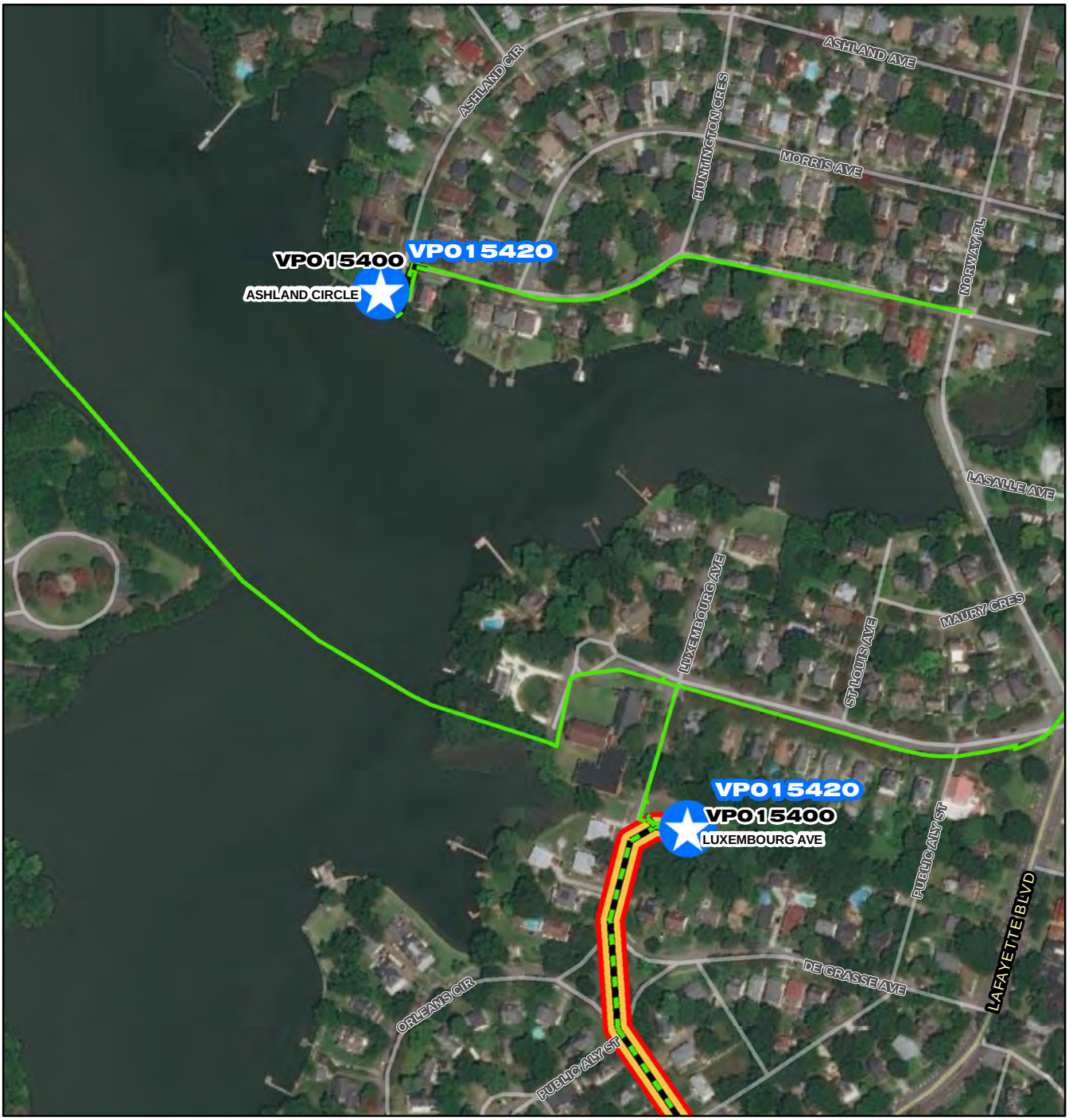
Contacts-Requesting Dept: Engineering
Contacts-Dept Contacts: Jeff Layne
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	
PER	
Design Delay	
Design	
Bid Delay	01/11/2022
PreConstruction	06/01/2022
Construction	10/01/2022
Closeout	05/01/2024

COST ESTIMATE

Cost Estimate Class:	**Class 1**
PrePlanning	$0
PER	$0
Design	$0
PreConstruction	$10,000
Construction	$2,900,000
Closeout	$0
Est. Program Cost	**$2,910,000**
Contingency Budget	$400,000
Est. Project Costs	**$3,310,000**



VP015420

- 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

0 105 210 420 630 840 Feet

N W E S

CIP Location

VP015420

Luxembourg Pump Station (PS 113) Replacement and Ashland Sewer Extension

HRSD

Luxembourg Pump Station (PS 113) Replacement and Ashland Sewer Extension

PR_VP015420

System: VIP
Type: Pump Stations

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

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
$7,880	$0	$2,156	$4,293	$1,431	$0	$0	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

This project will construct a new Luxembourg Pump Station (PS) to replace the old existing pump station. Also, the existing HRSD Ashland Circle Pump Station will be demolished and replaced with sanitary sewer. The new sanitary sewer will be installed from the existing Ashland Circle PS to the new Luxembourg PS.

PROJECT JUSTIFICATION

This project will address aging infrastructure pertaining to the condition of the wet wells, pumps, motors, controls, appurtenances, and emergency generator/pump for the facilities. The pumps, motors, and controls are nearing the end of their useful life and replacement parts are not available. The Luxembourg Pump Station building is experiencing differential settlement. Ashland Circle Pump Station is in a low-lying area and condition assessment activities gave evidence that tidal flooding likely occurs during severe wet weather events.

FUNDING TYPE

Funding Type: Revenue Bond

CONTACTS

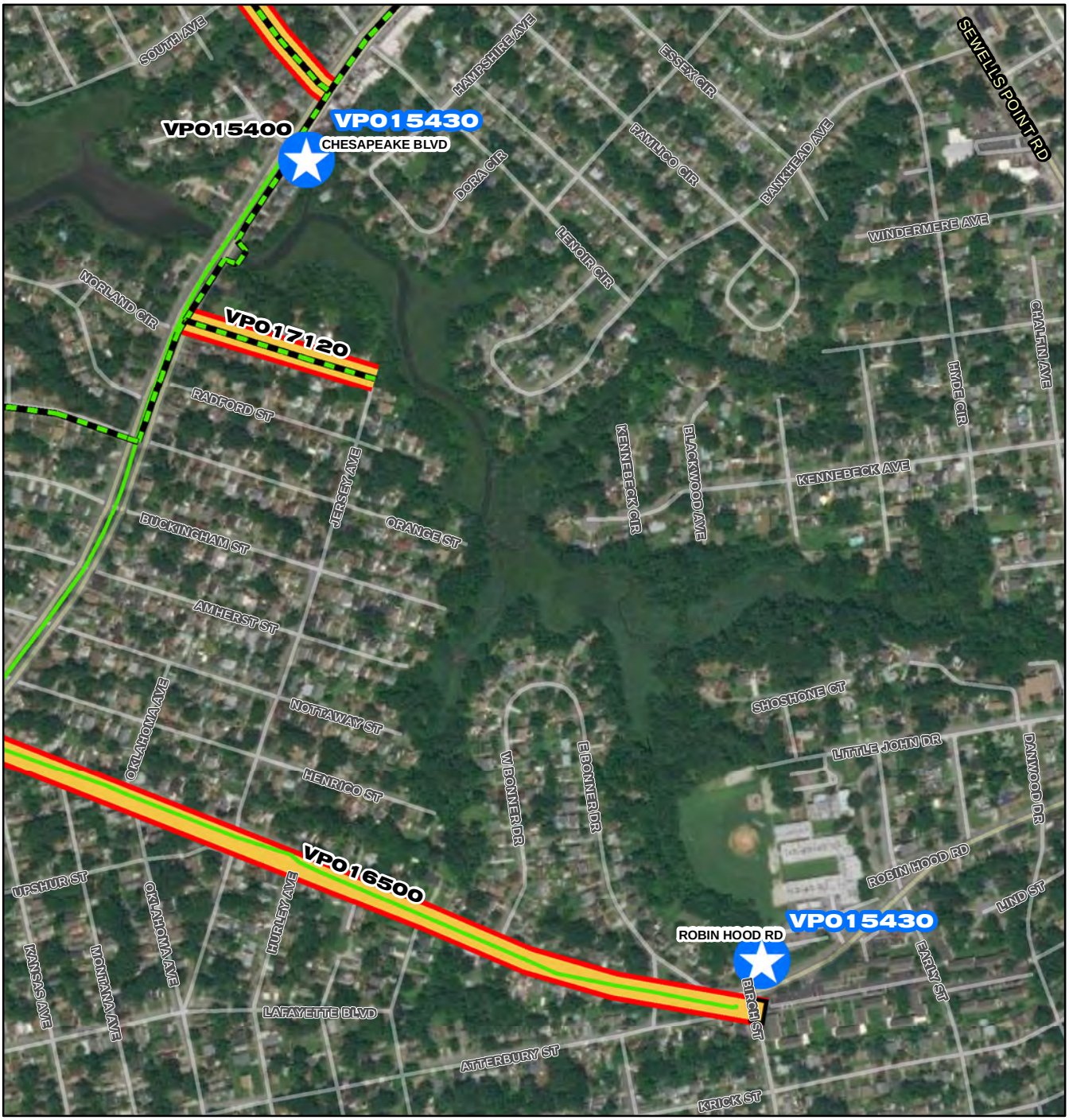
Contacts-Requesting Dept: Engineering
Contacts-Dept Contacts: Jeff Layne
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	
PER	
Design Delay	
Design	
Bid Delay	01/11/2022
PreConstruction	09/01/2022
Construction	01/01/2023
Closeout	11/01/2024

COST ESTIMATE

Cost Estimate Class:	**Class 1**
PrePlanning	$0
PER	$0
Design	$0
PreConstruction	$10,000
Construction	$7,870,000
Closeout	$0
Est. Program Cost	**$7,880,000**
Contingency Budget	$1,073,000
Est. Project Costs	**$8,953,000**



VP015430

- 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

0 200 400 800 1,200 1,600 Feet

N
W E
S

CIP Location

VP015430

Chesapeake Boulevard Pump Station (PS 105) Replacement and Norfolk Pump Station (PS 57) Rehabilitation

HRSD

Chesapeake Blvd PS (PS 105) Replacement and Norfolk PS (PS 57) Rehabilitation

PR_VP015430

System: VIP
Type: Pump Stations

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

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
$7,190	$0	$1,159	$3,446	$2,585	$0	$0	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

This project will construct a new Chesapeake Boulevard Pump Station (PS) to replace the old existing pump station. Also, HRSD will acquire the Norfolk pump station #57. This project will replace all of the existing equipment in PS #57 and the new equipment will be installed in according with HRSD's standards.

PROJECT JUSTIFICATION

This project will address aging infrastructure pertaining to the condition of the wet wells, pumps, motors, controls, appurtenances, and emergency generator/pump for the facilities. The pumps, motors, and controls are nearing the end of their useful life and replacement parts are not available.

FUNDING TYPE

Funding Type: Revenue Bond

CONTACTS

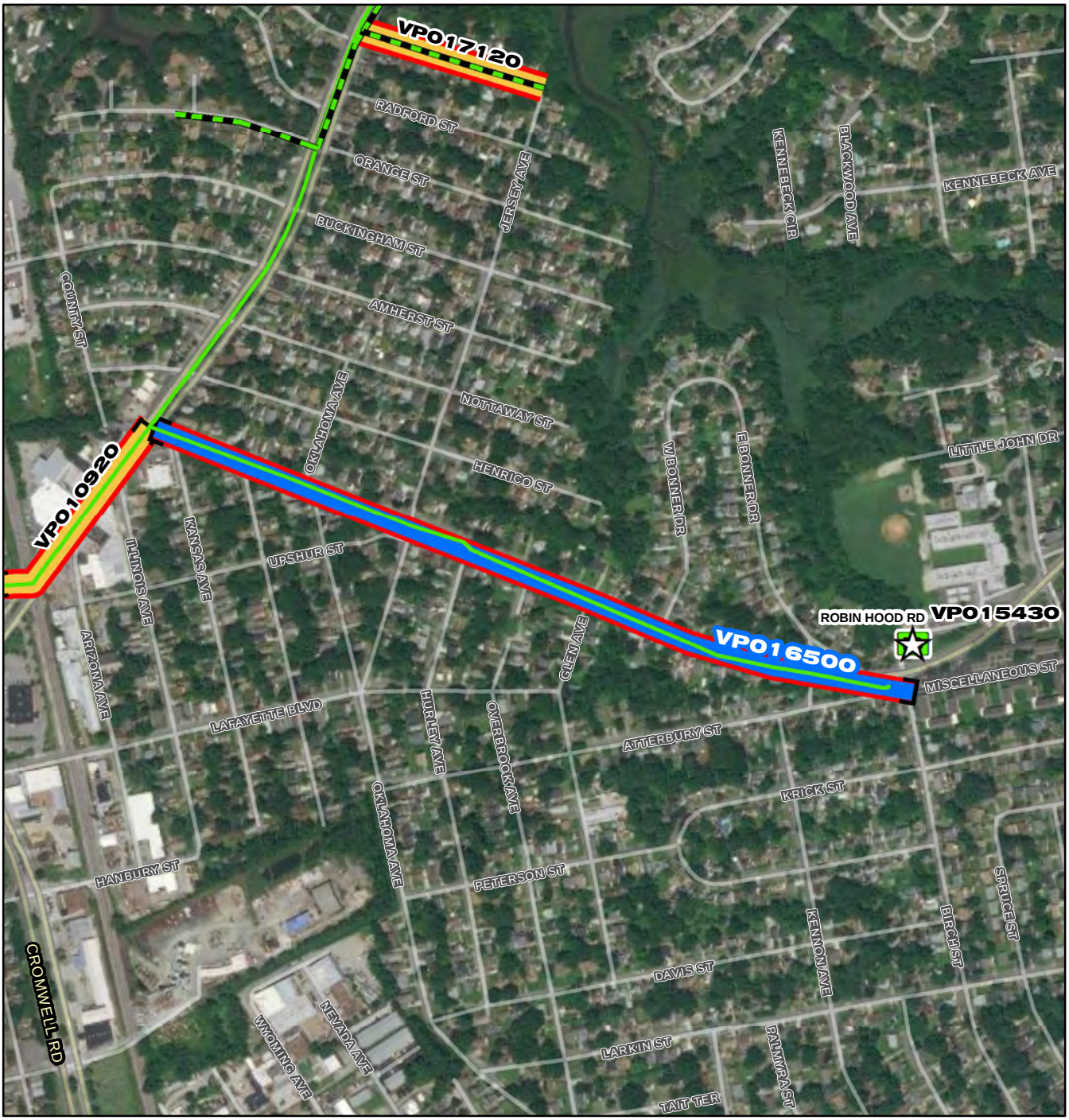
Contacts-Requesting Dept: Engineering
Contacts-Dept Contacts: Jeff Layne
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	
PER	
Design Delay	
Design	
Bid Delay	01/01/2022
PreConstruction	12/01/2022
Construction	03/01/2023
Closeout	04/01/2025

COST ESTIMATE

Cost Estimate Class:	**Class 1**
PrePlanning	$0
PER	$0
Design	$0
PreConstruction	$10,000
Construction	$7,180,000
Closeout	$0
Est. Program Cost	**$7,190,000**
Contingency Budget	$1,326,000
Est. Project Costs	**$8,516,000**



VP016500

- 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

0 210 420 840 1,260 1,680 Feet

N W E S

CIP Location

VP016500

Norview-Estabrook Division I 12-Inch Force Main Replacement

HRSD

Norview-Estabrook Division I 12-Inch Force Main Replacement

PR_VP016500

System: VIP
Type: Pipelines

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

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
$2,597	$213	$741	$1,160	$483	$0	$0	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

This project is to rehabilitate and/or replace the SF-069 Norview-Estabrook Division I 12-inch Force Main consisting of approximately 2,800 linear feet (LF) of 12-inch pipe along Robin Hood Road.

PROJECT JUSTIFICATION

This project will replace a 1952 cast iron force main with lead joints that is nearing the end of its useful life (SF-69). Replacement of this force main will be needed prior to the completion of the upgrades to the Chesapeake Boulevard Pump Station (VP015400).

FUNDING TYPE

Funding Type: VCWRLF

CONTACTS

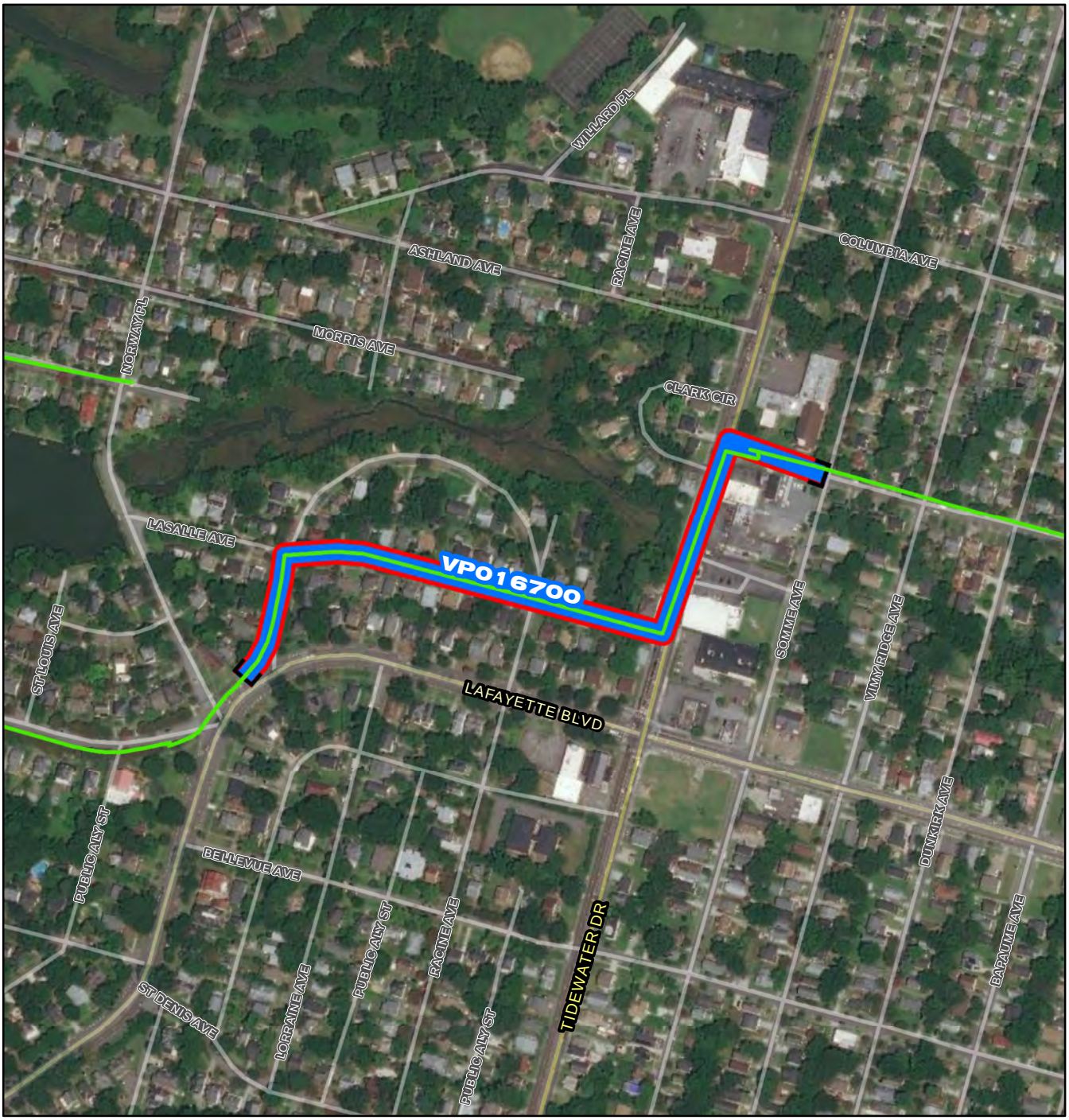
Contacts-Requesting Dept: Operations-Interceptors
Contacts-Dept Contacts: Tim Marsh
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	11/02/2020
PER	11/02/2020
Design Delay	09/30/2021
Design	12/01/2021
Bid Delay	09/01/2022
PreConstruction	09/01/2022
Construction	12/01/2022
Closeout	12/01/2024

COST ESTIMATE

Cost Estimate Class:	
PrePlanning	$0
PER	$76,675
Design	$190,182
PreConstruction	$10,000
Construction	$2,320,156
Closeout	$0
Est. Program Cost	**$2,597,013**
Contingency Budget	$520,339
Est. Project Costs	**$3,117,352**



VP016700

- 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

0 130 260 520 780 1,040 Feet

N W E S

CIP Location

VP016700

Norview-Estabrook Division I 18-Inch Force Main Replacement Phase III

HRSD

Norview-Estabrook Division I 18-Inch Force Main Replacement Phase III

PR_VP016700

System: VIP
Type: Pipelines

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

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
$3,109	$189	$890	$1,432	$597	$0	$0	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

This project is to rehabilitate and/or replace a portion of the SF-066 Norview-Estabrook Division I 18-inch Force Main for approximately 2,100 linear feet (LF) of 18-inch cast iron pipe starting at the existing force main near the Luxembourg Pump Station starting at Versailles Avenue and Norway Place extending east to the first valve on Pershing Avenue near Tidewater Drive. Project is through the Lafayette Residence Park neighborhood, listed on the National Historic Register.

PROJECT JUSTIFICATION

This project will replace a 1952 cast iron force main with lead joints that is nearing the end of its useful life (SF-66). Replacement of this force main will need to be coordinated with the Lafayette Norview-Estabrook and Norview Pump Station Replacements (VP015400).

FUNDING TYPE

Funding Type: VCWRLF

CONTACTS

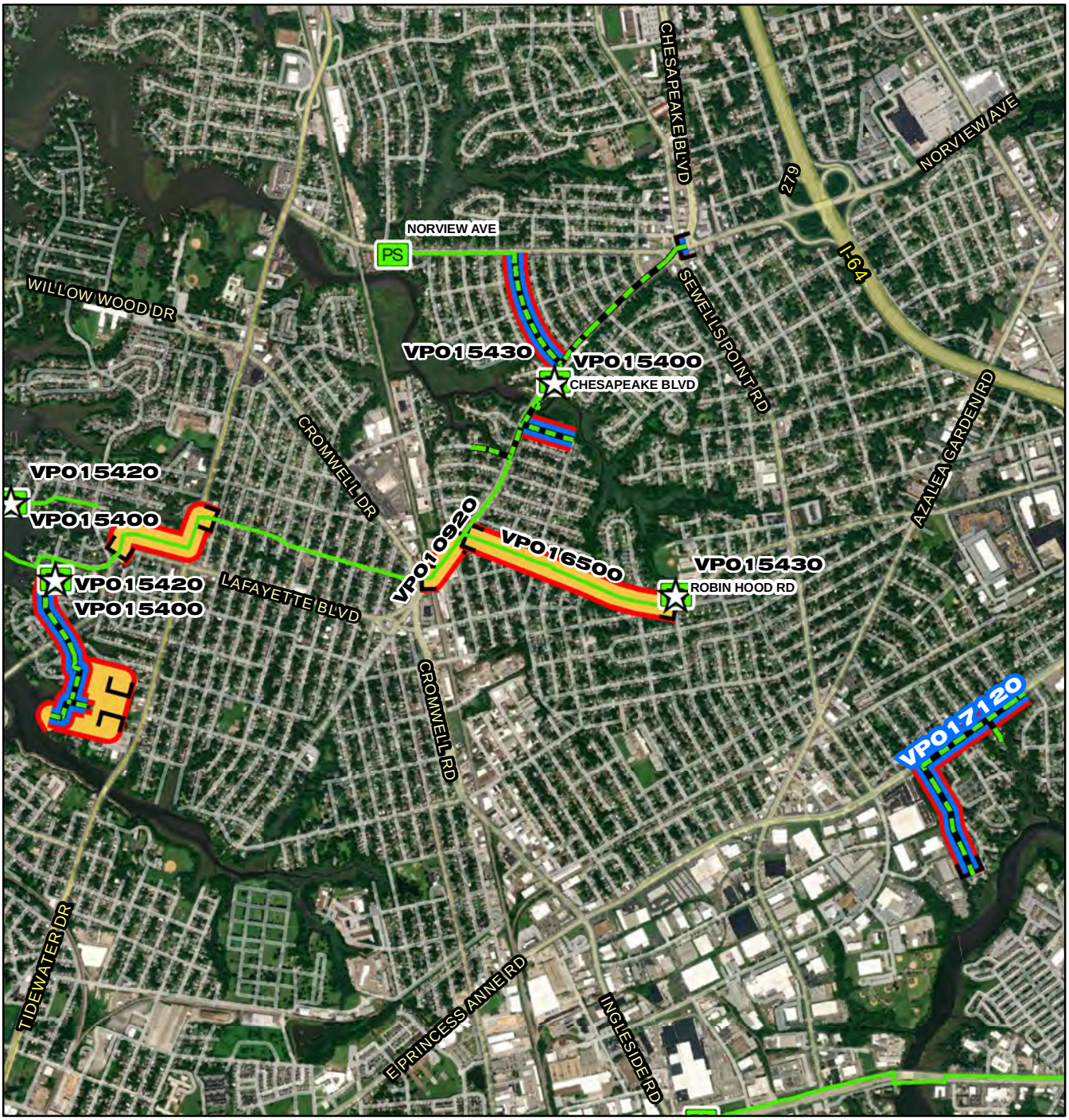
Contacts-Requesting Dept: Operations-Interceptors
Contacts-Dept Contacts: Tim Marsh
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	01/01/2020
PER	11/02/2020
Design Delay	09/29/2021
Design	12/01/2021
Bid Delay	09/01/2022
PreConstruction	09/01/2022
Construction	12/01/2022
Closeout	12/01/2024

COST ESTIMATE

Cost Estimate Class:	
PrePlanning	$0
PER	$76,988
Design	$157,142
PreConstruction	$10,000
Construction	$2,864,607
Closeout	$0
Est. Program Cost	**$3,108,737**
Contingency Budget	$623,268
Est. Project Costs	**$3,732,005**



VP017120

- 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

0 750 1,500 3,000 4,500 6,000 Feet

N W E S

CIP Location

VP017120

Central Norfolk Area Gravity Sewer Improvements Phase II

HRSD

Central Norfolk Area Gravity Sewer Improvements Phase II

PR_VP017120

System: VIP
Type: Pipelines

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

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
$1,957	$212	$189	$916	$634	$6	$0	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

This project consists of 3 sections of improvements to the gravity sewer system:
-Fox Hall/Norcova Drive/East Princess Avenue Interceptor Gravity Sewer-Rehabilitation of 3,650 linear feet (LF) of gravity sewer (ranging from 10 to 12-inches) with associated 19 manholes. Includes the 150 LF of 12-inch gravity sewer extending to the City of Norfolk Pump Station (PS) #44.
-Luxembourg Avenue Gravity Sewer-Rehabilitation of 1,500 LF of 12-inch gravity sewer with associated 11 manholes .
-Norview-Estabrook/Chesapeake Boulevard Gravity Sewer-Rehabilitation of gravity sewer not previously rehabilitated or replaced including 3,000 LF of gravity sewer (ranging from 12 to 18-inches) with 20 associated manholes. Additionally, manhole rehabilitation is to include 3 manholes on Chesapeake Boulevard.

PROJECT JUSTIFICATION

Condition assessment activities indicate that these assets present a material risk of failure due to I/I and physical condition defects. This project is a portion of the EPA Rehabilitation Action Plan Project VIP-R-1 with a Substantial Completion requirement of May 5, 2025. For further details, refer to page 3-18, Table 3-2 of the Rehabilitation Action Plan.

FUNDING TYPE

Funding Type: Revenue Bond

CONTACTS

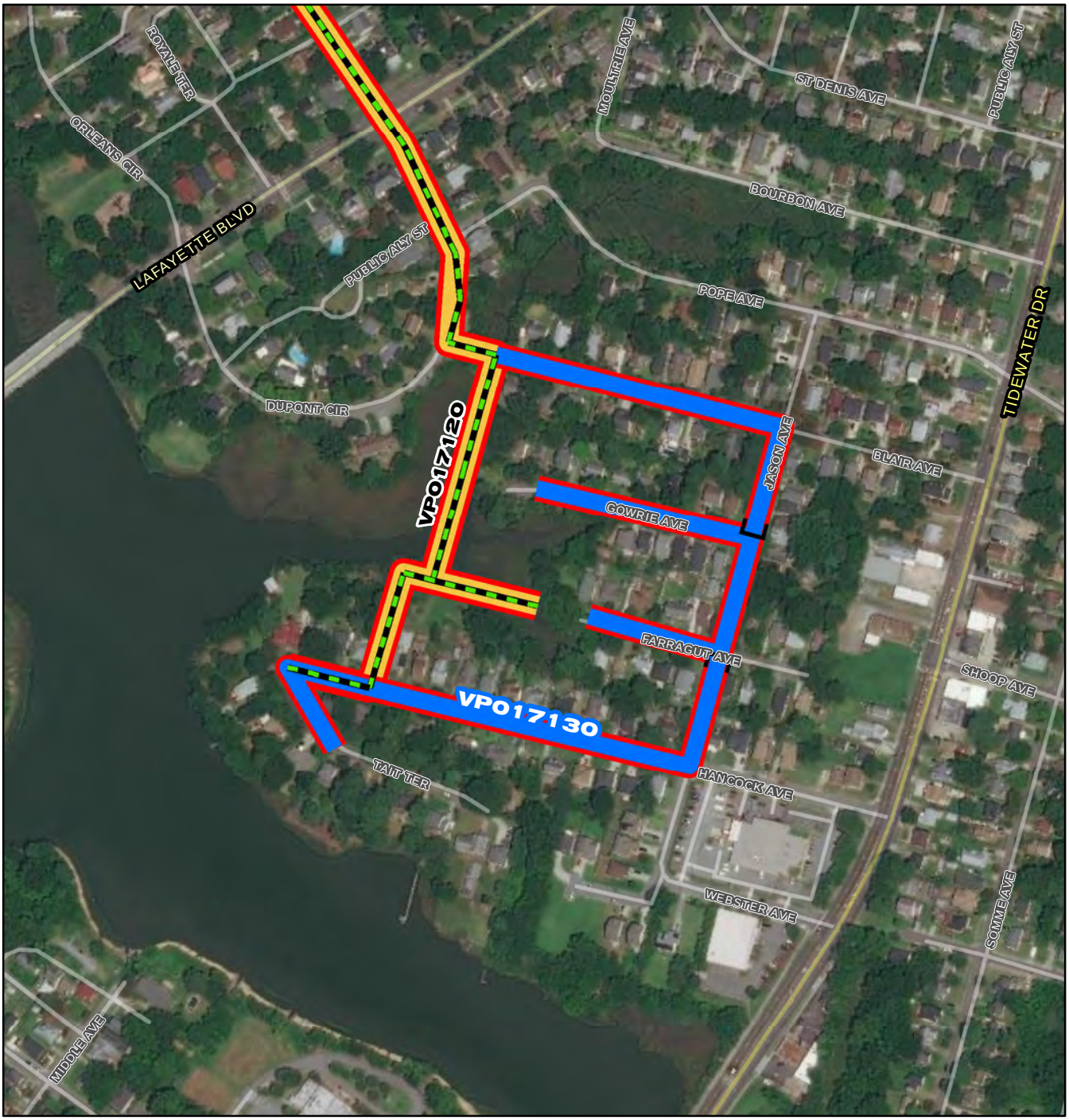
Contacts-Requesting Dept: Operations-Interceptors
Contacts-Dept Contacts: Holly Anne Matel
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	02/01/2021
PER	04/01/2021
Design Delay	04/01/2022
Design	04/01/2022
Bid Delay	09/01/2023
PreConstruction	09/01/2023
Construction	12/01/2023
Closeout	12/01/2024

COST ESTIMATE

Cost Estimate Class:	**Class 4**
PrePlanning	$0
PER	$143,600
Design	$288,642
PreConstruction	$10,000
Construction	$1,500,000
Closeout	$15,000
Est. Program Cost	**$1,957,242**
Contingency Budget	$363,000
Est. Project Costs	**$2,320,242**



VP017130

- 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

0 110 220 440 660 880 Feet

VP017130

Central Norfolk Area Gravity Sewer Improvements Phase IIA

N
W E
S

CIP Location

Central Norfolk Area Gravity Sewer Improvements Phase IIA

PR_VP017130

System: VIP
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	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
$4,520	$211	$386	$2,430	$1,474	$19	$0	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

This project consists of abandoning a tidal creek crossing on the Lafayette River and rerouting the gravity sewer through the City right-of-way in the Luxembourg Ave area of Central Norfolk. The new sewer will consist of 3,900 linear feet (LF) of gravity sewer and 16 manholes.

PROJECT JUSTIFICATION

Condition assessment activities indicate that these assets present a material risk of failure due to I/I and physical condition defects. This project is a portion of the EPA Rehabilitation Action Plan Project VIP-R-1 with a substantial completion requirement of May 5, 2025. For further details, refer to page 3-18, Table 3-2 of the Rehabilitation Action Plan.

FUNDING TYPE

Funding Type: Revenue Bond

CONTACTS

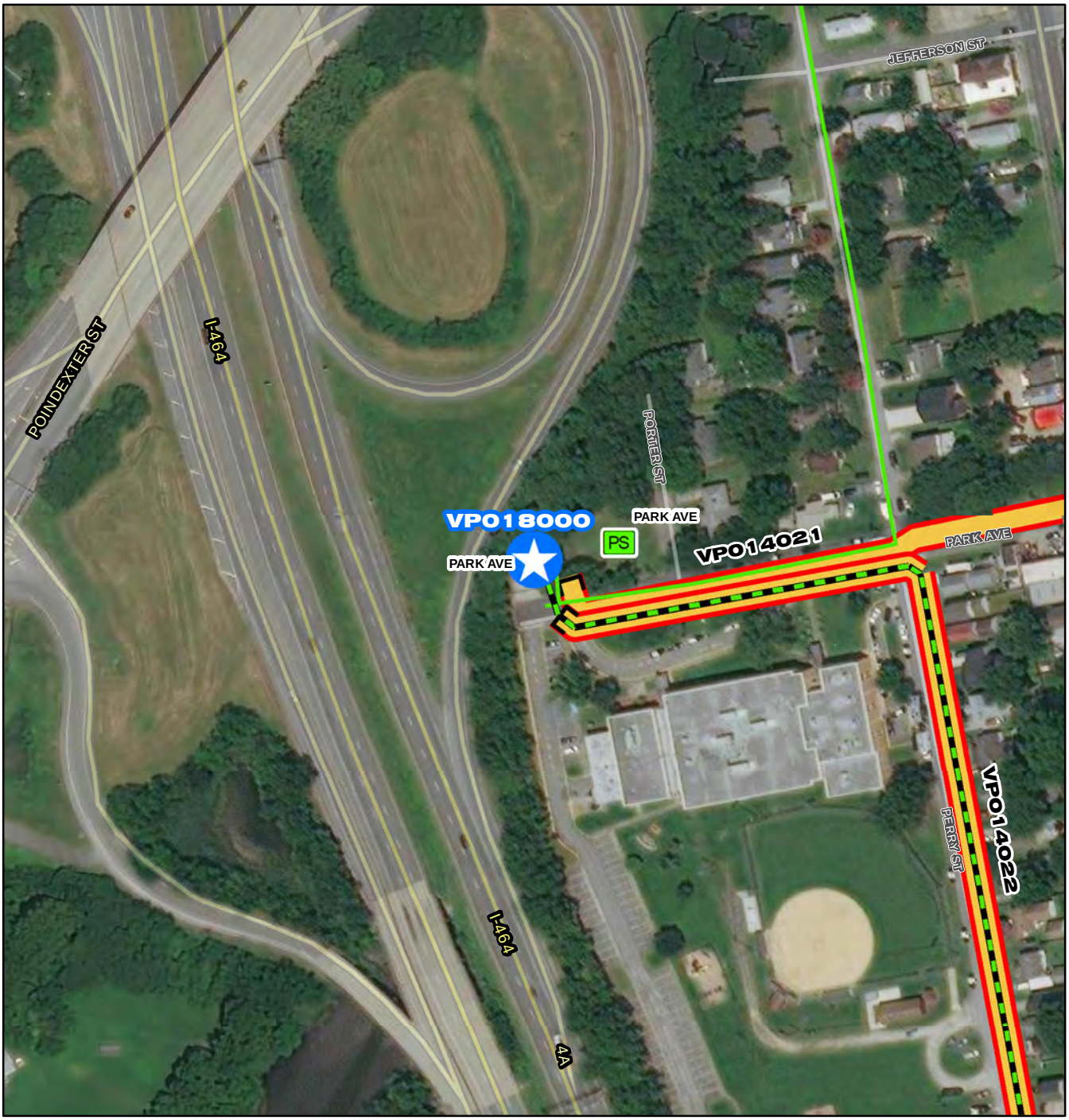
Contacts-Requesting Dept: Engineering
Contacts-Dept Contacts: Holly Anne Matel
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	02/01/2022
PER	02/01/2022
Design Delay	02/01/2022
Design	02/01/2022
Bid Delay	04/03/2023
PreConstruction	05/01/2023
Construction	09/01/2023
Closeout	01/01/2025

COST ESTIMATE

Cost Estimate Class:	**Class 4**
PrePlanning	$0
PER	$0
Design	$592,000
PreConstruction	$10,000
Construction	$3,880,000
Closeout	$38,000
Est. Program Cost	**$4,520,000**
Contingency Budget	$904,000
Est. Project Costs	**$5,424,000**



VP018000

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

Legend

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

0 55 110 220 330 440 Feet

N W E S

CIP Location

VP018000

Park Avenue Pump Station Replacement

HRSD

Park Avenue Pump Station Replacement

PR_VP018000

System: VIP
Type: Pump Stations

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	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
$12,673	$1,224	$4,695	$6,235	$520	$0	$0	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

This project is to design and construct a replacement pump station for the existing 1922 Park Avenue Pump Station (PS), based on the recommendations of the Park Avenue and Ferebee Avenue Pump Station Study (VP011010). This project is to include installation of an emergency generator/pump and address the replacement/rehabilitation of 50 linear feet (LF) of the 24-inch gravity influent line.

PROJECT JUSTIFICATION

This project will evaluate and implement the replacement of Park Avenue Pump Station. This facility was inspected in August 2013, as part of a Condition Assessment Program administered by Brown and Caldwell. Park Avenue Pump Station was recommended for replacement and/or upgrades under Level 2 in the Rehabilitation program. This facility experiences operational issues related to aging equipment and structure.
Park Avenue Pump Station currently receives flows from HRSD's Ferebee Avenue Pump Station in addition to flow from several city pump stations. An in-house hydraulic evaluation in 2014 identified several alternatives for revising the alignment and connectivity (to gravity or to the force main system) of the Ferebee Avenue Pump Station effluent force main, which may significantly impact the future capacity needs and design of the Park Avenue Pump Station. Preliminary engineering evaluations of these two stations will be conducted jointly.

FUNDING TYPE

Funding Type: VCWRLF

CONTACTS

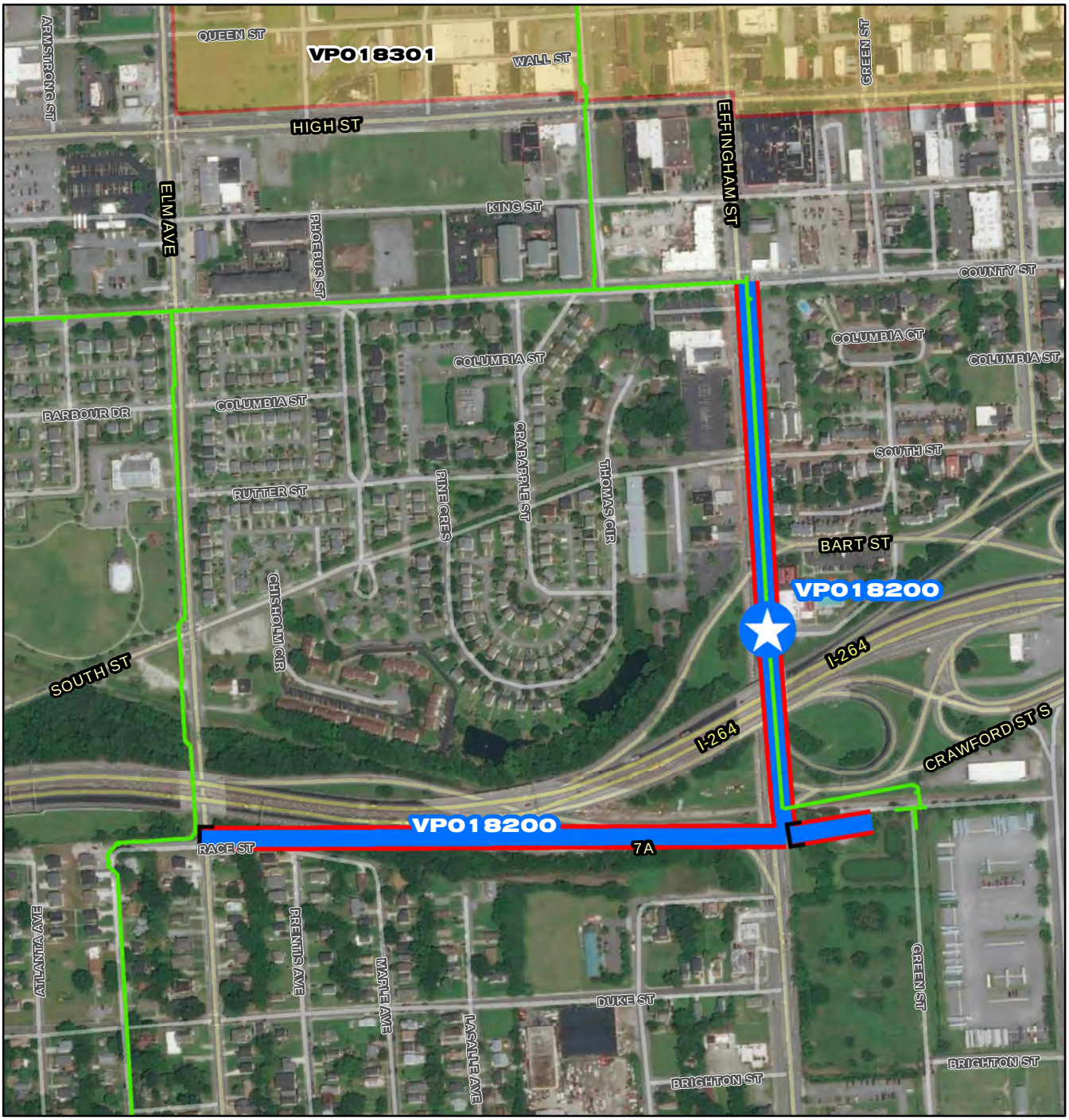
Contacts-Requesting Dept: Operations-Interceptors
Contacts-Dept Contacts: Jeff Layne
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	07/03/2006
PER	07/03/2006
Design Delay	10/31/2019
Design	11/04/2019
Bid Delay	02/01/2022
PreConstruction	03/01/2022
Construction	10/01/2022
Closeout	08/01/2024

COST ESTIMATE

Cost Estimate Class:	**Class 2**
PrePlanning	$0
PER	$255,572
Design	$942,092
PreConstruction	$45,000
Construction	$11,430,000
Closeout	$0
Est. Program Cost	**$12,672,664**
Contingency Budget	$1,028,000
Est. Project Costs	**$13,700,664**



VP018200

- 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

0 160 320 640 960 1,280 Feet

N W E S

CIP Location

VP018200

Effingham Interceptor Vault Removal

HRSD

Effingham Vault Removal and Force Main Rehabilitation

PR_VP018200

System: VIP
Type: Pipelines

Driver Category: Risk Mitigation
Project Phase: Pre Planning
Regulatory: None

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
$5,246	$1,616	$2,555	$1,075	$0	$0	$0	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

This project will rehabilitate 1,815 feet of existing 36-inch prestressed concrete cylinder pipe (PCCP) interceptor force main (IFM) with a structural cured-in-place pipe (CIPP) lining and removal of the vaults. The structural lining will extend from a new tee and valve near the Race Street Pump Station northerly toward the intersection of Effingham Street and County Street.

PROJECT JUSTIFICATION

This project will address an air vent originally included in GN013900, a Consent Decree required project that addressed air vents with galvanized riser pipes that are vulnerable to catastrophic failure due to severe corrosion. During field investigations, this air vent was discovered to be directly tapped into a reinforced concrete vault located under both north-bound lanes of Effingham Street. Both the air vent and vault appear to have been installed as part of a Virginia Department of Transportation (VDOT) relocation project in 1956. The condition of the vault is unknown, but suspected to be compromised due to exposure to hydrogen sulfide (H2S) gas for over 60 years. Due to the location, unknown condition, and Consent Decree requirement to address the air vent, both assets will be removed from the force main system.

FUNDING TYPE

Funding Type: Cash

CONTACTS

Contacts-Requesting Dept: Operations-Interceptors
Contacts-Dept Contacts: Harry Hardy
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	07/02/2018
PER	07/02/2018
Design Delay	07/02/2018
Design	05/01/2019
Bid Delay	09/15/2021
PreConstruction	09/15/2021
Construction	01/07/2022
Closeout	12/01/2023

COST ESTIMATE

Cost Estimate Class:	**Class 1**
PrePlanning	$0
PER	$0
Design	$324,743
PreConstruction	$10,875
Construction	$4,900,000
Closeout	$10,000
Est. Program Cost	**$5,245,618**
Contingency Budget	$250,000
Est. Project Costs	**$5,495,618**

VP018301

- 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

VP018301

VIP Service Area I-I Reduction Phase I (PORTS)

HRSD

N
W E
S

CIP Location

VIP Service Area I/I Reduction Phase I (PORTS)

PR_VP018301

System: VIP
Type: Locality and Private Property

Driver Category: I&I Abatement-IP/RWWMP
Project Phase: Pre Planning
Regulatory: Integrated Plan-HPP 1

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
$13,166	$143	$689	$1,011	$4,003	$7,300	$20	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

PORT-01 Comprehensive I/I Reduction Plan; PORT-02 General I/I Reduction Plan.

PROJECT JUSTIFICATION

As part of HRSD's Integrated Plan, a program of High Priority RWWMP Projects (HPP) will be constructed through 2030. These projects were selected based on their ability to provide the greatest environmental and human health benefits. Further, this $200+ million investment will significantly reduce sanitary sewer overflow (SSO) volume at the 5-year level of service by 47 percent.

FUNDING TYPE

Funding Type: VCWRLF

CONTACTS

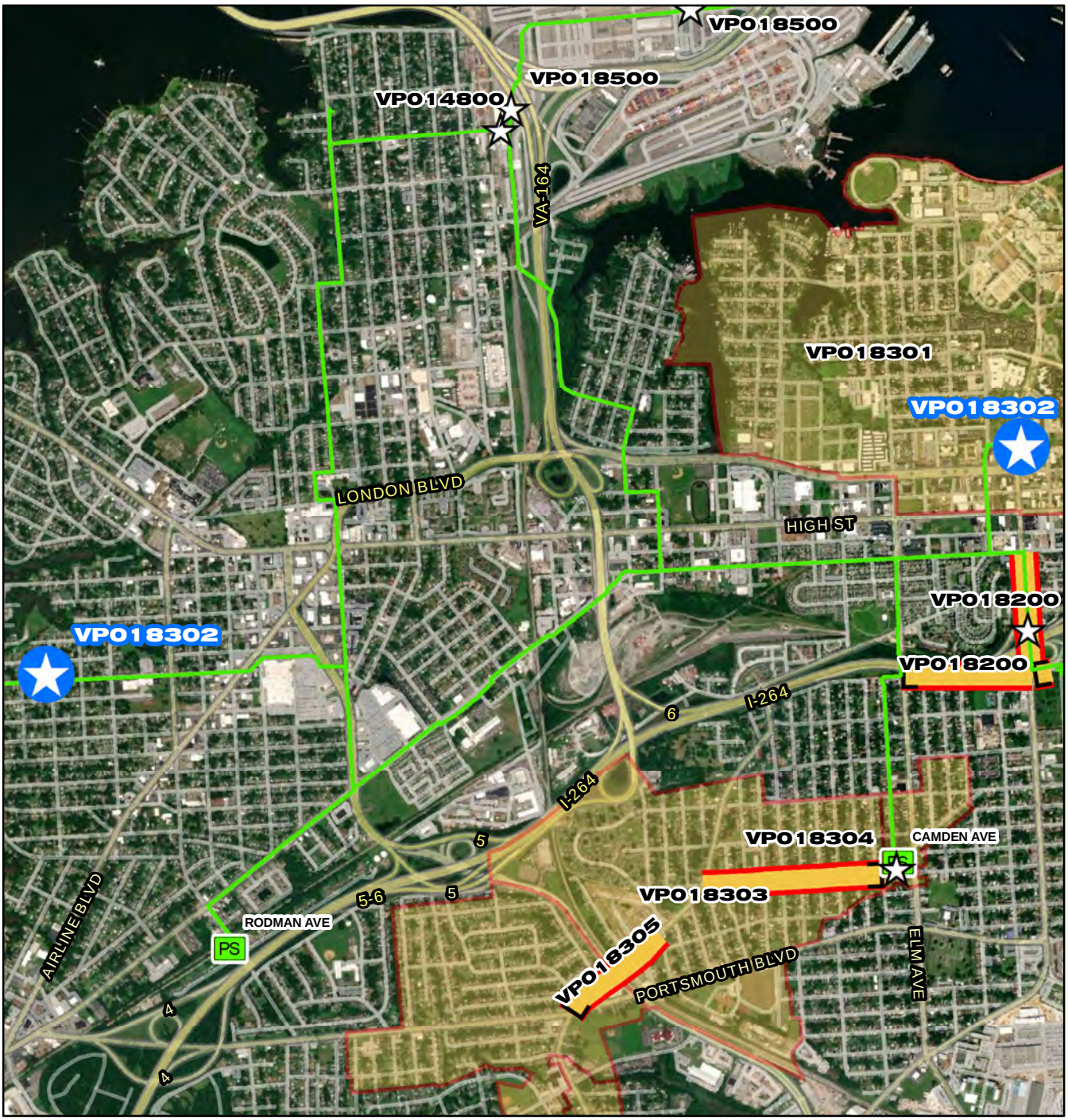
Contacts-Requesting Dept: Operations-Interceptors
Contacts-Dept Contacts: Phil Hubbard
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	01/03/2022
PER	07/01/2022
Design Delay	01/01/2024
Design	01/01/2024
Bid Delay	10/01/2024
PreConstruction	10/01/2024
Construction	01/01/2025
Closeout	07/01/2026

COST ESTIMATE

Cost Estimate Class:	**Class 5**
PrePlanning	$142,506
PER	$1,033,300
Design	$1,000,000
PreConstruction	$20,000
Construction	$10,950,020
Closeout	$20,000
Est. Program Cost	**$13,165,826**
Contingency Budget	$2,640,080
Est. Project Costs	**$15,805,906**



VP018302

- 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

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

N W E S

CIP Location

VP018302

Portsmouth Pump Station Upgrades (VIP-HPP-04B)

HRSD

Portsmouth Pump Station Upgrades (VIP-HPP-04B)

PR_VP018302

System: VIP
Type: Locality and Private Property

Driver Category: I&I Abatement-IP/RWWMP
Project Phase: Proposed
Regulatory: Integrated Plan-HPP 1

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
$11,369	$0	$0	$0	$0	$312	$823	$6,673	$3,562	$0	$0	$0

PROJECT DESCRIPTION

Portsmouth Pump Station Upgrades PS002 and PS008.

PROJECT JUSTIFICATION

As part of HRSD's Integrated Plan, a program of High Priority RWWMP Projects (HPP) will be constructed through 2030. These projects were selected based on their ability to provide the greatest environmental and human health benefits. Further, this $200+ million investment will significantly reduce sanitary sewer overflow (SSO) volume at the 5-year level of service by 47 percent.

FUNDING TYPE

Funding Type: Cash

CONTACTS

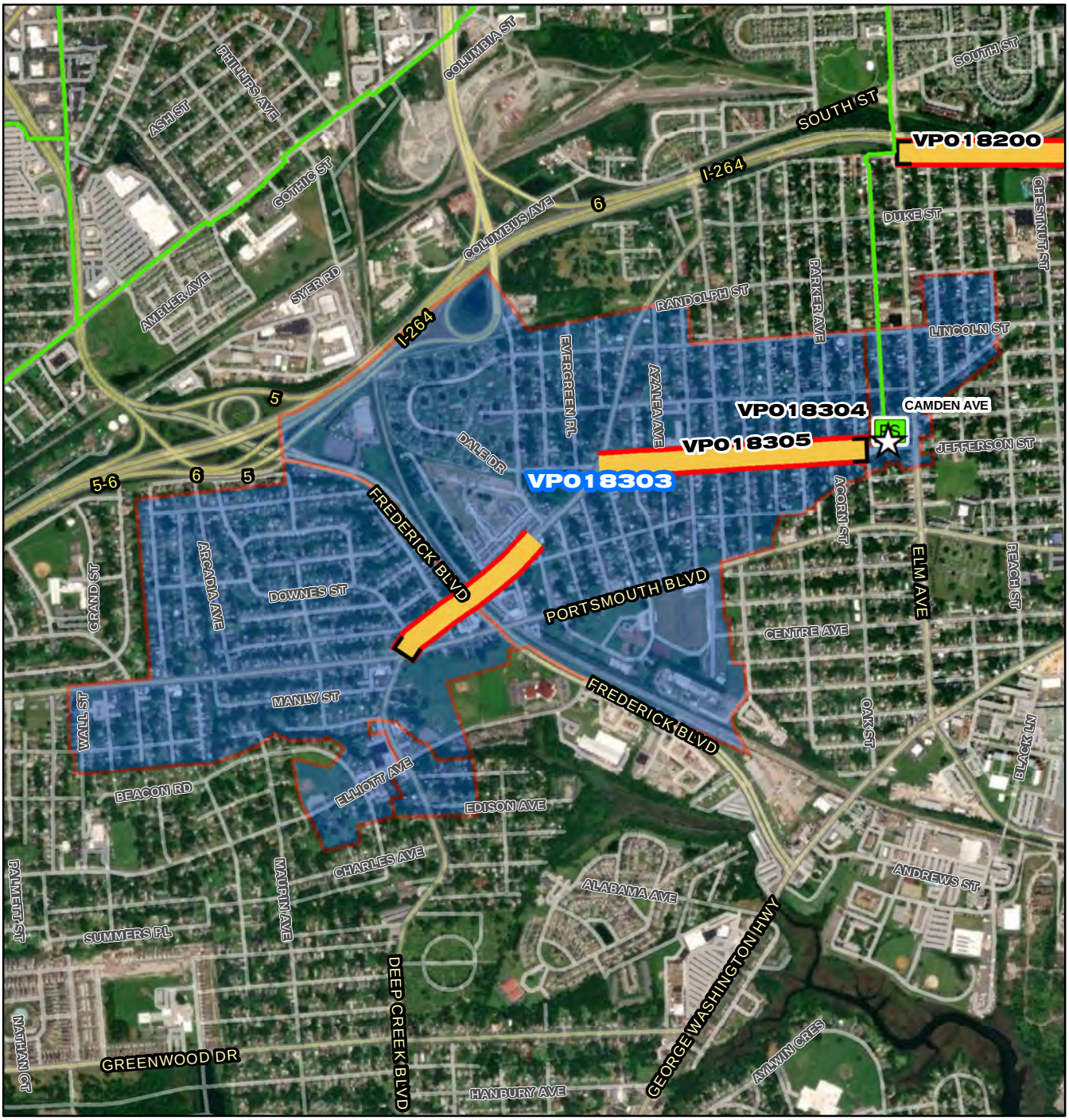
Contacts-Requesting Dept: Operations-Interceptors
Contacts-Dept Contacts: Jeff Scarano
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	08/01/2025
PER	02/02/2026
Design Delay	09/01/2026
Design	09/01/2026
Bid Delay	07/01/2027
PreConstruction	07/01/2027
Construction	10/01/2027
Closeout	12/01/2028

COST ESTIMATE

Cost Estimate Class:	**Class 5**
PrePlanning	$0
PER	$436,348
Design	$698,089
PreConstruction	$261,741
Construction	$9,972,641
Closeout	$0
Est. Program Cost	**$11,368,820**
Contingency Budget	$2,493,161
Est. Project Costs	**$13,861,980**



VP018303

- 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

0 485 970 1,940 2,910 3,880 Feet

N W E S

CIP Location

VP018303

VIP Service Area I-I Reduction Phase III (PORTS)

HRSD

VIP Service Area I/I Reduction Phase III (PORTS)

PR_VP018303

System: VIP
Type: Locality and Private Property

Driver Category: I&I Abatement-IP/RWWMP
Project Phase: Pre Planning
Regulatory: Integrated Plan-HPP 1

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
$13,166	$143	$689	$1,011	$4,003	$7,300	$20	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

PORT-04 General I/I Reduction Plan; PORT-04-LOP65-1 Data-Driven I/I Reduction Plan; PORT-04-LOP65-2 Data-Driven I/I Reduction Plan; PORT-04-LOP65-3 Data-Driven I/I Reduction Plan.

PROJECT JUSTIFICATION

As part of HRSD's Integrated Plan, a program of High Priority RWWMP Projects (HPP) will be constructed through 2030. These projects were selected based on their ability to provide the greatest environmental and human health benefits. Further, this $200+ million investment will significantly reduce sanitary sewer overflow (SSO) volume at the 5-year level of service by 47 percent.

FUNDING TYPE

Funding Type: VCWRLF

CONTACTS

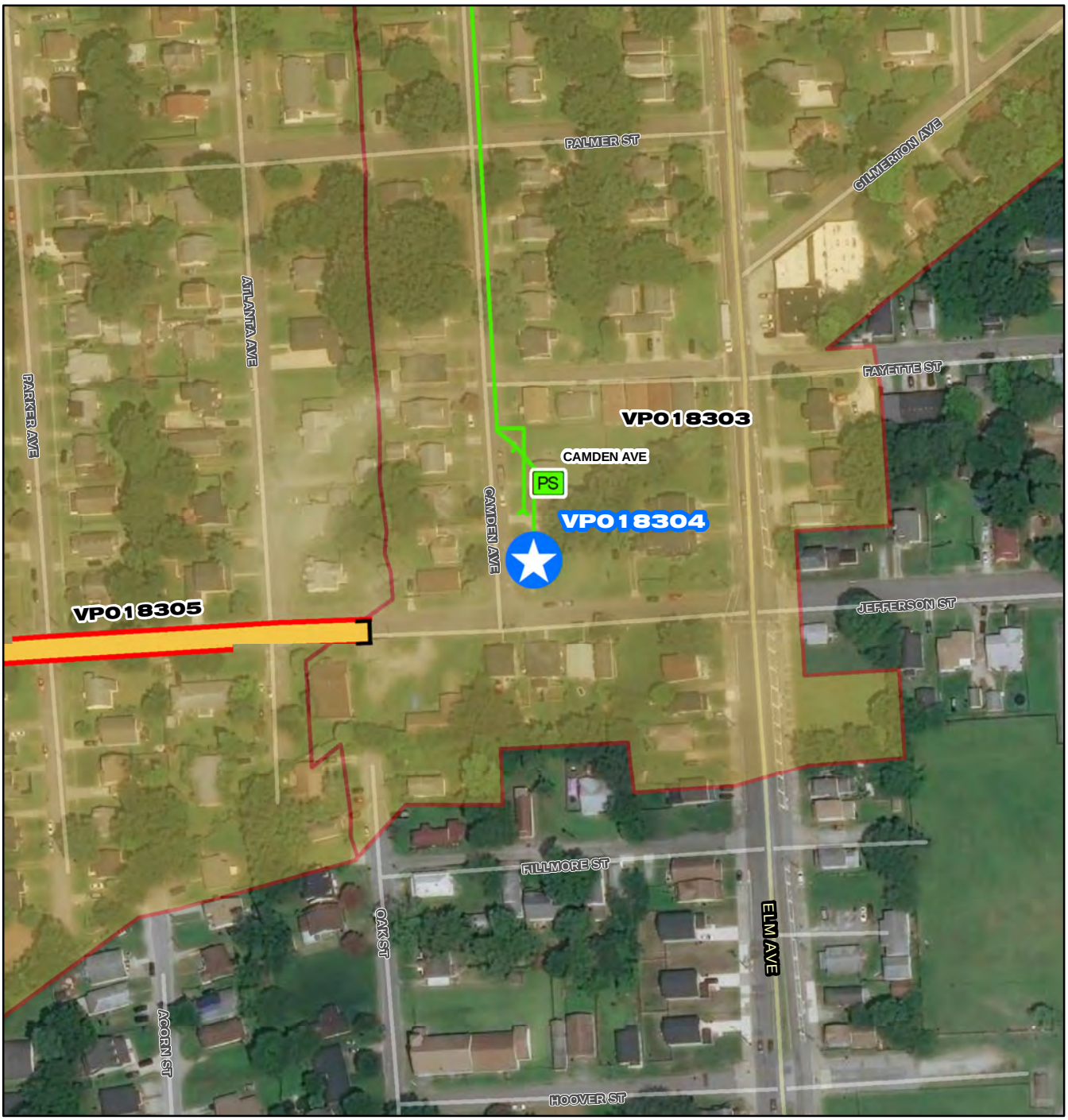
Contacts-Requesting Dept: Operations-Interceptors
Contacts-Dept Contacts: Phil Hubbard
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	01/03/2022
PER	07/01/2022
Design Delay	01/01/2024
Design	01/01/2024
Bid Delay	10/01/2024
PreConstruction	10/01/2024
Construction	01/01/2025
Closeout	07/01/2026

COST ESTIMATE

Cost Estimate Class:	**Class 5**
PrePlanning	$142,506
PER	$1,033,300
Design	$1,000,000
PreConstruction	$20,000
Construction	$10,950,020
Closeout	$20,000
Est. Program Cost	**$13,165,826**
Contingency Budget	$2,640,080
Est. Project Costs	**$15,805,906**



VP018304

- 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

N W E S

CIP Location

VP018304

Camden Avenue Pump Station Upgrades (VIP-HPP-04D)

HRSD

Camden Avenue Pump Station Upgrades (VIP-HPP-04D)

PR_VP018304

System: VIP
Type: Pump Stations

Driver Category: I&I Abatement-IP/RWWMP
Project Phase: Proposed
Regulatory: Integrated Plan-HPP 1

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
$5,916	$0	$0	$0	$0	$182	$297	$1,866	$3,572	$0	$0	$0

PROJECT DESCRIPTION

Camden Avenue Pump Station Upgrade (SS-PS-146).

PROJECT JUSTIFICATION

As part of HRSD's Integrated Plan, a program of High Priority RWWMP Projects (HPP) will be constructed through 2030. These projects were selected based on their ability to provide the greatest environmental and human health benefits. Further, this $200+ million investment will significantly reduce sanitary sewer overflow (SSO) volume at the 5-year level of service by 47 percent.

FUNDING TYPE

Funding Type: Revenue Bond

CONTACTS

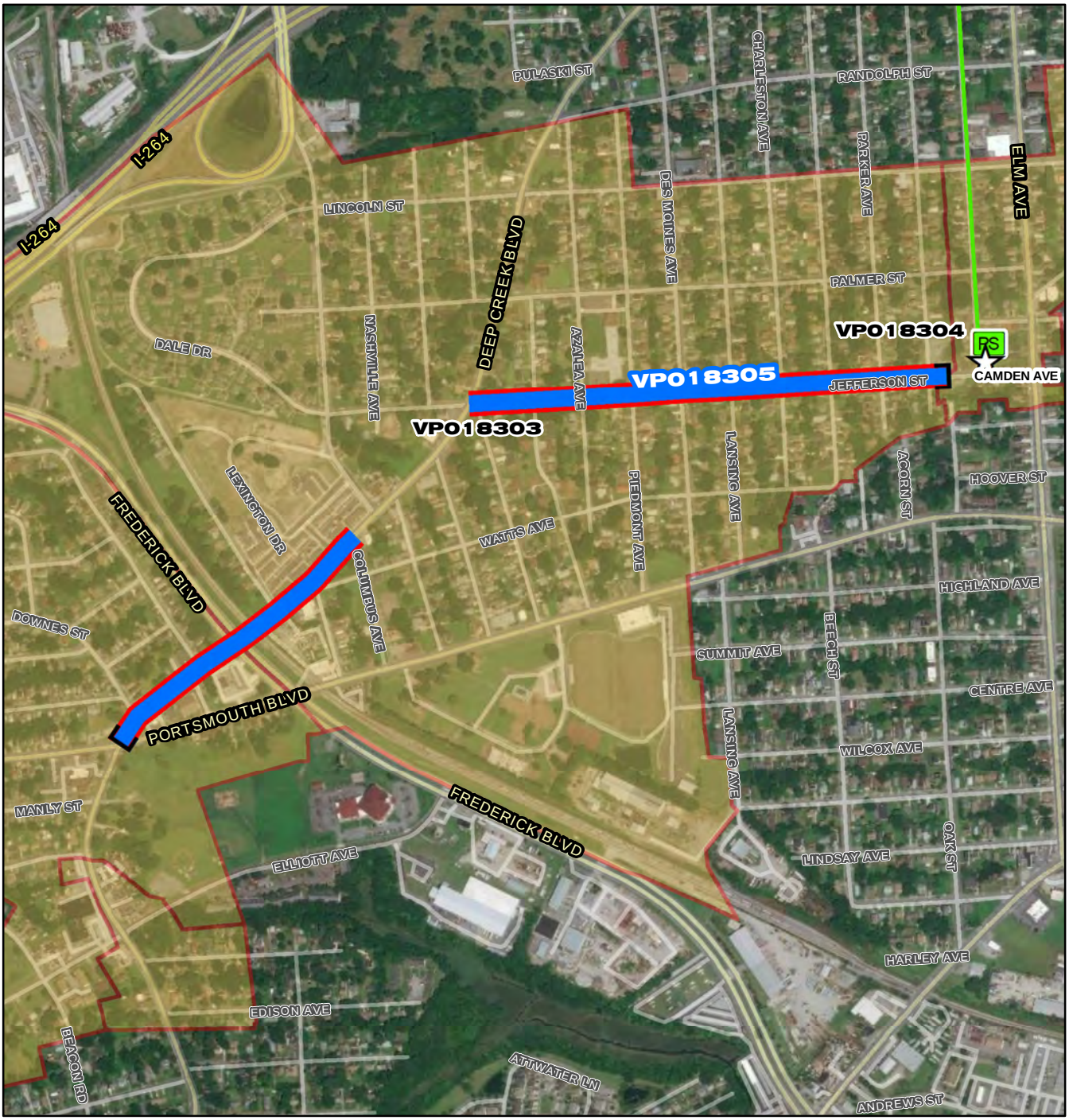
Contacts-Requesting Dept: Operations-Interceptors
Contacts-Dept Contacts: Jeff Scarano
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	09/01/2025
PER	03/01/2026
Design Delay	08/01/2026
Design	08/01/2026
Bid Delay	10/01/2027
PreConstruction	10/01/2027
Construction	01/01/2028
Closeout	07/01/2029

COST ESTIMATE

Cost Estimate Class:	**Class 5**
PrePlanning	$0
PER	$227,650
Design	$319,608
PreConstruction	$11,016
Construction	$5,358,187
Closeout	$0
Est. Program Cost	**$5,916,460**
Contingency Budget	$1,183,332
Est. Project Costs	**$7,099,793**



VP018305

- 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

0 270 540 1,080 1,620 2,160 Feet

VP018305

Camden Avenue Gravity Improvements (VIP-HPP-04E)

HRSD

N
W E
S

CIP Location

Camden Avenue Gravity Improvements (VIP-HPP-04E)

PR_VP018305

System: VIP
Type: Locality and Private Property

Driver Category: I&I Abatement-IP/RWWMP
Project Phase: Proposed
Regulatory: Integrated Plan-HPP 1

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
$6,852	$0	$0	$470	$4,666	$1,716	$0	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

Camden Avenue gravity main (GM) capacity improvements: Upgrade 1,670 linear feet (LF) of 12-inch GM to 15-inch GM; Upgrade 2,170 LF of 17-inch GM to 21-inch GM and 370 LF of 15-inch GM to 18-inch GM.

PROJECT JUSTIFICATION

As part of HRSD's Integrated Plan, a program of High Priority RWWMP Projects (HPP) will be constructed through 2030. These projects were selected based on their ability to provide the greatest environmental and human health benefits. Further, this $200+ million investment will significantly reduce sanitary sewer overflow (SSO) volume at the 5-year level of service by 47 percent.

FUNDING TYPE

Funding Type: Cash

CONTACTS

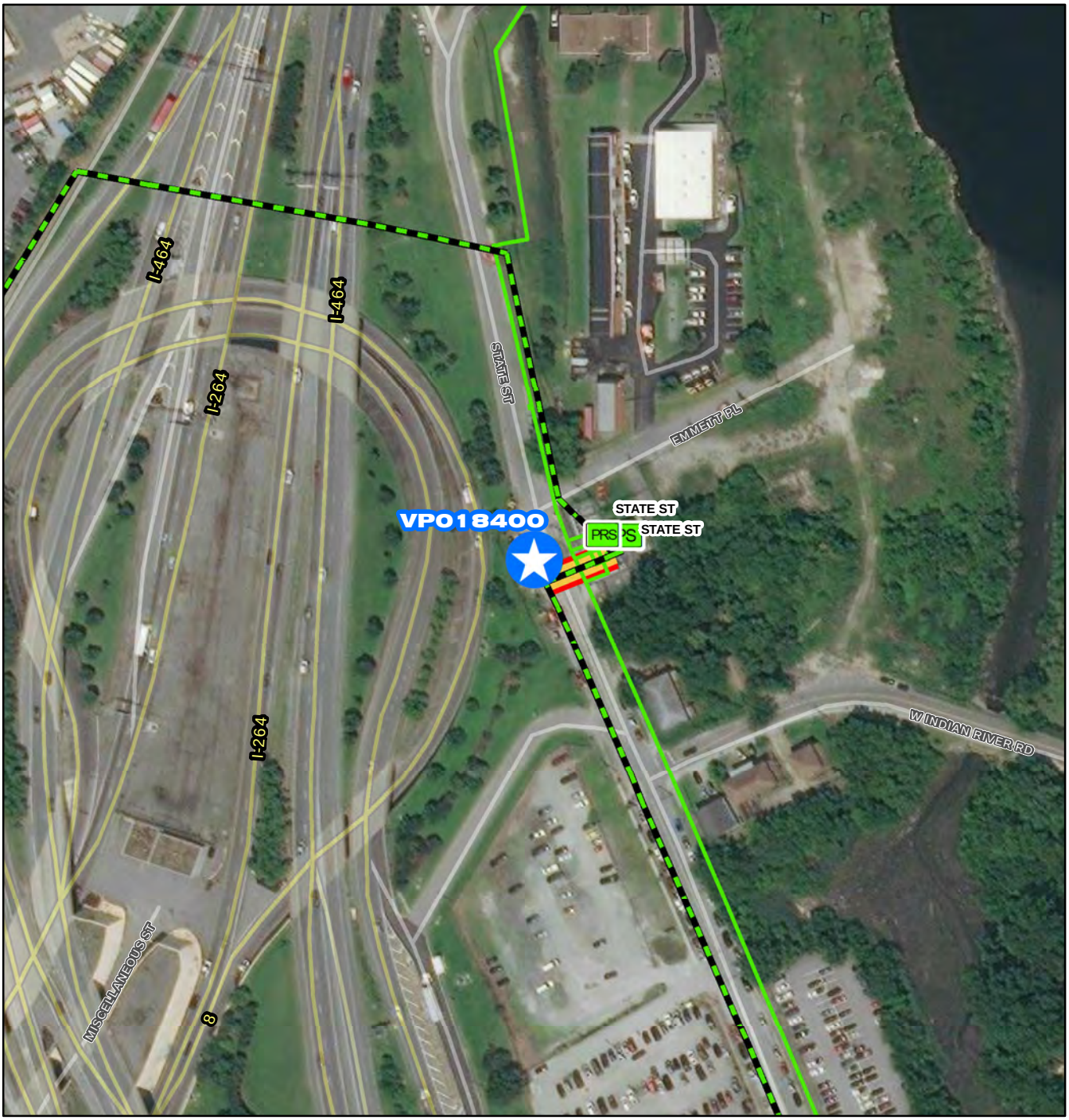
Contacts-Requesting Dept: Operations-Interceptors
Contacts-Dept Contacts: Jeff Scarano
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	07/01/2023
PER	10/01/2023
Design Delay	02/01/2024
Design	02/01/2024
Bid Delay	08/01/2024
PreConstruction	08/01/2024
Construction	11/01/2024
Closeout	10/01/2025

COST ESTIMATE

Cost Estimate Class:	**Class 5**
PrePlanning	$0
PER	$170,000
Design	$360,000
PreConstruction	$30,000
Construction	$6,292,000
Closeout	$0
Est. Program Cost	**$6,852,000**
Contingency Budget	$1,400,000
Est. Project Costs	**$8,252,000**



VP018400

- 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

VP018400

State Street Pressure Reducing Station and Offline Storage (VIP-HPP-05)

HRSD

N
W E
S

CIP Location

State Street Pressure Reducing Station and Offline Storage (VIP-HPP-05)

PR_VP018400

System: VIP
Type: Offline Storage

Driver Category: I&I Abatement-IP/RWWMP
Project Phase: Proposed
Regulatory: Integrated Plan-HPP 1

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
$20,440	$104	$249	$249	$249	$249	$614	$704	$4,481	$10,134	$3,396	$9

PROJECT DESCRIPTION

Install new Pressure Reducing Station (PRS) with 35 feet of assistance - New Location; Install new 2.3 MG storage tank.

PROJECT JUSTIFICATION

As part of HRSD's Integrated Plan, a program of High Priority RWWMP Projects (HPP) will be constructed through 2030. These projects were selected based on their ability to provide the greatest environmental and human health benefits. Further, this $200+ million investment will significantly reduce sanitary sewer overflow (SSO) volume at the 5-year level of service by 47 percent.

FUNDING TYPE

Funding Type: Revenue Bond

CONTACTS

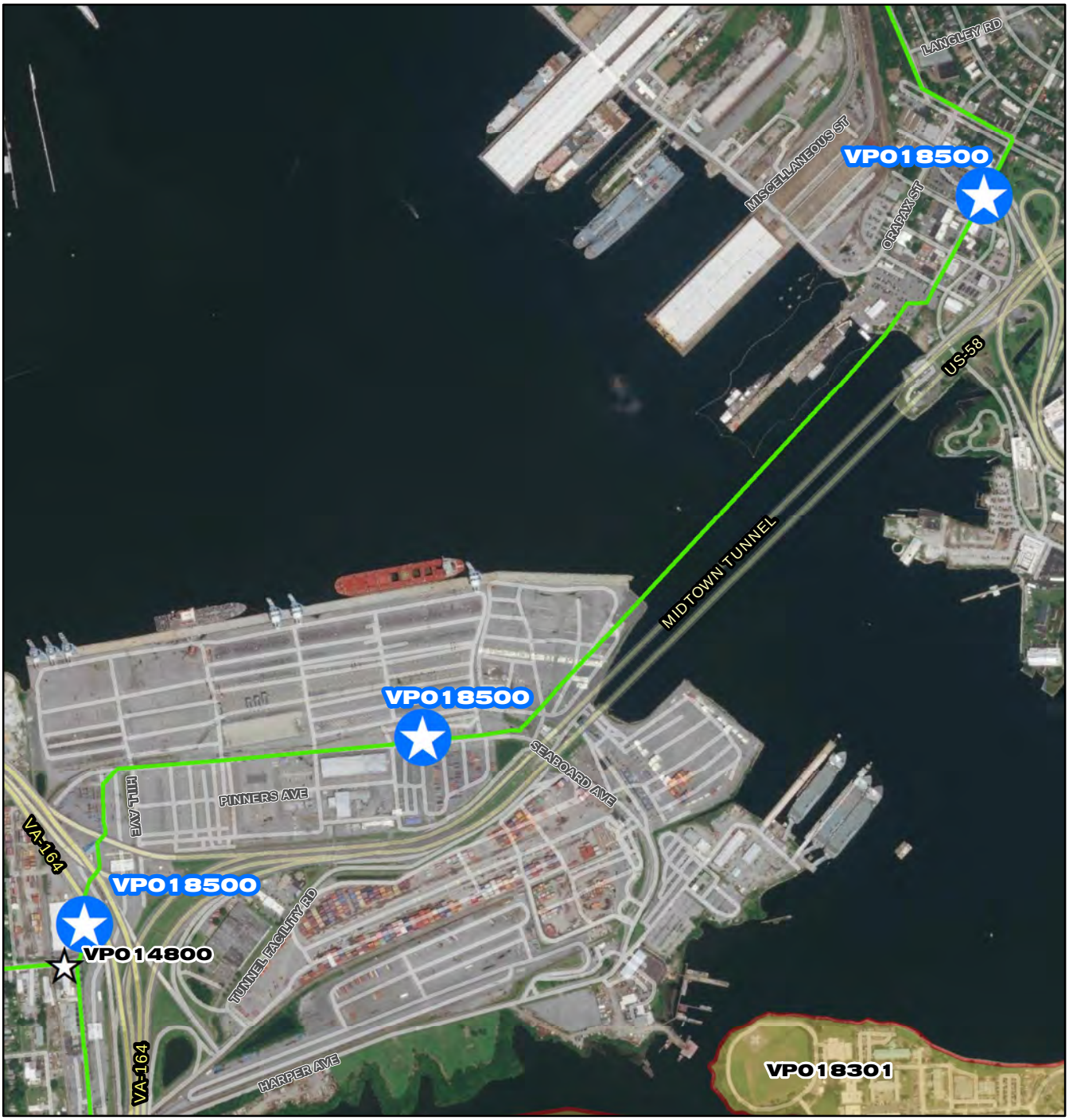
Contacts-Requesting Dept: Operations-Interceptors
Contacts-Dept Contacts: Jeff Scarano
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	01/01/2020
PER	07/01/2026
Design Delay	01/01/2027
Design	01/01/2027
Bid Delay	11/01/2028
PreConstruction	11/01/2028
Construction	02/01/2029
Closeout	11/01/2030

COST ESTIMATE

Cost Estimate Class:	
PrePlanning	$1,101,600
PER	$262,181
Design	$1,289,974
PreConstruction	$24,235
Construction	$17,734,658
Closeout	$27,540
Est. Program Cost	**$20,440,188**
Contingency Budget	$4,182,313
Est. Project Costs	**$24,622,501**



VP018500

- 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

0 380 760 1,520 2,280 3,040 Feet

N W E S

CIP Location

VP018500

Elizabeth River Crossing Reliability Improvements

HRSD

Elizabeth River Crossing Reliability Improvements

PR_VP018500

System: VIP
Type: Pipelines

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

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
$2,214	$563	$1,102	$499	$50	$0	$0	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

This project will install two metering vaults and a bypass pump connection. One metering vault will replace the failed direct bury meter at Pinners Point. The other metering vault will be located in Norfolk to provide information about the condition of the river crossing. An emergency pump connection will be installed at the Pinners Point diversion structure, and that structure will be demolished.

PROJECT JUSTIFICATION

The existing meter at Pinners Point is a direct bury style meter, making it inaccessible for maintenance. The meter is at the end of its useful life and has failed. This metering location is necessary to capture flow information from the south side of the Elizabeth River in Portsmouth, including flows from Camden, Rodman, and Elmhurst Pump Stations. The new meter location in Norfolk will provide critical, missing information on the condition of the river crossing, as currently there is not a means to identify failure of that crossing. The new emergency pump connection at the abandoned diversion structure at Pinners Point will provide a means for conveying flow in the event of a failure of the Elizabeth River crossing. At present, if the crossing fails, overflows will occur in downtown Portsmouth. This new connection provides a single point of collection for the overflow, and removes the risk to the downtown area.
The abandoned diversion structure at Pinners Point will be demolished, as it is currently a safety risk.

FUNDING TYPE

Funding Type: Revenue Bond

CONTACTS

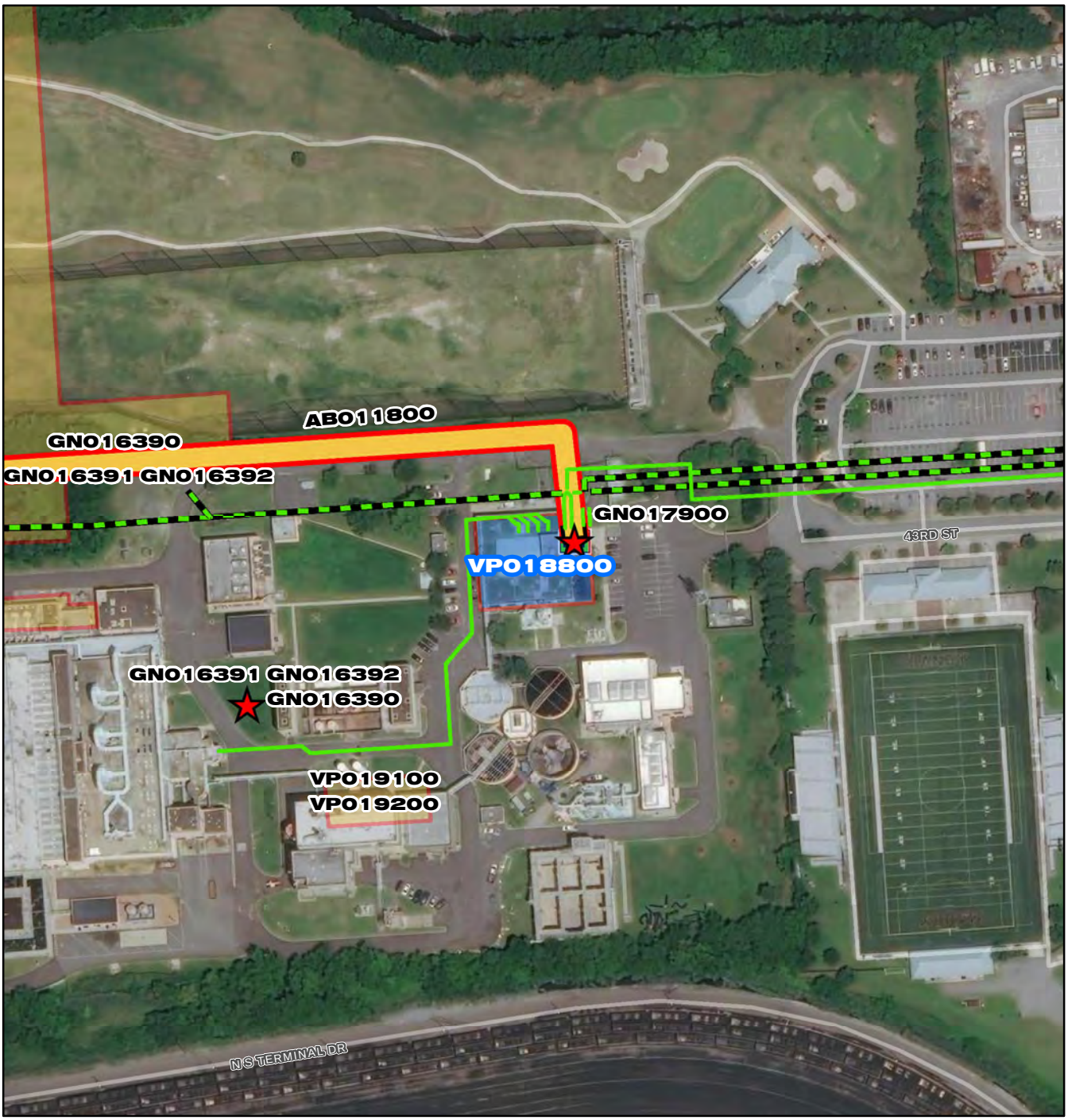
Contacts-Requesting Dept: Operations-EEM
Contacts-Dept Contacts: Phil Hubbard
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	10/07/2021
PER	09/01/2019
Design Delay	11/01/2019
Design	11/01/2019
Bid Delay	02/01/2022
PreConstruction	05/02/2022
Construction	08/03/2022
Closeout	11/01/2023

COST ESTIMATE

Cost Estimate Class:	**Class 2**
PrePlanning	$0
PER	$99,183
Design	$450,000
PreConstruction	$15,000
Construction	$1,500,000
Closeout	$150,000
Est. Program Cost	**$2,214,183**
Contingency Budget	$100,000
Est. Project Costs	**$2,314,183**



VPO18800

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

Legend

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

0 65 130 260 390 520 Feet

VPO18800

Virginia Initiative Plant Administration Building Renovation

HRSD

N
W E
S

CIP Location

Virginia Initiative Plant Administration Building Renovation

PR_VP018800

System: VIP
Type: Facilities, Buildings and Capital Equipment

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

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
$3,502	$324	$1,880	$1,281	$17	$0	$0	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

This project is to renovate the existing 1990 and 1974 administration areas.

PROJECT JUSTIFICATION

This project will provide additional administration offices, lunch room, conference room, bathrooms and unisex bathrooms for Solids Treatment and Solids Handling.

FUNDING TYPE

Funding Type: Revenue Bond

CONTACTS

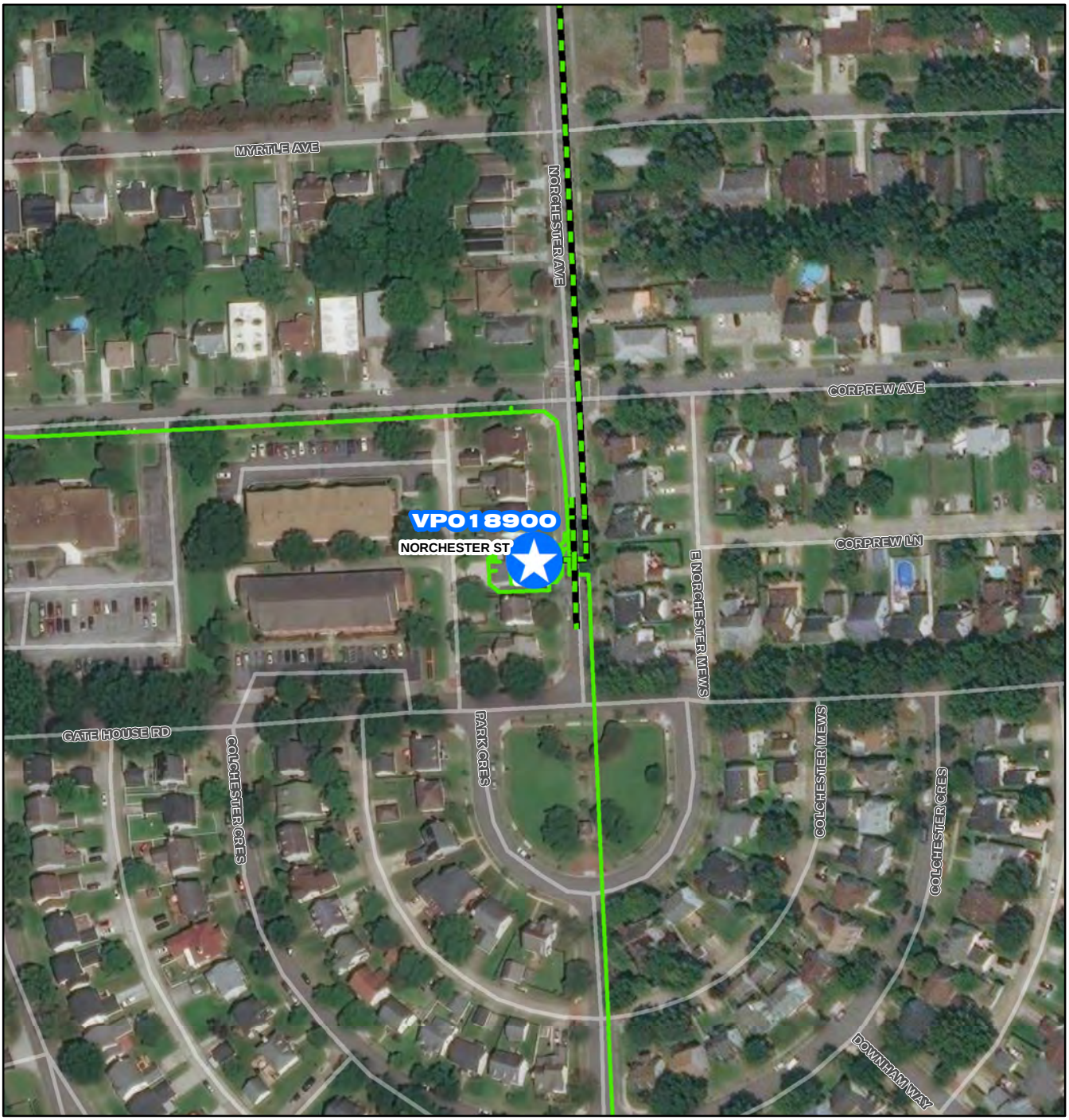
Contacts-Requesting Dept: Operations-Treatment
Contacts-Dept Contacts: Tim Marsh
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	07/01/2020
PER	02/01/2021
Design Delay	03/01/2022
Design	03/01/2022
Bid Delay	09/01/2022
PreConstruction	09/01/2022
Construction	12/01/2022
Closeout	12/01/2023

COST ESTIMATE

Cost Estimate Class:	
PrePlanning	$0
PER	$127,273
Design	$295,051
PreConstruction	$20,000
Construction	$3,019,246
Closeout	$40,000
Est. Program Cost	**$3,501,570**
Contingency Budget	$700,314
Est. Project Costs	**$4,201,884**



VP018900

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

N
W E
S

CIP Location

VP018900

Norchester Pump Station Screening Improvements

HRSD

Norchester Pump Station Screening Improvements

PR_VP018900

System: VIP
Type: Pump Stations

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

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
$507	$90	$326	$90	$1	$0	$0	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

This project will upgrade the screening equipment at the Norchester Pump Station.

PROJECT JUSTIFICATION

The existing Norchester Pump Station has an inline grinder that failed after only 3 years of service. Failure of the grinder appeared to be due to a heavy sand load in the influent stream that wore down the teeth and the bearings of the grinder cassette. However, the body of the grinder also showed very heavy metal corrosion due to high levels of hydrogen sulfide in the wet well. As a result, an evaluation of all screening technologies was performed to ensure a longer life expectancy and more reliable operation of the upgraded equipment. This project will design and construct the screening upgrades at this station.

FUNDING TYPE

Funding Type: Revenue Bond

CONTACTS

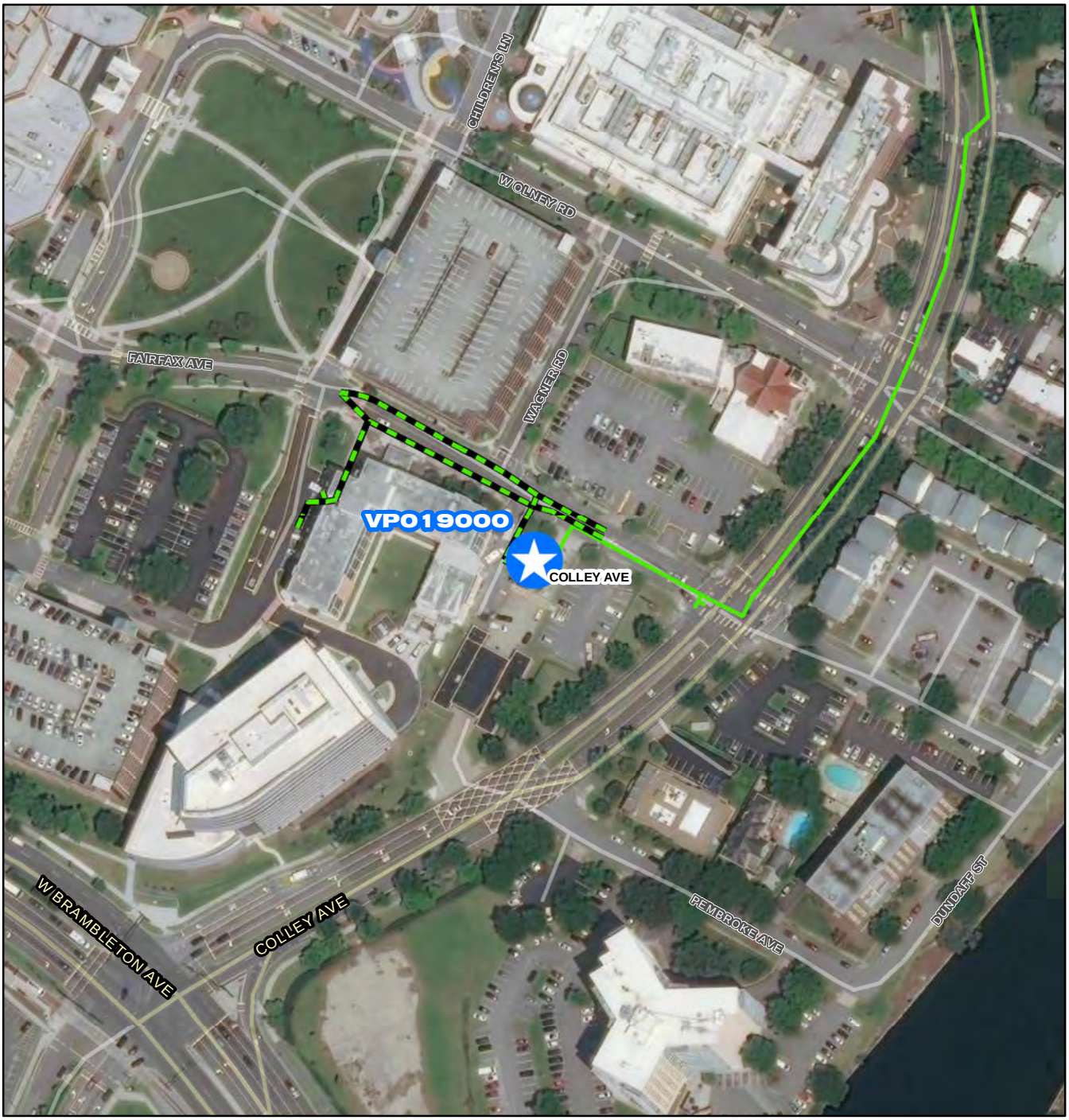
Contacts-Requesting Dept: Operations-Interceptors
Contacts-Dept Contacts: Jeff Scarano
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	07/01/2021
PER	10/01/2021
Design Delay	04/01/2022
Design	04/01/2022
Bid Delay	08/01/2022
PreConstruction	08/01/2022
Construction	12/01/2022
Closeout	09/01/2023

COST ESTIMATE

Cost Estimate Class:	
PrePlanning	$0
PER	$27,540
Design	$82,620
PreConstruction	$5,508
Construction	$385,560
Closeout	$5,508
Est. Program Cost	**$506,736**
Contingency Budget	$110,160
Est. Project Costs	**$616,896**



VP019000

- 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

VP019000

Colley Ave Pump Station Pump Replacement

HRSD

N
W E
S

CIP Location

Colley Avenue Pump Station Pump Replacement

PR_VP019000

System: VIP
Type: Pump Stations

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

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
$766	$73	$316	$372	$5	$0	$0	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

This project will replace the existing extended shaft pumps at Colley Avenue Pump Station with new constant speed dry pit submersible pumps. Architectural updates will also be made to help the station blend with the surrounding area.

PROJECT JUSTIFICATION

The existing pumps at the Colley Avenue Pump Station were installed circa 1970. Two of the three pumps are Allis-Chalmers pumps, which are no longer manufactured, making spare parts very difficult to find. A recent drawdown test performed in June 2020 showed that the two smaller pumps are operating at 70% of their original hydraulic capacity, and the large pump is operating at approximately 45% of its capacity. In addition, the smaller pumps are undersized for wet weather head conditions, forcing the third pump to be used as both the lead and wet weather pump. As a result, a 6-inch emergency bypass pump has been installed at the station to provide additional wet weather pumping capacity. Due to the loss of hydraulic efficiency and their age, these pumps cost approximately $10,000 per year more in power, labor and maintenance costs than properly sized new pumps. In addition, replacing the pumps would allow the Godwin pump to be removed, improving the aesthetics of the station, and allowing this pump to be used elsewhere in the system.

FUNDING TYPE

Funding Type: Revenue Bond

CONTACTS

Contacts-Requesting Dept: Operations-Interceptors
Contacts-Dept Contacts: Jeff Scarano
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	04/01/2021
PER	07/01/2021
Design Delay	05/01/2022
Design	05/01/2022
Bid Delay	11/01/2022
PreConstruction	11/01/2022
Construction	03/01/2023
Closeout	01/01/2024

COST ESTIMATE

Cost Estimate Class:	**Class 5**
PrePlanning	$0
PER	$39,588
Design	$100,000
PreConstruction	$5,400
Construction	$610,200
Closeout	$10,800
Est. Program Cost	**$765,988**
Contingency Budget	$168,000
Est. Project Costs	**$933,988**

VP019100

- 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

VP019100

Virginia Initiative Plant Incinerator Burner Replacement

HRSD

N
W E
S

CIP Location

Virginia Initiative Plant Incinerator Burner Replacement

PR_VP019100

System: VIP
Type: Biosolids

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

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
$4,441	$0	$2,961	$1,480	$0	$0	$0	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

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

PROJECT JUSTIFICATION

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

FUNDING TYPE

Funding Type: Revenue Bond

CONTACTS

Contacts-Requesting Dept: Operations-Treatment
Contacts-Dept Contacts: Sami Ghosn
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	
PER	07/01/2021
Design Delay	07/01/2021
Design	07/01/2021
Bid Delay	07/01/2021
PreConstruction	06/01/2022
Construction	11/01/2022
Closeout	11/01/2023

COST ESTIMATE

Cost Estimate Class:	
PrePlanning	$0
PER	$0
Design	$0
PreConstruction	$0
Construction	$4,441,000
Closeout	$0
Est. Program Cost	**$4,441,000**
Contingency Budget	$888,200
Est. Project Costs	**$5,329,200**

VP01 9200

- 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 85 170 340 510 680 Feet

VP01 9200

Virginia Initiative Plant Motor Control Center Replacements

HRSD

N
W E
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CIP Location

Virginia Initiative Plant Motor Control Center Replacements

PR_VP019200

System: VIP
Type: Electrical

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

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
$2,025	$551	$1,040	$433	$0	$0	$0	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

This project is to design and replace five (5) Motor Control Centers (MCC) and a Main Distribution Panel located in the Incinerator Building at Virginia Initiative Plant (VIP) installed in the 1970's. This project will also replace a 1980's vintage MCC located in the Blower Building. Both MCC's have reached the end of their useful life.

PROJECT JUSTIFICATION

During an annual thermographic inspection signs of bus deterioration and heat anomalies were discovered. The MCC's are critical to plant operations. The five MCC's in the incinerator building supply power to the furnace, ID fan, Centrifuges, and Building Services. The MCC located in the Blower Building supplies power to the Blowers, Primary Clarifiers, Grit Tanks, and Chemical Building. This project will increase plant process reliability and improve employee safety by reducing the likelihood of an arc flash event.

FUNDING TYPE

Funding Type: Revenue Bond

CONTACTS

Contacts-Requesting Dept: Operations-Treatment
Contacts-Dept Contacts: Sherman Pressey
Contacts-Managing Dept: Operations-EEM

PROPOSED SCHEDULE START DATE

PrePlanning	
PER	07/01/2021
Design Delay	07/01/2021
Design	07/01/2021
Bid Delay	05/02/2022
PreConstruction	05/02/2022
Construction	05/09/2022
Closeout	12/01/2023

COST ESTIMATE

Cost Estimate Class:	
PrePlanning	$0
PER	$0
Design	$378,000
PreConstruction	$0
Construction	$1,647,000
Closeout	$0
Est. Program Cost	**$2,025,000**
Contingency Budget	$329,400
Est. Project Costs	**$2,354,400**

High Priority Projects Round 2 Project 4

PR_VP019300

System: VIP
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	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
$1,471	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,471

PROJECT DESCRIPTION

High Priority Project (HPP) Round 2 Project 4 consists of the following Regional Wet Weather Management Plan (RWWMP) Project ID and general description:
VIP-RWWMP-41 Norfolk I/I Reduction

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). The initial HPPs (Round 1) were identified in the RWWMP, submitted to EPA in September of 2017, and are scheduled to be constructed between plan approval and 2030. Further review of RWWMP projects was conducted in 2019 to find beneficial solutions to implement as a second set of HPPs (identified as Round 2). A prioritization methodology was used to identify improvements to minimize sanitary sewer overflow (SSO) volume.
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: Cash

CONTACTS

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

PROPOSED SCHEDULE START DATE

PrePlanning	07/01/2031
PER	07/29/2031
Design Delay	09/17/2031
Design	05/26/2032
Bid Delay	08/27/2032
PreConstruction	05/06/2033
Construction	06/16/2033
Closeout	04/13/2034

COST ESTIMATE

Cost Estimate Class:	
PrePlanning	$267,408
PER	$668,520
Design	$802,224
PreConstruction	$133,704
Construction	$11,364,840
Closeout	$133,704
Est. Program Cost	**$13,370,400**
Contingency Budget	$0
Est. Project Costs	**$13,370,400**

High Priority Projects Round 2 Project 5

PR_VP019400

System: VIP
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	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

High Priority Project (HPP) Round 2 Project 5 consists of the following Regional Wet Weather Management Plan (RWWMP) Project IDs and general descriptions:
VIP-RWWMP-12 May Avenue Storage Tank
VIP-RWWMP-14 Norfolk City System Improvements
VIP-RWWMP-13 Willoughby Avenue Pump Station Upgrade

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). The initial HPPs (Round 1) were identified in the RWWMP, submitted to EPA in September of 2017, and are scheduled to be constructed between plan approval and 2030. Further review of RWWMP projects was conducted in 2019 to find beneficial solutions to implement as a second set of HPPs (identified as Round 2). A prioritization methodology was used to identify improvements to minimize sanitary sewer overflow (SSO) volume.
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	07/01/2033
PER	07/29/2033
Design Delay	09/19/2033
Design	05/29/2034
Bid Delay	08/30/2034
PreConstruction	05/09/2035
Construction	06/19/2035
Closeout	04/15/2036

COST ESTIMATE

Cost Estimate Class:	
PrePlanning	$322,704
PER	$806,760
Design	$968,112
PreConstruction	$161,352
Construction	$13,714,920
Closeout	$161,352
Est. Program Cost	**$16,135,200**
Contingency Budget	$0
Est. Project Costs	**$16,135,200**

VP01 9600

- 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 62.5 125 250 375 500 Feet

VP01 9600

Virginia Initiative Plant Waste Activated Solids Thickening Improvements

HRSD

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W E
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CIP Location

Virginia Initiative Plant Waste Activated Solids Thickening Improvements

PR_VP019600

System: VIP
Type: Biosolids

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

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
$2,800	$0	$0	$56	$692	$1,172	$881	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

This project will install an existing HRSD-owned centrifuge (Sharples PM76000) in the existing Waste Activated Solids (WAS) Thickening Building at Virginia Initiative Plant (VIP) and provide necessary electrical, control, and mechanical improvements to make the system operable. The PM76000 is currently installed at the Chesapeake-Elizabeth Treatment Plant (CETP; no longer in use) and was initially purchased by HRSD and installed at VIP in 1987 and subsequently relocated to CETP. The VIP centrifuge thickening building is currently configured for 3 x PM76000 thickening centrifuges and, as such, significant core building modification is not anticipated within this project. This project is a component of the existing Treatment Plant Dewatering Program.

PROJECT JUSTIFICATION

Wastage of Activated Sludge from the VIP Biological Nutrient Removal (BNR) process is intermittently hydraulically limited by the capacity of dewatering centrifuges and centrate management systems. This project will un-bottleneck the treatment process and allow on-demand wastage of solids from the BNR process, which will improve treatment performance at VIP and stabilize solids handling operations, including centrifuge dewatering and incineration. This improvement will also help VIP to better accommodate hauled liquid primary solids from Army Base Treatment Plant (ABTP) by reducing the overall hydraulic load on the VIP dewatering centrifuges. NOTE: Though CETP assets have not been evaluated for remaining condition and remaining useful life, similar centrifuges installed slightly more recently have currently estimated replacement dates in the late 2030s. It is expected that the PM76000 has greater than 10 years of service life remaining.

FUNDING TYPE

Funding Type: Revenue Bond

CONTACTS

Contacts-Requesting Dept: Operations
Contacts-Dept Contacts: Christopher Wilson
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	
PER	03/01/2024
Design Delay	08/01/2024
Design	08/01/2024
Bid Delay	02/01/2025
PreConstruction	02/01/2025
Construction	04/01/2025
Closeout	04/01/2027

COST ESTIMATE

Cost Estimate Class:	**Class 5**
PrePlanning	$0
PER	$70,000
Design	$350,000
PreConstruction	$35,000
Construction	$2,343,000
Closeout	$2,000
Est. Program Cost	**$2,800,000**
Contingency Budget	$700,000
Est. Project Costs	**$3,500,000**