



Environmental Policy Commission | June 16, 2025

City of Alexandria Stormwater Management Update and Flood Action Alexandria Overview



Agenda

- Stormwater Management in Alexandria
- Water Resources & Water Quality
- Flood Action Alexandria

Stormwater Management in Alexandria

- 154,700 (2021 population)
- 15 square miles
- Over 40% impervious area
- ~500 acres in Old Town area in combined sewer (See RiverRenew for more info!)

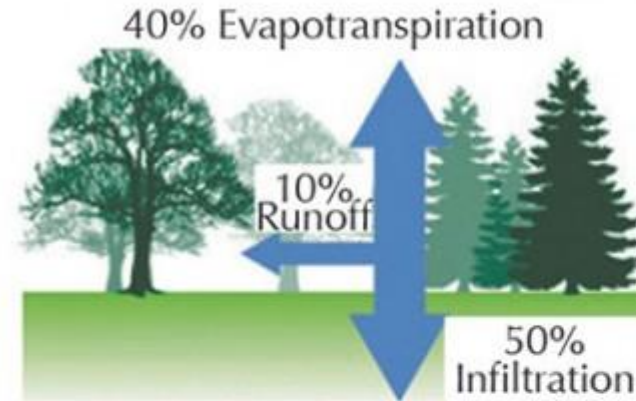


Why Does Stormwater Runoff?

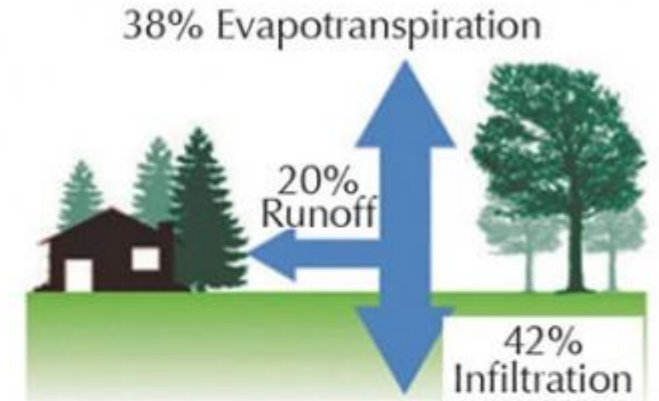
- City is about 45% impervious, so about 30% becomes runoff



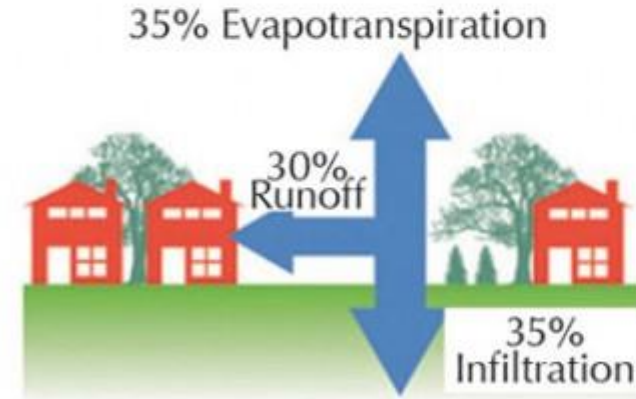
EFFECTS OF IMPERVIOUSNESS ON RUNOFF AND INFILTRATION



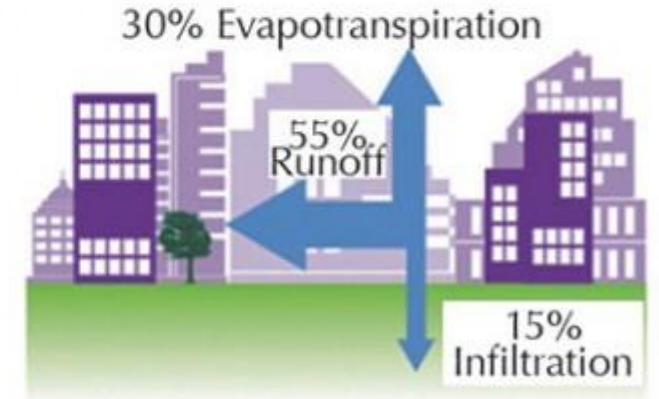
Natural Ground Cover
0% Impervious Surface



Low Density Residential (e.g. rural)
10–20% Impervious Surface



Medium Density Residential (e.g. subdivision)
30–50% Impervious Surface

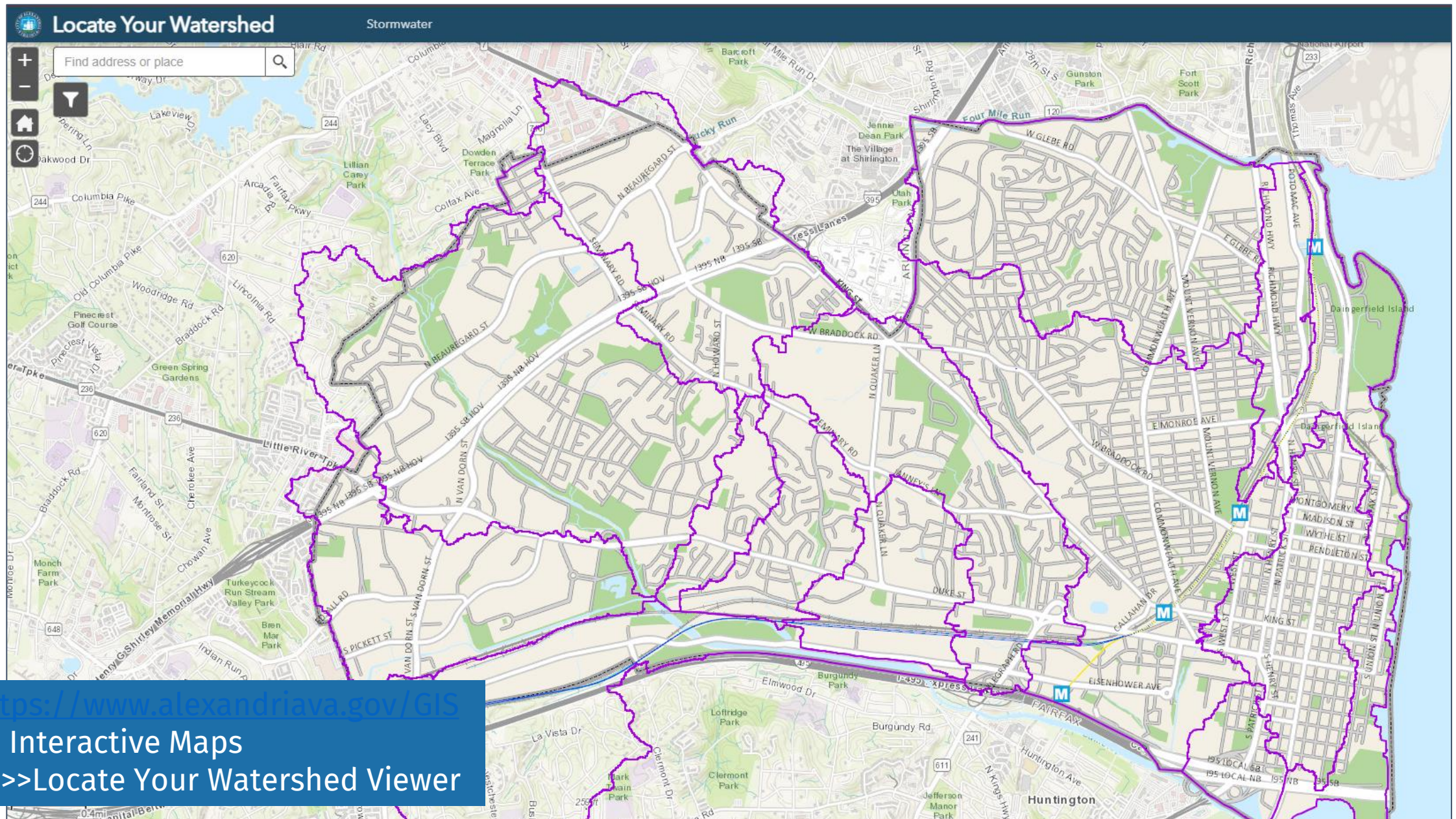


High Density Residential / Industrial / Commercial
75–100% Impervious Surface

Where does all of the stormwater go?



“If it drains to the street, it drains to the creek.”



Types of Pollution in Alexandria's Waterways

- Trash / Litter
- Sediment / Dirt
- Nutrients from Fertilizers (over application or not timed properly)
- Salts from Snow Removal Activities
- Pet Waste
- Motor oil, grease, vehicle fluids

What You Can Do to Protect Water Quality

Report Clogged Inlets & Water Quality Concerns to Alex311
Pick Up After Your Pet | Do Not Litter |
Reduce Use of Fertilizer



Stormwater Program Activities

- Public Education and Outreach
- Public Involvement
- Illicit Discharge Detection and Elimination
- Construction Site Inspections
- Stormwater Management Facility Inspections
- City Facilities Inspections
- Street Sweeping
- Storm Sewer Operations and Maintenance
- Local Total Maximum Daily Load (TMDL) Action Plans
- Chesapeake Bay TMDL Action Plan

Stormwater Utility (SWU) Fee and Credit Program

- First billed May 2018, the Fee provides a dedicated, equitable funding source for the Stormwater Management Program
- Billed twice a year on the Real Estate tax bill
- Residential fee is tiered: based on property type
- Non-residential fee is based on calculated impervious
- Property owners eligible for up to 50% reduction
- Applications accepted annually December 1 – February 15th
- Credits good for 2-years



Stormwater Utility Fee Credit Program



RESIDENTIAL PROPERTIES CREDIT MENU

STORMWATER MANAGEMENT PRACTICES

PRACTICE	CREDIT
RAIN BARRELS	5% EACH MAX 20% FOR 4
CISTERN	20%
DETENTION PRACTICES	20%
DRY WELL/ INFILTRATION	20%
RAIN GARDEN	20%
FLOW THRU PLANTER BOX	20%
PERMEABLE PAVEMENT	20%
VEGETATED GREEN ROOF	20%



ELIGIBLE LANDSCAPING PRACTICES

PRACTICE	CREDIT
NO FERTILIZER PLEDGE	10%
CONSERVATION LANDSCAPING	10%
NEW TREE PLANTING	UP TO 30% ONE TIME CREDIT
MATURE TREE PRESERVATION	UP TO 20%



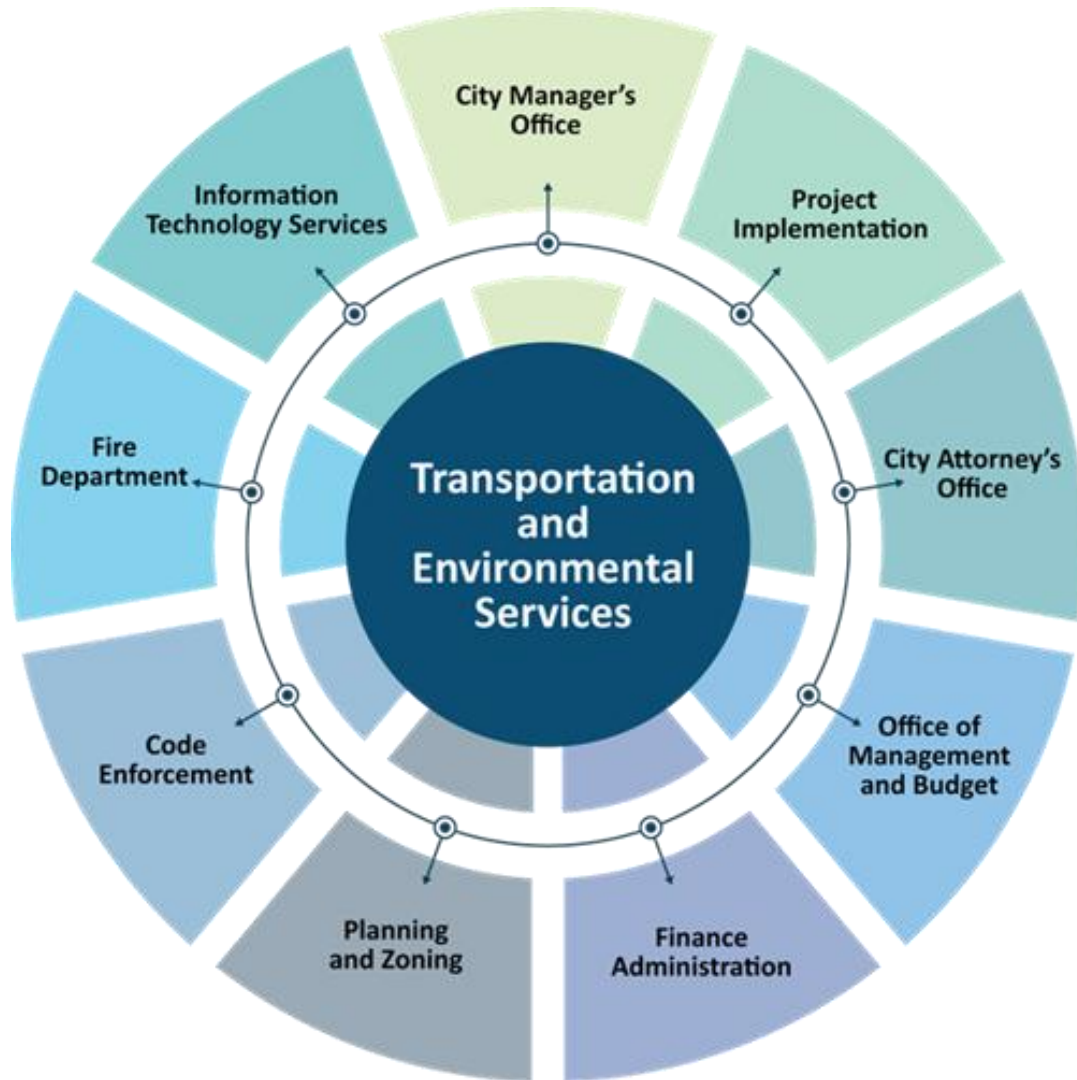
DRY FLOODPROOFING PRACTICES

PRACTICE	CREDIT
PROTECTIVE BARRIERS/ WALLS	10%
PROTECTIVE DOORWAY FLOOD GATE OR PANEL	10%
PASSIVE FLOOD GATES	10%
FLOODPROOF WINDOWS	10%
BASEMENT WINDOW PROTECTION	10%
GROUND FLOOR/ BASEMENT CUSTOM WINDOW WELLS	10%
FRENCH DRAIN AROUND BASEMENT	10%
IMPERMEABLE MATERIAL AROUND FOUNDATION	10%
CONCRETE SEALER	5%
CONSTRUCT WITH FLOOD RESISTENT BUILDING MATERIAL	5%
ELEVATE EXTERIOR UTILITIES/ SERVICE EQUIPMENT	5%

*APPROVED STORMWATER PRACTICES IN THE BMP CLEARINGHOUSE MAY BE ELIGIBLE FOR CREDITS ON A CASE-BY-CASE BASES. SEE 2011 DESIGN SPECIFICATIONS FOR APPROVED PRACTICES AT [HTTPS://SWBMP.VWRRC.VT.EDU](https://swbmp.vwrrc.vt.edu)



Flood Action Alexandria: Partnership to Address Flooding



**Major Capacity
Capital Projects**

**Spot
Improvement
Capital Projects**

**Data Collection &
Early Warning
System**

**Sanitary Sewer
Improvements**

**Enhanced
Maintenance**

**Enhanced
Communications**

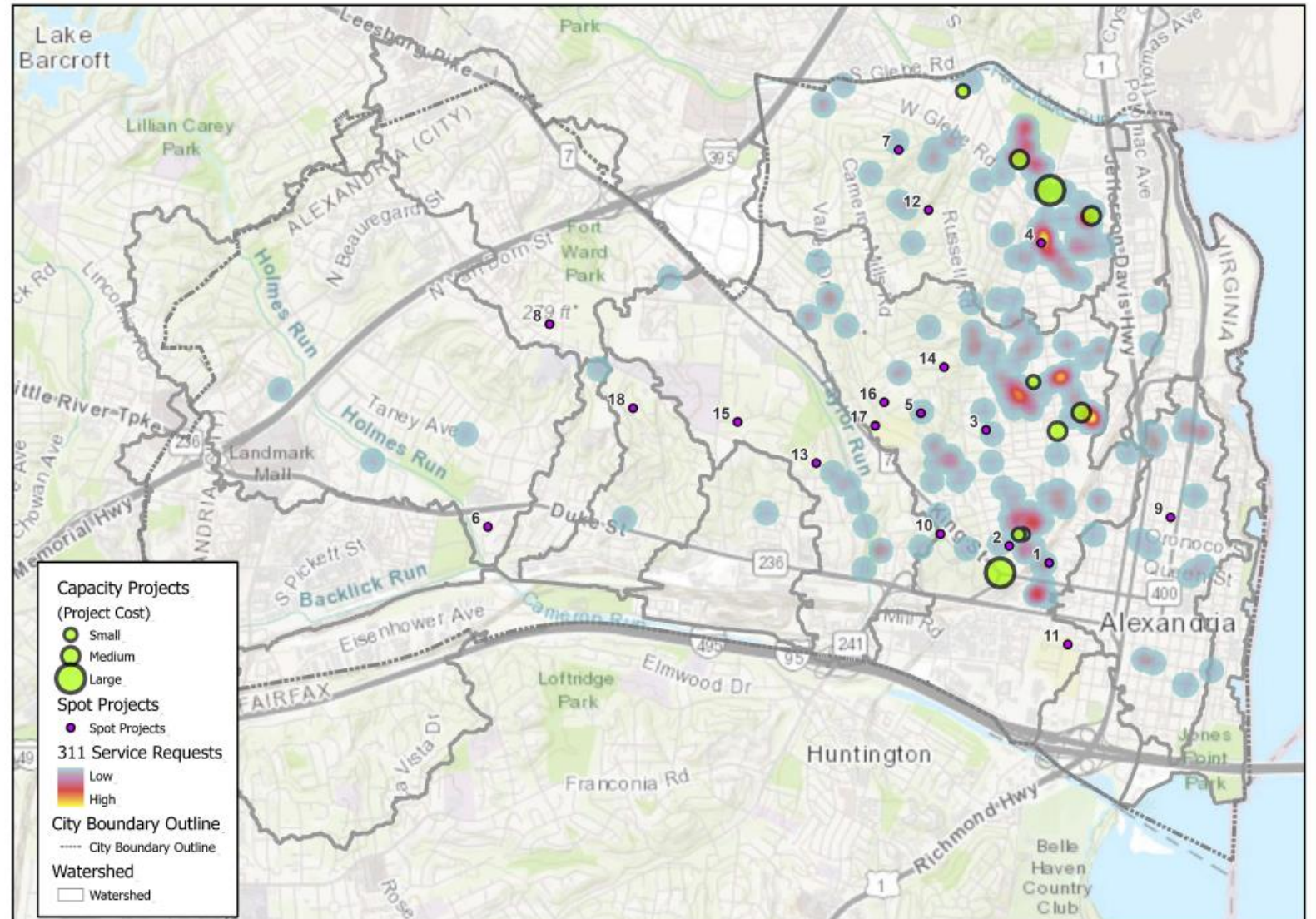
**Legislative
Process and Flood
Mitigation Grant**

**Alternative
Funding**

Large Capacity and Spot Improvement Capital Project Identification and Prioritization

- City of Alexandria Storm Sewer Capacity Analysis (CASSCA)
- “Heat map” using City’s Alex311 service requests
- Neighborhood Engagement and Investigations
- Anecdotal data

For illustrative purposes only



Neighborhood Engagement and Investigation Meetings



- Discuss types and extent of flooding issues
- Planned large capacity projects
- Potential Spot improvement projects
- Short-term / cost-effective solutions to protect against flash flooding and sewer backups
- Flood Mitigation Pilot Grant Program (more later)

Neighborhood Spot Improvements



A crew pours concrete to form the catch basins for the new, wider inlets on Hume Avenue.



Engineer Brian Rahal, of the Stormwater Management Division, monitors progress on larger inlet installation on Hume Avenue on Jan. 24, 2022

Enhanced Operations & Maintenance

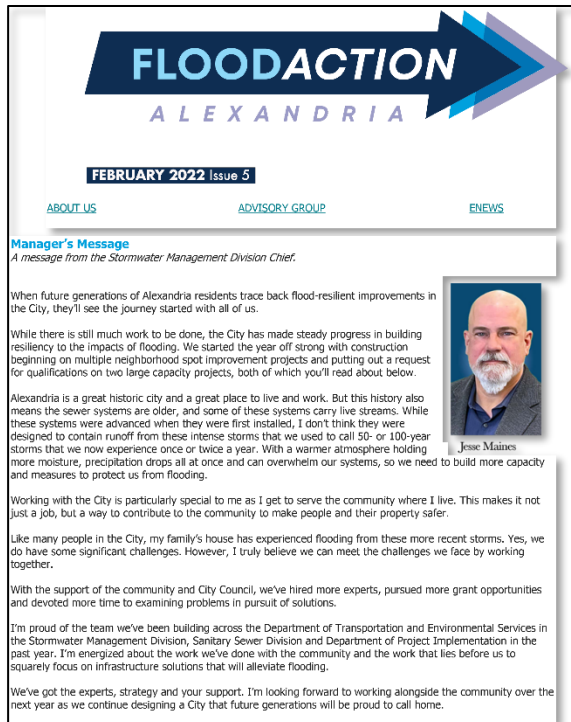
- Inspecting and cleaning storm lines every 3-5 years
- Inspecting and clearing before storm events
- Repairing stormwater infrastructure as needed
- Stream and channel maintenance
- Maintaining large infrastructure components, such as cleaning Hooffs Run Culvert
- Inspecting internal sewers via CCTV
- Street sweeping & leaf removal
- Additional maintenance in response to service requests received via Alex311



Enhanced Communications

FLOOD ACTION NEWSLETTER

Project updates, news and messages directly from senior leaders.



VIDEO STORYTELLING

Informative and educational video messaging from the staff.



SOCIAL MEDIA

Are you following T&ES?
Get an inside look at projects.



1,190
Posts

1,334
Followers

43
Following

T&ES Alexandria, VA

The official account for the City of Alexandria VA
Department of Transportation & Environmental
Services.

alexandriava.gov/TES

301 King St, Rm 4100, Alexandria, Virginia



Followed by alexandriavapd, dashbus_ and 23 others

Following ▾

Message

Email



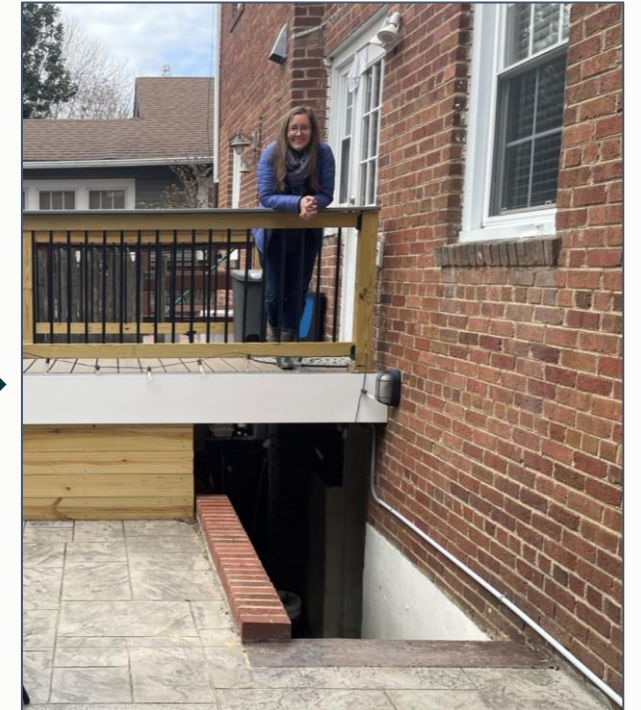
Flood Mitigation Grant Program Objectives

- Financially reimburse homeowners for flood mitigation efforts
- Designed so both the City and homeowners achieve beneficial outcomes:
 - City delivers grant funds to homeowners who made efforts to help mitigate flooding
 - Homeowners are **reimbursed** for products and/or services that provide a return on their own investments

The “old” way



The “new” way



Flood Mitigation Grant

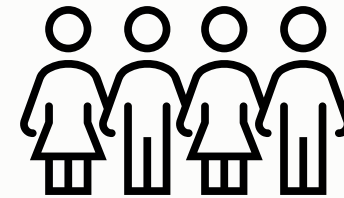
Individual Homeowner

- \$5K grant, 50/50 match
- Must be an eligible flood mitigation practice
- Use by owner within boundary of real estate property.



Associations

- \$25K grant, 50/50 match
- Must be an eligible flood mitigation practice
- Use by association to protect common area and/or multiple properties from flood hazard.



Practices Covered by Flood Mitigation Grant Program



Windows and Doors

- Permanent glass protection
- Basement window protection
- Ground floor or basement window wells and drains
- Temporary or permanent doorway flood gate or panel
- Flood socks
- Temporary quick dams

Basement and Utilities

- Sump pump battery backups
- Drain tiles below basement floors
- Flood vents
- Utility flood covers
- Interior concrete or masonry walls
- Elevated electrical outlets and switches
- Quick Connect system
- Elevated utilities and service equipment



Exterior and Topography

- Surface grading
- Protective walls
- Impermeable soil materials
- Flood walls
- French drain systems
- Earthen berm construction
- Sandless or traditional sandbags
- Flood resistant building materials



For questions about your flood mitigation efforts, contact City staff at FloodGrant@alexandriava.gov

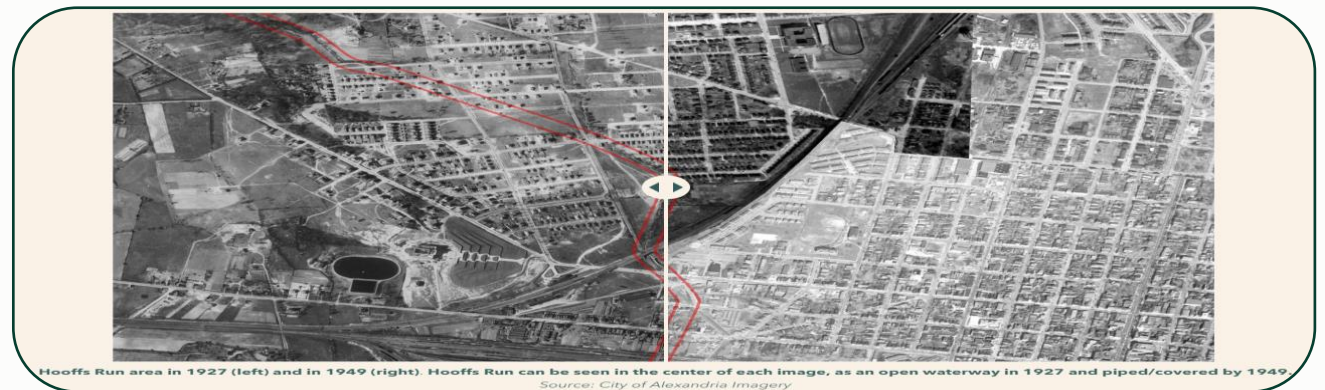
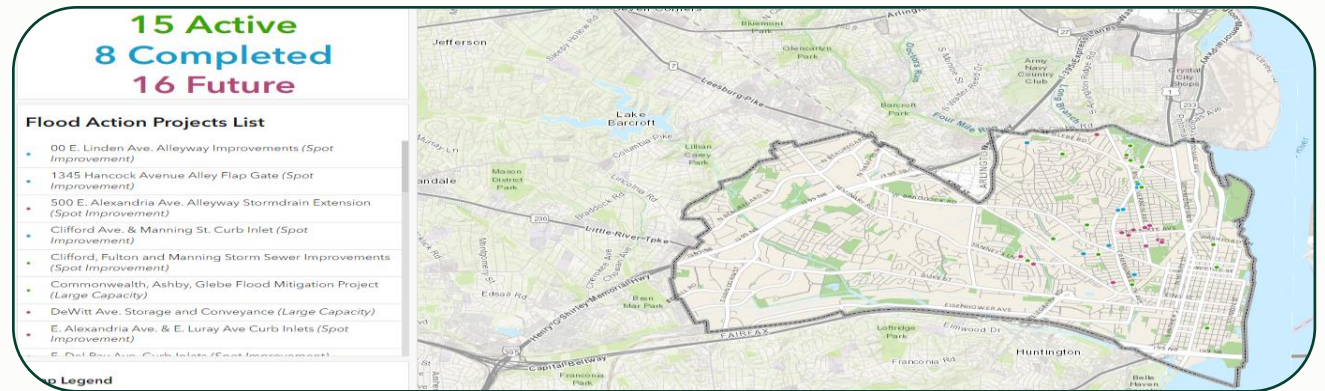
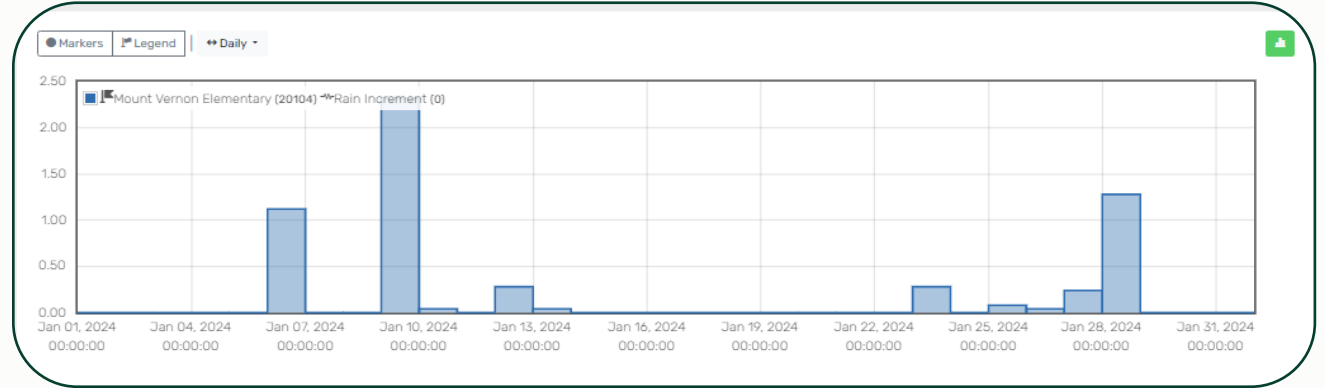


FLOODACTION

ALEXANDRIA

Alexandriava.gov /FloodAction

- Rain Gauge Info
- Project Dashboard of Current & Future Projects
- Story Map on the History of Flooding in Alexandria



Flood Resilience Plan

- Identified in the Energy and Climate Change Action Plan
- Included in the Long Range Interdepartmental Work Plan
- Will include:
 - Hazard identification and information dissemination
 - Flood mitigation
 - Flood preparedness and response
 - Land development policies and regulations
 - Financing strategy



FLOODACTION

ALEXANDRIA

Flood Resilience Strategy

Flood Mitigation

- Nature-Based Solutions
- Engineered Solutions
- Land Conservation & Buyouts
- Flood Mitigation Grant Program

Policies & Regulations

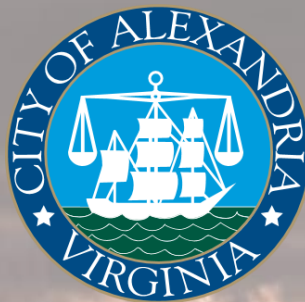
- Floodplain management
- Growth Planning
- Stormwater management
- Building code updates for at-risk areas
- Incentives



Flood Resilience Plan | Community Involvement

- Survey is open until September
- Tabling at community events throughout the summer
- Larger community event/open house this fall (Oct.)
- Draft report targeted for early 2026 with additional opportunity for public feedback
- Will share with Council for full adoption in spring 2026





Thank You!

Jesse Lassetter, Sr. Environmental Specialist

Jessica.Lassetter@alexandriava.gov

**Jesse E. Maines, Division Chief, Stormwater
Management**

Jesse.Maines@alexandriava.gov

