



INLET CAPACITY AND NEW INLET PROGRAM

Grant Application



CITY OF
ALEXANDRIA,
VIRGINIA
Community Flood
Preparedness Fund
Round 3

April 8, 2022

Inlet Capacity and New Inlet Program

The City of Alexandria (City) is applying for grant assistance under the Virginia Department of Conservation and Recreation (DCR) Community Flood Preparedness Fund (CFPF) Round 2 ‘Project’ category to help mitigate flooding in Alexandria, Virginia. The project, *Inlet Capacity and New Inlet Program* (“*Inlet Program*”), will build on existing efforts undertaken with the Flood Action Alexandria initiative, launched in 2021, to help improve the resiliency of the City against increased precipitation and flash flooding events caused by climate change. The *Inlet Program* will improve drainage through increased stormwater inlet capacity by enlarging exiting inlets and building new inlets leading to pipes with adequate conveyance capacity. This approach allows for greater surface runoff to enter the pipe system and mitigate flooding.

The *Inlet Program* seeks to identify undersized inlets and identify locations for new inlets that will improve the efficiency of the City’s storm sewer system. The *Inlet Program* also will incorporate the design and construction of both upgrading existing storm sewer inlets and the installation of new inlets, within “pilot” neighborhoods.

The City will take a “watershed approach” to developing the Inlet Program by systematically identifying inlet capacity within two of the City’s eight local watersheds: Hooff’s Run and Four Mile Run. The approach will be applied to identify, design, and implement needed increases to the storm sewer inlet capacity for neighborhoods within these two watersheds. The *Inlet Program* will be replicable across the remaining six watersheds and corresponding neighborhoods (see Figure 1).

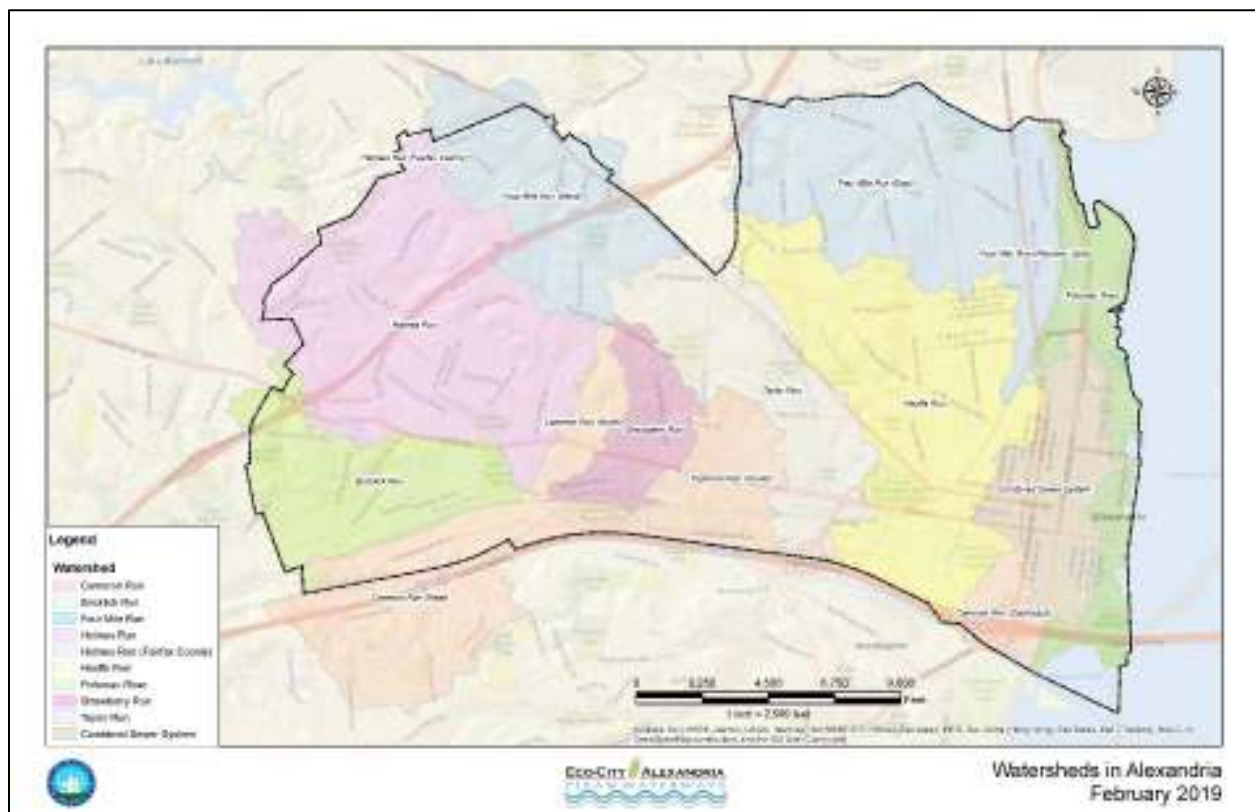


Figure 1. City of Alexandria's Local Watersheds

Virginia DCR approved the [City of Alexandria's Resilience Plan](#) September 10, 2021. The City has integrated flood mitigation and resilience goals across areas of the local government, with flood resilience a priority addressed holistically through master planning, environmental planning, small area planning, waterfront planning, and capital project planning and implementation, and this project will advance the priorities identified in these various plans. The City has established requirements for development controls in the floodplain through zoning and the local floodplain ordinance. The City's Transportation and Environmental Services Department (T&ES) is implementing resilient stormwater system upgrades informed by the City of Alexandria Storm Sewer Capacity Analysis (CASSCA), neighborhood investigations, and making spot improvements to high priority flood risk areas, along with accelerated frequent operations and maintenance under the [Flood Action Alexandria program](#). Additionally, the City understands the importance of engaging with communities in high-risk areas impacted by frequent urban flooding events. The City performed neighborhood investigations and meeting with residents following a series of intense storm events driven by climate change that caused urban flooding in 2019, 2020 and 2021. The City launched a [flood mitigation grant program](#) in August 2021 for property owners to make improvements to, and protect, their private property through flood barrier implementation and structural adaptations. In 2019, the City released an update to the Environmental Action Plan with a roadmap for climate mitigation and resilience activities, accompanied by the Energy and Climate Change Task Force. These initiatives are grounded by the City's new Equity ordinance, which commits to addressing racial, social, and economic disparities in all areas of local government. The project proposed in this application fulfil the requirements and support the goals of each of these resilience planning efforts and accelerate the City's efforts to deliver flood mitigation measures for the Arlandria area of Alexandria.

1. Project Information

The City of Alexandria is a dense, highly urban community with over 200 miles of roadways and 185 miles of storm sewer pipe. Inlets allow stormwater to enter the storm sewer network and are found in various states of good repair across the City. Increasing inlet capacity enables more stormwater to enter the network which helps to prevent ponding which leads to increased flooding as storms become more intense and severe. Another issue with undersized inlets is runoff bypass in which the inlets get overwhelmed at one spot and flood, transferring some of that excess runoff to other undersized inlets, causing worse flooding at those locations. Additionally, the City of Alexandria Storm Sewer Capacity Analysis (CASSCA) model completed in 2016 included the baseline assumption that all inlets operate at the same capacity however, we have observed on-the-ground this is not the case and the full storm sewer pipe capacity may be underutilized, a critical factor during severe flooding. Figures 2-4 show various inlets across the City. Increasing inlet capacity and adding new inlets is a cost-effective and time efficient way to ensure the full capacity of the storm sewer network is optimized. Inlets are located within the City's Right-of-Way and require no additional acquisitions, easements, nor other private property negotiations. Typically, an inlet project is under construction from one-to-two weeks, weather dependent and causes less road closures and other neighborhood disturbances in other typical infrastructure projects. Incorporating green infrastructure into these projects, where feasible, seeks to improve the overall resilience of the neighborhood, watershed, and City.



Figure 2. Image of Inlet in City of Alexandria



Figure 3. Image of Inlet in City of Alexandria



Figure 4. Image of Inlet in City of Alexandria

The *Inlet Project* will first analyze the capacity of the storm sewer network in Hooff's Run and Four Mile Run watersheds. Inlet capacity will be evaluated with the hydraulic modeling using XP-SWMM for the current 10-year 24-hour design storm to determine whether the inlets possess the necessary capacity and CCTV investigations will be performed to determine if there were any structural failures within the pipes. To get a better understanding of how the storm drain inlets may contribute to the flooding in the neighborhood, a spread analysis of the existing inlets may be performed.

The Inlet Program builds off a "proof of concept" undertaken by City consultants in the aftermath of severe storm events in 2019 and 2020. The Park Fairfax neighborhood, within the Four Mile Run watershed, reported severe flooding from flash floods. Developed in the 1940s as housing for the post-World War II workforce, the Park Fairfax neighborhood is located south of Four Mile Run with Martha Custis Drive serving as its north, west, and south boundaries and Gunston Road serving as its east boundary. Within this neighborhood are privately owned townhomes and condominiums, and the Charles Barrett Elementary School at the northern boundary along Martha Custis Drive. During storm events, flooding primarily occurs along Martha Custis Drive and Holmes Lane which is the lowest point in the neighborhood. Seventy-five (75) inlets were identified in the Park Fairfax neighborhood alone (see Figure 5).

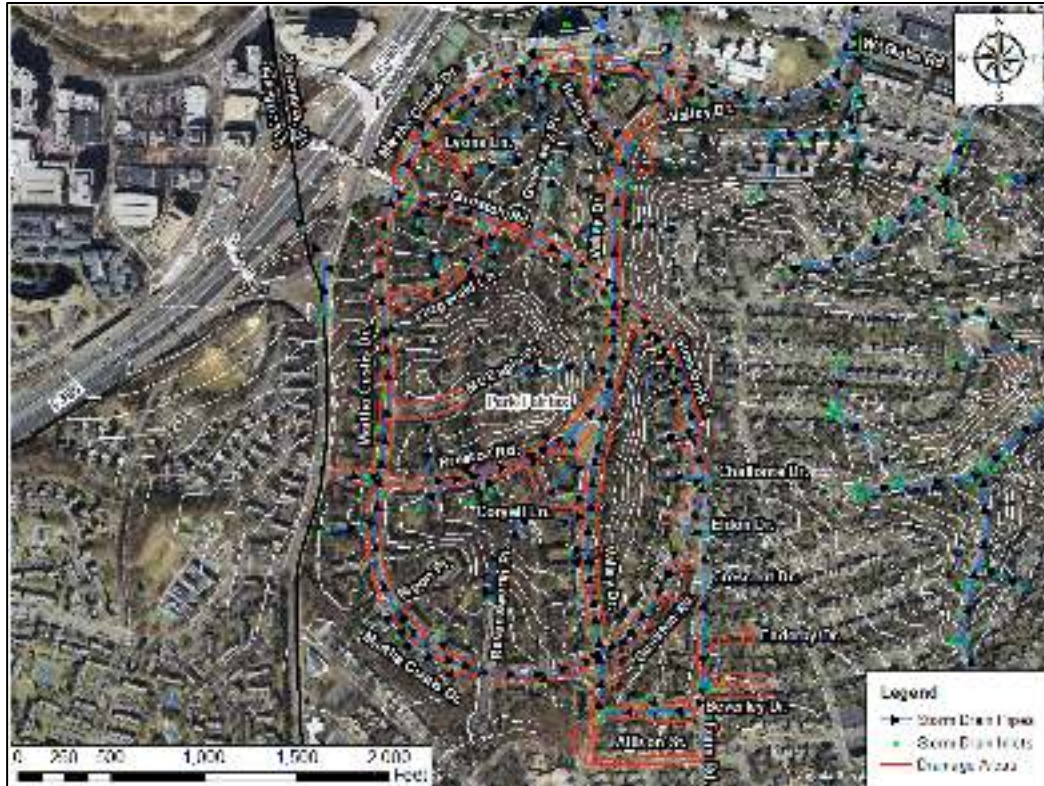


Figure 5. Inlets in Park Fairfax

The City anticipates potentially piloting permeable gutters and other types of green infrastructure, where feasible, in coordination with the *Inlet Program*. For example, permeable gutters (Figure 6) allow water to pass through and offer a way to reduce impervious surface in this neighborhood and the City. Currently the City does not own any permeable gutter systems. Figure 7 and 8 show other types of green infrastructure which may be under consideration.



Figure 6. Permeable Concrete Gutter Installation



Figure 7. Green Infrastructure



Figure 8. Tree Box Filters

a) Population and Equity

Alexandria has a population of 159,467 (U.S. Census Bureau, 2020) and is the densest city in Virginia with a population density of about 9,460 people per square mile. The median household income in Alexandria is currently \$120,000; 80% of this is \$96,000. For the purposes of this proposal, the

population and social vulnerability index are based on the two watersheds of focus for the *Inlet Program* through this grant application: Four Mile Run and Hooff's Run watersheds (see Figure 9). The average score is -0.98 (removing duplicates) which is considered Very Low, however there is one census tract ranked as "Moderate" and one ranked as "High". Two census area (2001.06 and 2012.03) have median household income less than 80%.

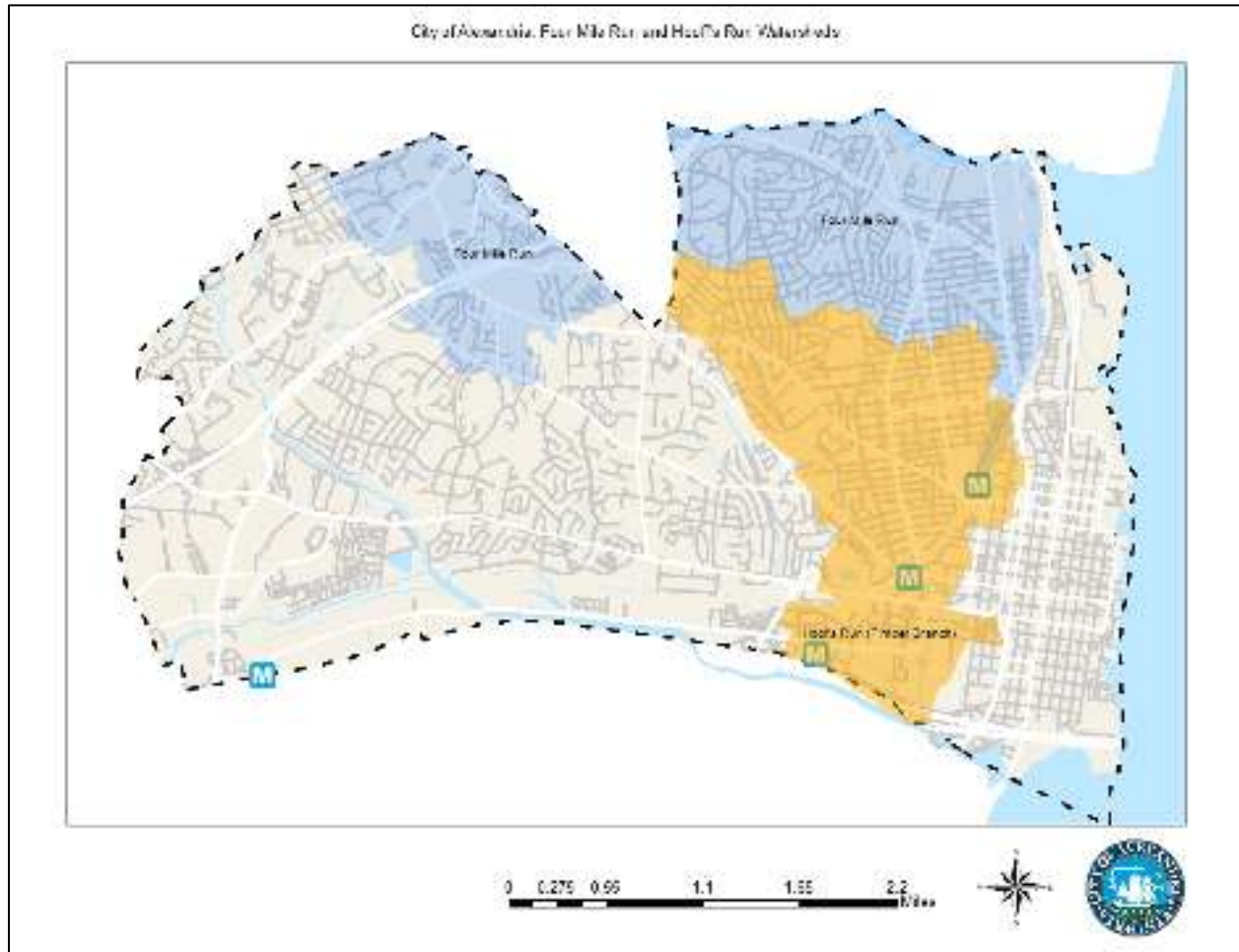


Figure 9. Four Mile Run and Hooff's Run Watersheds

Four Mile Run Watershed

Four Mile Run watershed within the City is 2,307.54 acres with a population of 77,080. The Social Vulnerability Index Scores and Index Classification for Census Tracts that intersect with Hooff's Run are included in Table 1. Four Mile Run also includes a [Federal Opportunity Zone](#), ID 51510201203.

Table 1. Social Vulnerability Classification for Census Tracts in Four Mile Run Watershed

<u>Census Tract ID</u>	<u>Social Vulnerability Classification</u>	<u>Vulnerability Index Score</u>
2001.02	Low	-0.7
2001.05	Low	-0.9
2001.06	Moderate	0.3
2001.07	Very Low	-1.6
2002.01	Low	-0.7
2003	Not Socially Vulnerable	-0.5
2009	Not Socially Vulnerable	-1.1
2010	Very Low	-1.6
2011	Very Low	-1.6
2012.02	Very Low	-1.2
2012.03	High	1.1
2012.04	Low	-0.5
2013	Low	-0.9
2014	Very Low	-1.1
2016	Low	-0.8
2018	Very Low	-1.6

Hooff's Run Watershed

Hooff's Run, also incorporates Timberbranch, and has an area of 1,618.86 acres with a population of 77,080. The Social Vulnerability Index Scores and Index Classification for Census Tracts that intersect with Hooff's Run are included in Table 2.

Table 2. Social Vulnerability for Census Tracts in Hooff's Run watershed

<u>Census Tract ID</u>	<u>Index Classification</u>	<u>Vulnerability Index Score</u>
2007.01	Very Low	-2.4
2007.02	Very Low	-1.8
2008.01	Very Low	-1.0
2008.02	Low	-0.6
2009	Very Low	-1.1
2013	Low	-0.9
2014	Very Low	-1.1
2015	Low	-0.3
2016	Low	-0.8
2019	Very Low	-2.1

b) Historic Flooding Data and Hydrologic Studies Projecting Flood Frequency

The City is experiencing more frequent and severe flash flooding from extreme precipitation events which have occurred more frequently in the last few years. These flash flood events damage residential and commercial properties, impact critical assets, and cause day-to-day disruptions and economic losses. The City has experienced several major flooding events since 2019, including July 8, 2019, July 23, 2020, September 10, 2020, and most recently August 15, 2021 and September 16, 2021. These events are characterized between 50 to 500-year level rainstorm events. The City's Intensity-Duration-Frequency (IDF) curves developed in the 1980's were compared to other localities in the region and available

climate predictions during the CASSCA study completed in 2016, and were found to be more conservative than many surrounding localities' design storms, more conservative than the NOAA Atlas-14, and were found to compare favorably to climate predictions available in 2016. The City is currently planning to further analyze these local IDF curves in comparison to regional efforts and more recent climate predictions.

The August and September 2021 storms were recorded by recently installed [rain gauges](#) that expand the City's gauge network to gather more localized storm information. Actual accumulation of over 5-inches in two hours, to be between 100 and 500-year level rain when compared to the statistical expectations derived for the City's curves developed in the 1980's for the City, which are more conservative than NOAA's predictions for the region. Meaning, what NOAA would call a 12-hour 25-year rainfall, Alexandria would call it closer to a 15-year rainfall.

c) Ability of Alexandria to Provide its Share of the Project Cost

In response to these recurring flooding events, in May 2021 the City Council unanimously adopted [an ordinance to double our Stormwater Utility Fee](#) with a 50% increase in the rate for the May 2021 billing and an additional 50% increase in the rate for the October billing to significantly increase local resources available for investments in our storm sewer infrastructure. The development of the [FY 2022 – FY 2031 Stormwater Management Utility Ten Year Plan](#) for funding of operating and capital improvement program (CIP) costs, included the identification and funding schedule for 11 top priority flooding mitigation capacity projects that include a mix of storage, conveyance, and green infrastructure. The 10-Year Plan also includes annually increasing funding for spot improvement projects and increased maintenance activities citywide. The Stormwater Utility Fee, paid by all property owners in the City (including non-taxable properties), will enable an acceleration of major capacity projects and spot improvement projects, an increase in channel maintenance, new state-of-good repair investments, property owner grants, and new staffing in support of these projects. The City confirms that it can cover the Cost Share required for this project with funding identified in the FY 2022 CIP Stormwater Sewer Spot Improvement program.

d) Alexandria is an Active Participant in the National Flood Insurance Program

The City began participating in the regular phase of Federal Emergency Management Agency (FEMA) National Flood Insurance Program (NFIP) on May 8, 1970. The City is recognized for exceeding the goals of the NFIP Community Rating System (CRS) program. Alexandria is one of two Virginia localities to achieve a Class 6 rating. As a result, residents and businesses purchasing flood insurance for properties in Alexandria are eligible to receive up to a 20% discount on flood insurance premiums. The City also has established a Floodplain Ordinance to regulate development and redevelopment in the floodplain. More information is available on the [City's Flood Map webpage](#). Flood maps for the Four Mile Run and Hooff's Run watershed are shown as Figures 10 - 12.

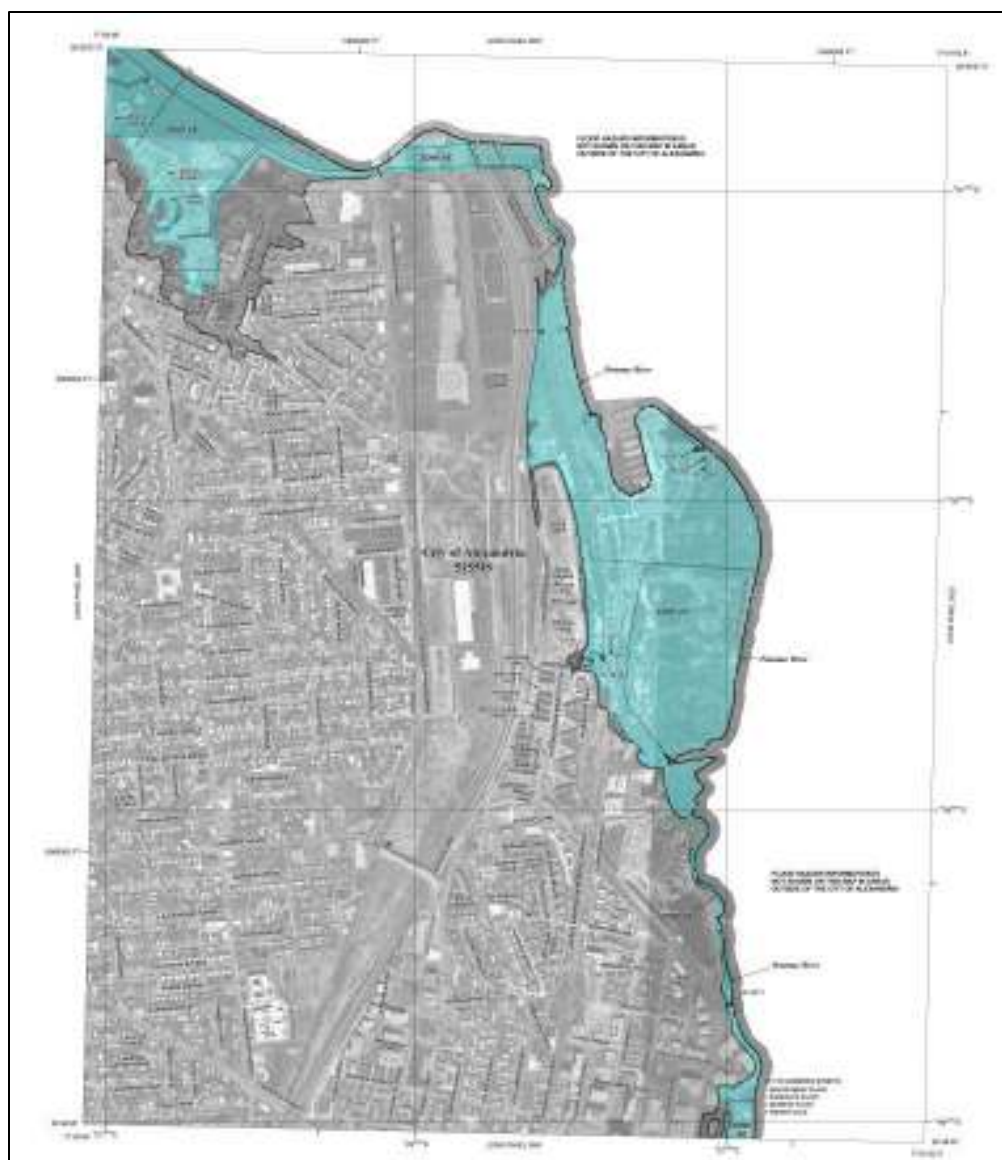


Figure 10. FEMA Map 5155190033E

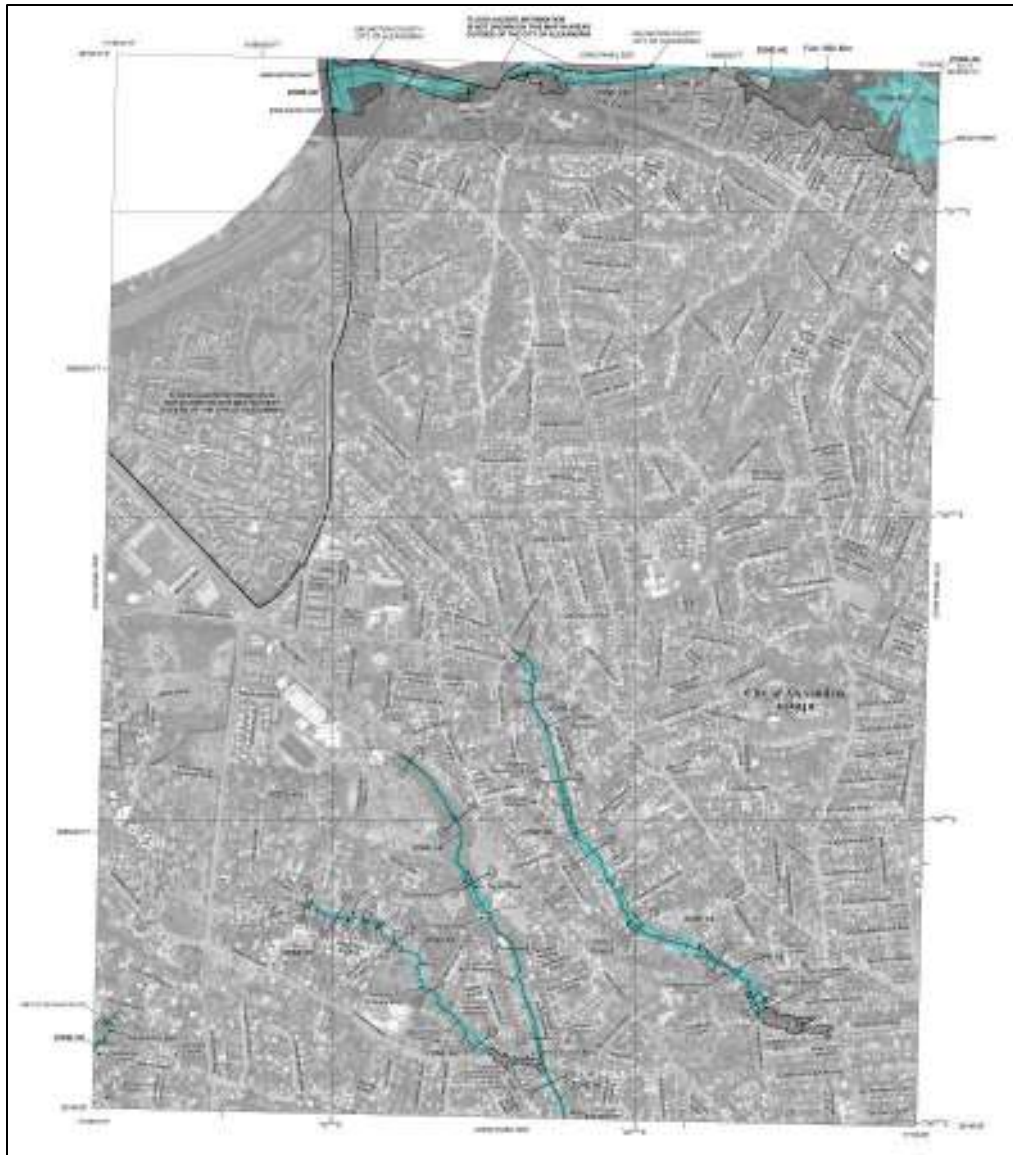


Figure 11. FEMA Map 5155190029E



Figure 12. FEMA Map 5155190041E

Repetitive loss is defined by any insurable building for which two or more claims of more than \$1,000 were paid by the NFIP within any rolling 10-year period, since 1978. A severe repetitive loss is defined by a family residence that has had four or more claims of more than \$5,000 or at least two claims that cumulatively exceed the building value as defined by the Flood Insurance Reform Act of 2004. There were 12 repetitive loss sites in Alexandria as of 2015, of which six are residential and six are non-residential. These 12 repetitive loss sites have experienced a collective 30 losses, with a total payment of \$1,871,287 as described in the [2017 Northern Virginia Hazard Mitigation Plan](#). A more updated list of repetitive losses across the City is forthcoming but preliminary assessment indicates more than 35 properties, more than triple that of 2015.

e) Other Necessary Information to Establish Project Priority

The Northern Virginia Hazard Mitigation Plan identified flooding as one of Alexandria's predominant hazards due to riverine, precipitation, tidal, and storm surge flooding. The Hazard Mitigation Plan ranked

natural hazards for Alexandria using historical weather-related events based on the Storm Event Database by NOAA’s NCDC1. Hazards were ranked using a semi-quantitative scoring system that involved grouping the data values (normalized to account for inflation) based on statistical methods (see Figure 13). This method prioritizes hazard risk based on a blend of quantitative factors extracted from National Climatic Data Center and other available data sources. The parameters considered include:

- Historical occurrences;
- Vulnerability of population in the hazard area; and
- Historical impact, in terms of human lives and property and crop damage.

Table 7.1: Hazard Ranking for Alexandria									
Hazard	Flood	Wind	Tornado	Winter Weather	Drought	Earthquake	Landslide	Wildfire	Karst
Ranking	High	High	High	High	Med-High	Med	Low	Med-Low	Med-Low

Figure 6. Hazard Ranking, Northern Virginia Hazard Mitigation Plan, 2017

Alexandria’s watersheds have a significant percentage of impervious surfaces. Forty-three percent of the City’s surface area is comprised of roads, buildings, parking lots, and sidewalks. Impervious surface contributes to the accumulation of stormwater because water is not able to convey and recharge. This type of flooding threatens the continuous operation of roads, emergency access, and property during precipitation events.

Critical Facilities located within the Four Mile Run and Hooff’s Run watersheds include four fire stations; eight public schools; two libraries; three health facilities; and City facilities (parks, recreation centers, etc.) and offices.

2. Need for Assistance

The City has the staff and resources (SWM/SWU CIP), BSEGS 5 rating, CRS Class 6, to implement this project as soon as funding became available. DCR’s financial support will help create a more resilient Alexandria while enhancing and improving the City’s built infrastructure within Hooff’s Run and Four Mile Run watersheds.

a) Goals and Objectives

The purpose of this project is to help mitigate flooding across the City of Alexandria by identifying and increasing inlet capacity with the support of green infrastructure. This project will address local area flooding where inlet capacity is insufficient, as well as facilitate upstream improvements in the drainage area by ensuring adequate conveyance to support future upgrades and ensuring the full capacity of the storm sewer pipe is utilized. The City cost-share for the project will be funded through the FY 2022 – FY 2031 Stormwater Management CIP under the Storm Sewer Spot Improvement program.

b) Approach, Milestones, and Deliverables

The City of Alexandria’s *Inlet Program* will work to identify and correct systemic deficiencies with the City’s inlets due to the increased strain placed on the public systems from climate change. In tandem, the

City plans to incorporate green infrastructure solutions where possible and cost effective. These green infrastructure solutions have the added benefit of beautification of the local area and align with the City's 2040 Environmental Action Plan. Upon completion of the pilot inlet projects, the project approach will be modified to account for lessons learned and applied to a series of subsequent neighborhoods with the ultimate goal of helping to mitigate the impacts of severe storms and flash flooding in the City.

The City anticipates utilizing a contractor/consultant team to analyze the inlets in Four Mile Run and Hooff's Run watershed in a similar fashion to what was done in the Park Fairfax neighborhood referenced in Section 1. The analysis will be developed into a report with recommendations for new and upgraded inlets as well as opportunities for green infrastructure. The Project Management Team overseeing the Inlet Program consists of experts from Transportation and Environmental Services Stormwater Management Division as the project sponsor and the Department of Project Implementation providing project management in project delivery, along with City consultants. In consultation with the contractor, the Project Management Team will select up to 75 new and/or upgraded inlets to focus on within these two watersheds. These inlets will be designed and constructed under one or more "Contracts" to streamline the effort. Green infrastructure will be included in these on-the-ground projects where feasible as determined by the Project Management Team.

Additional details on the project delivery approach and project teaming will be detailed in a project management plan developed by the City. The City's project management plan is a living document that is continually updated through the life of the project. Input from the design contractor and construction manager will be included in the document as the project progresses. At a minimum, project management plan will clearly identify the projects scope, team member roles and responsibilities, critical stakeholders, project risks and the project procurement plan.

The City's Engineer of Record Contract or an equivalent existing procured agreement will be utilized to develop contract documents including design plans, construction specifications, and costs estimates. A basis of design report and public rendering of impacts and improvements may be included to support the green infrastructure aspect of the project, contingent on the design development process. The City expects that the inlet construction work in the pilot area will be performed using a contractor that is already under contract with the City procured per state requirements.

Table 3 summarizes project milestones for the *Inlet Program* and Table 4 summarizes the deliverables.

Table 3. Milestones

Milestone	Date
Watershed Inlet Analysis focused on Four Mile Run and Hooff's Run	FY2023, Q1 – Q2
Report Writing and Recommendations	FY2023, Q3
Pilot Inlet Project Selection for Implementation	FY2023, Q3 – Q4
<i>Pilot Project Planning</i>	<i>FY2024, Q1</i>
<i>Design Services Task Order</i>	<i>FY2024, Q2</i>
<i>Design Phase</i>	<i>FY2024, Q2</i>
<i>Construction Purchase Order and NTP</i>	<i>FY2024, Q3</i>
<i>Construction</i>	<i>FY2024, Q4, FY2025, Q1</i>
<i>Post-Construction</i>	<i>FY2025, Q2</i>
Evaluation of Pilot Inlet Projects: Success and Lessons Learned	FY2025, Q2 – Q3
Final Inlet Report	FY2025, Q4

Table 4. Milestones and Deliverables

Milestone	Deliverable
Project Planning	<ul style="list-style-type: none"> • Project Charter • Project Management Plan • Project Work Breakdown Structure • Project Schedule
Watershed Inlet Analysis focused on Four Mile Run and Hooff's Run Task Order	<ul style="list-style-type: none"> • Task Order Request based on existing contract • Task Order approval • Purchase Order and Notice to Proceed
Watershed Inlet Analysis focused on Four Mile Run and Hooff's Run Report and Prioritization	<ul style="list-style-type: none"> • Analysis on Four Mile Run and Hooff's Run • Recommendations for inlet upsizing and new inlets • Recommendations for incorporating green infrastructure, where feasible
Design Services Task Order	<ul style="list-style-type: none"> • Task Order Request based on existing contract • Task Order approval • Purchase Order and Notice to Proceed
Design Phase	<ul style="list-style-type: none"> • Design Plans Sketch and/or 30% and Final Design • Construction Specifications at Final Design • Basis of Design including Hydraulic Calculations at 30% and Final Design • Cost Estimate at 30% and Final Design
Construction Procurement	<ul style="list-style-type: none"> • Invitation to Bid at contract award • Contractor Proposal at contract award • Purchase Order at contract award
Construction/Post Construction	<ul style="list-style-type: none"> • Sign & Sealed As-builts following project close out • Site photographs following project close out
Watershed Inlet Analysis focused on Four Mile Run and Hooff's Run Final Deliverables	<ul style="list-style-type: none"> • Report finalized based on project work and Team feedback • Materials and methods, including analysis and data, able to be applied to other flood-prone watersheds and neighborhoods in the City

3. Relationship to Other Projects

The City has experienced repeated and increasingly frequent flooding from storm events, with several large severe storm event occurring in 2019 and 2020. These events lead to the development of the Flood Action Alexandria initiative. Information gathered via the City's 311 response center regarding flooding complaints and inquiries in addition to the [2016 City of Alexandria Storm Sewer Capacity Analysis \(CASSCA\)](#) study provided a roadmap for City staff to undertake neighborhood investigations. Increasing inlet capacity and adding new inlets, especially in areas experiencing frequent and severe flooding impacts from climate change will help create a more resilient Alexandria.

The *Inlet Program* falls within the City's Flood Action Alexandria initiative. The Spot Improvement Program includes a 10-year, \$28.4 million [capital improvement plan](#) focused delivering small to medium sized capital projects at the watershed sub-basin and neighborhood scale across the City. The proposed project for funding will increase the resiliency for residents in the Hooff's Run and Four Mile Run watersheds, and the City of Alexandria as the *Inlet Program* will be replicable to other watersheds. This is a critical need given the City's sensitivity to climate change induced severe storm events caused by rising global temperatures and increased humidity.

4. Maintenance Plan

City sewer infrastructure 'state of good repair' program maintenance objectives includes inspection and maintenance on a rotating 3-5 year service schedule. The City also performs inspection and maintenance in response to Alex311 service requests an in advance of forecasted storm events. The initial work will be inspected regularly early on to ensure proper functioning prior to the routine, rotating schedule being implemented. More information is available on the City's [Sewer Maintenance webpage](#).

5. Criteria

This project scoring criteria is found in Appendix B.

Budget Narrative

The *Inlet Capacity and New Inlet Program* is budgeted for design and construction for a total cost of \$1,528,000. The City respectfully requests 50% of the total project cost to be covered by this grant: \$764,000. This project is anticipated to also provide nature-based green infrastructure solutions.

The project cost share is funded by the City through the FY 2022 CIP Stormwater Sewer Spot Improvement program.

Cost Category	City of Alexandria Match	DCR CFPF Request	Total
Personnel	\$0	\$0	\$0
Fringe Benefits	\$0	\$0	\$0
Travel	\$0	\$0	\$0
Equipment	\$0	\$0	\$0
Supplies	\$0	\$0	\$0
Contractual	\$764,000	\$764,000	\$1,528,000
Construction	\$0	\$0	\$0
Other	\$0	\$0	\$0
Total Direct Charges	\$0	\$0	\$0
Indirect Charges	\$0	\$0	\$0
Totals	\$764,000	\$764,000	\$1,528,000

Appendix A – Application Form

Appendix A: Application Form for Grant Requests for All Categories

Virginia Department of Conservation and Recreation
Virginia Community Flood Preparedness Fund Grant Program

Name of Local Government: City of Alexandria, VA

Category of Grant Being Applied for (check one):

☐ Capacity Building/Planning

☒ Project

☐ Study

NFIP/DCR Community Identification Number (CID): CID515519

If a state or federally recognized Indian tribe, Name of tribe: No

Name of Authorized Official: Jesse Maines, PMP

Signature of Authorized Official: 

Mailing Address (1): 2900 Business Center Drive

Mailing Address (2): _____

City: Alexandria State: VA Zip: 22314

Telephone Number: 703.746.4643 Cell Phone Number: 571.414.8237

Email Address: jesse.maines@alexandriava.gov

Contact Person (If different from authorized official): Jessica Lassetter

Mailing Address (1): 2900 Business Center Drive

Mailing Address (2): _____

City: Alexandria State: VA Zip: 22314

Telephone Number: 703.746.4127 Cell Phone Number: 703.915.5695

Email Address: jessica.lassetter@alexandriava.gov

Is the proposal in this application intended to benefit a low-income geographic area as defined in the Part 1 Definitions? Yes X No

Categories (select applicable project):

Project Grants (Check All that Apply)

- ☐ Acquisition of property (or interests therein) and/or structures for purposes of allowing floodwater inundation, strategic retreat of existing land uses from areas vulnerable to flooding; the conservation or enhancement of natural flood resilience resources; or acquisition of structures, provided the acquired property will be protected in perpetuity from further development.
- ☐ Wetland restoration.
- ☐ Floodplain restoration.
- ☐ Construction of swales and settling ponds.
- ☐ Living shorelines and vegetated buffers.
- ☐ Structural floodwalls, levees, berms, flood gates, structural conveyances.

X Storm water system upgrades.

- ☐ Medium and large scale Low Impact Development (LID) in urban areas.
- ☐ Permanent conservation of undeveloped lands identified as having flood resilience value by *ConserveVirginia* Floodplain and Flooding Resilience layer or a similar data driven analytic tool.
- ☐ Dam restoration or removal.
- ☐ Stream bank restoration or stabilization.
- ☐ Restoration of floodplains to natural and beneficial function.
- ☐ Developing flood warning and response systems, which may include gauge installation, to notify residents of potential emergency flooding events.

Study Grants (Check All that Apply)

- ☐ Studies to aid in updating floodplain ordinances to maintain compliance with the NFIP or to incorporate higher standards that may reduce the risk of flood damage. This must include establishing processes for implementing the ordinance, including but not limited to, permitting, record retention, violations, and variances. This may include revising a floodplain ordinance when the community is getting new Flood Insurance Rate Maps (FIRMs), updating a floodplain ordinance to include floodplain setbacks or freeboard, or correcting issues identified in a Corrective Action Plan.
- ☐ Revising other land use ordinances to incorporate flood protection and mitigation goals, standards and practices.
- ☐ Conducting hydrologic and hydraulic studies of floodplains. Applicants who create new maps must apply for a Letter of Map Revision or a Physical Map Revision through the Federal Emergency Management Agency (FEMA). For example, a local government might conduct a hydrologic and hydraulic study for an area that had not been studied because the watershed is less than one square mile. Modeling the floodplain in an area that has numerous letters of map change that suggest the current map might not be fully accurate or doing a detailed flood study for an A Zone is another example.
- ☐ Studies and Data Collection of Statewide and Regional Significance.
- ☐ Revisions to existing resilience plans and modifications to existing comprehensive and hazard.
- ☐ Other relevant flood prevention and protection project or study.

Capacity Building and Planning Grants

- ☐ Floodplain Staff Capacity.
- ☐ Resilience Plan Development
 - ☐ Revisions to existing resilience plans and modifications to existing comprehensive and hazard mitigation plans.
 - ☐ Resource assessments, planning, strategies and development.
 - Policy management and/or development.
 - Stakeholder engagement and strategies.

Location of Project (Include Maps): Four Mile Run and Hooff's Run Watersheds

NFIP Community Identification Number (CID#): See appendix F CID515519

Is Project Located in an NFIP Participating Community? **X Yes** ☐ No

Is Project Located in a Special Flood Hazard Area? ☒ Yes ☐ No

Flood Zone(s) (If Applicable): AE

Flood Insurance Rate Map Number(s) (If Applicable): 5155190033E and 5155190029E and 5155190041E

Total Cost of Project: \$1,528,000

Total Amount Requested \$764,000

Appendix B – Scoring Criteria

Appendix B: Scoring Criteria for Flood Prevention and Protection Projects

Virginia Department of Conservation and Recreation
Virginia Community Flood Preparedness Fund Grant Program

Applicant Name:	City of Alexandria, VA	
Eligibility Information		
Criterion	Description	Check One
1. Is the applicant a local government (including counties, cities, towns, municipal corporations, authorities, districts, commissions, or political subdivisions created by the General Assembly or pursuant to the Constitution or laws of the Commonwealth, or any combination of these)?		
Yes	Eligible for consideration	X
No	Not eligible for consideration	
2. Does the local government have an approved resilience plan and has provided a copy or link to the plan with this application?		
Yes	Eligible for consideration under all categories	X
No	Eligible for consideration for studies, capacity building, and planning only	
3. If the applicant is <u>not</u> a town, city, or county, are letters of support from all affected local governments included in this application?		
Yes	Eligible for consideration	X
No	Not eligible for consideration	
4. Has this or any portion of this project been included in any application or program previously funded by the Department?		
Yes	Not eligible for consideration	
No	Eligible for consideration	X
5. Has the applicant provided evidence of an ability to provide the required matching funds?		
Yes	Eligible for consideration	X
No	Not eligible for consideration	
N/A	Match not required	

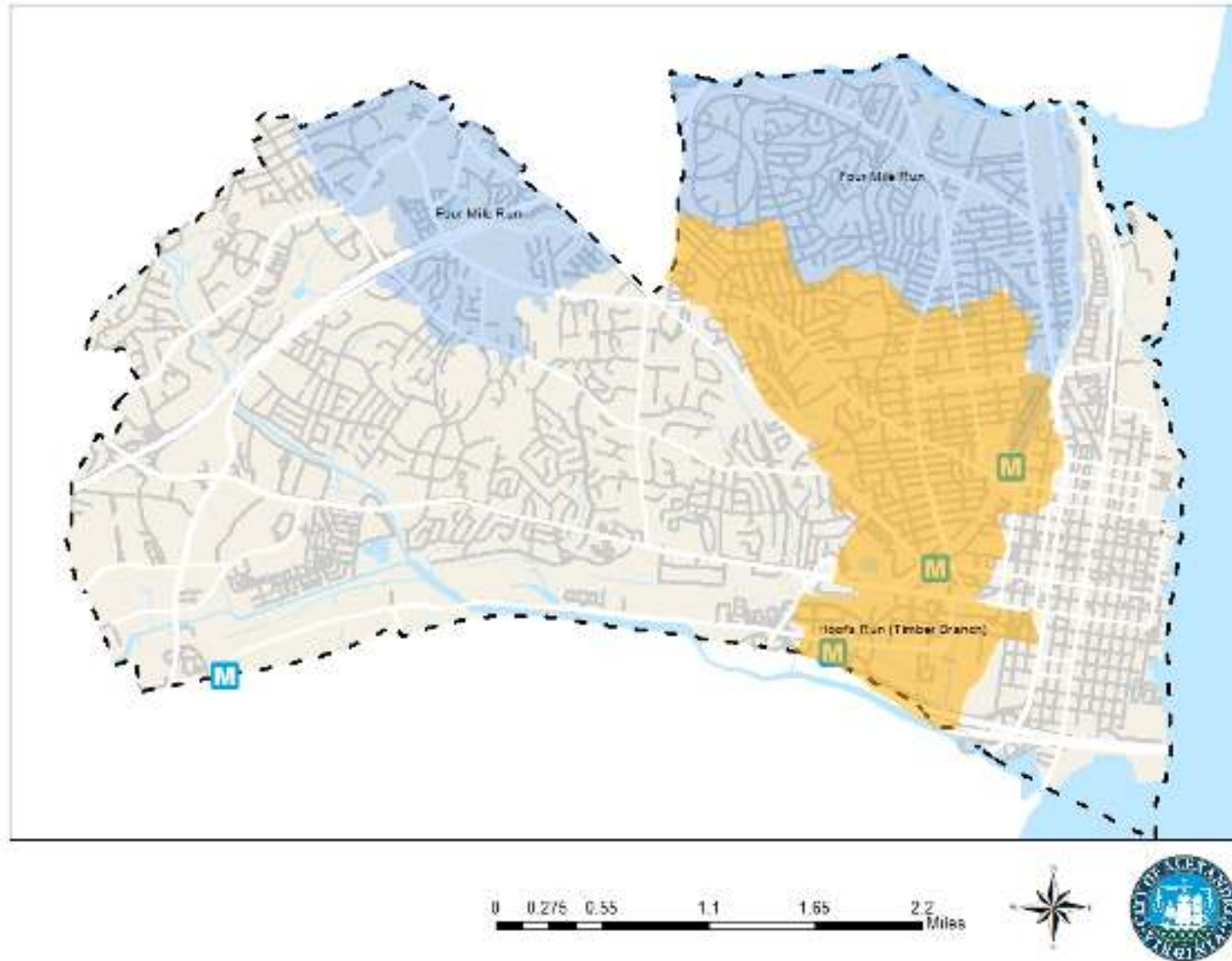
Project Eligible for Consideration		X Yes <input type="checkbox"/> No
Applicant Name:	City of Alexandria, VA	
Scoring Information		
Criterion	Point Value	Points Awarded
6. Eligible Projects (Select all that apply)		
Projects may have components of both 1.a. and 1.b. below; however, only one category may be chosen. The category chosen must be the primary project in the application.		
1.a. Acquisition of property consistent with an overall comprehensive local or regional plan for purposes of allowing inundation, retreat, or acquisition of structures.	50	
<input type="checkbox"/> Wetland restoration, floodplain restoration <input type="checkbox"/> Living shorelines and vegetated buffers. <input type="checkbox"/> Permanent conservation of undeveloped lands identified as having flood resilience value by <i>ConserveVirginia</i> Floodplain and Flooding Resilience layer or a similar data driven analytic tool <input type="checkbox"/> Dam removal <input type="checkbox"/> Stream bank restoration or stabilization. <input type="checkbox"/> Restoration of floodplains to natural and beneficial function. <input type="checkbox"/> Developing flood warning and response systems, which may include gauge installation, to notify residents of potential emergency flooding events.	45	
1.b. any other nature-based approach	40	
All hybrid approaches whose end result is a nature-based solution	35	35
All other projects	25	
7. Is the project area socially vulnerable? (Based on ADAPT VA's Social Vulnerability Index Score.)		
Very High Social Vulnerability (More than 1.5)	15	
High Social Vulnerability (1.0 to 1.5)	12	
Moderate Social Vulnerability (0.0 to 1.0)	8	
Low Social Vulnerability (-1.0 to 0.0)	0	
Very Low Social Vulnerability (Less than -1.0)	0	0

8. Is the proposed project part of an effort to join or remedy the community's probation or suspension from the NFIP?		
Yes	10	
No	0	0
9. Is the proposed project in a low-income geographic area as defined in this manual?		
Yes	10	10
No	0	
10. Projects eligible for funding may also reduce nutrient and sediment pollution to local waters and the Chesapeake Bay and assist the Commonwealth in achieving local and/or Chesapeake Bay TMDLs. Does the proposed project include implementation of one or more best management practices with a nitrogen, phosphorus, or sediment reduction efficiency established by the Virginia Department of Environmental Quality or the Chesapeake Bay Program Partnership in support of the Chesapeake Bay TMDL Phase III Watershed Implementation Plan?		
Yes	5	5
No	0	
11. Does this project provide "community scale" benefits?		
Yes	20	20
No	0	
Total Points		70

Appendix C – Project Vicinity Map

PROJECT VICINITY MAP

City of Alexandria: Four Mile Run and Hoof's Run Watersheds





CFPF, rr <cfpf@dc.virginia.gov>

CID515519_CityofAlexandria_CFPF-2

1 message

Jessica Lassetter <jessica.lassetter@alexandriava.gov>

Fri, Apr 8, 2022 at 10:48 AM

To: "cfpf@dc.virginia.gov" <cfpf@dc.virginia.gov>

Cc: Jesse Maines <Jesse.Maines@alexandriava.gov>

Good morning –

Attached, please find the City of Alexandria CFPF Round 3 grant application. This is the second of two grant applications we are submitting this round. The other application was emailed earlier this morning.

Thank you so much for allowing the City the opportunity to apply to this highly valuable program to help enhance our community resilience and mitigate the impacts of flooding.

Sincerely,

Jessica

Jessica E. B. Lassetter, MNR

Senior Environmental Specialist/CE III

City of Alexandria, Virginia

Transportation & Environmental Services

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