

A blue arrow graphic pointing to the right, with a white outline and a blue shadow effect, positioned to the left of the section header.

MANAGER'S MESSAGE

When George Costanza tries to defend his argument - “It’s all pipes! What’s the difference?” - I had to smile. Elaine responds, “Different pipes go to different places. You’re gonna mix them up!”

It’s one of my favorite repartees from the sitcom Seinfeld. It may be known as “the show about nothing,” but at that moment, it accentuated the essential work of sanitary infrastructure engineers.



As the chief of the City’s Sanitary Infrastructure Division, it’s my job to help educate residents about the [different types of sewer systems](#) within the City. It’s a difficult message to convey when stormwater runoff found its way into the otherwise separate sanitary sewer system and backed up into residents’ homes during flood events over the past few years.

Eliminating sources of stormwater runoff into sanitary sewers is no easy task.

Over the past few years, you may have noticed contractors lowering equipment into the sewer system. These contractors collected valuable information by taking pictures and videos of the City’s infrastructure to locate cracks, voids and other sources where water makes its way into the sanitary sewer. The next step is to rehabilitate the sanitary sewer pipes and manholes to eliminate these sources, which is scheduled to start early next year.

So, yes, just as Elaine explained to George, different pipes go to different places, for different purposes. The City is working to overhaul the sanitary sewer network to reduce backups caused by severe wet weather events and verify that water flows correctly through the underground infrastructure network.

In FY2023, an additional \$22 million was added to the Sanitary Sewer Capital Improvement Program to address the impacts of wet weather in sanitary sewers and the combined sewer system.

While you’re waiting on these sanitary sewer infrastructure projects, I encourage you to consider installing a backflow preventer on your property. These gates are typically installed onto the lateral pipe of your home and automatically close when water reaches them to prevent water from flowing backward into your home.

Residents who install these devices can apply to receive a 50% reimbursement - up to \$2,000 - through the City’s [Backflow Preventer Assistance Program](#). Since the program was launched in 2018, the City has reimbursed about \$315,000 to residents.

appreciate hearing from you when flooding and sewer backups happen - and your patience as we build the City's resiliency to flooding.

Erin Bevis-Carver, Chief of the Sanitary Infrastructure Division

Editor's note: The Manager's Message is a periodic editorial authored by senior leaders of the Flood Action Alexandria program.



PROJECT UPDATES



LARGE CAPACITY PROJECTS

The combined **Commonwealth Avenue and East Glebe Road** and **Ashby Street and East Glebe Road** project made headway last month as engineers conducted a site visit in their initial design work.

The contract for the design phase was awarded to Jacobs Engineering in early October. This follows a year-long planning task that explored alternatives to alleviate flooding in the subject areas.

The site visit will be followed by other preliminary work, including land surveys, geotechnical boring investigations and detailed sewer shed modeling. This supports the development of construction plans for the proposed solution.

The combined projects are the City's top two large capacity projects and will increase the capacity of the storm sewer system to improve stormwater conveyance. The project will also incorporate green infrastructure elements, which will capture runoff carrying surface pollutants, providing a water quality benefit to the watershed.

A grant from the Virginia Community Flood Preparedness Fund awarded to the City in September 2021 will support a portion of this project. The estimated cost for design and construction is \$50 million.

CAPACITY PROJECTS

SPOT IMPROVEMENT PROJECTS

Design is nearly complete for a project that involves adding larger inlets and a larger sewer pipe to mitigate flooding at **North Overlook Drive**.

Engineers modeled existing conditions and determined the inlets cannot capture sufficient runoff during intense storm events. This causes runoff to accumulate along North Overlook Drive and flood an owner's property on Pullman Place.

Design work, which is 90% complete, calls for adding inlets and replacing existing inlets with larger openings to allow more stormwater to move off the street into the storm sewer system to mitigate flooding.

In addition, a larger storm sewer pipe will be installed to convey the additional flow captured by the new system. A 54-inch detention pipe will be installed at the intersection of South Overlook Drive and North Overlook Drive, which will temporarily store stormwater and slowly release it downstream. The detention pipe will alleviate the burden of the existing system downstream by reducing the rate of discharge from existing conditions where stormwater runoff leaves the site.

The estimated cost is \$300,000. Construction is on track to begin in March.

SPOT IMPROVEMENT PROJECTS



**BUILDING A
RESILIENT
ALEXANDRIA**

Explore the City's flood mitigation projects
using our interactive project map:

alexandriava.gov/FloodAction

**FLOOD ACTION
ALEXANDRIA**

Hume Avenue bypass project advances with geotechnical investigation



Contractors for the City drill into Hume Avenue as part of a geotechnical investigation on Nov. 2. (City of Alexandria)

Engineers designing a bypass project to install a new, larger stormwater pipe to mitigate flooding on Hume Avenue are working around the typical utility lines - and a long-forgotten, buried bridge culvert discovered during the early stages of their investigation.

The design phase of infrastructure projects can be long and tedious, but it is critical to move the project forward by mitigating risks upfront. Engineers will next map the location of existing utility lines and analyze soil samples collected from Hume Avenue to verify that the soil can support the proposed pipe.

“Hume Avenue is interesting because you have this large buried bridge culvert that is right at the alleyway next to Stracci’s pizza, and that is important because it is a fixed point in the roadway. We are not going to lower or raise Hume Avenue at that point,” said Civil Engineer Mitch Dillon, the project manager. “It’s a design constraint that has to be considered.”

The [Hume Avenue Bypass project](#) involves installing new, larger inlets and a larger stormwater pipe down Hume Avenue from the intersection of Dewitt Avenue to near the intersection at Mount Vernon Avenue to increase the capacity of the storm sewer system to mitigate flooding. The project follows a smaller-scale project completed in February in which storm inlets were upsized.

The bypass project was identified after numerous properties experienced damage caused by flooding due to intense storms in 2020. City staff and contractor, AECOM, recently met with residents on-site and will meet either onsite or virtually over the next year to listen to concerns and discuss project goals.

To move the design forward beyond the initial onsite investigations and modeling, the project team needed a complete picture of the infrastructure underneath Hume Avenue.

They started with a closed-circuit television (CCTV) inspection by dropping a robot with a camera into the storm sewer system to take pictures of the inside of the pipe network. That’s when they discovered the old - but not surprising - bridge culvert

structure.

“Standard practice back in the day was, if there was a stream that was crossing your property or crossing a roadway and you didn’t like it, you essentially built a bridge over it, or you piped it underground,” Dillon said. “You essentially filled it in, gave a way for the water to continue on its way and went on with your life. What we have here is an example of that.”

Dillon said it’s not a structural or safety concern, so engineers will design around it.

In November, AECOM oversaw a geotechnical investigation that included drilling into the ground to map the location of utility lines and collecting soil samples for analysis.

“The focus of this geotechnical work is to locate with a certain degree of accuracy where these utilities are and make sure we can avoid them when we put the new pipe in the roadway,” Dillon said. “We have a water line, sewer line and some gas lines that run down the roadway already. So, we need to make sure there’s space to fit this new larger pipe that’s going to convey stormwater within the roadway.”

Dillon said the team had a clear idea of what they wanted to do - install a large pipe down the middle of the road - but needed to collect data to understand real-world constraints before they started digging up the road and causing interruptions.

“We might think we have space to fit the pipe in, get halfway down the roadway, disturb a whole lot of pavement, impact some properties and then realize that we can’t actually continue the design the way that we wanted to because of an unexpected utility conflict,” he said. “That would significantly impact the construction timeline. It’s much better, and it’s much quicker if we can do this due diligence upfront, complete our geotechnical investigations and our other data collection efforts and make sure that we have a sound constructible design before we move into construction.”



[Watch this story to get an inside look at the geotechnical investigation.](#)

Site visits to formulate designs for two combined sewer projects



TOP: Engineers with contracting firm Jacobs Engineering map infrastructure on Prince Street for a proposed flood mitigation project. **BOTTOM:** City engineers Lu Zhang (left) and Jonathan Whiteleather (center) talk with Laura Bendernagel, an engineer from RK&K, as they conduct a site walk on East Abingdon Drive. (City of Alexandria)

Engineers conducted site visits to the neighborhoods of East Abingdon Drive in Old Town North and South Pitt Street and Gibbon Street in Old Town that are served by the combined sewer system in late October.

During the site visits, City staff and contractors from AECOM and RK&K walked the neighborhoods to plot locations of utilities, manholes and other infrastructure that will be factored in each project’s design. Site visits are indispensable for project designs because they provide engineers with more complete situational and geographic information to understand better and mitigate risks.



Both projects will be designed to increase conveyance capacity and provide storage to alleviate flooding. The East Abingdon Drive project will cost about \$5 million and help the Nethergate Townhouses, while the South Pitt Street and Gibbon Street project will cost about \$11.5 million and help homes along those roads.

SWU credit program returns with simpler application, more eligible practices



Jesse Maines, chief of the Stormwater Management Division (right) briefs City Council on revisions to the Stormwater Utility Fee Credit Manual while Camille Liebnitzky, environmental engineer, listens. The revised credit manual was approved by City Council. (City of Alexandria)

Selected flood mitigation practices can now be claimed as reductions for the annual Stormwater Utility Fee Credit Program, among other changes, to entice more people to participate to improve water quality and mitigate flooding in the City.

In November, City Council unanimously approved a measure to adopt revisions to the program via the Credit Manual. Some flood mitigation practices installed using funding through the City's Flood Mitigation Pilot Grant Program are eligible for reductions on the Stormwater Utility Fee.

"We think this is a positive step in the right direction," said Jesse Maines, chief of the Stormwater Management Division, which oversees the Stormwater Utility, during [a presentation to City Council on Nov. 9](#). "All of these [changes] together are to increase participation in the program ... to put these practices on their property and get a reduction on their Stormwater Utility Fee."

Updates:

- Simplified application process that removes duplicate items and streamlines documentation requirements
- Two-year credit applied to two consecutive calendar years - or four billing cycles - for approved applications for eligible practices

- Increased credits for individual eligible practices and increased overall potential maximum credit per application from 30% to 50%

- Previous applicants will be notified via email to reapply for the next two-year credit cycle starting in 2024

- Added credit option for preserving and maintaining existing mature trees and dry floodproofing practices, such as window and door protection, building protection and elevating utilities

The complete revised Credit Manual is on the City's [stormwater management website](#). Applications for the reduction will be accepted from Dec. 1 to Feb. 15, and residents can apply using the City's Real Estate website.

Maines said he hopes the changes will increase property owner participation by about 50% over the next few years.

The Stormwater Utility Fee, established in January 2018, is paid by all property owners based on the amount of impervious area - or hard surfaces - on a property. It's a separate line item on the real estate tax bill.

It was initially used to fund stormwater management services and capital stormwater infrastructure projects to address federal mandates to reduce sediment pollution in local waterways. Following recent flooding events and significant progress in improving water quality, the City shifted resources to increase funding for flood mitigation initiatives, including 35 active projects.



COMMUNITY MAINTENANCE WORK

PROJECT SPOTLIGHT: EAST LINDEN STREET

Small-scale changes on East Linden Street will offer some flood relief for residents while waiting on Hooffs Run Bypass project that will re-route Timber Branch to Russell Road to remove about 1/3 of the discharge going into the channel.

The City's Public Works Services crews completed the improvements:

- Installed a new rock trench drain between the alley and the channel to improve drainage during small to medium storms by connecting the alley surface with the channel. It will have a "drying" effect on the gravel area.



- Installed a catch basin and drain line to capture runoff from the alley that gets to the low patio areas of a home on the first block. The inlet will remain in the City's right-of-way; however, adjacent property owners will be able to connect their own outside drains to it. The drain line will discharge to the channel with a flap gate to prevent reverse flows from the channel during large storm events.

- Added more stone to the gravel area to provide a better foundation during wet periods. The rock trench will also assist in drying out the gravel area.

**14,577 linear feet
on 196 total structures**

**Cleaning and inspections of sanitary and storm sewers by
Public Works crews from Oct. 1 to Oct. 31.**

SANITARY SEWER ASSET RENEWAL PROGRAM

City to begin manhole inspections west of Commonwealth Avenue

Inspections on manholes west of Commonwealth Avenue are expected to begin this month as part of the [Sanitary Sewer Asset Renewal program](#).

The inspections are part of the second phase of the program, which began in June and will continue through February 2023. The inspections will provide valuable data to City staff on the condition of the sewer infrastructure that will be used to determine projects for repair and replacement.

From June to October, crews have completed inspections on 50,030 feet of mainline pipe (about 57% complete) and 721 lateral sewers (about 47% completed). Inspections on manholes will begin in December and be completed in early 2023.

The asset renewal program is part of the City's 10-year, \$33 million Sanitary Sewer Capital Improvement Program. The program will help to preserve and protect existing City-owned sewer infrastructure, extend its life and help reduce the amount of infiltration and inflow (I&I) into the sanitary sewer system that can cause sanitary sewer backups into homes and businesses.

The asset renewal program builds on a previous 20-year program to rehabilitate infrastructure. To date, the City has invested about \$30 million in rehabilitation of more than 60 miles of sanitary sewer and has repaired about 3,200 manholes.



FROM THE AD HOC GROUP

A new representative could be added to the Ad Hoc Stormwater Utility and Flood Mitigation Advisory Group.

At the meeting in October, the group discussed adding a representative from the business community. Chairman John Hill said the group worked with the City Council Clerk to advertise a [vacancy notice](#).

In other action, the group voted to send a letter to the City Manager supporting an increase in the Stormwater Utility Fee that is part of the 10-year Operating and Capital Improvement Program, which was discussed during [City Council's legislative meeting on Oct. 25](#). The group also reviewed and approved a [work plan for the 2022-2023](#) fiscal year, which includes providing the perspective of residents and businesses as City staff works on city- and state-level policies on stormwater and flood mitigation.

The group's next [meeting is scheduled for Dec. 15 at 6 p.m.](#) at City Hall or to stream online. The meeting is open to the public.

STORMWATER STEWARD

Oftentimes when applications for the [Flood Mitigation Pilot Grant Program](#) hit a snag, a dedicated management analyst has helped troubleshoot the difficulties for property owners.

Felicia Montoney, a management analyst for the Stormwater Management Division, has helped process more than 200 applications for the grant program. The initial application process could be confusing and clunky for property owners not used to the City's online application system, so Montoney spoke with and answered questions over email and phone from dozens of property owners requesting assistance.

"She worked really hard to get these things through finance," wrote one resident.

Another property owner said Montoney quickly addressed his questions about the application process over email to help make the process smoother.

"Felicia has been clear and super responsive in our communication," the resident said. "I appreciate it and want to share some well-deserved recognition."



FELICIA MONTONEY

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