Virginia Community Flood Preparedness Fund Application

Lake Hampton and North Armistead Avenue

November 5, 2021

HAMPTON VIRGINIA

RESILIENT HAMPTON

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 Hampton

Category of Grant Being Applied for (check one):

____Capacity Building/Planning

__X___Project

_____Study

NFIP/DCR Community Identification Number (CID)_____515527_____

If a state or federally recognized Indian tribe, Name of tribe_____N/A_____

Name of Authorized Official: Brian DePrado

Signature of Authorized Official: [signature]

Mailing Address (1): 22 Lincoln Street

Mailing Address (2):

City: Hampton **State:** VA **Zip:** 23669

Telephone Number: (____) _____ Cell Phone Number: (____) _____

Email Address: bdeprado@hampton.gov

Contact Person (If different from authorized official): _Scott A. Smith_____

Mailing Address (1): ___22 Lincoln Street_____

Mailing Address (2): _____

City: ___Hampton_____ State: ____VA_____ Zip: _____23669_____

Telephone Number: (757) _723-6781_____ Cell Phone Number: (757) _727-6781____

Email Address: scott.smith@hampton.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.

X Wetland restoration.
☐ Floodplain restoration.
X Construction of swales and settling ponds.
X Living shorelines and vegetated buffers.
X 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.

<u>Capacity Building and Planning Grants</u>

- ☐ 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): 1509 North Armistead Avenue(Map Attached)_____

NFIP Community Identification Number (CID#):(See appendix F)_515527_____

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

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

Flood Zone(s) (If Applicable): ___AE07, AE09, AEFW_____

Flood Insurance Rate Map Number(s) (If Applicable): __0018H_____

Total Cost of Project:__$20,494,798_____

Total Amount Requested _$3,841,544_____

Virginia Community Flood Preparedness Fund Application

Attachment 1: Scope of Work Narrrative

HAMPTON VA

RESILIENT HAMPTON

Virginia Community Flood Preparedness Fund Application
Lake Hampton & North Armistead Avenue
Attachment 1 – Scope of Work Narrative

Part I: Project Information

Introduction

Newmarket Creek bisects Hampton as it flows south and east toward the Chesapeake Bay. A major waterway in the City, its watershed covers more than 36 percent of Hampton's geographic area. The creek has been shaped over the past century by the emergence of urban development in Newport News and Hampton. What was once a naturalized tributary, surrounded by forests and marshes, has been transformed by changing development patterns.

Today, the Newmarket Creek watershed is home to approximately 58,000 Hampton residents. This portion of the city experiences numerous, severe flooding challenges, including precipitation-driven and tidally-influenced events. The creek's coastal zone is the most tidally influenced, and passes under and adjacent to several critical roadways – including I-64, North Armistead Avenue, West Mercury Boulevard, and LaSalle Avenue – before it widens substantially on its way to the Chesapeake. As a result, roadway flooding is a significant risk and challenge for low-lying streets that connect communities and economic centers, and serve as evacuation routes during emergencies. When these roadways and their surrounding neighborhoods were constructed in the 1950s and 1960s, excavation of fill led to the creation of numerous lakes. Today, Coliseum Lake and Lake Hampton function as detention ponds and support stormwater management by capturing and treating runoff from their highly developed surroundings.

Looking to the future, climate change will drive both sea level rise and changing rainfall patterns that will create new stresses and challenges for these systems. Low-lying roadways will face storm surge flooding, and eventually tidal nuisance flooding, with greater frequency. Heavier and more frequent rainfall will create new challenges for stormwater driven flooding in neighborhoods that drain to increasingly full and overtopping detention ponds.

In 2017, Hampton publicly embraced the challenges of climate change on flooding, and released the plan *Living with Water Hampton: A Holistic Approach to Addressing Sea Level Rise and Resiliency*. This was our first step in launching Hampton's resiliency initiative, Resilient Hampton. Since then, we have begun an ambitious journey to analyze the challenges posed by flooding in a changing climate in each of our watersheds. This work began with Newmarket Creek, where the City worked collaboratively with residents and consultants to identify projects appearing in the Resilient Hampton *Newmarket Creek Pilot Project Area Water Plan*. These projects centered on a strategy to slow, store, and redirect water, and adapt to live with water. Three of the planned projects are now under design and seek to mitigate both existing and anticipated challenges of flooding.

This proposal seeks funding to support implementation of two of the pilot projects identified in the Newmarket Creek Water Plan: Lake Hampton and North Armistead Road Raising and Green Infrastructure. Together, these nature-based resiliency projects will reduce repetitive flooding experienced on a critical transportation corridor, increase stormwater runoff storage capacity,

improve water quality, create safe and accessible public walking and biking amenities, and invest in protecting natural ecosystems present at the site. The projects are currently under design. Plans have surpassed 65 percent completion, and community outreach is underway. It is anticipated that the 90% designs will be completed by the end of 2021 and construction will begin in the Spring of 2022 for Lake Hampton. and the Fall of 2022 for North Armistead Road Raising.

Project Area

The project area encompasses the portion of North Armistead Avenue between Findley Street and the Newmarket Creek bridge just west of LaSalle Avenue. Roadway elevation and creation of a sidewalk and mixed-use trail will occur throughout this area. North Armistead Avenue is a major connection for traffic through the city and serves as a major connector of economic drivers like Joint Base Langley-Eustis Langley, downtown Hampton, and the Coliseum Central district. In addition, North Armistead Avenue connects to key evacuation routes.

The adjacent work at Lake Hampton encompasses the full extent of this existing, publicly-owned stormwater feature and walking trails. Stormwater from the adjacent neighborhood to the northwest is currently conveyed to the lake in a re-routed drainage line. Additionally, the lake collects stormwater from North Armistead Avenue. A map of the Lake Hampton Area stormwater network is shown in figure 2. The Water Walk Trail is an existing 2.25 mile linear park that stretches through the heart of the Coliseum Central district from the Power Plant shopping area to historic Air Power Park, passing through Lake Hampton on its route.

See Figure 1 for a project map demonstrating the project extent. The complete project area is approximately 22 acres.

Alignment with Hampton's Resilience Plan

The Lake Hampton and North Armistead Avenue projects have been designed in accordance with the City of Hampton's Resilience Plan. The projects were originally conceptualized in the Resilient Hampton *Newmarket Creek Water Plan*. Further, the projects embody Hampton's commitment to living with water as a strategy for resilience, as well as the Resilient Hampton values outlined in the City's *Living with Water Hampton* plan (see Figure 3). The projects use nature-based and green infrastructure to accomplish the slow, store, redirect, and adapt strategies outlined in the *Water Plan.* They will serve as pilot demonstrations that can be replicated throughout the Newmarket Creek watershed and beyond to transform our approach to managing both tidally-influenced and precipitation driven flooding challenges.

Population

According to data from the 2020 census, the City of Hampton's total population is 137,148 and 9,781 individuals reside in the approximate project area. These individuals would directly benefit from project interventions to mitigate flood risk. In addition, the project will benefit Hampton residents who visit Lake Hampton and the WaterWalk Trail, or that regularly travel by foot or bicycle in the North Armistead corridor, by providing a safe environment for non-motorized transportation.

Figure 1. Lake Hampton and N Armistead Project Map

Figure2. Lake Hampton Stormwater Network

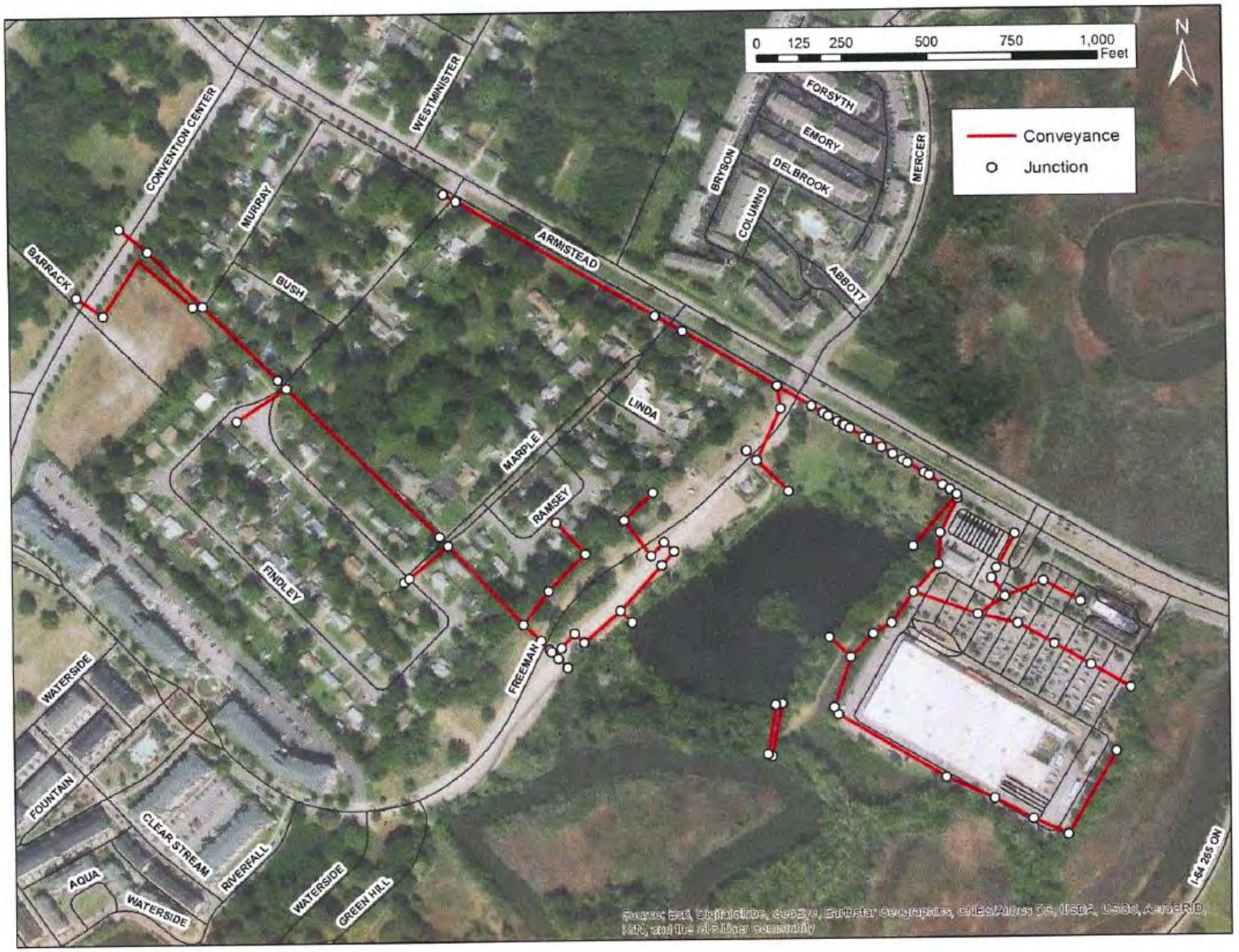


Figure 3. Resilient Hampton Values (Blue) and VA Coastal Resilience Master Planning Framework Guiding Principles (Green)

Historic flooding data and hydrologic studies projecting flood frequency

As shown in the attached FIRMettes effective May 16, 2016, the project area is located within the mapped floodplain, and is subject to recurrent flooding (see Attachment 5). The project is on Flood Insurance Rate Map 0018H. It spans several flood zones and Special Flood Hazard Areas, including: AE08, AE09 and AEFW.

During the creation of the *Newmarket Creek Water Plan,* the coastal zone of the watershed where the Lake Hampton and North Armistead projects are located was noted for being subject to challenges from storm surge and sea level rise.

Over the last decade, North Armistead Avenue has experienced recurrent tidal flooding. Most notably, the road's eastbound lanes were inundated on October 29, 2012 (see Figure 5).

There were police reports on October 4th and 5th, 2015, from 12 pm through at least 9:30am that North Armistead was closed due to flooding, corresponding to record high tides. Based on the tide gauge information from the Newmarket Creek Tide Gauge and NOAA precipitation records, it is assumed that road flooding occurs at any point when the tide elevation is at 2.5 feet or above and precipitation is occurring or will occur. Road flooding typically occurs in east bound lanes, which serve as the evacuation route for this portion of the City getting access to Interstate 64. The west bound lanes are at elevation 5 feet, and a tide elevation of 4.5 feet.

Table 1 indicates the number and intensity of flooding events impacting this stretch of North Armistead Avenue between October 2, 2015 and September 10, 2020.

Table 1 – Flooding Analysis

Year	# of events	Hours of flooding (East Bound Lanes)	Hours of flooding (West Bound lanes)	Total Hours of flooding
2015*	9	81:14:00	3:24:00	84:38:00
2016	26	107:14:00	2:00:00	109:14:00
2017	26	84:02:00		84:02:00
2018	28	78:04:00		78:04:00
2019	27	101:40:00		101:40:00
2020**	19	57:06:00		57:06:00
* Beginning 10/2/15 ** Ending 9/10/20				

The ability of the local government to provide its share of the cost

The total project construction costs for these two projects will be $20,494,798. The project is located in a low-income geographic area and will result in hybrid (nature-based and grey infrastructure) solutions. The required match provided by the City of Hampton is 35 percent, or $7,173,179. This proposal seeks funding in the amount of **$3,841,544** to support the final steps of project engineering and construction. This amount represents a gap in funding currently available for the project. The remainder of the project's cost, or $16,653,253, will be funded by other sources, including revenues from the City's s Environmental Impact Bond (EIB), which are used to meet the project's required match. Additional project costs will be paid with funding from other sources, including the City's general obligation bond and the Virginia Department of Transportation's SMART SCALE grant program. Funds provided by SMART SCALE are not used toward meeting the City's required match funding.

A signed pledge agreement certifying the City's commitment to securing $16,653,253 to fund project construction can be found in Attachment 6.

Administration of local floodplain management regulations

A copy of the City of Hampton's current floodplain ordinance can be found in Attachment 7. This ordinance is also accessible online via municode at: https://library.municode.com/va/hampton/codes/zoning?nodeId=CH9OVDI_ARTIVDILOZOOV.

Other necessary information to establish project or study priority

Repetitive Loss and Severe Repetitive Loss Properties. The project will not address flooding conditions for any repetitive loss or severe repetitive loss properties.

Residential and Commercial Structures. There are approximately 3 commercial and 29 residential properties surrounding the project area that will benefit from project interventions. Reducing flooding on North Armistead Ave and improving stormwater retention before it reaches Newmarket Creek, however, will benefit a much larger audience than only those properties in close proximity. Data from 2015-2019 found that this stretch of roadway experienced an annual average of 92 hours of flooding a year, which affected approximately 45,000 vehicles annually. By raising the road and increasing stormwater storage capacity, we expect to eliminate roadway flooding without significant storm surge over the period of 50 years.

Critical Facilities. There are no critical facilities located within the project area.

Figure 4. Map of Flood Risk and Income in the Newmarket Creek Watershed

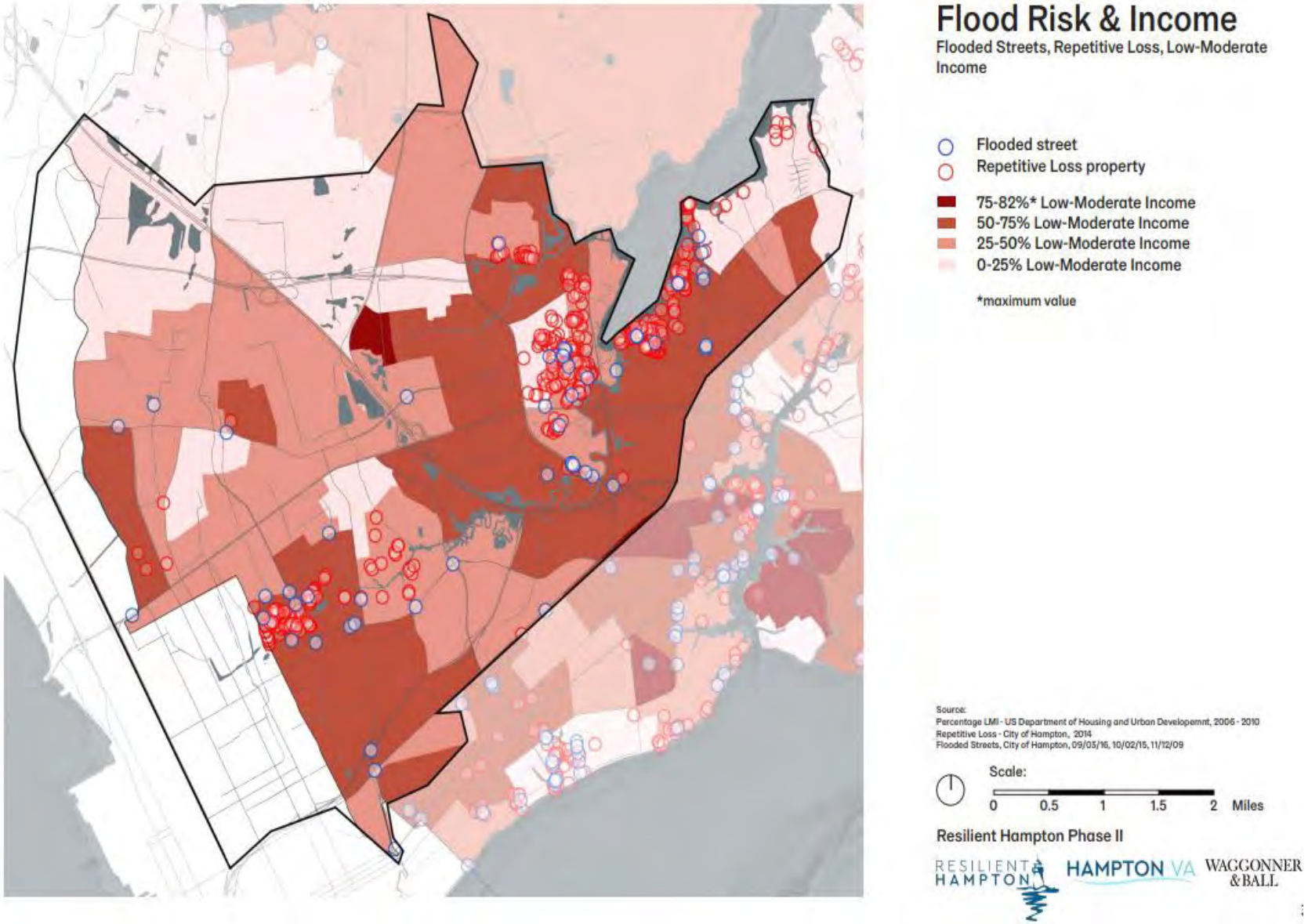


Figure 5. Images of flooding conditions at North Armistead Eastbound Travel Lanes, October 29, 2012 (Hurricane Sandy)

Part II: Need for Assistance

Local government financial and staff resources

The City of Hampton's Resiliency work is supported by a highly trained group of professionals, in addition to external consulting support. Staff engaged in overseeing the Lake Hampton and North Armistead Avenue's design, construction, operations and maintenance include:

- Resiliency Officer
- Water Resources Engineer
- Senior Civil Engineer
- Senior Civil Engineer / Stormwater
- Community Development Department Director
- Senior City Planner
- City Planner
- Zoning Administrator
- Building Official
- Neighborhood Development Associate II
- Parks, Recreation & Leisure Services Department Director
- Parks Administrator
- Deputy City Attorney

The City of Hampton has five certified floodplain managers on staff.

The City of Hampton has access to the following software which is relevant to the successful execution of the Big Bethel Blueway:

- ArcGIS Desktop and Online
- Adobe Suite
- AutoCAD
- BasicGov
- 311 Communications

Social vulnerability of the study area

Low-income geographic areas. The project is in a low-income geographic area because it is located within a Qualified Opportunity Zone (51650010502). The project is located within census tracts 105.02 and 103.06. According to 2019 5-year data from the American Community Survey (ACS), the median household income for these areas are $50,446 and $55,250. Both are above 80 percent of the median household income City-wide. Notably, there is a significant margin of error associated with the data. Census tract 105.02 has a margin of error of +/- $7,513 for its reported income, the lower end of which would place this geography below 80 percent of the City-wide median household income.

Table 2. 2019 ACS 5-Year Estimates for Median Household Income by Geography

Geography	Median HH Income	80% Median HH Income
Commonwealth of Virginia	$74,222	$59,378
Virginia Beach-Norfolk-Newport News, VA-NC Metro Area	$66,759	$53,407
City of Hampton	$56,287	$45,030

Social Vulnerability Index Score. Social vulnerability for the census tracts within the project area are 0.6 and 0.0, both of which indicate moderate social vulnerability. The average score is 0.3.

Benefits

Project Benefits were calculated annually and projected over the project's life. Project Benefits Calculations are provided in Tables 4-12. The total benefits of this project are $32,075,642.

Table 3. Life of Project Benefits – Lake Hampton

Transportation	$16,830,100
Environmental Services	$ 739,196
Air Quality	$ 870,495
Water Quality	$ 1,751,772
Water Quality Nutrient Credit	$ 492,000
Climate Reduced CO2	$ 65,890
Reduced Grey Infrastructure costs	$ 7,104,257
Recreational	$ 3,262,976
Aesthetic Quality	$ 958,956
Total	$ 32,075,642

Table 4 the Financial Impact of the Road Flooding on the Traveling Public

Year	IRS Standard Mileage Rate	Detour Route (Miles)	Vehicle delay Mileage Costs	FEMA Vehicle Delay Detour Time (per vehicle, per hour)	Detour Time (Min)	Pro Rated Cost of Lost Service	Vehicle Delay Detour Cost of Lost Service	Annual cost due to flooding
2015	$0.58	4.2	$84,921.30	$38.15	8	$5.09	$178,868.06	$263,789.36
2016	$0.54	4.2	$112,672.88	$38.15	8	$5.09	$252,702.55	$365,375.43
2017	$0.54	4.2	$96,272.72	$38.15	8	$5.09	$217,938.23	$314,210.95
2018	$0.55	4.2	$79,571.74	$38.15	8	$5.09	$176,826.10	$256,397.84
2019	$0.58	4.2	$132,903.73	$38.15	8	$5.09	$277,519.28	$410,423.00
2020	$0.58	4.2	$58,865.64	$38.15	8	$5.09	$123,987.52	$182,853.16
Average Annual Tranportation Cost (2016-2019)								**$336,601.80**

Table 5. Environmental Services

Amenity	Applicable FEMA Category	Applicable FEMA Benefits	FEMA Standard Value for Environmental Benefits (per Sq. Ft)	Total Square Footage	Total Annual Benefit
Constructed Wetlands	Wetlands	Water Quality	$0.32	10,454	$3,345
Living Shoreline	Riparian Habitat	Ecosystem Services	$0.53	17,424	$9,235
Grasses/Planted Cover	Green Open Space	Water Quality, Erosion Control and Pollination	$0.02	110,196	$2,204
Total					**$14,784**

Table 6. Air Quality					
Amenity	**Feature Area (SF) or Tree Count**	**Pollutant Removal per tree or SF of plant or grass cover**	**Pounds of Pollutant Removed**	**Cost Per Pound of Pollutant**	**Total Annual Benefit**
Shade Trees	343	0.83	284.69	$30.55	$8,697
Plant or Grass Cover	110,196	0.002	220.392	$30.55	$6,733
Total					**$17,410**

Table 7. Water Quality							
Amenity	**Feature Area (SF) or Tree Count**	**Annual Rainfall Interception per Tree (Gallons)**	**Average Retention Rate**	**Rainfall Intensity**	**Runoff Reduction in Gallons**	**Cost per Gallon**	**Total Annual Benefit**
Constructed Wetlands - Lake Hampton	10,454		0.80	3.00	15,535	$0.0106	$165
Bio Retention - Lake Hampton	388,975		0.80	3.00	578,048	$0.0106	$6,127
Bio Retention - North Armistead	27,300		0.80	3.00	40,570	$0.0106	$430
Lake Hampton Storage (18%)	5,230,000		0.18	3.00	1,748,745	$0.0106	$18,537
Permeable Walkway- Lake Hampton	20,000		0.80	3.00	29,722	$0.0106	$315
Shade Trees	343	2,566			880,138	$0.0106	$9,329
Reduced Energy Use					3,292,758		$132
Total							$35,035

Table 8. Water Quality Nutrient Reduction					
Amenity	**Feature Area (SF)**	**Feature Area (AC)**	**Total Phosphorous Removal in Lbs/Yr**	**Cost per pound**	**Nutrient Reduction Credit**
Bio Retention - North Armistead	27,300	0.63	2.25	$20,000	$45,000
Bio Retention - Lake Hampton	35,874	0.82	2.95	$20,000	$59,000
Lake Hampton (Retrofit)Storage (18%)	566,280	13.00	12.90	$20,000	$258,000
Permeable Walkway- Lake Hampton	20,000	0.46	6.50	$20,000	$130,000
Total					**$492,000**

Table 9. Climate Regulations - Reduced CO2 Emissions					
Amenity	**Feature Area (SF) or Tree Count**	**Pounds of Carbon per SF or per Tree**	**Pounds of Carbon**	**Average Cost per Pound of Carbon**	**Annual Value of Climate Benefits**
Grasses/Planted Cover	110,196	0.00020482	22.6	$0.03	$1
Shade Trees	343	128	43,904.0	$0.03	$1,317
Total					$1,318

Table 10. Reduced Grey Infrastructure				
Amenity	**Gallons of water retained**	**Cubic Feet of Water Retained**	**Cost per Cubic Foot Conventional Costs**	**Value of Reduced Grey Infrastructure**
Bio Retention - Lake Hampton	578,048	77,274	$22.17	$1,713,165
Bio Retention - North Armistead	40,570	5,423	$22.17	$120,238
Lake Hampton (Retrofit) Storage (18%)	1,748,745	233,774	$22.17	$5,182,768
Permeable Walkway – Lake Hampton	29,722	3,973	$22.17	$88,086
Total				**$7,104,257**

Table 11. Recreational Benefits			
Amenity	**SF of Amenity**	**Recreation Value per SF per Year**	**Annual Recreational Value**
Lake Hampton Park (10 Acre)	435,600	$0.13	$56,628
Lake Hampton Living Shoreline	17,424	$0.37	$6,447
Lake Hampton Constructed Wetlands	10,454	$0.01	$105
North Armistead Shared Use Path (10' wide)	16,000	$0.13	$2,080
Total			**$65,260**

Table 12. Aesthetic Benefits			
Amenity	**SF of Amenity**	**Aesthetic Value per SF per Year**	**Annual Aesthetic Value**
Lake Hampton Park (10 Acre)	435,600	$0.04	$17,424
Lake Hampton Living Shoreline	17,424	$0.04	$697
Lake Hampton Constructed Wetlands	10,454	$0.04	$418
North Armistead Shared Use Path (10' wide)	16,000	$0.04	$640
Total			**$19,179**

Part III: Goals and Objectives

Lake Hampton and North Armistead Avenue are projects that aim to address challenges related to both water quantity and quality. A primary goal is to create a flagship demonstrations of Resilient Hampton's values and strategies that are scalable and replicable throughout the City.

Goal 1. Reduce the frequency and severity of flooding impacts to North Armistead Avenue between Findlay Street and Newmarket Creek.

- Objective 1.1. Adapt the roadway by increasing its elevation to prevent tidal floodwaters from creating impassable roadway conditions.
- Objective 1.2. Slow and store stormwater runoff from the roadway by increasing infiltrative capacity along its length, and in the adjacent Lake Hampton drainage areas.
- Objective 1.3. Store up to an additional 17.1 acre-feet of stormwater runoff in Lake Hampton.

Goal 2. Create a replicable approach to adapting to live with water by embracing it as an asset.

- Objective 2.1. Provide opportunities for the public to actively connect with water through walking and biking along Lake Hampton and Newmarket Creek.
- Objective 2.2. Develop an educational platform through signage, outreach, and other forms of education that demonstrates the importance of nature-based solutions to flooding.
- Objective 2.3. Create neighborhood connectivity through low- to no-carbon methods of access and mobility.

Goal 3. Improve the quality of stormwater before it reaches the Chesapeake Bay.

- Objective 3.1. Reduce pollutants listed in Hampton's Chesapeake Bay Total Maximum Daily Load requirements by installing features like wetlands and bio-retention.

Expected Results and Benefits

Successful completion of this work will result in reduced flooding of the North Armistead roadway, a highly utilized public space for walking and biking, and a visible and replicable model to inspire resilient action across the City of Hampton and the Hampton Roads region by both public and private actors.

Goal 1 Expected Result – Get updated modeling data from Moffatt & Nichol on project impacts. What is the reduction in flooding events during different rainfall scenarios?

Goal 2 Expected Result – Residents and visitors to Hampton regularly use the Lake Hampton spur of the Water Walk Trail and recognize it as a resiliency project.

Goal 3 Expected Result – Reductions in water pollution are achieved at the following rates:

- Total Phosphorous – 24.6 (lbs./yr.)
- Total Nitrogen – 113.5 (lbs./yr.)

The achievement of water quality goals will be critical to the City meeting its 40 percent reduction goals for the York River Watershed for the Chesapeake Bay TMDL. This is a regulatory requirement of our DEQ MS-4 permit.

Part VI: Approach, Milestones, and Deliverables

Approach

North Armistead Avenue will achieve the project goals through a combined roadway elevation, creation of a mixed use path and sidewalk, and addition of green infrastructure. Because the project area is low-lying, the roadway already sees frequent flood-related transportation disruptions, hampering reliable transportation to the military base and key economic centers. To mitigate this flood risk, a portion of North Armistead Avenue between Findlay Street and the bridge just west of LaSalle Avenue will be raised to a minimum elevation of seven feet throughout the project's extent.

In connection with the road raising, green infrastructure will be installed to help slow, store, and redirect stormwater within the space adjacent to the elevated roadway. A bioswale constructed along the southbound lanes in the public right of way and bioswales in the medians will be constructed above groundwater levels to provide water storage. This system will be connected to the drainage improvements at Lake Hampton. A multi-use path along North Armistead Avenue will provide community connectivity and access to Lake Hampton and Newmarket Creek.

The bioswales in North Armistead Avenue will store approximately 0.33 million gallons and improvements to the dam height, addition of wetland shelfs, excavation of the isthmus, and bioswales will add approximately 5.59 million gallons. Between the two projects approximately 18.1 acre-ft. of storage will be added to the system. Additional storage will be an additional 5.920,000 Gallons or 788,436 Cubic Feet. Design of the project is complete to 60 percent. The most recent engineering designs and design report are available upon request; they are not included as an attachment to this proposal due to the file size. Project renderings are shown in Figures 6, 7 and 8.

Lake Hampton will transform an existing borrow pit/detention pond into a stormwater park that boosts the site's existing stormwater storage capacity and yields multiple benefits for the community. Stormwater from the adjacent neighborhood to the northwest is currently conveyed to the lake in a re-routed drainage line. The project will raise the height of the dam and weir, install a wetland bench around the lake perimeter and install a series of bio-retention basins in a "treatment train" to slow, store, and clean runoff from North Armistead Avenue before it enters the lake. In addition to the stormwater amenities, a multi-use path along Armistead Avenue will extend the Water Walk trail around the lake, bringing people alongside Newmarket Creek.

The project creates stormwater storage through the elevation of the Lake Hampton dam, and removal of the isthmus connecting the Rookery Island to the shore. A wetland bench will be installed around the shoreline of the lake providing habitat and additional water quality benefits.

In addition to the flooding and stormwater benefits a recreation trail including boardwalks over the lake will provide the public an opportunity to "walk with water" and through the signage learn how the City is slowing, storing and filtering water. The recreation trail will provide community connectivity, connecting neighborhoods and providing a vehicle free area to exercise and relax.

Design of the project is complete to 65 percent. The most recent engineering designs and design report are available upon request; they are not included as an attachment to this proposal due to the file size. Project renderings are shown in Figures 6, 7 and 8.

Milestones, Deliverables and Timeline

Lake Hampton

Milestone	Deliverable	Responsible Parties	Completion Date
Complete design	100% Plans Bid Documents	Moffatt & Nichols	2/2022
Finalize Permitting	JPA Permit	Moffatt & Nichols	2/2022
Advertise Project	Bid project	City of Hampton Staff	3/2022
Open Bids	Open Bids	City of Hampton Staff	4/2022
Award Contract	Award Contract	Hampton Public Works	5/2022
Start Contract	Notice to Proceed	Contractor	7/2022
Dam& Outlet improvements	Raise embankment, install new outlet controls	Contractor	7/2023
Excavate Lake & Install wetland Bench	Excavate Lake & Install wetland Bench	Contractor	5/2024
Install trails, boardwalks and signage	Install trails, boardwalks and signage	Contractor	12/2024
Project Closeout	Final inspection and closeout	City of Hampton Staff	2/2025
Monitoring and Inspection	Inspect Channel and vegetation	City of Hampton Staff	2/2026

North Armistead Avenue

Milestone	Deliverable	Responsible Parties	Completion Date
Complete design	100% Plans Bid Documents	Moffatt & Nichols	2/2022
Finalize Permitting	JPA Permit	Moffatt & Nichols	2/2022
Advertise Project	Bid project	City of Hampton Staff	3/2022
Open Bids	Open Bids	City of Hampton Staff	4/2022
Award Contract	Award Contract	City of Hampton Staff	5/2022

Start Contract	Notice to Proceed	Contractor	7/2022
Dam& Outlet improvements	Raise embankment, install new outlet controls	Contractor	7/2023
Excavate Lake & Install wetland Bench	Excavate Lake & Install wetland Bench	Contractor	5/2024
Install trails, boardwalks and signage	Install trails, boardwalks and signage	Contractor	12/2024
Project Closeout	Final inspection and closeout	City of Hampton Staff	2/2025
Monitoring and Inspection	Inspect Channel and vegetation	City of Hampton Staff	2/2026

Potential Project Partners

Successful implementation of the Lake Hampton and North Armistead projects will require the City of Hampton to partner with external parties including continued contracting with the consulting firm led by Moffatt & Nichol. The City will also need to bid and select a contractor for project construction. Lastly, once the project is constructed, the City will identify and hire a third-party organization to inspect the project and confirm that it has met its stated stormwater retention goals.

Figure 6. Lake Hampton Project Rendering

Figure 7. Lake Hampton and North Armistead Site Plan

Figure 8. North Armistead Project Rendering

Section Perspective of N. Armistead Ave, North of Freeman Dr

Part V: Relationship to Other Projects

Past and Current Resilience Projects

These projects are two of three pilot projects identified in the *Newmarket Creek Water Plan.* The other project, Big Bethel Blueway, is also currently under design. Together, these projects are expected to achieve an addition of 8.6 million gallons of stormwater storage capacity in the Newmarket Creek watershed. Each of these three projects will be monitored for their ability to accomplish planned storage goals. Findings from this as well as lessons learned from their design and construction will help inform future resilience efforts across the city.

Additionally, Resilient Hampton piloted a parcel-level adaptation grant program, the **R**esilient **A**nd **I**nnovative **N**eighbors (RAIN) Grant, in early 2021. The pilot faced challenges in reaching members of the public within its geographic scope due to the onset of the COVID-19 pandemic. However, the City is currently working on addressing challenges from the initial round and plans to relaunch the RAIN Grant program in 2022, with opportunities for funding available to residents in the Newmarket Creek watershed. The program provides reimbursement-based grants valued at up to $1,000 to individual residents and homeowners who install measures to capture and store rainwater on their properties. Disbursed measures to reduce runoff at the parcel scale will support City projects, like Lake Hampton and North Armistead Ave, which operate within city-maintained property.

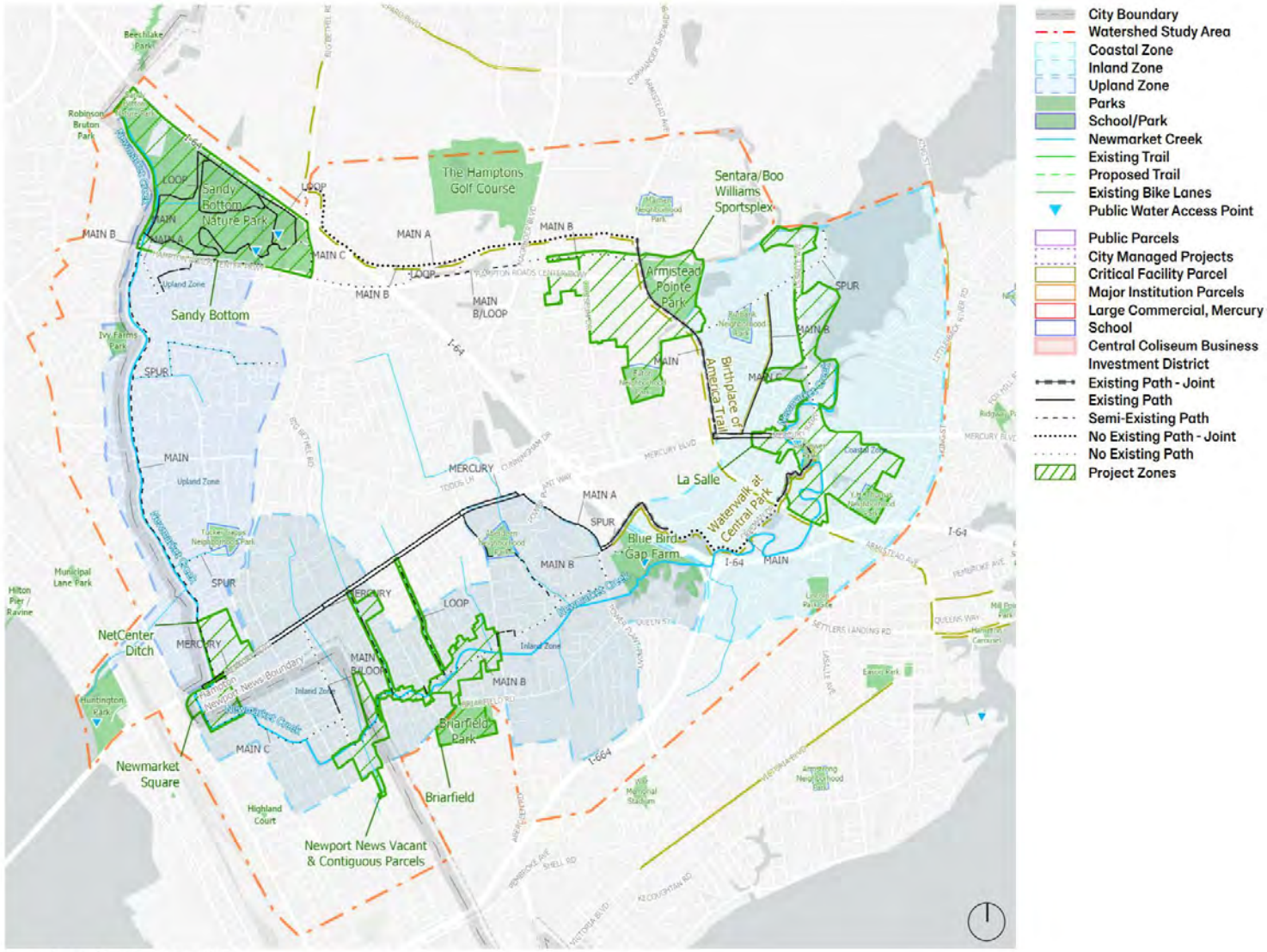
Future Resilience Projects

The *Newmarket Creek Water Plan* envisioned a watershed scale multiuse trail – a "loop trail" – that would also widen, naturalize, and give space to the creek and its channels to reduce flooding impacts to people and properties (see Figure 9). Lake Hampton and North Armistead Ave are both within and connected to this network. The City of Hampton is seeking funding to implement other portions of the loop trail, with the goal of both enhancing water storage and creating highly livable places that encourage economic investment. Implementation of the loop trail would provide an opportunity for collaboration between the City of Newport News and the City of Hampton where the trail would pass along the cities' shared border.

Demonstrated Experience Managing Grants and Loans for Resilience

Hampton has a demonstrated track record of pursuing and implementing both traditional and non-traditional financial mechanisms for resilience work. Most notably, in 2020, the City pursued an innovative Environmental Impact Bond (EIB) financing model. EIBs support investment in environmentally and socially beneficial projects, and ensure delivery on these goals through transparent outcome evaluation and disclosure. Hampton's EIB is the first of its kind in the Commonwealth of Virginia, and one of only a few similar bond structures in the county. The bond, now operational, provides $12 million in financing for three Resilient Hampton projects implemented in the Newmarket Creek watershed, which are evaluated for delivery against a goal to add 8.6 million gallons of storage capacity for stormwater.

Figure 9. Newmarket Creek Loop Trail Concept



Newmarket Creek Pilot Project Loop Vision
Credit: Waggonner & Ball

Part VI: Maintenance Plan

The design of the project has had a focus on long term maintenance. The Hampton Departments of Public Works and Parks, Recreation and Leisure Services will be responsible for the long term maintenance of this facility. Operations personnel have been engaged throughout the design process to assess the design for maintenance considerations and access. Review of the materials for the recreational trail and boardwalks, as well as site furnishing. All aspects of the project were reviewed with maintenance of the facility in mind.

Maintenance costs for the project are based on a fifty-year project life. The total Maintenance costs for the 50 year life of the project life of will be $4,235,965. A maintenance schedule and the proposed annual maintenance costs are provided below. Maintenance will be the responsibility of the Hampton Public Works Department for maintenance of the bioswales and work within the North Armistead Avenue Right of Way. Public Works will also be responsible for Lake Hampton embankment and outfall, wetland and bio retention systems. The Hampton Department of Parks, Recreation and Leisure Services will be responsible for the maintenance of the trail and mowing adjacent to the trail, and will be responsible for maintenance and inspection of the boardwalks. It is anticipated that regular maintenance of the system will require yearly inspection, replacement of diseased or dead plant material, removal of litter and floatables, inspection of the trees for signs of distress, regular pruning of the trees and collection of leaf litter and debris. These costs have been factored into the Annual maintenance costs and amortized over the 50 year project life.

North Armistead-Lake Hampton BMP Maintenance Cost Estimate						
Maintenance Activity	**Suggested Frequency**	**Times per year**	**Units**	**Quantity**	**Unit Costs[6]**	**Annual Cost**
Remove litter and debris	Quarterly	4	MSF[1]	257	$1.00	$1,028
Mow areas around lake	twice during the growing season, as needed during the off season	2.25	MSF[1]	114	$1.79	$459
Repair undercut or eroded areas	Annually	1	SY[2]	229	$5.25	$1,203
Remove accumulated trash and debris from the bio swales and around the Lake	Semi- Annually, or more frequently, as needed	2	SY[3]	2,000	$1.00	$4,000.00
Trim woody vegetation at the beginning and the end of the wet season for aesthetic and vector reasons	Semi- Annually, or more frequently, as needed	2	SY[2]	229	$0.50	$229
Seed or sod to restore dead or damaged ground cover.	Annually, as needed	1	SY[2]	229	$30.00	$6,872
Monitor structural components(pipes, risers, weirs, and energy dissipaters) for signs of deterioration such as cracks, sink holes, and separation	Annually, as needed	1	SY[3]	111	$2.00	$222
Remove nuisance or invasive plant species	Annually, as needed	1	SY[2]	229	$62.00	$14,201
Monitor sediment accumulation and remove accumulated sediment and re-grade when the accumulated sediment volume exceeds 10-20%of the calculated weir storage. Remove sediment in early spring so vegetation damaged during cleaning has time to reestablish.	Every 5-10 years as needed.	0.2	CY[5]	2,759	$20.00	$11,035
Inspect and monitor decking and structural components of boardwalks.	Annually, as needed	1	SF	4,900	$2.50	$12,250
Replace decking and structural components as needed	Every 20 years as needed.	0.05	SF	4,900	$150.00	$36,750
						$88,249

[1] Area of bio retention and area around Lake Hampton

[2] 10% of wetland area

[3] Area around lake and bioswales ion North Armistead

[4] Area 5' top of bank each side

[5] 10% Additional Volume

[6] Unit Costs developed from 2019 RSMeans data - Site Work & Landscape Costs

Part VII: Criteria

Please see Attachment 3: Appendix D for information on how the project meets the scoring criteria for projects under the 2021 Community Flood Preparedness Fund Grant Manual guidelines.

Additional Supporting Documentation

The City of Hampton's Approved Resilience Plan can be found in Attachment 9.

The Hampton Roads Hazard Mitigation Plan (2017) may be found online at https://www.hrpdcva.gov/uploads/docs/2017%20Hampton%20Roads%20Hazard%20Mitigation%20Plan%20Update%20FINAL.pdf.

Appendices for the 2017 Hazard Mitigation Plan may be found at: https://www.hrpdcva.gov/uploads/docs/2017%20Hampton%20Roads%20Hazard%20Mitigation%20Plan%20Update%20Appendices%20FINAL.pdf. This plan and its appendices were adopted by the City of Hampton on February 22, 2017.

The City of Hampton's current Community Plan (comprehensive plan) may be found online at https://hampton.gov/DocumentCenter/View/574/final-plan-2006?bidId=.

Virginia Community Flood Preparedness Fund Application

Attachment 2: Budget Narrrative

HAMPTON VA

RESILIENT HAMPTON

Virginia Community Flood Preparedness Fund Application

Lake Hampton and North Armistead Avenue

Attachment 2 – Budget Narrative

Estimated Total Project Cost

The estimated total project cost is **$20,494,798.** A summary budget is shown below in Table 1.

This amount represents the total cost of engineering and constructing both Lake Hampton and North Armistead Avenue interventions. Costs do not include City staff's time to manage the projects and conduct community outreach. Although not enumerated in this proposal, those personnel costs will be funded by the City of Hampton's budgeted personnel expenses.

Table 1: Summary Budget

Lake Hampton Engineering	$763,513
North Armistead Avenue Engineering	$1,013,769
Lake Hampton Construction	$3,078,031
North Armistead Avenue Construction	$15,639,485
Total Project Cost	**$20,494,798**

Amount of Funds Requested from the Fund

Both the Lake Hampton and North Armistead Avenue projects is located in a low-income geographic area and will result in hybrid (nature-based and grey infrastructure) solutions. The required match provided by the City of Hampton is 35 percent, or $7,173,179.

This proposal seeks funding in the amount of **$3,841,544** to support the final steps of project engineering and construction.

The remainder of the project's cost, or $16,653,253, will be funded by other sources, including revenues from the City's s Environmental Impact Bond (EIB) and General Obligation Bonds. Proceeds from the EIB are being allocated to Lake Hampton in the amount of $1,713,349 and to North Armistead in the amount of $7,437,813, the City's General Obligation Bond (GOB). Proceeds from the GOB are being allocated to Lake Hampton in the amount of $169,795 and to North Armistead in the amount of $2,513,769. Combined, this funding serves to meet and exceed the required project match.

Additional costs for the project secured by the City but not included in the City's provided project match are funded by a $4,818,528 award to the City by the Virginia Department of Transportation's SMART SCALE grant program.

The City's match will be **$11,834,726**, which is 58 percent of the project costs, the grant request of $3,841,544 comprises approximately 19 percent of the project costs. The remaining 23 percent of project costs will be funded by VDOT's SMART SCALE grant funding.

Amount of Cash Funds Available

The amount of cash funds available to the City of Hampton to meet the match requirement is **$11,834,726.** This amount represents approximately 56% of the total project cost. Cash funds are being sourced from existing funding streams allocated by the City of Hampton for resiliency work, funded with a general obligation bonds for capital projects.

A signed pledge agreement certifying the City's commitment to providing $11,834,726 to fund the project can be found in Attachment 6.

Authorization to Request for Funding

A signed letter authorizing the request for funding by City Manager Mary Bunting may be found in Attachment 6.

Virginia Community Flood Preparedness Fund Application

Attachment 3: Appendix B – Scoring Criteria for Projects

HAMPTON VA

RESILIENT HAMPTON

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 Hampton	
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	N/A
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	☒ Yes ☐ 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**	
☐ Wetland restoration, floodplain restoration ☐ Living shorelines and vegetated buffers. ☐ 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 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.	**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**	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**	5
No	**0**	
11. Does this project provide "community scale" benefits?		
Yes	**20**	20
No	**0**	
Total Points		78

Virginia Community Flood Preparedness Fund Application

Attachment 4: Appendix D – Checklist for all Categories

HAMPTON VA

RESILIENT HAMPTON

Appendix D: Checklist All Categories

Virginia Department of Conservation and Recreation

Community Flood Preparedness Fund Grant Program

Scope of Work Narrative	
Supporting Documentation	**Included**
Detailed map of the project area(s) (Projects/Studies)	☒ Yes □ No □ N/A
FIRMette of the project area(s) (Projects/Studies)	☒ Yes □ No □ N/A
Historic flood damage data and/or images (Projects/Studies)	☒ Yes □ No □ N/A
A link to or a copy of the current floodplain ordinance	☒ Yes □ No □ N/A
Non-Fund financed maintenance and management plan for project extending a minimum of 5 years from project close	□ Yes □ No ☒ N/A
A link to or a copy of the current hazard mitigation plan	☒ Yes □ No □ N/A
A link to or a copy of the current comprehensive plan	□ Yes □ No ☒ N/A
Social vulnerability index score(s) for the project area from ADAPT VA's Virginia Vulnerability Viewer	☒ Yes □ No □ N/A
If applicant is not a town, city, or county, letters of support from affected communities	□ Yes □ No ☒ N/A
Completed Scoring Criteria Sheet in Appendix B, C, or D	☒ Yes □ No □ N/A
Budget Narrative	
Supporting Documentation	**Included**
Authorization to request funding from the Fund from governing body or chief executive of the local government	☒ Yes □ No □ N/A
Signed pledge agreement from each contributing organization	□ Yes □ No ☒ N/A

Virginia Community Flood Preparedness Fund Application

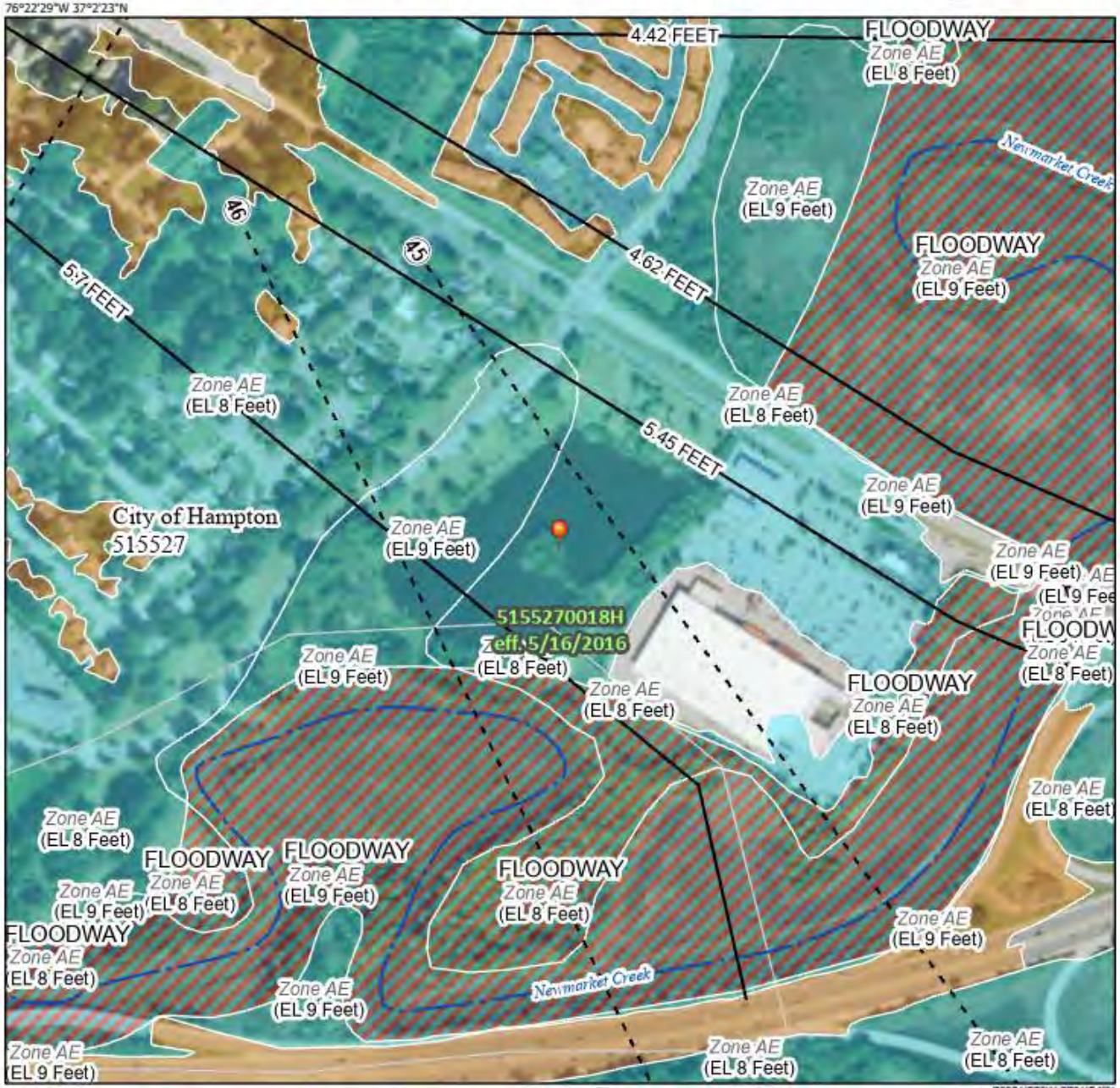
Attachment 5: FIRM Panels or FIRMettes for Project Areas

HAMPTON VA

RESILIENT HAMPTON

National Flood Hazard Layer FIRMette

FEMA



Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Lake Hampton

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) Zone A, V, A99
- With BFE or Depth Zone AE, AO, AH, VE, AR
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
- Future Conditions 1% Annual Chance Flood Hazard Zone X
- Area with Reduced Flood Risk due to Levee. See Notes. Zone X
- Area with Flood Risk due to Levee Zone D

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard Zone X
- Effective LOMRs
- Area of Undetermined Flood Hazard Zone D

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 Cross Sections with 1% Annual Chance / Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 10/20/2021 at 1:18 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Virginia Community Flood Preparedness Fund Application

Attachment 6: Letter from the City Manager

HAMPTON VA

RESILIENT HAMPTON

HAMPTON VA
CITY MANAGER'S OFFICE

November 5, 2021

Virginia Department of Conservation and Recreation
Attention: Virginia Community Flood Preparedness Fund
Division of Dam Safety and Floodplain Management
600 East Main Street, 24th Floor
Richmond, Virginia 23219

To whom it may concern:

On behalf of the City of Hampton, I authorize the request for funding the North Armistead Road Raising and Lake Hampton Project grant proposal submissions to the Virginia Community Flood Preparedness Fund.

If awarded and subject to execution of a grant agreement, the City of Hampton pledges its commitment to provide funding to meet the match requirements established by the 2021 Grant Manual for the fund. City funds have been budgeted and appropriated for Fiscal Year 2022 ending June 30, 2022. As the City's grant application provides, such matching fund will be provided for each project in the following amounts:

- ***North Armistead Road Raising and Lake Hampton Project:*** The City of Hampton will provide $11,834,726, a 58% match based on the project total cost of $20,494,798.

We appreciate this opportunity to seek funding in support of our ongoing efforts to increase Hampton's resilience and preparedness for flooding impacts. If you have any questions or need any additional information, please feel free to reach out to Jasmine Bryson at jbryson@hampton.gov or Carolyn Heaps at Carolyn.heaps@hampton.gov.

Sincerely,

Mary B Bunting
City Manager

OFFICE OF THE CITY MANAGER
22 Lincoln Street | Hampton, Virginia 23669
P: (757) 727-6392 | F: (757) 728-3037

Virginia Community Flood Preparedness Fund Application

Attachment 7: City of Hampton Floodplain Ordinance

HAMPTON VA

RESILIENT HAMPTON

ARTICLE IV. - O-FZ DISTRICT—FLOOD ZONE OVERLAY[2]

Footnotes:

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Editor's note— Ord. No. Z16-03 , adopted April 13, 2016, repealed former art. IV., §§ 9-31—9-36, and enacted a new art. IV., §§ 9-31—9-37. Former art. IV. pertained to similar subject matter and derived from the original Code and Ord. No. Z15-15, adopted August 12, 2015.

Sec. 9-31. - General provisions.

(1) *Statutory authorization and purpose.* This article is adopted pursuant to the authority granted to localities by section 15.2-2280 of the Code of Virginia. The purpose of these provisions is to prevent: the loss of life and property, the creation of health and safety hazards, the disruption of commerce and governmental services, the extraordinary and unnecessary expenditure of public funds for flood protection and relief, and the impairment of the tax base by:

(a) Regulating uses, activities, and development which, alone or in combination with other existing or future uses, activities, and development, will cause unacceptable increases in flood heights, velocities, and frequencies;

(b) Restricting or prohibiting certain uses, activities, and development from locating within districts subject to flooding;

(c) Requiring all those uses, activities, and developments that do occur in flood-prone districts to be protected and/or flood-proofed against flooding and flood damage; and

(d) Protecting individuals from buying land and structures which are unsuited for intended purposes because of flood hazards.

(2) *Applicability.* These provisions shall apply to all privately and publicly owned lands within the jurisdiction of the City of Hampton (city) and identified as special flood hazard areas (SFHA) or other flood areas or shown on the flood insurance rate map (FIRM) or included in the flood insurance study (FIS) that are provided to the city by FEMA.

(3) *Compliance and liability.*

(a) No land shall hereafter be developed and no structure shall be located, relocated, constructed, reconstructed, enlarged, or structurally altered except in full compliance with the terms and provisions of this article.

(b) The degree of flood protection sought by the provisions of this article is considered reasonable for regulatory purposes and is based on acceptable engineering methods of study, but does not imply total flood protection. Larger floods may occur on rare occasions. Flood heights may be increased by man-made or natural causes, such as ice jams and bridge openings restricted by debris. This article does not imply that districts outside the floodplain district or land uses permitted within such district will be free from flooding or flood damages.

(c) This article shall not create liability on the part of the city or any officer or employee thereof for any flood damages that result from reliance on this article or any administrative decision lawfully made thereunder.

(4) *Records.* Records of actions associated with administering this ordinance shall be kept on file and maintained by or under the direction of the floodplain administrator in perpetuity.

(5) *Abrogation and greater restrictions.* To the extent that the provisions are more restrictive, this article supersedes any article or ordinance currently in effect in flood-prone districts, however, any such

existing article or ordinance shall remain in full force and effect to the extent that its provisions are more restrictive than this article or do not conflict.

(6) *Severability.* If any section, subsection, paragraph, sentence, clause, or phrase of this ordinance shall be declared invalid for any reason whatever, such decision shall not affect the remaining portions of this article. The remaining portions shall remain in full force and effect; and for this purpose, the provisions of this ordinance are hereby declared to be severable.

(7) *Administration and enforcement.* The provisions of this article shall be enforced in accordance with chapter 1 of the zoning ordinance. In addition to the above penalties, all other actions are hereby reserved, including an action in equity for the proper enforcement of this article. The imposition of a fine or penalty for any violation of, or noncompliance with, this article shall not excuse the violation or noncompliance or permit it to continue; and all such persons shall be required to correct or remedy such violations within a reasonable time. Any structure constructed, reconstructed, enlarged, altered or relocated in noncompliance with this article may be declared by the city to be a public nuisance and abatable as such. Flood insurance may be withheld from structures constructed in violation of this article.

(Ord. No. Z16-03 , 4-13-2016)

Sec. 9-32. - Administration.

(1) *Designation of the floodplain administrator.* The zoning administrator or his designee shall act as floodplain administrator to administer and implement the flood plain regulations. The floodplain administrator may delegate duties and responsibilities to qualified technical personnel, plan examiners, inspectors, and other employees and enter into a written agreements with other communities and private sector entities to administer specific provisions of these regulations.

(2) *Duties and responsibilities of the floodplain administrator.* The duties and responsibilities of the floodplain administrator shall include those set forth in the code of federal regulations, including but not limited to:

(a) Review applications for permits to determine whether proposed activities will be located in the Special Flood Hazard Area (SFHA).

(b) Interpret floodplain boundaries and provide available base flood elevation and flood hazard information.

(c) Review applications to determine whether proposed activities will be reasonably safe from flooding and require new construction and substantial improvements to meet the requirements of these regulations.

(d) Review applications to determine whether all necessary permits have been obtained from the federal, state or local agencies from which prior or concurrent approval is required; in particular, permits from state agencies for any construction, reconstruction, repair, or alteration of a dam, reservoir, or waterway obstruction (including bridges, culverts, structures), any alteration of a watercourse, or any change of the course, current, or cross section of a stream or body of water, including any change to the 100-year frequency floodplain of free-flowing non-tidal waters of the State.

(e) Require applicants proposing an alteration of a watercourse to provide proof that they have notified adjacent communities, the Department of Conservation and Recreation (Division of Dam Safety and Floodplain Management), and other appropriate agencies (VADEQ, USACE) and have submitted copies of such notifications to FEMA.

(f) Advise applicants for new construction or substantial improvement of structures regarding whether or not the proposed development is within an area of the Coastal Barrier Resources System established by the Coastal Barrier Resources Act where Federal flood insurance is not

available; areas subject to this limitation are shown on Flood Insurance Rate Maps as Coastal Barrier Resource System Areas (CBRS) or Otherwise Protected Areas (OPA).

(g) Review applications to develop in flood hazard areas for compliance with this article.

(h) In accordance with chapter 1, administer and enforce the terms of this article, including but not limited to inspections of buildings, structures, and other development subject to this article.

(i) Review elevation certificates and require incomplete or deficient certificates to be corrected.

(j) Submit to FEMA, or require applicants to submit to FEMA, data and information necessary to maintain FIRMs, including hydrologic and hydraulic engineering analyses prepared by or for the city, within six months after such data and information becomes available if the analyses indicate changes in base flood elevations.

(k) Maintain and permanently keep records that are necessary for the administration of these regulations, including:

(i) Flood insurance studies, flood insurance rate maps (including historic studies and maps and current effective studies and maps) and Letters of Map Change; and

(ii) Documentation supporting issuance and denial of permits, elevation certificates, documentation of the elevation (in relation to the datum on the FIRM) to which structures have been floodproofed, inspection records, other required design certifications, variances, and records of enforcement actions taken to correct violations of these regulations.

(l) In accordance with chapter 1, administer and enforce the terms of this article.

(m) Upon application for a variance from this article, prepare a staff report to the board of zoning appeals containing an analysis of the variance requirements applicable to this article.

(n) Administer the requirements related to proposed work on existing buildings:

(i) Make determinations as to whether buildings and structures that are located in flood hazard areas and that are damaged by any cause have been substantially damaged.

(ii) Make reasonable efforts to notify owners of substantially damaged structures of the need to obtain a permit to repair, rehabilitate, or reconstruct. Prohibit the non-compliant repair of substantially damaged buildings except for temporary emergency protective measures necessary to secure a property or stabilize a building or structure to prevent additional damage.

(o) Undertake, as determined appropriate by the floodplain administrator due to the circumstances, other actions which may include but are not limited to: issuing press releases, public service announcements, and other public information materials related to permit requests and repair of damaged structures; coordinating with other federal, state, and local agencies to assist with substantial damage determinations; providing owners of damaged structures information related to the proper repair of damaged structures in special flood hazard areas; and assisting property owners with documentation necessary to file claims for increased cost of compliance coverage under NFIP flood insurance policies.

(p) Notify the Federal Emergency Management Agency when the corporate boundaries of the city have been modified and:

(i) Provide a map that clearly delineates the new corporate boundaries or the new area for which the authority to regulate pursuant to these regulations has either been assumed or relinquished through annexation; and

(ii) If the FIRM for any annexed area includes special flood hazard areas that have flood zones that have regulatory requirements that are not set forth in these regulations, prepare amendments to these regulations to adopt the FIRM and appropriate requirements, and submit the amendments to the governing body for adoption; such adoption shall take place at the same time as or prior to the date of annexation and a copy of the amended regulations

shall be provided to Department of Conservation and Recreation (Division of Dam Safety and Floodplain Management) and FEMA.

(q) Upon the request of FEMA, complete and submit a report concerning participation in the NFIP which may request information regarding the number of buildings in the SFHA, number of permits issued for development in the SFHA, and number of variances issued for development in the SFHA.

(3) *Use and interpretation of FIRMs.* The floodplain administrator shall make interpretations, where needed, as to the exact location of special flood hazard areas, floodplain boundaries, and floodway boundaries based upon the applicable FIRM. Should a dispute arise concerning the boundaries of any of the districts, the floodplain administrator's interpretation may be appealed to the board of zoning appeals in accordance with the provisions of chapter 13 of the zoning ordinance. The following shall apply to the use and interpretation of FIRMs and data:

(a) Where field surveyed topography indicates that adjacent ground elevations are:

(i) Below the base flood elevation, even in areas not delineated as a special flood hazard area on a FIRM, the area shall be considered as special flood hazard area and subject to the requirements of these regulations;

(ii) Above the base flood elevation, the area shall be regulated as special flood hazard area unless the applicant obtains a letter of map change that removes the area from the SFHA.

(b) In FEMA-identified special flood hazard areas where base flood elevation and floodway data have not been identified and in areas where FEMA has not identified SFHAs, any other flood hazard data available from a Federal, State, or other source shall be reviewed and reasonably used.

(c) Base flood elevations and designated floodway boundaries on FIRMs and in FISs shall take precedence over base flood elevations and floodway boundaries by any other sources if such sources show reduced floodway widths and/or lower base flood elevations.

(d) Other sources of data shall be reasonably used if such sources show increased base flood elevations and/or larger floodway areas than are shown on FIRMs and in FISs.

(e) If a Preliminary Flood Insurance Rate Map and/or a Preliminary Flood Insurance Study has been provided by FEMA, the City will advise applicants for proposed development in a SFHA of the impact of the preliminary map changes.

(i) Upon the issuance of a letter of final determination by FEMA, the city will prepare a statement, under FEMA's direction, which will be signed by all parties confirming flood insurance implications regarding any decision to proceed with development based on the current FIRM and FIS. The statement will be used until adoption of the new FIRM and FIS.

(4) *District boundary changes.* The delineation of any of the floodplain districts may be revised by the city where natural or man-made changes have occurred and/or where more detailed studies have been conducted or undertaken by the U.S. Army Corps of Engineers or other qualified agency, or an individual documents the need for such change. However, prior to any such change, approval must be obtained from the Federal Emergency Management Agency as evidenced by a completed LOMR.

(5) *Submitting model backed technical data.* A community's base flood elevations may increase or decrease resulting from physical changes affecting flooding conditions. As soon as practicable, but not later than six months after the date such information becomes available, a community shall notify the Federal Emergency Management Agency of the changes by submitting technical or scientific data. The community may submit data via a LOMR. Such a submission is necessary so that upon confirmation of those physical changes affecting flooding conditions, risk premium rates and flood plain management requirements will be based upon current data.

(6) *Letters of map revision.* When development in the floodplain will cause or causes a change in the base flood elevation, the applicant, including state agencies, must notify FEMA by applying for a Conditional Letter of Map Revision (CLOMR) and then a Letter of Map Revision (LOMR).

Example cases:

(a) Any development that causes a rise in the base flood elevations within the floodway.

(b) Any development occurring in Zones A1-30 and AE without a designated floodway, which will cause a rise of more than one foot in the base flood elevation.

(c) Alteration or relocation of a stream (including but not limited to installing culverts and bridges) 44 Code of Federal Regulations §65.3 and §65.6(a)(12).

(Ord. No. Z16-03 , 4-13-2016)

Sec. 9-33. - Establishment of zoning districts.

(1) *Description of special flood hazard districts.*

(a) *Basis of districts.*

(i) The various special flood hazard districts shall include the special flood hazard areas and other flood areas. The basis for the delineation of these districts shall be the FIS and the FIRM for the city prepared by the Federal Emergency Management Agency, Federal Insurance Administration, dated May 16, 2016, and any subsequent revisions or amendments thereto.

(ii) The city may identify and regulate local flood hazard or ponding areas that are not delineated on the FIRM. These areas may be delineated on a "Local Flood Hazard Map" using best available topographic data and locally derived information such as flood of record, historic high water marks or approximate study methodologies.

(iii) The boundaries of the SFHA Districts are established as shown on the FIRM which is declared to be a part of this ordinance and which shall be kept on file at the office of the floodplain administrator.

(b) The floodway district is in an AE Zone and is delineated, for purposes of this article, using the criterion that certain areas within the floodplain must be capable of carrying the waters of the one percent annual chance flood without increasing the water surface elevation of that flood more than one (1) foot at any point. The areas included in this district are specifically defined in Table 5 of the above-referenced FIS and shown on the accompanying FIRM. The following provisions shall apply within the floodway district of an AE zone:

(i) Within any floodway area, no encroachments, including fill, new construction, substantial improvements, or other development shall be permitted unless it has been demonstrated through hydrologic and hydraulic analysis performed in accordance with standard engineering practice that the proposed encroachment will not result in any increase in flood levels within the community during the occurrence of the base flood discharge. Hydrologic and hydraulic analyses shall be undertaken only by professional engineers or others of demonstrated qualifications, who shall certify that the technical methods used correctly reflect currently-accepted technical concepts. Studies, analyses, computations, etc., shall be submitted in sufficient detail to allow a thorough review by the floodplain administrator.

(aa) Development activities which increase the water surface elevation of the base flood may be allowed, provided that the applicant first applies—with the city's endorsement—for a Conditional Letter of Map Revision (CLOMR), and receives the approval of the Federal Emergency Management Agency.

(bb) If Section 9-33(1)(b)(i) is satisfied, all new construction and substantial improvements shall comply with all applicable flood hazard reduction provisions of Section 9-34.

(ii) The placement of manufactured homes (mobile homes) is prohibited, except when replacing an existing manufactured home in an existing manufactured home park or subdivision. A

replacement manufactured home may be placed on a lot in an existing manufactured home park or subdivision provided the anchoring, elevation, and encroachment standards are met.

(c) The AE, or AH Zones on the FIRM accompanying the FIS shall be those areas for which one-percent annual chance flood elevations have been provided and the floodway has not been delineated. The following provisions shall apply within an AE or AH zone where FEMA has provided base flood elevations.

(i) Until a regulatory floodway is designated, no new construction, substantial improvements, or other development (including fill) shall be permitted within the areas of special flood hazard, designated as Zones A1-30, AE, or AH on the FIRM, unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than one foot at any point within the city.

(aa) Development activities in Zones Al-30, AE, or AH on the city's FIRM which increase the water surface elevation of the base flood by more than one foot may be allowed, provided that the applicant first applies—with the city's endorsement—for a Conditional Letter of Map Revision, and receives the approval of the Federal Emergency Management Agency.

(d) The A Zone on the FIRM accompanying the FIS shall be those areas for which no detailed flood profiles or elevations are provided, but the one percent annual chance floodplain boundary has been approximated. For these areas, the following provisions shall apply:

(i) The approximated floodplain district shall be that floodplain area for which no detailed flood profiles or elevations are provided, but where a one percent annual chance floodplain boundary has been approximated. Such areas are shown as Zone A on the maps accompanying the FIS. For these areas, the base flood elevations and floodway information from federal, state, and other acceptable sources shall be used, when available. Where the specific one percent annual chance flood elevation cannot be determined for this area using other sources of data, such as the U. S. Army Corps of Engineers Floodplain Information Reports, U. S. Geological Survey Flood—Prone Quadrangles, etc., then the applicant for the proposed use, development and/or activity shall determine this base flood elevation. For development proposed in the approximate floodplain the applicant must use technical methods that correctly reflect currently accepted practices, such as point on boundary, high water marks, or detailed methodologies hydrologic and hydraulic analyses. Studies, analyses, computations, etc., shall be submitted in sufficient detail to allow a thorough review by the floodplain administrator.

(aa) The floodplain administrator reserves the right to require a hydrologic and hydraulic analysis for any development. When such base flood elevation data is utilized, the lowest floor shall be elevated to or above the base flood level plus eighteen inches.

(bb) During the permitting process, the floodplain administrator shall obtain:

1. The elevation of the lowest floor (in relation to the datum specified on the effective FIRM), including the basement, of all new and substantially improved structures; and,

2. If the structure has been flood-proofed in accordance with the requirements of this article, the elevation (in relation to the datum specified on the effective FIRM) to which the structure has been flood-proofed.

(e) The AO Zone on the FIRM accompanying the FIS shall be those areas of shallow flooding identified as AO on the FIRM. For these areas, the following provisions shall apply:

(i) All new construction and substantial improvements of residential structures shall have the lowest floor, including basement, elevated to or above the flood depth specified on the FIRM, above the highest adjacent grade at least as high as the depth number specified in feet on

the FIRM. If no flood depth number is specified, the lowest floor, including basement, shall be elevated no less than two feet above the highest adjacent grade.

(ii) All new construction and substantial improvements of non-residential structures shall:

(aa) Have the lowest floor, including basement, elevated to or above the flood depth specified on the FIRM, above the highest adjacent grade at least as high as the depth number specified in feet on the FIRM. If no flood depth number is specified, the lowest floor, including basement, shall be elevated at least two feet above the highest adjacent grade; or,

(bb) Together with attendant utility and sanitary facilities be completely flood-proofed to the specified flood level so that any space below that level is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy.

(iii) Adequate drainage paths around structures on slopes shall be provided to guide floodwaters around and away from proposed structures.

(f) The Coastal A Zone is labelled as AE on the FIRM; it is those areas that are shoreward of the limit of moderate wave action (LiMWA) line. As defined by the VA USBC, these areas are subject to wave heights between 1.5 feet and 3 feet. For these areas, the following provisions shall apply:

(i) Buildings and structures within this zone shall have the lowest floor elevated to or above the design flood elevation, and must comply with the provisions in sections 9-33(1)(c), 9-34(2) and 9-34(3).

(g) The VE or V Zones on FIRMs accompanying the FIS shall be those areas that are known as Coastal High Hazard areas, extending from offshore to the inland limit of a primary frontal dune along an open coast or other areas subject to high velocity waves. For these areas, the following provisions shall apply:

(i) All new construction and substantial improvements in Zones V and VE shall be elevated on pilings or columns so that:

(aa) The bottom of the lowest horizontal structural member of the lowest floor (excluding the pilings or columns) is elevated to or above the design flood elevation.

(bb) The pile or column foundation and structure attached thereto is anchored to resist flotation, collapse, and lateral movement due to the effects of wind and water loads acting simultaneously on all building components. Wind and water loading values shall each have a one percent chance of being equaled or exceeded in any given year (one-percent annual chance).

(ii) A registered professional engineer or architect shall develop or review the structural design, specifications and plans for the construction, and shall certify that the design and methods of construction to be used are in accordance with accepted standards of practice for meeting the provisions of Section 9-33(1)(g)(i).

(iii) The floodplain administrator shall obtain an elevation certificate, which shall identify the bottom of the lowest horizontal structural member of the lowest floor (excluding pilings and columns) of all new and substantially improved structures in Zones V and VE.

(iv) All new construction shall be located landward of the reach of mean high tide.

(v) All new construction and substantial improvements shall have the space below the lowest floor either free of obstruction or constructed with non-supporting breakaway walls, open wood-lattice work, or insect screening intended to collapse under wind and water loads without causing collapse, displacement, or other structural damage to the elevated portion of the building or supporting foundation system. For the purpose of this section, a breakaway wall shall have a design safe loading resistance of not less than 10 and no more than 20 pounds per square foot. Use of breakaway walls which exceed a design safe loading

resistance of 20 pounds per square foot (either by design or when so required by local codes) may be permitted only if a registered professional engineer or architect certifies that the designs proposed meet the following conditions:

(aa) Breakaway wall collapse shall result from water load less than that which would occur during the base flood; and

(bb) The elevated portion of the building and supporting foundation system shall not be subject to collapse, displacement, or other structural damage due to the effects of wind and water loads acting simultaneously on all building components (structural and nonstructural). Maximum wind and water loading values to be used in this determination shall each have a one percent chance of being equaled or exceeded in any give year.

(vi) The enclosed space below the lowest floor shall be used solely for parking of vehicles, building access, or storage. Such space shall not be partitioned into multiple rooms, temperature-controlled, or used for human habitation. The enclosed space shall be no more than 299 square feet.

(vii) The use of fill for structural support of buildings is prohibited. When non-structural fill is proposed in a coastal high hazard area, appropriate engineering analyses shall be conducted to evaluate the impacts of the fill prior to issuance of a development permit.

(viii) The man-made alteration of sand dunes, which would increase potential flood damage, is prohibited.

(ix) New, replacement, or substantially improved manufactured homes are prohibited within Zones V1—V30, V and VE on the city's Flood Insurance Rate Map.

(x) Recreational vehicles to be placed within Zones V1—V30, V, and VE on the city's Flood Insurance Rate Map on sites must meet the standards of section 9-34(3)(d) and sections 9-33(1)(g)(i) through 9-33(1)(g)(ix).

(h) Other flood areas shall be those areas identified as X (Shaded) or X500 on the FIRM for which there is a one-fifth percent (0.2%) annual chance of flooding.

(i) All new construction as of September 10, 2014 shall have the lowest floor, including basement, elevated or flood-proofed to one and one-half (1.5) feet above the highest grade immediately adjacent to the structure except as described below:

(aa) When fill is placed to raise a structure at least one and one-half (1.5) feet above the highest existing grade immediately adjacent to the structure, as shown on a development plan prepared and stamped by a certified land surveyor or professional engineer.

(2) *Overlay Concept.* The floodplain districts described above shall be overlays to the existing underlying districts as shown on the official zoning ordinance map, and as such, the provisions for the floodplain districts shall serve as a supplement to the underlying district provisions. If there is any conflict between the provisions or requirements of the Floodplain Districts and those of any underlying district, the more restrictive provisions and/or those pertaining to the floodplain districts shall apply. In the event any provision concerning a floodplain district is declared inapplicable as a result of any legislative or administrative actions or judicial decision, the basic underlying provisions shall remain applicable.

(Ord. No. Z16-03 , 4-13-2016)

Sec. 9-34. - District provisions.

(1) *Permit and application requirements.*

(a) *Permit requirement.* All uses, activities, and development occurring within any special flood hazard area and other flood areas, including placement of manufactured homes, shall be undertaken only upon the issuance of a zoning permit, land disturbance permit, or building permit

when such a permit is required. Such development shall be undertaken only in strict compliance with the provisions of this article, all other applicable codes and ordinances, as amended, such as the Virginia Uniform Statewide Building Code (VA USBC). Prior to the issuance of any such permit, the floodplain administrator shall require all applications to include compliance with all applicable state and federal laws.

(b) *Site plans and building permit applications.* All site plan and building permit applications within any special flood hazard area or other flood areas shall incorporate the following information:

(i) The elevation of the base flood at the site, or the elevation of the highest adjacent grade in other flood areas where no base flood elevation is provided.

(ii) The elevation of the lowest floor (including basement) or, in V zones, the lowest horizontal structural member.

(iii) For structures to be flood-proofed (non-residential only), the elevation to which the structure will be flood-proofed.

(iv) Topographic information showing existing and proposed ground elevations.

(c) *Small projects considered compliant with flood zone requirements.*

(i) Individual permits shall not be required for activities, uses, and development (collectively "Small Projects") which have been reviewed, assessed, and documented by the City of Hampton and approved by FEMA in accordance with federal regulations as having low-to-no impact on the flood plain. A list of Small Projects meeting this criteria entitled, "City Review of Development in Flood Zones - Permit Requirements," is hereby adopted by reference as part of this article as if fully set forth herein, shall be kept on file in the office of the department of community development, and may be administratively amended as deemed necessary by the floodplain administrator in accordance with all federal requirements.

(ii) Notwithstanding the foregoing section 9-34(c)(i), Small Projects which constitute a substantial improvement as defined in this article shall require submission of a zoning permit or building permit, as applicable, prior to commencement of construction or land disturbance. The floodplain administrator may require submittal of all plans, documents, and information deemed necessary to determine whether the Small Project is a substantial improvement and otherwise complies with this article.

(2) *General standards.* In all special flood hazard areas the following provisions shall apply:

(a) The freeboard shall be three (3) feet. The freeboard, in addition to the base flood elevation, shall constitute the design flood elevation.

(b) New construction and substantial improvements shall be built according to this ordinance and the VA USBC, and anchored to prevent flotation, collapse or lateral movement of the structure.

(c) Manufactured homes shall be anchored to prevent flotation, collapse, or lateral movement. Methods of anchoring may include, but are not limited to, use of over-the-top or frame ties to ground anchors. This standard shall be in addition to and consistent with applicable state anchoring requirements for resisting wind forces.

(d) New construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.

(e) New construction or substantial improvements shall be constructed by methods and practices that minimize flood damage.

(f) Electrical, heating, ventilation, plumbing, air conditioning equipment and other service facilities, including duct work, shall be:

(i) Elevated and installed at or above the design flood elevation; or

(ii) Designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding.

(g) New and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the system.

(h) New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the systems and discharges from the systems into flood waters.

(i) On-site waste disposal systems shall be located and constructed to avoid impairment to them or contamination from them during flooding.

(j) Any alteration, repair, reconstruction or improvements to a building that is in compliance with the provisions of this article shall meet the requirements of "new construction" as contained in this article.

(k) Any alteration, repair, reconstruction or improvements to a building that is not in compliance with the provisions of this article, shall be undertaken only if said non-conformity is not furthered, extended, or replaced.

(l) Prior to any proposed alteration or relocation of any channels or of any watercourse, stream, etc., within this jurisdiction a permit shall be obtained from the U. S. Corps of Engineers, the Virginia Department of Environmental Quality, and the Virginia Marine Resources Commission (a joint permit application is available from any of these organizations). Furthermore, in riverine areas, notification of the proposal shall be given by the applicant to all affected adjacent jurisdictions, the Department of Conservation and Recreation (Division of Dam Safety and Floodplain Management), other required agencies, and the Federal Emergency Management Agency.

(m) The flood carrying capacity within an altered or relocated portion of any watercourse shall be maintained.

(n) For residential construction, the lowest floor shall not be below grade on all sides.

(3) *Elevation and construction standards.* In all special flood hazard areas where base flood elevations have been provided in the FIS or generated by a certified professional in accordance with Section 9-33(1)(d), the following provisions shall apply:

(a) *Residential construction.*

(i) New construction or substantial improvement of any residential structure (including manufactured homes) in Zones A1-30, AE, AH and A with detailed base flood elevations shall have the lowest floor, including basement, elevated to or above the design flood elevation. See sections 9-33(1)(f) and 9-33(1)(g) for requirements in the Coastal A and VE zones.

(b) *Non-residential construction.*

(i) New construction or substantial improvement of any commercial, industrial, or non-residential building (or manufactured home) shall have the lowest floor, including basement, elevated to or above the design flood elevation. See sections 9-33(1)(f) and 9-33(1)(g) for requirements in the Coastal A and VE zones.

(ii) Non-residential buildings located in all A1-30, AE, and AH zones may be flood-proofed in lieu of being elevated provided that all areas of the building components below the design flood elevation are water tight with walls substantially impermeable to the passage of water, and use structural components having the capability of resisting hydrostatic and hydrodynamic loads and the effect of buoyancy. A registered professional engineer or architect shall certify that the standards of this subsection are satisfied. Such certification, including the specific elevation (in relation to the datum specified on the effective FIRM) to which such structures are floodproofed, shall be maintained by the Floodplain Administrator.

(c) *Space below the lowest floor.* In zones A, AE, AH, AO, and A1-A30, fully enclosed areas, of new construction or substantially improved structures, which are below the regulatory flood protection elevation shall:

(i) Not be designed or used for human habitation, but shall be used solely for parking of vehicles, building access, or limited storage of maintenance equipment used in connection with the premises. Access to the enclosed area shall be the minimum necessary to allow for parking of vehicles (garage door) or limited storage of maintenance equipment (standard exterior door), or entry to the living area (stairway or elevator).

(ii) Be constructed entirely of flood resistant materials below the design flood elevation;

(iii) Include measures to automatically equalize hydrostatic flood forces on walls by allowing for the entry and exit of floodwaters. To meet this requirement, the openings must either be certified by a professional engineer or architect or meet the following minimum design criteria:

(aa) Provide a minimum of two (2) openings on different sides of each enclosed area subject to flooding.

(bb) The total net area of all openings must be at least one (1) square inch for each square foot of enclosed area subject to flooding or the flood openings shall be engineered flood openings that are designed and certified by a licensed professional engineer to automatically allow entry and exit of floodwaters; the certification requirement may be satisfied by an individual certification or issuance of an evaluation report by the ICC Evaluation Service, Inc.

(cc) If a building has more than one (1) enclosed area, each area must have openings to allow floodwaters to automatically enter and exit.

(dd) The bottom of all required openings shall be no higher than one (1) foot above the adjacent grade.

(ee) Openings may be equipped with screens, louvers, or other opening coverings or devices, provided they permit the automatic flow of floodwaters in both directions.

(ff) Foundation enclosures made of flexible skirting are not considered enclosures for regulatory purposes, and, therefore, do not require openings. Masonry or wood underpinning, regardless of structural status, is considered an enclosure and requires openings as outlined above.

(d) *Standards for manufactured homes and recreational vehicles.*

(i) In zones A, AE, AH, and AO, all manufactured homes placed, or substantially improved, on individual lots or parcels, in expansions to existing manufactured home parks or subdivisions, in a new manufactured home park or subdivision, or in an existing manufactured home park or subdivision on which a manufactured home has incurred substantial damage as the result of a flood, must meet all the requirements for new construction, including the elevation and anchoring requirements in sections 9-34(2) and 9-34(3).

(ii) All manufactured homes placed or substantially improved in an existing manufactured home park or subdivision in which a manufactured home has not incurred substantial damage as the result of a flood shall be elevated so that:

(aa) The lowest floor of the manufactured home is elevated no lower than design flood elevation; and

(bb) The manufactured home must be securely anchored to the adequately anchored foundation system to resist flotation, collapse and lateral movement.

(iii) All recreational vehicles placed on sites must either:

(aa) Be on the site for fewer than 180 consecutive days, be fully licensed and ready for highway use (a recreational vehicle is ready for highway use if it is on its wheels or jacking system, is attached to the site only by quick disconnect type utilities and security devices and has no permanently attached additions); or

(bb) Meet all the requirements for manufactured homes in Section 9-34(3)(d)(i).

(4) *Standards for subdivision proposals.*

(a) All subdivision proposals shall be consistent with the need to minimize flood damage;

(b) All subdivision proposals shall have public utilities and facilities such as sewer, gas, electrical and water systems located and constructed to minimize flood damage;

(c) All subdivision proposals shall have adequate drainage provided to reduce exposure to flood hazards, and

(d) Base flood elevation data shall be obtained from other sources or developed using detailed methodologies, hydraulic and hydrologic analysis, comparable to those contained in a flood insurance study for subdivision proposals and other proposed development proposals (including manufactured home parks and subdivisions) that exceed five lots or five acres, whichever is the lesser.

(Ord. No. Z16-03 , 4-13-2016; Ord. No. Z18-9 , 7-11-2018)

Sec. 9-35. - Existing structures in floodplain areas.

(1) Any structure or use of a structure or premises must be brought into conformity with these provisions when it is changed, repaired, or improved unless one of the following exceptions is established before the change is made:

(a) The floodplain administrator has determined that:

(i) Change is not a substantial repair or substantial improvement;

(ii) No new square footage is being built in the floodplain that is not compliant;

(iii) No new square footage is being built in the floodway; and

(iv) The change complies with this ordinance.

(b) The changes are required to comply with a citation for a health or safety violation.

(c) The structure is a historic structure and the change required would impair the historic nature of the structure.

(Ord. No. Z16-03 , 4-13-2016)

Sec. 9-36. - Variances—Factors to be considered.

(1) *Additional factors to be considered.* In considering applications for variances to this article, the board of zoning appeals shall satisfy all relevant factors and procedures specified in chapter 13 of the zoning ordinance and consider the following additional factors:

(a) The showing of good and sufficient cause.

(b) A determination that failure to grant the variance would result in exceptional hardship to the applicant.

(c) The danger to life and property due to increased flood heights or velocities caused by encroachments.

(d) The danger that materials may be swept on to other lands or downstream to the injury of others.

(e) The proposed water supply and sanitation systems and the ability of these systems to prevent disease, contamination, and unsanitary conditions.

(f) The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owners.

(g) The importance of the services provided by the proposed facility to the community.

(h) The requirements of the facility for a waterfront location.

(i) The availability of alternative locations not subject to flooding for the proposed use.

(j) The compatibility of the proposed use with existing development and development anticipated in the foreseeable future.

(k) The relationship of the proposed use to the comprehensive plan and floodplain management program for the area.

(l) The safety of access by ordinary and emergency vehicles to the property in time of flood.

(m) The expected heights, velocity, duration, rate of rise, and sediment transport of the floodwaters expected at the site.

(n) The repair or rehabilitation of historic structures upon a determination that the proposed repair or rehabilitation will not preclude the structure's continued designation as a historic structure and the variance is the minimum necessary to preserve the historic character and design of the structure.

(o) Such other factors which are relevant to the purposes of this article.

(2) *Technical assistance.* The board of zoning appeals may refer any application and accompanying documentation pertaining to any request for a variance to any engineer or other qualified person or agency for technical assistance in evaluating the proposed project in relation to flood heights and velocities, and the adequacy of the plans for flood protection and other related matters.

(3) *Additional criteria to be applied.*

(a) Variances shall be issued only after the board of zoning appeals has determined that the granting of such variance will not result in (1) unacceptable or prohibited increases in flood heights, (2) additional threats to public safety, (3) extraordinary public expense; and will not (4) create nuisances, (5) cause fraud or victimization of the public, or (6) conflict with local laws or ordinances.

(b) Variances shall be issued only after the board of zoning appeals has determined that the variance will be the minimum required to provide relief from exceptional hardship to the applicant. The variance shall minimize changes to the requirements of this article, and maximize flood protection of the structure. No variance shall be granted by the board of zoning appeals for any proposed use, development, or activity within any floodway district that will cause any increase in the one hundred (100) year flood elevation.

(c) Prior to the consideration of an application for a variance to the provisions of this article, the board of zoning appeals shall notify the applicant for a variance, in writing, that the grant of a variance to construct a structure below the one hundred (100) year flood elevation (a) increases the risks to life and property and (b) will result in increased premium rates for flood insurance.

(d) A record shall be maintained of the above notification as well as all variance actions, including justification for the issuance of the variances. Any variances that are issued shall be noted in the annual or biennial report submitted to the federal insurance administrator.

(Ord. No. Z16-03 , 4-13-2016)

Sec. 9-37. - Definitions.

To the extent that the following definitions conflict with chapter 2 of the zoning ordinance, they will prevail.

Base flood. The flood having a one percent chance of being equaled or exceeded in any given year.

Base flood elevation. The water surface elevations of the base flood, that is, the flood level that has a one percent or greater chance of occurrence in any given year. The water surface elevation of the base flood in relation to the datum specified on the community's flood insurance rate map. For the purposes of this section, the base flood is the 1% annual chance flood.

Basement. Any area of the building having its floor sub-grade (below ground level) on all sides.

Board of zoning appeals. The board appointed to review appeals made by individuals with regard to decisions of the zoning administrator in the interpretation of this chapter.

Breakaway wall. A wall that is not part of the structural support of the building and is intended through its design and construction to collapse under specific lateral loading forces, without causing damage to the elevated portion of the building or supporting foundation system.

Coastal A Zone. Flood hazard areas that have been delineated as subject to wave heights between 1.5 feet and 3 feet.

Coastal high hazard area. A special flood hazard area extending from offshore to the inland limit of a primary frontal dune along an open coast and any other area subject to high velocity wave action from storms or seismic sources.

Design Flood Elevation. The base flood elevation plus the freeboard required by this chapter.

Development. Any man-made change to improved or unimproved real estate, including, but not limited to, buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations or storage of equipment or materials.

Elevated building. A non-basement building built to have the lowest floor elevated above the ground level by means of solid foundation perimeter walls, pilings, or columns (posts and piers).

Encroachment. The advance or infringement of uses, plant growth, fill, excavation, buildings, permanent structures or development into a floodplain, which may impede or alter the flow capacity of a floodplain.

Existing manufactured home park or subdivision. A manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including, at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed before the effective date of the floodplain management regulations adopted by a community.

Expansion of an existing manufactured home park or subdivision. The preparation of additional sites by the construction of facilities for servicing the lots on which the manufacturing homes are to be affixed (including the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads).

Existing construction. For the purposes of the insurance program, structures for which the "start of construction" commenced on or before December 31, 1974. "Existing construction" may also be referred to as "existing structures" and "pre-FIRM."

Flood or flooding.

1. A general or temporary condition of partial or complete inundation of normally dry land areas from

   (a) The overflow of inland or tidal waters; or

   (b) The unusual and rapid accumulation or runoff of surface waters from any source.

   (c) Mudflows which are proximately caused by flooding as defined in paragraph (1)(b) of this definition and are akin to a river of liquid and flowing mud on the surfaces of normally dry land areas, as when earth is carried by a current of water and deposited along the path of the current.

2. The collapse or subsidence of land along the shore of a lake or other body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels or suddenly caused by an unusually high water level in a natural body of water, accompanied by a severe storm, or by an unanticipated force of nature such as flash flood or an abnormal tidal surge, or by some similarly unusual and unforeseeable event which results in flooding as defined in paragraph 1 (a) of this definition.

Flood Insurance Rate Map (FIRM). An official map of a community, on which the Federal Emergency Management Agency has delineated both the special hazard areas and the risk premium zones applicable to the community. A FIRM that has been made available digitally is called a Digital Flood Insurance Rate Map (DFIRM).

Flood Insurance Study (FIS). A report by FEMA that examines, evaluates and determines flood hazards and, if appropriate, corresponding water surface elevations, or an examination, evaluation and determination of mudflow and/or flood-related erosion hazards.

Floodplain or flood-prone area. Any land area susceptible to being inundated by water from any source.

Flood proofing. Any combination of structural and non-structural additions, changes, or adjustments to structures which reduce or eliminate flood damage to real estate or improved real property, water and sanitary facilities, structures and their contents.

Floodway. The channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one foot at any point within the community.

Freeboard. A factor of safety usually expressed in feet above a flood level for purposes of floodplain management. "Freeboard" tends to compensate for the many unknown factors that could contribute to flood heights greater than the height calculated for a selected size flood and floodway conditions, such as wave action, bridge openings, and the hydrological effect of urbanization in the watershed.

Functionally dependent use. A use which cannot perform its intended purpose unless it is located or carried out in close proximity to water. This term includes only docking facilities, port facilities that are necessary for the loading and unloading of cargo or passengers, and shipbuilding and ship repair facilities, but does not include long-term storage or related manufacturing facilities.

Highest adjacent grade. The highest natural elevation of the ground surface prior to construction next to the proposed walls of a structure.

Historic structure. Any structure that is:

1. Listed individually in the National Register of Historic Places (a listing maintained by the Department of Interior) or preliminarily determined by the secretary of the Interior as meeting the requirements for individual listing on the National Register;
2. Certified or preliminarily determined by the Secretary of the Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined by the secretary to qualify as a registered historic district;
3. Individually listed on a state inventory of historic places in states with historic preservation programs which have been approved by the Secretary of the Interior; or
4. Individually listed on a local inventory of historic places in communities with historic preservation programs that have been certified either:
   (a) By an approved state program as determined by the Secretary of the Interior; or
   (b) Directly by the Secretary of the Interior in states without approved programs.

Hydrologic and hydraulic engineering analysis. Analyses performed by a licensed professional engineer, in accordance with standard engineering practices that are accepted by the Virginia Department of Conservation and Recreation and FEMA, used to determine the base flood, other frequency floods, flood elevations, floodway information and boundaries, and flood profiles.

Letters of Map Change (LOMC). A Letter of Map Change is an official FEMA determination, by letter, that amends or revises an effective Flood Insurance Rate Map or Flood Insurance Study. Letters of Map Change include:

1. Letter of Map Amendment (LOMA): An amendment based on technical data showing that a property was incorrectly included in a designated special flood hazard area. A LOMA amends the current effective Flood Insurance Rate Map and establishes that a land as defined by meets and bounds or structure is not located in a special flood hazard area.
2. Letter of Map Revision (LOMR): A revision based on technical data that may show changes to flood zones, flood elevations, floodplain and floodway delineations, and planimetric features. A Letter of Map Revision Based on Fill (LOMR-F), is a determination that a structure or parcel of land has been elevated by fill above the base flood elevation and is, therefore, no longer exposed to flooding associated with the base flood. In order to qualify for this determination, the fill must have been permitted and placed in accordance with the community's floodplain management regulations.
3. Conditional Letter of Map Revision (CLOMR): A formal review and comment as to whether a proposed flood protection project or other project complies with the minimum NFIP requirements for such projects with respect to delineation of special flood hazard areas. A CLOMR does not revise the effective Flood Insurance Rate Map or Flood Insurance Study.

Lowest adjacent grade. The lowest natural elevation of the ground surface next to the walls of a structure.

Lowest floor. The lowest floor of the lowest enclosed area (including basement). An unfinished or flood-resistant enclosure, usable solely for parking of vehicles, building access or storage in an area other than a basement area is not considered a building's lowest floor; provided, that such enclosure is not built so as to render the structure in violation of the applicable non-elevation design requirements of Federal Code 44CFR §60.3.

Manufactured home. A structure, transportable in one or more sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when connected to the required utilities. For floodplain management purposes the term "manufactured home" also includes park trailers, travel trailers, and other similar vehicles placed on a site for greater than 180 consecutive days.

Manufactured home park or subdivision. A parcel (or contiguous parcels) of land divided into two or more manufactured home lots for rent or sale.

Mean sea level. An elevation point that represents the average height of the ocean's surface (such as the halfway point between the mean high tide and the mean low tide) which is used as a standard in reckoning land elevation.

New construction. For the purposes of determining insurance rates, structures for which the "start of construction" commenced on or after January 1, 1975, and includes any subsequent improvements to such structures. For floodplain management purposes, new construction means structures for which the start of construction commenced on or after the effective date of a floodplain management regulation adopted by a community and includes any subsequent improvements to such structures. Such structure is also referred to as "post-FIRM."

New manufactured home park or subdivision. A manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed on or after the effective date of floodplain management regulations adopted by the city.

Other flood areas. Those areas identified as X (Shaded) or X500 on the FIRM for which there is a one-fifth percent (0.2%) annual chance of flooding.

Post-FIRM structures. A structure for which construction or substantial improvement occurred on or after January 1, 1975.

Pre-FIRM structures. A structure for which construction or substantial improvement occurred on or before December 31, 1974.

Primary frontal dune. A continuous or nearly continuous mound or ridge of sand with relatively steep seaward and landward slopes immediately landward and adjacent to the beach and subject to erosion and overtopping from high tides and waves during major coastal storms.

Recreational vehicle. A vehicle which is:

1. Built on a single chassis;
2. 400 square feet or less when measured at the largest horizontal projection;
3. Designed to be self-propelled or permanently towable by a light duty truck; and
4. Designed primarily not for use as a permanent dwelling but as temporary living quarters for recreational camping, travel, or seasonal use.

Regulatory flood protection elevation. An elevation equivalent to the design flood elevation.

Repetitive loss structure. A building covered by a contract for flood insurance that has incurred flood-related damages on two occasions in a 10-year period, in which the cost of the repair, on the average, equaled or exceeded 25 percent of the market value of the structure at the time of each such flood event; and at the time of the second incidence of flood-related damage, the contract for flood insurance contains increased cost of compliance coverage.

Severe repetitive loss structure. A structure that: (a) Is covered under a contract for flood insurance made available under the NFIP; and (b) Has incurred flood related damage (i) For which 4 or more separate claims payments have been made under flood insurance coverage with the amount of each such claim exceeding $5,000, and with the cumulative amount of such claims payments exceeding $20,000; or (ii) For which at least 2 separate claims payments have been made under such coverage, with the cumulative amount of such claims exceeding the market value of the insured structure.

Shallow flooding area. A special flood hazard area with base flood depths from one to three feet where a clearly defined channel does not exist, where the path of flooding is unpredictable and indeterminate, and where velocity flow may be evident. Such flooding is characterized by ponding or sheet flow.

Special flood hazard area. The land in the floodplain subject to a one percent or greater chance of being flooded in any given year as determined in section 9-33(1) of this article.

Start of construction. For other than new construction and substantial improvement, under the Coastal Barriers Resource Act (P.L. - 97-348), means the date the building permit was issued, provided the actual start of construction, repair, reconstruction, rehabilitation, addition, placement, substantial improvement or other improvement was within 180 days of the permit date. The actual start means either the first placement of permanent construction of a structure on a site, such as the pouring of slab or footings, the installation of piles, the construction of columns, or any work beyond the stage of excavation; or the placement of a manufactured home on a foundation. Permanent construction does not include land preparation, such as clearing, grading and filling; nor does it include the installation of streets and/or walkways; nor does it include excavation for a basement, footings, piers, or foundations or the erection of temporary forms; nor does it include the installation on the property of accessory buildings, such as garages or sheds not occupied as dwelling units or not part of the main structure. For a substantial improvement, the actual start of the construction means the first alteration of any wall, ceiling, floor, or other structural part of a building, whether or not that alteration affects the external dimensions of the building.

Structure. For floodplain management purposes, a walled and roofed building, including a gas or liquid storage tank, that is principally above ground, as well as a manufactured home.

Substantial damage. Damage of any origin sustained by a structure whereby the cost of restoring the structure to its before damaged condition would equal or exceed 50 percent of the city's assessed value or the market value of the structure before the damage occurred as established by an independent, unbiased, third party appraiser licensed in the Commonwealth of Virginia.

Substantial improvement. Any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50 percent of the city's assessed value or the market value of the structure before the start of construction of the improvement as established by an independent, unbiased, third party appraiser licensed in the Commonwealth of Virginia. This term includes structures which have incurred or substantial damage regardless of the actual repair work performed. The term does not, however, include either:

1. Any project for improvement of a structure to correct existing violations of state or local health, sanitary, or safety code specifications which have been identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions,
2. Any alteration of a historic structure, provided that the alteration will not preclude the structure's continued designation as a historic structure, or
3. Historic structures undergoing repair or rehabilitation that would constitute a substantial improvement as defined above, must comply with all ordinance requirements that do not preclude the structure's continued designation as a historic structure. Documentation that a specific ordinance requirement will cause removal of the structure from the National Register of Historic Places or the state inventory of historic places must be obtained from the Secretary of the Interior or the state historic preservation officer. Any exemption from ordinance requirements will be the minimum necessary to preserve the historic character and design of the structure.

Violation. The failure of a structure or other development to be fully compliant with the community's floodplain management regulations. A structure or other development without the elevation certificate, other certifications, or other evidence of compliance required in this ordinance is presumed to be in violation until such time as that documentation is provided.

Watercourse. A lake, river, creek, stream, wash, channel or other topographic feature on or over which waters flow at least periodically. Watercourse includes specifically designated areas in which substantial flood damage may occur.

(Ord. No. Z16-03 , 4-13-2016; Ord. No. Z18-9 , 7-11-2018)

Secs. 9-38—9-40. - Reserved.

Virginia Community Flood Preparedness Fund Application

Attachment 8: City of Hampton Approved Resilience Plan

HAMPTON VA

RESILIENT HAMPTON

Matthew J. Strickler
Secretary of Natural and Historic Resources and Chief Resilience Officer

Clyde E. Cristman
Director

COMMONWEALTH of VIRGINIA
DEPARTMENT OF CONSERVATION AND RECREATION

Rochelle Altholz
Deputy Director of Administration and Finance

Nathan Burrell
Deputy Director of Government and Community Relations

Darryl M. Glover
Deputy Director of Dam Safety & Floodplain Management and Soil & Water Conservation

Thomas L. Smith
Deputy Director of Operations

September 2, 2021

Terry O'Neill and Carolyn Heaps
Director, Community Development Department
& Resiliency Officer, Respectively
City of Hampton
22 Lincoln Street, 5th Floor, Hampton, VA 23669

RE: City of Hampton Resilience Plan Submission – CFPF

Dear Mr. O'Neill and Ms. Heaps,

Thank you for providing an overview of your Resilience Plan, and informing DCR of the various plans that the City of Hampton will be utilizing to fulfill the Resilience Plan submission requirements. After careful review and consideration, the Virginia Department of Conservation and Recreation has deemed the Plan complete and meets all the criteria outlined in the June 2021 Community Flood Preparedness Grant Manual. This approval will remain in effect for a period of three years, ending on September 3, 2024.

The following elements were evaluated as part of this review:

1. **Element 1: It is project-based with projects focused on flood control and resilience. DCR RESPONSE**

   Meets criteria as written.

   a. Project-based: *The Resilient Hampton Newmarket Creek Pilot Project Area Water Plan* outlines resilience projects located within the Newmarket Creek watershed and aligns itself with the strategies present within *Living with Water Hampton: A Holistic Approach to Addressing Sea Level Rise and Resiliency*. Additionally, successful projects implemented under this program will be adapted within other watersheds. Also, the *Hampton Roads Regional Hazard Mitigation Plan* outlines several mitigation projects designed to mitigate flooding on both a regional and local level.

2. **Element 2: It incorporates nature-based infrastructure to the maximum extent possible. DCR RESPONSE**

Meets criteria as written.

a. Natural and nature-based flood management measures are identified for use in projects throughout the city in *Living with Water Hampton: A Holistic Approach to Addressing Sea Level Rise and Resiliency*. This also aligns with the nature based solutions that are proposed within *The Resilient Hampton Newmarket Creek Pilot Project Area Water Plan*.

3. **Element 3: It includes considerations of all parts of a locality regardless of socioeconomics or race. DCR RESPONSE**

Meets criteria as written.

a. All parts of a locality: The *Hampton Roads Regional Hazard Mitigation Plan* discusses the demographic and economic trends in and around the City of Hampton. *The Hampton Community Plan's* Section VIII includes discussion of the economic makeup of various neighborhoods in the city, as well as the characteristics of their built environments, i.e. commercial structures and housing stock. Plan Section IV, HN Policy 18 identifies a policy of promoting "the construction of resilient housing and neighborhoods, and focus on the unique needs of each community."

b. Social vulnerability: Equitable goals outlined within *The Resilient Hampton Newmarket Creek Pilot Project Area Water Plan*. Social vulnerability index utilized within both *The Resilient Hampton Newmarket Creek Pilot Project Area Water Plan* as well as *Living with Water Hampton: A Holistic Approach to Addressing Sea Level Rise and Resiliency*, and social vulnerability evaluated within the *Hampton Roads Regional Hazard Mitigation Plan*. One of the eight values for addressing resiliency is "Prioritizing strategies that create benefits for all, and strengthening marginalized sectors of the community" as identified within *Living with Water Hampton: A Holistic Approach to Addressing Sea Level Rise and Resiliency*.

c. Demographic Analysis: Population and demographic characteristics outlined within the *Hampton Roads Regional Hazard Mitigation Plan*.

4. **Element 4: It includes coordination with other local and inter-jurisdictional projects, plans, and activities and has a clearly articulated timeline or phasing for plan implementation. DCR RESPONSE**

Meets criteria as written.

a. Coordination with other local and inter-jurisdictional projects, plans and activities: The *Hampton Community Plan* was adopted by the City Council, Planning Commission, and the City Manager. The *Hampton Roads Regional Hazard Mitigation Plan* was adopted by all impacted localities.

b. Clearly articulated timeline or phasing plan for implementation: Phased plans proposed within the *Hampton Community Plan* and *Living with Water Hampton: A Holistic Approach*

to Addressing Sea Level Rise and Resiliency. A clearly phased plan is provided for *The Resilient Hampton Newmarket Creek Pilot Project Area Water Plan* that aligns with the phases present within the *Living with Water Hampton: A Holistic Approach to Addressing Sea Level Rise and Resiliency* plan.

5. **Element 5: Is based on the best available science, and incorporates climate change, sea level rise, storm surge (where appropriate), and current flood maps.**

   Meets criteria as written.

   a. The *Living with Water Hampton: A Holistic Approach to Addressing Sea Level Rise and Resiliency* incorporates best available science to determine the flooding challenges that impact the City of Hampton with its primary focus on Sea Level Rise. However, this plan also looks at climate change, subsidence issues, storm surge, and recurrent flooding events. Hampton is partnering with other agencies such as the NASA Langley Research Center to data share and access the best available data. The *Hampton Community Plan* includes the incorporation of projected sea level rise and storm surge along with current FEMA floodplain maps. The *Hampton Roads Regional Hazard Mitigation Plan* includes analyses of natural hazards based on best available science to include flooding, sea level rise and land subsidence, tropical and coastal storms, and shoreline erosion.

VA DCR looks forward to working with you as you work to make the City of Hampton a more resilient community. If you have questions or need additional assistance, please contact us at cfpf@dcr.virginia.gov. Again, thank you for your interest in the Community Flood Preparedness Fund.

Sincerely,

Wendy Howard Cooper, Director
Dam Safety and Floodplain Management

cc: Darryl M. Glover, DCR

HAMPTON VA

Virginia Department of Conservation and Recreation
Virginia Community Flood Preparedness Fund Grant Program
600 E Main St #24
Richmond, VA 23219

To whom it may concern:

The enclosed documents represent the City of Hampton's Resilience Plan under the criteria set forth by the Commonwealth of Virginia's Department of Conservation and Recreation in the 2021 Grant Manual for the Virginia Community Flood Preparedness Fund.

Over the past decade, the City of Hampton has embarked on a community-wide effort to holistically address flooding through its plans and projects. In the past five years, this effort has grown into the Living with Water priority area established by the City, which includes the Resilient Hampton Initiative. Hampton has embraced a vision to live with water sustainably, built upon methods of nature-based water management which treat water as an asset. We aim to address the chronic stresses and extreme events of flooding while improving residents' quality of life, economic vitality, and environmental health.

Our City's vision and plans for a resilient future are explained in the following documents, which have been embraced by City Council.

- ***Living with Water Hampton: A Holistic Approach to Addressing Sea Level Rise and Resiliency.*** This city-wide plan was endorsed by City Council on January 24, 2018. It presents the challenge of flooding in Hampton based on the best available science; outlines Hampton's community-driven principles, values, and goals for resilience, including a commitment to equity; outlines place-based analysis and strategies grounded in nature-based infrastructure; and identifies next steps for Hampton's resilience work.
- ***Hampton Community Plan.*** Hampton's comprehensive plan was formally amended to incorporate resilience on July 11, 2018. Changes were made to the plan's vision and goals, land use, and environmental stewardship sections. The amendment added resilience goals and policies to guide development and land use decisions, and maps depicting storm surge, projected sea level rise, and FEMA floodplain areas.
- ***Resilient Hampton Newmarket Creek Pilot Project Area Water Plan.*** The Newmarket Creek water plan was endorsed by City Council on January 22, 2020. This document presents resilience projects for the communities in the Newmarket Creek watershed that are grounded in the principles, vision, and goals for resilience identified in the Living with Water plan. The projects

identified in this plan will serve as pilots for the entire city as Hampton moves forward with watershed level resilience plans city-wide. Successful projects will be adapted and replicated in other watersheds.

- ***Hampton Roads Regional Hazard Mitigation Plan.*** The 2017 Hampton Roads Hazard Mitigation Plan and Appendices were adopted by the City on February 22, 2017. The 2017 update included analysis of natural hazards including flooding, sea level rise and land subsidence, tropical and coastal storms, and shoreline erosion. The plan identifies projects at the regional and local scale to mitigate flooding impacts, including acquisition of at-risk properties.

These documents identify strategies and projects throughout our City which address current and future anticipated challenges from tidal flooding, storm surge, and stormwater for all. They have served as the blueprint for project design and City investment, and will continue to direct our decisions for flood mitigation and community-wide, equitable adaptation to climate change.

Hampton and the Hampton Roads region face great challenges in addressing flooding as the impacts of climate change are felt more intensely. The Virginia Community Flood Preparedness Fund can help Hampton to implement our resilience plans by continuing to adapt as a community. Should you have any questions regarding our Resilience Plan submission, please do not hesitate to contact us.

Sincerely,

Terry O'Neill
Director, Community Development Department
City of Hampton
toneill@hampton.gov | (757) 728-5230

Carolyn Heaps
Resiliency Officer
City of Hampton
carolyn.heaps@hampton.gov | (757) 728-5221