James River Treatment Plant

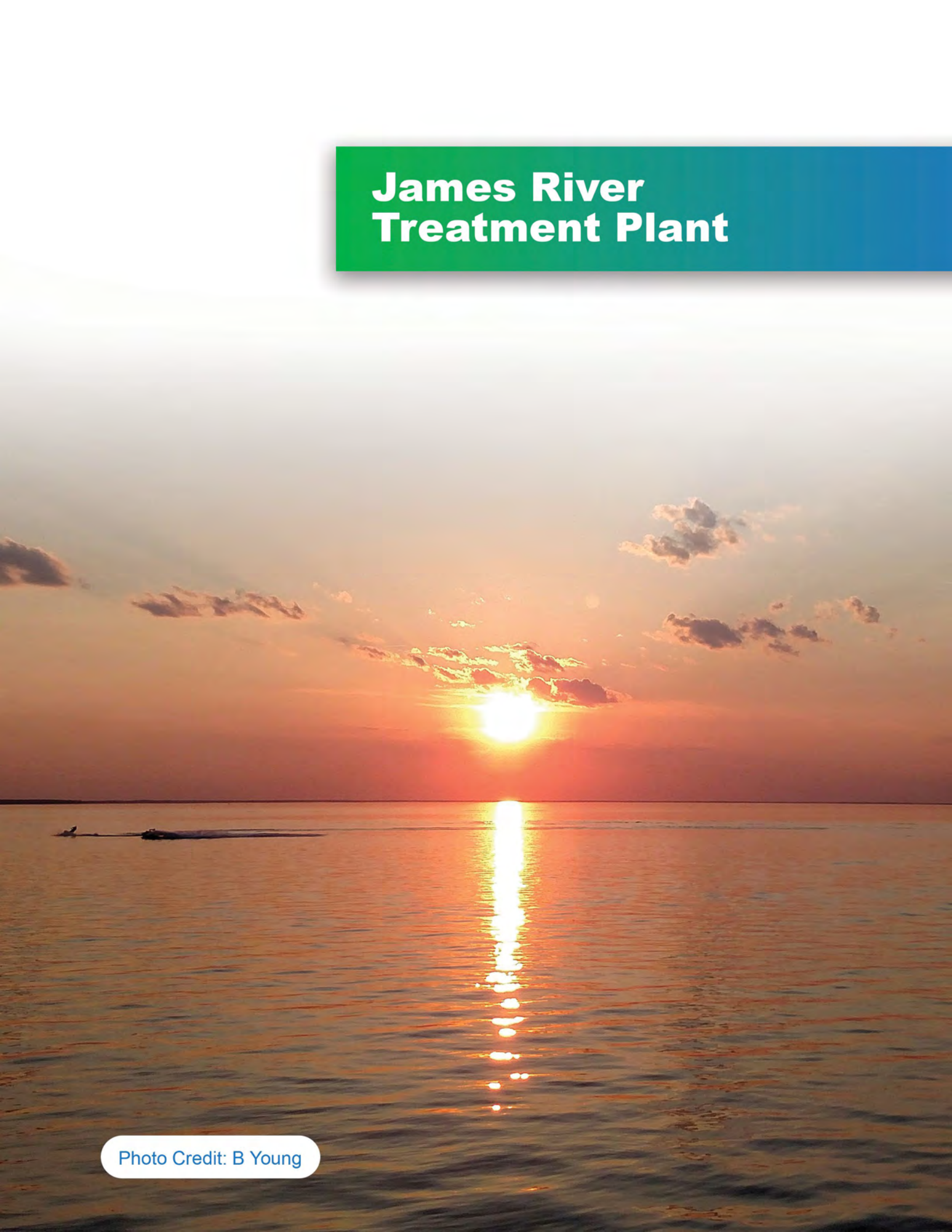
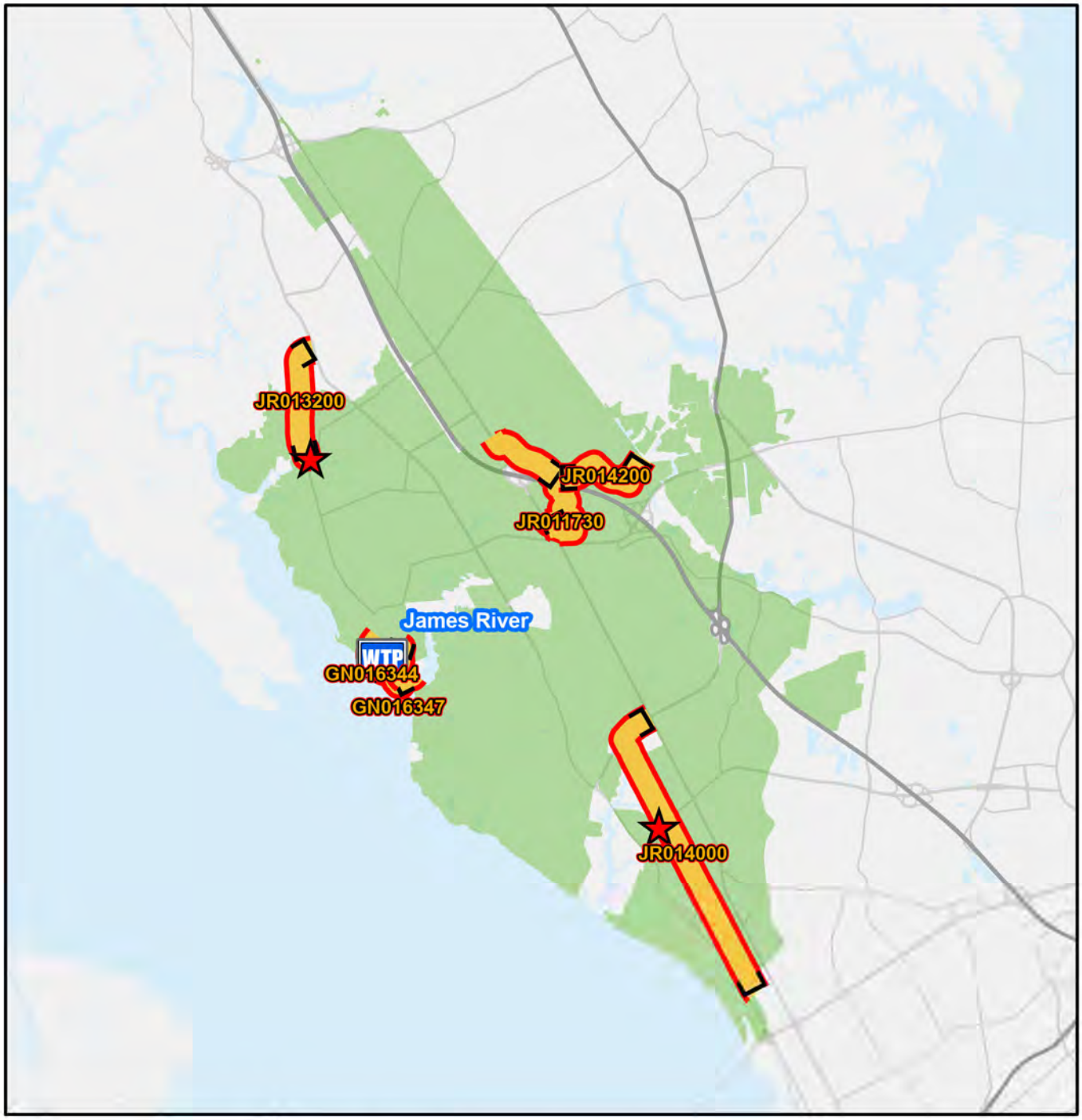


Photo Credit: B Young



Legend

- James River Treatment Plant Point TP
- 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

James River Treatment Plant Service Area CIP Projects

Treatment Plant Projects

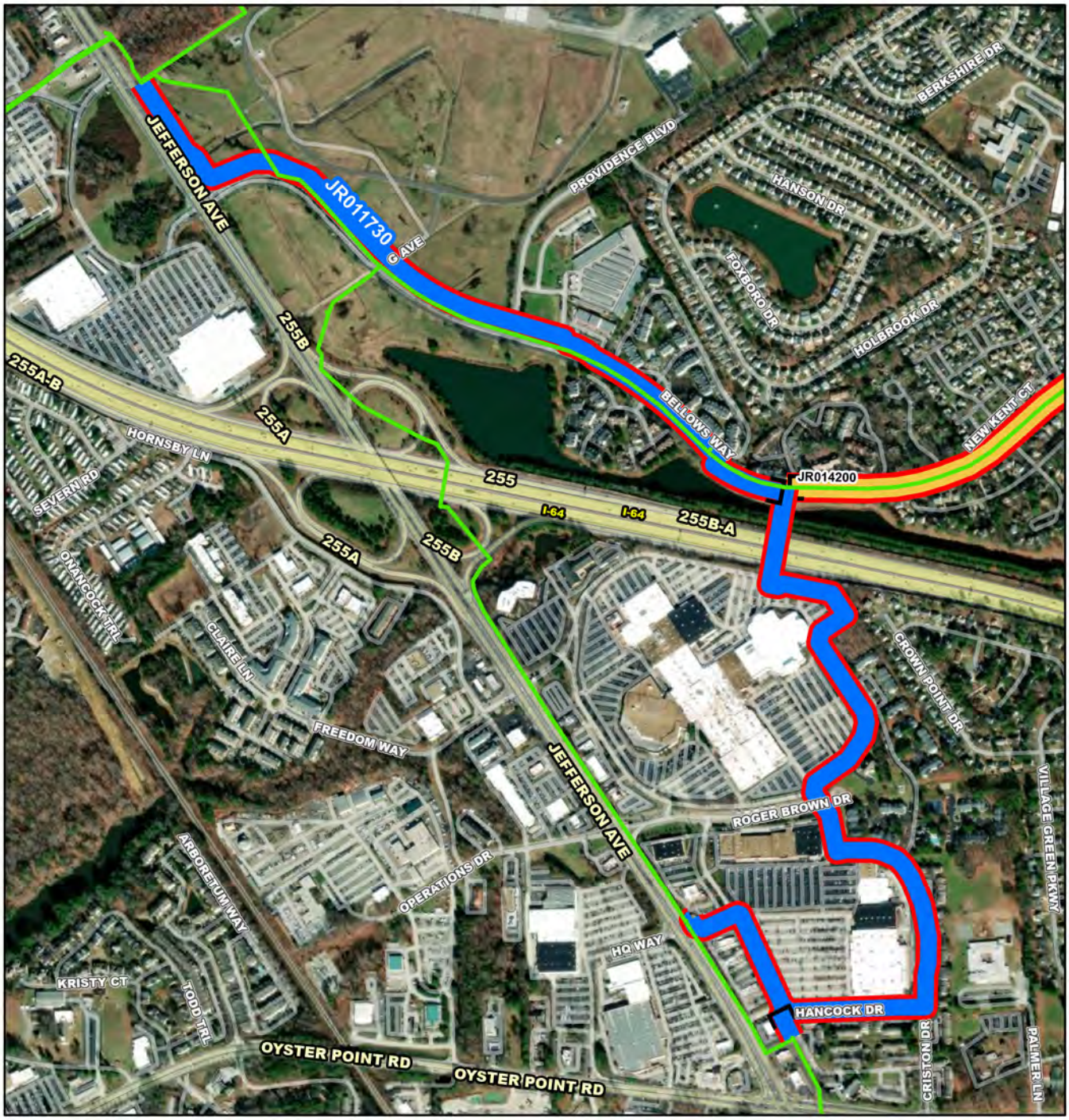
GN016344	GN016700	JR013700
GN016347	GN017400	JR014100
GN016360	JR013400	JR014400
GN016362	JR013410	JR014410
GN016363	JR013610	JR014500

HRSD

N

CIP Location

Service Area



JR011730

- 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

0 335 670 1,340 2,010 2,680 Feet

N W E S

CIP Location

JR011730

Jefferson Avenue Interceptor Force Main Replacement Phase III

HRSD

Jefferson Avenue Interceptor Force Main Replacement Phase III

PR_JR011730

System: James River
Type: Pipelines

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

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
$20,371	$16,408	$3,962	$2	$0	$0	$0	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

This project will replace approximately 9,000 linear feet (LF) of 12-inch, 14-inch and 16-inch HRSD force main (FM) (NF-020 and NF-021) from the intersection of Route 171 (Oyster Point Road) and Jefferson Avenue to the proposed Patrick Henry jumper. The proposed force main sizing (30-inch) was performed during the City Center HART Analysis.

PROJECT JUSTIFICATION

Preliminary hydraulic and capacity analysis show that pressures in the HRSD FM are hindering the City of Newport News' pump stations from entering the HRSD system during high flow conditions. Future development is planned for the service area, which will exacerbate the current problem. This FM segment will also provide additional capacity and system flexibility when combined with other proposed improvements.

FUNDING TYPE

Funding Type: VCWRLF

CONTACTS

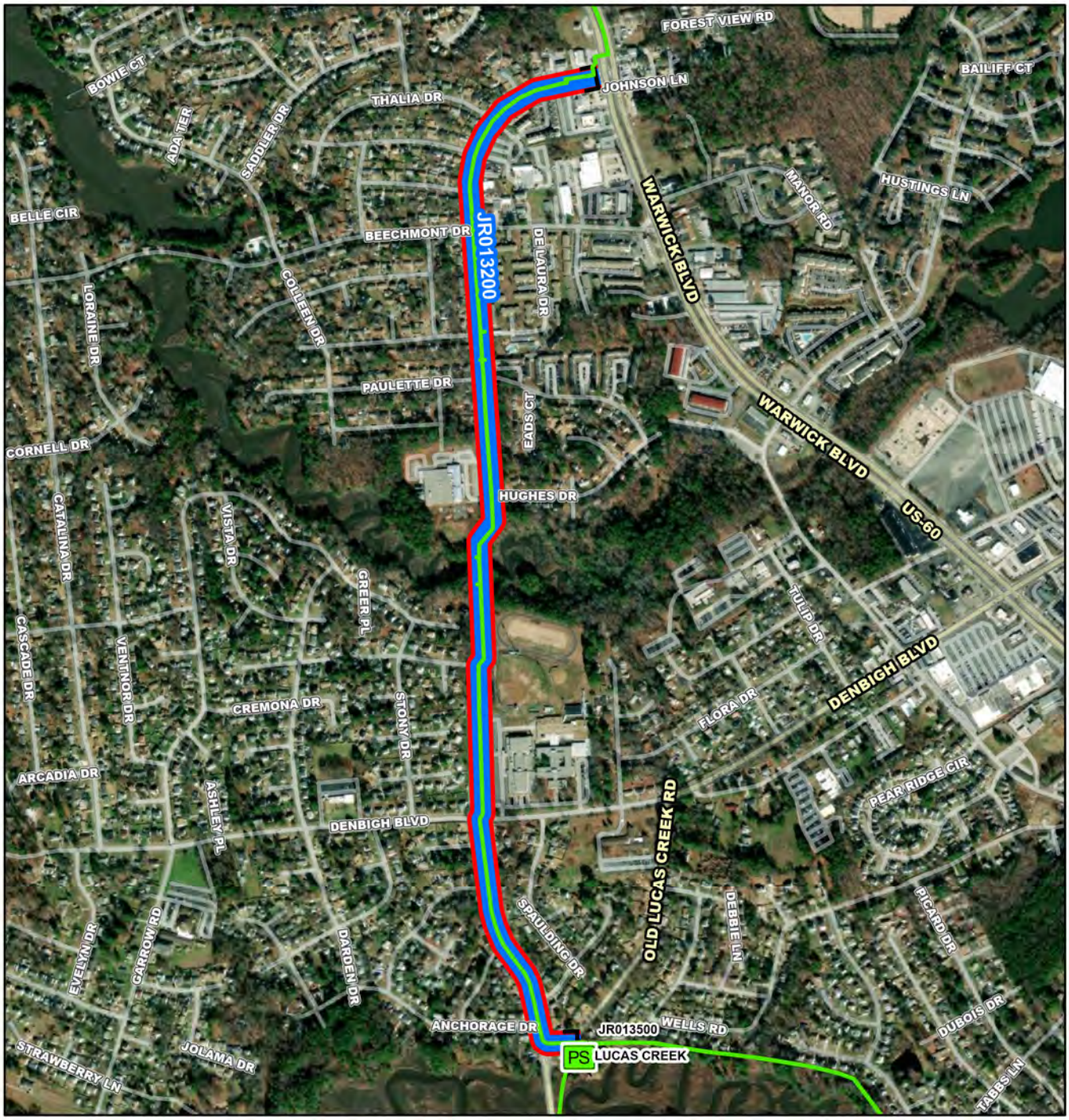
Contacts-Requesting Dept: Operations-Interceptors
Contacts-Dept Contacts: Ted Denny
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	02/01/2018
PER	03/01/2018
Design Delay	04/20/2018
Design	03/01/2019
Bid Delay	07/14/2022
PreConstruction	07/14/2022
Construction	09/13/2022
Closeout	11/01/2023

COST ESTIMATE

Cost Estimate Class:	**Class 1**
PrePlanning	$54,528
PER	$145,077
Design	$2,691,457
PreConstruction	$21,675
Construction	$17,448,054
Closeout	$10,000
Est. Program Cost	**$20,370,791**
Contingency Budget	$1,700,000
Est. Project Costs	**$22,070,791**



JR013200

- 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

0 355 710 1,420 2,130 2,840 Feet

N W E S

CIP Location

JR013200

Lucas Creek-Woodhaven Interceptor Force Main Replacement Phase II

HRSD

Lucas Creek-Woodhaven Interceptor Force Main Replacement Phase II

PR_JR013200

System: James River
Type: Pipelines

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

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
$3,828	$3,327	$500	$0	$0	$0	$0	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

This project involves the replacement of approximately 1,500 linear feet (LF) of Ductile Iron (DI) pipe between Denbigh High School and Epes Elementary School. This section of pipe will be replaced with a 30-inch Horizontal Directional Drilled Polyethylene pipe underneath Stony Run.

PROJECT JUSTIFICATION

In 2014, two failures occurred on the Lucas Creek-Woodhaven Interceptor Force Main (NF-015) just south of Woodhaven Road within a 6 month period. These failures shared the same characteristics as the previous failures on the Prestressed Concrete Cylinder Pipe (PCCP) force main in 2007 that required the replacement of approximately 2 miles of HRSD force main. After the first failure (April 2014), several Broadband Electromagnetic (BEM) scans and Ultrasonic Thickness (UST) tests were performed along the force main from Woodhaven Road to Lucas Creek Road along Warwick Boulevard. The BEM and UST testing confirmed a loss of wall thickness along the bottom third of the pipe. pH sampling along NF-008 and NF-015 resulted in values ranging from 4.4-6.1. Due to the condition of the pipe immediately downstream of the repairs, a Prompt Repair Work Order has been issued for the replacement of approximately 1,200 LF of pipe from the intersection of Woodhaven Road and Warwick Boulevard to just north of the intersection of Thorncliff Drive and Warwick Boulevard. While no condition assessment has been performed along this section of force main from Warwick Boulevard and Lucas Creek Road to the Lucas Creek Pump Station (PS), it is anticipated that a loss of wall thickness has occurred along the bottom of the pipe. Additional condition assessment activities may be performed based on actual pipe condition obtained from the Prompt Repair work and the work to complete Phase I. This 1,500 LF of pipe to be replaced represents the most difficult section of forcemain to access and repair from Lucas Creek-Woodhaven Interceptor Force Main Replacement Phase I (JR013100) to Lucas Creek Pump Station. This portion of 1970 DI pipe lies between Denbigh High School and Epes Elementary School. This pipeline is installed under a salt marsh which, based on past experiences, is also at risk of severe external corrosion.

FUNDING TYPE

Funding Type: Revenue Bond

CONTACTS

Contacts-Requesting Dept: Operations-Interceptors
Contacts-Dept Contacts: Beatriz Patino
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	04/01/2019
PER	11/04/2019
Design Delay	11/09/2020
Design	01/27/2021
Bid Delay	09/29/2022
PreConstruction	09/29/2022
Construction	05/01/2023
Closeout	07/19/2024

COST ESTIMATE

Cost Estimate Class:	**Class 1**
PrePlanning	$802
PER	$99,835
Design	$196,182
PreConstruction	$19,875
Construction	$3,505,892
Closeout	$5,000
Est. Program Cost	**$3,827,586**
Contingency Budget	$360,000
Est. Project Costs	**$4,187,586**

JR013400

- 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 45 90 180 270 360 Feet

N
W E
S

CIP Location

JR013400

James River Treatment Plant Advanced Nutrient Reduction Improvements

HRSD

James River Treatment Plant Advanced Nutrient Reduction Improvements

PR_JR013400

System: James River
Type: SWIFT

Driver Category: Performance Upgrades
Project Phase: Construction
Regulatory: Integrated Plan-SWIFT

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
$251,953	$129,597	$54,546	$48,716	$19,094	$0	$0	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

This project is for the design and construction of improvements to the secondary treatment process at the James River Treatment Plant. The scope includes modifications to the Integrated Fixed Film Activated Sludge (IFAS) system, increased IFAS media fill, demolition of existing secondary clarifiers, new secondary clarifiers, new post denitrification moving bed bio-reactor (MBBR), chemical storage and feed systems, and all pumping, piping, instrumentation, and site work required. A new multi-purpose administration building will be constructed as part of this project.

PROJECT JUSTIFICATION

Advanced secondary treatment improvements, including nutrient reduction measures, will be required to provide stable source water quality that meets the influent requirements of the full scale SWIFT facility at James River Treatment Plant.

FUNDING TYPE

Funding Type: WIFIA

CONTACTS

Contacts-Requesting Dept: Operations-Treatment
Contacts-Dept Contacts: Efram Fuller
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	08/01/2019
PER	07/01/2019
Design Delay	04/30/2020
Design	04/24/2020
Bid Delay	07/31/2020
PreConstruction	08/02/2019
Construction	02/07/2022
Closeout	01/01/2027

COST ESTIMATE

Cost Estimate Class:	**Class 1**
PrePlanning	$331,684
PER	$2,422,809
Design	$15,839,386
PreConstruction	$66,878
Construction	$233,292,409
Closeout	$0
Est. Program Cost	**$251,953,167**
Contingency Budget	$6,566,654
Est. Project Costs	**$258,519,821**

James River Treatment Plant MIFAS Conversion
Emergency

PR_JR013401

System: James River
Type: Wastewater Treatment

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

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
$6,095	$5,023	$715	$357	$0	$0	$0	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

This project will modify IFAS basins 1,2,3,4,6,7,9 (7 tanks) by adding a second anoxic zone to achieve partial denitrification-annamox (PdNA). The installation in each tank should be identical to the demonstration tank (tank 5).

PROJECT JUSTIFICATION

PdNA MIFAS (moving media integrated fixed-film activated sludge) provides considerable operational cost savings, but more importantly, this is needed to meet nitrogen limits in the future for James River SWIFT and to meet new total nitrogen discharge requirements.

FUNDING TYPE

Funding Type: Cash

CONTACTS

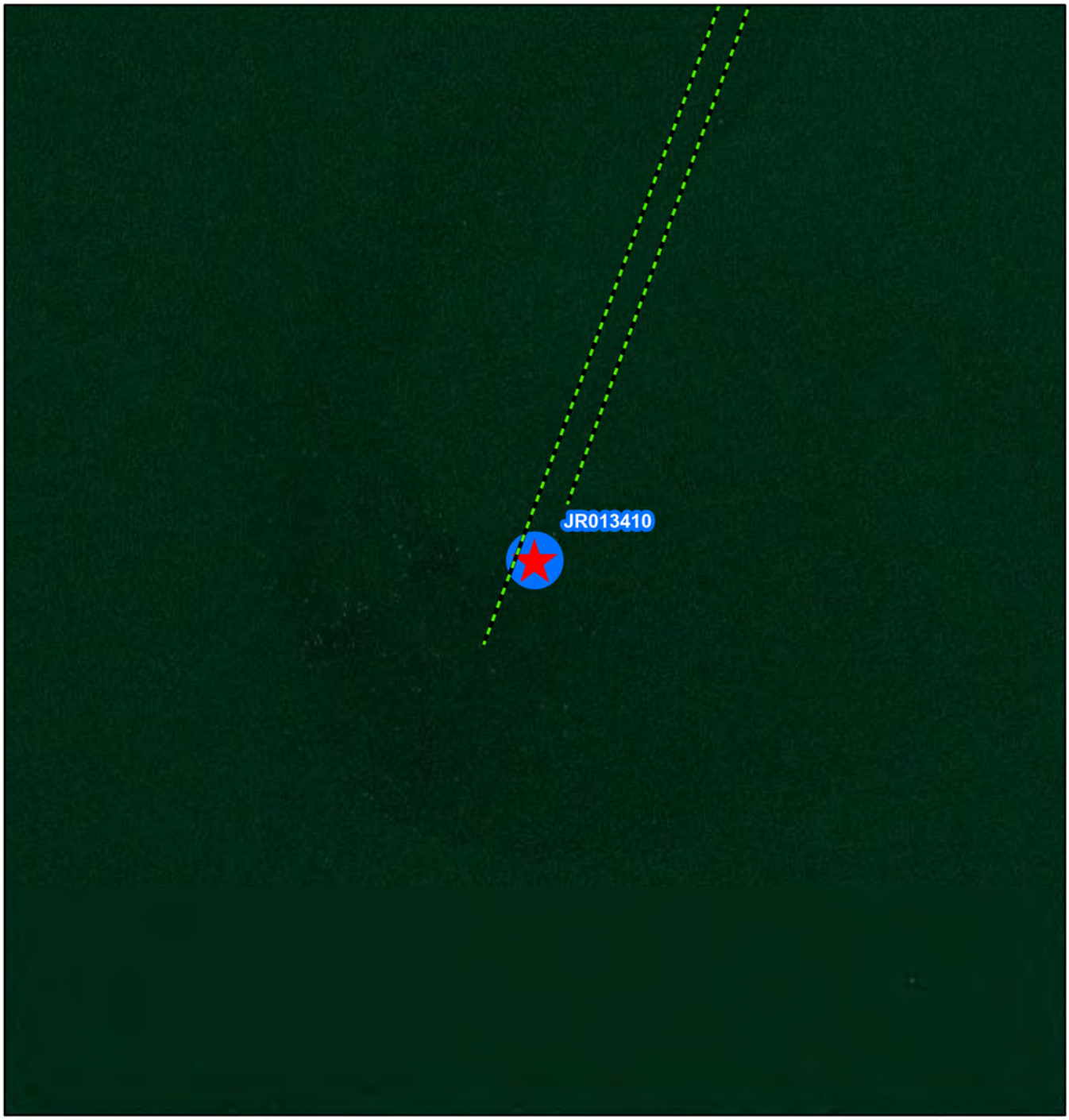
Contacts-Requesting Dept: Operations-Treatment
Contacts-Dept Contacts: Jennifer Klages
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	
PER	05/24/2019
Design Delay	05/24/2019
Design	05/24/2019
Bid Delay	05/24/2019
PreConstruction	05/24/2019
Construction	03/06/2022
Closeout	12/24/2025

COST ESTIMATE

Cost Estimate Class:	**Class 1**
PrePlanning	$341
PER	$0
Design	$56,783
PreConstruction	$2,400
Construction	$6,035,817
Closeout	$0
Est. Program Cost	**$6,095,341**
Contingency Budget	$500,000
Est. Project Costs	**$6,595,341**



JR013410

- 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 45 90 180 270 360 Feet

N W E S

CIP Location

JR013410

James River Treatment Plant Outfall Modifications

HRSD

James River Treatment Plant Outfall Modifications

PR_JR013410

System: James River
Type: SWIFT

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

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
$1,350	$459	$222	$580	$89	$0	$0	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

This project includes design and construction of modifications to the two existing outfall diffuser pipes within the James River. The project area is approximately 4,000 feet from the James River Treatment Plant shoreline. The project will incorporate design elements appropriate for the installation of riser piping and duckbill-style valves on the existing reinforced concrete pipe (RCP) outfall diffuser pipes.

PROJECT JUSTIFICATION

The James River Treatment Plant outfall diffuser openings are located below the mudline allowing for sedimentation within the diffuser pipe, especially under low effluent flow conditions. This project will provide long term protection of existing assets necessary for operating James River Treatment Plant's outfall diffusers at low effluent flow rates, which will occur upon completion of the James River SWIFT project

FUNDING TYPE

Funding Type: Revenue Bond

CONTACTS

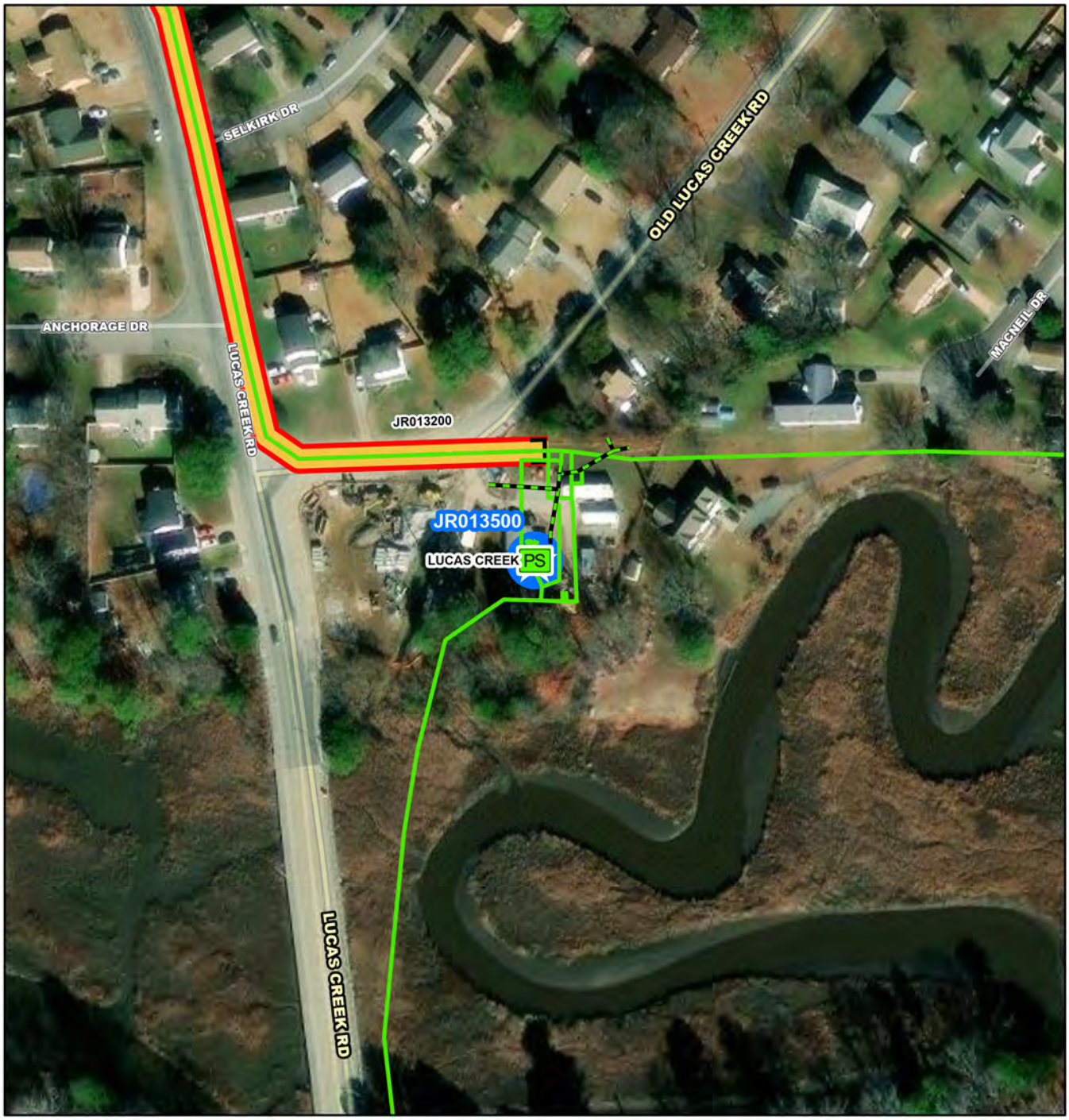
Contacts-Requesting Dept: Engineering
Contacts-Dept Contacts: Jennifer Klages
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	07/03/2023
PER	07/03/2023
Design Delay	07/03/2023
Design	07/03/2023
Bid Delay	10/04/2023
PreConstruction	06/12/2024
Construction	07/23/2024
Closeout	07/09/2027

COST ESTIMATE

Cost Estimate Class:	**Class 5**
PrePlanning	$0
PER	$26,000
Design	$724,000
PreConstruction	$0
Construction	$600,000
Closeout	$0
Est. Program Cost	**$1,350,000**
Contingency Budget	$500,000
Est. Project Costs	**$1,850,000**



JR013500

- 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 45 90 180 270 360 Feet

N
W E
S

CIP Location

JR013500

Lucas Creek Pump Station Replacement

HRSD

Lucas Creek Pump Station Replacement

PR_JR013500

System: James River
Type: Pump Stations

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	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
$21,915	$11,816	$8,077	$2,021	$1	$0	$0	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

This project was initiated under JR010600 Lucas Creek Pump Station Upgrades project.
A Preliminary Engineering Report was completed.
After evaluating several alternatives and taking into consideration cost projections, it was determined that replacement of the pump station is the optimal solution to address conditional and operational issues. This new project includes the replacement of the existing Lucas Creek Pump Station to include all yard piping, and an addition of two flow meters and vaults. On May 26, 2020 Commission approved the purchase of the adjoining property (748 Old Lucas Creek Road, Newport News) to facilitate the construction of the new pump station.

PROJECT JUSTIFICATION

This project is required in order to provide expanded operational flexibility in the North Shore system. The new Kiln Creek Interceptor Force Main (IFM) and Route 171 IFM in conjunction with upgrades to Lucas Creek will reduce system pressures during wet weather events.

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	
PER	11/04/2020
Design Delay	02/17/2021
Design	09/29/2021
Bid Delay	02/14/2022
PreConstruction	02/14/2022
Construction	04/27/2022
Closeout	12/12/2024

COST ESTIMATE

Cost Estimate Class:	**Class 1**
PrePlanning	$0
PER	$0
Design	$882,967
PreConstruction	$27,236
Construction	$21,000,000
Closeout	$5,000
Est. Program Cost	**$21,915,203**
Contingency Budget	$975,000
Est. Project Costs	**$22,890,203**

JR013610

- 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 45 90 180 270 360 Feet

N
W E
S

CIP Location

JR013610

James River Treatment Plant Automation Improvements Phase I

HRSD

James River Treatment Plant Automation Improvements Phase I

PR_JR013610

System: James River
Type: Wastewater Treatment

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

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
$10,065	$10,056	$3	$3	$3	$1	$0	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

This project will provide for automation and control of the James River Treatment Plant's (JRTP) treatment, solids thickening, anaerobic digestion, odor control and related systems.

PROJECT JUSTIFICATION

The treatment and solids handling sections of the JRTP exist now with minimal automation, and to allow the plant operator to best manage the future facility as a whole, the distributed control system must be enhanced to be consistent with the Advanced Nutrient Removal Improvements and SWIFT Projects.

FUNDING TYPE

Funding Type: Revenue Bond

CONTACTS

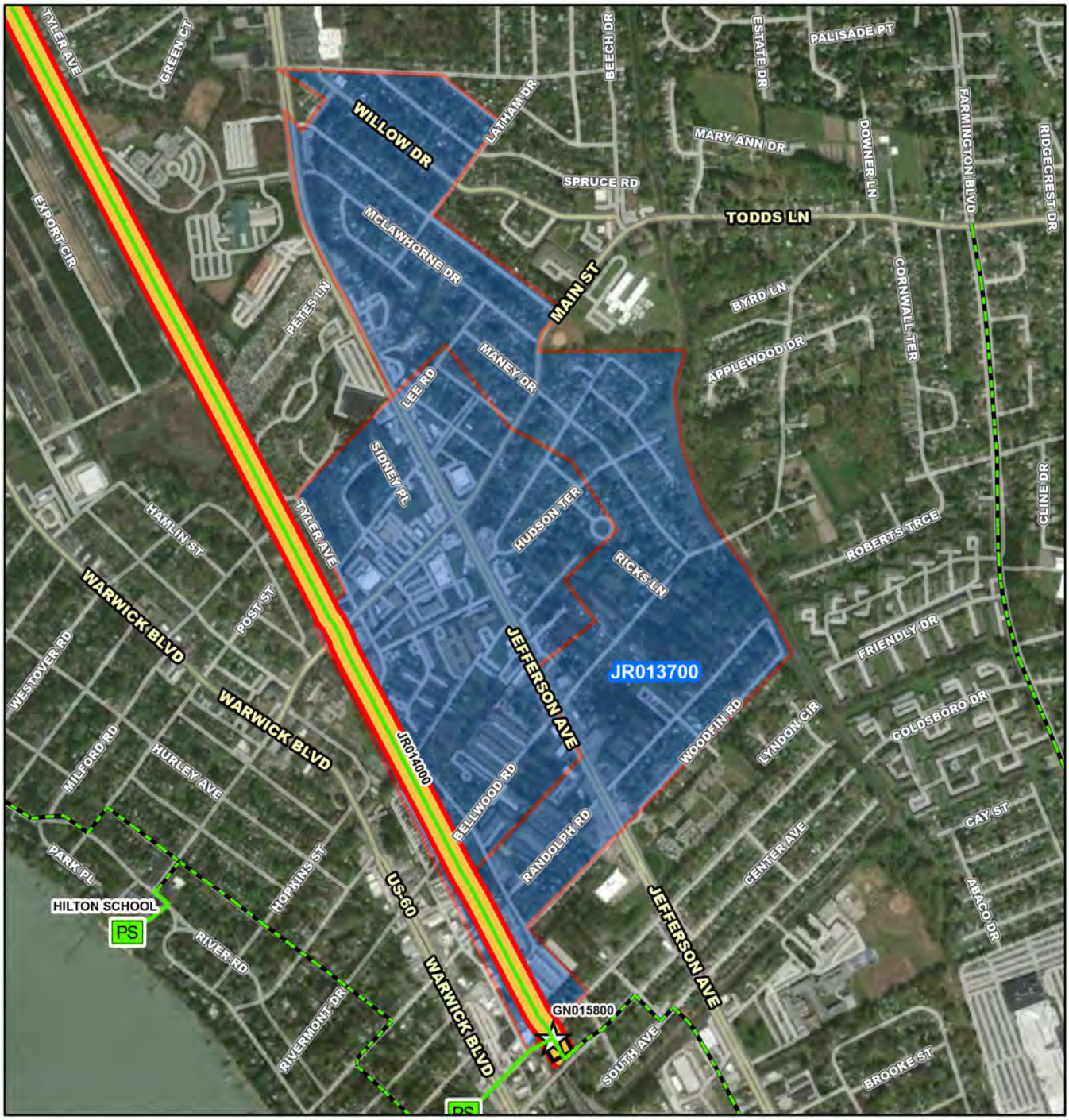
Contacts-Requesting Dept: Operations-Treatment
Contacts-Dept Contacts: Jennifer Klages
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	
PER	07/01/2021
Design Delay	08/20/2021
Design	04/29/2022
Bid Delay	08/02/2022
PreConstruction	04/11/2023
Construction	05/01/2023
Closeout	04/01/2024

COST ESTIMATE

Cost Estimate Class:	**Class 1**
PrePlanning	$0
PER	$0
Design	$516,845
PreConstruction	$12,594
Construction	$9,525,600
Closeout	$10,000
Est. Program Cost	**$10,065,039**
Contingency Budget	$1,428,840
Est. Project Costs	**$11,493,879**



JR013700

- 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

JR013700

Newport News I-I Reduction

N W E S

CIP Location

Newport News I-I Reduction

PR_JR013700

System: James River
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	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
$16,146	$0	$796	$3,987	$4,545	$4,545	$2,273	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

NEWP-013 General I/I Reduction Plan; NEWP-015 Comprehensive I/I Reduction Plan; NEWP-013 Gravity Main Improvement installing 910 LF of 12" 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

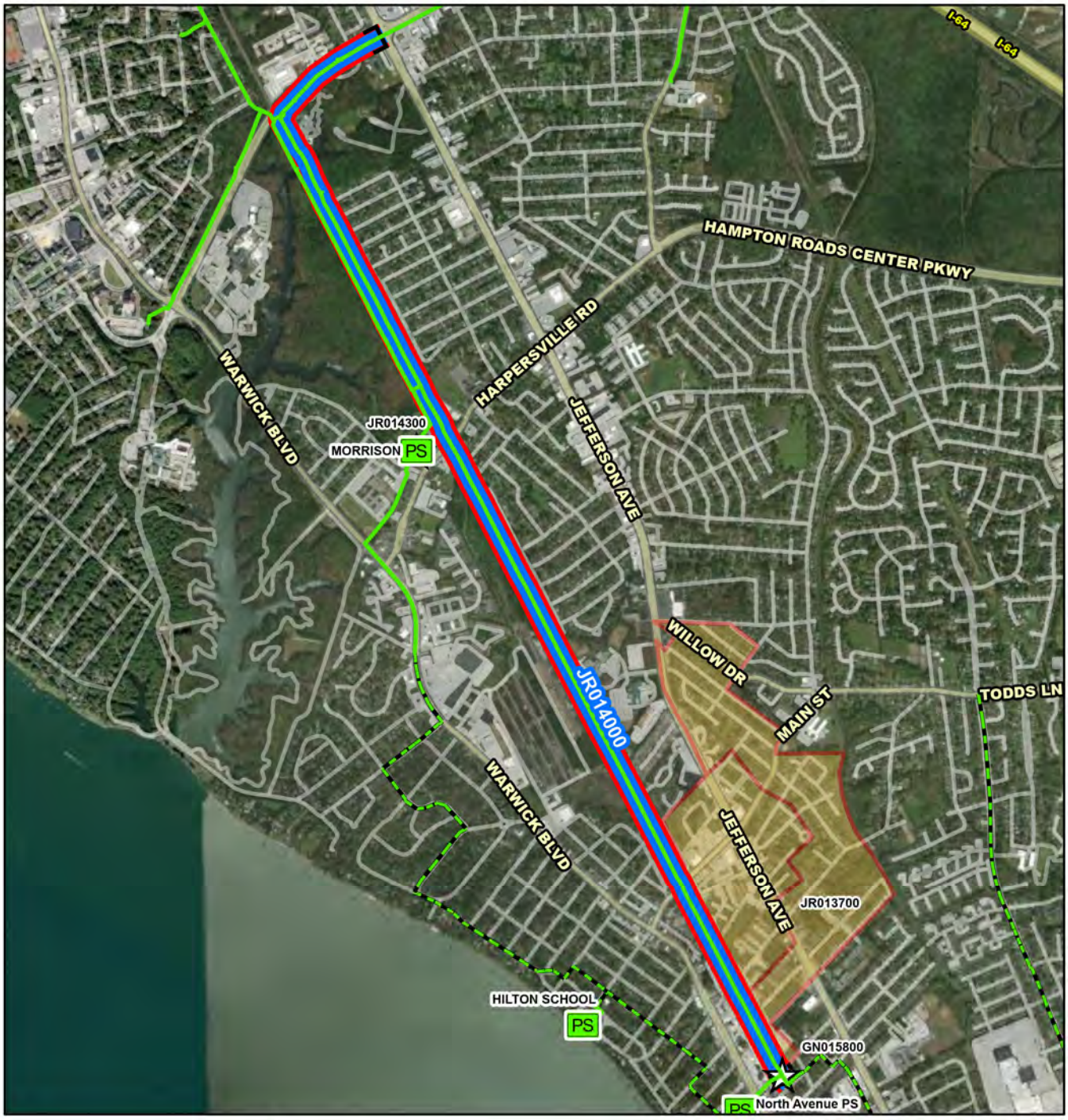
Contacts-Requesting Dept: Engineering
Contacts-Dept Contacts: Jeff Scarano
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	07/01/2024
PER	09/01/2024
Design Delay	06/02/2025
Design	06/02/2025
Bid Delay	12/31/2025
PreConstruction	12/31/2025
Construction	01/01/2026
Closeout	01/01/2029

COST ESTIMATE

Cost Estimate Class:	**Class 5**
PrePlanning	$10,000
PER	$500,000
Design	$2,000,000
PreConstruction	$0
Construction	$13,636,400
Closeout	$0
Est. Program Cost	**$16,146,400**
Contingency Budget	$4,101,600
Est. Project Costs	**$20,248,000**



JR014000

- 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

JR014000

Center Avenue Force Main Replacement

HRSD

Center Avenue Force Main Replacement

PR_JR014000

System: James River
Type: Pipelines

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

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
$20,000	$0	$0	$0	$0	$0	$0	$1,381	$2,442	$16,174	$1	$1

PROJECT DESCRIPTION

This project will replace 18,300 linear feet (LF) of 20-inch Asbestos Cement (AC) pipe from Center Avenue to NF-039 at the intersection of J. Clyde Morris Boulevard and Jefferson Avenue with 24-inch ductile iron pipe. This project will vacate the existing CSX Railroad right of way (ROW) and relocate the new force main down Jefferson Avenue or possibly another more appropriate alignment.

PROJECT JUSTIFICATION

The Center Avenue Force Main (NF-042) was installed in the mid-1970s.
The force main follows the CSX railroad tracks from Center Avenue to J. Clyde Morris Boulevard and has extremely limited access across its entire run.
The location of this force main also backs up directly behind residential areas with many privately owned encumbrances and encroachments.
There have been two (2) emergency repairs completed on this pipeline since October of 2020 and both have involved failed full circle clamps that were used along this pipeline at unspecified locations.
Both Spills were significant and had severe impacts on neighboring residential homes and properties.

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	07/01/2029
PER	07/01/2029
Design Delay	07/01/2029
Design	07/01/2029
Bid Delay	08/28/2030
PreConstruction	05/07/2031
Construction	06/01/2031
Closeout	12/02/2031

COST ESTIMATE

Cost Estimate Class:	**Class 5**
PrePlanning	$0
PER	$521,766
Design	$2,076,161
PreConstruction	$5,512
Construction	$17,392,896
Closeout	$5,512
Est. Program Cost	**$20,001,846**
Contingency Budget	$3,478,678
Est. Project Costs	**$23,480,525**

JR014100

- 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

JR014100

James River Treatment Plant Viewshed Improvements

HRSD

James River Treatment Plant Viewshed Improvements

PR_JR014100

System: James River
Type: SWIFT

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

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
$447	$0	$147	$66	$234	$0	$0	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

This project includes design and construction of improvements to the land surrounding James River Treatment Plant (JRTP) and Phase I trails. The project area is located within the recreation easement and along the perimeter of the JRTP fence boundary. The project will incorporate elements to reduce visibility of JRTP.

PROJECT JUSTIFICATION

The recent land purchase Agreement required that HRSD designed and constructed public access trails, which will be operated and maintained by the City of Newport News. A section of the Phase I trail, known as the Flax Mill Creek Trail, is located in a recreation easement closely adjacent to the perimeter of the James River Treatment Plant.

FUNDING TYPE

Funding Type: Cash

CONTACTS

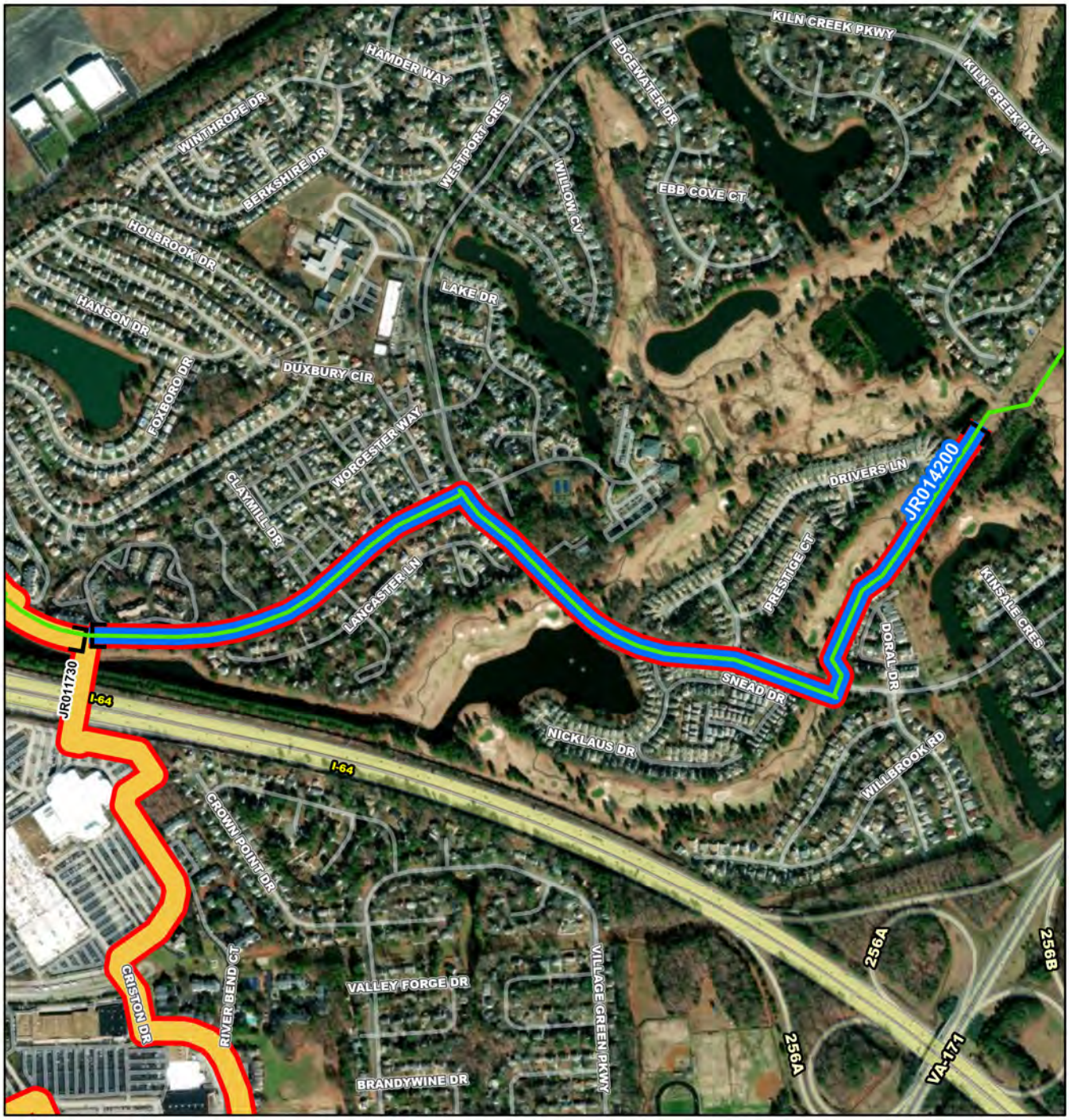
Contacts-Requesting Dept: Engineering
Contacts-Dept Contacts: Jennifer Klages
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	07/01/2024
PER	07/29/2024
Design Delay	09/17/2024
Design	05/27/2025
Bid Delay	08/28/2025
PreConstruction	05/07/2026
Construction	06/17/2026
Closeout	04/14/2027

COST ESTIMATE

Cost Estimate Class:	**Class 5**
PrePlanning	$78,000
PER	$0
Design	$104,000
PreConstruction	$5,200
Construction	$260,000
Closeout	$0
Est. Program Cost	**$447,200**
Contingency Budget	$20,800
Est. Project Costs	**$468,000**



JR014200

- 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

N W E S

CIP Location

JR014200

Kiln Creek Interceptor Force Main Replacement

HRSD

Kiln Creek Interceptor Force Main Replacement

PR_JR014200

System: James River
Type: Pipelines

Driver Category: Capacity Improvements
Project Phase: Pre Planning
Regulatory: None

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
$11,005	$220	$851	$0	$7,447	$2,485	$1	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

This project will replace 7,100 linear feet of 24 inch Ductile Iron (DI) pipe along Brick Kiln Boulevard and Kiln Creek Parkway from the soon to be constructed Jefferson Avenue Phase III CIP to the Kiln Creek Interceptor Force Main Contract B. This project will upsize the existing pipeline from 24 inch to 30 inch.

PROJECT JUSTIFICATION

The Colony Area Interceptor Force Main Section B pipeline was constructed by a private developer in 1987 with the Kiln Creek residential neighborhood and turned over to HRSD. Due to complications with the developer, no as-builts were available and multiple air vents along this run were not installed at actual highpoints. This issue leads to large gas pockets that increase system pressures along with a greater risk of internal pipe corrosion. During a recent diversion these issues presented themselves in the form of significant hydraulic restriction. This project will upsize the existing force main to 30-inch to create a 30-inch force main loop within the James River Treatment Plant (JRTP) and York River Treatment Plant (YRTP) service areas. In conjunction with Tabb Pressure Reducing Station and off-line storage infrastructure, this line will maximize wet weather capabilities and flow optimization between JRTP and YRTP.

FUNDING TYPE

Funding Type: Revenue Bond

CONTACTS

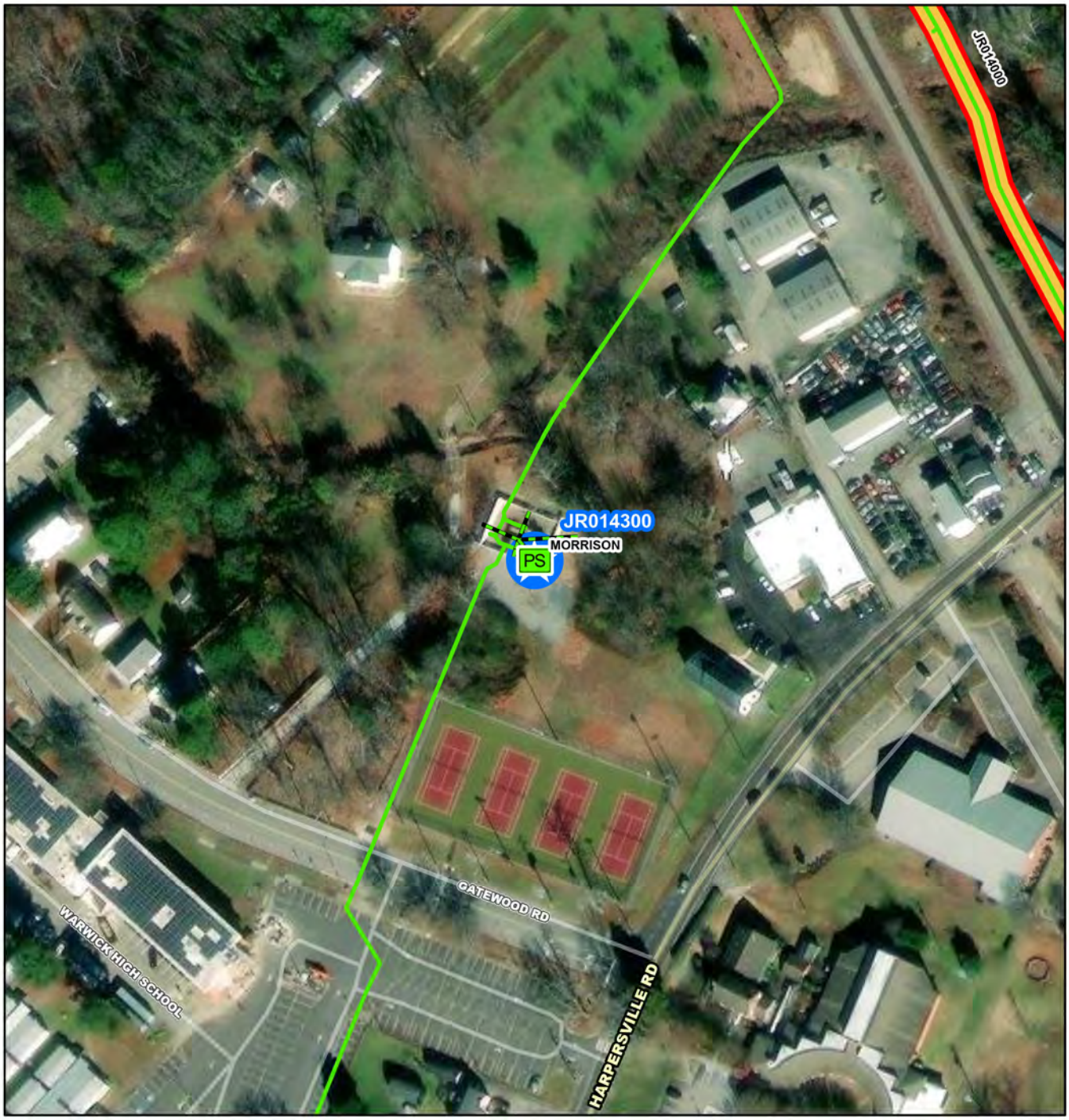
Contacts-Requesting Dept: Operations-Interceptors
Contacts-Dept Contacts: Ted Denny
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	07/03/2023
PER	02/01/2024
Design Delay	07/01/2024
Design	07/01/2024
Bid Delay	07/01/2025
PreConstruction	07/01/2026
Construction	10/01/2026
Closeout	08/01/2027

COST ESTIMATE

Cost Estimate Class:	**Class 5**
PrePlanning	$0
PER	$220,000
Design	$851,448
PreConstruction	$5,200
Construction	$9,922,952
Closeout	$5,200
Est. Program Cost	**$11,004,800**
Contingency Budget	$1,892,072
Est. Project Costs	**$12,896,872**



JR014300

- 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 45 90 180 270 360 Feet

JR014300

Morrison Pump Station Replacement

N
W E
S

CIP Location

Morrison Pump Station Replacement

PR_JR014300

System: James River
Type: Pump Stations

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

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
$14,239	$0	$0	$625	$1,375	$3,446	$4,794	$3,997	$3	$0	$0	$0

PROJECT DESCRIPTION

This project includes the replacement of the existing Morrison Avenue Pump Station (PS) to address hydraulic, safety, and conditional issues. The proposed pump station will be located adjacent to the current PS on a parcel of land previously acquired by HRSD in 2017. Short sections of gravity main and force main will also be constructed to connect this replacement pump station to the existing HRSD collection and force main systems.

PROJECT JUSTIFICATION

Morrison PS has historically experienced significant wet weather capacity issues resulting in numerous Sanitary Sewer Overflows (SSOs). As part of EPA's enforcement actions, HRSD implemented interim system improvements, consisting of a permanently mounted Godwin Pump, to increase hydraulic capacity. Since deploying an Interim Pump at this location in 2012, there have been multiple non-HRSD SSOs experienced at the City of Newport News' manhole (the system spill point) upstream of Morrison PS. This project will address this capacity need. Morrison PS also has severe conditional issues and safety concerns involving the existing electrical panels and equipment layout. The motor control and electrical equipment have extremely limited space, making it difficult to perform maintenance on the electrical panels. The components and parts for the electrical equipment are also no longer manufactured, causing sourcing issues. Morrison PS has the identical motor control center (MCC) equipment as Bayshore PS had when it catastrophically caught fire. As a result of the fire at Bayshore, HRSD implemented a CIP project to replace the at-risk MCCs at other HRSD pump stations. Morrison's MCC was on the list to be replaced but could not be completed due to the Contractor's inability to obtain an electrical permit. Space within the Morrison Pump Station is so limited that compliance with OSHA's Arc-Flash requirements are not achievable. This project will address this electrical condition and safety deficiency.

FUNDING TYPE

Funding Type: Revenue Bond

CONTACTS

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

PROPOSED SCHEDULE START DATE

PrePlanning	07/01/2025
PER	09/01/2025
Design Delay	09/01/2026
Design	09/01/2026
Bid Delay	09/01/2027
PreConstruction	09/01/2027
Construction	11/01/2027
Closeout	05/01/2030

COST ESTIMATE

Cost Estimate Class:	**Class 5**
PrePlanning	$0
PER	$750,000
Design	$1,500,000
PreConstruction	$0
Construction	$11,984,000
Closeout	$5,000
Est. Program Cost	**$14,239,000**
Contingency Budget	$2,379,000
Est. Project Costs	**$16,618,000**

JR014400

- 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 50 100 200 300 400 Feet

JR014400

James River Treatment Plant Primary Clarifier Pipe Rehabilitation

HRSD

N
W E
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CIP Location

James River Treatment Plant Primary Clarifier Pipe Rehabilitation

PR_JR014400

System: James River
Type: Pipelines

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

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
$6,339	$0	$0	$0	$336	$564	$2,815	$2,602	$22	$0	$0	$0

PROJECT DESCRIPTION

This project will repair or replace approximately 765 linear feet of primary clarifier influent and effluent reinforced concrete and ductile iron pipe ranging from 24 to 48-inch. It will also repair or replace approximately 233 linear feet of 6-inch, ductile iron drain system piping. A by-pass pipeline and pumping will be required to maintain treatment plant operations.

PROJECT JUSTIFICATION

The primary clarifier influent and effluent pipes were installed in 1967, as part of the treatment plant's original construction and in 1973, when the treatment plant was expanded from 5 to 15 MGD. The drain piping was installed in 1978 when the treatment plant was expanded from 15 to 20 MGD. In May 2023, a plant operator fell through a section of primary clarifier effluent piping while making their rounds. This prompted a condition assessment of all primary clarifier influent and effluent piping which discovered severe corrosion in other sections of piping and the likelihood of another failure within the next year. An inspection of the drainpipe, which terminates in the primary treatment section of the treatment plant, found sections of pipe missing in the bottom due to corrosion.

FUNDING TYPE

Funding Type: Revenue Bond

CONTACTS

Contacts-Requesting Dept: Operations-Treatment
Contacts-Dept Contacts: Robert Rutherford
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	07/01/2026
PER	09/01/2026
Design Delay	03/01/2027
Design	04/01/2027
Bid Delay	01/01/2028
PreConstruction	03/01/2028
Construction	06/01/2028
Closeout	06/01/2030

COST ESTIMATE

Cost Estimate Class:	**Class 5**
PrePlanning	$10,000
PER	$171,500
Design	$464,500
PreConstruction	$20,000
Construction	$5,630,000
Closeout	$43,000
Est. Program Cost	**$6,339,000**
Contingency Budget	$1,572,300
Est. Project Costs	**$7,911,300**

JR014410

- 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 50 100 200 300 400 Feet

JR014410

James River Treatment Plant Primary Clarifier Pipes (1 and 2)

HRSD

N
W E
S

CIP Location

James River Treatment Plant Primary Clarifier Pipes (1 and 2)

PR_JR014410

System: James River
Type: Pipelines

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

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
$550	$0	$550	$0	$0	$0	$0	$0	$0	$0	$0	$0

PROJECT DESCRIPTION

This project will repair or replace the #1 and #2 primary clarifier pipes and the one section of drain piping that have been determined to be a imminent risk. The primary clarifier influent and effluent reinforced concrete and ductile iron pipe range from 24 to 48-inch. The drain piping to be replaced in this project is approximately 60 linear feet of 6-inch, ductile iron drain system piping.

PROJECT JUSTIFICATION

The primary clarifier influent and effluent pipes were installed in 1967, as part of the treatment plant's original construction and in 1973, when the treatment plant was expanded from 5 to 15 MGD. The drain piping was installed in 1978 when the treatment plant was expanded from 15 to 20 MGD. In May 2023, a plant operator fell through a section of primary clarifier effluent piping while making their rounds. This prompted a condition assessment of all primary clarifier influent and effluent piping which discovered severe corrosion in other sections of piping and the likelihood of another failure within the next year. An inspection of the drainpipe, which terminates in the primary treatment section of the treatment plant, found sections of pipe missing in the bottom due to corrosion.

FUNDING TYPE

Funding Type: Revenue Bond

CONTACTS

Contacts-Requesting Dept: Operations-Treatment
Contacts-Dept Contacts: Robert Rutherford
Contacts-Managing Dept: Operations-Treatment

PROPOSED SCHEDULE START DATE

PrePlanning	07/01/2024
PER	07/01/2024
Design Delay	07/01/2024
Design	07/01/2024
Bid Delay	09/01/2024
PreConstruction	09/01/2024
Construction	09/01/2024
Closeout	01/01/2025

COST ESTIMATE

Cost Estimate Class:	**Class 4**
PrePlanning	$0
PER	$0
Design	$50,000
PreConstruction	$0
Construction	$500,000
Closeout	$0
Est. Program Cost	**$550,000**
Contingency Budget	$150,000
Est. Project Costs	**$700,000**

JR014500

- 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 45 90 180 270 360 Feet

N
W E
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CIP Location

JR014500

James River Treatment Plant Digester and Thickening Building Heating Systems Replacements

HRSD

JRTP Digester and Thickening Building Heating Systems Replacements

PR_JR014500

System: James River
Type: Biosolids

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

PROGRAM CASH FLOW PROJECTION ($,000)

Prog Cost	Exp to Previous Year	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
$9,904	$0	$3	$343	$830	$3,978	$4,329	$420	$0	$0	$0	$0

PROJECT DESCRIPTION

This project will replace both boiler-heat exchanger systems used to heat the digesters and heat the thickening building. The new digester heating system will consist of a boiler to heat hot water and a heat exchanger for each digester to heat digested solids. It includes piping, recirculating pumps, valves, and controls. The heating system will be installed in a dedicated building with natural gas as a secondary fuel source. The new thickening building heating system will include a new boiler, replacement of the air handler, duct, and louvers, rerouting biogas fuel service piping, and natural gas piping for a secondary fuel source.

PROJECT JUSTIFICATION

Both boiler heat-exchanger systems are beyond their useful life. The digester boiler-heat exchanger was installed in the early 1990s just outside the digester building as a quick fix to supply additional heat to both digesters. At that time, the 1960s boiler-heat exchanger inside the digester building could not supply enough heat to meet Class B regulatory requirements for digestion. As a single boiler-heat exchanger unit, the high temperatures needed to heat digested solids have taken a toll on the brick work and solids tubes. With the boiler-heat exchanger outside, the elements have also contributed to degrading the heating system. The thickening building heating system has been in service since the early 1980s and has had gone through several refurbishments. The boiler's condition is beyond refurbishment. The air handler, duct, and louvers have been impacted by corrosion. There is no building heat. Portable units are used during extreme cold to keep pipes from freezing and provide some relief to employees working in the building.

FUNDING TYPE

Funding Type: Revenue Bond

CONTACTS

Contacts-Requesting Dept: Operations-Treatment
Contacts-Dept Contacts: Robert Rutherford
Contacts-Managing Dept: Engineering

PROPOSED SCHEDULE START DATE

PrePlanning	05/01/2025
PER	11/01/2025
Design Delay	04/01/2026
Design	06/01/2026
Bid Delay	03/01/2027
PreConstruction	04/01/2027
Construction	08/01/2027
Closeout	08/01/2029

COST ESTIMATE

Cost Estimate Class:	**Class 5**
PrePlanning	$10,000
PER	$236,600
Design	$900,165
PreConstruction	$40,000
Construction	$8,657,500
Closeout	$59,500
Est. Program Cost	**$9,903,765**
Contingency Budget	$4,236,800
Est. Project Costs	**$14,140,565**