From the desk of Scott Morris, Director
City of Richmond Department of Public Utilities
730 East Broad Street, 6th Floor, Richmond, VA 23219

November 1, 2025

The Honorable Michael Rolband, Director
Virginia Department of Environmental Quality (VADEQ)
1111 East Main Street, Suite 1400, Richmond, VA 23219

Subject: City of Richmond 2025 Combined Sewer System General Assembly Report

Dear Director Rolband:

In accordance with the State Water Control Board Enforcement Action Amendment to the Special Order by Consent (Consent Order), and the Acts of Assembly Chapter 634, the City of Richmond (City) is pleased to submit this report on the efforts undertaken to address the combined sewer system (CSS) Interim and Final Plans. This report demonstrates that the City will meet its regulatory obligations, and in doing so, will provide central Virginia with cost-effective engineered solutions that will further protect and enhance the vitally important James River and the environment.

The City is conducting ongoing operation and maintenance (O&M) activities, implementing projects identified in the Interim Plan, and moving forward with implementation of the projects identified in the approved Final Plan, as required by the Consent Order and Chapter 634 (2020 Acts of Assembly). The concurrent nature of these activities requires a significant amount of City resources. Despite ongoing workforce and logistical/supply chain challenges the City continues to advance these major projects to improve and protect the James River.

This 2025 General Assembly Report provides updates on:

- Interim Plan implementation
- Final Plan implementation
- Other ongoing CSS Capital Improvement and O&M Clean Water projects
- Community engagement and outreach
- Costs and funding sources

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FIGURES

COLOR KEY

Throughout this report, Interim Plan projects and processes are indicated in green, Final Plan projects and processes are indicated in blue, and other CSS Operations and Maintenance projects are indicated in orange.

EXECUTIVE SUMMARY

The James River is the City of Richmond's **most valuable natural resource.**

Residents, businesses, and visitors throughout Virginia rely upon the James River as a vital water supply source, an economic driver, and a treasured recreational resource. Flowing through the heart of the Commonwealth, the James connects communities across regions—supporting industries, tourism, agriculture, and the overall quality of life for millions of Virginians. Its health directly impacts not only the City of Richmond, but also the broader environmental and economic vitality of the entire Commonwealth.

Over the past 50 years, the City of Richmond has undertaken numerous significant infrastructure investments to protect and preserve this invaluable resource. Through sustained collaboration with local, regional, and state partners, the City has continually sought innovative and cost-effective ways to improve water quality and enhance the well-being of the James River.

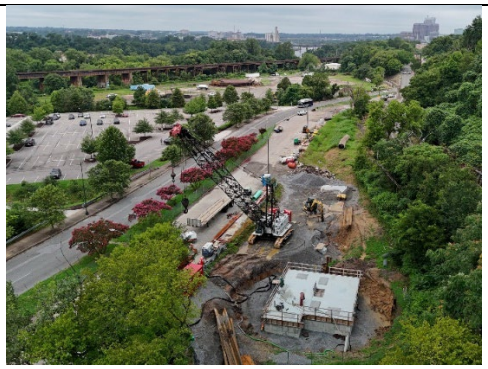
The CSS projects required under the Senate Bill 1064 represent the next critical step in this long-term effort. These projects build upon decades of progress by advancing modern infrastructure solutions that reduce combined sewer overflows, minimize pollution, and improve the safety and usability of the river for all Virginians. Reducing CSOs directly benefits recreational users—paddlers, swimmers, and families—by improving water quality and expanding opportunities to safely enjoy one of the Commonwealth's most iconic natural assets.

Continued investment from the General Assembly is essential to achieving these outcomes. State support ensures that Richmond can deliver on its commitment to improve water quality while protecting ratepayers and promoting equitable access to a cleaner, healthier James River. By investing in Richmond's CSO program, the General Assembly helps secure lasting environmental, public health, and economic benefits that reach far beyond city limits—preserving the James River as a shared legacy and resource for generations of Virginians to come.

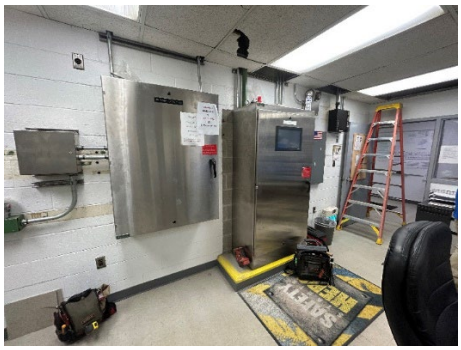
Interim Plan	○ Construction of nine of the ten Interim Plan projects is in progress, with the remaining project in the construction procurement stage. All ten projects will be complete by July 1, 2027 to meet the Consent Order deadline
Final Plan	○ Awarded constructed contracts for CSO-031 Storage Tank Project. ○ Completed the design for CSO-024 Partial Sewer Separation Project. ○ Initiated design engineering for CSO-012 Storage Tank following a determination that sewer separation of this sewer area was not constructable without severe impacts and disruptions to the neighborhood. ○ Initiated the Design-Build procurement of the Southside #1 - Canoe Run Park Storage Tank Project.
Other CSS Projects	○ Completed cleaning of the Shockoe 96-inch interceptor and Twin 66-inch siphons (these sewers convey approximately 70% of the City's wastewater flow) ○ Cleaning of the City's Shockoe Retention Basin is in progress using City staff and equipment. Contracting for the cleaning of the Hampton/McCloy Storage Tunnel is in progress

The City's next steps for 2026 include:

-
  - Continue to advance the Interim Plan projects through the construction phase
  - Advance the construction of CSO-031 storage tank and CSO-024 partial separation Final Plan projects
  - Complete the detailed design of CSO-012 Storage Tank Final Plan project and advance it to construction
  - Award a Fixed-Price Design-Build contract for the Canoe Run Park Stroage Tank project – second largest Final Plan project
  - Procure design services for the Shockoe Retention Basin high-rate disinfection project – the largest Final Plan project
  - Continue implementation of other clean water projects
  - Continue public engagement and communication



Construction of Outfall 004 Interim Plan Project



Construction of Level 1 Controls Interim Plan Project

SECTION A: BACKGROUND

Richmond's CSS is the largest in VA

Parts of the City's sewer system are over 150 years old and were originally designed as a combined sewer system (CSS). In the CSS, the pipes were constructed to transport both wastewater and stormwater. Since the rate of flow generated by rainfall over the CSS area can far exceed the Wastewater Treatment Plant capacity, the CSS can become overwhelmed during wet weather conditions resulting in combined sewer overflows.

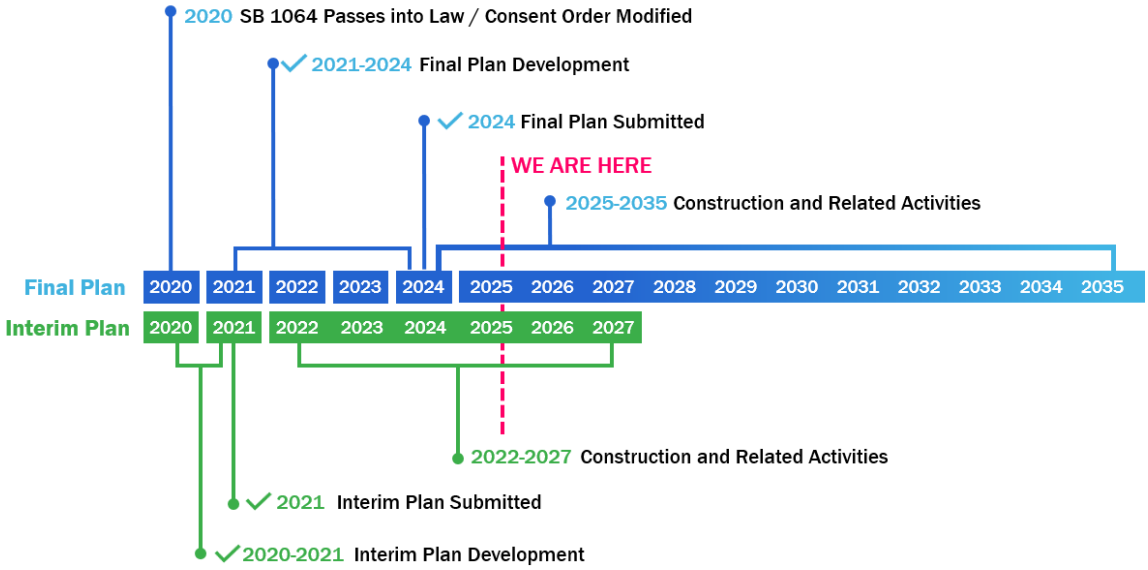
The City's CSS area covers 19 square miles and includes 25 combined sewer outfalls. During storm events, there can be overflows from these outfalls. Overflows are primarily stormwater (~90%) but also contain some wastewater.

Since 1970, the City and the Commonwealth of Virginia have invested more than $780 million (adjusted to today's dollars) on projects that have reduced overflow volumes by approximately 80% on an annual average basis.

Senate Bill 1064, approved by the Virginia General Assembly in 2020 (Acts of Assembly Chapter 634), amended the City's Consent Order to require the City to undertake additional

projects, identified in an Interim Plan for completion by 2027 and Final Plan, to be completed by 2035. The City remains steadfast in its commitment to meeting the obligations established in the Consent Order. In 2022, the City Council adopted Resolution No. 2022-R025 expressing its support for prioritizing improvements to the CSS.

Figure 1. Consent Order Timeline



SECTION B: INTERIM PLAN IMPLEMENTATION STATUS

- ✓ Nine of the ten projects are in construction
- ✓ The remaining project is fully designed and in procurement for construction

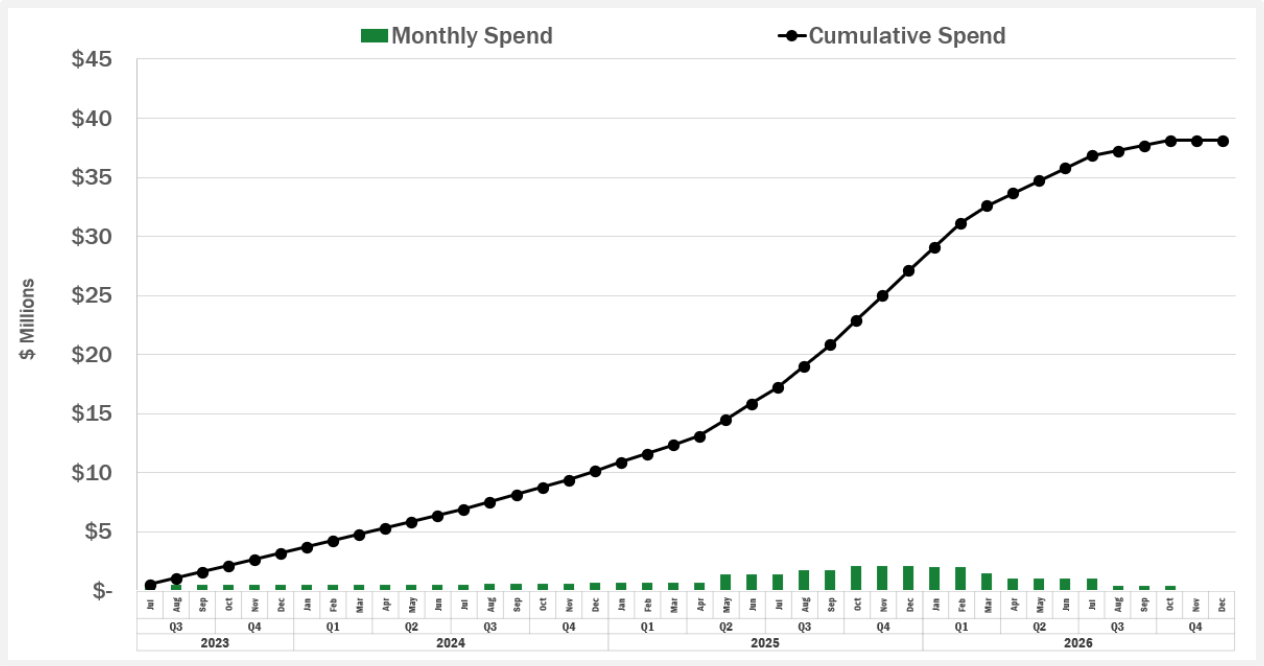
The Interim Plan identified ten projects that will reduce CSO volume by approximately 180 million gallons on average per year. These projects are on track to be complete by July 1, 2027 to comply with the City's Consent Order deadlines as summarized below in **Figure 2**, **Figure 3**, and **Figure 4**.

Figure 2. Interim Plan Project Locations and Status

Figure 3. Interim Plan Construction Cost and Completion Dates

	Project	Estimated Annual Overflow Volume Reduction (MG)	Estimated Construction Cost (in today's dollars)	Purpose	Estimated Completion Date
1	Level 1 Controls (SRB and Hampton/McCloy Tunnel)	79	$2M	Automate the drainage of the 35-MG Shockoe Retention Basin and the 7-MG Hampton/McCloy storage tunnel	Fall 2025
2	Level 2 Controls (WWTP Main PS)	41	$1.8M	Optimize the operation of the WWTP Main PS to maximize the use of the 140 MGD WWTP	Fall 2026
3	CSO-021 Inline Storage	16	$5.2M	Regulator Replacement to utilize in-line storage	Fall 2026
4	CSO-040 Inline Storage	12	$4.2M	Installation of a new in-line storage structure	Fall 2026
5	CSO-019A Diversion	10	$1M	Install controls to divert flow between the Shockoe Retention Basin and the Hampton/McCloy storage tunnel	Fall 2026
6	CSO-020 Diversion	9	$4.4M		Fall 2026
7	CSO-004 Regulator Replacement	5	$17M	Regulator replacement to provide inline storage and convey additional wet weather flow to downstream sewer as capacity is available	Winter 2026
8	CSO-024 Underflow Control	4	$0.5M	Install controls to convey additional wet weather flow to downstream sewer as capacity is available	Winter 2026
9	CSO-039 Underflow Control	4	$1M		
10	CSO-019B Diversion	2	$1M	Install controls to divert flow between the Shockoe Retention Basin and the Hampton/McCloy storage tunnel	Fall 2026
	Total	**182**	**$38.1M**		

Figure 4. Interim Plan Estimated Spend Plan



SECTION C: FINAL PLAN STATUS

- ✓ Selected projects exceed the Consent Order Requirements
- ✓ Estimated cost of $575 million is 40% of the 2022 estimate

The Final Plan report was submitted to VADEQ on June 13, 2024 and identified four essential projects. When implemented, these projects will exceed the performance requirements of the Consent Order and also further assist the City in meeting the 2010 James River Bacteria TMDL in the Gillies Creek and Almond Creek tributaries.

These four projects were selected because they are the most cost-effective projects while providing the benefits listed below and as summarized in **Figure 5**, **Figure 6**, and **Figure 7**.

- Reduce annual average overflow volume by 785 MG or 75%
- Provide a 96% CSO capture rate in an average year
- Reduce 30% more bacteria than the 2002 LTCP projects at 50% of the cost
- Create opportunities to provide community improvements (parks, public access, etc.) at Canoe Run Park and Chapel Island

Figure 5. Final Plan Project Locations and Status

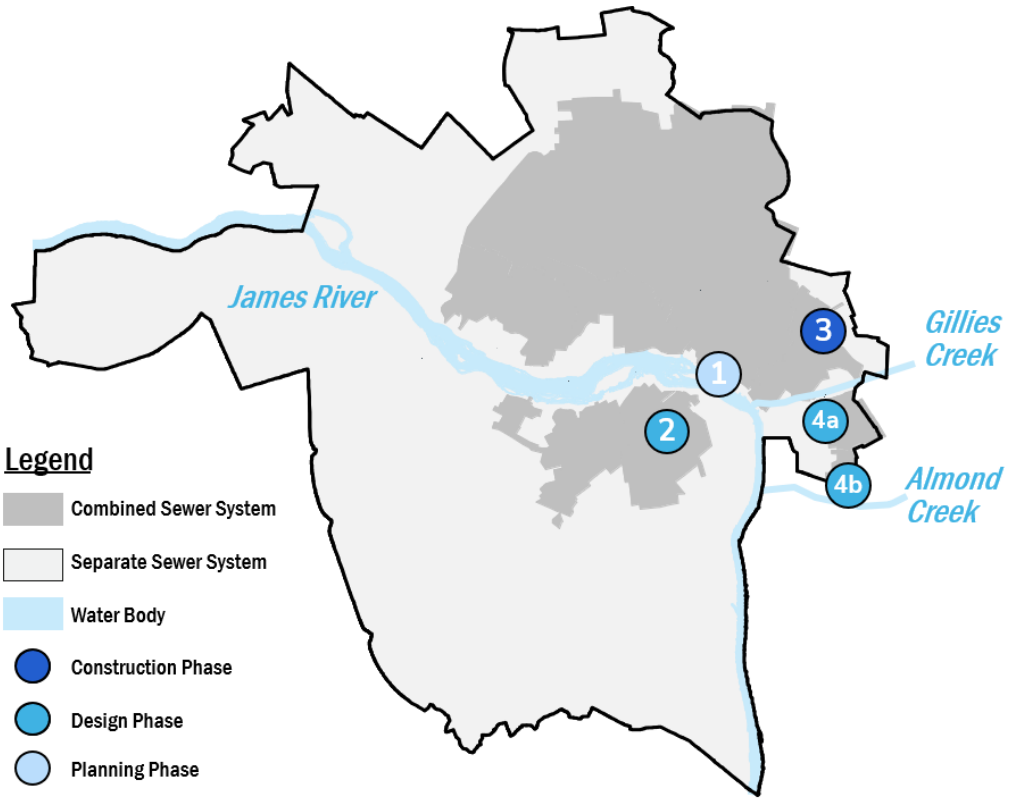
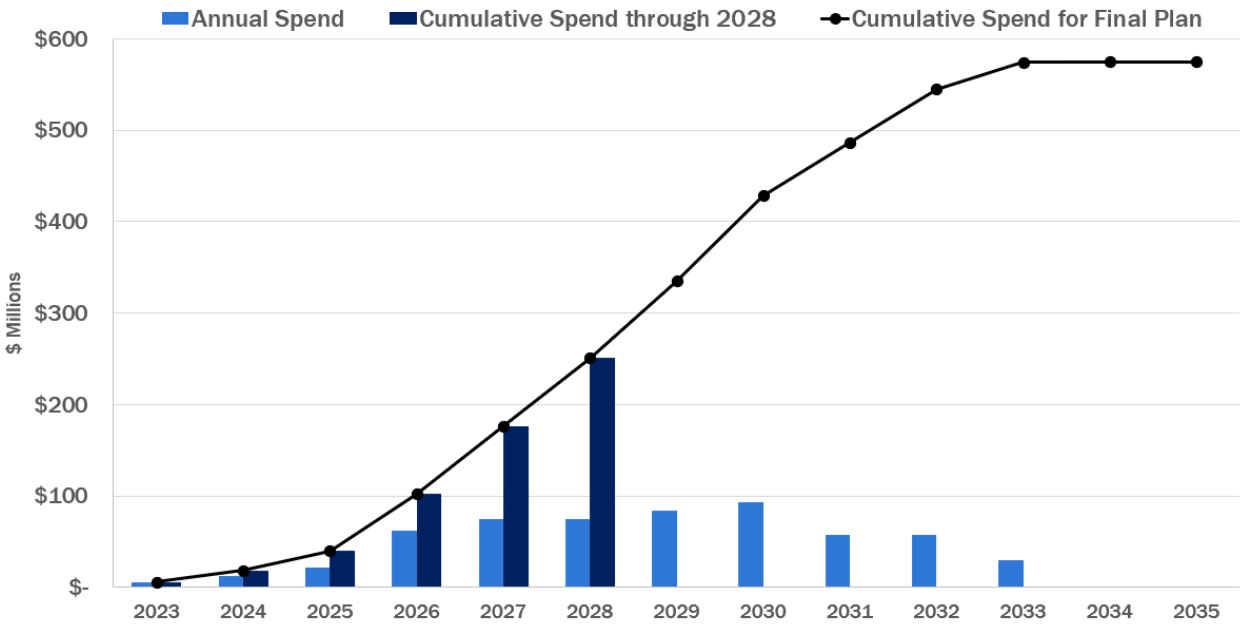


Figure 6. Final Plan Construction Cost and Completion Dates

Project		Estimated Annual Overflow Volume Reduction (MG)	Estimated Cost (mid-point of construction)	Purpose	Estimated Completion Date
1	Shockoe #1 HRD Facility	691	$340M	New 1,000-MGD high-rate disinfection facility that will be constructed within the existing Shockoe Retention Basin	Fall 2034
2	Southside #1 Storage Facility	83	$160M	New storage facility that will reduce approximately 25 overflow events per year	Fall 2029
3	Gillies Creek #1 Storage Facility	4	$30M	New storage facility that will reduce approximately 12 overflow events to Gillies Creek per year	Fall 2026
4a	CSO-024 Partial Separation	7	$5M	Partial separation of the CSO-024 drainage area that will reduce CSO overflow events to Gillies Creek	Fall 2028
4b	Hilton Street #1 CSO-012 Storage Tank		$30M	New storage facility that will reduce overflow events to Almond Creek	Fall 2028
5	Citywide Green Infrastructure	<1	$10M	Reduce stormwater runoff into CSS	Spring 2035
Total		**785**	**$575M**		

Figure 7. Final Plan Estimated Spend Plan



Project 3 (The Gillies Creek #1 Storage Facility) is currently in construction and Project 4a (CSO 024 Partial Separation) is currently pending construction procurement and will be funded through the existing American Rescue Plan Act (ARPA) funding, received by the Commonwealth for investments in wastewater infrastructure. Project 4b (CSO-012 Storage Tank) is currently in the preliminary engineering phase and it is anticipated that the project will be financed through a combination of Virginia Clean Water Revolving Loan Funds and City funds.

To accelerate project delivery and to reduce construction costs the City is utilizing the Fixed-Price Design-Builder delivery method for Project 2 (Southside #1 Storage Facility). This approach is anticipated to allow the City to have the facility constructed and in operation by 2029, 2 years ahead of the schedule proposed in the Final Plan. The project is currently in procurement with an anticipated contract award in July 2026.

Project 1 (the HRD Facility at Shockoe) provides the greatest benefit of all the projects, providing approximately 90% of the overflow bacteria reduction, and is the key driver in improving water quality in the James River. The City anticipates having this project ready for bid/construction by 2029. In order to proceed to construction, the City will need to implement a funding plan that is affordable to ratepayers and residents of the City.

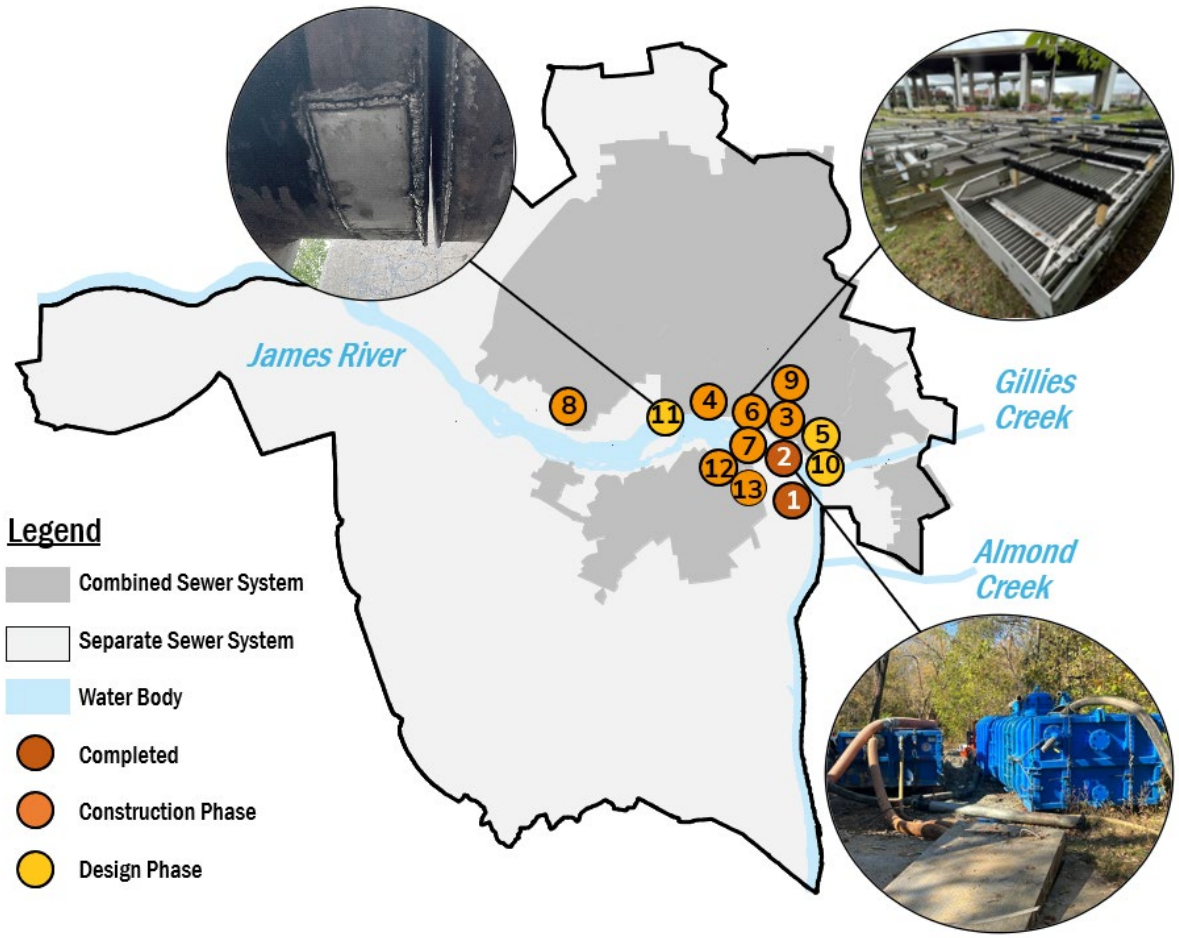
SECTION D: OTHER ONGOING CSS CLEAN WATER PROJECTS

In addition to the Interim and Final Plans, the City is implementing several other projects not required by the Consent Order to improve water quality.

CSS Facilities: The City's CSS contains 25 outfalls, 40 regulator structures, and two storage facilities (Shockoe Retention Basin and Hampton/McCloy tunnel). Operations and maintenance activities and capital improvement projects are ongoing to maintain and improve the functionality of these facilities.

Wastewater Treatment Plant (WWTP) Improvements: Operation of the WWTP in wet weather is critical to limit CSO volume and events. The City is in the process of conducting significant upgrades to improve WWTP operations and the reliability of the 140 MGD treatment during wet weather.

Figure 8. Locations of Other Ongoing CSS Clean Water Projects



	Project	Estimated Cost (in today's dollars)	Purpose	Estimated Completion Date
1	WWTP Screening and Grit Facility	$40M	Installation of a new Screening and Grit Facility	Complete
2	Shockoe 96-Inch Sewer and Twin 66-Inch Siphon Cleanings	$3M	Cleaning critical interceptors to reinstate the conveyance capacity of the sewers	Complete
3	Shockoe Retention Basin and Hampton-McCloy Tunnel Cleaning	$11M	Cleaning critical storage facilities to reinstate the storage capacity	Summer 2026
4	Regulator Improvements	$3.5M	Upgrading equipment in seven regulator structures	Summer 2026
5	Shockoe Retention Basin Roof Repairs	$2M	Rehabilitation of the Shockoe Retention Basin roof	Spring 2026
6	Shockoe Screening and Crest Gate Improvements	$31M	Upgrade the screening equipment in the Shockoe West Diversion Structure and replace the two crest gates (86-ft and 54-ft long)	Spring 2026
7	Outfall 006 Regulator Improvements	$2M	Upgrade Outfall 006 to prevent tidal intrusion from the James River into the CSS	Fall 2026
8	Hampton St. Pump Station (PS) Improvements	$2.5M	Upgrade the electrical and control system at the PS	Fall 2026
9	Dock Street PS Improvements	$5.2M	Upgrade the electrical and control system at the PS	Fall 2026
10	CSO 005 Regulator Replacement	$5M	Replacement of the CSO 005 Regulator to improve future O&M activities and to reduce overflow volume and events	Fall 2026
11	Hollywood Interceptor	$5M	In July 2024, a leak was observed from the Hollywood Interceptor into the James River. The failed section of pipe was isolated and taken off-line (to stop the leak), while the upstream flow was diverted into a parallel sewer. The City is currently designing a permanent bypass solution which will allow the failed section of pipe to be removed	Fall 2026
12	WWTP Main PS Improvements	$48M	Rehabilitation of the existing WWTP Main Pump Station.	Winter 2028
13	WWTP Thickening & Dewatering Improvements	$25M	Replacement of the centrifuges utilized in the dewatering and thickening facilities at the WWTP	Summer 2026
	Total	**$186M**		

SECTION E: COMMUNITY ENGAGEMENT AND OUTREACH

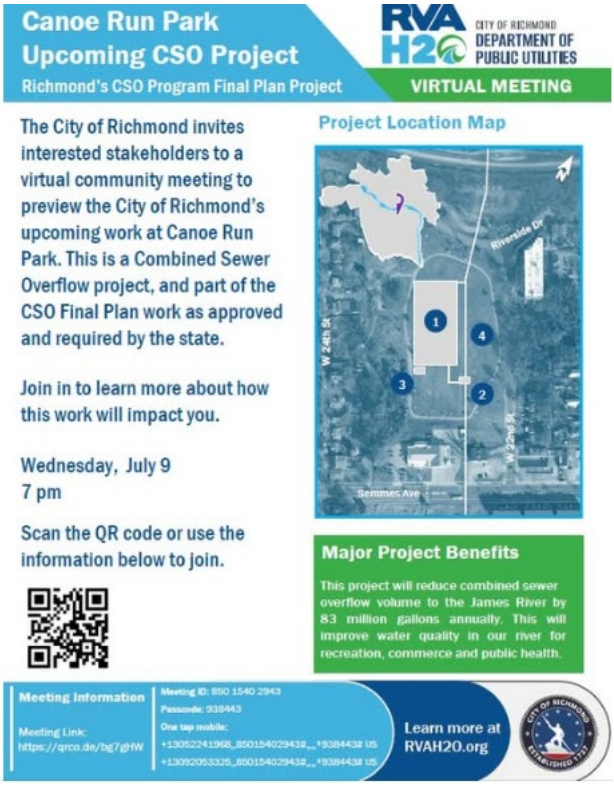
The City continues to expand its engagement with stakeholders and residents.

Throughout the process of addressing the CSS, the City has educated, informed, and sought the input and feedback of stakeholders and the public. This outreach builds off years of communications and campaigns undertaken by the City prior to the General Assembly's approval of SB 1064.

In 2022, the City formed a Public Stakeholder Group (PSG) to assist in the development of the Final Plan. The PSG was an 18-person group that included two members from each of the City's nine Council districts. The PSG met with the City's Project Team on a bi-monthly basis in a collaborative effort throughout the development and submission of the Final Plan in 2024.

On July 9, 2025, the Department of Public Utilities partnered with Council Member Stephanie Lynch for a community meeting to provide residents and stakeholders an overview of the project drivers, schedule, benefits, potential impacts and mitigations to be expected during construction of Final Plan Project 2 (Canoe Run Park Storage Tank project). The public notification of the virtual meeting is shown in the figure to the right.

The Department of Public Utilities continues to work diligently to enhance its digital presence and provides information on the CSS to the public via the RVA.gov and RVAH2O.org websites.



SECTION F: PROJECT COSTS AND FUNDING SOURCES

Support from the General Assembly is a big part of our story

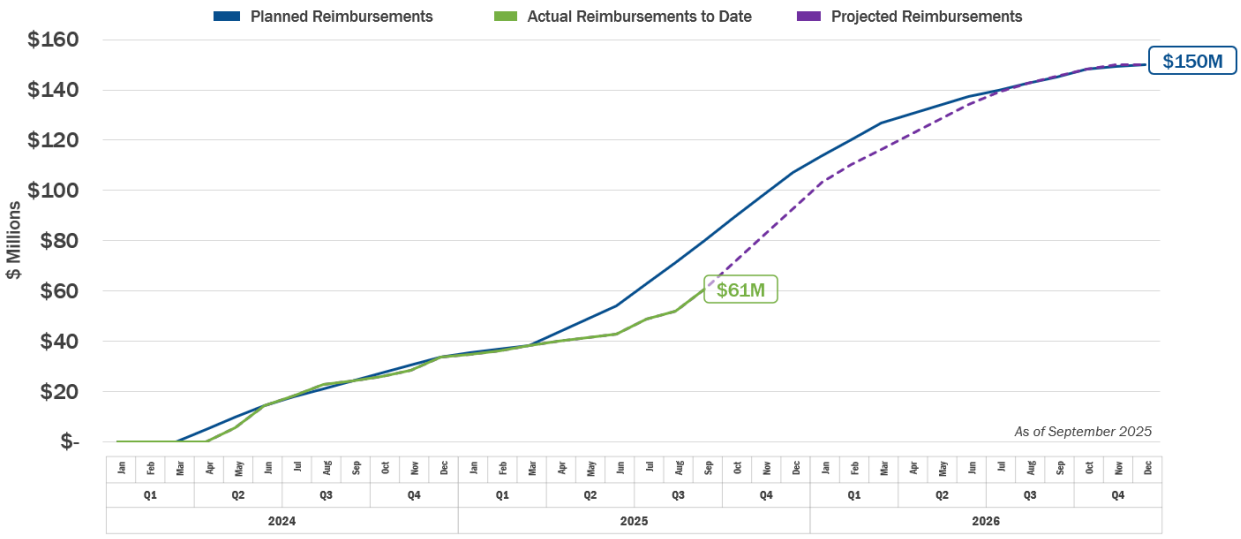
- ✓ ARPA fund appropriations of $50M in 2021 and $100M in 2022
- ✓ $100M appropriation for FY25/FY26

The City is utilizing funds, appropriated by the Commonwealth, to design and build the Interim and Final Plan projects, while also implementing other CSS projects as listed below.

Interim Plan Projects	Final Plan Projects	Other CSS Projects
All 10 projects	3. Gillies Creek #1 - Storage Facility 4. Hilton Street #1 - CSO-024 Separation	5. Shockoe Retention Basin Roof Repairs 7. Outfall 006 Regulator Improvements 8. Hampton PS Improvements 9. Dock Street PS Improvements 10. CSO-005 Regulator Replacement 12. CSO-024 Partial CSS Separation 13. WWTP Main PS Improvements

As of September 2025, the City has utilized $61 million of the $150 million ARPA grants funds appropriated by the Commonwealth, fully met the $50 million City Match requirement, and is on track to complete the associated projects and fully utilize the ARPA grants funds by November 1, 2026, as shown below in **Figure 9**.

Figure 9. Status of Appropriated Funds



In addition to the funds appropriated by the General Assembly, the City has applied the following sources and funding levels to the CSS, as summarized below in **Figure 10**.

Figure 10. CSS Funding – Last Five Years

Source	FY2021	FY2022	FY2023	FY2024	FY2025	5-Year Totals
Grant Receipts	$0	$1,271,150	$983,193	$33,568,380	17,122,827	$52,945,550
Wastewater Revenue Bonds / Operating Cash	$3,688,290	$12,033,886	$15,941,817	($15,518,921)	($1,366,745)	$14,778,326
Total CSS Expenditures	**$3,688,290**	**$13,305,036**	**$16,925,010**	**$18,049,459**	**$15,756,082**	**$67,723,876**

The estimated cost of the five Final Plan projects is approximately $565 million, with an additional $10 million committed to the implementation of green infrastructure, for a total of $575 million. A financial rate analysis was conducted during the development of the Final Plan. This evaluation demonstrated that:

- The City's rates are among the highest in the Commonwealth, in both raw dollars and percent of median household income.
- The City's rates can be characterized as having a high/medium impact on the customer base in accordance with the EPA's lowest quintile poverty indicator (LQPI) metric.
- An average annual rate increase of 4.8% will be necessary to implement the Final Plan by 2035, even with the Final Plan being fully funded by grants, in order to fund other needed and significant improvements to the City's aging water and wastewater facilities.
- Projected household income growth through 2040 is estimated at approximately 4%. Increasing utility rates beyond 4% per year will exacerbate the financial impact to City residents, worsening the City's affordability issues.

The City is currently utilizing the existing appropriated funds (including the $100M grant funding provided by the Commonwealth in FY25 & FY26) for the design of five and construction of two Final Plan projects (Gillies Creek #1 and Hilton Street #1-4a). The City will need additional financial grant funding support of approximately $400 million over the next four years to meet the Final Plan construction completion deadline of July 1, 2035.

The Southside #1 Storage Facility is currently in the procurement phase of a fixed-price design-build project delivery with an anticipated contract award in July 2026. The City anticipates procurement of construction services for the largest Final Plan project (Shockoe #1) in the 2028 to 2029 timeframe. If the City has not secured grant funding guarantees for a substantial portion of the cost of these projects, the City will not be in a financial position to incur the additional debt needed to advance these large projects approved in the Final Plan to construction. As a result, the City is requesting grant funding as follows from the Commonwealth:

Figure 11. Status of Needed State Grant Funding

Fiscal Year	Requested Amount	Appropriated Amount to Date	Purpose (Funds Set Aside)
FY 2025/2026	--	$100M	Design/Construction of Southside #1 Storage Facility
FY 2027	$100M	--	Design/Construction of Shockoe #1 – HRD Facility
FY 2028	$100M	--	Design/Construction of Shockoe #1 – HRD Facility
FY2029	$100M	--	Design/Construction of Shockoe #1 – HRD Facility
FY2030	$100M	--	Design/Construction of Shockoe #1 – HRD Facility
TOTAL	$400M	$100M	

Other Funding Sources

In addition to state grant funds, the City identified and is evaluating the potential use of the following federal and state funding programs (including loan forgiveness options), concurrent with the execution of the Final Plan projects:

- EPA Sewer Overflow and Stormwater Grant Program
- Clean Water State Revolving Loan Fund (CWSRLF)
- Water Infrastructure Finance and Innovation Act (WIFIA) loans

The City applied for a $5,400,000 Congressionally Directed Spending grant from Congress in Fiscal Year 2024. Senators Kaine and Warner and Congresswoman McClellan formally requested funding for the WWTP Main PS Improvement project. The City is actively coordinating with the Environmental Protection Agency on the grant application for the $959,752 awarded to the City for this project.

This concludes our report. The City of Richmond Department of Public Utilities appreciates the opportunity to provide this update on the vital work underway and the partnership that VADEQ has demonstrated in this process. Should you have any questions or comments, please contact me directly at 804.646.5205 or Scott.Morris@rva.gov.

Sincerely,

Scott Morris

Scott Morris, Director

Copy:

Danny Avula, Mayor, City of Richmond

Odie Donald II, Chief Administrative Officer, City of Richmond

Al Wiggins, Deputy Chief Administrative Officer, City of Richmond

Cynthia I. Newbille, Council President & City Councilmember, 7th Voter District

Katherine Jordan, Council Vice President City Councilmember, 2nd Voter District

Sarah Abubaker, City Councilmember, 4th Voter District

Kenya J. Gibson, City Councilmember, 3rd Voter District

Andrew S. Breton, City Councilmember, 1st Voter District

Stephanie A. Lynch, City Councilmember, 5th Voter District

Ellen F. Robertson, City Councilmember, 6th Voter District

Reva M. Trammell, City Councilmember, 8th Voter District

Nicole Jones, City Councilmember, 9th Voter District

Emily Messer, Assistant City Attorney, City of Richmond

Alex Samms, Chief Deputy, VADEQ

Trisha Beasley, Director of Operations, VADEQ

Melanie Davenport, Director of Regulatory Affairs & Outreach, VADEQ

Jaime Robb, Director of Water Operations, VADEQ

Meghan Mayfield, Clean Water Finance & Training Programs, VADEQ

Jerome Brooks, Director, Piedmont Regional Office, VADEQ