

# Middle Peninsula Treatment Plants



Photo Credit: J Sabo



**Legend**


-  Middle Peninsula 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 11,46522,930 45,860 68,790 91,720 Feet

## Middle Peninsula Treatment Plant Service Area CIP Projects

**Treatment Plant Projects**

MP012000  
MP013300  
MP015500



N



**CIP Location**



Service Area



**Middle Peninsula Interceptor Systems PS Control and SCADA Upgrades/Enhancements**

PR\_MP011700

System: Mid-Peninsula  
Type: Software and Technology

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

**PROGRAM CASH FLOW PROJECTION (\$,000)**

Prog Cost	Exp to Previous Year	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33
\$4,675	\$3,923	\$721	\$11	\$11	\$8	\$0	\$0	\$0	\$0	\$0	\$0

**PROJECT DESCRIPTION**

This project will include: An extension of the North Shore SCADA system to include the Middle Peninsula sites; pumping station improvements at all Middle Peninsula sites; an extension of the HRSD SCADA WAN to include the Middle Peninsula; upgraded remote site telemetry communications; and construction phase services. During the preliminary design phase of the Interceptor System SCADA project, the QST looked to expand the SCADA final design to the Middle Peninsula (MP). The SCADA Preliminary Engineering Report gave the costs for expansion to the MP at \$3.3 million. This CIP is for the construction portion of this project. The design was included with the Interceptor Systems Pump Station Control and SCADA Upgrades and Enhancements (GN012800).

**PROJECT JUSTIFICATION**

There are multiple benefits to expanding the SCADA project to encompass the Middle Peninsula: Future trends for small communities appear to be decentralized/distributed wastewater treatment systems that will require SCADA for remote diagnosis and operational control; as time goes on, the cost of personnel and the cost of transportation will drive HRSD towards more supervisory control at both the treatment plants and pump stations, starting with the Mathews Transmission Force Main (TFM) pump stations; A major portion of the existing system is obsolete and needs replacement; There are Operational and Maintenance benefits to having the same SCADA system throughout the HRSD system: South Shore, North Shore, and the Middle Peninsula; The WAN microwave ring provides a reliable communication link and the existing communication lines could possibly function as a back-up; and, if the MP is added to the Consent Decree in the future, then the MP SCADA system would be upgraded to handle the reporting requirements.

**FUNDING TYPE**

Funding Type: Cash

**CONTACTS**

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

**PROPOSED SCHEDULE START DATE**

PrePlanning 01/01/2009  
PER 01/29/2009  
Design Delay 03/20/2009  
Design 11/27/2009  
Bid Delay 05/08/2013  
PreConstruction 04/01/2015  
Construction 04/01/2015  
Closeout 09/04/2023

**COST ESTIMATE**

**Cost Estimate Class:**  
PrePlanning \$0  
PER \$0  
Design \$35,275  
PreConstruction \$0  
Construction \$4,600,000  
Closeout \$40,000  

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**Est. Program Cost \$4,675,275**  
Contingency Budget \$500,000  

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**Est. Project Costs \$5,175,275**



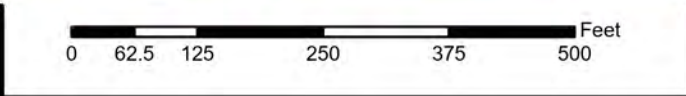


**MPO 12000**

- 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



## MPO 12000

### King William Treatment Plant Improvements Phase I

**CIP Location**



System: Mid-Peninsula  
Type: Wastewater Treatment

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

**PROGRAM CASH FLOW PROJECTION (\$,000)**

Prog Cost	Exp to Previous Year	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33
\$2,401	\$2,337	\$62	\$1	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

**PROJECT DESCRIPTION**

This project allows for improvements to the King William Treatment Plant (KWTP) in order to continue to provide reliable treatment and capacity per regulatory requirements. The construction contract will provide the following upgrades to the plant: pumps and piping dedicated to each treatment train providing equalized influent flow, removal of existing splitter box, replacement of the UV disinfection system, new PLC (Programable Logic Controller) for process control, and repairs to corroded beams in the existing equalization basin.

**PROJECT JUSTIFICATION**

Both KWTP treatment trains are able to run simultaneously. The proposed upgrades will provide improved reliability and operations. The flow coming into the KWTP is currently averaging 60,0000 gallons per day (GPD). Development is steadily increasing flows to the plant.

**FUNDING TYPE**

Funding Type: Cash

**CONTACTS**

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

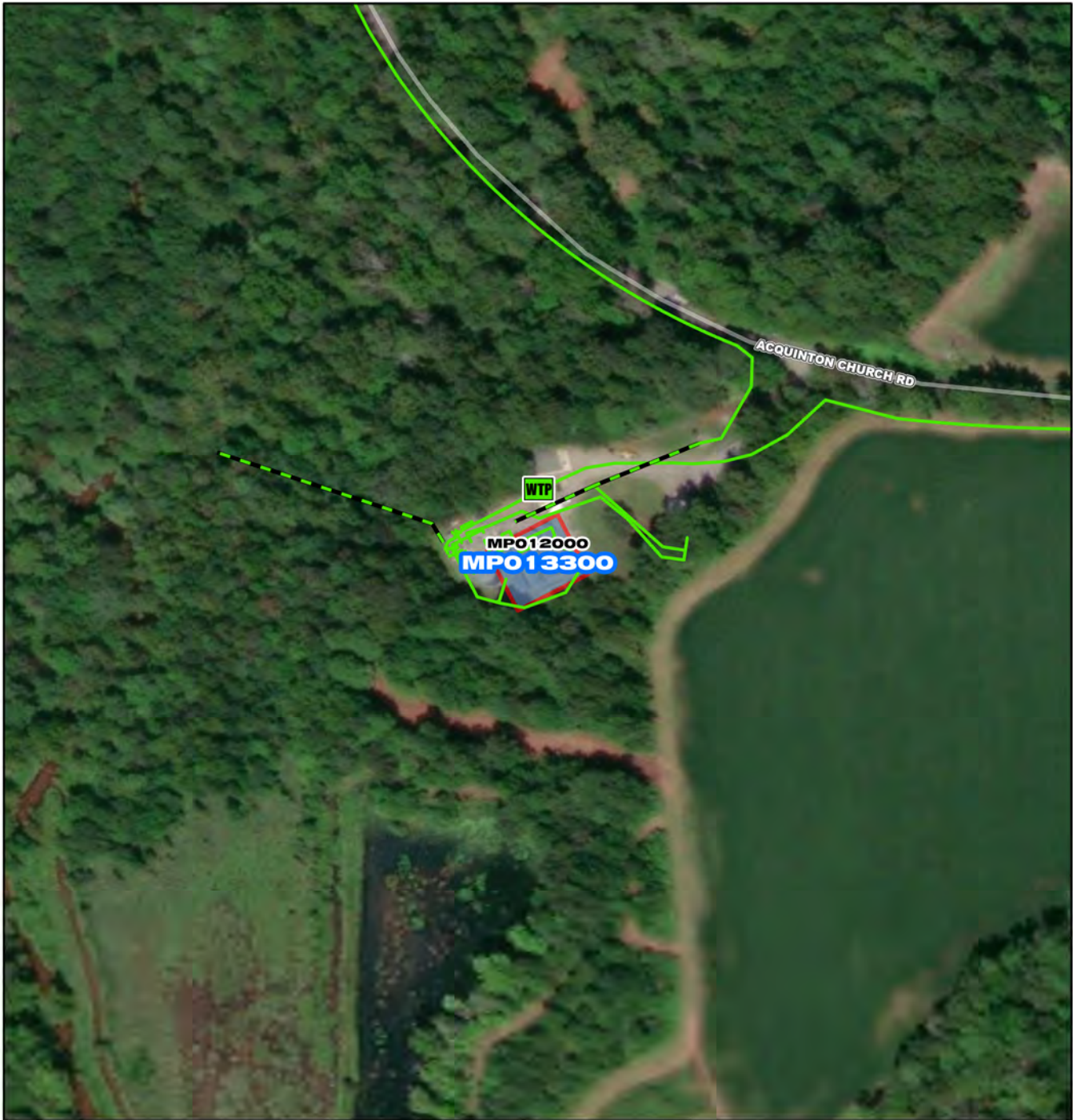
**PROPOSED SCHEDULE START DATE**

PrePlanning	10/01/2014
PER	07/03/2017
Design Delay	12/01/2017
Design	10/01/2018
Bid Delay	08/17/2020
PreConstruction	08/17/2020
Construction	03/01/2021
Closeout	11/01/2023

**COST ESTIMATE**

<b>Cost Estimate Class:</b>	<b>Class 1</b>
PrePlanning	\$91,737
PER	\$62,707
Design	\$412,694
PreConstruction	\$28,703
Construction	\$1,799,742
Closeout	\$5,000
<b>Est. Program Cost</b>	<b>\$2,400,582</b>
Contingency Budget	\$25,000
<b>Est. Project Costs</b>	<b>\$2,425,582</b>





**MPO13300**

- 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 62.5 125 250 375 500 Feet

## MPO 13300

### King William Treatment Plant Improvements Phase II

N  
W E  
S

**CIP Location**



System: Mid-Peninsula  
Type: Wastewater Treatment

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

**PROGRAM CASH FLOW PROJECTION (\$,000)**

Prog Cost	Exp to Previous Year	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33
\$31,068	\$1,680	\$5,272	\$18,057	\$6,046	\$13	\$0	\$0	\$0	\$0	\$0	\$0

**PROJECT DESCRIPTION**

This project is intended to increase capacity for King William from 100,000 gallons per day (GPD) Average Daily Flow (ADF) to a firm capacity of 200,000 GPD ADF. The improvements will be planned to facilitate expansion to 300,000 GPD ADF of capacity.

**PROJECT JUSTIFICATION**

King William Treatment Plant can currently treat 100,000 GPD ADF. Development in King William County has been accelerating in recent years. New subdivisions are planned and construction has ramped up in existing subdivisions with projected flows exceeding 150,000 GPD in addition to current flow. Buildout of approved subdivisions will require an expansion of capacity beyond 100,000 GPD ADF.

**FUNDING TYPE**

Funding Type: Revenue Bond

**CONTACTS**

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

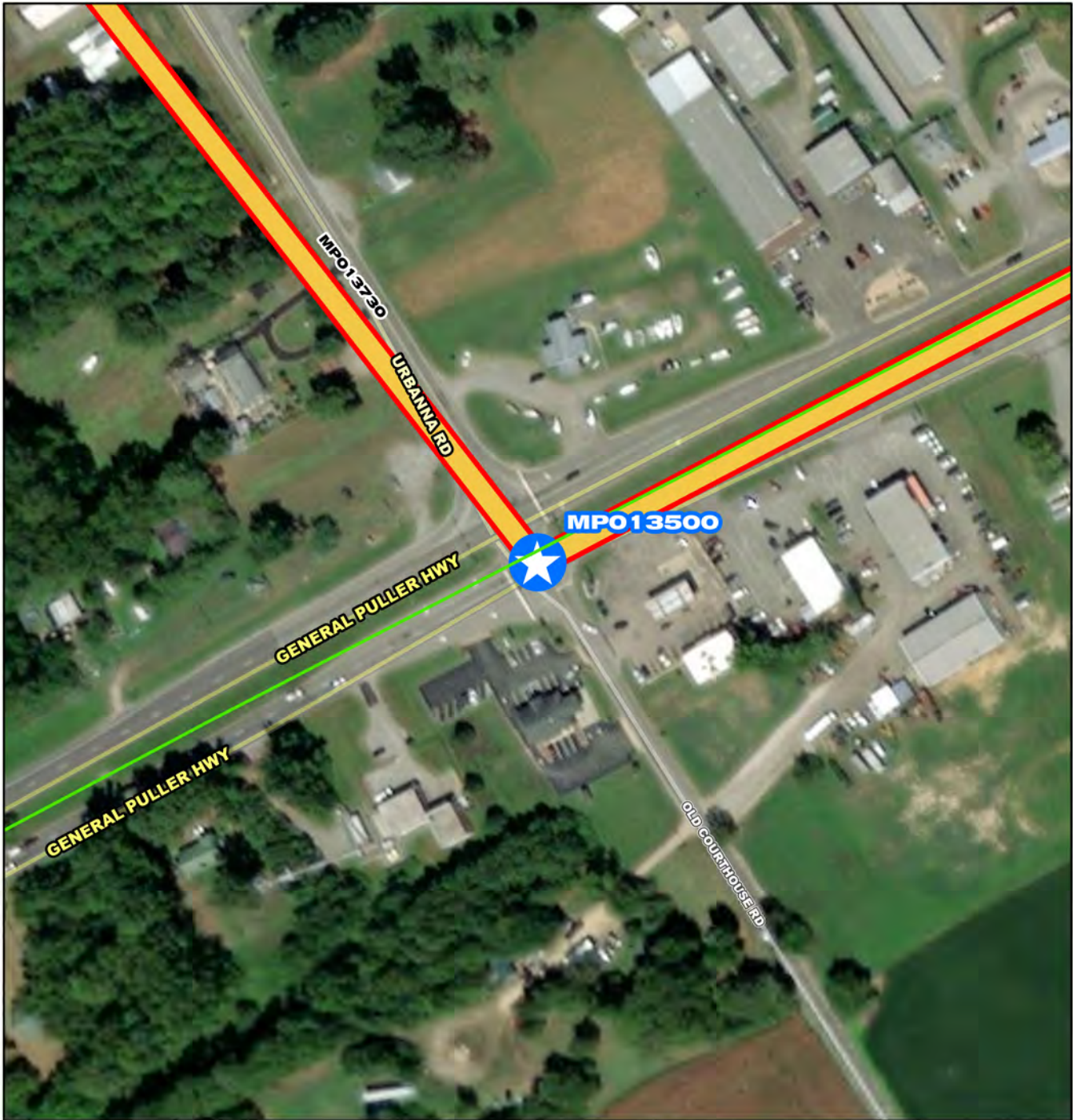
**PROPOSED SCHEDULE START DATE**

PrePlanning	05/03/2021
PER	07/23/2021
Design Delay	09/25/2022
Design	10/01/2022
Bid Delay	12/01/2023
PreConstruction	12/01/2023
Construction	04/01/2024
Closeout	11/01/2025

**COST ESTIMATE**

<b>Cost Estimate Class:</b>	<b>Class 4</b>
PrePlanning	\$1,494
PER	\$442,750
Design	\$1,967,000
PreConstruction	\$26,500
Construction	\$28,590,000
Closeout	\$40,000
<b>Est. Program Cost</b>	<b>\$31,067,744</b>
Contingency Budget	\$5,718,000
<b>Est. Project Costs</b>	<b>\$36,785,744</b>





**MPO 13500**

- 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    55    110    220    330    440    Feet

## MPO 13500

### Middlesex Collection System-Cooks Corner

**CIP Location**





System: Mid-Peninsula  
Type: Pipelines

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

**PROGRAM CASH FLOW PROJECTION (\$,000)**

Prog Cost	Exp to Previous Year	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33
\$4,422	\$3,574	\$849	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

**PROJECT DESCRIPTION**

This project consists of a wastewater collection system to convey wastewater from the Cooks Corner service area to the planned Middlesex Interceptor System. The collection system will consist of approximately 3,200 linear feet of gravity sewer, a submersible pump station, and 1,100 linear feet of force main.

**PROJECT JUSTIFICATION**

Middlesex County has secured funding for the revitalization of Cooks Corner including a Vibrant Communities Initiative Grant and an Industrial Revitalization Fund Grant. The Industrial Revitalization Fund Grant was awarded in August 2018 and entails completing the revitalization in 18 months. Providing sanitary sewer service to the area is a requirement of these grants. The Memorandum of Agreement between the Hampton Roads Sanitation District and Middlesex County for Cost Sharing of Sewer System Projects outlines that HRSD will manage design and construction of collection system projects on behalf of Middlesex County. The Project Design section of the agreement states All costs incurred by HRSD related to the collection system of any such project shall be reimbursed by the project funds once financing is secured by the County for construction of the collection system. The Construction section of the agreement states that all costs associated with construction, inspection and administration related to the collection system portion of the project shall be included in the project cost and reimbursed to HRSD by the County.

**FUNDING TYPE**

Funding Type: Cash

**CONTACTS**

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

**PROPOSED SCHEDULE START DATE**

PrePlanning	
PER	12/03/2018
Design Delay	12/20/2018
Design	03/01/2019
Bid Delay	03/11/2022
PreConstruction	03/11/2022
Construction	06/22/2022
Closeout	09/01/2023

**COST ESTIMATE**

<b>Cost Estimate Class:</b>	<b>Class 1</b>
PrePlanning	\$167
PER	\$0
Design	\$319,478
PreConstruction	\$31,627
Construction	\$4,065,962
Closeout	\$5,000
<b>Est. Program Cost</b>	<b>\$4,422,233</b>
Contingency Budget	\$185,000
<b>Est. Project Costs</b>	<b>\$4,607,233</b>



**MPO13710**

- 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    55    110    220    330    440    Feet

## MPO13710

### Middlesex Interceptor System Program Phase II-Saluda Pump Station

N  
W    E  
S

**CIP Location**





System: Mid-Peninsula  
Type: Pump Stations

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

**PROGRAM CASH FLOW PROJECTION (\$,000)**

Prog Cost	Exp to Previous Year	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33
\$2,843	\$346	\$1,246	\$1,246	\$5	\$0	\$0	\$0	\$0	\$0	\$0	\$0

**PROJECT DESCRIPTION**

Middlesex Interceptor System Program Phase II-Urbanna to Mathews Transmission Force Main will be closed out after the PER phase of work has been completed and will create three new CIP projects. Two of the CIP projects will manage the reimbursement between HRSD and the County of Middlesex for the Middlesex Interceptor System Program Phase II-Middlesex Saluda Pump Station (MP013710) and for the Middlesex Interceptor System Program Phase II-Middlesex Hartfield Pump Station (MP013720). The third CIP project for the Middlesex Interceptor System Program Phase II-Transmission Force Main (MP013730) will be managed and funded by HRSD.

This project consists of the construction of a new sanitary sewer pump station in Saluda, Virginia and approximately 1,700 linear feet of 3-inch sewer force main between the proposed Central Middlesex Treatment Plant pump station and the termination point of the Middlesex Interceptor Force Main (IFM) Phase I project and the decommissioning of HRSDs existing Central Middlesex Treatment Plant. The recommended alternative is to construct the new pump station within the limits of an existing parking area adjacent to the treatment plant. After the new pump station is placed into service, the existing treatment plant will be demolished and converted to a parking lot.

The scope of work generally includes the design and permitting of the new pump station, force main, new parking lot, and developing demolition/decommissioning plans for the existing treatment plant. This project will be funded through the Virginia Clean Water Revolving Loan Fund program.

**PROJECT JUSTIFICATION**

Middlesex County is developing sewer service areas. In order to provide wastewater treatment, HRSD must expand existing Middlesex treatment plants, install decentralized treatment systems, and/or install conveyance from these service areas to existing wastewater treatment facilities. HRSD has two minor (100,000 gallons per day (GPD) or less) wastewater treatment facilities in Middlesex County that are near capacity. In addition, the Town of Urbanna has requested HRSD to eliminate surface water discharges. Currently, HRSD must purchase nutrient credits to discharge into the Rappahannock River basin. HRSD has wastewater treatment capacity at the York River Treatment Plant (YRTP). The life cycle cost of conveying sewage to the YRTP is less than the cost of constructing and operating multiple minor wastewater treatment plants in Middlesex County. A conveyance system to the YRTP service area mitigates the risk and expense of incremental expansions to existing treatment facilities and of more stringent permitting requirements associated with future development in Middlesex County. Consequently, HRSD's strategy is to convey flows from Middlesex to the YRTP.

**FUNDING TYPE**

Funding Type: Cash

**CONTACTS**

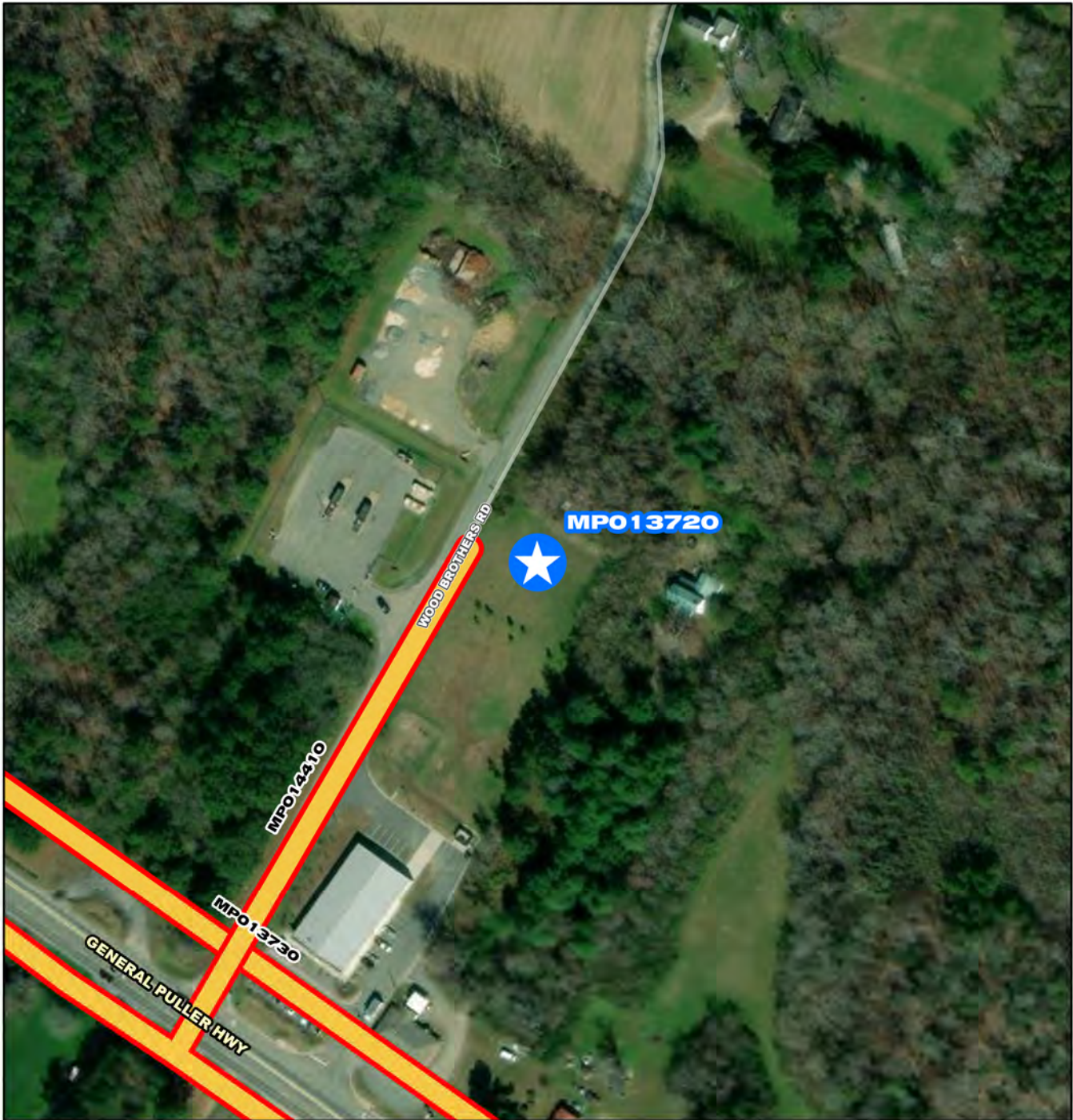
Contacts-Requesting Dept: Operations  
Contacts-Dept Contacts: Jeremiah Burford  
Contacts-Managing Dept: Engineering

**PROPOSED SCHEDULE START DATE**

PrePlanning 10/01/2019  
PER 01/30/2020  
Design Delay 09/02/2021  
Design 11/24/2020  
Bid Delay 03/01/2023  
PreConstruction 03/01/2023  
Construction 07/01/2023  
Closeout 07/01/2025

**COST ESTIMATE**

**Cost Estimate Class: Class 2**  
PrePlanning \$0  
PER \$0  
Design \$332,836  
PreConstruction \$12,700  
Construction \$2,492,300  
Closeout \$5,000  
**Est. Program Cost \$2,842,836**  
Contingency Budget \$456,060  
**Est. Project Costs \$3,298,896**

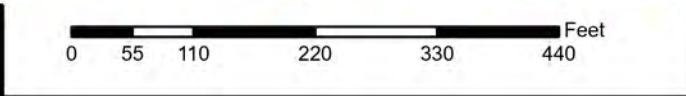


**MPO 13720**

- 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



## MPO 13720

**Middlesex Interceptor System  
Program Phase II-Hartfield Pump  
Station**

**CIP Location**





**Middlesex Interceptor System Program Phase II-  
Hartfield Pump Station**

**PR\_MP013720**

System: Mid-Peninsula  
Type: Pipelines

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

**PROGRAM CASH FLOW PROJECTION (\$,000)**

Prog Cost	Exp to Previous Year	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33
\$6,829	\$447	\$3,189	\$3,189	\$5	\$0	\$0	\$0	\$0	\$0	\$0	\$0

**PROJECT DESCRIPTION**

Middlesex Interceptor System Program Phase II-Urbanna to Mathews Transmission Force Main (MP013700) will be closed out after the PER phase of work has been completed and three new CIP projects are being created. Two of the CIP projects will manage the reimbursement between HRSD and the County of Middlesex for the Middlesex Interceptor System Program Phase II-Middlesex Saluda Pump Station (MP013710) and for the Middlesex Interceptor System Program Phase II-Middlesex Hartfield Pump Station (MP013720). The third CIP project for the Middlesex Interceptor System Program Phase II-Transmission Force Main (MP013730) will be managed and funded by HRSD.

This project generally consists of the construction of a new sanitary sewer pump station in the Hartfield area and approximately 1,500 linear feet of sewer force main along Wood Brothers Road to convey flow between the pump station and the Middlesex Transmission Force Main in General Puller Highway. This project will be funded through the Virginia Clean Water Revolving Loan Fund program.

**PROJECT JUSTIFICATION**

Middlesex County is developing sewer service areas. In order to provide wastewater treatment, HRSD must expand existing Middlesex treatment plants, install decentralized treatment systems, and/or install conveyance from these service areas to existing wastewater treatment facilities. HRSD has two minor (100,000 gallons per day (GPD) or less) wastewater treatment facilities in Middlesex County that are near capacity. In addition, the Town of Urbanna has requested HRSD to eliminate surface water discharges. Currently, HRSD must purchase nutrient credits to discharge into the Rappahannock River basin. HRSD has wastewater treatment capacity at the York River Treatment Plant (YRTP). The life cycle cost of conveying sewage to the YRTP is less than the cost of constructing and operating multiple minor wastewater treatment plants in Middlesex County. A conveyance system to the YRTP service area mitigates the risk and expense of incremental expansions to existing treatment facilities and of more stringent permitting requirements associated with future development in Middlesex County. Consequently, HRSDs strategy is to convey flows from Middlesex to the YRTP.

**FUNDING TYPE**

Funding Type: Cash

**CONTACTS**

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

**PROPOSED SCHEDULE START DATE**

PrePlanning 07/01/2019  
PER 01/30/2020  
Design Delay 11/09/2020  
Design 11/09/2020  
Bid Delay 03/01/2023  
PreConstruction 03/01/2023  
Construction 07/01/2023  
Closeout 07/01/2025

**COST ESTIMATE**

**Cost Estimate Class: Class 2**  
PrePlanning \$0  
PER \$0  
Design \$431,877  
PreConstruction \$15,300  
Construction \$6,377,123  
Closeout \$5,000  
**Est. Program Cost \$6,829,300**  
Contingency Budget \$882,918  
**Est. Project Costs \$7,712,218**



**MPO13730**

- 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 2,000 4,000 8,000 12,000 16,000 Feet

## MPO 13730

### Middlesex Interceptor System Program Phase II-Transmission Force Main

N  
W E  
S

**CIP Location**





**Middlesex Interceptor System Program Phase II-  
Transmission Force Main**

**PR\_MP013730**

System: Mid-Peninsula  
Type: Pipelines

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

**PROGRAM CASH FLOW PROJECTION (\$,000)**

Prog Cost	Exp to Previous Year	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33
\$35,370	\$3,295	\$16,035	\$16,035	\$5	\$0	\$0	\$0	\$0	\$0	\$0	\$0

**PROJECT DESCRIPTION**

Urbanna to Mathews Transmission Force Main (MP013700) will be closed out after the PER phase of work has been completed and three new CIP projects are being created. Two of the CIP projects will manage the reimbursement between HRSD and the County of Middlesex for the Middlesex Interceptor System Program Phase II-Middlesex Saluda Pump Station (MP013710) and for the Middlesex Interceptor System Program Phase II-Middlesex Hartfield Pump Station (MP013720). The third CIP project for the Middlesex Interceptor System Program Phase II-Transmission Force Main (MP013730) will be managed and funded by HRSD. This project includes the construction of a 3.2 miles force main from Urbanna to Cook's Corner in addition to a 13 mile force main along Route 33 in Middlesex County from Cook's Corner to the existing Mathews Force Main. This creates the backbone of the Middlesex Force Main solution and includes a horizontal direction drill under the Piankatank River. This interceptor system will convey wastewater from Middlesex County to the York River Treatment Plant and allow for the decommissioning of the Urbanna Treatment Plant. The system will also include the construction of a new pump station(s). This project will also involve provisions for connection of the Topping service area near the intersection of Route 33 and Route 3 and for connection of the Deltaville service area near Hartfield along General Puller Highway.

**PROJECT JUSTIFICATION**

Middlesex County is developing sewer service areas. In order to provide wastewater treatment, HRSD must expand existing Middlesex treatment plants, install decentralized treatment systems, and/or install conveyance from these service areas to existing wastewater treatment facilities. HRSD has two minor (100,000 gallon per day (GPD) or less) wastewater treatment facilities in Middlesex County that are near capacity. In addition, the Town of Urbanna has requested HRSD to eliminate surface water discharges. Currently, HRSD must purchase nutrient credits to discharge into the Rappahannock River basin. HRSD has wastewater treatment capacity at the York River Treatment Plant (YRTP). The life cycle cost of conveying sewage to the YRTP is less than the cost of constructing and operating multiple minor wastewater treatment plants in Middlesex County. A conveyance system to the YRTP service area mitigates the risk and expense of incremental expansions to existing treatment facilities and of more stringent permitting requirements associated with future development in Middlesex County. Consequently, HRSD's strategy is to convey flows from Middlesex to the YRTP.

**FUNDING TYPE**

Funding Type: VCWRLF

**CONTACTS**

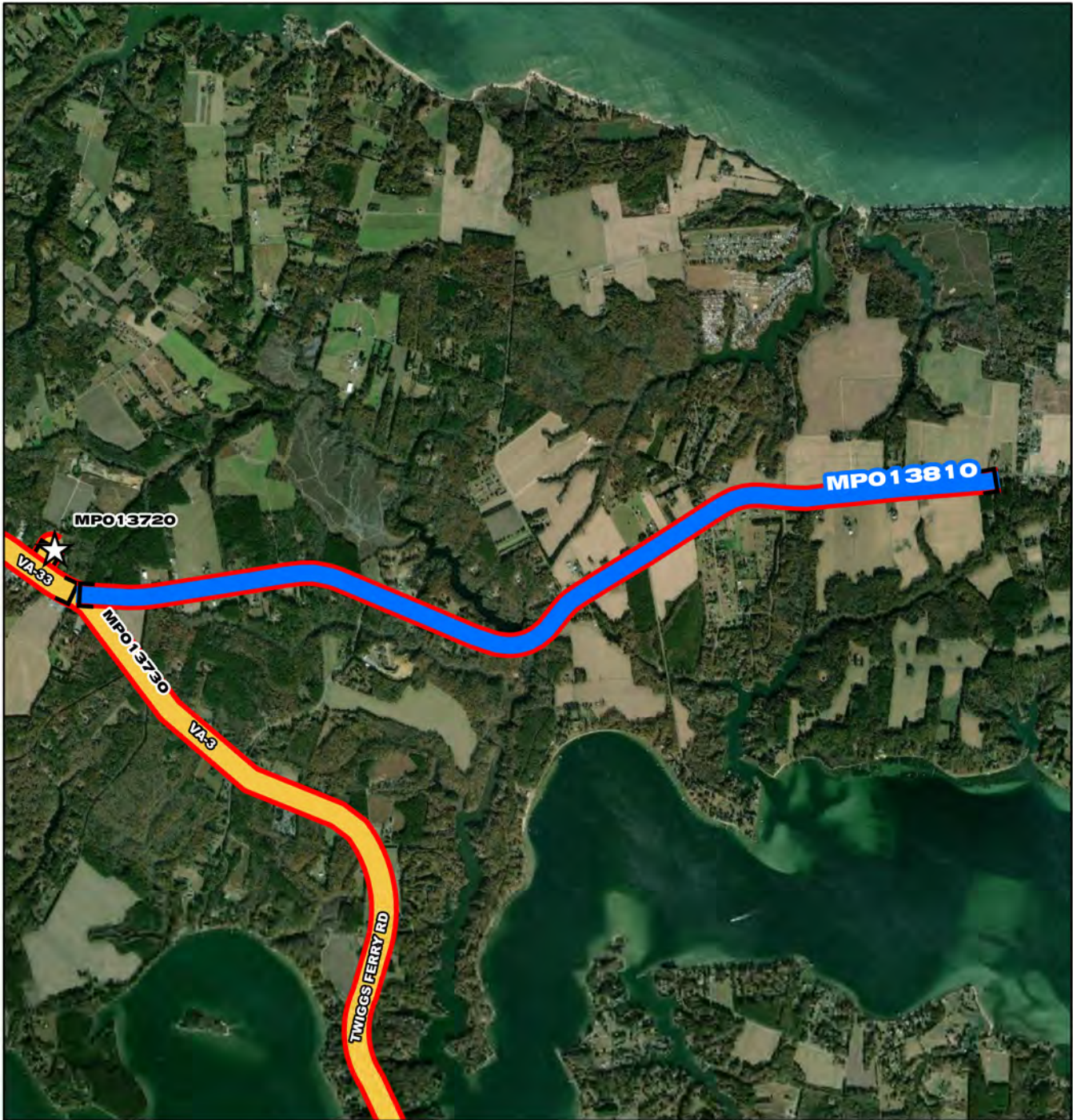
Contacts-Requesting Dept: Operations-Interceptors  
Contacts-Dept Contacts: Jeremiah Burford  
Contacts-Managing Dept: Engineering

**PROPOSED SCHEDULE START DATE**

PrePlanning 10/01/2019  
PER 01/30/2020  
Design Delay 11/23/2020  
Design 11/23/2020  
Bid Delay 03/01/2023  
PreConstruction 03/01/2023  
Construction 07/01/2023  
Closeout 07/01/2025

**COST ESTIMATE**

**Cost Estimate Class: Class 2**  
PrePlanning \$0  
PER \$0  
Design \$3,231,736  
PreConstruction \$63,200  
Construction \$32,070,080  
Closeout \$5,000  
**Est. Program Cost \$35,370,016**  
**Contingency Budget \$5,625,608**  
**Est. Project Costs \$40,995,624**



**MPO13810**

- 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

Feet

0 1,000 2,000 4,000 6,000 8,000

## MPO13810

### Middlesex Interceptor System Program Phase III (Deltaville)

N  
W E  
S

**CIP Location**





System: Mid-Peninsula  
Type: Pipelines

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

**PROGRAM CASH FLOW PROJECTION (\$,000)**

Prog Cost	Exp to Previous Year	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33
\$2,538	\$225	\$348	\$1,959	\$7	\$0	\$0	\$0	\$0	\$0	\$0	\$0

**PROJECT DESCRIPTION**

This project calls for the design and construction of approximately 20,500 linear feet (LF) of a 6-inch arterial HDPE force main interceptor to serve the Deltaville service area in Middlesex County. The HRSD funded portion of the Deltaville interceptor will be approximately 20,500 LF traversing from Twiggs Ferry Road - Stammers Bay Road intersection north to General Puller Highway and terminating at the Parsons Lane intersection. The arterial force main will be connecting to the proposed Middlesex Regional Interceptor System slated to be completed in 2024.

**PROJECT JUSTIFICATION**

HRSD, in coordination with Middlesex County, developed a sewer master plan to design and construct a regional sewer infrastructure to collect and transmit sewer flows to the York River Treatment Plant for treatment via the existing Mathews force main interceptor system. As part of this effort, the existing Urbanna and Saluda treatment plants will be decommissioned and be replaced with new collection systems and pump stations to convey the flow to the regional force main interceptor. This project is the continuation of expanding the regional interceptor system to transmit flow from the Topping and Deltaville service areas. As part of the service agreement and cost sharing agreement executed between HRSD and Middlesex County, HRSD will front the capital cost for engineering services, construction and inspection; Middlesex County shall be responsible to reimburse HRSD for the cost of the interceptors which fall within 2-mile radius from the service area limits in conformance with HRSD's Service Area Expansion Policy.

**FUNDING TYPE**

Funding Type: VCWRLF

**CONTACTS**

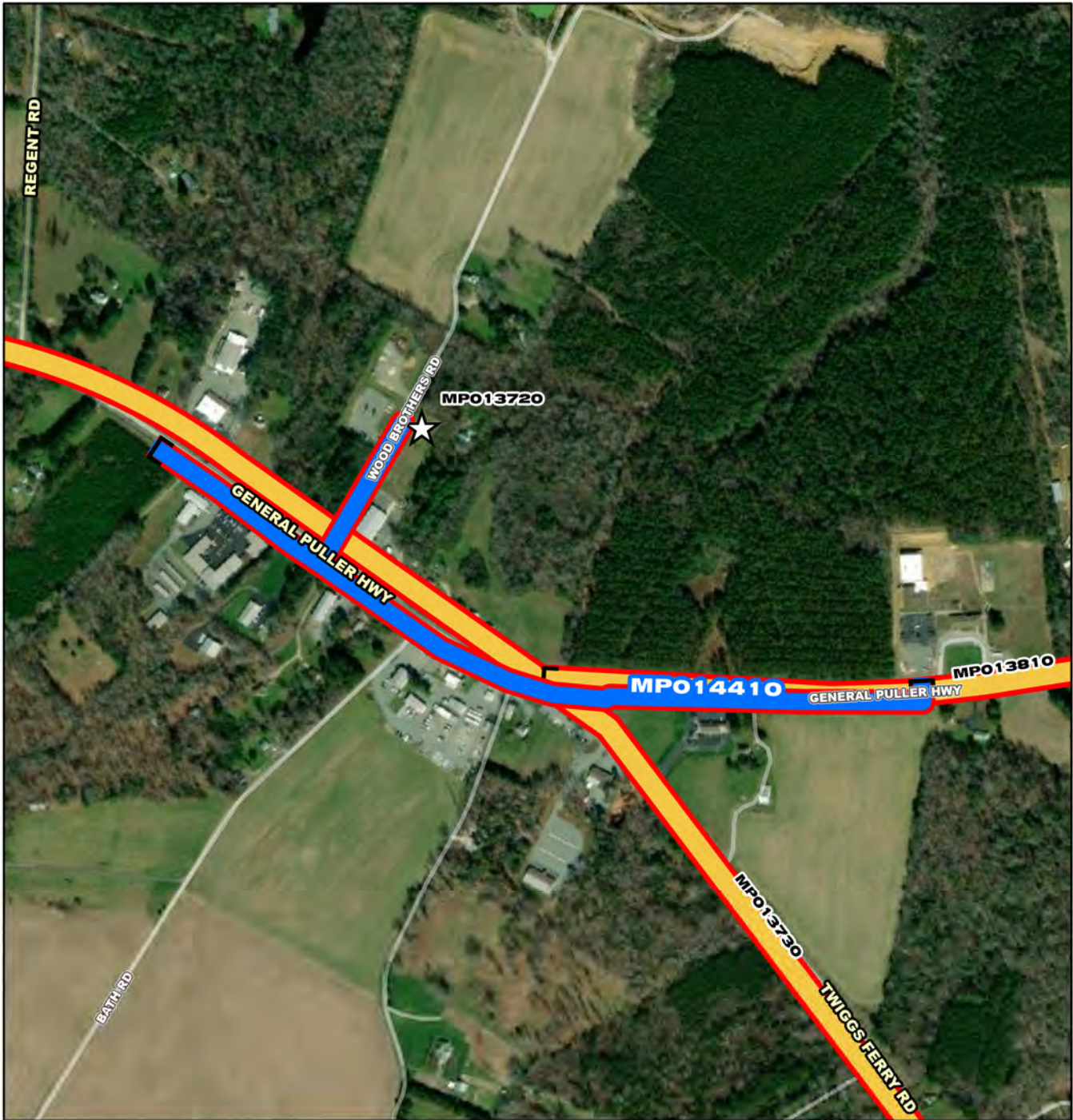
Contacts-Requesting Dept: Operations  
Contacts-Dept Contacts: Jeremiah Burford  
Contacts-Managing Dept: Engineering

**PROPOSED SCHEDULE START DATE**

PrePlanning	01/01/2021
PER	12/01/2021
Design Delay	03/01/2023
Design	03/01/2023
Bid Delay	03/01/2024
PreConstruction	03/01/2024
Construction	06/01/2024
Closeout	06/01/2025

**COST ESTIMATE**

<b>Cost Estimate Class:</b>	<b>Class 4</b>
PrePlanning	\$5,000
PER	\$129,045
Design	\$251,365
PreConstruction	\$10,000
Construction	\$2,133,054
Closeout	\$10,000
<b>Est. Program Cost</b>	<b>\$2,538,464</b>
Contingency Budget	\$252,088
<b>Est. Project Costs</b>	<b>\$2,790,552</b>

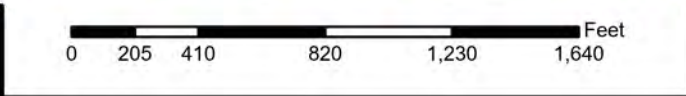


**MPO14410**

- 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



# MPO14410

## Middlesex County Hartfield Sewer Collection System Phase I Improvements

**CIP Location**





**Middlesex County Hartfield Sewer Collection System  
Phase I Improvements**

PR\_MP014410

System: Mid-Peninsula  
Type: Pipelines

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

**PROGRAM CASH FLOW PROJECTION (\$,000)**

Prog Cost	Exp to Previous Year	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33
\$3,236	\$1,232	\$2,000	\$4	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

**PROJECT DESCRIPTION**

This project includes the design and construction of approximately 3,975 linear feet of 8-inch gravity sewer as part of Hartfield Service Area H#1 sewer improvements and as defined in the 2019 Middlesex County Sewer Preliminary Engineering Report (PER).

The gravity sewer will convey flows to a proposed pump station under the Middlesex Transmission Force Main Phase II Urbanna to Mathews Transmission Force Main (MP013700) project. Future gravity system expansion beyond what has been identified as an existing development within the H#1 Service Area will be the responsibility of the development community and/or Middlesex County.

Hence, all gravity mains constructed with this project shall be designed with adequate depth to allow for future logical system expansion and to maximize coverage within the boundaries of the H#1 Service Area. Middlesex County will reimburse HRSD for this project as described in the Sewer Extension Agreement approved by the Commission on May 26, 2020.

**PROJECT JUSTIFICATION**

Middlesex County has identified the Hartfield service area for public sanitary sewer service. In partnership with HRSD, the 2019 Middlesex County Sewer PER identifies the limits of the service area and preliminary layout of three collection systems. The County has made verbal commitment to HRSD and expressed intent to have this viable service available to coincide with the completion of the planned regional HRSD force main currently scheduled for completion in July 2024. As part of the service agreement and cost sharing agreement executed between HRSD and Middlesex County, HRSD will front the capital cost for engineering services, construction, and inspection; Middlesex County shall subsequently reimburse HRSD for these costs.

**FUNDING TYPE**

Funding Type: Cash

**CONTACTS**

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

**PROPOSED SCHEDULE START DATE**

PrePlanning 03/26/2019  
PER 09/30/2021  
Design Delay 10/14/2021  
Design 10/14/2021  
Bid Delay 05/01/2022  
PreConstruction 05/01/2022  
Construction 05/30/2022  
Closeout 04/14/2024

**COST ESTIMATE**

**Cost Estimate Class:**  
PrePlanning \$0  
PER \$31,665  
Design \$89,877  
PreConstruction \$0  
Construction \$3,108,970  
Closeout \$5,258  

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**Est. Program Cost \$3,235,770**  
Contingency Budget \$350,000  

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**Est. Project Costs \$3,585,770**



System: Mid-Peninsula  
Type: Pipelines

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

**PROGRAM CASH FLOW PROJECTION (\$,000)**

Prog Cost	Exp to Previous Year	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33
\$377	\$168	\$206	\$4	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

**PROJECT DESCRIPTION**

This project includes the design and construction of approximately 850 linear feet of 8-inch gravity sewer to serve the Saluda Service Area S #1 and as defined in the 2019 Middlesex County Sewer Preliminary Engineering Report (PER). The new gravity sewer will connect to the existing gravity collection system at the intersection of Oakes Landing Road and Bowden Street.

Future system expansion beyond what has been identified as an existing development within the remaining Saluda Service Area S #1 will be the responsibility of the development community and/or Middlesex County. Hence, all gravity mains constructed with this project shall be designed with adequate depth to allow for logical system expansion and to maximize coverage within the defined boundaries of the S #1 Service Area. Middlesex County will reimburse HRSD for this project as described in the Sewer Extension Agreement approved by the Commission on May 26, 2020.

**PROJECT JUSTIFICATION**

Middlesex County has identified the Saluda service area for public sanitary sewer service. In partnership with HRSD, the 2019 Middlesex County Sewer PER identifies the limits of the service area and preliminary layout of three collection systems. The County has made verbal commitment to HRSD and expressed intent to extend this viable service beyond the existing gravity system in Saluda to coincide with the completion of the planned regional HRSD force main currently scheduled for completion in July 2024. As part of the service agreement and cost sharing agreement executed between HRSD and Middlesex County, HRSD will front the capital cost for engineering services, construction, and inspection; Middlesex County shall subsequently reimburse HRSD for these costs.

**FUNDING TYPE**

Funding Type: Cash

**CONTACTS**

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

**PROPOSED SCHEDULE START DATE**

PrePlanning 03/26/2019  
PER 09/30/2021  
Design Delay 10/14/2021  
Design 10/14/2021  
Bid Delay 05/01/2022  
PreConstruction 05/01/2022  
Construction 05/30/2022  
Closeout 04/14/2024

**COST ESTIMATE**

**Cost Estimate Class:**  
PrePlanning \$0  
PER \$14,641  
Design \$39,621  
PreConstruction \$0  
Construction \$317,686  
Closeout \$5,258  
**Est. Program Cost \$377,206**  
Contingency Budget \$70,000  
**Est. Project Costs \$447,206**





System: Mid-Peninsula  
Type: Pipelines

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

**PROGRAM CASH FLOW PROJECTION (\$,000)**

Prog Cost	Exp to Previous Year	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33
\$2,551	\$791	\$1,400	\$357	\$3	\$0	\$0	\$0	\$0	\$0	\$0	\$0

**PROJECT DESCRIPTION**

The project will consist of rehabilitation or replacement of approximately 2,500 linear feet of small diameter gravity main and associated laterals and manholes within the Towns of Urbanna and West Point.

**PROJECT JUSTIFICATION**

CCTV condition assessment has shown multiple defects within the gravity main in Virginia Street and other select locations in West Point. These defects include materials such as PVC truss pipe and reverse flow conditions that will lead to premature failure. Virginia Street is a primary vehicular and pedestrian corridor for the Town of Urbanna and a failure would cause a major disruption. This project will primarily consist of non-intrusive trenchless rehabilitation. Small-scale point repairs and manhole installations will be utilized to minimize public disruption.

**FUNDING TYPE**

Funding Type: Revenue Bond

**CONTACTS**

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

**PROPOSED SCHEDULE START DATE**

PrePlanning	03/26/2019
PER	07/08/2020
Design Delay	04/22/2021
Design	04/22/2021
Bid Delay	09/20/2022
PreConstruction	09/20/2022
Construction	02/01/2023
Closeout	10/01/2024

**COST ESTIMATE**

<b>Cost Estimate Class:</b>	<b>Class 1</b>
PrePlanning	\$0
PER	\$45,785
Design	\$148,849
PreConstruction	\$13,294
Construction	\$2,333,000
Closeout	\$10,000
<b>Est. Program Cost</b>	<b>\$2,550,928</b>
Contingency Budget	\$235,000
<b>Est. Project Costs</b>	<b>\$2,785,928</b>



System: Mid-Peninsula  
Type: Pipelines

Driver Category: Risk Mitigation  
Project Phase: PER  
Regulatory: None

**PROGRAM CASH FLOW PROJECTION (\$,000)**

Prog Cost	Exp to Previous Year	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33
\$583	\$121	\$340	\$119	\$3	\$0	\$0	\$0	\$0	\$0	\$0	\$0

**PROJECT DESCRIPTION**

The project will consist of raising approximately sixty (60) paved over or buried manholes throughout Small Communities. Replacement of frame and covers and condition assessment of these structures will occur with the work.

**PROJECT JUSTIFICATION**

The uncovering and raising of the buried and paved over manholes will allow operations to access these structures in order to perform assessment of our infrastructure and to ensure the collection systems are operating as designed.

**FUNDING TYPE**

Funding Type: Revenue Bond

**CONTACTS**

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

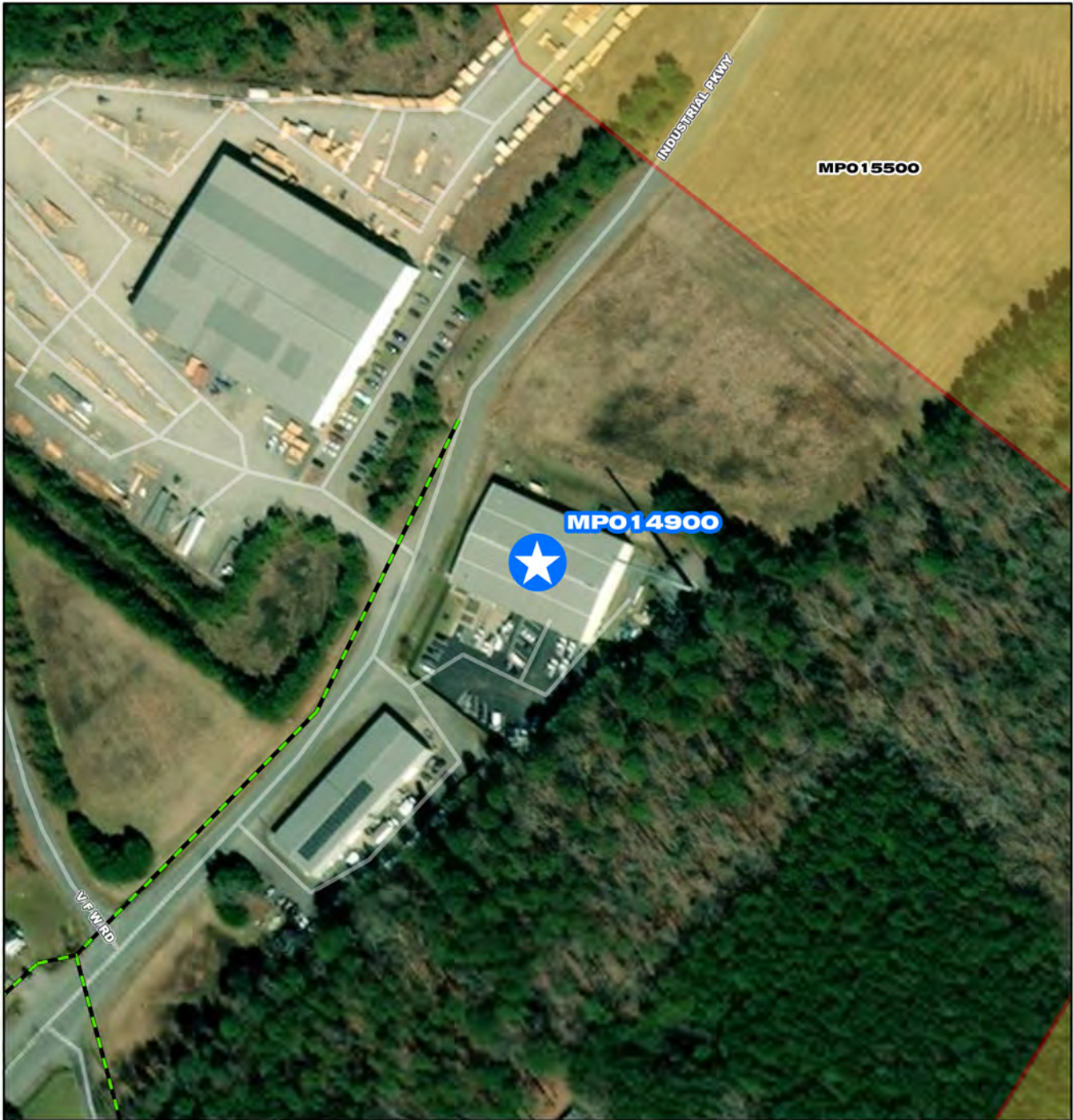
**PROPOSED SCHEDULE START DATE**

PrePlanning	07/03/2017
PER	02/01/2022
Design Delay	08/31/2022
Design	12/01/2022
Bid Delay	07/01/2023
PreConstruction	07/01/2023
Construction	10/01/2023
Closeout	10/01/2024

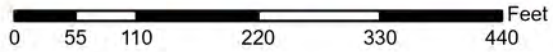
**COST ESTIMATE**

<b>Cost Estimate Class:</b>	<b>Class 4</b>
PrePlanning	\$0
PER	\$39,753
Design	\$81,571
PreConstruction	\$6,820
Construction	\$444,510
Closeout	\$10,000
<b>Est. Program Cost</b>	<b>\$582,654</b>
Contingency Budget	\$100,000
<b>Est. Project Costs</b>	<b>\$682,654</b>





- MPO 14900**
- 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



# MPO 14900

## Middle Peninsula Operations Center Locker Room and Administrative Facilities



**CIP Location**





**Middle Peninsula Operations Center Locker Room and Administrative Facilities**

**PR\_MP014900**

System: Mid-Peninsula  
 Type: Facilities, Buildings and Capital Equipment

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

**PROGRAM CASH FLOW PROJECTION (\$,000)**

Prog Cost	Exp to Previous Year	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33
\$2,124	\$2,122	\$2	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

**PROJECT DESCRIPTION**

This project consists of the design and construction of a locker room, administrative areas, and HVAC improvements within the existing footprint of the Middle Peninsula Operations Center.

**PROJECT JUSTIFICATION**

Currently, no locker room facilities exist for Small Communities staff on the Middle Peninsula. This project will allow for locker rooms, break room, shower facilities, laundry facilities, HVAC improvements, and additional renovations. These improvements will allow Middle Peninsula Operations to provide facilities commensurate with those available at other HRSD operations work centers.

**FUNDING TYPE**

Funding Type: Revenue Bond

**CONTACTS**

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

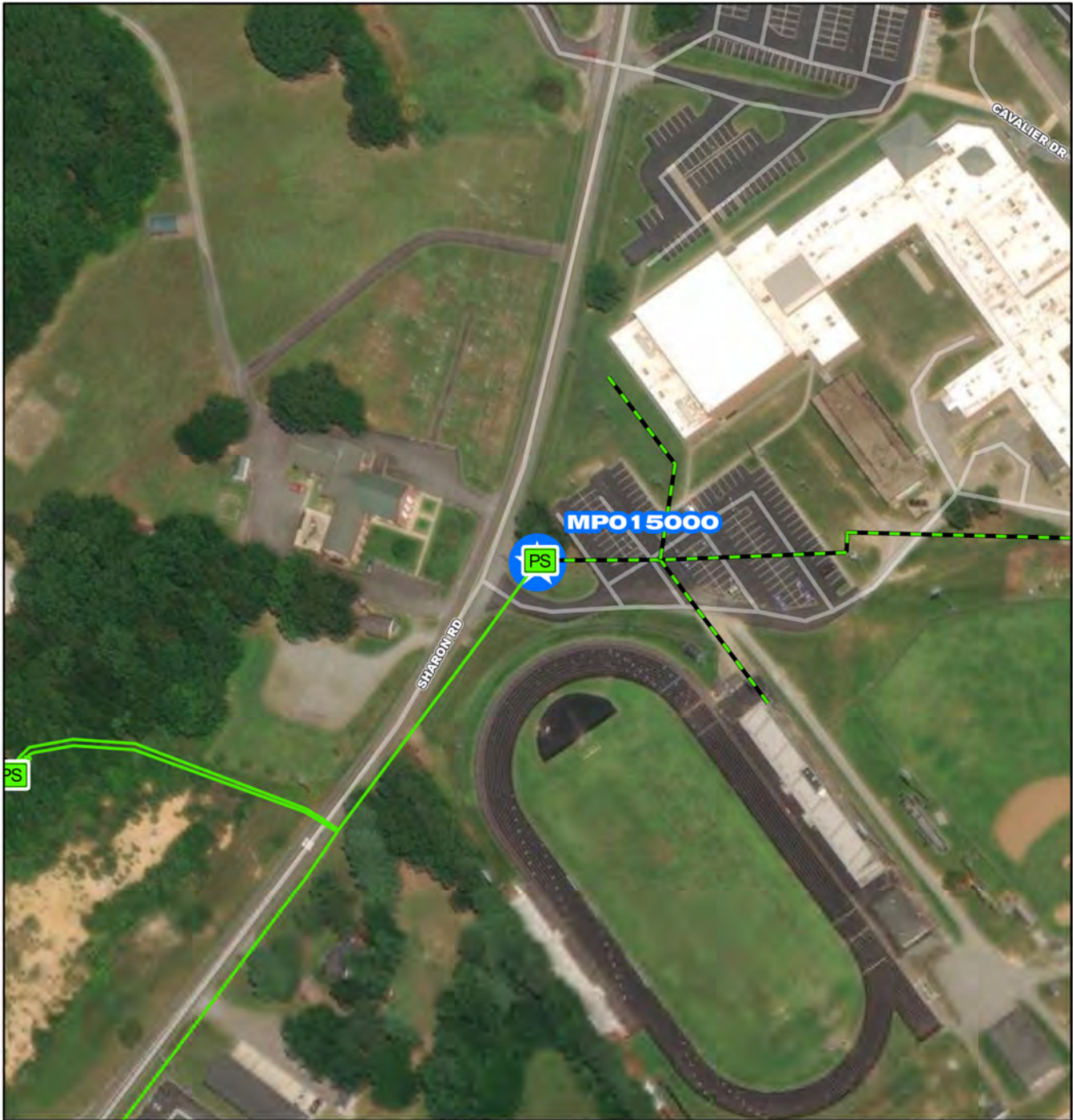
**PROPOSED SCHEDULE START DATE**

PrePlanning	11/09/2020
PER	11/09/2020
Design Delay	11/09/2020
Design	11/09/2020
Bid Delay	11/09/2020
PreConstruction	11/09/2020
Construction	10/26/2021
Closeout	11/14/2022

**COST ESTIMATE**

<b>Cost Estimate Class:</b>	
PrePlanning	\$0
PER	\$0
Design	\$116,846
PreConstruction	\$7,813
Construction	\$1,994,113
Closeout	\$5,000
<b>Est. Program Cost</b>	<b>\$2,123,772</b>
Contingency Budget	\$185,000
<b>Est. Project Costs</b>	<b>\$2,308,772</b>





**MPO 15000**

- 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 55 110 220 330 440 Feet

## MPO 15000

### Sharon Road Gravity Sewer Improvements

N  
W E  
S

**CIP Location**



System: Mid-Peninsula  
Type: Pipelines

Driver Category: Risk Mitigation  
Project Phase: Design  
Regulatory: None

**PROGRAM CASH FLOW PROJECTION (\$,000)**

Prog Cost	Exp to Previous Year	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33
\$1,162	\$103	\$1,056	\$3	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

**PROJECT DESCRIPTION**

The project will consist of expanding the gravity collection system approximately 800 linear feet to connect to the existing Commerce Lane Pump Station service area. This project will eliminate the need for and permanently abandon the Sharon Road Pump Station.

**PROJECT JUSTIFICATION**

The Sharon Road Pump Station is a packaged type of submersible pump station that has been in operation for 20 years and needs rehabilitation. The station is located on school grounds with no security fence. The extension of the gravity collection system will eliminate the operational need for any pump station on school property.

**FUNDING TYPE**

Funding Type: Cash

**CONTACTS**

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

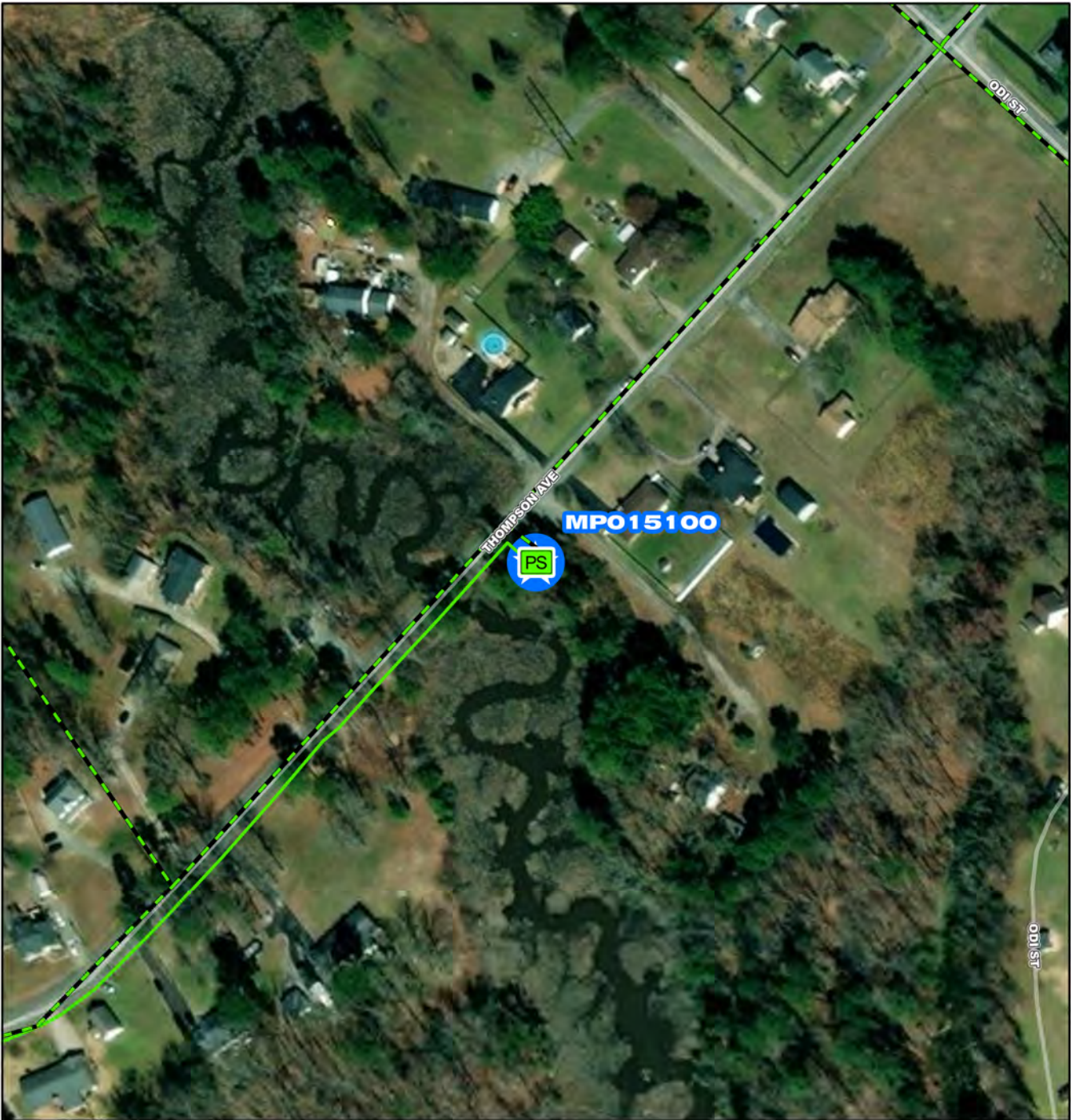
**PROPOSED SCHEDULE START DATE**

PrePlanning	03/01/2019
PER	07/01/2020
Design Delay	10/01/2021
Design	09/01/2022
Bid Delay	05/02/2023
PreConstruction	05/02/2023
Construction	08/01/2023
Closeout	05/01/2024

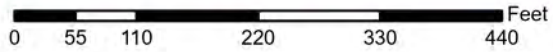
**COST ESTIMATE**

<b>Cost Estimate Class:</b>	
PrePlanning	\$0
PER	\$26,683
Design	\$69,504
PreConstruction	\$10,000
Construction	\$1,050,000
Closeout	\$5,500
<b>Est. Program Cost</b>	<b>\$1,161,687</b>
Contingency Budget	\$100,000
<b>Est. Project Costs</b>	<b>\$1,261,687</b>





- MPO15100**
- 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



# MPO15100

## West Point Pump Station 4 (Thompson Avenue) Rehabilitation



**CIP Location**







**West Point Pump Station 4 (Thompson Avenue)  
Rehabilitation**

**PR\_MP015100**

System: Mid-Peninsula  
Type: Pump Stations

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

**PROGRAM CASH FLOW PROJECTION (\$,000)**

Prog Cost	Exp to Previous Year	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33
\$1,897	\$646	\$997	\$253	\$1	\$0	\$0	\$0	\$0	\$0	\$0	\$0

**PROJECT DESCRIPTION**

This project consists of the installation of a new, large wet well, influent saddle manhole and rehabilitation of the pump station to include new pumps, controls and metering as well as site beautification.

**PROJECT JUSTIFICATION**

The station controls and associated appurtenances are original to the pump station as installed in the 1940s and have gone beyond the end of their useful life. The wet well was installed too shallow with the original pump station construction creating continuous surcharging conditions in the upstream collection system. This condition creates system capacity limitations and causes ragging and cavitation conditions at the pump station. This project will allow for the installation of an influent side manhole to be installed on HRSD property.

**FUNDING TYPE**

Funding Type: Revenue Bond

**CONTACTS**

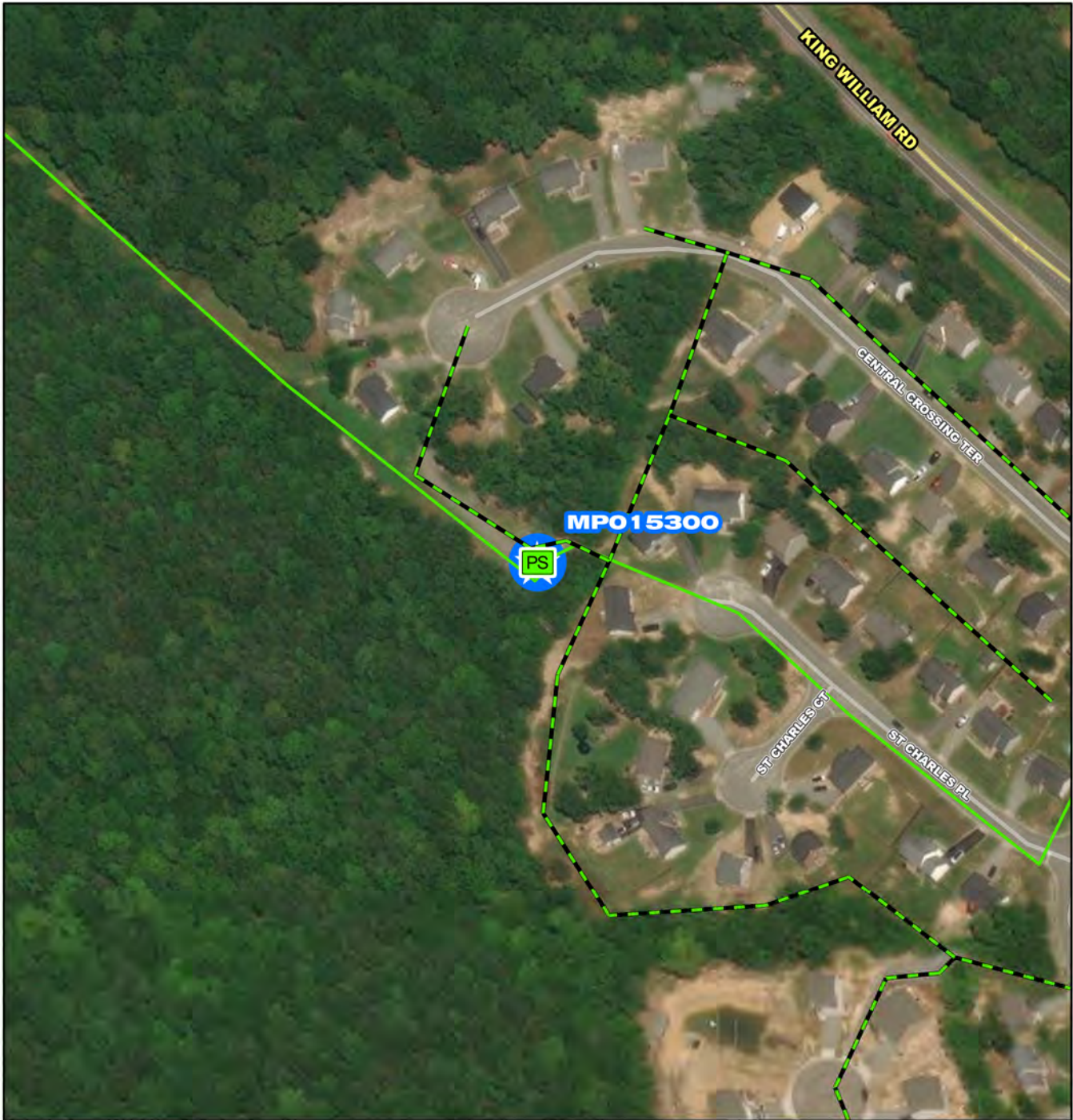
Contacts-Requesting Dept: Operations  
Contacts-Dept Contacts: Ted Denny  
Contacts-Managing Dept: Engineering

**PROPOSED SCHEDULE START DATE**

PrePlanning 03/01/2019  
PER 07/01/2020  
Design Delay 07/01/2021  
Design 07/01/2021  
Bid Delay 10/01/2022  
PreConstruction 10/01/2022  
Construction 02/01/2023  
Closeout 10/01/2024

**COST ESTIMATE**

**Cost Estimate Class: Class 1**  
PrePlanning \$0  
PER \$71,289  
Design \$145,569  
PreConstruction \$13,490  
Construction \$1,662,000  
Closeout \$5,000  
**Est. Program Cost \$1,897,348**  
Contingency Budget \$70,000  
**Est. Project Costs \$1,967,348**



**MPO 15300**

- 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 55 110 220 330 440 Feet

## MPO 15300

### King William Central Crossing Pump Station Rehabilitation

N  
W E  
S

**CIP Location**



**King William Central Crossing Pump Station  
Rehabilitation**

**PR\_MP015300**

System: Mid-Peninsula  
Type: Pump Stations

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

**PROGRAM CASH FLOW PROJECTION (\$,000)**

Prog Cost	Exp to Previous Year	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33
\$1,866	\$139	\$887	\$835	\$4	\$0	\$0	\$0	\$0	\$0	\$0	\$0

**PROJECT DESCRIPTION**

This project consists of rehabilitation of the existing Central Crossing pump station to include improvements to the pump system and controls, discharge monitoring, force main upsizing, emergency power supply, site improvements and other ancillary improvements.

**PROJECT JUSTIFICATION**

Failures have occurred on the pumping rail and connection system as well as the discharge force main with temporary repairs made to both. Additionally, there is no emergency power supply in cases of outages for the station and the current power rack is of timber construction and is also in need of replacement. Currently, operations has no means to isolate the discharge force main from a common pressure pipeline with multiple other pump station connections. There is no emergency bypass connection and no means of monitoring station flows and pressures. This project will correct these deficiencies and bring this facility to current HRSD standards.

King William is also experiencing substantial development growth. This station currently has development projects with master site plans that would exceed the capacity of the station. This project will provide for additional station pumping capacity to allow for future development and growth.

**FUNDING TYPE**

Funding Type: Revenue Bond

**CONTACTS**

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

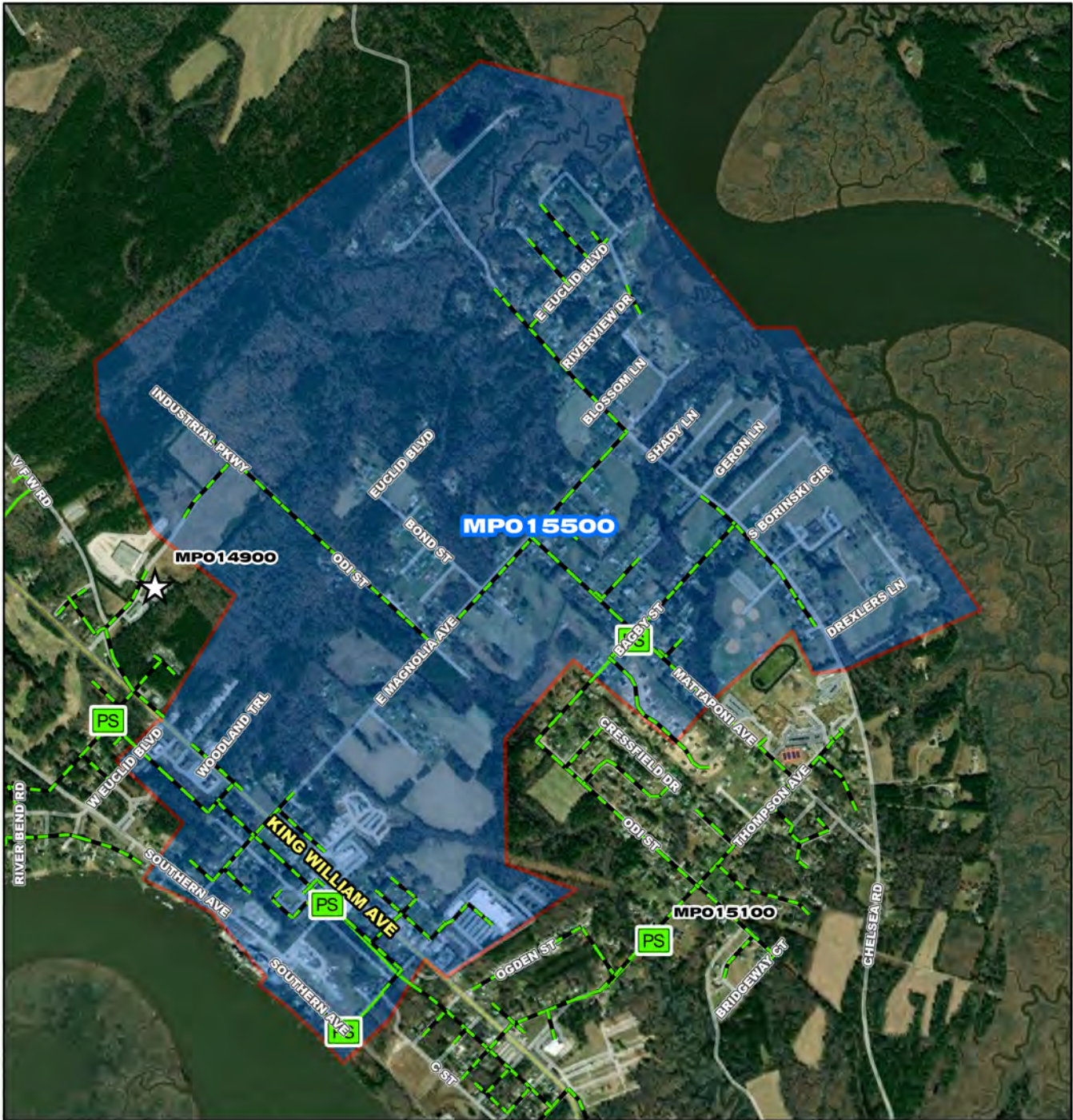
**PROPOSED SCHEDULE START DATE**

PrePlanning	07/03/2017
PER	01/28/2022
Design Delay	09/14/2022
Design	12/01/2022
Bid Delay	10/01/2023
PreConstruction	11/01/2023
Construction	02/01/2024
Closeout	12/01/2024

**COST ESTIMATE**

<b>Cost Estimate Class:</b>	<b>Class 4</b>
PrePlanning	\$0
PER	\$60,313
Design	\$125,649
PreConstruction	\$11,202
Construction	\$1,659,247
Closeout	\$10,000
<b>Est. Program Cost</b>	<b>\$1,866,411</b>
Contingency Budget	\$350,000
<b>Est. Project Costs</b>	<b>\$2,216,411</b>





**MPO 15500**

- 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

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

## MPO 15500

### Small Communities Rehabilitation Phase VI

N  
W E  
S

**CIP Location**



System: Mid-Peninsula  
Type: Pipelines

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

**PROGRAM CASH FLOW PROJECTION (\$,000)**

Prog Cost	Exp to Previous Year	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33
\$2,961	\$269	\$2,014	\$676	\$3	\$0	\$0	\$0	\$0	\$0	\$0	\$0

**PROJECT DESCRIPTION**

This project will renew approximately 5,600 linear feet (LF) of gravity pipe and twelve (12) manholes in the service areas of West Point Pump Stations (PS) 5, 8 and 9. These facilities have been identified as large contributors to inflow and infiltration (I&I). Renewal methods include internal point repairs, external point repairs, and trenchless rehabilitation. External Point repairs will consist of dig-and-replace in kind with pipe of equal size. Rehabilitation may include one or more trenchless methods to reinforce existing pipelines with an internally installed liner or other seal to prevent I&I intrusion. Manholes will be lined and rehabilitated.

**PROJECT JUSTIFICATION**

The West Point Treatment Plant (WPTP) experiences significant increased flows during wet weather events. Since January 2019, the effluent flow monthly average has exceeded the Permitted Design Capacity (0.6 MGD) ten times to date, with 95% of capacity being exceeded for three consecutive months occurring twice in that timeframe. Each of the consecutive occurrences requires a written letter to VDEQ outlining HRSDs plan of action to address these increased flows. This project will continue HRSDs commitment to reducing I&I into the collection system in accordance with that plan of action. Analysis of gravity flow meter data collected from the West Point system was evaluated and identified the PS 5, 8 and 9 service areas as the highest contributors to I&I levels. Hazen and Sawyer completed a Sanitary Sewer Evaluation Survey (SSES) of these areas and identified multiple areas of rehabilitation and/or replacement of the collections system. This project will address the deficiencies identified in this SSES and generate a large reduction of I&I and provide for structural repairs on at-risk infrastructure.

**FUNDING TYPE**

Funding Type: Revenue Bond

**CONTACTS**

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

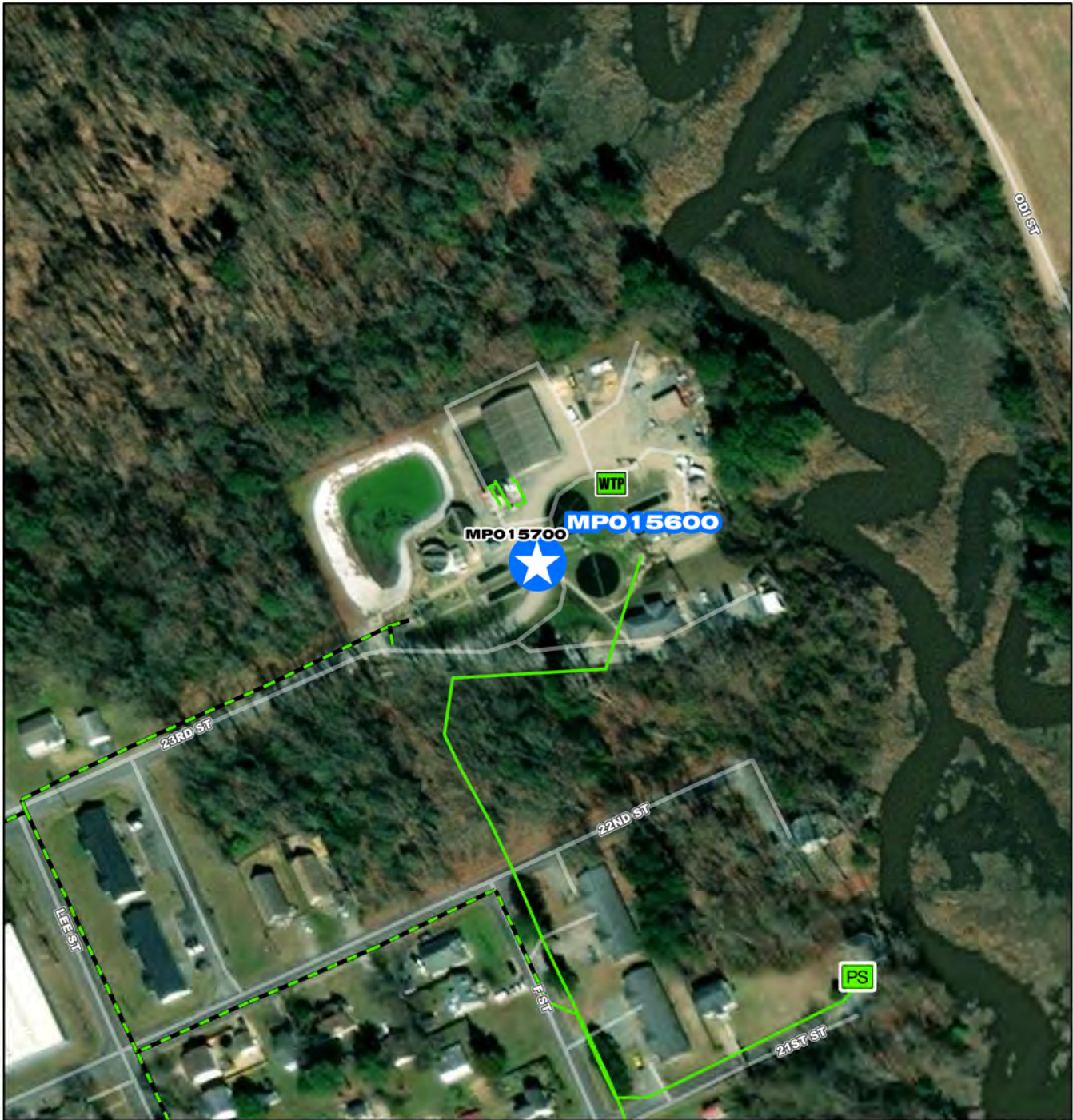
**PROPOSED SCHEDULE START DATE**

PrePlanning 07/03/2017  
PER 01/28/2022  
Design Delay 08/30/2022  
Design 12/01/2022  
Bid Delay 07/01/2023  
PreConstruction 07/01/2023  
Construction 10/01/2023  
Closeout 10/01/2024

**COST ESTIMATE**

<b>Cost Estimate Class:</b>	<b>Class 4</b>
PrePlanning	\$0
PER	\$56,621
Design	\$212,093
PreConstruction	\$9,572
Construction	\$2,672,768
Closeout	\$10,000
<b>Est. Program Cost</b>	<b>\$2,961,054</b>
Contingency Budget	\$250,000
<b>Est. Project Costs</b>	<b>\$3,211,054</b>





**MPO 15600**

- 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 55 110 220 330 440 Feet

## MPO 15600

### West Point Treatment Plant Final Effluent Pump Station Improvements

N  
W E  
S

**CIP Location**





**West Point Treatment Plant Final Effluent Pump Station Improvements**

**PR\_MP015600**

System: Mid-Peninsula  
Type: Pump Stations

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

**PROGRAM CASH FLOW PROJECTION (\$,000)**

Prog Cost	Exp to Previous Year	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33
\$3,013	\$304	\$629	\$1,461	\$615	\$4	\$0	\$0	\$0	\$0	\$0	\$0

**PROJECT DESCRIPTION**

This project consists of the rehabilitation of the existing West Point Treatment Plant Effluent Pump Station to include improvements to the pumping system and controls, discharge monitoring and access. The project will replace pump rail systems; rehabilitate and replace internal components of valve vault and emergency pump connection; install metering vault and associated components; upgrade alarms, pump controls and power panel and associated utility rack; and provide access to the station to drive up bypass pumps and equipment as necessary.

**PROJECT JUSTIFICATION**

The station suffered significant failure of both the mechanical and electrical systems in calendar year 2020. Emergency work was undertaken to make temporary repairs, however permanent repairs and improvements are still required to this critical piece of infrastructure to ensure continued reliability of the treatment plant process.

**FUNDING TYPE**

Funding Type: Revenue Bond

**CONTACTS**

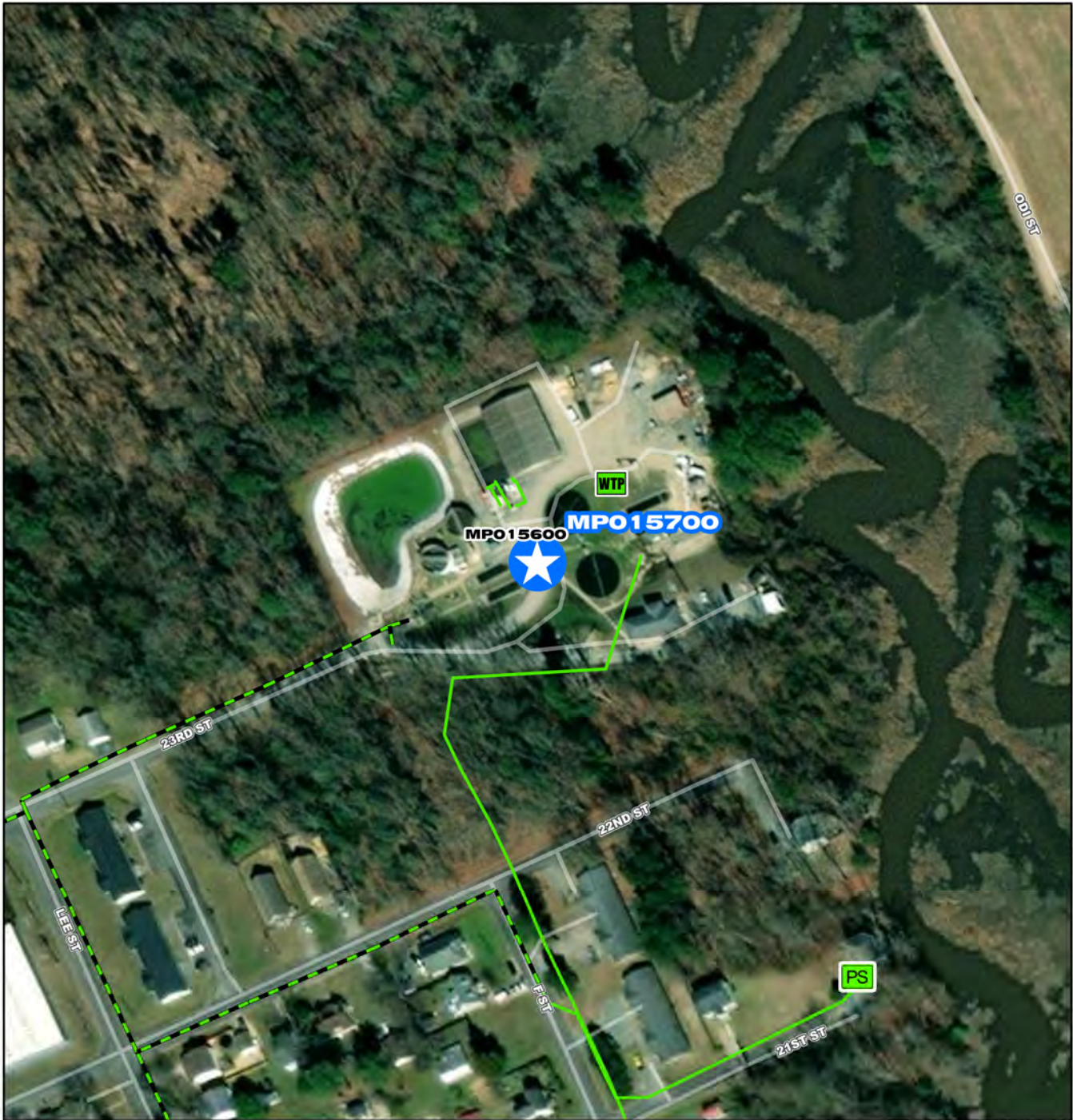
Contacts-Requesting Dept: Operations  
Contacts-Dept Contacts: Angela Weatherhead  
Contacts-Managing Dept: Engineering

**PROPOSED SCHEDULE START DATE**

PrePlanning	07/03/2017
PER	01/12/2022
Design Delay	07/19/2022
Design	02/01/2023
Bid Delay	12/01/2023
PreConstruction	01/01/2024
Construction	04/01/2024
Closeout	12/01/2025

**COST ESTIMATE**

<b>Cost Estimate Class:</b>	<b>Class 4</b>
PrePlanning	\$0
PER	\$49,812
Design	\$508,000
PreConstruction	\$10,000
Construction	\$2,435,530
Closeout	\$10,000
<b>Est. Program Cost</b>	<b>\$3,013,342</b>
Contingency Budget	\$612,000
<b>Est. Project Costs</b>	<b>\$3,625,342</b>



**MPO15700**

- 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 55 110 220 330 440 Feet

## MPO15700

### West Point Treatment Plant Secondary Clarifier Improvements

N  
W E  
S

**CIP Location**



**West Point Treatment Plant Secondary Clarifier  
Improvements**

**PR\_MP015700**

System: Mid-Peninsula  
Type: Wastewater Treatment

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

**PROGRAM CASH FLOW PROJECTION (\$,000)**

Prog Cost	Exp to Previous Year	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33
\$3,867	\$432	\$845	\$1,822	\$765	\$4	\$0	\$0	\$0	\$0	\$0	\$0

**PROJECT DESCRIPTION**

This project consists of the rehabilitation of the existing Secondary Clarifier System at the West Point Treatment Plant to include improvements to the waste pumping system and controls; raising the wall height on secondary clarifier #2; replacement of waste valving on both clarifiers; complete replacement of internal components; site improvements and rehabilitation of effluent weirs and skimmer wasting wells.

**PROJECT JUSTIFICATION**

The Secondary Clarifier system of West Point Treatment Plant has seen significant degradation since original installations in the 1950s and 1970s. Small scale improvement projects have been completed over the lifespan of the system to upgrade and repair various components. Conditional assessment of the system has shown several portions of the clarifiers are in need of repair or replacement in order to continue to treat wastewater effectively and reliably in accordance with the regulated permit. Additionally, the hydraulic profile of the plant flow creates a restriction on secondary clarifier #2, resulting in premature diversion to the plant holding pond. Raising of the clarifier wall will allow increased treatment capacity through the clarifier while drastically reducing the risk of an overflow.

**FUNDING TYPE**

Funding Type: Revenue Bond

**CONTACTS**

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

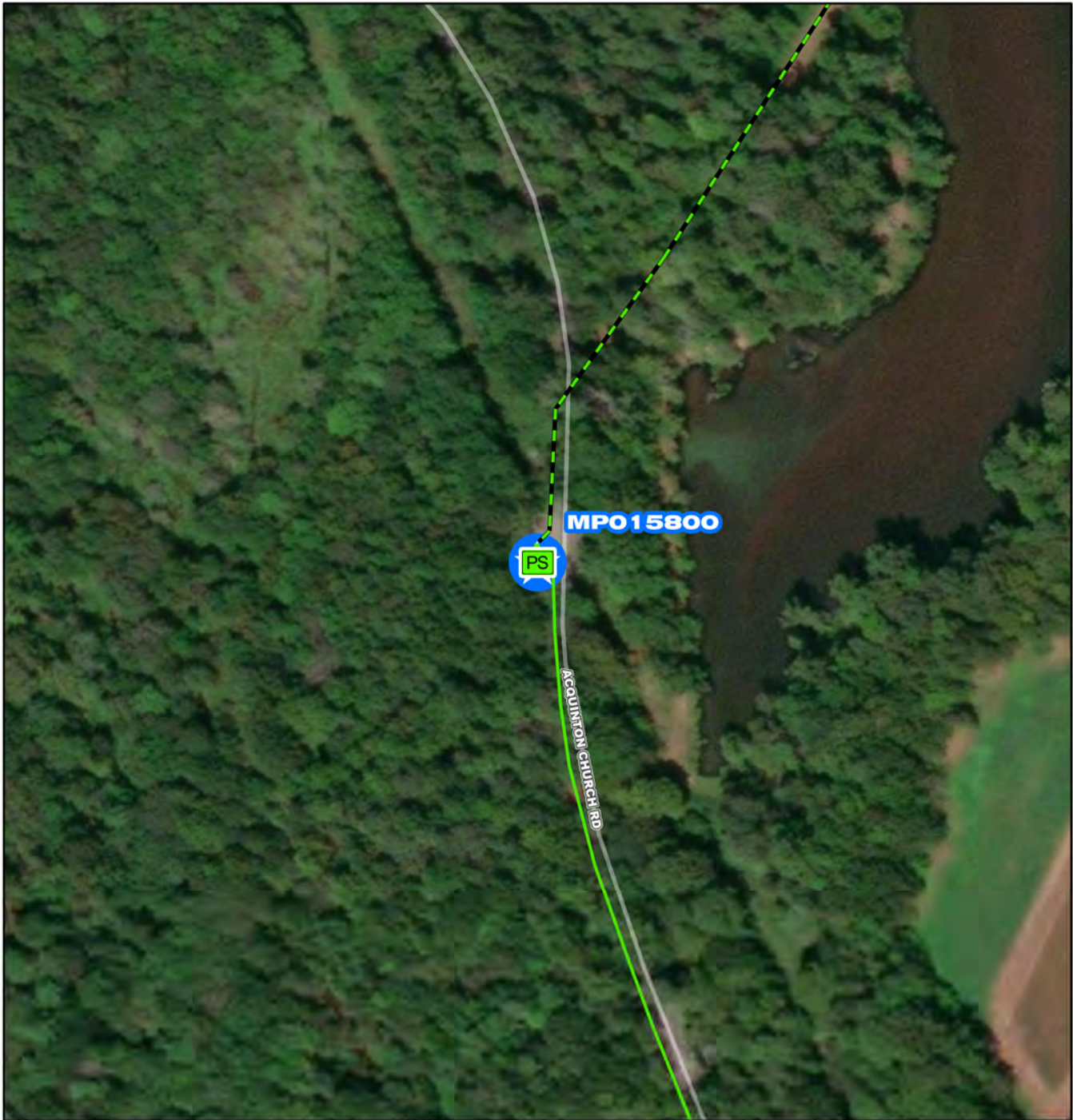
**PROPOSED SCHEDULE START DATE**

PrePlanning 07/03/2017  
PER 01/12/2022  
Design Delay 07/19/2022  
Design 02/01/2023  
Bid Delay 12/01/2023  
PreConstruction 01/01/2024  
Construction 04/01/2024  
Closeout 12/01/2025

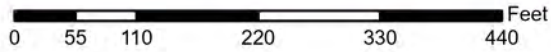
**COST ESTIMATE**

**Cost Estimate Class: Class 4**  
PrePlanning \$0  
PER \$52,373  
Design \$759,000  
PreConstruction \$10,000  
Construction \$3,036,000  
Closeout \$10,000  
**Est. Program Cost \$3,867,373**  
Contingency Budget \$607,200  
**Est. Project Costs \$4,474,573**





- MPO 15800**
- 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



**CIP Location**



# MPO 15800

## King William Main Pump Station Improvements





System: Mid-Peninsula  
Type: Pump Stations

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

**PROGRAM CASH FLOW PROJECTION (\$,000)**

Prog Cost	Exp to Previous Year	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33
\$1,439	\$99	\$100	\$1,236	\$4	\$0	\$0	\$0	\$0	\$0	\$0	\$0

**PROJECT DESCRIPTION**

This project will provide improvements and/or replacement of the existing King William Main Pump Station (KWMPs) to include hydraulic capacity upgrades, a new metering vault and discharge monitoring, pre-cast power and controls building, replacement of the permanently mounted standby pump or installation of a new generator, new property acquisition and expansion of the existing site and parking area, and possibly a new valve vault.

**PROJECT JUSTIFICATION**

The KWMPs pumps all flow generated by King William County to the existing treatment plant. With capacity upgrades currently underway at the treatment plant, the pump station will also need to be upgraded to meet these new capacity requirements. The antiquated and outdoor existing timber structure, electrical controls and power rack, and other ancillary equipment will be replaced so that the design life of the pump station matches that of the new treatment plant. Additionally, the existing permanently mounted standby pump does not meet the capacity requirements and will either need to be upgraded or replaced with an emergency power supply in cases of outages for the station. This project will correct these deficiencies and bring this facility to current HRSD standards.

**FUNDING TYPE**

Funding Type: Revenue Bond

**CONTACTS**

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

**PROPOSED SCHEDULE START DATE**

PrePlanning	07/01/2022
PER	12/01/2022
Design Delay	06/01/2023
Design	06/01/2023
Bid Delay	03/01/2024
PreConstruction	03/01/2024
Construction	07/01/2024
Closeout	07/01/2025

**COST ESTIMATE**

<b>Cost Estimate Class:</b>	<b>Class 5</b>
PrePlanning	\$0
PER	\$86,700
Design	\$108,400
PreConstruction	\$4,000
Construction	\$1,235,600
Closeout	\$4,000
<b>Est. Program Cost</b>	<b>\$1,438,700</b>
Contingency Budget	\$216,800
<b>Est. Project Costs</b>	<b>\$1,655,500</b>





System: Mid-Peninsula  
Type: Facilities, Buildings and Capital Equipment

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

**PROGRAM CASH FLOW PROJECTION (\$,000)**

Prog Cost	Exp to Previous Year	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33
\$400	\$0	\$209	\$191	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

**PROJECT DESCRIPTION**

This project will evaluate and develop conceptual alternatives to manage the wastewater conveyance and treatment needs of the Middle Peninsula through 2050.

**PROJECT JUSTIFICATION**

Projected future growth in King William, Middlesex, King & Queen, and Mathews Counties will require additional wastewater conveyance and treatment capacity. In addition, some HRSD assets will need rehabilitation or replacement over the next 30 years. Taking a holistic strategic look, at the future capacity needs and asset renewal needs, will enable HRSD to program the right portfolio of projects in the CIP.

**FUNDING TYPE**

Funding Type: Cash

**CONTACTS**

Contacts-Requesting Dept: Operations  
Contacts-Dept Contacts: Sam McAdoo  
Contacts-Managing Dept: Engineering

**PROPOSED SCHEDULE START DATE**

PrePlanning 07/01/2023  
PER  
Design Delay  
Design  
Bid Delay  
PreConstruction  
Construction  
Closeout

**COST ESTIMATE**

Cost Estimate Class:	Class 5
PrePlanning	\$400,000
PER	\$0
Design	\$0
PreConstruction	\$0
Construction	\$0
Closeout	\$0
<b>Est. Program Cost</b>	<b>\$400,000</b>
Contingency Budget	\$0
<b>Est. Project Costs</b>	<b>\$400,000</b>