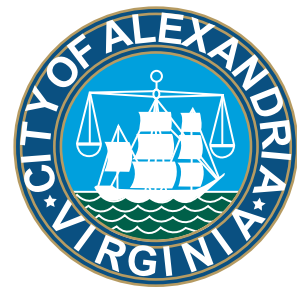




ARLANDRIA FLOOD MITIGATION – EDISON STREET AND DALE STREET CAPACITY PROJECT PHASE I

Grant Application



CITY OF
ALEXANDRIA,
VIRGINIA
Community Flood
Preparedness Fund
Round 2

November 5, 2021

Arlandria Flood Mitigation – Edison Street and Dale Street Capacity Project Phase I

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 the Arlandria neighborhood in the northeast area of Alexandria, Virginia. The project, *Arlandria Flood Mitigation – Edison Street and Dale Street Capacity Project Phase I*, is focused on implementing an early phase of the identified capacity project that can be further reduced to five project components across the area of Edison Street, Dale Street, and West Reed Avenue and Mount Vernon Avenue. Specifically, Phase I will help mitigate flooding by conveying surface runoff from larger storms by installing a new channel to enhance overland relief, upsizing an existing pipe to increase conveyance capacity, and adding a check valve in the storm sewer to help prevent stormwater backflow from a pipe. Phase I also will create a new surface water channel to better convey stormwater runoff near the east end of Dale Street and add a new storm sewer pipe and inlets along West Reed Avenue. The project proposed for this grant has been scoped to provide accelerated flooding mitigation as an early phase of the larger Edison Street and Dale Street capacity project that is the fourth prioritized project in the approved capital improvement plan, scheduled to be funded for construction in 2026.

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, small area planning, and waterfront planning, 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) 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 recently launched a flood mitigation grant program for homeowners to make improvements to, and protect, their home through flood barrier implementation and structural adaptations. The City recently released an update to the Environmental Action Plan with a roadmap for climate mitigation and resilience activities, accompanied by a new 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 fulfill 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 ahead of our current planning timelines.

1) Project Information

Arlandria is located within the City’s portion of the Four Mile Run watershed. The *Arlandria Flood Mitigation – Edison Street and Dale Street Capacity Project Phase I* project is comprised of five smaller projects, described below, in an area between Mt. Vernon Avenue, West Reed Avenue, Dale Street, and Edison Street (see Figure 1). In particular, the project will focus on mitigating flooding from segments of the storm drain network that are associated with this neighborhood located between Four Mile Run Park and West Reed Avenue (north and south boundaries, respectively) and between Mt. Vernon Avenue and Commonwealth Avenue (west and east boundaries, respectively). Surface runoff is collected and conveyed by a series of inlets and storm sewer pipes sized between 12” diameter circular to 60” x 44” elliptical corrugated metal pipes. The storm drains in this neighborhood generally convey collected runoff



Figure 1. Map of Proposed Project Area

from southwest to northeast via multiple storm drain networks, which ultimately flows into Four Mile Run.

Four Mile Run is a nine-mile-long stream located in a highly urbanized area in Northern Virginia. It's 19.6 square mile watershed covers portions of Arlington and Fairfax Counties and the Cities of Alexandria and Falls Church. The lower portion of Four Mile Run, from I-395 at the upstream end to National Airport at the mouth, is contained in a hardened flood control channel and marks a rough boundary between Arlington County and the City of Alexandria. Due to the highly urbanized nature of the Four Mile Run watershed, the neighborhoods and businesses adjacent to this portion of the run were subjected to repeated flooding, beginning in the 1940s.

a) *Check Valve Installation at Mt Vernon Ave.*

To mitigate the flood impacts associated with the surcharging system, it is recommended to install a check valve within the storm drain pipe between the downstream manhole and the upstream inlet. This check valve will prevent water from backflowing from the main storm drain system and towards the upstream inlets. This installation is anticipated to prevent backflow from contributing to the flooding along Mt. Vernon Avenue and adjacent properties.

b) *Edison Street Overland Relief Channel and Pipe*

Due to the history of flooding and the amount of water that drains to the north end of the Edison Street, the project will provide overland relief for surface floodwaters to drain to Four Mile Run by providing an additional drainage pathway when the existing inlets at the north end of Edison Street are at or over capacity. The existing embankment just north of Edison Street is about two feet higher than the existing road elevation, so the proposed design will allow the conveyed flow to transition from the open channel to piped conveyance through the embankment by way of an elliptical pipe. A check valve also is recommended at the end of the pipe to prevent backflow from Four Mile Run.

c) *Edison Street Pipe Upsizing*

The current storm drain pipe that conveys flow from the northern end of Edison Street into Four Mile Run is a 12-inch pipe. There is a 15-inch and an 18-inch pipe that outlets into the upstream end of the 12-inch pipe. The project will replace the existing 12-inch pipe with a 24-inch pipe and increase the system's capacity to convey flow from the 15 and 18-inch pipes. Finally, the existing check valve at the end of the existing 12-inch pipe will be replaced with a larger size to accommodate the larger upstream pipe connections and capacity.

d) *Dale Street Overland Relief Channel*

Due to the history of flooding and the amount of water that drains along Dale Street the project will install an overland flood relief channel near or within the existing community garden (north side of Dale Street). The proposed overland relief channel will be designed to accept water through a low curb cut that will be just west of the existing inlets on the north side of the street. During a large storm event when the curb inlets are at or over capacity, overland flows will build up energy and flow over the low curb cut and into the overland relief channel. The channel will be lined with surface protection to prevent erosion and dissipate flow velocities entering the existing park land.

e) *Curb Inlets and Pipe along West Reed Avenue*

There are two western existing inlets and one eastern existing inlet (all 4.5 feet long by 5 inches high) along the south side of West Reed Avenue which have a combined drainage area of approximately 5.71 acres and a combined peak flow of 23.78 cubic feet per second (cfs). This amount of drainage causes a combined existing spread of approximately 71 feet. Adding multiple curb inlets will aid in the conveyance of surface drainage and decrease the amount of spread that flows across West Reed Avenue. The design will consider adding approximately ten (10) curb inlets to the west of the existing inlets and approximately six (6) curb inlets to the east of the existing curb inlet. The placement of these proposed curb inlets will be designed to reduce bypassing flow and spread, to mitigate flood inundation along West Reed Avenue. This reduction in bypassing flow and spread will provide more conveyance and less flood risk to the adjacent areas within the roadway. Since the proposed storm drain curb inlets will be capable of conveying more flow than the existing system, the existing pipe downstream of the eastern existing

inlet will be replaced with an 18” or larger diameter pipe to provide sufficient capacity for the drainage captured.

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 in 2019 was \$100,939. Arlandria is in Census Tract 2012.03 that has a median household income of \$60,756, which is less than 80% of the median income of the City, meaning this area meets the grant definition of a “Low-Income Geographic Area”. This Census Tract, 2012.03, also has a High Social Vulnerability Index score of 1.1. This 0.4 square mile census tract has a population of approximately 7,800 and is one of four [Opportunity Zones](#) in the city. Figure 2 provides an overview of Arlandria’s cultural themes as presented in [A Cultural History of Arlandria, September 2021](#). This Cultural History was collected in coordination with the community’s [Arlandria-Chirilagua Small Area Plan Process](#).

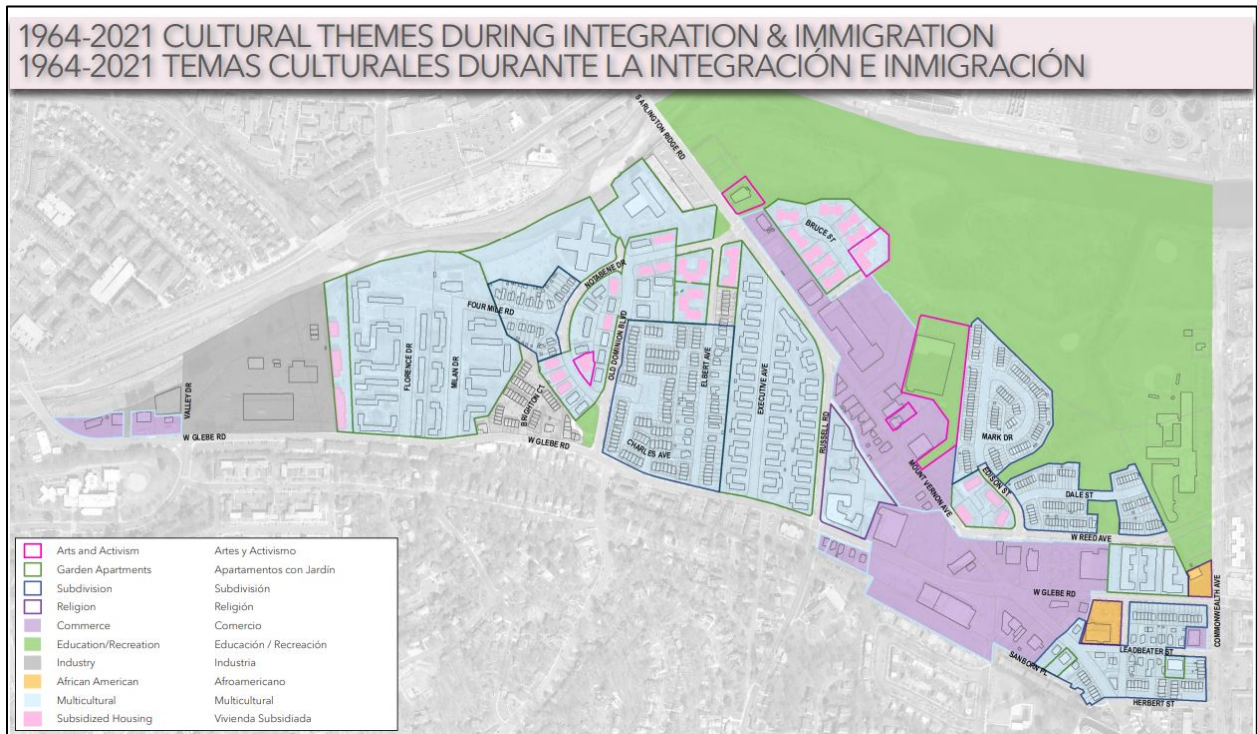


Figure 2. Arlandria Cultural Themes

b) Historic Flooding Data and Hydrologic Studies Projecting Flood Frequency

The City is experiencing more frequent and severe flood events 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 100-yr level rainstorm events using NOAA Atlas 14. The City's Intensity-Duration-Frequency (IDF) curves developed in the 1980's are more conservative 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-yr 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-yr rainfall, Alexandria would call it closer to a 15-yr 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. During the development of the [FY 2022 – FY 2031 Stormwater Management Utility Ten Year Plan](#) that includes operating and capital improvement program (CIP) costs, included the identification and funding for 11 top priority flooding mitigation capacity projects that include a mix of storage, conveyance, and green infrastructure. The Ten Year Plan also includes annually increasing funding for spot improvement projects, and increased maintenance activities citywide. The Stormwater Utility Fee revenue, 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 from the Stormwater Utility Fee.

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 established a Floodplain Ordinance through the NFIP Community Rating System, which can be found here:

<https://www.alexandriava.gov/uploadedFiles/tes/info/AlexandriaFMP2015.pdf>.

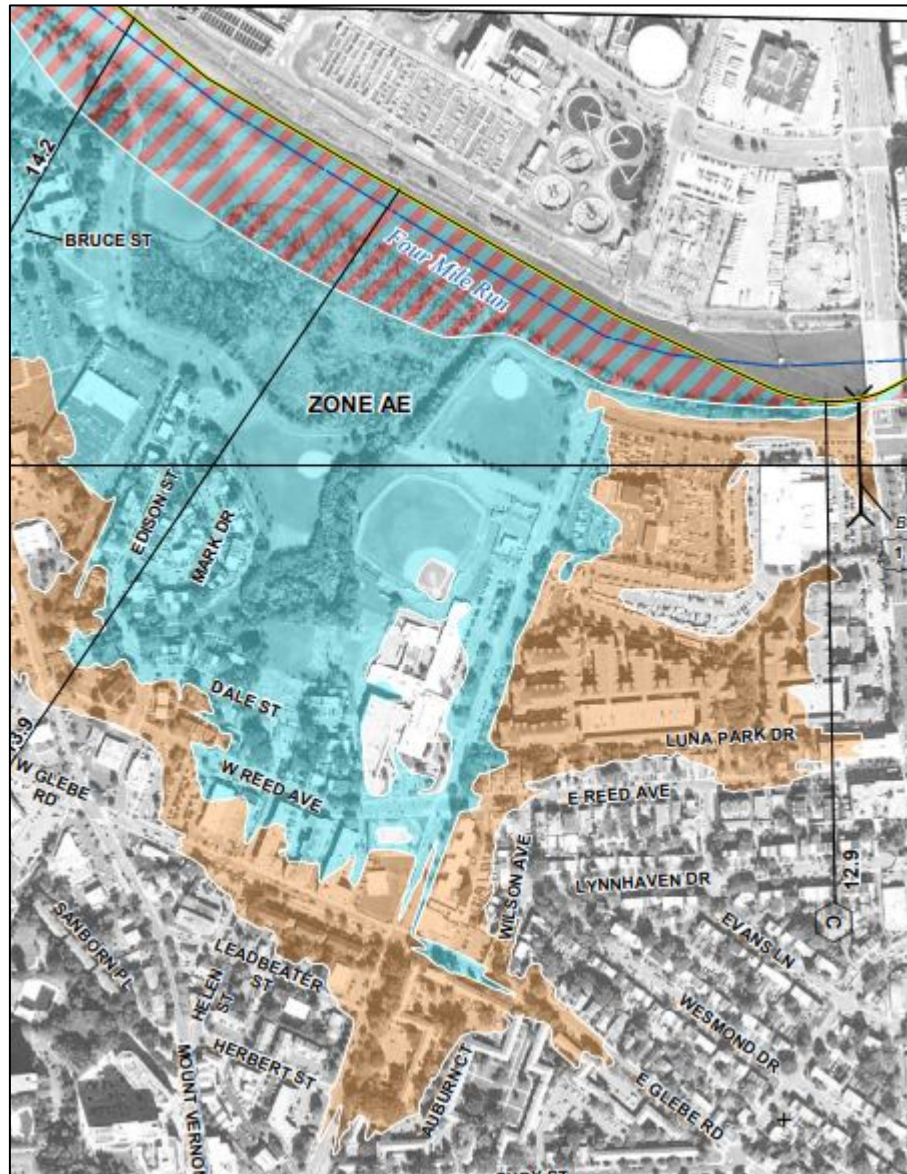


Figure 3. FIRM Map for Edison Street, Dale Street, and West Reed Avenue

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 4). 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 4. 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.

No critical facilities are located within the immediate vicinity of the project area.

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 in the Arlandria neighborhood.

3) Goals and Objectives

The purpose of this project is to help mitigate flooding in the Arlandria neighborhood as an early phase of a larger flood mitigation capacity/storage project identified in the [FY 2022 – FY 2031 Stormwater Management Utility Ten Year Plan, for funding](#) in fiscal year 2026. The matching funds are available in prior year CIP funding and will accelerate this project to be delivered ahead of the FY2026 current funding schedule.

4) Approach, Milestones, and Deliverables

This project will be delivered through a multi-pronged project-approach to help mitigate the impacts of severe storms and flash flooding in the Arlandria neighborhood. The number and scope of deliverables will be dictated by the complexity of each effort and the anticipated procurement process for the work.

a) Check Valve Installation at Mt Vernon Ave. and Dale Street Overland Relief Channel

The Mount Vernon Check Valve Installation and the Dale Street Overland Relief Channel will both utilize the City’s existing, On-Call Construction Contracts to expedite project delivery. Scoping documents for this part of the project will include a written project description, a location map indicating where specific work elements will be performed, and an itemize list of work items from the existing contracts.

Table 1. Check Valve Installation at Mt Vernon Ave. and Dale Street Overland Relief Channel Milestones

Task	Milestone Date: Fiscal Year (FY), Quarter (Q)
Project Planning	FY22, Q2
Construction Procurement	FY22, Q3
Construction	FY23, Q2
Post-Construction	FY23, Q2

b) Edison Street Overland Relief Channel and Pipe and Edison Street Pipe Upsizing

The Edison Street Overland Relief Channel and Pipe Upsizing will be delivered together as one larger project due to the proximity of the work areas. The project delivery approach and the project teaming will be detailed in a project management plan developed by the City with input from the design consultant. The City's Engineer of Record Contract will be utilized to develop contract documents including design plans using the existing On-Call Construction Contracts. Supplemental construction specifications and a basis of design report may be procured as necessary to support the project. Project deliverables will undergo a multiphase review at 30% Design and 100% Design before being accepted by the City as the Final Contract Documents.

Table 2. Edison Street Overland Relief Channel and Pipe and Edison Street Pipe Upsizing Milestones

Task	Milestone Date: Fiscal Year (FY), Quarter (Q)
Project Planning	FY22, Q2
Design Services Procurement	FY22, Q3
Design Phase	FY23, Q2
Construction Procurement	FY23, Q2
Construction	FY23, Q4
Post-Construction	FY24, Q1

c) Curb Inlets and Pipe along West Reed Avenue

The Curb Inlets and Pipe along West Reed Avenue will be designed and delivered independently due to its complexity. The project delivery approach and the project teaming will be detailed in a project management plan developed by the City with input from the design consultant. The City's Engineer of Record Contract will be utilized to develop contract documents including design plans using the existing On-Call Construction Contracts. Supplemental construction specifications and a basis of design report including spread analysis for the inlets and hydraulic calculations for the drainage pipe will be procured to support the project. Project deliverables will undergo a multiphase review at 30% Design, 90% Design and 100% Design before being accepted by the City as the Final Contract Documents.

Table 3. Curb Inlets and Pipe along West Reed Avenue Milestones

Task	Milestone Date (Fiscal Year, FY, and Quarter, Q)
Project Planning	FY22, Q2
Design Services Procurement	FY22, Q3
Design Phase	FY23, Q2
Construction Procurement	FY23, Q3
Construction	FY24, Q2
Post-Construction	FY24, Q3

d) Overall Project Milestones

It is anticipated that the projects described herein will be completed within the 36-month timeframe. Table 4 provides an overview of the milestones related to each project.

Table 4. General Project Milestones

Activity	Milestones				
Check Valve Installation at Mt Vernon Ave. and Dale Street Overland Relief Channel	Scoping Documents	Procurement	Construction / Installation		
Edison Street Overland Relief Channel and Pipe and Edison Street Pipe Upsizing	Design Plans, Construction Specifications, Basis of Design Report	30% Design	90% Design	100% Design	Construction
Curb Inlets and Pipe along W. Reed Avenue	Design Plans, Construction Specifications, Basis of Design to include Hydraulic Calculations	30% Design	90% Design	100% Design	Construction

e) Deliverables

The deliverables for this project will be the engineering files as well as hydrological and hydraulic studies (if performed) for the projects described in this application.

5) Relationship to Other Projects

The City has experienced repeated and increasingly frequent flooding from storm events which lead to the City of Alexandria Storm Sewer Capacity Analysis (CASSCA) study.. Finalized in 2016, CASSCA analyzed the City's current storm sewer system and provided the following major outcomes: (1) the identification of problem flooding areas and (2) the development and prioritization of solutions for these areas.

CASSCA provided a thorough assessment of both the stormwater runoff and hydraulics of the storm sewer system for each individual watershed within the City. Models were utilized to generate data for a 10-year, 24-hour storm event (the City's recommended design event) using an industry standard approach. Results from this model were used to identify and prioritize areas subject to flooding due to capacity issues. Stormwater management solutions, including green infrastructure (GI), storage, and conveyance improvements, were identified, evaluated and prioritized using a cost benefit analysis. Three watershed-wide alternatives for managing stormwater were developed and presented as possible solutions for each watershed.

The City is approximately 15.7 square miles with eight local watersheds (Backlick Run; Cameron Run; Four Mile Run; Holmes Run; Hooffs Run; Potomac River; Strawberry Run; and Taylor Run) within the Potomac River and the Chesapeake Bay watersheds, respectively

Stormwater runoff is generated when precipitation flows over land or impervious surfaces. The City's storm sewersheds are approximately 43 percent impervious, the majority of which is buildings, roads, and parking. Stormwater runoff in the separate stormwater system is conveyed to the receiving streams through a network of over 1,077,000 linear feet (LF) of pipe (200 miles) and 130,960 LF of streams (25 miles).

The CASSCA study's modeling efforts identified that approximately 22 percent of the system may experience flooding and 16 percent may have a water level within two feet below the surface, referred to as insufficient freeboard, at some point during the design storm. Also, 16 percent of the system may be surcharged such that the water surface rises above the crown of the pipe and cause the system to backup. Overall, 90 modeled problem areas were identified across the City with an estimated planning level construction cost of \$61 million (in 2016 dollars) to be used for planning purposes only. Actual implementation costs were not included in the scope of CASSCA; additional costs associated with feasibility study, design, utility coordination, property acquisition, construction management and inspection were not included in the planning level construction costs. Solutions were developed for each of the problem areas, with the exception of the seven modeled problem areas identified in the Potomac River watershed, where solutions were deferred until after completion of substantial ongoing development in the watershed. Three watershed-wide scenarios were assessed to address flooding in a cost effective and beneficial manner. A preferred alternative was selected for each watershed based on engineering judgement. For each of the 83 remaining problem areas, up to five solutions were identified and modeled: three levels of GI implementation (high, medium, and low percent impervious area managed), conveyance improvements, and storage construction.

In the Arlandria neighborhood, the CASSCA report proposed a conveyance solution which will replace sewer pipes, 15-78" in diameter throughout the neighborhood. Another proposed solution is to install stormwater storage facilities within the neighborhood. There are multiple locations that are recommended for storage implementation. The total volume available in this area is approximately 301,837 cubic feet. Both the conveyance and storage solutions are scheduled for implementation in 2026 for an estimated cost of \$13,000,000. This project is "Phase 1" of the "Edison Street and Dale Street that is identified as

Project 117 on Figure 5. This “Phase 1” for the Edison Street and Dale Street capacity project prioritized as the #4 project in the Storm Sewer Capacity Project CIP on [page 15.18 of the FY 2022 – FY 2031 Stormwater Management Ten-Year CIP](#), will act as an early phase of that larger project and accelerate project delivery prior to the current schedule of FY 2026.

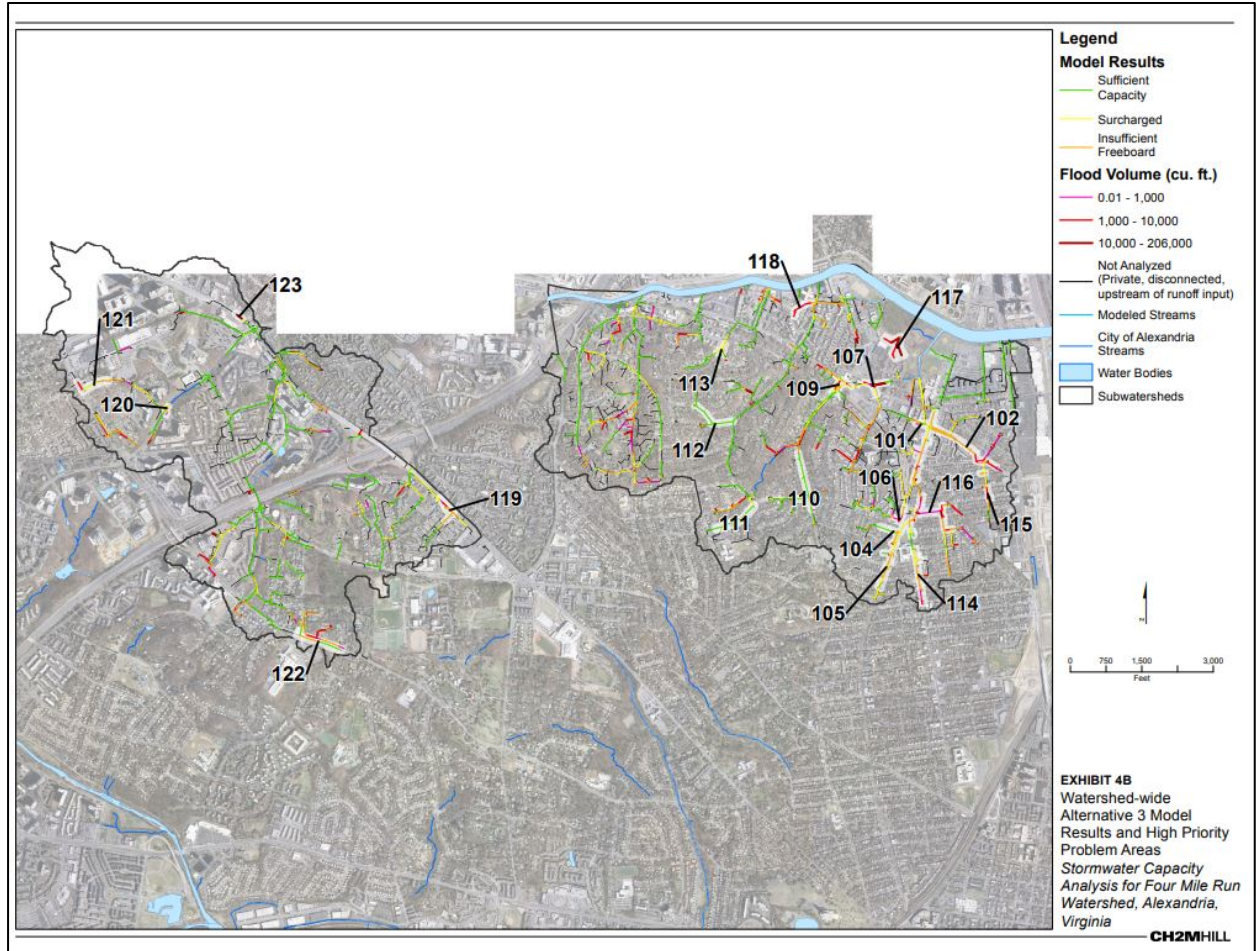


Figure 5. 2016 CASSCA Projects in Alexandria’s part of the Four Mile Run Watershed (East & West)

6) Maintenance Plan

City sewer infrastructure will be maintained on a rotating 3-5 year service schedule to ensure a state of good repair, or more often if needed. The initial installation will be inspected early on to ensure proper functioning prior to the routine, rotating schedule being implemented. For more information, visit www.alexandriava.gov/6444.

7) Criteria

This project scoring criteria is found in Appendix B.

Budget Narrative

The *Arlandria Flood Mitigation – Edison Street and Dale Street Capacity Project Phase I* project is broken down into five different projects across the project-area. Each project is budgeted for design and construction for a total cost of \$1,033,000. The City respectfully requests 50% of the total project cost to be covered by this grant: \$516,500. These projects will help to mitigate flooding and help increase the resiliency of the Arlandria neighborhood more quickly by delivering an early phase of the large capacity/storage project currently scheduled to be funded for construction in fiscal year 2026.

<u>Project</u>	<u>Design</u>	<u>Construction</u>	<u>Total</u>
Check Valve Installation at Mt Vernon Ave.	\$11,600	\$46,400	\$58,000
Edison Street Overland Relief Channel and Pipe	\$17,300	\$69,200	\$86,500
Edison Street Pipe Upsizing	\$35,700	\$142,800	\$178,500
Dale Street Overland Relief Channel	\$8,000	\$32,000	\$40,000
Curb Inlets along W. Reed Avenue	\$134,000	\$536,000	\$670,000
Total	\$206,600	\$826,400	\$1,033,000
DCR Grant Funding Requested (50%)			\$516,500

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) 515519

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

Name of Authorized Official: Jesse Maines

Signature of Authorized Official:  _____

Mailing Address (1): 2900-B Business center 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): _____

Mailing Address (2): _____

City: _____ State: _____ Zip: _____

Telephone Number: (____) _____ 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.
- 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): Alexandria, VA - see Project Vicinity Map

NFIP Community Identification Number (CID#):(See appendix F 515519

Is Project Located in an NFIP Participating Community? Yes No

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

Flood Zone(s) (If Applicable): Zone AE

Flood Insurance Rate Map Number(s) (If Applicable): 5155190033

Total Cost of Project: \$1,033,000

Total Amount Requested \$516,500

Appendix B – Scoring Criteria

Appendix B: Scoring Criteria for Flood Prevention and Protection Projects

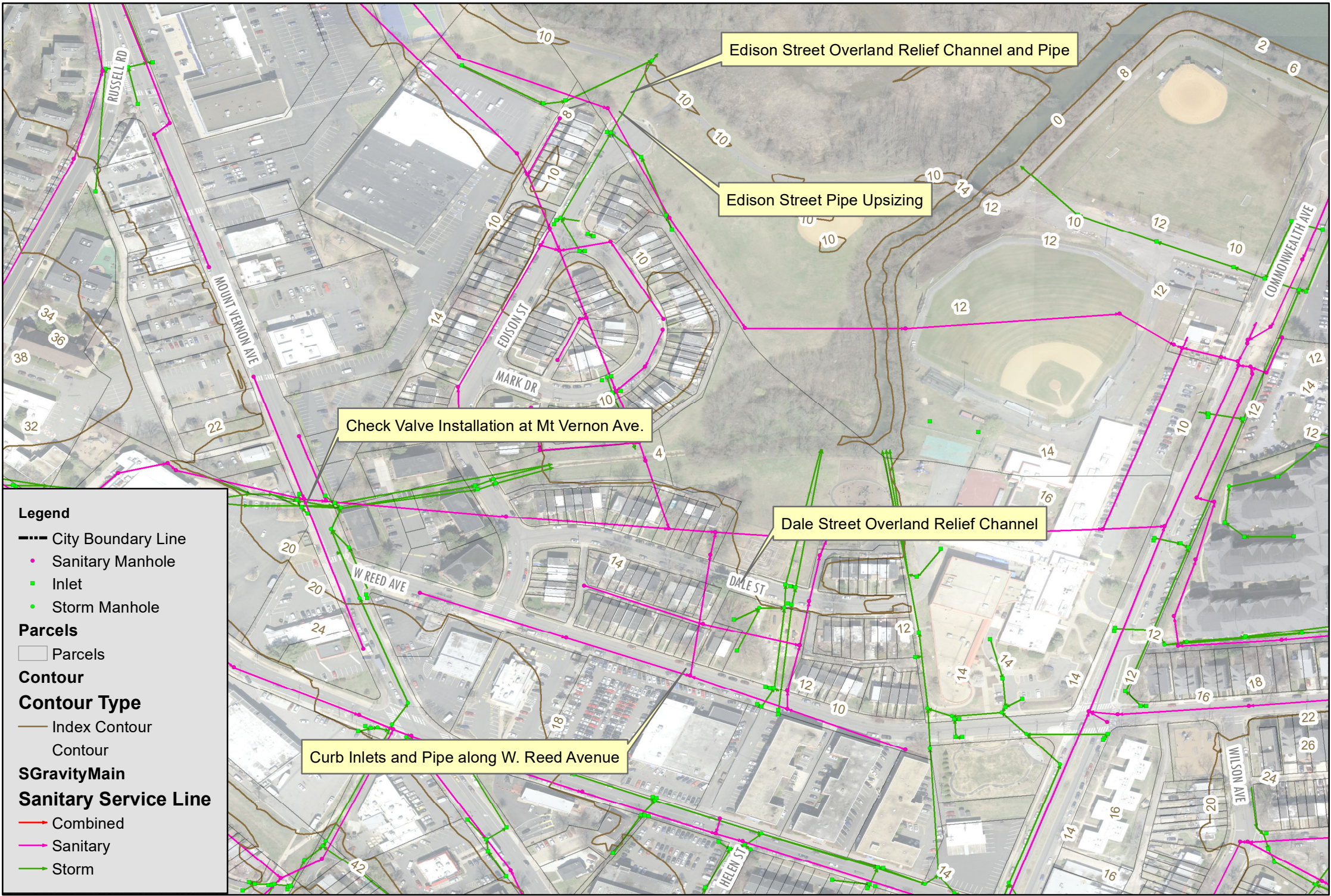
Virginia Department of Conservation and Recreation
Virginia Community Flood Preparedness Fund Grant Program

Applicant Name:		
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 a town, city, or county</u>, are letters of support from all affected local governments included in this application?		
Yes	Eligible for consideration	
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		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Applicant Name:			
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>Conserve Virginia</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	
All other projects		25	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	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	
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	
No	0	0
11. Does this project provide “community scale” benefits?		
Yes	20	20
No	0	
Total Points		67

Appendix C – Project Vicinity Map



Legend

- City Boundary Line
- Sanitary Manhole
- Inlet
- Storm Manhole

Parcels

- Parcels

Contour

Contour Type

- Index Contour
- Contour

SGravityMain

Sanitary Service Line

- Combined
- Sanitary
- Storm



**Arlandria Flood Mitigation
Edison Street and Dale Street Capacity Project Phase I VIC Map
November 2021**

