



# FLOOD PROTECTION PROGRAM

Status Report | March 2025

**\*All asterisks represent updated information.**

*Prepared for*  
City of Virginia Beach

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# PROGRAM PROGRESS HIGHLIGHTS

The City of Virginia Beach citizens passed a bond referendum on November 2, 2021, to allow the utilization of real estate taxes to fund flood protection projects. The referendum specifically included the design and construction of flood protection strategies making up the Flood Protection Program (FPP). Since the approval of the referendum, a 10-year (2022-2032) implementation plan comprising seven (7) Master Projects was developed to design and construct projects city-wide to mitigate flooding impacts on the community.

This monthly report intends to inform the City Council and the Flood Prevention Bond Referendum Oversight Board (FPBROB) of the program's progress along with risk and strategic decisions that may require Council support.



Looking north from 31<sup>st</sup> St showing the expanse of the beach and the vital role a large beach has for flood protection from coastal storms.

## \*Monthly Highlights

- ✓ Community Meetings:
  - District 7, Hosted by Councilmember Cash Jackson-Green, Wednesday, March 26, 2025, 6:00 PM – 8:00 PM, College Park Elementary School, 110 Bennington Road, Virginia Beach
  - District 2, Hosted by Councilmember Barbara Henley, Thursday, March 27, 2025, 5:15 PM – 7:00 PM, Municipal Center – Building 19, 2416 Courthouse Drive, Virginia Beach
- ✓ At the Virginia Lakes and Watershed Conference on March 2 to 4 in Richmond, Virginia, Stormwater Engineering Center staff presented the following:
  - Stormwater Extension and Building a Resilient Community
  - Modeling on the Beach: Stormwater Master Planning for Coastal Resiliency
- ✓ The First Colonial Road and Oceana Boulevard Drainage Improvements Project pre-construction meeting was held on March 19.
- ✓ At the North Carolina Emergency Management Association Spring Conference on March 23 in Cherokee, North Carolina, Stormwater Engineering Center staff presented on sea level rise and FPP outreach.
- ✓ At the American Society of Civil Engineers Norfolk Spring Seminar on April 3 in Virginia Beach, Stormwater Engineering Center staff presented an overview of the FPP.
- ✓ At the Center for Watershed Protection Conference on April 8 to 10 in San Juan, Puerto Rico, the City consultant for the Lake Bradford/Chubb Lake program, RK&K will present:
  - From Planning to Construction: A Phased Approach to Flood Mitigation for Lake Bradford/Chubb Lake

## \*Upcoming Activities

- ✓ Community Meeting:
  - District 2, Hosted by Councilmember Barbara Henley, Thursday, April 24, 2025, 5:15 PM – 7:00 PM, Municipal Center – Building 19, 2416 Courthouse Drive, Virginia Beach
- ✓ At the Environment Virginia Symposium on April 9 in Lexington, Virginia at the Virginia Military Institute, Stormwater Engineering Center staff will present on the City's Coastal Storm Risk Management Study.
- ✓ At the Southern Watershed Symposium on April 11 at the Virginia Beach Convention Center, Stormwater Engineering Center staff will present an update on the FPP and the Pleasure House Point wetland restoration project.

## Program Estimates

The table below presents the FPP estimates at the master project level showing the program level benchmark estimate at \$1,001M and the current program cost estimate of \$1,067M.

MASTER PROJECTS	BENCHMARK ESTIMATE (\$M)	CURRENT ESTIMATE (\$M)
WINDSOR WOODS/PAP/THE LAKES	\$467	\$504
EASTERN SHORE DRIVE	\$101	\$109
LAKE BRADFORD/CHUBB LAKE	\$155	\$158
CENTRAL RESORT DISTRICT	\$113	\$113
SOUTHERN RIVERS WATERSHED	\$113	\$113
STORMWATER GREEN INFRASTRUCTURE	\$38	\$55
LINKHORN BAY DRAINAGE BASIN	\$14	\$15
<b>TOTAL</b>	<b>\$1,001</b>	<b>\$1,067</b>

The table below identifies the 6 projects in planning totaling \$708M.

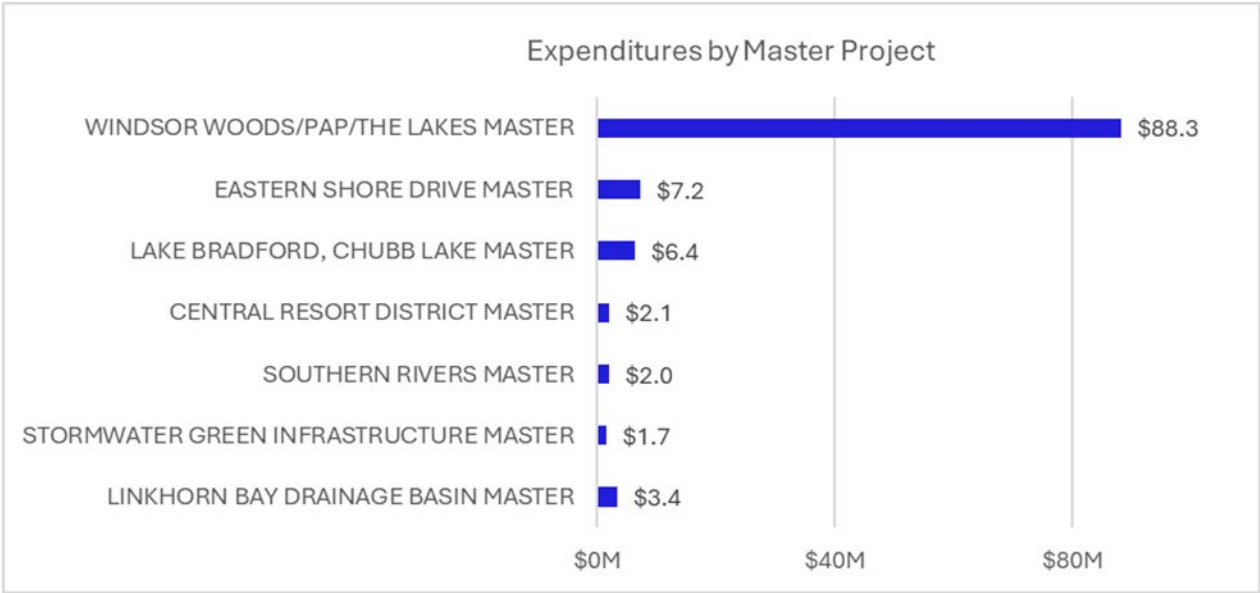
PROJECTS IN PLANNING	ESTIMATE PHASE	CURRENT ESTIMATE	VARIANCE
CENTRAL RESORT DISTRICT DRAINAGE IMPROVEMENTS (DESIGN-BUILD)	PLANNING	\$113,000,000	\$0
ESD VISTA CIRCLE PUMP STATION 1A	CANCELLED	\$0	\$0
EASTERN SHORE DRIVE BUNDLE	MOVED TO BASELINE	\$0	\$0
CHURCH POINT/THOROUGHGOOD BMP & CONVEYANCE	PLANNING	\$43,850,000	\$0
LAKE BRADFORD/ CHUBB LAKE PS & OUTFALL (DESIGN-BUILD)	PLANNING	\$102,400,000	\$0
PUNGO FERRY ROAD IMPROVEMENTS	PLANNING	\$36,100,800	\$0
WEST NECK BRIDGE (DESIGN-BUILD)	PLANNING	\$69,000,000	\$0
WINDSOR WOODS/PAP/THE LAKES BUNDLE (DESIGN-BUILD)	PLANNING	\$337,862,000	\$0
<b>TOTALS</b>		<b>\$708,422,800</b>	<b>\$0</b>

The table below identifies the 19 projects with baseline estimates totaling \$293M. Currently, these project costs are estimated at \$359M with a variance of \$66M.

PROJECTS WITH BASELINES	ESTIMATE PHASE	BASELINE ESTIMATE	CURRENT ESTIMATE	VARIANCE
SANDBRIDGE/NEW BRIDGE INTERSECTION IMPROVEMENTS	60	\$7,990,000	\$8,385,470	\$395,470
EASTERN SHORE DRIVE POINCIANA PUMP STATION	60	\$18,463,900	\$26,804,252	\$8,340,352
BOW CREEK STORMWATER PARK (GOLF COURSE - SECTION 2)	90	\$60,117,860	\$68,015,345	\$7,897,485
EASTERN SHORE DRIVE BUNDLE	100	\$76,125,199	\$76,125,199	\$0
ESD NORTH SHORE DRIVE, STREET DRAINAGE IMPROVEMENTS, 1F	100	\$3,699,909	\$3,780,825	\$80,916
MARSH RESTORATION IN BACK BAY	100	\$26,667,953	\$46,459,500	\$19,791,547
ELIZABETH RIVER FLOODPLAIN RESTORATION PROJECT	PS&E	\$10,864,300	\$8,351,900	-\$2,512,400
FIRST COLONIAL RD AND OCEANA BLVD DRAINAGE IMPROVEMENT	PS&E	\$6,971,196	\$7,737,088	\$765,892
SEATACK NEIGHBORHOOD DRAINAGE IMPROVEMENT	CONSTRUCTION	\$6,940,000	\$6,925,000	-\$15,000
SOUTH PLAZA TRAIL/PRESIDENTIAL BLVD	CONSTRUCTION	\$4,406,671	\$12,664,593	\$8,257,922
WINDSOR WOODS TIDE GATE	CONSTRUCTION	\$11,430,000	\$21,209,000	\$9,779,000
BOW CREEK STORMWATER PARK (GOLF COURSE - SECTION 1)	CONSTRUCTION	\$42,089,000	\$41,729,034	-\$359,966
OLD FORGE RD & RED LION RD DRAINAGE IMPROVEMENTS	COMPLETE	\$2,711,309	\$6,244,221	\$3,532,912
LAKE BRADFORD DREDGING	COMPLETE	\$1,512,536	\$2,615,000	\$1,102,464
EASTERN SHORE DRIVE GRAVITY SEWER RELOCATION 1C	COMPLETE	\$2,910,350	\$2,486,451	-\$423,899
LAKE PLEASURE HOUSE OUTFALL	COMPLETE	\$523,885	\$1,303,500	\$779,615
CLUB HOUSE ROAD STORM DRAINAGE	COMPLETE	\$4,902,084	\$3,856,888	-\$1,045,196
LAKE BRADFORD/CHUBB LAKE PER/DESIGN	COMPLETE	\$624,100	\$2,082,000	\$1,457,900
WINDSOR WOODS DRAINAGE	COMPLETE	\$3,606,310	\$11,921,448	\$8,315,138
<b>TOTALS</b>		<b>292,556,562</b>	<b>\$358,696,714</b>	<b>\$66,140,152</b>

# Program Spending

As detailed in the following graphic, the FPP Master Project expenditures through **\*March 2025**, totaling **\*\$111.1M**.



## Monthly Appropriation Project Transfers

There are no appropriation transfers this month.



## Program Schedule

The table below represents a high-level summary of the planning (P), design (D), and construction (C) timeframes included in the master program schedule by project.

FPP PROJECTS	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33
<b>WINDSOR WOODS/PAP/THE LAKES MASTER PROJECT</b>											
CLUB HOUSE ROAD STORM DRAINAGE	C										
SOUTH PLAZA TRAIL/PRESIDENTIAL BLVD	C	C	C								
OLD FORGE RD & RED LION RD DRAINAGE IMPROVEMENTS	D	C	C								
BOW CREEK STORMWATER PARK (SECTIONS 1 AND 2)	D	C	C	C	C	C	C	C			
WINDSOR WOOD TIDE GATE	C	C	C								
WINDSOR WOODS/PAP/THE LAKES BUNDLE (DESIGN-BUILD)	P	D	D	D	C	C	C	C	C		
<b>EASTERN SHORE DRIVE MASTER PROJECT</b>											
ESD CAPE HENRY CANAL PHASE 1C	C	C									
EASTERN SHORE DRIVE BUNDLE	D	D	D	C	C	C	C				
ESD CAPE HENRY CANAL DRAINAGE IMPROVEMENTS IF	D	D	C								
ESD POINCIANA PUMP STATION	D	D	D	C	C	C	C				
<b>LAKE BRADFORD/CHUBB LAKE MASTER PROJECT</b>											
LAKE BRADFORD DREDGING	C	C									
LAKE PLEASURE HOUSE OUTFALL	C	C									
CHURCH POINT/THOROUGHGOOD BMP & CONVEYANCE	P	P	D	D	D	C	C	C	C		
LAKE BRADFORD/CHUBB LAKE PS & OUTFALL (DESIGN-BUILD)	P	P	D	D	D	C	C	C			
<b>CENTRAL RESORT DISTRICT MASTER PROJECT</b>											
CENTRAL RESORT DISTRICT DRAINAGE (DESIGN-BUILD)		P	P	D	D	D	C	C	C	C	C
<b>SOUTHERN REIVERS MASTER PROJECT</b>											
SANDBRIDGE/NEW BRIDGE INTERSECTION IMPROVEMENTS	D	D	D	D	D	D	C	C	C		
PUNGO FERRY ROAD IMPROVEMENTS	D	D	D	D	D	C	C	C	C		
WEST NECK BRIDGE (DESIGN-BUILD)		P	P	D	D	D	C	C	C	C	
<b>STORMWATER GREEN INFRASTRUCTURE MASTER PROJECT</b>											
MARSH RESTORATION IN BACK BAY	D	D	C	C	C	C					
ELIZABETH RIVER FLOODPLAIN RESTORATION	D	D	C								
<b>LINKHORN BAY DRAINAGE MASTER PROJECT</b>											
SEATACK NEIGHBORHOOD DRAINAGE IMPROVEMENT	D	C	C	C							
FIRST COLONIAL RD & OCEANA BLVD DRAINAGE	D	D	C	C							

*Note: The dominant activity is shown for each fiscal year in the above table. Actual work phases are likely to span multiple fiscal years.*

## Program Phase Overview

The table below shows the current delivery phase for each FPP project. Project phases include preliminary engineering, design, design-build, construction in progress, and construction complete.

Preliminary Engineering	Design	Design-Build	Construction In-Progress	Construction Complete
West Neck Creek Bridge	Eastern Shore Drive (ESD) Drainage Bundle	Windsor Wood, PAP, The Lakes Bundle	Windsor Woods Tide Gate	Club House Road Drainage
Pungo Ferry Road Improvements	ESD Roadway Drainage 1F & 1G	Lake Bradford/ Chubb Lake Pump Station & Outfall <b>(In Procurement)</b>	South Plaza Trail, Presidential Blvd Drainage	Cape Henry Canal Gravity Sewer Relocation
Central Resort District Drainage Improvements	Poinciana Pump Station		Bow Creek Stormwater Park (Section 1)	Lake Pleasure House Outfall
	Sandbridge/New Bridge Intersection <b>(On Hold)</b>		Seatack Drainage	Lake Bradford Dredging
	Bow Creek Stormwater Park (Section 2)		<b>*First Colonial Rd &amp; Oceana Blvd Drainage</b>	Old Forge Road & Red Lion Drainage
	Elizabeth River Floodplain Restoration			
	Back Bay Marsh Restoration			
	Churchpoint/ Thoroughgood BMP & Conveyance			

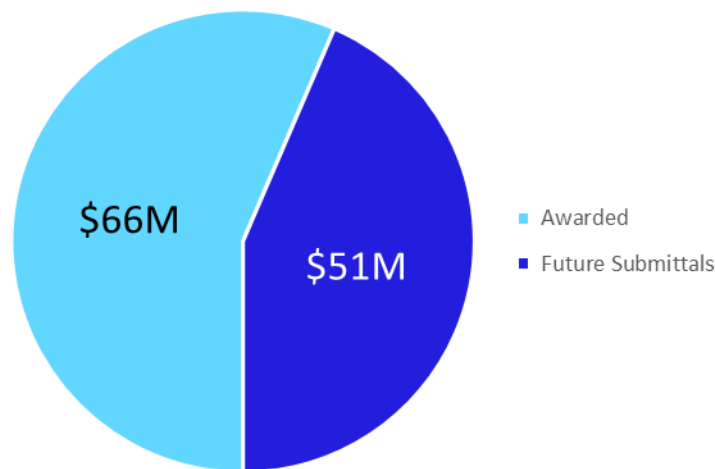
## Procurement Activity

- ✓ The Lake Bradford/Chubb Lake Pump Station and Outfall Project is currently in procurement for the Design-Build team.

**\*Updated Since Last Report**

# Grant Program

The City has received ~\$66M and continues to seek grant funding from various state and federal grant programs.



The Federal Emergency Management Agency (FEMA) awarded \$25.1M to the Eastern Shore Drive Drainage Bundle from the Building Resilient Infrastructure and Communities (BRIC) fund. The Virginia Department of Conservation and Recreation (DCR) awarded grants from the Virginia Community Flood Preparedness Fund (CFPF) for the following projects: \$3.0M for Elizabeth River Floodplain Restoration, \$1.9M for Seatack Neighborhood Drainage Improvements, \$2.0M for First Colonial Road and Oceana Boulevard Drainage Improvements and, \$5.0M for Marsh Restoration project in Back Bay. The Marsh Restoration project in Back Bay also received a \$9.9M grant from the National Coastal Resilience Fund through the National Fish and Wildlife Foundation (NFWF). The U.S. Department of Transportation Federal Highway Administration (FHWA) awarded \$19.0M to the Pungo Ferry Road project from the Promoting Resilient Operations for Transportation (PROTECT) Discretionary Grant Program.

The Lake Bradford/Chubb Lake Pump Station and Outfall project was not selected to receive funding from the Building Resilient Infrastructure and Communities (BRIC) grant from the Federal Emergency Management Agency (FEMA). The project will reapply during the next open application period.

The West Neck Creek Bridge project is still under consideration for the Rebuilding American Infrastructure with Sustainability and Equity (RAISE) grants.

The Bow Creek Stormwater Park Section 2 Project will be included in applications for potential grants through the National Fish and Wildlife Foundation and the Community Flood Preparedness Fund (CFPF).

**\*Updated Since Last Report**

The following table summarizes the total grant amounts awarded for a specific FPP Master Project and anticipated grant funding which may be received from future grant applications.

FPP Master Projects	Awarded	Future Submittals
Eastern Shore Drive	\$25M	
Southern Rivers	\$19M	
**Stormwater Green Infrastructure	\$18M	
Linkhorn Bay Drainage	\$4M	
Lake Bradford/Chubb Lake		\$35M
Windsor Woods, Princess Anne Plaza, The Lakes		\$11M
Central Resort District		\$5M

\*\*The Marsh Restoration Project in Back Bay and the Elizabeth River Floodplain Restoration Project are included in the Stormwater Green Infrastructure Master Project

## Program Communications

### \* March and Early April 2025 Highlights

- The following materials and media on the Pleasure House Point wetlands restoration project were distributed during the first week of March.
  - [Project brochures](#) were provided to the Brock Center and to Lynnhaven River Now.
  - 1,000 copies of the project brochure were delivered to the Virginia Beach Public Library administration office to be distributed to each branch.
  - 1,000 copies of the project brochure were delivered to the Parks & Recreation administration office to be sent to all City recreation centers.
  - Doorhangers were delivered to approximately 800 homes in the project area.
  - Both Virginia Beach Public Libraries and City recreation centers will have rotating project graphics on their public screens and kiosks until October 2025.
- Videos posted to City social channels and the Ripple Effect YouTube playlist include:
  - March 3: [“How It Works - Bow Creek Stormwater Park Timeline”](#) with 9,569 views
  - March 27: [“How It Works - Sizing up Stormwater Pipes”](#) with 8,677 views
- Social posts in March garnered 25,995 impressions. The highest engagement rates were seen on the March 3 [“How It Works - Bow Creek Stormwater Park Timeline”](#) (8.31%) and the March 27 [“How It Works - Sizing up Stormwater Pipes”](#) (8.16%) video posts on Facebook. *Note: Engagement rates depict how actively the audience engages with the content by liking, commenting, sharing, or clicking through.*
- On March 7, Joel Rubin of [WINDSdays.com](#) interviewed Bob Kerr of Wetland Studies and Solutions (consultant working for the City) at the Windsor Woods tide gate. The discussion focused on FPP projects and benefits of the tide gate. The interview will be released in early April.
- The [2025 First Quarter Update on the Flood Protection Program](#) presentation to City Council was recorded and posted to the [Ripple Effect playlist](#) on the City’s YouTube Channel on March 19.
- The discussion about the Pleasure House Point wetlands restoration project at the March 18 City Council meeting was recorded and posted to the [project webpage](#) on March 19.
- [“The Ripple Effect: First Quarter 2025 Update on the Flood Protection Program”](#) blog post was published on March 21 and received 175 views. It was shared on Facebook and X, and also included in the “Be in the Know” newsletter distributed to more than 11,000 residents.
- On April 2, information on the current status and next steps for the Pleasure House Point wetlands restoration project was added to the [project webpage](#) and included information on the wetlands bank construction, bridge construction, and vegetation planting.
- On April 2, WAVY-TV reporter Brett Hall interviewed Stormwater Engineering Center Administrator Mike Tippin about the FPP Bond Referendum and its impact on flood prevention. The piece aired on the [April 2 evening newscasts](#).

### \*Updated Since Last Report

### \* Upcoming Communications Activities

- Future blog post topics include how to reduce yard debris from blocking storm drains, and updates on the Lake Bradford/Chubb Lake pump station and outfall project and the Old Forge Road/Red Lion Road drainage improvements project.
- The “How It Works” video #14 will be released the last week in April. It will be shot at the Windsor Woods tide gate project site and discuss how tide gates in the City help to mitigate flooding for residences and businesses.
- The “How it Works” video #15 is scheduled for release at the end of May and will provide an overview of how leaves and debris in storm drains can slow the flow of stormwater and will give viewers tips on how to reduce the problem.
- Edits and consolidation of the two Eastern Shore Drive project webpages will take place to provide a more user-friendly browsing experience.
- The “Teacher's Guide: Understanding Floods for Fourth Grade Students” is on hold until edits can be finalized and approved. Once approved, the Communications team will remediate the guide for accessibility and finalize print and digital versions. The goal is to roll it out to teachers for their fall lesson plans on weather.
- The Pleasure House Point wetlands restoration project webpage will be updated biweekly with new information. Additions in April will include a map graphic of the site and more details on the trails, replanting efforts, and wetland construction.
- A Flooding Mitigation Toolbox, trifold pamphlet with mitigation strategies, and individual 2-page mitigation guides are being designed by the Communications Office. These materials will be posted to a newly created Stormwater Extension/Stormwater Solutions webpage, distributed to the public, and made available at local library branches and recreation centers by the beginning of summer.

### \*Updated Since Last Report

# PROJECT LEVEL INFORMATION

## Windsor Woods, Princess Anne Plaza, and The Lakes Master Project

The Windsor Woods, Princess Anne Plaza, and The Lakes Master Project has contractually obligated **\*\$128.9M** of which **\*\$88.3M** has been spent.

The anticipated project schedules are illustrated below.

South Plaza Trail and Presidential Boulevard Drainage Improvements schedule delay is due to weather. Old Forge Road and Red Lion Road Drainage Improvements schedule delay is due to weather, franchise utilities and design changes related to site conditions.

Anticipated Schedule Design-Bid-Build	Status	Preliminary Engineering	Design Start	Invitation to Bid	Construction Start	Construction Complete
Club House Road	<b>BL</b>	<b>Q2 2017</b>	<b>Q1 2018</b>	<b>Q3 2020</b>	<b>Q1 2021</b>	<b>Q4 2022</b>
	Current	√	√	√	√	√
Windsor Woods Tide Gate	<b>BL</b>	<b>Q3 2019</b>	<b>Q4 2021</b>	<b>Q2 2022</b>	<b>Q4 2022</b>	<b>Q2 2025</b>
	Current	√	√	√	√	→
South Plaza Trail and Presidential Blvd Drainage Improvements	<b>BL</b>	<b>Q1 2017</b>	<b>Q1 2018</b>	<b>Q2 2022</b>	<b>Q2 2023</b>	<b>Q2 2025</b>
	Current	√	√	√	√	<b>Q3 2025</b>
Old Forge Rd and Red Lion Rd Drainage Improvements	<b>BL</b>	<b>Q1 2017</b>	<b>Q1 2018</b>	<b>Q1 2023</b>	<b>Q3 2023</b>	<b>Q3 2024</b>
	Current	√	√	√	√	<b>Q4 2024</b> √
<b>Bow Creek Stormwater Park Section 1</b>	<b>BL</b>	<b>Q4 2019</b>	<b>Q3 2020</b>	<b>Q1 2023</b>	<b>Q3 2023</b>	<b>Q4 2026</b>
	Current	√	√	√	√	→
<b>Bow Creek Stormwater Park Section 2</b>	<b>BL</b>	<b>Q4 2019</b>	<b>Q3 2023</b>	<b>Q1 2026</b>	<b>Q3 2026</b>	<b>Q2 2030</b>
	Current	√	→			



Projects Identified in the Bond Referendum | Baseline (BL)  
 \*Updated Since Last Report | Activity complete √  
 Variance | Activity in-progress →

## Windsor Woods, Princess Anne Plaza, and The Lakes Master Project (Continued)

Anticipated Schedule Design-Build	Status	Bridging Documents	Design-Builder RFP	Design-Builder Selected	GMP	Construction Start	Construction Complete
Windsor Woods, Princess Anne Plaza, and The Lake Bundle*	No BL	Q2 2022	Q1 2023	Q3 2023	TBD	TBD	TBD
	Current	√	√	√			

\*Windsor Woods, Princess Anne Plaza, and The Lakes Bundle includes the following projects:

1. Windsor Woods Pump Station
2. Windsor Woods Flood Barriers
3. Windsor Woods Thalia Creek/Lake Trashmore Improvements
4. PAP North London Bridge Creek Tide Gate, Pump Station, and Barriers
5. The Lakes Holland Road Gate
6. The Lakes Flood Barriers
7. The Lakes South London Bridge Creek Channels and Gate

Projects Identified in the Bond Referendum

\*Updated Since Last Report

Variance

Baseline (BL)

Activity complete √

Activity in-progress →



## Eastern Shore Drive Master Project

The Eastern Shore Drive Master Project has contractually obligated \$8.5M of which \$7.2M has been spent.

The anticipated project schedules are illustrated below.

Poinciana Pump Station schedule adjustments were made due to value engineering and relocating the pump station outfall at a different street. The Eastern Shore Drive Bundle schedule was baselined. North Shore Drive (1F) & Cape Henry Drive (1G) projects were separated. Cape Henry Drive Drainage Improvements (1G) were incorporated into the Eastern Shore Drive Bundle. North Shore Drive Drainage Improvements (1F) schedule adjustments were made because it will be constructed with the Shore Drive Phase III transportation project starting construction Q2 2025. The Vista Circle Pump Station was removed due to value engineering and increasing the size of the Lynnhaven Colony Park Pump Station thereby eliminating the need for the Vista Circle Pump Station.

Anticipated Schedule Design-Bid-Build	Status	Preliminary Engineering	Design Start	Invitation to Bid	Construction Start	Construction Complete
Cape Henry Canal Phase II Gravity Sewer Relocation	BL	Q2 2017	Q1 2020	Q4 2021	Q2 2022	Q3 2023
	Current	√	√	√	√	√
North Shore Drive Street Drainage Improvements (1F)*	BL	Q2 2017	Q2 2023	Q2 2025	Q3 2025	Q2 2027
	Current	√	→	Q4 2024 √	Q2 2025	Q3 2028
Poinciana Pump Station	BL	Q1 2017	Q2 2023	Q2 2025	Q3 2025	Q3 2028
	Current	√	→	Q4 2025	Q2 2026	Q4 2028
Eastern Shore Drive Bundle**	BL	Q1 2017	Q2 2022	Q2 2025	Q4 2025	Q4 2028
	Current	√	→			

\*North Shore Drive Street Drainage Improvements (1F), will be constructed with the transportation project 100381, Shore Drive Phase III.

\*\*Eastern Shore Bundle includes the following projects:

1. Elevate Lynnhaven
2. Lynnhaven Colony Park Pump Station
3. Lynnhaven Drive Pump Station
4. Cape Henry Canal Phase II – Widen and Deepen Canal
5. Cape Henry Drive – Street Drainage Improvements (1G)

Projects Identified in the Bond Referendum

\*Updated Since Last Report

Variance

Baseline (BL)

Activity complete √

Activity in-progress →

## Lake Bradford/Chubb Lake Master Project

The Lake Bradford/Chubb Lake Master Project has contractually obligated **\*\$9.3M** of which \$6.4M has been spent.

The anticipated project schedules are illustrated below.

Anticipated Schedule Design-Bid-Build	Status	Preliminary Engineering	Design Start	Invitation to Bid	Construction Start	Construction Complete
Lake Pleasure House Outfall	<b>BL</b>	<b>Q2 2018</b>	<b>Q2 2019</b>	<b>Q3 2021</b>	<b>Q3 2022</b>	<b>Q3 2023</b>
	Current	√	√	√	√	√
Lake Bradford Dredging	<b>BL</b>	<b>Q2 2018</b>	<b>Q2 2019</b>	<b>Q2 2022</b>	<b>Q4 2022</b>	<b>Q4 2023</b>
	Current	√	√	√	√	√
<b>Church Point/Thoroughgood BMP and Drainage Improvements</b>	<b>No BL</b>	<b>Q1 2022</b>	<b>Q2 2024</b>	<b>TBD</b>	<b>TBD</b>	<b>TBD</b>
	Current	√	→			

Anticipated Schedule Design-Build	Status	Bridging Documents	Design-Builder RFP	Design-Builder Selected	Construction Start	Construction Complete
<b>Lake Bradford/Pump Station &amp; Outfall</b>	<b>No BL</b>	<b>Q3 2022</b>	<b>Q2 2024</b>	<b>TBD</b>	<b>TBD</b>	<b>TBD</b>
	Current	√	→			

Projects Identified in the Bond Referendum

\*Updated Since Last Report

Variance

Baseline (BL)

Activity complete √

Activity in-progress →

## Central Resort District Master Project

The Central Resort District Master Project has contractually obligated **\*\$2.8M** of which **\*\$2.1M** has been spent.

The anticipated project schedules are illustrated below.

Anticipated Schedule Design-Build	Status	Bridging Documents	Design-Builder RFP	Design-Builder Selected	Construction Start	Construction Complete
Central Resort District Bundle*	No BL	Q2 2023	TBD	TBD	TBD	TBD
	Current	→				



\*Central Resort Bundle includes:

1. 21st and Baltic
2. **24<sup>th</sup> Street Culvert**
3. **Central Resort District Drainage Improvements**

Projects Identified in the Bond Referendum

**\*Updated Since Last Report**

**Variance**

Baseline (BL)

Activity complete ✓

Activity in-progress →

## Southern Rivers Master Project

The Southern Rivers Master Project has contractually obligated \$4.1M of which \$2.0M has been spent.

The anticipated project schedules are illustrated below.

Anticipated Schedule Design-Bid-Build	Status	Preliminary Engineering	Design Start	Invitation to Bid	Construction Start	Construction Complete
<b>Sandbridge/ New Bridge Intersection Improvements*</b>	<b>BL</b>	<b>Q2 2018</b>	<b>Q4 2022</b>	<b>Q3 2027</b>	<b>Q1 2028</b>	<b>Q1 2030</b>
	Current	√	→			
<b>Pungo Ferry Road Improvements</b>	<b>No BL</b>	<b>Q1 2023</b>	<b>TBD</b>	<b>TBD</b>	<b>TBD</b>	<b>TBD</b>
	Current	→				



\*The Sandbridge/New Bridge Intersection Improvements Project is on hold pending the completion of the Environmental Impact Statement for the Nimmo Parkway VIIIB road project.

Anticipated Schedule Design-Build	Status	Bridging Documents	Design- Builder RFP	Design- Builder Selected	Construction Start	Construction Complete
<b>West Neck Bridge</b>	<b>No BL</b>	<b>Q4 2023</b>	<b>TBD</b>	<b>TBD</b>	<b>TBD</b>	<b>TBD</b>
	Current	→				



Projects Identified in the Bond Referendum

\*Updated Since Last Report

Variance

Baseline (BL)

Activity complete √

Activity in-progress →

## Stormwater Green Infrastructure Master Project

The Stormwater Green Infrastructure Master Project has contractually obligated **\*\$3.9M** of which \$1.7M has been spent.

The anticipated project schedules are illustrated below.

The City has not received the critical environmental permits for the Marsh Restoration in Back Bay and Elizabeth River Floodplain Restoration projects. While the City is working diligently with the regulators, we must also look realistically at the project schedule. Due to the construction moratorium for environmental concerns that must be considered annually from October to March, we are now forecasting the Marsh Restoration in Back Bay project will need a third construction season in 2027.

Anticipated Schedule Design-Bid-Build	Status	Preliminary Engineering	Design Start	Invitation to Bid	Construction Start	Construction Complete
<b>Marsh Restoration In Back Bay</b>	<b>BL</b>	<b>Q3 2021</b>	<b>Q4 2021</b>	<b>Q4 2023</b>	<b>Q2 2024</b>	<b>Q4 2026</b>
	Current	√	→	<b>Q2 2025</b>	<b>Q3 2025</b>	<b>Q4 2027</b>
<b>Elizabeth River Floodplain Restoration</b>	<b>BL</b>	<b>Q3 2021</b>	<b>Q2 2022</b>	<b>Q1 2024</b>	<b>Q3 2024</b>	<b>Q1 2025</b>
	Current	√	→	<b>*Q2 2025</b>	<b>Q2 2025</b>	<b>Q1 2026</b>



Projects Identified in the Bond Referendum

\*Updated Since Last Report

Variance

Baseline (BL)

Activity complete √

Activity in-progress →

## Linkhorn Bay Master Project

The Linkhorn Bay Master Project has contractually obligated \$10.7M of which **\*\$3.4M** has been spent.

The anticipated project schedules are illustrated below.

The schedule delay for the First Colonial Road and Oceana Boulevard Drainage Improvements is due to coordination with an existing transportation project. The Seatack Neighborhood Drainage Improvements completion of construction delay is due to unforeseen private utility conflicts.

Anticipated Schedule Design-Bid-Build	Status	Preliminary Engineering	Design Start	Invitation to Bid	Construction Start	Construction Complete
Seatack Neighborhood Drainage Improvements	BL	Q4 2020	Q3 2022	Q4 2023	Q1 2024	Q1 2025
	Current	√	√	√	√	Q3 2025 →
First Colonial Road and Oceana Boulevard Drainage Improvements	BL	Q4 2020	Q1 2023	Q1 2024	Q2 2024	Q3 2025
	Current	√	√	Q4 2024 √	Q1 2025 *√	Q4 2025

Projects Identified in the Bond Referendum

\*Updated Since Last Report

Variance

Baseline (BL)

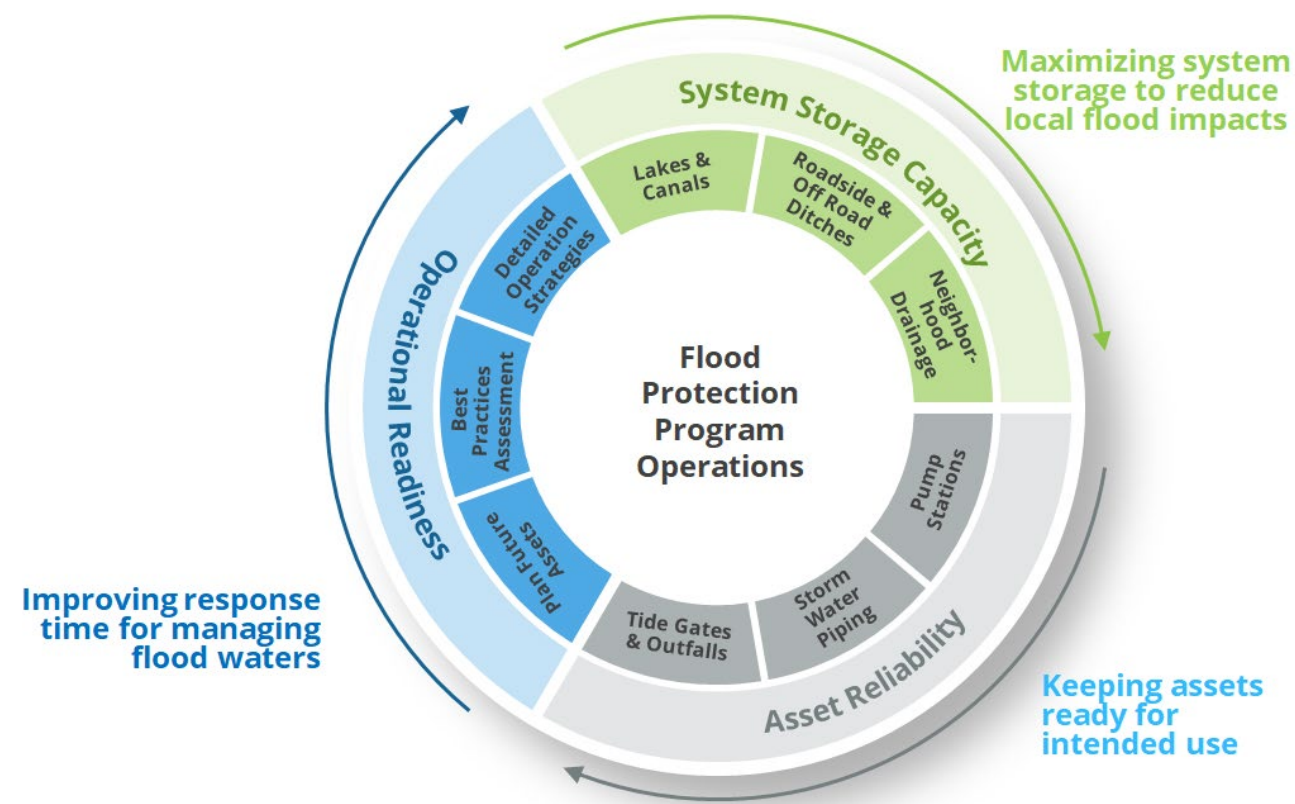
Activity complete √

Activity in-progress →

# SUPPORTING CAPITAL INVESTMENTS

The Phase 1 FPP Master projects are not the only flood mitigation and protection work underway in the City. This section lists other capital investment projects and operational activities that support key flood protection drivers such as maximizing system storage to reduce local flood impacts; keeping assets ready for their intended use; and maintaining operational readiness that continuously improves the City’s response time for managing flood waters.

The following figure presents how the system storage capacity projects, such as lakes, canals, roadside ditches, off-road ditches, and neighborhood drainage improvements, help maximize available system storage to reduce local flood impacts. Also shown are the asset reliability improvements to tide gates, outfalls, stormwater piping, and pump stations to keep assets ready for their intended use. Finally, the figure connects how activities such as planning for future assets; best practices; and detailed operation strategies help improve response time for managing flood waters.



**\*Updated Since Last Report**

## System Storage Capacity

### Ashville Park Drainage Improvements Phase 1 Projects

- Princess Anne Farm Ditch Stabilization – Complete
- Roadway/Drainage/Intersection Improvements – Complete
- Stormwater Pump Station – Complete
  - ~99% Complete – Anticipated finish Q1 2025
    - Under Budget: ~\$12M vs ~\$10.3M
- Cost Participation Ashville Developer – Under Construction
  - 3 new Stormwater Ponds (BMPs)
  - Existing Pond Expansion
  - Channels Connecting Ponds
  - Regrade and Stabilize Existing Ditches
- ~99% Complete – Anticipated finish Q1 2025

### South Lake Holly Watershed Section IIIB Project

- Remaining construction areas include the 500 and 800 blocks of Maryland Avenue, the 800 block of Delaware Avenue, and the intersection of Delaware and Cypress Avenues.
- Under construction ~99% Complete – Anticipated finish Q2 2025

### Operations Activities for System Maintaining Storage Capacity

- Canal Management Program
- Lake Management Program
- Off-Road Ditch Cleaning Program
- Roadside Ditch Cleaning Program

### ARPA Funded Lake Dredging Projects

- The Stormwater Operations Group is working on completing \$14.3 million of lake dredging projects funded by the American Rescue Plan Act (ARPA). Funds for these projects must be encumbered by December 2024 and fully spent by December 2026. The status of each lake dredging project is presented in the following table.
- The scope of this program currently includes dredging at 13 sites. The overall program estimate currently exceeds the allocated ARPA funding. Authorization to remove Package #4 from the ARPA funded projects list is pending as it is not needed to exceed the level of ARPA funding and will be completed utilizing CIP funds in the future.
- Through January 2025, the City has spent \$3.56 million and encumbered an additional \$10.74 million for these projects.
- There are currently no concerns with the timeline and all projects remain on schedule for completion by December 31, 2026.

**\*Updated Since Last Report**



The following table lists the Lake Dredging bid packages and the status and estimated project completion quarter for each location.

Lake Dredging Bid Package	Lake to be Dredged	Project Status	Estimated Project Completion
1	Indian Lakes #2	Under Construction	Q4 2025
	Lynnhaven Mall #1		Q4 2025
	Lynnhaven Mall #3		Q4 2025
	Sabre Street Ext #1		Q4 2025
2	Chandler Creek Canal	Under Construction	Q4 2025
	Green Meadows Lake		Q4 2025
	Rosemont Road Lake Dredging		Q4 2025
3	Chapel Lake	Ready for Construction - to begin after Package #2 in October 2025	Q4 2026
	Salem Lakes #1		Q4 2026
4	Charlestowne Lake South #3	Removed from Program	N/A
	Turtle Lake		N/A
5	Reedtown Lake	Pending Completion of Post Stabilization	Completed
	John B. Dey Lake		Completed
	Lovetts Pond		Completed
	Great Neck Lake #2		Completed

## Asset Reliability

### Neighborhood Stormwater Infrastructure Improvements Phase II Projects

- Country Club Circle Drainage Improvement: Construction started in October 2024.
- Goodspeed Road Pump Station Upgrade: ~100% Design, anticipate construction beginning in **\*Q2 2025**. The construction Start Date delayed as the construction work orders are higher than estimated and are under review.

### College Park and Level Green Drainage Improvement Project

- Drainage improvement project construction is complete. Public Works Operations will perform additional storm drain pipe cleaning.

### Operations Activities for Asset Reliability

- BMP/SWMF Maintenance Program
- Stormwater Pump Station Improvements
- Pipe Cleaning and Repair: Operations continues to transition from reactive work to proactive work.

**\*Updated Since Last Report**

## ARPA Funded Neighborhood Drainage Rehabilitation Projects

- The Stormwater Operations Group is working on completing \$30.58 million of neighborhood stormwater infrastructure rehabilitation. This amount increased from \$25 million given the City Council's approval to transfer ARPA funds from lake dredging to drainage improvements.
- The scope of this project currently includes CCTV inspection, cleaning, and point repairs of the stormwater infrastructure system in 27 neighborhoods. The overall project estimate currently exceeds allocated ARPA funding and CIP funds will supplement to fully fund the projects. Authorization to remove packages #12, #13, #14, and #15 that have not yet been spent or encumbered funding was approved as they are not needed to exceed the level of ARPA funding.
- Projects funded by the American Rescue Plan Act (ARPA). Funds for these projects must be encumbered by December 2024 and fully spent by December 2026. The status of each neighborhood drainage project is presented in the following table.
- Through January 2025, the City has spent \$23.42 million and encumbered an additional \$7.16 million for these neighborhood drainage rehabilitation projects. A total of 100% of ARPA funds have been spent/encumbered.
- There are currently no concerns with the timeline and all projects remain on schedule for completion by December 31, 2026.

The following table lists the neighborhood drainage rehabilitation bid packages and the status and estimated project completion quarter for each location.

Package #	Neighborhood Drainage Rehabilitation Project Name	Project Status	Estimated Project Completion
1	Redwing Rehab	Completed	Completed
	Upton Estates Rehab	Completed	Completed
2	Great Neck Meadows Rehab	Completed	Completed
	Seatack Rehab	Completed	Completed
3	Birchwood Gardens Rehab	Completed	Completed
	Pembroke Meadows Rehab	Completed	Completed
	Thalia Manor Rehab	Completed	Completed
4	Courthouse Estates Rehab	Completed	Completed
5	Charlestown Lake South Rehab	Under Construction	Q1 2025
	Hillcrest Farm Rehab	Under Construction	Q1 2025
6	Red Mill Farms Rehab	Under Construction	Q1 2025
7	Foxfire Rehab	Under Construction	Q1 2025
8	Rock Creek Rehab	Ready for Construction	Q4 2025
	Salem Village Rehab	Ready for Construction	Q4 2025
9	Southgate Rehab	Under Construction	Q1 2025
	Three Oaks Rehab	Under Construction	Q1 2025
10	Lynnhaven Colony Rehab	Completed	Completed
	Northeast Basin - Bay Colony Rehab	Completed	Completed
	Northeast Basin - Birdneck Point	Under Construction	Completed
	Northeast Basin - Great Neck Estate	Completed	Completed
11	Groveland Park	Completed	Completed
12	Bellwood Estates, Lamplight Manor, Princess Anne Crossing	Removed from Program	N/A
13	Kempsville Colony, Point of View		
14	Broad Bay Estates, Laurel Cove	Primary Work Completed, Only Surface Work Remains	

**\*Updated Since Last Report**

Package #	Neighborhood Drainage Rehabilitation Project Name	Project Status	Estimated Project Completion
15	Cypress Point North, Hudgins Shores, L&J Gardens, Lakeville Estates	Removed from Program	N/A
16	Tier 2 repairs for Green Run, Magic Hollow, Windsor Woods	Under Construction	Q3 2025
17	Ferrell Parkway South	Under Construction	Q3 2025
All	Construction Inspection Services #1	Completed	
All	Construction Inspection Services #2	Ongoing	
All	Staff Augmentation Services	Ongoing	

## Operational Readiness

### Asset Management Program Development

Arcadis and Kennedy-Jenks have developed the asset management framework related to the stormwater pump stations. A total of 384 individual assets have been entered into Cartegraph with maintenance schedules. Asset inventory efforts are continuing for non-pump station equipment.

The following tasks have been completed under this program:

- (a) Pump Station Operational Plans
- (b) Review/update asset inventory
- (c) Develop asset hierarchy
- (d) Risk assessment

The following asset management program tasks are currently underway:

- (a) Benchmark O&M Practices.
- (b) Confirm AM program goals and levels of service.
- (c) Formalize an Asset Management Plan.
- (d) Tracking and Reporting template development.

### Quarterly Stormwater Engineering-Operations Coordination Meeting

**\*The next coordination meeting will be held in June 2025.**

### System-wide Sensor Network Evaluation

- SCADA and sensor components are being coordinated by Stormwater Operations staff with vendors and City IT staff.
- System-wide storm impact maps were created and reviewed as post-storm action reports with the Stormwater Operations Team.

### Stormwater Master Planning

- All stormwater master plans have been completed.
- The City is in the process of having the consultants update the master plans to meet ADA Accessibility requirements.

**\*Updated Since Last Report**