

Stormwater Utility and Flood Mitigation Advisory Committee

September 18, 2024 Meeting

Tonight's Agenda

1. Welcome remarks from Chair (6pm, 5 min)
2. Approval of minutes (Committee) (6:05pm, 5 min)
3. Update on Flood Action program (City staff) (6:10pm, 30 min)
 - Large capacity projects
 - Combined sewer projects
 - Spot improvements
 - Sanitary Sewer Asset Renewal Program
 - Communications
 - Maintenance
 - Flood Resilience Plan
4. Discussion of Summer 2024 storms (all) (6:40pm, 10 min)
5. First Street modeling (all) (6:50pm, 10 min)
6. Committee workplan and outreach activities by members (Committee) (7:00pm, 10 min)
7. Committee memo in support of FY2026 stormwater fee (Committee) (7:10pm, 10 min)
8. Public comments (7:20pm, 20 min)
9. Adjourn (7:40 pm)

Welcome remarks

AGENDA ITEM #1

Approval of Minutes

AGENDA ITEM #2

Update on Flood Action Alexandria Program

AGENDA ITEM #3

Flood Action Progress Report: Large Capacity Projects & CSS

- Commonwealth/Ashby/Glebe (est. \$50M) Large capacity flood mitigation. Progressing 90% design. Continuing coordination with utility companies for relocation design and responsibility. Exploring alternative alignment and foundation designs as a cost savings measures. Public frequently asked question (FAQ) document has been posted on the project webpage.
- Hooffs Run Culvert Bypass (est. \$60M) Large capacity flood mitigation. Fieldwork component of field survey along Russell Road is complete. Developed model to investigate possible solutions and determine feasibility. Two flow monitoring sites selected. The data collected will allow improvement of the hydraulic model.
- Pitt & Gibbon (\$20-25M) CSO surcharge mitigation. Survey completed. Alternatives assessment ongoing. Exploring opportunities to increase level of service provided before
- Nethergate (\$5M) CSO Surcharge mitigation. Additional dye testing and inspection of local connections performed last period. Collapsed pipe found in private system. City team to finalize planning and move to design stage.

Flood Action Progress Report: Updates to Stormwater Program Schedule

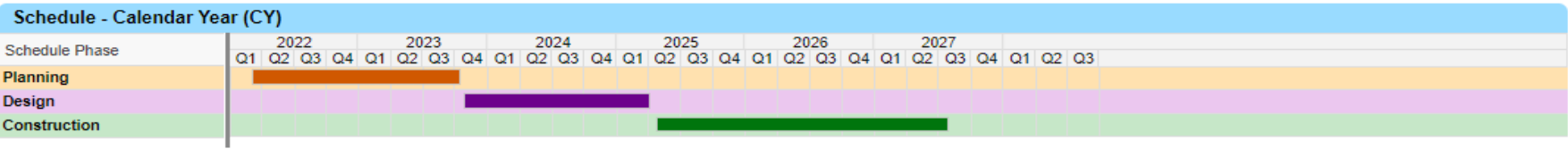
4300 Block of Loyola Avenue Storm Sewer Upgrade

Project Webpage
<https://www.alexandriava.gov/FloodAction>

Project Description
 This project will replace the existing open storm sewer at 4300 block of Loyola Avenue with an enclosed storm sewer pipe.

Project Information
 Current Phase: Design
 Total Planned Budget: \$836,500.00
 Funding Sources: SWU

- **Received 60% design package**
- **Completed review & provided comments**
- **Advancing to 100% Design**



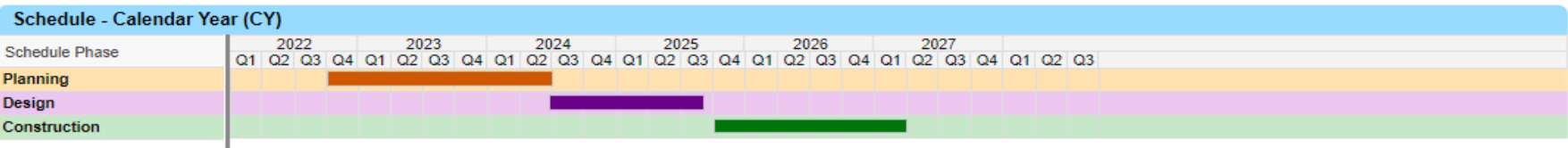
Bellefonte Ave Storm Drain Improvements

Project Webpage
<https://www.alexandriava.gov/capital-projects/project/bellefonte-avenue-storm-drain-improvements>

Project Description
 The Bellefonte Avenue Storm Drain improvement project aims to improve the local storm drainage system, specifically targeting areas prone to flooding during the City's standard 10-year, 24-hour storm event along East Bellefonte Avenue, East Howell Avenue, and Clyde Avenue. The project seeks to mitigate the impact of larger storm events while ensuring that improvements do not worsen flooding in other parts of the drainage system.

Project Information
 Current Phase: Design
 Total Planned Budget: \$1,564,869.29
 Funding Sources: SWU

- **Received design fee proposal**
- **Proceeding with fee proposal negotiations**
- **Advancing towards design kickoff & Notice to Proceed**



Flood Action Progress Report: Design Kickoff Announcement

Clifford Ave, Fulton St. & Manning St. (CFM) Storm Sewer Improvements

Project Webpage

<https://www.alexandriava.gov/capital-projects/project/clifford-avenue-fulton-street-and-manning-street-storm-sewer-improvements>

Project Information

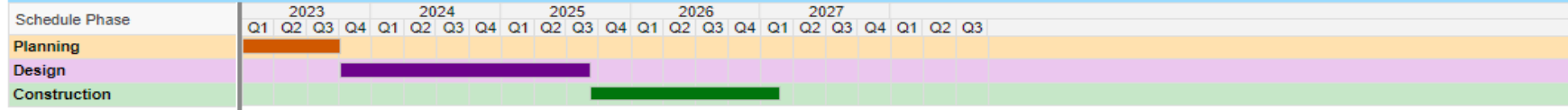
Current Phase: Design
Total Planned Budget: \$780,000.00
Funding Sources: SWU, HUD (Beyer)

Project Description

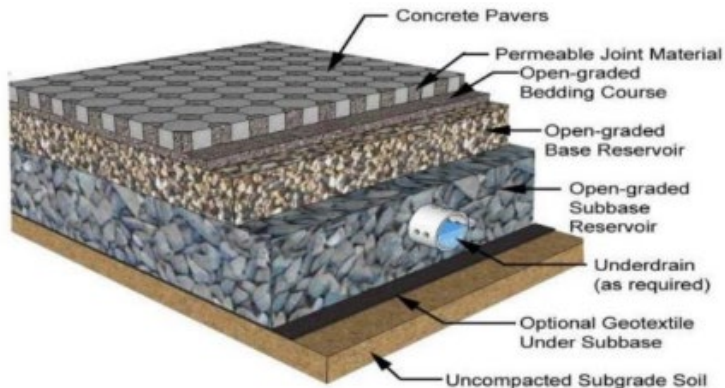
The Clifford Avenue, Fulton Street and Manning Street (CFM) Storm Sewer Improvements Project will provide flooding mitigation to townhouses along the 3000 block of Fulton Street and Manning Street. The alley bound between the two streets will be re-built to channelize surface flow and improve drainage. Inlets and underground storage will be installed to capture and attenuate stormwater runoff. Utility impacts will be identified and resolved during the design phase.

- **Completed design fee negotiations**
- **Issued design contract**
- **Announcing Design Kickoff (Notice to proceed)!**

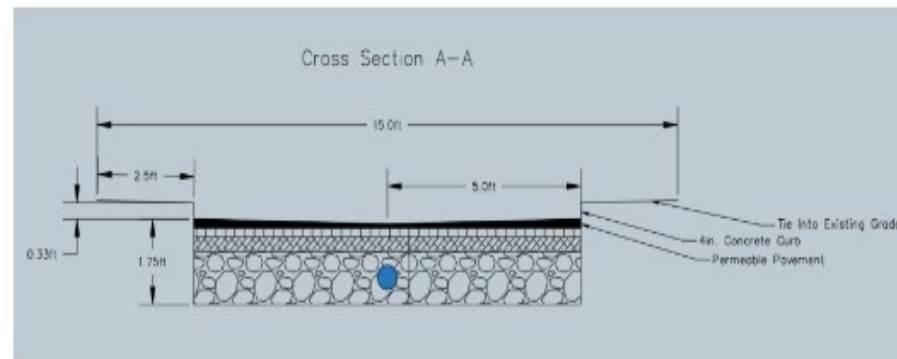
Schedule - Calendar Year (CY)



Rendering



Section



Real Life Example



Flood Action Progress Report: Updates to Stormwater Program Schedule

Edison St. Storm Sewer Upgrades

Project Webpage

<https://www.alexandriava.gov/stormwater-management/edison-street-and-dale-street-early-phase>

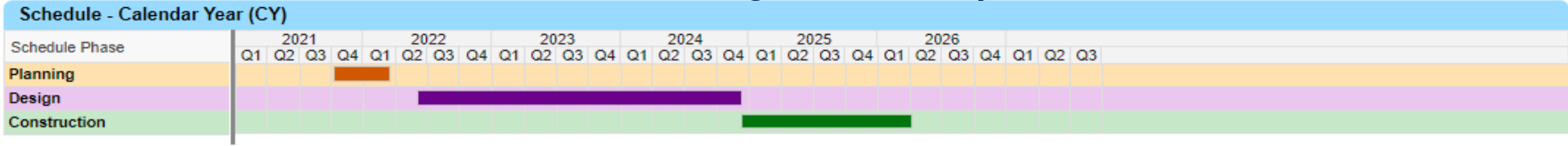
Project Information

Current Phase: Design
Total Planned Budget: \$979,000.00
Funding Sources: SWU, CFPF

Project Description

The Edison St. Storm Sewer Upgrades Project proposes to upgrade the storm sewer system capacity along the 3800 block of Edison Street to the outfall in Four Mile Run Park. Additional inlets are proposed along Edison Street to increase storm water capture. These storm sewer improvements are a portion of the future Large Capacity Project – Edison and Dale that have been accelerated upon receiving funding from Virginia Community Flood Preparedness Fund (CFPF) prior to the funding becoming available in FY 2026.

- **Completed test pitting operation**
- **Advancing towards final design**
- **Planning construction procurement**



Four Mile Run and Hoofs Run Inlet Installation and Enhancement

Project Webpage

<https://www.alexandriava.gov/capital-projects/project/four-mile-run-and-hoofs-run-inlet-installation-and-enhancement>

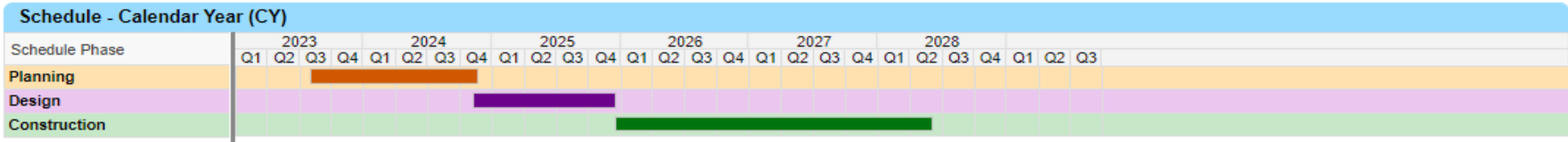
Project Information

Current Phase: Planning
Total Planned Budget: \$1,584,100.00
Funding Sources:

Project Description

This project will focus on comprehensive analysis of the existing stormwater inlet capacity across Four Mile Run and Hoofs Run watersheds. By evaluating the capacity of existing stormwater inlets within these two watersheds, this project will provide recommendations on installing or replacing inlets to mitigate local flash floods and to enhance the overall conveyance efficiency of the storm sewer system. The project receives funding from the City's Stormwater Utility and the Virginia Community Flood Preparedness Fund (CFPF) grant.

- **Issued Notice to Proceed (NTP)**
- **Completed data collection**
- **Performing existing drainage conditions analysis**



Flood Action Progress Report: Updates to Stormwater Program Schedule

Hume Ave Stormdrain Bypass

Project Webpage

<https://www.alexandriava.gov/tes/hume-avenue-bypass-project>

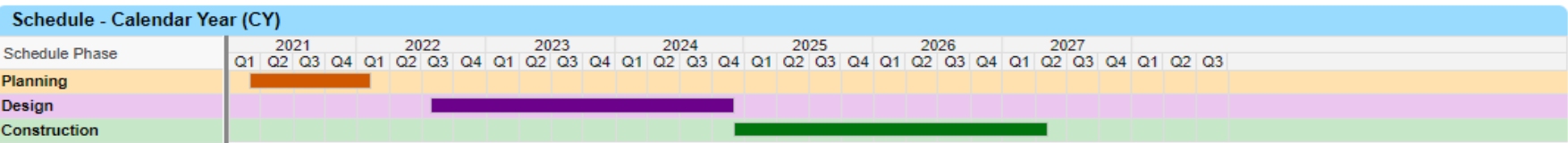
Project Information

Current Phase: Design
 Total Planned Budget: \$4,567,216.00
 Funding Sources: SWU, ARPA

Project Description

The Hume Avenue Storm Sewer Bypass Project will install storm sewer and inlets along the 100 block of Hume Avenue and E. Raymond Avenue. The addition of a new utility within each right-of-way requires the relocation of gas, electric, water and sanitary systems. On E. Raymond Avenue the sanitary sewer will be upgraded to a larger pipe in tandem with its re-location. Hume Avenue will be re-built to restore conveyance along the curb and gutter.

- **Completed test pitting operation**
- **Negotiating utility relocations**
- **Coordinating right-of-entry agreements**



Mt Vernon and Edison Dual Culvert Replacement Project

Project Webpage

<https://www.alexandriava.gov/stormwater-management/mount-vernon-dual-corrugated-metal-pipe-cmp-culvert-replacement-project>

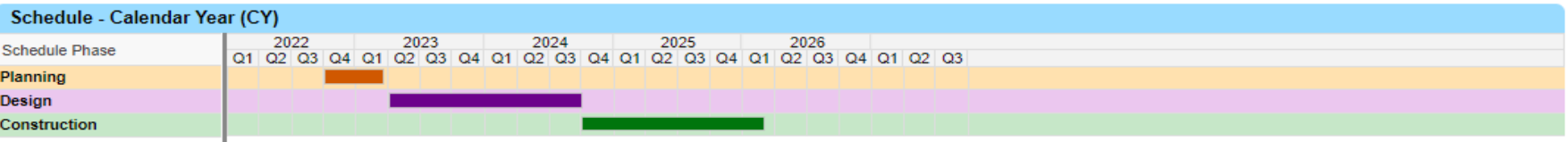
Project Information

Current Phase: Design
 Total Planned Budget: \$2,500,000.00
 Funding Sources: SWU, CFPF

Project Description

The project upgrades an existing Dual Corrugated Metal Pipe (CMP) culvert system to convey larger storm events, reducing the chance of surcharging in Mount Vernon Avenue. The project receives funding from the City's Stormwater Utility and a grant from the Virginia Community Flood Preparedness Fund (CFPF).

- **Received 60% design package**
- **Identified damage to existing pipe**
- **Reviewing additional investigation needs & project impact**



Flood Action Progress Report: Updates to Stormwater Program Schedule

Mt. Vernon Cul-de-sac Inlets and Alley Storm Sewer Improvements

Project Webpage

<https://www.alexandriava.gov/capital-projects/project/mt-vernon-cul-de-sac-inlets-and-alley-storm-sewer-improvements>

Project Information

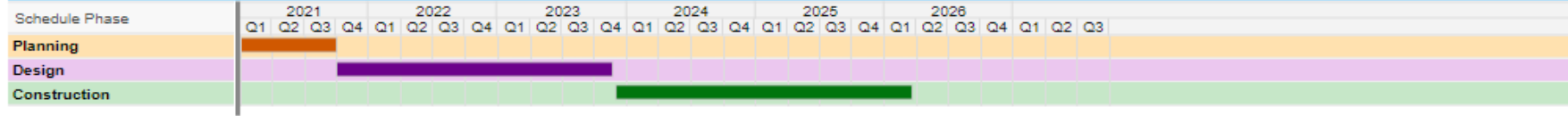
Current Phase: Construction
Total Planned Budget: \$1,232,784.00
Funding Sources: SWU, ARPA

Project Description

The Mt. Vernon Cul-de-sac Inlets and Alley Improvements Project will provide flood mitigation for townhomes on the 100 block of Mt. Vernon Avenue. Inlets and underground storage vaults will be installed on Mt. Vernon Avenue and it's adjacent alleyway to capture and attenuate storm water runoff. In tandem with work, the alleyway will be re-graded to improve surface drainage into the downstream swale. The addition of new underground utilities requires the relocation of the local water utility.

- **Received bid documents & utility approvals**
- **Assembling construction solicitation**
- **Planning public construction kickoff & utility mobilization**

Schedule - Calendar Year (CY)



N Overlook Drainage Improvements

Project Webpage

<https://www.alexandriava.gov/capital-projects/project/n-overlook-drainage-improvements-project>

Project Information

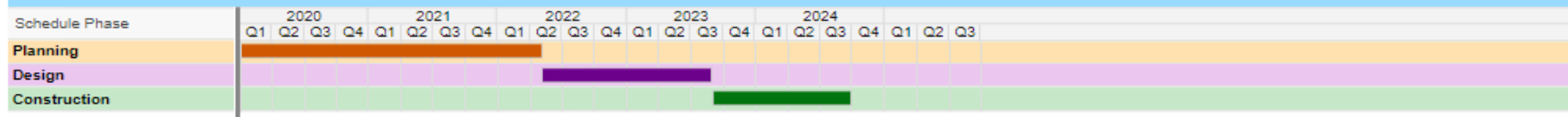
Current Phase: Construction
Total Planned Budget: \$387,979.35
Funding Sources: SWU

Project Description

Runoff from N Overlook Dr flows to a driveway access between 701 N Overlook Dr and 615 N Overlook Dr. Runoff overtops the north curb of the driveway access and flows towards Pullman Pl. This project will increase inlet capture and storm sewer capacity to mitigate flooding for the 10-year storm. In addition, project will ensure no increases in downstream storm sewer for the 10-year storm.

- **Achieved substantial completion**
- **Improvements functioning as designed**
- **Resolving outstanding claims & punch-list (minor) items**

Schedule - Calendar Year (CY)



Flood Action Progress Report: Updates to Stormwater Program Schedule

Oakland Terrace Timber Branch Channel Wall Replacement

Project Webpage

<https://www.alexandriava.gov/capital-projects/project/oakland-terrace-timber-branch-channel-wall-reconstruction>

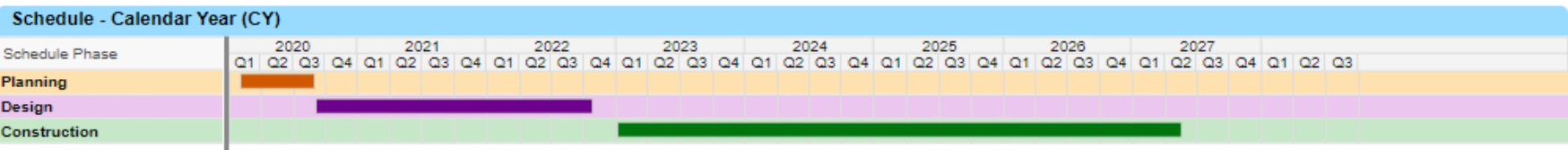
Project Information

Current Phase: Construction
Total Planned Budget: \$2,500,000.00
Funding Sources: SWU

Project Description

This project replaces approximately 205 linear feet of an existing concrete retaining wall with a vegetative reinforced revetment and bioengineered soil.

- Part of the larger Timber Branch project
- Completed construction mobilization
- Installing channel bank reinforcement & stabilization



S Jordan St. Stormwater Improvement Phase II

Project Webpage

<https://www.alexandriava.gov/capital-projects/project/s-jordan-st-stormwater-improvement-project-phase-ii>

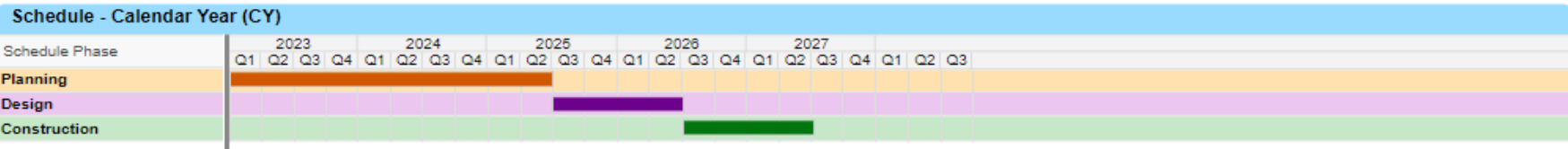
Project Information

Current Phase: Planning
Total Planned Budget: \$530,000.00
Funding Sources: SWU

Project Description

This project will design a solution to reduce backyard flooding risk to the maximum extent practicable on the north side of the block of 95 to 127 South Jordan Street. After the field investigation, reviewing CCTV recordings and reading the consultants recommendations, one small scale project was identified. SWM team to work with private property owners along S Jordan St and 4600 Duke to improve the existing swale and conveyance on private property. The City will plan to obtain a 15-ft. wide permanent easement for the storm drain system in this neighborhood as part of this project. Obtaining an easement will allow the City to provide maintenance to the storm drain system without having to request permission.

- Completed initial site investigation
- Planning an effective solution with property constraints



Flood Action Progress Report: Updates to Stormwater Program Schedule

Valley Drive Storm Drain Improvements

Project Webpage

<https://www.alexandriava.gov/capital-projects/project/valley-drive-storm-drain-improvements>

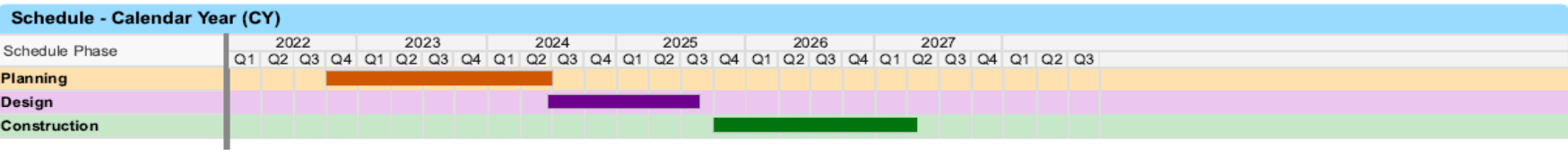
Project Information

Current Phase: Design
Total Planned Budget: \$3,639,999.29
Funding Sources: SWU

Project Description

The Valley Drive Storm Drain improvement project aims to improve the local storm drainage system, specifically targeting areas prone to flooding during the City's standard 10-year, 24-hour storm event along Valley Drive, Crestwood Drive, Summit Avenue, and Dogwood Drive. The project seeks to mitigate the impact of larger storm events while ensuring that improvements do not worsen flooding in other parts of the drainage system.

- **Completed project planning**
- **Issued design solicitation & received fee proposal**
- **Negotiating design fee with selected contractor**



W. Reed Ave & Dale St Storm Sewer Improvements

Project Webpage

<https://www.alexandriava.gov/stormwater-management/edison-street-and-dale-street-early-phase>

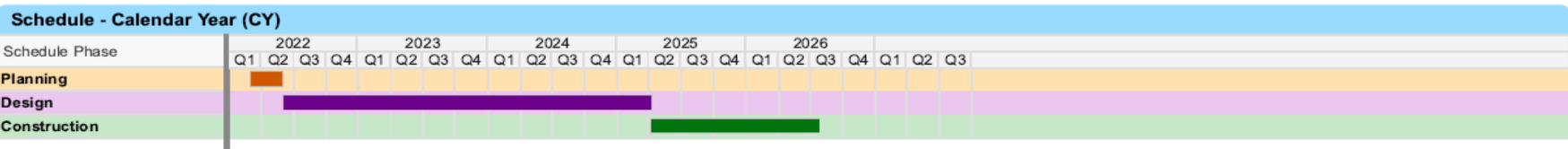
Project Information

Current Phase: Design
Total Planned Budget: \$2,230,000.00
Funding Sources: SWU

Project Description

W. Reed Ave & Dale St. Storm Sewer Improvements Project proposes new inlets and storm sewer along the 100 block of W. Reed Ave and capacity improvements along the downstream system to the outfall in Four Mile Run Park. These storm sewer improvements are a portion of the future Large Capacity Project – Edison and Dale that have been accelerated with Virginia Community Flood Preparedness Fund (CFPF) prior to the funding becoming available in FY 2026.

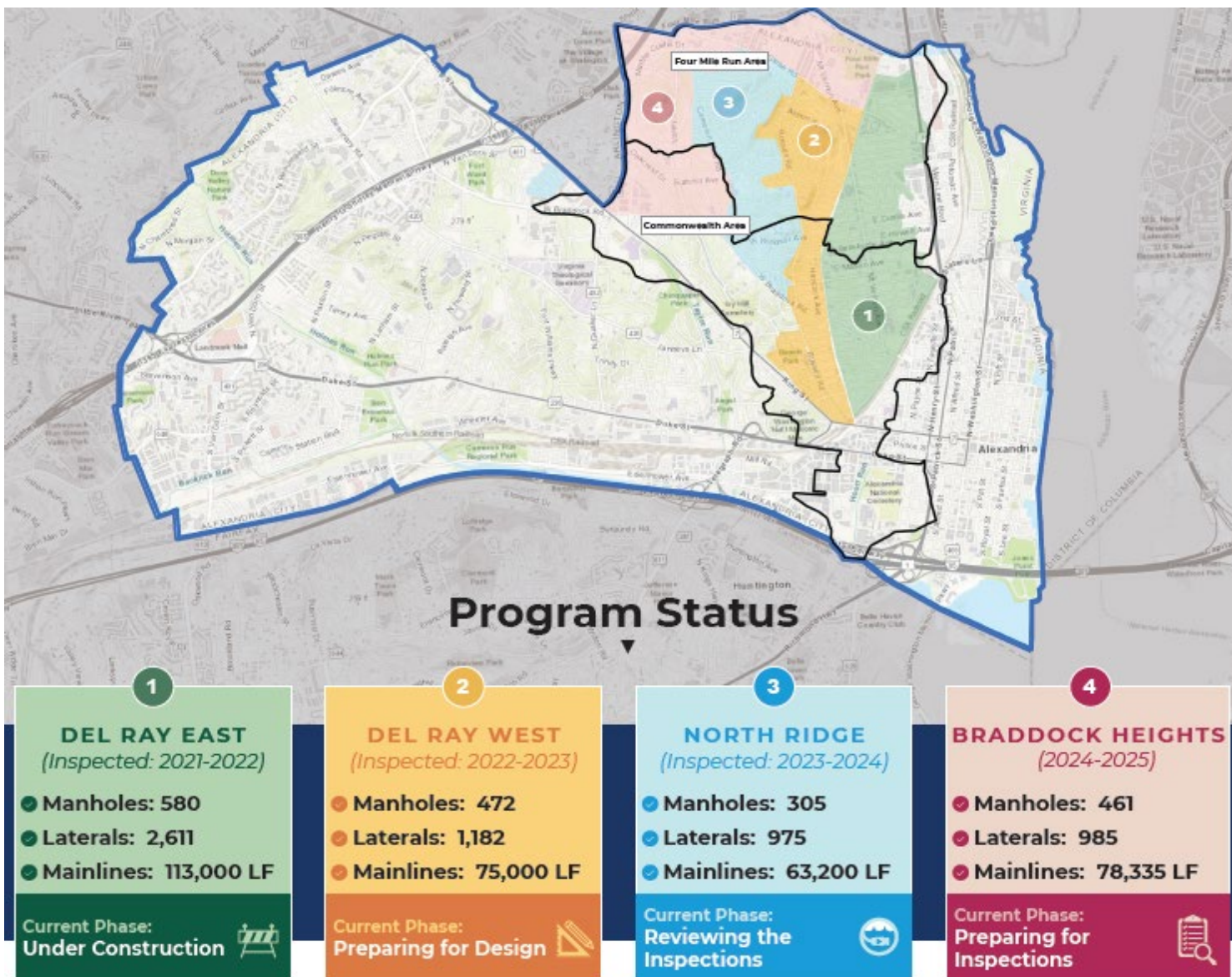
- **Completed Test Pitting Operation**
- **Advancing towards 90% design**
- **Planning construction procurement**



Sanitary Sewer Asset Renewal Program

- **Del Ray East Sewer Rehabilitation:**

- Contractor issued Notice to Proceed Oct 16, 2023
 - Contract period = 1 year
 - To be extended until mid-January 2025
- Construction progress:
 - 80% pipes lined
 - 98% manholes rehabilitated
 - Lateral sewers under separate contract



Communications

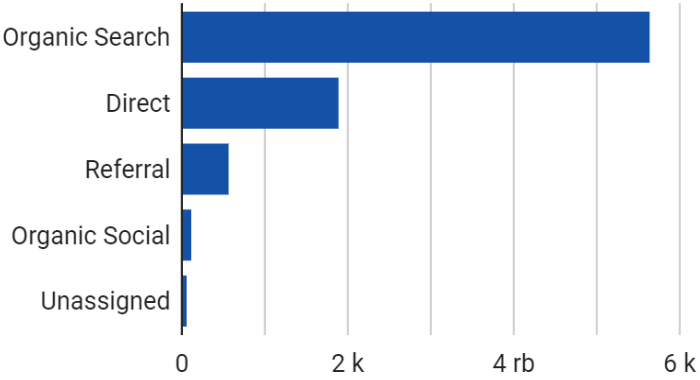
- 26 Total Flood Action/ Stormwater social media posts in June-August
- Impressions: 96,496 *decreased by 35%*
- Engagements: 1,806 *decreased by 64%*
- Post link clicks: 156 *decreased by 70%*

**Compared to previous 3 months (March-May)*

- 8,322 Stormwater Management webpage views
 - *86 total pages under Stormwater Management web group*
- Average engagement rate: 57.6%
- Most popular stormwater webpages:
 - Flood map = 1,419 views
 - Flood Action = 867 views
 - Types of Sewer Systems = 677

Communications

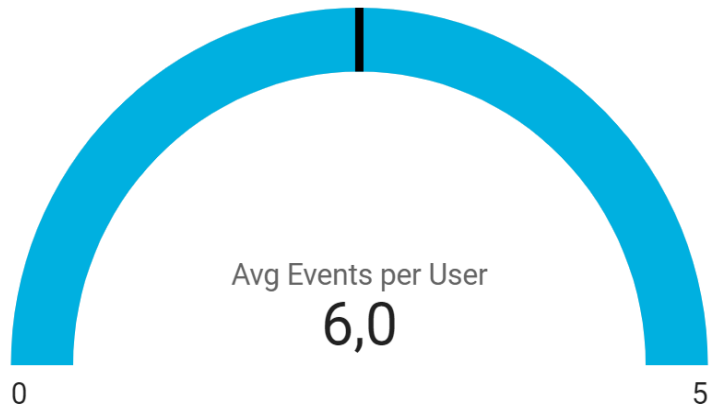
Most frequent user source



	First user sourc...	Total us...	Engagemen...
1.	Yahoo	36	74,36%
2.	www1.mwcog.org	1	100%
3.	wtop.com	2	66,67%
4.	webmail1.earthlin...	1	100%
5.	washingtonpost.c...	3	100%

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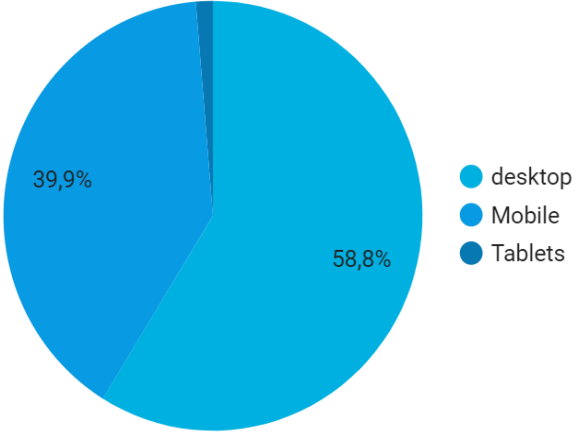
Event Counts



	Device ▾	Events per User
1.	Tablets	4,49
2.	Mobile	4,83
3.	desktop	6,73

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Devices most commonly used



	Device category	User engagement ▾
1.	desktop	52:18:02
2.	Mobile	21:53:22
3.	Tablets	01:02:11

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Maintenance Activities

- **Hooffs Run Culvert Maintenance**
 - Pre and post storm inlet inspections and cleaning ongoing.
 - Sediment removal is being coordinated with AlexRenew.
 - Anticipated to start in Fall 2024.
 - Culvert maintenance package from Linden Street to Duke Street
 - Request for Quotes sent to contractors on September 12th.
 - Quotes to be submitted by October 1st.
- **Linden Street Alley Storm Sewer Project:**
 - Construction completed in August 2024.

Flood Mitigation Grant Program

- Program started July 1, 2021.
- In FY2022, we had 148 approved applications for a total of \$588,163.58 reimbursed.
- In FY2023, we had 73 approved applications for a total of \$167,538.49 reimbursed.
- In FY2024, we had 101 approved applications for a total of \$235,145.16 reimbursed.
- So far in FY2025, we have 16 applications in various stages with a total of \$2,985.00 reimbursed.

Flood Resilience Plan

- City awarded \$525,000 from Virginia Community Flood Preparedness Fund (CFPF)
 - 75/25 match with Stormwater Utility providing \$175,000
 - Total project estimated at \$700,000
- Make the City more resilient and address
 - Hazard identification, flood mitigation, flood preparedness and response, policies and regulations, funding strategies, and communications
- Include efforts to reach communities with barriers to access
- Engaging impacted community members

Discussion of Summer 2024 storms

AGENDA ITEM #4

Thunderstorms 2024

- National Weather Service (NWS) WARNINGS
April 15, 2024 – August 9, 2024

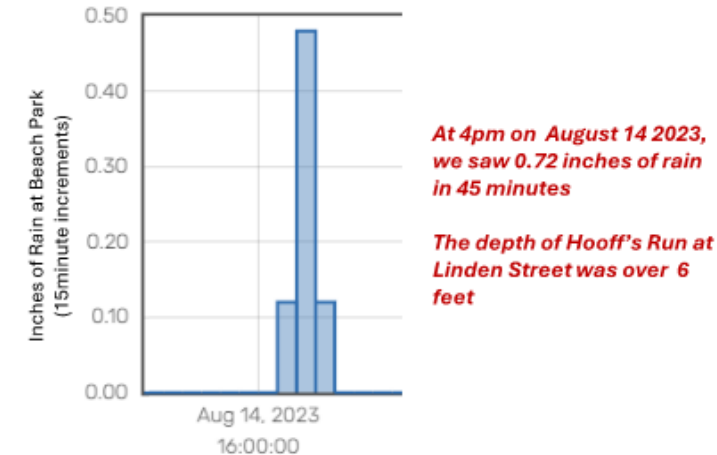
	YEAR	Weather Forecast Office	Significance	Issued	Expired	Duration	Event ID	Phenomenon	24-hr City Rain (in)
1	2024	Sterling, VA	Warning	4/15/2024 18:59	4/15/2024 19:45	45-min	16	Severe Thunderstorm Warning	0.04
2	2024	Sterling, VA	Warning	5/27/2024 23:53	5/28/2024 0:45	50-min	68	Severe Thunderstorm Warning	0.40
3	2024	Sterling, VA	Warning	7/15/2024 21:14	7/15/2024 22:00	45-min	146	Severe Thunderstorm Warning	0.00
4	2024	Sterling, VA	Warning	7/17/2024 21:30	7/17/2024 22:00	30-min	170	Severe Thunderstorm Warning	0.52
5	2024	Sterling, VA	Warning	7/17/2024 22:30	7/17/2024 23:15	45-min	173	Severe Thunderstorm Warning	
6	2024	Sterling, VA	Warning	7/23/2024 0:24	7/23/2024 1:15	50-min	180	Severe Thunderstorm Warning	0.08
7	2024	Sterling, VA	Warning	7/29/2024 22:00	7/29/2024 22:30	30-min	183	Severe Thunderstorm Warning	0.75
8	2024	Sterling, VA	Warning	7/31/2024 21:26	7/31/2024 22:15	50-min	197	Severe Thunderstorm Warning	1.35
9	2024	Sterling, VA	Warning	7/31/2024 22:24	7/31/2024 23:00	35-min	199	Severe Thunderstorm Warning	
10	2024	Sterling, VA	Warning	7/31/2024 23:08	7/31/2024 23:27	20-min	202	Severe Thunderstorm Warning	0.63
11	2024	Sterling, VA	Warning	8/3/2024 22:36	8/3/2024 23:04	30-min	230	Severe Thunderstorm Warning	
12	2024	Sterling, VA	Warning	8/9/2024 10:22	8/9/2024 10:45	25-min	44	Tornado Warning	1.75
13	2024	Sterling, VA	Warning	8/9/2024 10:37	8/9/2024 13:04	2.5-hrs	31	Flash Flood Warning	
14	2024	Sterling, VA	Warning	8/9/2024 13:04	8/9/2024 17:00	4-hrs	52	Flood Warning	

<https://mesonet.agron.iastate.edu/vtec/search.php#bypoint/-77.0970/38.8292>

Hurricane Debby

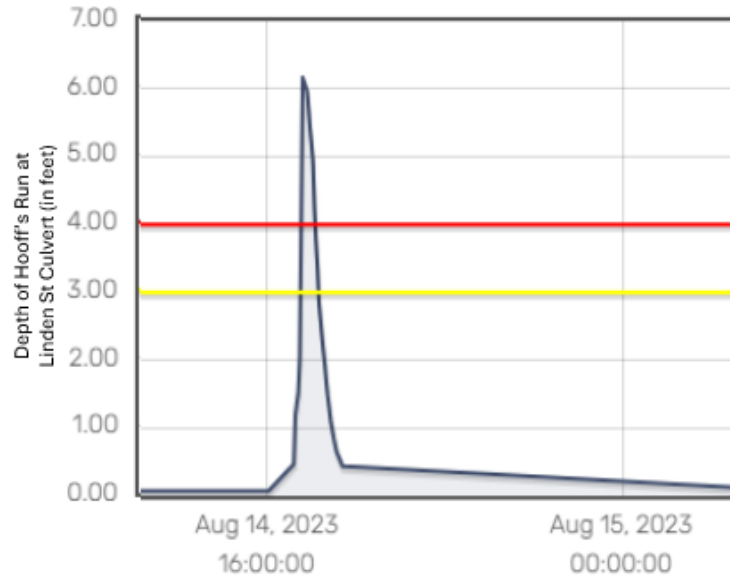
Discussions of Summer 2024 Storms

Before Hooff's Run Improvements

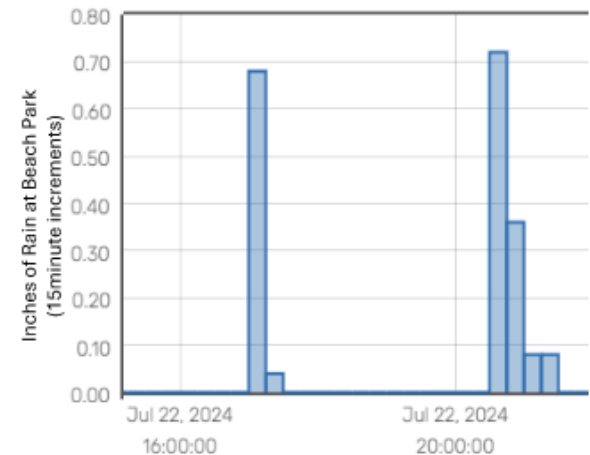


At 4pm on August 14 2023, we saw 0.72 inches of rain in 45 minutes

The depth of Hooff's Run at Linden Street was over 6 feet

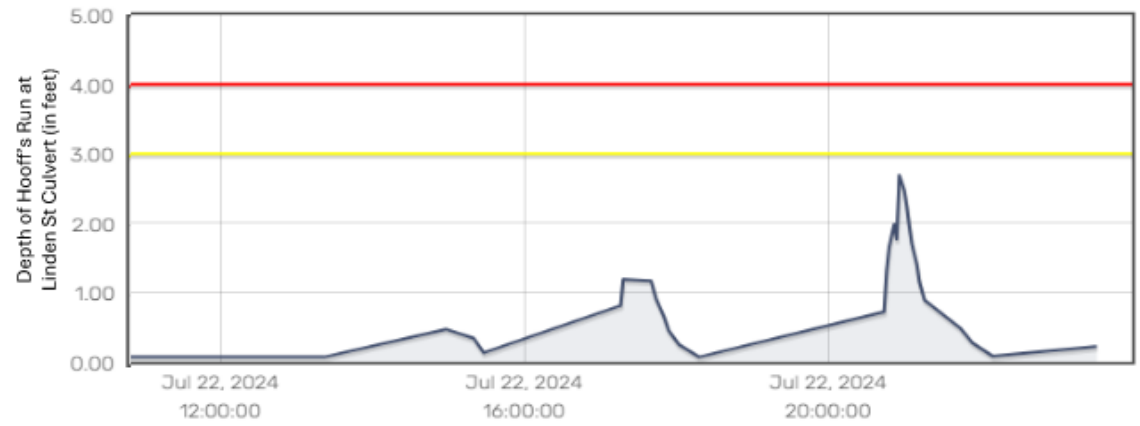


After Hooff's Run Improvements



At 8pm on July 22 2024, we saw 1.16 inches of rain in 45 minutes

The depth of Hooff's Run at Linden Street never exceeded 3 feet



First Street Modeling

AGENDA ITEM #5

Committee workplan and outreach activities

AGENDA ITEM #6



Stormwater Utility and Flood Mitigation Advisory Committee Proposed Work Plan for 2024-2025

Work Stream	Purpose	Activities & Deliverables
<p>Community Awareness</p>	<p>To increase residents' awareness of -- and involvement in -- the projects planned in their neighborhoods</p>	<p>Maximize resident awareness and attendance at all community meetings regarding these projects:</p> <ul style="list-style-type: none"> <li style="display: inline-block; width: 45%;">- Commonwealth/Ashby/Glebe <li style="display: inline-block; width: 45%;">- Nethergate <li style="display: inline-block; width: 45%;">- Hooff's Run Bypass <li style="display: inline-block; width: 45%;">- Miscellaneous Spot projects <li style="display: inline-block; width: 45%;">- Pitt & Gibbon <p>Place special emphasis on residents most impacted by these projects. (Throughout the year)</p>
<p>Business Involvement</p>	<p>To better understand the impact of stormwater and flooding issues on Alexandria businesses and design appropriate mitigation strategies.</p>	<p>Targeted updates to the Alexandria business community impacted by stormwater flooding.</p>
<p>Assessing Plans & Budgets</p>	<p>To report to Council whether the appropriate level of funding is allocated to the most effective storm- and floodwater mitigation projects.</p>	<p>A statement in support of the Stormwater Fee increase that briefly summarizes past storm season and the need for continued investment (October).</p> <p>A budget season report – and testimony -- on the progress of the stormwater mitigation program overall, with an emphasis on expenditures to-date and planned investments. Answer the three questions raised in our 2023 report. (March to May).</p>
<p>Informing City- and State-level Policies</p>	<p>To provide the perspective of residents and businesses as City staff works with Council and our state representatives in shaping policies regarding storm- and floodwater mitigation</p>	<p>Contribute relevant stormwater proposals to the City's legislative package to Richmond (September)</p> <p>Engaging and coordinating with other City organizations concerned with water-related issues (on-going)</p>

Committee memo in support of FY2026 stormwater fee

AGENDA ITEM #7

Public Comment

AGENDA ITEM #8

Adjourn

AGENDA ITEM #9