

Master Plan Development for Citywide Stormwater Management, Floodplain Management, and Resilience & Climate Change Management

November 5, 2021

Prepared for:



Virginia Resources Authority
1111 East Main Street, Suite 1920
Richmond, Virginia 23219



Virginia Department of Conservation and Recreation
Division of Dam Safety and Floodplain Management
600 East Main Street, 24th Floor
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Prepared by:



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1. Grant Application Information

This Virginia Community Flood Preparedness Fund (CFPF) grant application is being submitted by the City of Newport News, Virginia. Completed copies of the CFPF grant application form (**Attachment 1**) and Capacity Building/Planning Scoring Sheet (**Attachment 2**) are provided. The completion of this project will result in a comprehensive planning effort that meets the Resilience Plan criteria outlined in the CFPF Grant Manual, as follows:

- It is project-based with projects focused on flood control and resilience,
- It incorporates nature-based infrastructure to the maximum extent possible,
- It includes considerations of all parts of a local government regardless of socioeconomic status or race,
- It includes coordination with other local and inter-jurisdictional projects, plans, and activities and has a clearly articulated timeline or phasing for plan implementation, and
- It is based on the best available science, and incorporates climate change, sea-level rise, and storm surge (where appropriate), and current flood maps.

Newport News seeks to develop three interdependent, complementary master plans that will constitute a framework for implementing coordinated, cost-effective projects and programs aimed at reducing the levels of flood damages its citizens have increasingly endured over recent decades. This goal is ambitious but appropriately formulated to manage risk, losses, capital outlays, and future threats. The need for the plans is based on a keen awareness of the loads imposed on aging infrastructure by climate change and sea-level rise.

Considerable emphasis will be placed on prioritizing hazard mitigation activities that use nature-based solutions to reduce flood risk, as noted repeatedly in the Scope of Work (**Attachment 4**). The project scores 350 points on the CFPF scoring sheet (**Attachment 2**)—the maximum possible for a locality in good standing with the National Flood Insurance Program (NFIP).

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2. Background

Newport News is a coastal plains city located on Virginia’s Lower Peninsula. It is approximately 26 miles long and less than a mile wide at its narrowest point. Topographic elevations range from sea level in the southeastern portion to 70 feet in the northwest, and the terrain is relatively flat. The City’s aging stormwater system presents substantial financial and logistical challenges, requiring increased inspections, maintenance, rehabilitation, and replacement over the next several decades. Concurrently, Newport News is experiencing increased localized flooding as a result of more frequent and intense storms. Long-term capital improvements implemented to address these issues require the consideration of sea-level rise, climate change resiliency, and shoreline best management. The new framework will help the City optimize its projects and programs to achieve a reasonable and appropriate level of resilience. It will systematically identify areas of concern and propose cost-effective fixes. Without an integrated set of master plans, improvements can be overly expensive, ill-timed, lacking focus, or done out of sequence.

Newport News proposes to utilize Virginia Community Flood Preparedness Fund (CFPF) grant monies to engage in comprehensive resiliency planning that will proactively address these issues. The City’s Comprehensive Plan, ***One City One Future Comprehensive Plan 2040***, outlined the need for subject matter experts to identify areas for protection and long-term investment to reduce the effects of sea-level rise and recurrent flooding. **These funds will assist the City in developing three independent, yet interdependent master plans—a Stormwater Management Master Plan, a Floodplain Management Plan, and a Climate Change and Resilience Master Plan—that combined will serve as the City’s local Resilience Plan in both the short term and over the next 20-years.**

These planning documents will be built using considerable City staff experience dealing with flooding and climate change issues and will engage citizens as valued resources. For fiscal year 2022, the City budgeted \$22.4M in operational expenses for stormwater and floodplain management while anticipating the need for an additional \$51.6M to fund capital stormwater and flood relief projects through 2025. In addition, the City intends to invest another \$84.2M in Community Development projects through 2025. Completing these complementary master plans will provide guidance and direction to identify and implement future projects necessary to address current localized flooding in a manner that also considers sea-level rise and climate change. These plans will maximize environmental and flood control benefits on a coordinated, equitable, and well-planned basis.

The City has a stormwater plan and floodplain plan, but they are 15- to 20-years old and in need of updates, and pieces of plans and studies—but not a detailed comprehensive plan, especially with a resilience focus.

The coordinated master plans will provide a citywide, project-based approach with grey and green infrastructure based on current and projected data. They will generate recommendations to improve or implement additional programs and projects necessary to protect everyone in the city, with a heightened focus on areas of high social vulnerability (**Figures 2 and 3**). They will build upon the City's ongoing and extensive planning and engineering efforts, including:

- City of Newport News Comprehensive Plan, *One City, One Future, Comprehensive Plan 2040*, <https://www.nnva.gov/1763/Comprehensive-Plan>,
- Hampton Roads Hazard Mitigation Plan (HRHMP), <https://www.hrpdcva.gov/uploads/docs/2017%20Hampton%20Roads%20Hazard%20Mitigation%20Plan%20Update%20FINAL.pdf>,
- Framework for Comprehensive Stormwater Management Program, 2020,
- Federal Government, Virginia and Newport News stormwater, floodplain, and Chesapeake Bay Preservation Area and wetland regulations, and associated guidance documents,
- Newport News Code of Ordinances Chapter 45 – Zoning Ordinance (includes the Floodplain Development Regulations) https://library.municode.com/va/newport_news/codes/code_of_ordinances?nodeId=CD_ORD_CH45Zoor_ARTXXXI_OVZODIRE_DIV2FLDERE
- Center for Coastal Resources Management City of Newport News locality portal,
- Area plans or studies that describe the City's land use and future development trends,
- Emergency evacuation plans,
- National Flood Insurance Community Rating System, 2017; amended 2021,
- City of Newport News Flood Protection Plan, 1999,
- Salters Creek/Peterson Yacht Basin Area Flood Protection Study, 1984,
- Southeast Community – Land Use Inventory, 1993,
- Salters Creek/Newmarket Creek Flood Reduction Strategies, 1980's,
- Master Drainage and Flood Control Plan, 1980's,
- Stormwater Task Force Report, 1999 (Hurricane Floyd response), and
- Tropical Storm Ernesto Stoney Run Stormwater Report, 2006

The City's 2018 Comprehensive Plan (**Figure 4**) recognizes the need to “Engage subject matter experts in identifying areas for protection and long-term investment to reduce the effects of sea-level rise and recurrent flooding.” Citizens are upset about the increasing frequency and severity of flood events, and the news media has heightened public awareness (**Figure 5**).

3. Planning Area

Located along the James River and the Hampton Roads bodies of water, Newport News has approximately 70 square miles of land, 2,883 acres of tidal wetlands, and 244 linear miles of tidal shoreline along 14 major creeks, rivers, and associated tributaries (**Figure 1**). With the update to the City's zoning ordinance to meet new Federal Emergency Management Agency requirements, approximately ten percent of the City's landmass lies within a Special Flood Hazard Area (SFHA). Two of the major watersheds, Newmarket Creek and Salters Creek, have current significant flooding issues and most areas along the remaining tributaries experience periodic flooding. **Attachment 3** lists the City's FEMA Flood Insurance Rate Map panels. There are currently 1,853 flood insurance policies in the City, with 266 repetitive loss buildings. The City's extensive drainage network includes approximately 3,000 structures, 200 miles of storm sewer, 60 stormwater management facilities, 60 miles of major ditches, 50 miles of roadside ditches, and 53 miles of back and side lot ditches. Conveyances range from 12-inch-diameter driveway culverts up to 73-foot-wide open channels that discharge into tidally influenced water bodies.

24.6 percent of the City's population residing outside of federal Joint Base Langley-Eustis (Census Tract 323) are designated to have either a very high or high social vulnerability, with almost two-thirds of City residents having a moderate or higher social

vulnerability. Virginia Vulnerability Viewer Social Vulnerability Classification and Index Score maps for the City are shown in **Figures 2** and **Figure 3**, respectively.

The City recognizes the urgency to manage stormwater systems and floodplains with an eye towards resilience and climate change. The Newport News Comprehensive Plan highlights these concerns and plots out a strategic objective to “ensure that Newport News has the capacity to maintain or regain functionality and vitality following natural, climate-induced, or manmade stressors or disturbances” by developing strategies and plans. The specific ‘stressors’ identified in need of attention include:

- The establishment of investment priorities to improve long-term resilience as sea-level rise modeling and analyses are completed,
- The continued combat against shoreline erosion that results from high water waves and wind during severe storms,
- The garnering of greater understanding on how critical infrastructure may be impacted by climate change and determine whether revisions to existing policies are needed,
- The need to evaluate projects to alleviate both overbank and tidal flooding to not only protect private investment but also to ensure linkage to the public infrastructure necessary to survive,
- The identification of opportunities for redevelopment and infill development to meet future demand while protecting limited open space,
- The integration of greenway corridor plans to protect stream corridors and water quality, as well as provide additional opportunities for passive recreation, and
- The need to reduce extreme and nuisance flooding due to increasing high-intensity storms.

4. Scope of Work Narrative

In October 2020, Virginia Governor Ralph Northam released the *Virginia Coastal Resilience Planning Framework* guiding coastal communities, such as Newport News, to develop and implement resilience programs and efforts to address changes due to climate change.

Newport News has never undertaken such a thorough, comprehensive look at stormwater management, floodplain management, and resilience combined. City staff is fully engaged, and the City does not have additional in-house personnel, technical resources, and technical expertise available to develop these plans. Therefore, the project approach will use outside professionals experienced in stormwater management, community engagement, watershed planning, coastal flooding, sea-level rise, resilience, computer modeling, funding, and engineering to develop the master plans. City officials will use input from these professionals and community stakeholders to shape the deliverables. The City will direct and manage the effort and help develop recommendations for programs and projects. City staff and management will utilize the results of the stormwater rate analysis, ordinance reviews, system condition assessments, maintenance reviews, community feedback, design requirement recommendations, and capital project recommendations to align the City’s implementation efforts with the anticipated needs.

In anticipation of the funding opportunity afforded by the CFPF grant program and recognizing the need to move forward, the City published Request for Proposal No. 21-3182-2031 (RFP) on April 20, 2021—adhering to the Virginia Public Procurement Act—to begin the consultant selection process. This RFP included the most comprehensive and detailed Scope of Work ever issued by the City for these types of services. **Attachment 4** contains the entire scope. **Attachment 5** lays out the draft three-year project schedule in a Gantt chart, and **Attachment 6** provides a detailed draft budget estimate with scoping assumptions and itemized deliverables.

The estimated 36,000 labor hours needed to complete these tasks will produce scores of technical memos, tool kits, SWMM models, GIS files, and individual and citywide watershed management plans based on current conditions and anticipated future forecasts. The extensive tools developed during this planning effort will then be utilized to produce the master plans to serve as the City’s Resilience Plan. The ultimate goal is to provide the City with a long-term, cohesive framework to manage stormwater runoff, floodplains, and resilience and climate change for the next 20 years. The project deliverables will include:

- A library of prioritized conceptual plans which the City will use in long-term capital planning,
- A list of both programs and locations conducive to the use of green infrastructure to address stormwater issues,

- Long-term financial planning to ensure necessary resources in program implementation,
- A phased schedule prioritizing capital expenses based on short-term, long-term, and 20-year goals,
- Interdependent, yet also individual master plans for stormwater management, floodplain management, and climate change and resilience,
- Analysis of current and anticipated land use and development trends,
- An enhanced City GIS inductive to remaining a robust tool in future implementation efforts,
- Draft stormwater, floodplain, and resilience ordinances that incorporate necessary changes to implement the master planning effort,
- A public education and outreach toolbox and stakeholder advisory group,
- A plan for adaptation strategies to address racial and economic injustices to be integrated into project and program decision making, and
- Assistance in alternative funding preparation as warranted.

The regulatory environment, political climate, technology, and engineering approaches continue to evolve to address these challenges. The formation of master plans as “living documents” rather than static blueprints will ensure that they continue to be useful while anticipating revisions and updates that may become necessary due to implementation barriers, changes in local conditions, changes in stakeholder preferences, or modifications in City, State, or federal regulations. The establishment of a stakeholder advisory group will ensure that diverse interests continue to have input on decisions, future revisions, and updates for the City’s stormwater, floodplain, and resilience plans in the future.

5. Community Engagement and Involvement

Recognizing the importance of community engagement and support necessary for the successful long-term implementation of the master plans, the City’s strategy for outreach and education will involve an integrated community engagement plan. The integrated community engagement plan will utilize the stakeholder process to expand the community’s awareness of the engagement process, manage the communications from and to the community at large, and help develop content integral to the public engagement efforts and identified goals. Stakeholder interviews, visioning workshops, and web-based surveys will be utilized to organize priorities and develop a comprehensive program that reflects the plans and projects desired by the community that they will serve.

Community engagement will involve the project team going into the community rather than the community having to come to the project team.

Community outreach efforts will use not only social media and virtual platforms compliant with CDC social distancing recommendations but will also extend to meet people where they live. The City will leverage the existing trust between the selected public relations consultant and citizens to ensure environmental justice. The integrated community engagement plan will identify and seek the support of community influencers—including citizens in civic, social, environmental, educational, business, and military organizations—to be ambassadors for the master plans and work to provide information to their constituents through their personal communications platforms, such as Facebook, LinkedIn, and e-newsletters.

During the development of these master plans, public engagement—including stakeholder interviews, outreach, public meetings, education, community feedback, expectation management, and environmental justice—will be approached in a straightforward, well-organized, and cohesive process. Given the scale of community engagement envisioned for this project, the City will draw upon consultants specializing in public engagement, outreach, and education and have substantial expertise in developing facilitated and interactive strategies. The consultants will collaborate with the City’s marketing and communications staff to leverage platforms already utilized, such as Flickr, Instagram, Nextdoor, Newport News Now newsletter, RSS Feeds, Snapchat, Twitter, YouTube, NNTV, and Newport News Live and On Demand Video Streaming.

6. Project Management and Execution

This project will be led by Kathie Angle, PE, CFM, with the City of Newport News Department of Engineering. The Department of Engineering will provide active, hands-on leadership throughout the 36-month process and manage and direct the selected consultants.

The City is currently working through the consultant procurement process. Through the professional services selection guidelines outlined in the Virginia Public Procurement Act, Newport News has selected a team of highly qualified and experienced consultants led by GKY & Associates, Inc. **As of November 5, 2021, the City has not negotiated fees or signed any agreements.** The consultant selection process was initiated in anticipation of receiving CFPF grant funding for this project and has been timed to avoid delays once funding is in place.

The consultant team includes:

- **GKY & Associates, Inc.**, a Virginia SWaM professional services firm currently providing subconsulting services in support of the Virginia Coastal Resilience Master Plan (led by Dewberry). The consultant team will be managed by John Paine, PE, PH, CFM.
- **Dewberry**, an industry leader in floodplain management, resilience engineering, and climate change planning, currently preparing Virginia's Coastal Resilience Master Plan and performing similar resilience planning work for the City of Virginia Beach.
- **ATCS, PLC**, a technically diverse Newport News firm with significant experience conducting municipal infrastructure condition assessments and inventories throughout the Hampton Roads region.
- **Cornwell Engineering Group**, a Newport News professional engineering firm skilled and experienced with the inner workings of the Newport News government framework.
- **The Miles Agency**, a 100% minority- and woman-owned and SWaM-certified Virginia firm specializing in community outreach, multicultural marketing, and the development of public involvement plans designed to maintain open communications and transparency for projects or studies. The Miles Agency is providing community engagement services for Dewberry in support of the Virginia Coastal Resilience Master Plans.

7. Proposed Budget

The anticipated budget for this 36-month project totals **\$5,473,402.00**. With the submission of this grant application, the City seeks financial assistance totaling **\$4,105,051.50** from the Virginia CFPF to complete this master plan development project for Citywide Stormwater Management, Floodplain Management, and Resilience & Climate Change Management. This request represents a 75% Fund / 25% Match for assistance with Capacity Building and Planning, as defined in the CFPF grant manual.

Over the three-year life of this contract, this budget would fund between 5 and 6 full-time equivalents (FTEs) to complete the three master plans—roughly less than 2 FTEs per plan.

Estimated project costs are provided in **Attachment 6**. The City will utilize revenue collected through its stormwater utility, currently set at a monthly charge of \$147 per equivalent residential unit, to meet its cost-share requirements. City Manager, Cynthia D. Rohlf, has authorized submitting this application to obtain a CFPF grant (**Attachment 7**).

The City Manager's recommended FY 2023 Capital Improvement Projects Budget (excerpted in **Attachment 8**) included \$6,500,000 for the master plans. Of the \$6,500,000 budget, \$4,000,000 was anticipated from grant sources.



Figure 1. Newport News, Virginia Location Map

Virginia Vulnerability Viewer

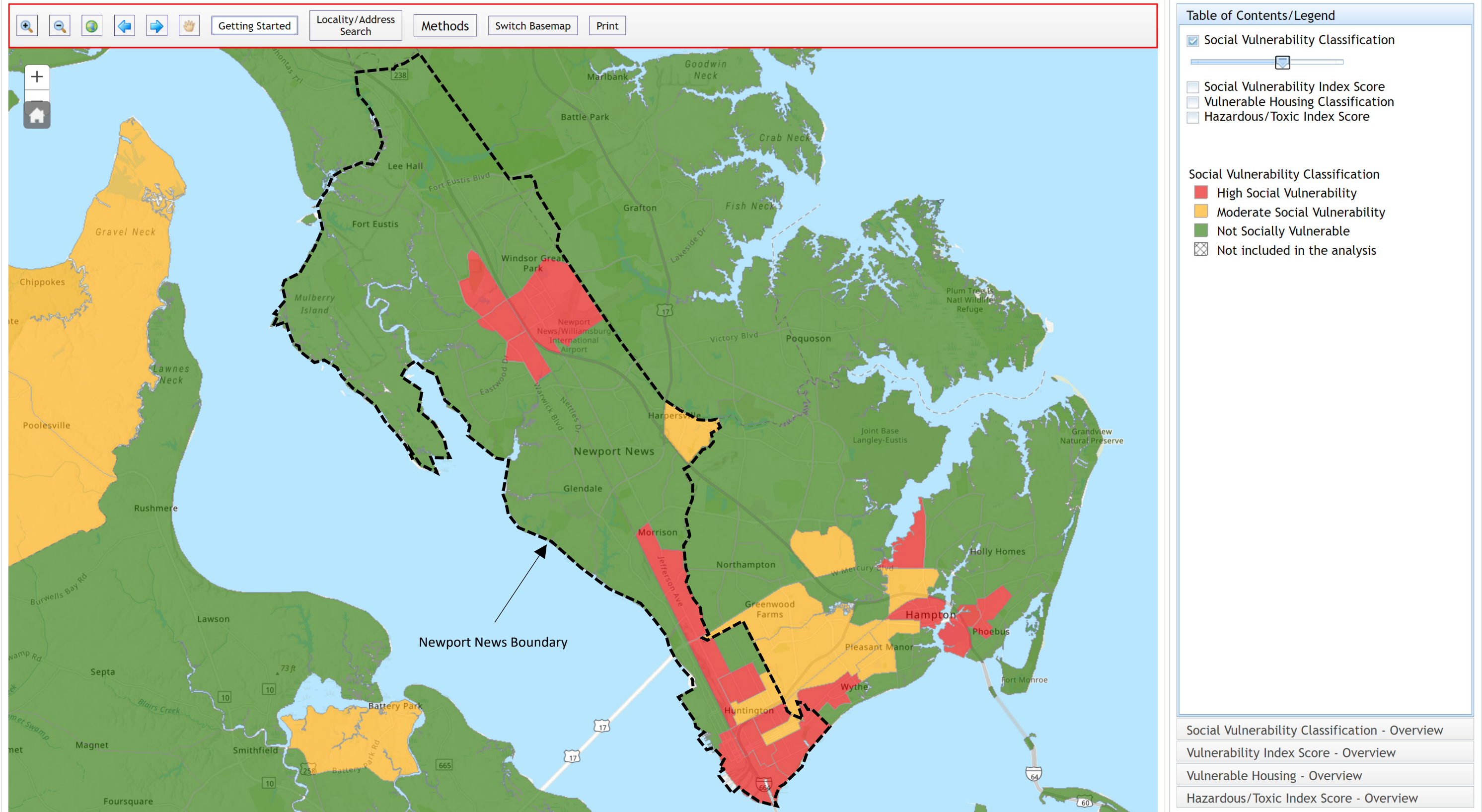


Figure 2. Newport News Social Vulnerability Classification

Virginia Vulnerability Viewer

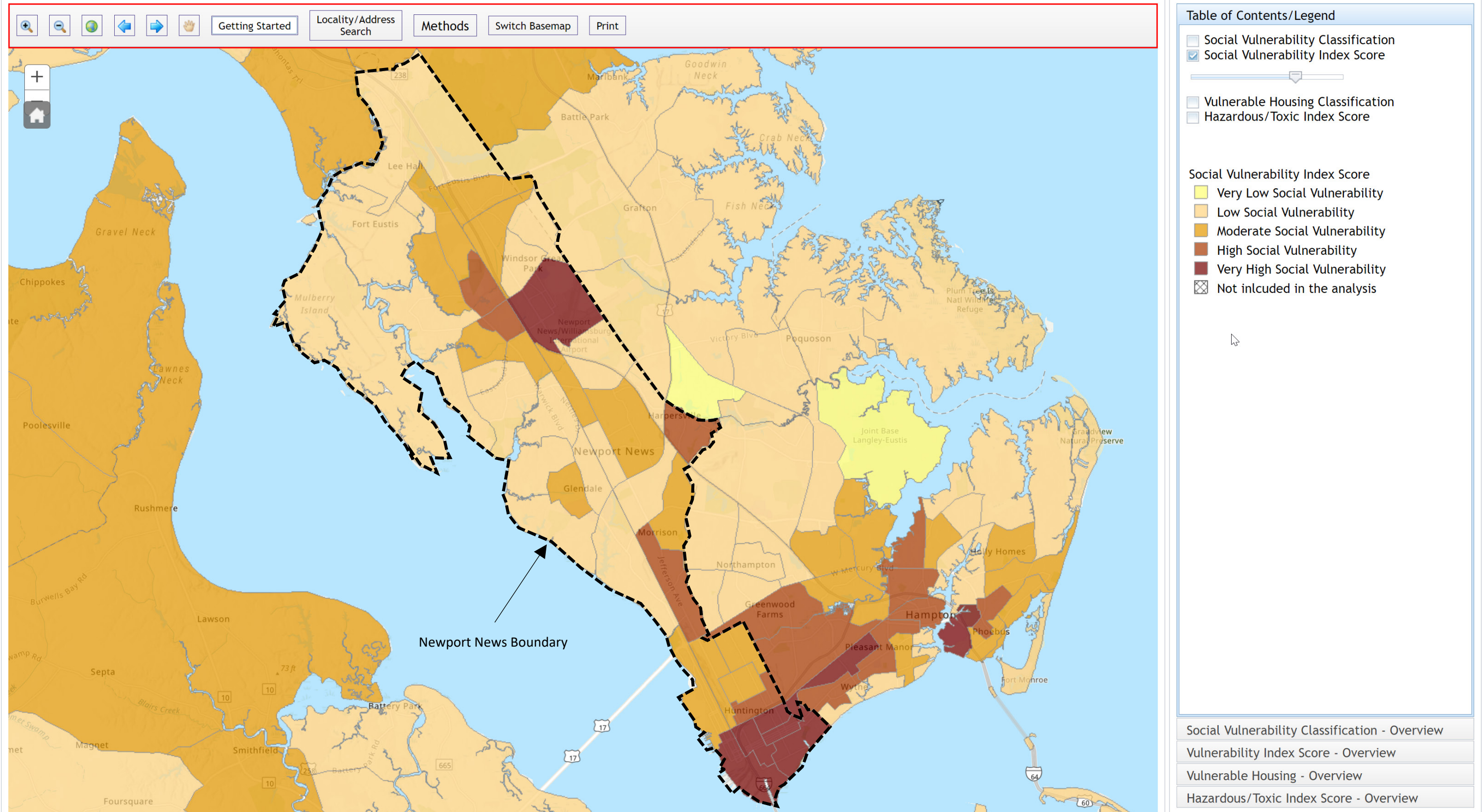


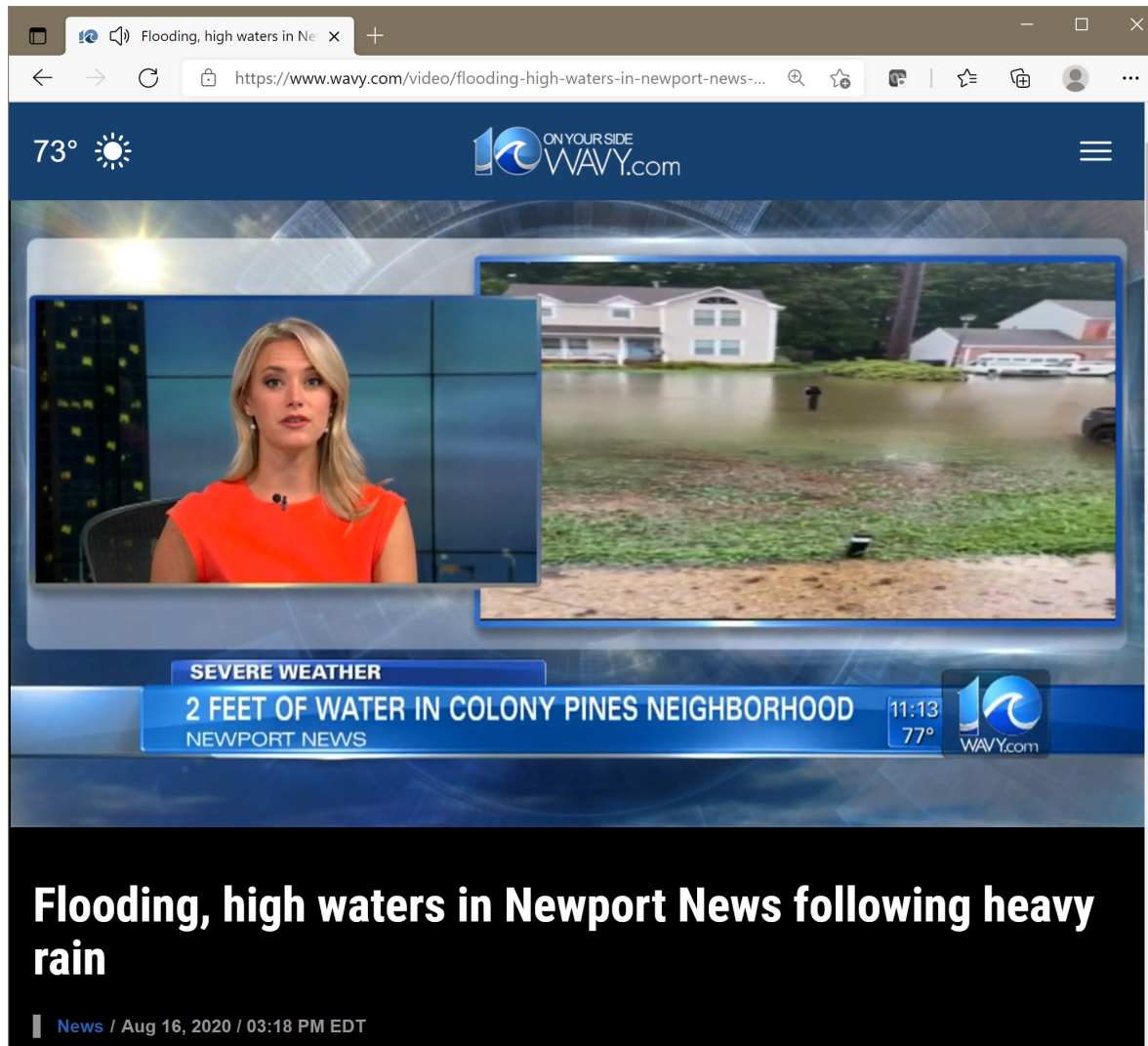
Figure 3. Newport News Social Vulnerability Index Score



The City's 2018 Comprehensive Plan recognizes the need to "Engage subject matter experts in identifying areas for protection and long-term investment to reduce the effects of sea-level rise and recurrent flooding"

<https://www.nnva.gov/DocumentCenter/View/18190/Comprehensive-Plan-Final-Adopted>

Figure 4. Newport News One City, One Future Comprehensive Plan 2040



Increasingly routine heavy downpours produce flooding that draws media attention. An August 15, 2020, storm flooded the Colony Pines neighborhood with two feet of flooding over the roadway and drew anger from residents who have experienced property losses repeatedly.

Figure 5. Flooding in the News Media

Grant Application

**Master Plan Development for Citywide
Stormwater Management, Floodplain Management, and
Resilience & Climate Change Management**

Attachment 1
CFPF Grant Application Form

Appendix A: Application Form for Grant Requests for All Categories

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

Name of Local Government:
City of Newport News, Virginia

Category of Grant Being Applied for (check one):

Capacity Building/Planning

Project

Study

NFIP/DCR Community Identification Number (CID) 510103

If a state or federally recognized Indian tribe, Name of tribe N/A

Name of Authorized Official: Kathie K. Angle, PE, CFM

Signature of Authorized Official: 

Mailing Address (1): 2400 Washington Avenue

Mailing Address (2): Department of Engineering (7th Floor)

City: Newport News **State:** VA **Zip:** 23607

Telephone Number: (757) 926-8655 **Cell Phone Number:** ()

Email Address: anglekk@nnva.gov

Contact Person (If different from authorized official): Same as Authorized Official

Mailing Address (1): _____

Mailing Address (2): _____

City: _____ State: _____ Zip: _____

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

Email Address: _____

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

Categories (select applicable project):

Project Grants (Check All that Apply)

- Acquisition of property (or interests therein) and/or structures for purposes of allowing floodwater inundation, strategic retreat of existing land uses from areas vulnerable to flooding; the conservation or enhancement of natural flood resilience resources; or acquisition of structures, provided the acquired property will be protected in perpetuity from further development.
- Wetland restoration.
- Floodplain restoration.
- Construction of swales and settling ponds.
- Living shorelines and vegetated buffers.
- Structural floodwalls, levees, berms, flood gates, structural conveyances.
- Storm water system upgrades.
- Medium and large scale Low Impact Development (LID) in urban areas.
- Permanent conservation of undeveloped lands identified as having flood resilience value by *ConserveVirginia* Floodplain and Flooding Resilience layer or a similar data driven analytic tool.
- Dam restoration or removal.
- Stream bank restoration or stabilization.
- Restoration of floodplains to natural and beneficial function.
- Developing flood warning and response systems, which may include gauge installation, to notify residents of potential emergency flooding events.

Study Grants (Check All that Apply)

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

Capacity Building and Planning Grants

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

Location of Project (Include Maps): See Figure 1. Newport News, VA (Lat. 36.985, Long. -76.399)

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

F 510103

Is Project Located in an NFIP Participating Community? Yes No

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

Flood Zone(s) (If Applicable): A, AE, D, AO, VE, X

Flood Insurance Rate Map Number(s) (If Applicable): See Attachment 3

Total Cost of Project: \$5,473,402.00

Total Amount Requested (75%) \$4,105,051.50

Grant Application

**Master Plan Development for Citywide
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**Attachment 2
CFPF Scoring Sheet**

Appendix D: Scoring Criteria for Capacity Building & Planning

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

Applicant Name:	City of Newport News	
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	✓
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	
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	N/A
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	✓
5. Has the applicant provided evidence of an ability to provide the required matching funds?		
Yes	Eligible for consideration	✓
No	Not eligible for consideration	
N/A	Match not required	

Checklist All Categories | 3-D

Capacity Building and Planning Eligible for Consideration		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Applicant Name:	City of Newport News		
Scoring Information			
Criterion	Point Value	Points Awarded	
6. Eligible Capacity Building and Planning Activities (Select all that apply)			
Revisions to existing resilience plans and modifications to existing comprehensive and hazard mitigation plans.	55	55	
Development of a new resilience plan.	55	55	
Resource assessments, planning, strategies and development.	45	45	
Policy management and/or development.	40	40	
Stakeholder engagement and strategies.	25	25	
Goal planning, implementation and evaluation.	25	25	
Long term maintenance strategy.	25	25	
Other proposals that will significantly improve protection from flooding on a statewide or regional basis.	15	15	
7. Is the area within the local government to which the grant is targeted socially vulnerable? (Based on ADAPT VA's Social Vulnerability Index Score.)			
Very High Social Vulnerability (More than 1.5)	15	15	
High Social Vulnerability (1.0 to 1.5)	12	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 activity 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. Does this project provide "community scale" benefits?			
Yes	20	20	
No			
Total Points		350	

Checklist All Categories | 3-D

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)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A
FIRMette of the project area(s) (Projects/Studies)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A
Historic flood damage data and/or images (Projects/Studies)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A
A link to or a copy of the current floodplain ordinance	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A See Narrative Section 2
Non-Fund financed maintenance and management plan for project extending a minimum of 5 years from project close	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A
A link to or a copy of the current hazard mitigation plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A See Narrative Section 2
A link to or a copy of the current comprehensive plan	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A See Narrative Section 2
Social vulnerability index score(s) for the project area from ADAPT VA's Virginia Vulnerability Viewer	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
If applicant is not a town, city, or county, letters of support from affected communities	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A
Completed Scoring Criteria Sheet in Appendix B, C, or D	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Budget Narrative	
Supporting Documentation	Included
Authorization to request funding from the Fund from governing body or chief executive of the local government	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Signed pledge agreement from each contributing organization	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A

Grant Application

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Attachment 3

**FEMA Flood Insurance Rate Maps
(FIRMs)**

Newport News Flood Insurance Rate Maps may be downloaded directly from
<https://msc.fema.gov/portal/availabilitySearch?addcommunity=510103&communityName=NEWPORT%20NEWS,%20CITY%20OF#searchresultsanchor>



MAP DATES

This FIRM Index displays the map date for each FIRM panel at the time that this index was printed. Because this index may not be distributed to unaffected communities in subsequent revisions, users may determine the current map date for each FIRM panel by visiting the FEMA Map Service Center website at <http://msc.fema.gov>, or by calling the FEMA Map Information eXchange (FIMX) at 1-877-336-2627.

Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM Index. These may be ordered directly from the Map Service Center at the number listed above.

NOTE TO USER

Future revisions to this FIRM Index will only be issued to communities that are located on FIRM panels being revised. This FIRM Index therefore remains valid for FIRM panels dated December 9, 2014, or earlier. Please refer to the "MOST RECENT FIRM PANEL DATE" column in the Listing of Communities table to determine the most recent FIRM Index date for each community.

MAP REPOSITORY

(Maps available for reference only, not for distribution.)

Department of Engineering
 2400 Washington Avenue
 Newport News, Virginia 23607

FIRM Panel Dates for Printed Panels of Newport News, Virginia (Independent City)					
Panel	Effective Date	Panel	Effective Date	Panel	Effective Date
5101030019D	December 9, 2014	5101030063D	December 9, 2014	5101030128D	December 9, 2014
5101030029D	December 9, 2014	5101030101D	December 9, 2014	5101030129D	December 9, 2014
5101030033D	December 9, 2014	5101030102D	December 9, 2014	5101030136D	December 9, 2014
5101030036D	December 9, 2014	5101030104D	December 9, 2014	5101030137D	December 9, 2014
5101030037D	December 9, 2014	5101030106D	December 9, 2014	5101030138D	December 9, 2014
5101030038D	December 9, 2014	5101030107D	December 9, 2014	5101030139D	December 9, 2014
5101030039D	December 9, 2014	5101030108D	December 9, 2014	5101030143D	December 9, 2014
5101030041D	December 9, 2014	5101030109D	December 9, 2014	5101030177D	December 9, 2014
5101030042D	December 9, 2014	5101030117D	December 9, 2014	5101030181D	December 9, 2014
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MAP INDEX


**FIRM
FLOOD INSURANCE RATE MAP**

**CITY OF
NEWPORT NEWS,
VIRGINIA
INDEPENDENT CITY**

MAP INDEX

PANELS PRINTED: 19, 29, 33, 36, 37, 38, 39, 41, 42, 43, 44, 63, 101, 102, 104, 106, 107, 108, 109, 117, 126, 127, 128, 129, 136, 137, 138, 139, 143, 177, 181, 182, 183

NATIONAL FLOOD INSURANCE PROGRAM



**MAP NUMBER
510103IND0A
MAP REVISED
DECEMBER 9, 2014**

Federal Emergency Management Agency
November 5, 2021

Grant Application

**Master Plan Development for Citywide
Stormwater Management, Floodplain Management, and
Resilience & Climate Change Management**

**Attachment 4
Project Scope of Work**

THE FOLLOWING SCOPE OF WORK IS INCLUDED IN NEWPORT NEWS RFP#21-3182-2031. SMALL DETAILS MAY CHANGE DURING CONTRACT NEGOTIATIONS.

3. **SCOPE OF WORK:** The professional services sought in this request include an assessment of the existing state of several components of the City’s stormwater management; public engagement; general inventory, documentation, and evaluation of infrastructure; analysis of ordinances and design manuals; and conceptual plan development with capital planning, cost estimating, and financial planning. Proposals should include additional action items that, in the opinion of the proposer, will help achieve the goals and intent of the tasks that are not listed in this RFP or the related documents. These should be clearly identified in the proposal.

TASK 1 – PROJECT MANAGEMENT

1A. Project Administration:

Consultant shall provide a Project Administration Plan to direct, coordinate, and monitor the activities of the project with respect to budget, schedule, and contractual obligations. The Plan shall be updated on a biweekly basis and submitted to the City for concurrence. Consultant shall select a Project Manager to direct, coordinate and monitor the activities of the project. The Project Manager will work closely with City staff, other agencies as needed, neighboring communities, and other stakeholders. This task includes coordination of meetings with staff, City Council, public/stakeholders, and any necessary support material.

1B. Meetings:

The Consultant team will conduct a kick-off meeting with City staff to define project goals, objectives, identify additional stakeholders and discuss outreach methods. Once the project is underway the consultant shall coordinate and host biweekly conference calls and/or meetings between the Consultant and City personnel to review project progress, discuss project challenges and findings, and confirm next steps. The frequency of the conference calls may be increased as needed. The consultant shall ensure that City personnel and Consultant team members maintain a shared understanding regarding study direction, objectives, and deliverables.

1C. Workshops:

The Consultant will lead workshops with City staff to discuss and develop the project deliverables during the data gathering and assessment tasks. The content of the deliverables should be compatible with other established community comprehensive plans and serve to help achieve multiple community benefits.

TASK 2 – DATA GATHERING

2A. Collect, Compile, and Evaluate Existing Data:

1. Consultant shall submit a list of information to be provided by the City. All data compiled shall be entered into a searchable sortable database that is compatible with the City’s existing IT systems.
2. *Available Studies, Plans, Reports, and Resources:*
 - Framework for Comprehensive Stormwater Management Program, 2020
 - Federal Government, Virginia and Newport News stormwater, floodplain, and Chesapeake Bay Preservation Area and wetland regulations, and associated guidance documents.
 - Newport News Code of Ordinances Chapter 45 – Zoning Ordinance
 - One City, One Future 2040 Comprehensive Plan
 - Center for Coastal Resources Management City of Newport News locality portal
 - Area plans or studies that describe the City’s land use and future development trends
 - Emergency evacuation plans
 - National Flood Insurance Community Rating System, 2017; amended 2021
 - City of Newport News Flood Protection Plan, 1999
 - Salters Creek/Peterson Yacht Basin Area Flood Protection Study, 1984

- Southeast Community – Land Use Inventory, 1993
- HRPDC Hazard Mitigation Plan
- Salters Creek/Newmarket Creek Flood Reduction Strategies, 1980's
- Master Drainage and Flood Control Plan, 1980's
- Stormwater Task Force Report, 1999 (Hurricane Floyd response)
- Tropical Storm Ernesto Stoney Run Stormwater Report, 2006

2B. **Stakeholder Interviews:**

Hold meetings and interviews with representatives of all relevant City departments, stakeholders, and other organizations to capture the history of stormwater management issues, floodplain issues, climate change issues, and each group's needs and wants.

2C. **Outreach:**

The Consultant team shall develop and an outreach program seeking input on stormwater, floodplain, and climate change issues to gain knowledge of citizen and community issues within the City. The consultant must be able to successfully translate technical information and be able to present it in a compelling way that engages the public. The project team will determine the best method to reach citizens and ensure a broad cross section of the community is reached. Additional methods for acquiring citizen concerns should be developed by the consultant for incorporation in this task.

2D. **Public Meetings:**

Consultant shall lead and coordinate Public Meetings to gather data. The consultant should plan for a minimum of six public meetings; in the southern, central and northern part of the City to gather information and one in the same area to disseminate information. All support materials for these public meetings will be prepared by the Consultant team. The public meetings should cover information for all three plans.

TASK 3 – ASSESSMENT

3A. **Assessment:**

For all data collected and included in each plan, the consultant should provide sufficient references to the data sources used so that the City will be able to verify, locate, and easily reuse the information.

1. *Stormwater Master Plan:*

The consultant shall use previous stormwater studies and stormwater management plans; data gathered in Task #2; historical data; citizen input; future land use and population projections; neighboring localities; and additional applicable information as needed.

a. **Watershed Management:**

Evaluate the drainage within each of the City's 25 individual watersheds, including system condition, known problem areas, future development constraints, potential improvements, etc... Identify and map deficiencies within each watershed.

b. **System Condition:**

The consultant shall assess the condition of the components of the City's stormwater system within each watershed using the data contained in the database created in Task 2A. A rating system shall be developed to apply to the City's stormwater systems that will be used to rank the infrastructure based on highest priority of replacement, repair, or maintenance. The rating system should provide scoring which includes:

- Need for increased capacity
- Maintenance requirements
- Deficiencies, such as number of repairs, condition, and years left in expected life cycle
- Existing access, need to acquire easements
- Amount of properties affected and degree affected
- Severity of issues
- Benefit to community
- Potential use of green infrastructure

- Potential for Low Impact Development (LID)
 - Impact on water quality
- c. **Asset Management:**
In combination with Item 1.b, using the City’s current inspection and maintenance management system and GIS inventory as a starting point, the Consultant will adapt an existing inspection software package or create a new program for tracking inspections and maintenance activities. This will include developing a map, identification system, and a database. The City’s stormwater collection systems will be labelled and separated into segments, such as stormwater management facilities, pipes, ditches, streams, natural channels, outlets, and manholes. The database should be designed for City personnel to use and update daily. The database and mapping should meet the requirements of NFIP CRS, section 540. Evaluate where maintenance plans and programs are needed or if existing, should be enhanced. Also include an evaluation of easements or acquisition required for installation and maintenance of the City’s storm infrastructure.
- d. **Stream Restorations, Retrofits, and Best Management Practices:**
Evaluate the City’s natural streams to assess areas of severe erosion and potential threat to structures, and recommend potential projects or programs to address. Identify existing stormwater management facilities that can be retrofitted to provide improved stormwater management and/or water quality. Identify potential projects to provide large water quality benefits, including Chesapeake Bay Program best management practices.
- e. **Stormwater Modeling:**
Determine watersheds or portions thereof where more detailed modeling is required. Define the limits and provide a narrative of the need for each model.
- g. **Impervious Area:**
Evaluate how the amount of impervious area effects runoff within the watersheds, including the accumulation of small additions made by property owners beyond design. Identify and quantify how impervious area limitations per land use type would benefit water quality and water quantity issues throughout the City, and provide recommendations for future development.
- h. **CSX:**
Evaluate the current stormwater infrastructure that is interconnected with the CSX railroad corridor drainage system. Identify areas where the drainage is negatively impacted by the features within the railroad right of way and areas for improvements. Map the areas and develop potential projects to address issues.
- i. **Future Growth:**
Using the growth and development patterns during the past ten years and the City’s comprehensive plan, determine the future implications for stormwater management. Evaluate how multiple design storms will impact future projected conditions in accordance with FEMA CRS section 450b. Recommend changes as needed to adapt and alleviate future problem areas. Evaluate if future development in some watersheds should have specific or more restrictive design standards.
- j. **Outreach and Education:**
Develop an education and information program to target citizen concerns such as where stormwater dollars are spent, what can be expected of the drainage system during normal and extreme storm events. Elements shall include a comparison of piping versus open ditches, debris removal, and issues fences, landscaping, and other obstructions can cause. Provide information for the City to upload to its website including additional narratives, resources, short videos, and links to resources. Include any additional educational topics and access to resources deemed advantageous.
2. ***Floodplain Management Plan:***
The consultant shall complete a detailed flood risk assessment which includes data collected in Task #2, hazard identification and analysis, and vulnerability assessment in accordance with FEMA’s floodplain management plan requirements. The risk assessment will provide background information and key technical data necessary to establish meaningful goals,

objectives and actions for the floodplain management plan. The Plan must also meet the requirements of the latest edition of the Grant Manual for the Virginia Community Preparedness Fund.

a. Hazard Identification and Analysis:

Using the data collected, the Consultant will prepare a flood hazard identification and analysis which will include:

- A description of known flood hazards, including the nature and cause of flooding, a description of historical flood events; and the location and extent of special flood hazard areas.
- Any unique flooding issues, as well as specific problem areas susceptible to flooding events will be identified, including those that may not be accurately delineated or classified on currently adopted and/or official FEMA Flood Insurance Rate Maps. Evaluate if current more accurate LIDAR may warrant additional areas being included in the SFHA.
- Areas of continual severe tidal flooding.
- An evaluation of the nuisance and recurring flooding areas outside the Special Flood Hazard Area, identified for the Stormwater or Climate Change plans will be evaluated to determine if conditions dictate that higher standards should be applied in those areas.

b. Repetitive Loss/Flood Insurance:

Using the City's repetitive loss information, develop a repetitive loss mitigation plan utilizing FEMA CRS section 510b. Prioritize mitigation measures that would benefit multiple properties through broader flood protection strategies. Evaluate the participation, and history, and value of past flood insurance claims and determine if measures can be developed to reduce damage claims and increase participation in the NFIP in accordance with NFIP CRS section 370.

c. Beneficial/Conservation Areas:

Identify areas that provide natural and beneficial functions such as wetlands, sensitive areas, and habitats for rare or endangered species. Identify existing conservation areas within the City easements and depict that information on a separate GIS layer. Evaluate and recommend where beneficial areas may be created or enhanced. Also evaluate resources to develop a natural floodplain functions plan to protect aquatic and riparian species in accordance with FEMA CRS section 510c.

d. Coastal Erosion and Natural Channel Protection:

Identify and map areas of the Newport News coastline that are experiencing erosion. Categorize the rate of erosion and graphically represent impacts on an individual GIS layer. Develop future impacts maps/GIS layers based on current rates for 20, 30, and 50 years. Recommend programs, regulations, and mitigation for these areas in accordance with FEMA CRS section 410f, 420c, and 430n. Identify potential sites for living shoreline restoration projects. Evaluate typical natural channel erosion issues throughout the City and recommend policies for protecting and minimizing impact of erosion on water quality as well as development in accordance with NFIP CRS 420h.

e. Vulnerability Assessment

The Consultant will conduct a vulnerability assessment to estimate the types and numbers of structures at risk to flooding.

- Flood hazard vulnerability will be described in terms of the number and dollar value exposure of at-risk structures based on an asset inventory that includes residential, commercial, industrial, government, educational and other buildings, as well as potential damage and disruption to key infrastructure, utilities, and critical facilities.
- The vulnerability assessment will include data on the results of a GIS-based flood hazard analysis, and will include information on the societal, economic and environmental impacts of flooding on the community. This includes a description of the number of people at risk to flooding as well as any considerations that should be made in terms of public health and safety.
- Identify at-risk critical facilities and infrastructure such as roads, utilities, etc... that

are critical to emergency actions and post disaster activities.

- Explore a plan for strategic retreat in necessary areas.

f. Future Growth:

The hazard identification and analysis will also include an evaluation of the growth and development patterns during the past ten years and the future implications for floodplain management. Future land use and development trends and their relationship to the probability and extent of future flood hazards in the project area should be described. Recommend constraints or regulations for future development.

g. Outreach and Education:

Evaluate existing floodplain educational materials and develop an educational program to explain the function of floodplains, the necessary requirements for development, and the effects of development. Include educational material concerning fences, fill, and additional structures in the floodplain. The benefits and functions of conservation areas and buffers should be explained as well. Improve the City's website with revised and additional narratives, resources, short videos, and links to resources. The outreach program should meet the requirements of FEMA CRS section 300, with the website requirements of section 350c. Include any additional educational topics and access to resources deemed advantageous.

3. *Climate Change and Resilience Master Plan:*

Assess vulnerability and risk to key infrastructure, coastal resources, and populations as a result of sea level rise and nuisance flooding, flooding from more frequent and intense storms, and other effects of climate change. Analyze existing studies and tools on climate change, including those from neighboring localities and regional entities, and methodologies described in the Virginia Coastal Resilience Planning Framework, dated October 2020 and forthcoming regulations. The Plan must also meet the requirements of the latest edition of the Grant Manual for the Virginia Community Preparedness Fund.

a. Sea Level Rise:

Evaluate sea level rise scenarios and methodology, in accordance with the Coastal Resilience Framework recommended intermediate-high curve: 1.5 feet by 2050, 3 feet by 2080, 4.5 feet by 2100. Determine impacts to existing problem areas, coastal infrastructure, beaches, coastal habitats, key coastal access points, transportation, utility infrastructure, critical facilities, homes, businesses, and parks vulnerable to inundation. Evaluate the effect of the state requirement to consider sea level rise when reviewing proposed development in tidal wetlands and Resource Protection Areas. Evaluate new accommodation, protection, and retreat strategies and assess current and future vulnerability and risk. Perform a cost and benefit analysis of each strategy. Provide descriptions of what is to be expected with each sea level rise milestone and ways for citizens to visualize the changes.

If applicable, use available/existing sea level rise GIS data as a basis to review, edit, and enhance the information to create GIS layers for the stated scenarios for the City's use for planning and citizen access. Revise the existing information to align with the most up to date LIDAR topography. Determine potential Chesapeake Bay Protection Area boundaries and approximate 100 year floodplain for each scenario. Develop depth of flooding GIS layers for each scenario.

b. Nuisance Flooding:

Identify and evaluate areas of nuisance and urban flooding to determine the severity of flooding and threat to property. Recommend actions to address recurring areas of nuisance flooding, and the cost/benefit of each action.

c. Design Storms:

Evaluate historical storm data, especially concerning more frequent and intense storms. Include rainfall information currently being studied by the state as it becomes available. Review measures and regulatory changes related to rainfall of neighboring localities and regional entities to determine if the City should institute higher design standards and/or

revise rainfall data. Quantify the cost benefit for higher standards versus potential damage from severe weather. D

- d. Storm Surge:
Analyze the current existing storm surge layers and information developed by government and regional organizations for each category of hurricane and determine the effects of each of the analysis periods of sea level rise and storm surge combined.
- e. Vulnerability
Identify critical assets/managers and determine adaptive capacity of those assets.
- f. Sustainable Programs:
Identify green and resilient programs or design requirements that would benefit communities and the City. Evaluate if green facilities could be incorporated on existing City property such as road medians, parks, or school properties, etc... Quantify how green design requirements on different types of City and private development would be beneficial. Identify locations for mature tree preservation and/or urban tree planting for Chesapeake Bay Preservation Act compliance and water quality/TMDL improvement.
- g. Future:
Evaluate existing and future conditions for each climate change category. Create future scenario GIS layers for each climate change category and identify the affected entities. Recommend constraints or regulations for future development.
- h. Outreach and Education:
Provide educational materials and resources to inform the public of the issues the City will face due to climate change, and the need and benefit of addressing those issues now. Include material on the increased storm activity versus the design capacity of the storm system, plus the constraints of topography, cost return, and feasibility. Discuss additional benefits of green infrastructure, such as improved air quality, heat reduction, and neighborhood beautification and amenities. Discuss what citizens can do to help. Provide information for the City's website with revised and additional narratives, short videos, resources, and links to resources. Include any additional educational topics and access to resources deemed advantageous.

3B. Community Feedback:

Compile and enter results from the citizen stormwater questionnaire(s), public meetings, and all data acquired during Task #2. Input into the project database to establish initial problem areas. Problem areas identified by the community will be combined with areas identified from the field data and other sources, and will be highlighted on a project base map.

3D. Evaluation of Ordinances:

Evaluate the City's current ordinances to identify items that should be revised and provide recommended changes.

1. Stormwater Master Plan:

Provide a comparison and evaluation of the current City Stormwater Management ordinance (Chapter 37.1-Stormwater Management) and applicable sections of the Site Plan ordinance (Appendix B-Subdivision Regulations) relative to other jurisdictions, current regulations, future regulations, and identified issues.

2. Floodplain Management Plan:

Provide a comparison and evaluation of the current City floodplain ordinance (Chapter 45, Article XXXI, Division 2 - Floodplain Development Regulations) relative to other jurisdictions, current regulations, future regulations and identified issues. Review the new section 9VAC25-830-155 for living shorelines and recommend its incorporation into the City's ordinances.

3. Climate Change and Resilience Master Plan:

Provide a comparison and evaluation of climate change and resilience ordinances of other jurisdictions, current regulations, future regulations, and identified issues. Explore policy changes or programs that would better enable the City to adapt to climate change. Determine if a percentage of each project or site developed should include a certain percentage of green infrastructure. Define what would qualify as green infrastructure and how this could be

incorporated into the City’s design standards. Determine if an ordinance or additional section of an existing ordinance is needed for the City.

3E. **Stormwater Utility Rate Analysis:**

In 1993, the City implemented a Stormwater Management Service Charge to fund the comprehensive stormwater management program, including capital project funding. Consultant shall review the current stormwater service fee and determine if the current funding plan is sufficient to meet the goals for all three Master Plans. If a rate change is recommended, the rate structure should ensure the stormwater utility is fully recovering the cost of providing stormwater management services, including maintenance operations and analysis of the following factors:

1. Current and future costs of providing stormwater management in accordance with established and anticipated standards and regulations.
2. Current and future costs of maintenance and operation of stormwater collection system.
3. Projected and current availability of capacity.
4. Current and future costs of floodplain management and improvement projects.
5. Current and future costs of resilience improvements and climate change adaptations.
6. Funding of current and proposed capital maintenance projects.
7. Impact of current and future environmental regulations.
8. Adequate reserves for depreciation, emergencies, catastrophes and other appropriate purposes.
9. Other impacts as identified.

3F. **Environmental Justice:**

Evaluate strategies to plan, implement, and support successful and lasting adaption strategies and programs that address racial and economic inequalities for all aspects of the City’s stormwater management program.

3G. **Advisory Committee:**

Work with the City to create an advisory committee for issues concerning stormwater, floodplain, and climate change. Determine the stakeholders who should be a part of such as group.

3H. **Alternative Funding:**

Evaluate additional funding sources, to include grant funding. Determine how much of the effort to prepare the three plans in this RFP can be funded by grants and determine what will be needed for the grant applications.

TASK 4 - DELIVERABLES

Provide three master plans which include all items evaluated and developed during the Task #3-Assessment; plus the goals, community engagement, and future land use trends information. Many components will overlap and compliment between plans. Reference when recommendations or findings from one plan will benefit efforts in another plan.

4A. **Capital Planning:**

Provide conceptual plans for each recommended project, program, or action in the form of project boundaries superimposed on aerial imagery for each proposed alternative, plus a narrative of each including cost/benefit information. The Consultant will present for review an evaluation of all conceptual capital projects, programs, and mitigation considering social justice, technical, administrative, political, legal, economic, environmental, and cost/benefit criteria. The ranking system shall be used to prioritize the projects, and should include severity of the deficiency, area of impact, public benefits, project scale, effected properties, cost, and other metrics that will be used by the City to prioritize the conceptual projects and develop an implementation strategy.

4B. **Sustainable Planning/Citywide Programs:**

Identify potential sites throughout the City where green or sustainable infrastructure could be incorporated to reduce stormwater issues. Provide for the location of recommended areas and a descriptive narrative to include benefits. Identify and recommend green, sustainable programs that can be initiated within communities or Citywide to address recurring issues and improve resiliency. Include recommended staffing and City departments to administer the programs.

4C. **Financial Planning:**

1. Prepare preliminary cost estimates for implementation of each alternative within each master plan.
2. Prepare preliminary projected cost estimates for operation & maintenance of existing and new infrastructure over a 20-yr period.
3. Create a proposed 20-yr budget including capital and maintenance items that is consistent with the established schedule.
4. Provide a 20-yr analysis of projected revenues using existing funding practices.
5. Compare revenues and planned and recommended expenditures to determine whether or not the current funding methods are sufficient.
6. Recommend additional methods of funding such as grants for specific projects.

4D. **Plan Timeline:**

Provide a short term and a long term, 20-yr, implementation schedule for the highest priority capital projects and programs for each master plan. Projects and programs that address items from more than one plan are encouraged.

4E. **Monitoring, Evaluation and Updating:**

1. Establish a process for regularly monitoring and evaluating the progress on the three management plans to ensure the goals and actions identified in the plan are still appropriate.
2. Provide for revisions and updates to the plans that may become necessary due to implementation barriers, changes in local conditions, changes in stakeholders, or modifications in City, State, and/or federal regulations. Regular updates to the Plan will ensure that it is timely and that the data is current.
3. Provide recommended stakeholders for an advisory group to ensure varied interests will have input on decisions, revisions, and updates.

4F. **Individual Plan Items:**

Include the following specific items listed for each plan:

1. *Stormwater Management Master Plan:*

a. Watershed Master Plans:

Develop a plan for each of the 25 individual watersheds within the City; and for the City as a whole. The plans shall encompass all the applicable items evaluated during the assessment task. The plan must provide an analysis of existing and future development on drainage throughout the watershed, and recommend a plan to address issues and consider the effect of future development. The plan should also include components necessary to meet the requirements of FEMA CRS Manual section 450.

b. Maintenance and Inspection:

Identify regular maintenance and inspection programs needed or changes to existing programs with specific guidelines for the work required. Using the current mapping, identification, and maintenance plans for the City's stormwater infrastructure and infrastructure mapping performed, develop a drainage system maintenance plan in accordance with FEMA CRS Manual section 540.

c. Provide results, plans, programs, and/or products for all tasks under Item 3A.1-Stormwater Master Plan.

2. *Floodplain Management Plan:*

a. NFIP / CRS Program Enhancement:

The Consultant will examine the City's current participation in the NFIP and make recommendations on how to enhance its NFIP compliance and improve its CRS rating. Within each appropriate master plan, provide the individual sub-plans identified under task 3 for use in the City's participation in the NFIP CRS program, as complete stand-alone plans if needed. Many items addressed by the three plans will also meet the requirements of the FEMA CRS program. Identify the location of the regulatory-required and/or CRS program elements of the plans. These items will be identified within the floodplain maintenance plan.

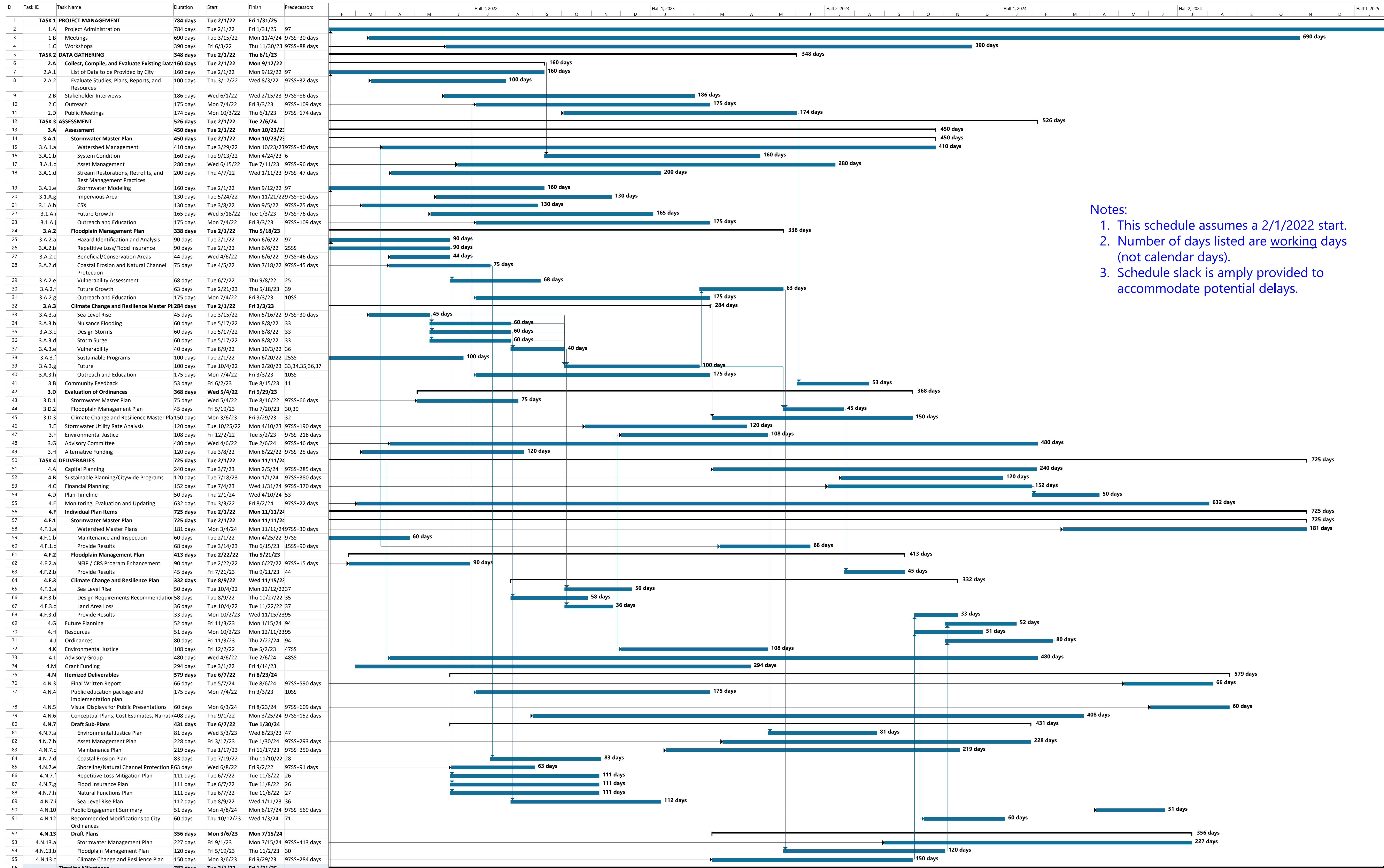
- b. Provide results, plans, programs, and/or products for all tasks under Item 3A.2-Floodplain Management Plan.
- 3. *Climate Change and Resilience Plan:*
 - a. Sea Level Rise:
Create layers for the City’s GIS the areas that will be impacted by the three scenarios-1.5 feet by 2050, 3 feet by 2080, and 4.5 feet by 2100.
 - b. Provide recommendations of design requirements for various development types, based on expected life cycle and climate changes.
 - c. Provide an estimated area of land that will be lost to sea level rise by each scenario, a strategy to adjust to changes, and potential resilient uses for that property.
 - d. Provide results, plans, programs, and/or products for all tasks under Item 3A.3-Climate Change and Resilience Master Plan.
- 4G. **Future Planning:**
Land uses and development trends within the City will also be examined so that mitigation options can be considered in future land use decisions. Post-disaster policies shall also be considered in terms of identifying those areas likely to be worst hit by a major event and determining possible preconceived strategies for rebuilding in a manner that is consistent with the goals and objectives of the master plans.
- 4H. **Resources:**
Ensure that the City’s GIS remains a robust tool for making informed long and short term decisions. Develop new or enhance existing GIS layers. Any information should be linked to each structure. The GIS database layers will be provided to the City for use once the Master Plans are complete. Assemble in a single place as appendices, all resources, codes, regulations, guidance, studies, etc... All this information in one easy to access location will assist departments and staff.
- 4I. **Outreach and Education:**
Develop brochures, mailings, digital information, and videos to publicize resources and educate the community. The materials should educate and provide resources to citizens. Improve the City’s website by developing website narratives, short videos, resources, or links, etc... for the City to add to its website.
- 4J. **Ordinances:**
Provide draft modifications of the changes necessary or recommended within the City’s ordinances, regulations, or other locally adopted plans to support the master plans, including recommended policy changes or higher standards. Cite the sources for recommended modifications.
- 4K. **Environmental Justice:**
Provide a plan for adaption strategies and programs that will address racial and economic inequalities for all aspects of the City’s stormwater management program.
- 4L. **Advisory Group:**
Provide recommended stakeholders for an advisory group to ensure varied interests will have input on decisions, revisions, and updates for the City’s stormwater, floodplain, and resilience plans in the future. If possible, assist the City with establishing the group during the plan development process to ensure the group is involved with the development of the plans.
- 4M. **Grant Funding:**
Prepare grant applications to acquire funding for the work performed through this RFP.
- 4N. **Itemized Deliverables:**
The consultant shall, at a minimum, provide the following deliverables. This list is not exclusive and any material deemed beneficial or necessary shall be included.
 1. **Key** deliverables should be available in both hard copy and electronic formats.
 2. Progress on tasks will be documented through interim reports, maps, drawings, and other presentation materials.
 3. A final written report that includes comprehensive documentation of each task under each master plan, based on the goals developed through this RFP.
 4. Public education package and implementation plan including a comprehensive Powerpoint presentation, brochures, handouts, and website improvements and resources.

5. Visual displays for public presentations, stakeholder, City Council, etc... should be supplied in digital and hard copy format. A presentation to the City Council summarizing the process and findings at a final submittal stage should be included.
6. Recommended projects must be accompanied by conceptual plans in the form of project layouts superimposed on aerial imagery, preliminary estimates of costs, and narratives detailing the benefit for each proposed design.
7. Draft copies of the sub-plans for specific items listed under each master plan in Task #3-Assessment including, but not limited to, an environmental justice plan, an asset management plan, a maintenance plan, a coastal erosion plan, a shoreline/natural channel protection plan, a repetitive loss mitigation plan, a flood insurance plan, a natural functions plan, and a sea level rise plan. When applicable the plans shall be in compliance with FEMA's CRS requirements from 2017, amended in 2021.
8. Digital files of all the raw data collected and produced during development of the plans.
9. Appendices containing all the resources, regulations, codes, etc...
10. Public engagement summary that documents the public engagement process, problem areas, common concerns, requests, comments and other findings.
11. Draft copies of the sub-plans for specific items listed under each master plan in Task #3-Assessment including, but not limited to, an environmental justice plan, an asset management plan, maintenance plan, coastal erosion plan, shoreline/natural channel protection plan, repetitive loss mitigation plan, flood insurance plan, natural functions plan, and sea level rise plan. When applicable the plans shall be in compliance with FEMA's CRS requirements from 2017, amended in 2021.
12. Draft and final recommended modifications to City ordinances at least including the Stormwater Management Ordinance, Subdivision Regulations ordinance, Floodplain ordinance, Stormwater Design Criteria Manual, and potential Resilience Ordinance.
13. Draft versions of the Stormwater Management Master Plan, Floodplain Management Plan, and Climate Change and Resiliency Master Plan. Upon completion of all tasks, the Consultant shall submit four (4) printed copies and 1 digital copy in PDF format of a draft plan reports to the City for review and comment. Consultant shall incorporate City review comments of the draft materials and resubmit for additional reviews until final City approval of the draft materials.
14. Additional deliverables that the City and consultant agree are helpful to meet the goals of the plans.
15. At a minimum the each report shall include the following:
 - a. An Executive Summary
 - b. Colored maps that are clear, easy to understand, and of professional quality showing the City's existing infrastructure and watersheds, problem areas, and locations of recommended mitigation.
 - c. Summary of existing stormwater system, existing buildings in SFHA, and areas of flooding due to climate change. Databases and GIS layers shall be included.
 - d. Population projections, and future stormwater demand summary, SFHA impact, and climate change impact.
 - e. Methodology and identification of sea level rise scenarios and projected areas impacted by increased frequency and duration storms.
 - f. Summary of Documentation of methodologies and assumptions.
 - g. Technical information, analysis, and discussion of results for each task making use of charts, graphs, and figures of professional quality to clearly and efficiently convey the information, findings and conclusions.
 - h. Justification for recommended work to be accomplished.
 - i. System condition assessment, proposed maintenance, and recommended replacement schedule.
 - j. Analysis of City's current participation in the CRS program and items to improve rating and organize stormwater and floodplain management.
 - k. Adaption plan, including mitigation strategies and detailed cost-benefit analysis for each strategy.

- l. Stormwater Capital Improvement Plan.
 - m. Stormwater Rate Analysis.
 - n. Other supporting documentation.
 - o. Presentation materials.
16. Upon City approval of the draft plan, the consultant shall produce the final report and submit ten (10) printed copies and one (1) digital copy in PDF and/or Word format. Consultant shall provide all maps in GIS or appropriate format.

**Master Plan Development for Citywide
Stormwater Management, Floodplain Management, and
Resilience & Climate Change Management**

Attachment 5
Project Schedule Gantt Chart



- Notes:
1. This schedule assumes a 2/1/2022 start.
 2. Number of days listed are working days (not calendar days).
 3. Schedule slack is amply provided to accommodate potential delays.

Project: Newport News Master Date: Sun 10/24/21

Task	Milestone	Project Summary	Inactive Milestone	Manual Task	Manual Summary Rollup	Start-only	External Tasks	Deadline	Manual Progress
Split	Summary	Inactive Task	Inactive Summary	Duration-only	Manual Summary	Finish-only	External Milestone	Progress	

Grant Application

**Master Plan Development for Citywide
Stormwater Management, Floodplain Management, and
Resilience & Climate Change Management**

**Attachment 6
Project Budget Estimate**

NEWPORT NEWS MASTER PLANS

BUDGET ESTIMATE

Total Budget Estimate (Labor + ODCs): \$ 5,473,402.00

AVERAGE BILLING RATE 2022-2025 (\$/hr):

\$ 95.00	\$ 119.00	\$ 138.00	\$ 163.00	\$ 215.00	\$ 248.00	\$ 82.00	\$ 87.00	\$ 118.00	\$ 144.00	\$ 170.00	\$ 228.00	\$ 87.00	\$ 106.00	\$ 129.00	\$ 169.00	\$ 187.00	\$ 214.00	\$ 90.00	\$ 108.00	\$ 132.00	\$ 154.00	\$ 199.00	\$ 234.00	\$ 309.00	\$ 51.00	\$ 89.00	\$ 90.00	\$ 134.00	\$ 176.00	\$ 268.00
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Task ID	Task Name	Labor Estimate \$	Labor & Field Crew Hours	TOTAL LABOR HOURS FOR LIFE OF CONTRACT																																	OTHER DIRECT COSTS (ODCs) \$	OTHER DIRECT COSTS Description
				Engineer/Scientist/Planner 1	Engineer/Scientist/Planner 2	Engineer/Scientist/Planner 3	Engineer/Scientist/Planner 4	Engineer/Scientist/Planner 5	Engineer/Scientist/Planner 6	GIS Specialist 1	GIS Specialist 2	GIS Specialist 3	GIS Specialist 4	GIS Specialist 5	GIS Specialist 6	Coder/IT Specialist/System Analyst 1	Coder/IT Specialist/System Analyst 2	Coder/IT Specialist/System Analyst 3	Coder/IT Specialist/System Analyst 4	Coder/IT Specialist/System Analyst 5	Coder/IT Specialist/System Analyst 6	Public Engagement Specialist 1	Public Engagement Specialist 2	Public Engagement Specialist 3	Public Engagement Specialist 4	Public Engagement Specialist 5	Public Engagement Specialist 6	Principal	Coop/Intern	Administrative/Clerical	Technical Writer/Graphics Artist 1	Technical Writer/Graphics Artist 2	2-Person Field/Survey Crew	3-Person Field/Survey Crew				
TASK 1 PROJECT MANAGEMENT																																						
1.A	Project Administration	\$ 317,304.00	1404																																			
1.B	Meetings	\$ 306,400.00	1900																																			
1.C	Workshops	\$ 107,600.00	640																																			
TASK 2 DATA GATHERING																																						
2.A	Collect, Compile, and Evaluate Existing Data	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a		
2.A.1	List of Data to be Provided by City	\$ 30,360.00	160																																			
2.A.2	Evaluate Studies, Plans, Reports, and Resources	\$ 47,568.00	320																																			
2.B	Stakeholder Interviews	\$ 56,760.00	364																																			
2.C	Outreach	\$ 87,080.00	560																																			
2.D	Public Meetings	\$ 93,580.00	520																																			
TASK 3 ASSESSMENT																																						
3.A	Assessment	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a		
3.A.1	Stormwater Master Plan	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a		
3.A.1.a	Watershed Management	\$ 126,464.00	1048																																			
3.A.1.b	System Condition	\$ 275,968.00	1444																																			
3.A.1.c	Asset Management	\$ 110,728.00	760																																			
3.A.1.d	Stream Restorations, Retrofits, Best Management Practices	\$ 57,192.00	488																																			
3.A.1.e	Stormwater Modeling	\$ 34,240.00	248																																			
3.1.A.g	Impervious Area	\$ 30,072.00	284																																			
3.1.A.h	CSX	\$ 34,832.00	324																																			
3.1.A.i	Future Growth	\$ 44,608.00	368																																			
3.1.A.j	Outreach and Education	\$ 52,084.00	288																																			
3.A.2	Floodplain Management Plan	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a		
3.A.2.a	Hazard Identification and Analysis	\$ 37,024.00	276																																			
3.A.2.b	Repetitive Loss/Flood Insurance	\$ 37,240.00	304																																			
3.A.2.c	Beneficial/Conservation Areas	\$ 24,696.00	220																																			
3.A.2.d	Coastal Erosion and Natural Channel Protection	\$ 49,592.00	332																																			
3.A.2.e	Vulnerability Assessment	\$ 86,960.00	708																																			
3.A.2.f	Future Growth	\$ 41,408.00	340																																			
3.A.2.g	Outreach and Education	\$ 52,084.00	288																																			
3.A.3	Climate Change and Resilience Master Plan	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a		
3.A.3.a	Sea Level Rise	\$ 42,048.00	284																																			
3.A.3.b	Nuisance Flooding	\$ 73,800.00	588																																			
3.A.3.c	Design Storms	\$ 23,640.00	148																																			
3.A.3.d	Storm Surge	\$ 31,272.00	232																																			
3.A.3.e	Vulnerability	\$ 46,632.00	392																																			
3.A.3.f	Sustainable Programs	\$ 61,176.00	500																																			
3.A.3.g	Future	\$ 33,424.00	244																																			
3.A.3.h	Outreach and Education	\$ 52,084.00	288																																			
3.B	Community Feedback	\$ 33,296.00	252																																			
3.D	Evaluation of Ordinances	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a		
3.D.1	Stormwater Master Plan	\$ 22,580.00	144																																			
3.D.2	Floodplain Management Plan	\$ 22,580.00	144																																			
3.D.3	Climate Change and Resilience Master Plan	\$ 22,580.00	144																																			
3.E	Stormwater Utility Rate Analysis	\$ 28,444.00	160																																			
3.F	Environmental Justice	\$ 47,448.00	284																																			
3.G	Advisory Committee	\$ 130,056.00	736																																			
3.H	Alternative Funding	\$ 37,080.00	188																																			
TASK 4 DELIVERABLES																																						
4.A	Capital Planning	\$ 190,664.00	1336																																			
4.B	Sustainable Planning/Citywide Programs	\$ 97,324.00	716																																			
4.C	Financial Planning	\$ 64,808.00	444																																			
4.D	Plan Timeline	\$ 27,720.00	148																																			
4.E	Monitoring, Evaluation and Updating	\$ 22,820.00	100																																			
4.F	Individual Plan Items	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a			
4.F.1	Stormwater Master Plan	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a			
4.F.1.a	Watershed Master Plans	\$ 485,600.00	4520																																			
4.F.1.b	Maintenance and Inspection	\$ 72,120.00	488																																			
4.F.1.c	Provide Results	\$ 53,488.00	352																																			
4.F.2	Floodplain Management Plan	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a			
4.F.2.a	NFIP / CRS Program Enhancement	\$ 54,952.00	360																																			

Task ID	Task Name	Labor Estimate \$	Labor & Field Crew Hours	Engineer/Scientist/Planner 1	Engineer/Scientist/Planner 2	Engineer/Scientist/Planner 3	Engineer/Scientist/Planner 4	Engineer/Scientist/Planner 5	Engineer/Scientist/Planner 6	GIS Specialist 1	GIS Specialist 2	GIS Specialist 3	GIS Specialist 4	GIS Specialist 5	GIS Specialist 6	Coder/IT Specialist/System Analyst 1	Coder/IT Specialist/System Analyst 2	Coder/IT Specialist/System Analyst 3	Coder/IT Specialist/System Analyst 4	Coder/IT Specialist/System Analyst 5	Coder/IT Specialist/System Analyst 6	Public Engagement Specialist 1	Public Engagement Specialist 2	Public Engagement Specialist 3	Public Engagement Specialist 4	Public Engagement Specialist 5	Public Engagement Specialist 6	Principal	Coop/Intern	Administrative/Clerical	Technical Writer/Graphics Artist 1	Technical Writer/Graphics Artist 2	2-Person Field/Survey Crew	3-Person Field/Survey Crew	OTHER DIRECT COSTS (ODCs) \$	OTHER DIRECT COSTS Description		
4.F.3.a	Sea Level Rise	\$ 56,768.00	336					120	16				80					120																			\$ -	
4.F.3.b	Design Requirements Recommendations	\$ 59,248.00	288					160	80																					16	16	16				\$ -		
4.F.3.c	Land Area Loss	\$ 45,080.00	280	40				80	40			120																								\$ -		
4.F.3.d	Provide Results	\$ 53,488.00	352		160			80	40																						32	20	20			\$ 1,500.00	Printing.	
4.G	Future Planning	\$ 66,728.00	412			120		120	40			80																		24	20	8			\$ -			
4.H	Resources	\$ 93,604.00	548					60	40			60		40	40		100				80	40						40			16	32			\$ 2,000.00	Web services.		
4.J	Ordinances	\$ 35,708.00	180					100	40																						16	8	16			\$ -		
4.K	Environmental Justice	\$ 22,280.00	120					40																40				40								\$ -		
4.L	Advisory Group	\$ -	0																																	\$ -		
4.M	Grant Funding	\$ 83,100.00	510			200		160	40																					40	40	30			\$ -			
4.N	Itemized Deliverables	\$ n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	\$ n/a	n/a	
4.N.3	Final Written Report	\$ 41,920.00	260		80			40	60																					40		40			\$ 250.00	Printing.		
4.N.4	Public education package and implementation plan	\$ -	0																																	\$ -		
4.N.5	Visual Displays for Public Presentations	\$ 55,560.00	320					40	40			80											40		40			80								\$ 2,500.00	Printing, meeting materials.	
4.N.6	Conceptual Plans, Cost Estimates, Narratives	\$ 124,848.00	832	400				280	80																					24	40	8			\$ -			
4.N.7	Draft Sub-Plans	\$ n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	\$ n/a	n/a	
4.N.7.a	Environmental Justice Plan	\$ 19,968.00	112					24																			40			16	24	8			\$ -			
4.N.7.b	Asset Management Plan	\$ 31,776.00	168					80	40																					16	24	8			\$ -			
4.N.7.c	Maintenance Plan	\$ 24,760.00	176		80			40	8																					16	24	8			\$ -			
4.N.7.d	Coastal Erosion Plan	\$ 24,760.00	176		80			40	8																					16	24	8			\$ -			
4.N.7.e	Shoreline/Natural Channel Protection Plan	\$ 26,280.00	176			80		40	8																					16	24	8			\$ -			
4.N.7.f	Repetitive Loss Mitigation Plan	\$ 26,280.00	176			80		40	8																					16	24	8			\$ -			
4.N.7.g	Flood Insurance Plan	\$ 26,824.00	168				80	24	16																					16	24	8			\$ -			
4.N.7.h	Natural Functions Plan	\$ 21,320.00	160		80			24	8																					16	24	8			\$ -			
4.N.7.i	Sea Level Rise Plan	\$ 32,640.00	232		80		80	16	8																					16	24	8			\$ -			
4.N.10	Public Engagement Summary	\$ 32,512.00	200					32																		80		40			16	24	8			\$ -		
4.N.12	Recommended Modifications to City Ordinances	\$ 44,672.00	248					120	40																					24	40	24			\$ -			
4.N.13	Draft Plans	\$ n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	\$ n/a	n/a	
4.N.13.a	Stormwater Management Plan	\$ 99,320.00	760	320				120	80																					80	120	40			\$ 1,500.00	Printing.		
4.N.13.b	Floodplain Management Plan	\$ 99,320.00	760	320				120	80																					80	120	40			\$ 1,500.00	Printing.		
4.N.13.c	Climate Change and Resilience Plan	\$ 99,320.00	760	320				120	80																					80	120	40			\$ 1,500.00	Printing.		
Totals:		\$ 5,321,052.00	35,898	7,728	2,600	2,680	1,876	4,916	3,308	80	700	2,064	700	264	40	-	100	360	-	260	60	40	860	400	-	-	1,444	-	-	2,040	1,440	638	1,000	300	\$ 152,350.00	Total ODCs		

Notes:

1. This estimate is for budgeting purposes. Fees have not yet been negotiated with the consultant team.
2. See the following pages for scoping assumptions, limitations, and deliverables.

SCOPING DETAILS AND DELIVERABLES

Task ID	Name	Task Description	Additional Scope Text	Deliverables List
TASK 1 PROJECT MANAGEMENT				
1.A	Project Administration	Consultant shall provide a Project Administration Plan to direct, coordinate, and monitor the activities of the project with respect to budget, schedule, and contractual obligations. The Plan shall be updated on a biweekly basis and submitted to the City for concurrence. Consultant shall select a Project Manager to direct, coordinate and monitor the activities of the project. The Project Manager will work closely with City staff, other agencies as needed, neighboring communities, and other stakeholders. This task includes coordination of meetings with staff, City Council, public/stakeholders, and any necessary support material.	The project administration plan will be submitted at the kickoff meeting, one month after notice to proceed. Updates to the project administration plan are budgeted under 4.E.	Initial Project Administration Plan. All updates, status reports, and final reporting are included with other Tasks.
1.B	Meetings	The Consultant team will conduct a kick-off meeting with City staff to define project goals, objectives, identify additional stakeholders and discuss outreach methods. Once the project is underway the consultant shall coordinate and host biweekly conference calls and/or meetings between the Consultant and City personnel to review project progress, discuss project challenges and findings, and confirm next steps. The frequency of the conference calls may be increased as needed. The consultant shall ensure that City personnel and Consultant team members maintain a shared understanding regarding study direction, objectives, and deliverables.	This task is budgeting for the kickoff meeting and biweekly project management meetings, most of which will be virtual meetings. Other meetings are budgeted under the appropriate tasks.	Meetings and associated deliverables, including minutes, memoranda, and PowerPoint files.
1.C	Workshops	The Consultant will lead workshops with City staff to discuss and develop the project deliverables during the data gathering and assessment tasks. The content of the deliverables should be compatible with other established community comprehensive plans and serve to help achieve multiple community benefits.	Specific workshops will be held at the request of the City. This task provides budget for up to eight (8) workshops, at dates to be set by the City. These workshops may address asset management and community outreach, as directed by the City.	Workshops and associated deliverables, including PowerPoint files, memoranda, minutes, presentation and workshop materials.
TASK 2 DATA GATHERING				
2.A Collect, Compile, and Evaluate Existing Data				
2.A.1	List of Data to be Provided by City	Consultant shall submit a list of information to be provided by the City. All data compiled shall be entered into a searchable sortable database that is compatible with the City's existing IT systems.	The list will be delivered first, with the database to be submitted 45 days after receiving items from the City and FEMA. This task provides budget to generate the list and create and maintain the database.	FEMA data requests, inventory of collected data with review comments, database, GIS maps and files, FEMA data and files.
2.A.2	Evaluate Studies, Plans, Reports, and Resources	Available Studies, Plans, Reports, and Resources: • Framework for Comprehensive Stormwater Management Program, 2020 • Federal Government, Virginia and Newport News stormwater, floodplain, and Chesapeake Bay Preservation Area and wetland regulations, and associated guidance documents. • Newport News Code of Ordinances Chapter 45 – Zoning Ordinance • One City, One Future 2040 Comprehensive Plan • Center for Coastal Resources Management City of Newport News locality portal • Area plans or studies that describe the City's land use and future development trends • Emergency evacuation plans • National Flood Insurance Community Rating System, 2017; amended 2021 • City of Newport News Flood Protection Plan, 1999 • Salters Creek/Peterson Yacht Basin Area Flood Protection Study, 1984 Stormwater Management Master Plan, Floodplain Management Plan, & Resilience and Climate Change Master Plan RFP#21-3182-2031 16 of 42 • Southeast Community – Land Use Inventory, 1993 • HRPDC Hazard Mitigation Plan • Salters Creek/Newmarket Creek Flood Reduction Strategies, 1980's • Master Drainage and Flood Control Plan, 1980's • Stormwater Task Force Report, 1999 (Hurricane Floyd response) • Tropical Storm Ernesto Stoney Run Stormwater Report, 2006	The review work is included under other tasks. The amount budgeted under this task is simply for processing and cataloging the information. The schedule depends upon receipt of items from the City. Additional studies and reports will be provided through the City's Projectmates system.	Catalog of documents received from the City and reviewed.
2.B	Stakeholder Interviews	Hold meetings and interviews with representatives of all relevant City departments, stakeholders, and other organizations to capture the history of stormwater management issues, floodplain issues, climate change issues, and each group's needs and wants.	This task provides budget to develop, conduct, and document four (4) stakeholder interviews. The City will approve the interview groups, dates, and agendas before the interviews. The City may suggest the groups, or the consultant may suggest them for approval by the City. Stakeholder interviews differ from workshops typically because the focus is on gaining input rather than having participants work through potential solutions (as would be done in a workshop setting).	Memoranda identifying stakeholders, interview questions, and interview documentation.
2.C	Outreach	The Consultant team shall develop and an outreach program seeking input on stormwater, floodplain, and climate change issues to gain knowledge of citizen and community issues within the City. The consultant must be able to successfully translate technical information and be able to present it in a compelling way that engages the public. The project team will determine the best method to reach citizens and ensure a broad cross section of the community is reached. Additional methods for acquiring citizen concerns should be developed by the consultant for incorporation in this task.	Online materials will be developed by the consultant, to be shared on City web pages. No separate website hosting or development is required. Development and printing of materials to be distributed is included. Workshop sessions (Task 1.C) will be held to discuss the desired material for each of the three master plans. The consultant will coordinate with the City's IT department regarding information for the web pages.	Public education package and implementation plan including a comprehensive PowerPoint presentation, brochures, handouts, and website improvements and resources (Task 4.N.4).
2.D	Public Meetings	Consultant shall lead and coordinate Public Meetings to gather data. The consultant should plan for a minimum of six public meetings; in the southern, central and northern part of the City to gather information and one in the same area to disseminate information. All support materials for these public meetings will be prepared by the Consultant team. The public meetings should cover information for all three plans.	Public meetings will be scheduled after some progress has been made on the three master plans. The City will provide the facilities, online advertising using consultant-produced content (on the City's website), and appropriate security for all public meetings. The consultant will provide presentation equipment (such as laptops, projectors, and screens).	Visual displays for public meetings, including City Council meetings, will be supplied in digital and hard copy formats. A presentation to the City Council summarizing the process and findings at a final submittal stage is included (Task 4.N.6). The consultant will produce and host an ArcGIS StoryMap website that citizens can access at any time to either put a pin on a city map or create a box around an area and provide information about their drainage issue. Basic information will include name and contact information (email & phone) of the citizen, drainage issue frequency, event dates, and type of storm. Citizens will be able to upload pictures and size-constrained videos.

Task ID	Name	Task Description	Additional Scope Text	Deliverables List
TASK 3	ASSESSMENT			
3.A	Assessment	For all data collected and included in each plan, the consultant should provide sufficient references to the data sources used so that the City will be able to verify, locate, and easily reuse the information.		
3.A.1	Stormwater Master Plan	The consultant shall use previous stormwater studies and stormwater management plans; data gathered in Task #2; historical data; citizen input; future land use and population projections; neighboring localities; and additional applicable information as needed.		
3.A.1.a	Watershed Management	Evaluate the drainage within each of the City's 25 individual watersheds, including system condition, known problem areas, future development constraints, potential improvements, etc.... Identify and map deficiencies within each watershed.	This will be a "screening analysis," not a remodeling effort. The City will provide the watershed models and pertinent material. The consultant will review and prioritize needs to satisfy CRS requirements.	One Technical Memorandum summarizing findings, GIS mapping, staff workshops as needed (budgeted under Task 1.C).
3.A.1.b	System Condition	The consultant shall assess the condition of the components of the City's stormwater system within each watershed using the data contained in the database created in Task 2A. A rating system shall be developed to apply to the City's stormwater systems that will be used to rank the infrastructure based on highest priority of replacement, repair, or maintenance. The rating system should provide scoring which includes: • Need for increased capacity • Maintenance requirements • Deficiencies, such as number of repairs, condition, and years left in expected life cycle • Existing access, need to acquire easements • Amount of properties affected and degree affected • Severity of issues • Benefit to community • Potential use of green infrastructure • Potential for Low Impact Development (LID) • Impact on water quality	This task includes limited, strategic field investigation to collect data and test the rating system. For pricing purposes, up to 40 sites will be visited and evaluated using the rating system criteria.	Technical Memoranda documenting rating system development, data review, rating system, and condition assessment analysis. Will require a workshop (budgeted under Task 1.C) and meetings as budgeted under this task. The system condition data collected from the 40 sites will be delivered in GIS attribute tables.
3.A.1.c	Asset Management	In combination with Item 3.A.1.b, using the City's current inspection and maintenance management system and GIS inventory as a starting point, the Consultant will adapt an existing inspection software package or create a new program for tracking inspections and maintenance activities. This will include developing a map, identification system, and a database. The City's stormwater collection systems will be labelled and separated into segments, such as stormwater management facilities, pipes, ditches, streams, natural channels, outlets, and manholes. The database should be designed for City personnel to use and update daily. The database and mapping should meet the requirements of NFIP CRS, section 540. Evaluate where maintenance plans and programs are needed or if existing, should be enhanced. Also include an evaluation of easements or acquisition required for installation and maintenance of the City's storm infrastructure.	The mapping work requires GIS services to set up the system (which will be continuously populated by the City) as budgeted under this task. The deliverables will follow recommendations by City GIS staff. The City is working on a program/app for field use, to be addressed in meetings budgeted under this task. This task also includes work to comply with CRS asset management requirements for all stormwater features.	Technical Memorandum with recommendations for the new tracking and management system, system documentation, a new database, and mapping indicating where easements should be acquired. Will require a workshop (budgeted under Task 1.C) and additional meetings budgeted under this task.
3.A.1.d	Stream Restorations, Retrofits, and Best Management Practices	Evaluate the City's natural streams to assess areas of severe erosion and potential threat to structures, and recommend potential projects or programs to address. Identify existing stormwater management facilities that can be retrofitted to provide improved stormwater management and/or water quality. Identify potential projects to provide large water quality benefits, including Chesapeake Bay Program best management practices.	The City wants treatment for direct connections (e.g., looking for TMDL BMP project at Government Ditch). The consultant will identify locations and types of BMPs that are appropriate. The City will provide a list of public and private stormwater management facilities (SWMFs).	Technical Memorandum documenting stream assessments and stream restoration plans, Conceptual BMP retrofit design plans, bid document guidance, GIS mapping. Technical memorandum with water quality calculations incorporating potential projects identified under this task.
3.A.1.e	Stormwater Modeling	Determine watersheds or portions thereof where more detailed modeling is required. Define the limits and provide a narrative of the need for each model.	Consultant will review the City's inventory of stormwater models and make recommendations for modeling work that could be done to improve the models, particularly to support the Stormwater Master Plan. This task does not include modifying or updating the models. The intent is an overall review of all 25 watersheds, not detailed modeling. The consultant will identify potential noteworthy 'holes' in the existing models to determine future needs for detailed modeling. The City will provide a list of its current models, including the format and date of each.	Technical Memorandum with mapping and supporting GIS files, incorporating impervious area data from Task 3.1.A.g.
3.A.1.g	Impervious Area	Evaluate how the amount of impervious area affects runoff within the watersheds, including the accumulation of small additions made by property owners beyond design. Identify and quantify how impervious area limitations per land use type would benefit water quality and water quantity issues throughout the City, and provide recommendations for future development.	The City wants to better understand the impacts of incremental increases in imperviousness. This task will support ordinance revision(s). Select twelve (12) subwatersheds and perform runoff reduction and NRCS Curve Number analyses (using VDOT Drainage Manual Appendix 6-B1) to evaluate the effects of increased imperviousness. No modeling is required under this task.	Technical Memorandum and supporting computational spreadsheets and GIS files. This information will also be summarized in the Stormwater Modeling deliverables (Task 3.A.1.e).
3.A.1.h	CSX	Evaluate the current stormwater infrastructure that is interconnected with the CSX railroad corridor drainage system. Identify areas where the drainage is negatively impacted by the features within the railroad right of way and areas for improvements. Map the areas and develop potential projects to address issues.	Consultant will delineate drainage areas into and out of CSX right-of-way, review FIRMs and previous modeling to identify bottlenecks, and recommend improvements (by location and general type). This task will not include modeling or engineering to size or develop conceptual plans, nor will this task include cost of improvements. Information on stormwater interaction with CSX is limited, but this task will identify problem areas on the CSX right-of-way and adjacent properties.	Technical Memorandum and GIS mapping.
3.A.1.i	Future Growth	Using the growth and development patterns during the past ten years and the City's comprehensive plan, determine the future implications for stormwater management. Evaluate how multiple design storms will impact future projected conditions in accordance with FEMA CRS section 450b. Recommend changes as needed to adapt and alleviate future problem areas. Evaluate if future development in some watersheds should have specific or more restrictive design standards.	The deliverables will incorporate Virginia Stormwater, E&S, Chesapeake Bay, and CWA requirements already in place so that new burdens on the City are minimized.	Technical Memorandum, Weather Underground and NOAA data, GIS maps and files, and standards review. Will require one workshop (Task 1C).
3.A.1.j	Outreach and Education	Develop an education and information program to target citizen concerns such as where stormwater dollars are spent, what can be expected of the drainage system during normal and extreme storm events. Elements shall include a comparison of piping versus open ditches, debris removal, and issues fences, landscaping, and other obstructions can cause. Provide information for the City to upload to its website including additional narratives, resources, short videos, and links to resources. Include any additional educational topics and access to resources deemed advantageous.	Online materials will be developed by the consultant, to be shared on City web pages. No separate website hosting or development is required. Development and printing of materials to be distributed is included. Workshop sessions (Task 1.C) will be held to discuss the desired material for each of the three master plans and the overall potential organization of information. The consultant will coordinate with the City's IT department regarding information for the web pages.	Outreach and Education Strategic Communications Plan. Collateral materials, social media presence, and message points. The consultant will develop potential wording for letters, newsletters, flyers, website videos, website narratives, and provide links for citizens to find helpful websites.
3.A.2	Floodplain Management Plan	The consultant shall complete a detailed flood risk assessment which includes data collected in Task #2, hazard identification and analysis, and vulnerability assessment in accordance with FEMA's floodplain objectives and actions for the floodplain management plan. The Plan must also meet the requirements of the latest edition of the Grant Manual for the Virginia Community Preparedness Fund management plan requirements. The risk assessment will provide background information and key technical data necessary to establish meaningful goals,		

Task ID	Name	Task Description	Additional Scope Text	Deliverables List
3.A.2.a	Hazard Identification and Analysis	Using the data collected, the Consultant will prepare a flood hazard identification and analysis which will include: • A description of known flood hazards, including the nature and cause of flooding, a description of historical flood events; and the location and extent of special flood hazard areas. • Any unique flooding issues, as well as specific problem areas susceptible to flooding events will be identified, including those that may not be accurately delineated or classified on currently adopted and/or official FEMA Flood Insurance Rate Maps. Evaluate if current more accurate LIDAR may warrant additional areas being included in the SFHA. • Areas of continual severe tidal flooding. • An evaluation of the nuisance and recurring flooding areas outside the Special Flood Hazard Area, identified for the Stormwater or Climate Change plans will be evaluated to determine if conditions dictate that higher standards should be applied in those areas.	Consultant will use existing information; no new modeling will be conducted. A recommendation will be made for a separate project to develop a water-level monitoring system tied to GIS layers of various water surfaces in the City. The system will identify buildings affected at each elevation and an early warning call system.	GIS layers of all identified flooding sources intersected with best available topographic data (see 4.F.3.a) Technical Memorandum with descriptions of historical flood events, the various flooding sources, and recommendations regarding regulatory and planning activities for "non-traditional" flooding sources.
3.A.2.b	Repetitive Loss/Flood Insurance	Using the City's repetitive loss information, develop a repetitive loss mitigation plan utilizing FEMA CRS section 510b. Prioritize mitigation measures that would benefit multiple properties through broader flood protection strategies. Evaluate the participation, and history, and value of past flood insurance claims and determine if measures can be developed to reduce damage claims and increase participation in the NFIP in accordance with NFIP CRS section 370.	Consultant will develop a standalone repetitive loss report to meet CRS criteria and maximize credit using available GIS, claims, and other data. No field reconnaissance work will be performed.	GIS layers and Technical Memorandum characterizing full repetitive loss analysis, summary of outreach, and recommended mitigation alternatives.
3.A.2.c	Beneficial/Conservation Areas	Identify areas that provide natural and beneficial functions such as wetlands, sensitive areas, and habitats for rare or endangered species. Identify existing conservation areas within the City easements and depict that information on a separate GIS layer. Evaluate and recommend where beneficial areas may be created or enhanced. Also evaluate resources to develop a natural floodplain functions plan to protect aquatic and riparian species in accordance with FEMA CRS section 510c.	Consultant will use existing information to evaluate applicability to CRS 510; no new reports will be developed. The deliverables will include identification of potential locations that could be used as beneficial/conservation areas and describe the benefit and value of these areas. The technical memorandum will include support information for technical and non-technical audiences.	Technical Memorandum and GIS layer of all beneficial/conservation areas with narrative descriptions and recommendations for enhancements. Technical Memorandum to include recommendations on the ROI for creating a Natural Floodplain Functions Plan in accordance with CRS.
3.A.2.d	Coastal Erosion and Natural Channel Protection	Identify and map areas of the Newport News coastline that are experiencing erosion. Categorize the rate of erosion and graphically represent impacts on an individual GIS layer. Develop future impacts maps/GIS layers based on current rates for 20, 30, and 50 years. Recommend programs, regulations, and mitigation for these areas in accordance with FEMA CRS section 410f, 420c, and 430n. Identify potential sites for living shoreline restoration projects. Evaluate typical natural channel erosion issues throughout the City and recommend policies for protecting and minimizing impact of erosion on water quality as well as development in accordance with NFIP CRS 420h.	Consultant will use existing information; no field work is envisioned.	Technical Memorandum and GIS layers for current and future erosion conditions, and possible restoration projects. A report/plan for CRS requirements, describing recommended City program and regulatory changes.
3.A.2.e	Vulnerability Assessment	The Consultant will conduct a vulnerability assessment to estimate the types and numbers of structures at risk to flooding. • Flood hazard vulnerability will be described in terms of the number and dollar value exposure of at-risk structures based on an asset inventory that includes residential, commercial, industrial, government, educational and other buildings, as well as potential damage and disruption to key infrastructure, utilities, and critical facilities. • The vulnerability assessment will include data on the results of a GIS-based flood hazard analysis, and will include information on the societal, economic and environmental impacts of flooding on the community. This includes a description of the number of people at risk to flooding as well as any considerations that should be made in terms of public health and safety. • Identify at-risk critical facilities and infrastructure such as roads, utilities, etc.... that are critical to emergency actions and post disaster activities. • Explore a plan for strategic retreat in necessary areas.	Consultant will use existing information; no field work is envisioned. This assessment will include economic and social effects of potential changes and retreat.	See 4.F.3.a. Technical Memorandum on the feasibility of strategic retreat. This deliverable will include roads blocked, facilities that should be moved within XX years, and facilities that should be floodproofed.
3.A.2.f	Future Growth	The hazard identification and analysis will also include an evaluation of the growth and development patterns during the past ten years and the future implications for floodplain management. Future land use and development trends and their relationship to the probability and extent of future flood hazards in the project area should be described. Recommend constraints or regulations for future development.	The City will provide information on growth projections.	Technical Memorandum identifying anticipated growth areas, impacts on flooding and recommended policy and regulatory mitigation alternatives.
3.A.2.g	Outreach and Education	Evaluate existing floodplain educational materials and develop an educational program to explain the function of floodplains, the necessary requirements for development, and the effects of development. Include educational material concerning fences, fill, and additional structures in the floodplain. The benefits and functions of conservation areas and buffers should be explained as well. Improve the City's website with revised and additional narratives, resources, short videos, and links to resources. The outreach program should meet the requirements of FEMA CRS section 300, with the website requirements of section 350c. Include any additional educational topics and access to resources deemed advantageous.	Online materials will be developed by the consultant, to be shared on City web pages. No separate website hosting or development is required. Development and printing of materials to be distributed is included. Workshop sessions (Task 1.C) will be held to discuss the desired material for each of the three master plans. The consultant will coordinate with the City's IT department regarding information for the web pages.	Public education package and implementation plan including a comprehensive PowerPoint presentation, brochures, handouts, and website improvements and resources (Task 4.N.4).
3.A.3	Climate Change and Resilience Master Plan	Assess vulnerability and risk to key infrastructure, coastal resources, and populations as a result of sea level rise and nuisance flooding, flooding from more frequent and intense storms, and other effects of climate change. Analyze existing studies and tools on climate change, including those from neighboring localities and regional entities, and methodologies described in the Virginia Coastal Resilience Planning Framework, dated October 2020 and forthcoming regulations. The Plan must also meet the requirements of the latest edition of the Grant Manual for the Virginia Community Preparedness Fund.		
3.A.3.a	Sea Level Rise	Evaluate sea level rise scenarios and methodology, in accordance with the Coastal Resilience Framework recommended intermediate-high curve: 1.5 feet by 2050, 3 feet by 2080, 4.5 feet by 2100. Determine impacts to existing problem areas, coastal infrastructure, beaches, coastal habitats, key coastal access points, transportation, utility infrastructure, critical facilities, homes, businesses, and parks vulnerable to inundation. Evaluate the effect of the state requirement to consider sea level rise when reviewing proposed development in tidal wetlands and Resource Protection Areas. Evaluate new accommodation, protection, and retreat strategies and assess current and future vulnerability and risk. Perform a cost and benefit analysis of each strategy. Provide descriptions of what is to be expected with each sea level rise milestone and ways for citizens to visualize the changes. If applicable, use available/existing sea level rise GIS data as a basis to review, edit, and enhance the information to create GIS layers for the stated scenarios for the City's use for planning and citizen access. Revise the existing information to align with the most up to date LIDAR topography. Determine potential Chesapeake Bay Protection Area boundaries and approximate 100 year floodplain for each scenario. Develop depth of flooding GIS layers for each scenario.	Consultant will use the NOAA 2017 Intermediate-High curve in alignment with the CRMP Framework. We note that the sea level rise values listed in the RFP (1.5 feet by 2050, 3 feet by 2080, and 4.5 feet by 2100) differ from the 2050, 2080, and 2100 values that correspond to the NOAA 2017 Intermediate-High curve. For example, the 2080 RSLR value for 2080 is 4.6 - 4.7. If the Virginia Institute of Marine Science (VIMS) completes remapping of potential RPA/RMA boundaries and requirements for development in future Chesapeake Bay Preservation Areas (CBPAs) in time for the deliverable, the new VIMS mapping will be incorporated into the deliverable.	Technical memorandum on relative sea level rise scenario derivation, including impacts at various milestones, identification of structures that need to move, and roads that will be impacted.

Task ID	Name	Task Description	Additional Scope Text	Deliverables List
3.A.3.b	Nuisance Flooding	Identify and evaluate areas of nuisance and urban flooding to determine the severity of flooding and threat to property. Recommend actions to address recurring areas of nuisance flooding, and the cost/benefit of each action.	Consultant will use existing NOAA's tidally-based inundation surfaces and coastal flood severity thresholds (e.g. minor, moderate, major) to apply sea level rise - linear superposition of future conditions to existing values. Recommended actions to address recurring areas of nuisance flooding will be formulated as conceptual designs. BC analysis will be done with best available information. Problem areas will be identified through input from citizens and City staff. Areas of nuisance flooding will be incorporated into the GIS mapping in Task 3.A.1.a.	Technical Memorandum documenting the hazard assessment methodology employed to map nuisance flood hazard. GIS layers to be included in 4.F.3.a.
3.A.3.c	Design Storms	Evaluate historical storm data, especially concerning more frequent and intense storms. Include rainfall information currently being studied by the state as it becomes available. Review measures and regulatory changes related to rainfall of neighboring localities and regional entities to determine if the City should institute higher design standards and/or revise rainfall data. Quantify the cost benefit for higher standards versus potential damage from severe weather.	Consultant will use existing information; no new storm statistics will be generated.	Technical Memorandum of characterization of storm patterns and recommendations for higher standards. Outreach materials to explain the types of storms and expected effects.
3.A.3.d	Storm Surge	Analyze the current existing storm surge layers and information developed by government and regional organizations for each category of hurricane and determine the effects of each of the analysis periods of sea level rise and storm surge combined.	Consultant will use existing information; no new storm surge modeling will be done. The CRMP hazard assessment produced the following annual exceedence probabilities: 50%, 20%, 10%, 4%, 2%, 1%, and 0.2% AEP storm surge conditions. An amplification factor to account for sea level rise will be used in alignment with the CRMP approach (for 2050, 2080, and 2100). The analysis will include the downtown coal yards and problems caused when runoff washes coal sediment into surrounding areas.	Technical Memorandum documenting the hazard assessment and methodology employed to map storm surge flooding. GIS layers to be included in 4.F.3.a.
3.A.3.e	Vulnerability	Identify critical assets/managers and determine adaptive capacity of those assets.	Analysis will be performed by typologies. No detailed analysis of individual assets will be performed. Critical assets will be identified using City-supplied information. The consultant will collect additional information, such as the contact person for each asset potentially affected, when the facility will be impacted, and recommendations for the future.	Technical Memorandum documenting the vulnerability assessment methodology. GIS layers to be included in 4.F.3.a.
3.A.3.f	Sustainable Programs	Identify green and resilient programs or design requirements that would benefit communities and the City. Evaluate if green facilities could be incorporated on existing City property such as road medians, parks, or school properties, etc.... Quantify how green design requirements on different types of City and private development would be beneficial. Identify locations for mature tree preservation and/or urban tree planting for Chesapeake Bay Preservation Act compliance and water quality/TMDL improvement.	No site-specific designs will be performed; the analysis will be based on general typologies present in the City. The deliverable will identify areas for tree plantings and preservation, and address potential City funded citizen grant programs and staff needed to oversee such grants, and potential regulatory changes for development.	Technical Memorandum of recommended sustainable programs and design requirements.
3.A.3.g	Future	Evaluate existing and future conditions for each climate change category. Create future scenario GIS layers for each climate change category and identify the affected entities. Recommend constraints or regulations for future development.	Climate change categories will include nuisance and storm surge flooding, and sea-level rise. The future growth impact assessment will leverage the existing nuisance and storm surge flood extents and depth products to evaluate potential conflict with existing and growing development patterns.	GIS layers to be included in 4.F.3.a and 4.F.3.c.
3.A.3.h	Outreach and Education	Provide educational materials and resources to inform the public of the issues the City will face due to climate change, and the need and benefit of addressing those issues now. Include material on the increased storm activity versus the design capacity of the storm system, plus the constraints of topography, cost return, and feasibility. Discuss additional benefits of green infrastructure, such as improved air quality, heat reduction, and neighborhood beautification and amenities. Discuss what citizens can do to help. Provide information for the City's website with revised and additional narratives, short videos, resources, and links to resources. Include any additional educational topics and access to resources deemed advantageous.	Online materials will be developed by the consultant, to be shared on City web pages. No separate website hosting or development is required. Development and printing of materials to be distributed is included. Workshop sessions (Task 1.C) will be held to discuss the desired material for each of the three master plans. The consultant will coordinate with the City's IT department regarding information for the web pages.	Public education package and implementation plan including a comprehensive PowerPoint presentation, brochures, handouts, and website improvements and resources (Task 4.N.4).
3.B	Community Feedback	Compile and enter results from the citizen stormwater questionnaire(s), public meetings, and all data acquired during Task #2. Input into the project database to establish initial problem areas. Problem areas identified by the community will be combined with areas identified from the field data and other sources, and will be highlighted on a project base map.	The consultant will summarize community feedback and problem areas identified by citizens. The consultant will enter the required data into the project database and map the problem areas in GIS.	Memorandum summarizing problem areas (Miles Agency to prepare), and a Technical Memorandum with GIS figures mapping the problem areas (GKY to prepare).
3.D	Evaluation of Ordinances	Evaluate the City's current ordinances to identify items that should be revised and provide recommended changes.		
3.D.1	Stormwater Master Plan	Provide a comparison and evaluation of the current City Stormwater Management ordinance (Chapter 37.1-Stormwater Management) and applicable sections of the Site Plan ordinance (Appendix B-Subdivision Regulations) relative to other jurisdictions, current regulations, future regulations, and identified issues.	Findings and recommendations will be integrated into the Stormwater Master Plan (4.N.12). This task provides budget for analytical and comparison work. The City's current ordinance is not up-to-date. The consultant will determine areas where the City can refer to state code or better adapt to changes in the state code.	Technical Memorandum documenting comparison of the City's Stormwater Management and Site Plan ordinances to other jurisdictions, including an assessment of adequacy to meet current and future regulations and address identified issues. This deliverable will provide recommended wording and locations for modifications to the existing ordinances.
3.D.2	Floodplain Management Plan	Provide a comparison and evaluation of the current City floodplain ordinance (Chapter 45, Article XXI, Division 2 - Floodplain Development Regulations) relative to other jurisdictions, current regulations, future regulations and identified issues. Review the new section 9VAC25-830-155 for living shorelines and recommend its incorporation into the City's ordinances.	Findings and recommendations will be integrated into the Floodplain Management Plan (4.N.12). This task provides budget for analytical and comparison work.	Technical Memorandum documenting comparison of City ordinance to the state model and other jurisdictions; higher standards pros and cons and potential CRS credit. This deliverable will provide recommended wording and locations for modifications to the existing ordinances.
3.D.3	Climate Change and Resilience Master Plan	Provide a comparison and evaluation of climate change and resilience ordinances of other jurisdictions, current regulations, future regulations, and identified issues. Explore policy changes or programs that would better enable the City to adapt to climate change. Determine if a percentage of each project or site developed should include a certain percentage of green infrastructure. Define what would qualify as green infrastructure and how this could be incorporated into the City's design standards. Determine if an ordinance or additional section of an existing ordinance is needed for the City.	Findings and recommendations will be integrated into the Climate Change & Resilience Master Plan (4.N.12). This task provides budget for analytical and comparison work.	Technical Memorandum documenting best practices; comparison of City ordinance to other jurisdictions; higher standards pros and cons; and adoption considerations.
3.E	Stormwater Utility Rate Analysis	In 1993, the City implemented a Stormwater Management Service Charge to fund the comprehensive stormwater management program, including capital project funding. Consultant shall review the current stormwater service fee and determine if the current funding plan is sufficient to meet the goals for all three Master Plans. If a rate change is recommended, the rate structure should ensure the stormwater utility is fully recovering the cost of providing stormwater management services, including maintenance operations and analysis of the following factors: 1. Current and future costs of providing stormwater management in accordance with established and anticipated standards and regulations. 2. Current and future costs of maintenance and operation of stormwater collection system. 3. Projected and current availability of capacity. 4. Current and future costs of floodplain management and improvement projects. 5. Current and future costs of resilience improvements and climate change adaptations. 6. Funding of current and proposed capital maintenance projects. 7. Impact of current and future environmental regulations. 8. Adequate reserves for depreciation, emergencies, catastrophes and other appropriate purposes. 9. Other impacts as identified.	The City has a contractor onboard to keep up with rate analyses. Consultant will describe how the master plans will fit into the City's rate structure and assess whether rate changes are required to accommodate the plans. This will be a long-term needs analysis, not just a 5-year look. The Technical Memorandum will address how much rates need to be raised and the justification for doing so.	Technical Memorandum with analysis of long-term sustainability of the stormwater utility.

Task ID	Name	Task Description	Additional Scope Text	Deliverables List
3.F	Environmental Justice	Evaluate strategies to plan, implement, and support successful and lasting adaption strategies and programs that address racial and economic inequalities for all aspects of the City's stormwater management program.	Some progress should be made on public engagement, and advisory committee and stakeholder meetings before starting this task.	Memorandum identifying environmental justice strategies and programs pertinent to the Stormwater Master Plan, recommended changes in development standards, project considerations, and Citywide efforts.
3.G	Advisory Committee	Work with the City to create an advisory committee for issues concerning stormwater, floodplain, and climate change. Determine the stakeholders who should be a part of such as group.	Advisory Committee meetings are budgeted under this task, as are meetings with City representatives to establish the Advisory Committee. This process will start during the master planning process (rather than waiting to form the advisory committee).	Technical Memorandum describing recommendations for committee members, operating structure, and charge. This deliverable will address meeting frequency, commitment of members, purpose, and focus.
3.H	Alternative Funding	Evaluate additional funding sources, to include grant funding. Determine how much of the effort to prepare the three plans in this RFP can be funded by grants and determine what will be needed for the grant applications.	This task does not include preparing grant applications; grant applications are budgeted under 4.M.	Technical Memorandum identifying and describing state and federal grants that could be used to fund the City's master plan programs and projects.
TASK 4 DELIVERABLES		Provide three master plans which include all items evaluated and developed during the Task #3-Assessment; plus the goals, community engagement, and future land use trends information. Many components will overlap and compliment between plans. Reference when recommendations or findings from one plan will benefit efforts in another plan.		
4.A	Capital Planning	Provide conceptual plans for each recommended project, program, or action in the form of project boundaries superimposed on aerial imagery for each proposed alternative, plus a narrative of each including cost/benefit information. The Consultant will present for review an evaluation of all conceptual capital projects, programs, and mitigation considering social justice, technical, administrative, political, legal, economic, environmental, and cost/benefit criteria. The ranking system shall be used to prioritize the projects, and should include severity of the deficiency, area of impact, public benefits, project scale, effected properties, cost, and other metrics that will be used by the City to prioritize the conceptual projects and develop an implementation strategy.	Development of conceptual projects, programs, and actions is budgeted under other tasks. This task addresses the development and population of the ranking system, cost estimation, cost-benefit analyses, and production of the Capital Planning Technical Memorandum. The task schedule depends upon substantial completion of multiple predecessor tasks, many of which will be worked out during the course of this project.	Capital Planning Technical Memorandum, supporting GIS and computational files.
4.B	Sustainable Planning/Citywide Programs	Identify potential sites throughout the City where green or sustainable infrastructure could be incorporated to reduce stormwater issues. Provide for the location of recommended areas and a descriptive narrative to include benefits. Identify and recommend green, sustainable programs that can be initiated within communities or Citywide to address recurring issues and improve resiliency. Include recommended staffing and City departments to administer the programs.	Several other tasks (e.g., 3.A.3.f, 3.A.3.h, and 3.D.3) address green and sustainable infrastructure and citywide programs. This task will result in the production of the Sustainable Planning/Citywide Programs Technical Memorandum.	Sustainable Planning/Citywide Programs Technical Memorandum, supporting GIS and computational files.
4.C	Financial Planning	1. Prepare preliminary cost estimates for implementation of each alternative within each master plan. 2. Prepare preliminary projected cost estimates for operation & maintenance of existing and new infrastructure over a 20-yr period. 3. Create a proposed 20-yr budget including capital and maintenance items that is consistent with the established schedule. 4. Provide a 20-yr analysis of projected revenues using existing funding practices. 5. Compare revenues and planned and recommended expenditures to determine whether or not the current funding methods are sufficient. 6. Recommend additional methods of funding such as grants for specific projects.	This task builds upon several other tasks. The fee budgeted here is for cost estimating and financial analyses and planning of the Master Plan alternatives and O&M. The schedule will depend upon substantial completion of predecessor tasks.	Financial Planning Technical Memorandum and supporting computations files.
4.D	Plan Timeline	Provide a short term and a long term, 20-yr, implementation schedule for the highest priority capital projects and programs for each master plan. Projects and programs that address items from more than one plan are encouraged.	To avoid rework, this task occurs after 4.C.	Plan Timeline Technical Memorandum.
4.E	Monitoring, Evaluation and Updating	1. Establish a process for regularly monitoring and evaluating the progress on the three management plans to ensure the goals and actions identified in the plan are still appropriate. 2. Provide for revisions and updates to the plans that may become necessary due to implementation barriers, changes in local conditions, changes in stakeholders, or modifications in City, State, and/or federal regulations. Regular updates to the Plan will ensure that it is timely and that the data is current. 3. Provide recommended stakeholders for an advisory group to ensure varied interests will have input on decisions, revisions, and updates.	Ongoing project administration (Task 1.A) includes general project monitoring and keeping the City informed regarding progress. This task provides budget for periodic updates of the Project Administration Plan.	Periodic updates of the Project Administration Plan.
4.F	Individual Plan Items	Include the following specific items listed for each plan:		
4.F.1	Stormwater Master Plan			
4.F.1.a	Watershed Master Plans	Develop a plan for each of the 25 individual watersheds within the City; and for the City as a whole. The plans shall encompass all the applicable items evaluated during the assessment task. The plan must provide an analysis of existing and future development on drainage throughout the watershed, and recommend a plan to address issues and consider the effect of future development. The plan should also include components necessary to meet the requirements of FEMA CRS Manual section 450.	This task will build upon work under 3.A. The budget provided here is for the production of 25 watershed plans and a comprehensive, citywide plan. No modeling is required; this analysis will be at a screening and planning level of detail (e.g., using representative estimates based on land use). Substantial progress has to occur on predecessor tasks before this task can start.	25 separate Watershed Master Plans and a citywide Summary Plan.
4.F.1.b	Maintenance and Inspection	Identify regular maintenance and inspection programs needed or changes to existing programs with specific guidelines for the work required. Using the current mapping, identification, and maintenance plans for the City's stormwater infrastructure and infrastructure mapping performed, develop a drainage system maintenance plan in accordance with FEMA CRS Manual section 540.	Meaningful progress must occur on 3.A.1.b before this task gets underway.	Maintenance and Inspection Plan.
4.F.1.c	Provide Results	Provide results, plans, programs, and/or products for all tasks under Item 3A.1-Stormwater Master Plan.	Preparation of draft (90% completion) and final (100% after addressing comments from the City) documents are included in this task.	Stormwater Master Plan document.
4.F.2	Floodplain Management Plan			
4.F.2.a	NFIP / CRS Program Enhancement	The Consultant will examine the City's current participation in the NFIP and make recommendations on how to enhance its NFIP compliance and improve its CRS rating. Within each appropriate master plan, provide the individual sub-plans identified under task 3 for use in the City's participation in the NFIP CRS program, as complete stand-alone plans if needed. Many items addressed by the three plans will also meet the requirements of the FEMA CRS program. Identify the location of the regulatory-required and/or CRS program elements of the plans. These items will be identified within the floodplain maintenance plan.	This assumes City entry into CRS in April 2022. Master Plans must be formally adopted before CRS credit can be received.	A. Technical memorandum and proposed schedule (roadmap for class improvement) B. CRS workbook including documentation to support class improvement in year 3.
4.F.2.b	Provide Results	Provide results, plans, programs, and/or products for all tasks under Item 3A.2-Floodplain Management Plan.	Preparation of draft (90% completion) and final (100% after addressing comments from the City) documents are included in this task.	Floodplain Management Plan document.
4.F.3	Climate Change and Resilience Plan			
4.F.3.a	Sea Level Rise	Create layers for the City's GIS the areas that will be impacted by the three scenarios-1.5 feet by 2050, 3 feet by 2080, and 4.5 feet by 2100.	Consultant will use existing information; no new SLR modeling will be done.	GIS layers representing flood extent and depth, and vulnerability outputs for nuisance and storm surge hazards evaluated across the planning horizons (Existing Conditions, 2050, 2080, and 2100). Database of planned and new mitigation projects. Website tools that citizens can use, or easy instructions and links to existing information.
4.F.3.b	Design Requirements Recommendations	Provide recommendations of design requirements for various development types, based on expected life cycle and climate changes.	Consultant will recommend improvements as typologies. No specific projects will be evaluated in detail.	Technical Memorandum of recommended design requirements.
4.F.3.c	Land Area Loss	Provide an estimated area of land that will be lost to sea level rise by each scenario, a strategy to adjust to changes, and potential resilient uses for that property.	This will be based on previous coastal erosion evaluation work in 3.A.2.d.	Tabular summaries of area losses by land use type by event type (nuisance flooding and storm surge) and time horizon.
4.F.3.d	Provide Results	Provide results, plans, programs, and/or products for all tasks under Item 3A.3-Climate Change and Resilience Master Plan.	Preparation of draft (90% completion) and final (100% after addressing comments from the City) documents are included in this task.	Resilience Master Plan document.

Task ID	Name	Task Description	Additional Scope Text	Deliverables List
4.G	Future Planning	Land uses and development trends within the City will also be examined so that mitigation options can be considered in future land use decisions. Post-disaster policies shall also be considered in terms of identifying those areas likely to be worst hit by a major event and determining possible preconceived strategies for rebuilding in a manner that is consistent with the goals and objectives of the master plans.	Consultant will extract relevant portions of the three master plans' findings and recommendations.	Technical Memorandum on current and future land development trends and possible mitigation options.
4.H	Resources	Ensure that the City's GIS remains a robust tool for making informed long and short term decisions. Develop new or enhance existing GIS layers. Any information should be linked to each structure. The GIS database layers will be provided to the City for use once the Master Plans are complete. Assemble in a single place as appendices, all resources, codes, regulations, guidance, studies, etc.... All this information in one easy to access location will assist departments and staff.	The functionality required of the web app will need to be defined as an initial step to be able to price the actual software development. Consultant will: 1. Facilitate charette with City staff to discuss content and functionality requirements 2. Develop bulleted description of content and functionality (draft, final incorporating City comments) 3. Develop detailed website design document (draft, final incorporating City comments) 4. Implement design document (to be hosted on City website)	Flood hazard and risk GIS layers (see 4.F.3.a). Web application to manage and display relevant flood-related information generated during the project that includes tools and instructions for citizen access and use.
4.J	Ordinances	Provide draft modifications of the changes necessary or recommended within the City's ordinances, regulations, or other locally adopted plans to support the master plans, including recommended policy changes or higher standards. Cite the sources for recommended modifications.	This will include suggested modifications but will not include legal and regulatory viability analyses, to be performed by City Attorney's office.	Technical Memorandum of recommended ordinance and regulation modifications.
4.K	Environmental Justice	Provide a plan for adaption strategies and programs that will address racial and economic inequalities for all aspects of the City's stormwater management program.	This task is covered under 3.F. It is listed here for consistency with the RFP and tracking purposes.	N/A (see 3.F).
4.L	Advisory Group	Provide recommended stakeholders for an advisory group to ensure varied interests will have input on decisions, revisions, and updates for the City's stormwater, floodplain, and resilience plans in the future. If possible, assist the City with establishing the group during the plan development process to ensure the group is involved with the development of the plans.	This task is covered under 3.G. It is listed here for consistency with the RFP and tracking purposes.	N/A (see 3.G).
4.M	Grant Funding	Prepare grant applications to acquire funding for the work performed through this RFP.	Consultant will specifically prepare Virginia CFPF grant applications for the development of all three master plans, and other applications as budgeted and directed by the City. The first grant application (for CFPF) is being prepared concurrently with this scope of work.	CFPF grant applications for all three master plans. Other applications as directed and budgeted.
4.N	Itemized Deliverables	Specific deliverables are listed for each task in this table. The consultant shall, at a minimum, provide the following deliverables. This list is not exclusive and any material deemed beneficial or necessary shall be included. 1. Key deliverables should be available in both hard copy and electronic formats. 2. Progress on tasks will be documented through interim reports, maps, drawings, and other presentation materials. (Items 4.N.3-13 are listed separately below.) 14. Additional deliverables that the City and consultant agree are helpful to meet the goals of the plans. 15. At a minimum each report shall include the following: a. An Executive Summary b. Colored maps that are clear, easy to understand, and of professional quality showing the City's existing infrastructure and watersheds, problem areas, and locations of recommended mitigation. c. Summary of existing stormwater system, existing buildings in SFHA, and areas of flooding due to climate change. Databases and GIS layers shall be included. d. Population projections, and future stormwater demand summary, SFHA impact, and climate change impact. e. Methodology and identification of sea level rise scenarios and projected areas impacted by increased frequency and duration storms. f. Summary of Documentation of methodologies and assumptions. g. Technical information, analysis, and discussion of results for each task making use of charts, graphs, and figures of professional quality to clearly and efficiently convey the information, findings and conclusions. h. Justification for recommended work to be accomplished. i. System condition assessment, proposed maintenance, and recommended replacement schedule. j. Analysis of City's current participation in the CRS program and items to improve rating and organize stormwater and floodplain management. k. Adaption plan, including mitigation strategies and detailed cost-benefit analysis for each strategy. l. Stormwater Capital Improvement Plan. m. Stormwater Rate Analysis. n. Other supporting documentation. o. Presentation materials. 16. Upon City approval of the draft plan, the consultant shall produce the final report and submit ten (10) printed copies and one (1) digital copy in PDF and/or Word format. Consultant shall provide all maps in GIS or appropriate format.	Extensive hard copy deliverables would be expensive on this project, likely exceeding \$100,000 in printing and handling costs. To control costs, the consultant will provide a dedicated, restricted-access website that will serve as a repository for all deliverables. All deliverables will be produced in electronic formats (typically Adobe Acrobat PDF, ESRI GIS, and Microsoft Office) and served on the dedicated website. Printing and shipping costs are included as Other Direct Charges (ODCs) where appropriate in the fee estimate for each task. Each master plan and subplan will be printed in hard copy format and delivered to the City.	
4.N.3	Final Written Report	A final written report that includes comprehensive documentation of each task under each master plan, based on the goals developed through this RFP.	This task will build upon the latest (final) revision to the Project Administration Plan and document progress for all tasks.	Final Written Report.
4.N.4	Public education package and implementation plan	Public education package and implementation plan including a comprehensive PowerPoint presentation, brochures, handouts, and website improvements and resources.	This task is covered under 2.C. It is listed here for consistency with the RFP and tracking purposes.	N/A (see 2.C).
4.N.5	Visual Displays for Public Presentations	Visual displays for public presentations, stakeholder, City Council, etc... should be supplied in digital and hard copy format. A presentation to the City Council summarizing the process and findings at a final submittal stage should be included.	This task is covered by other tasks, however budget is provided here for a final presentation to City Council.	PowerPoint and materials for presentation to City Council.
4.N.6	Conceptual Plans, Cost Estimates, Narratives	Recommended projects must be accompanied by conceptual plans in the form of project layouts superimposed on aerial imagery, preliminary estimates of costs, and narratives detailing the benefit for each proposed design.	Other tasks overlap this task, but specific budgeting for preparation of conceptual plans, costs estimates, and narrative development is provided under this task (for all three Master Plans).	Conceptual plans that include cost estimates and narratives. Each project will be documented entirely on a 24"x36" plan sheet; additional, separate documents are not required.
4.N.7	Draft Sub-Plans	Draft copies of the sub-plans for specific items listed under each master plan in Task #3-Assessment including, but not limited to, an environmental justice plan, an asset management plan, a maintenance plan, a coastal erosion plan, a shoreline/natural channel protection plan, a repetitive loss mitigation plan, a flood insurance plan, a natural functions plan, and a sea level rise plan. When applicable the plans shall be in compliance with FEMA's CRS requirements from 2017, amended in 2021.		
4.N.7.a	Environmental Justice Plan	See RFP item 4.N.7.	This component of the Master Plan is addressed under other tasks. The budget here provides for separate submission, review, and revisions of this sub-plan, which will be incorporated into the final Master Plan. The emphasis will be on delivering criteria and requirements that are actually usable, not merely producing fancy words.	Draft and revised versions of the Environmental Justice sub-plan.
4.N.7.b	Asset Management Plan	See RFP item 4.N.7.	This component of the Master Plan is addressed under other tasks. The budget here provides for separate submission, review, and revisions of this sub-plan, which will be incorporated into the final Master Plan.	Draft and revised versions of the Asset Management sub-plan.
4.N.7.c	Maintenance Plan	See RFP item 4.N.7.	This component of the Master Plan is addressed under other tasks. The budget here provides for separate submission, review, and revisions of this sub-plan, which will be incorporated into the final Master Plan.	Draft and revised versions of the Maintenance sub-plan.
4.N.7.d	Coastal Erosion Plan	See RFP item 4.N.7.	This component of the Master Plan is addressed under other tasks. The budget here provides for separate submission, review, and revisions of this sub-plan, which will be incorporated into the final Master Plan.	Draft and revised versions of the Coastal Erosion sub-plan.
4.N.7.e	Shoreline/Natural Channel Protection Plan	See RFP item 4.N.7.	This component of the Master Plan is addressed under other tasks. The budget here provides for separate submission, review, and revisions of this sub-plan, which will be incorporated into the final Master Plan.	Draft and revised versions of the Shoreline/Natural Channel Protection sub-plan.
4.N.7.f	Repetitive Loss Mitigation Plan	See RFP item 4.N.7.	This component of the Master Plan is addressed under other tasks. The budget here provides for separate submission, review, and revisions of this sub-plan, which will be incorporated into the final Master Plan.	Draft and revised versions of the Repetitive Loss Mitigation sub-plan.

Task ID	Name	Task Description	Additional Scope Text	Deliverables List
4.N.7.g	Flood Insurance Plan	See RFP item 4.N.7.	This component of the Master Plan is addressed under other tasks. The budget here provides for separate submission, review, and revisions of this sub-plan, which will be incorporated into the final Master Plan.	Draft and revised versions of the Flood Insurance sub-plan.
4.N.7.h	Natural Functions Plan	See RFP item 4.N.7.	This component of the Master Plan is addressed under other tasks. The budget here provides for separate submission, review, and revisions of this sub-plan, which will be incorporated into the final Master Plan.	Draft and revised versions of the Natural Functions sub-plan.
4.N.7.i	Sea Level Rise Plan	See RFP item 4.N.7.	This component of the Master Plan is addressed under other tasks. The budget here provides for separate submission, review, and revisions of this sub-plan, which will be incorporated into the final Master Plan.	Draft and revised versions of the Sea Level Rise sub-plan.
4.N.10	Public Engagement Summary	Public engagement summary that documents the public engagement process, problem areas, common concerns, requests, comments and other findings.	This task can occur after substantial completion of public engagement activities.	Memorandum summarizing all public engagement activities, issues, and concerns identified during the master plan development process (addressing all three master plans).
4.N.12	Recommended Modifications to City Ordinances	Draft and final recommended modifications to City ordinances at least including the Stormwater Management Ordinance, Subdivision Regulations ordinance, Floodplain ordinance, Stormwater Design Criteria Manual, and potential Resilience Ordinance.	This does not include legal or regulatory analyses for enactment.	Draft and final recommended modifications to City ordinances at least including the Stormwater Management Ordinance, Subdivision Regulations ordinance, Floodplain ordinance, Stormwater Design Criteria Manual, and potential Resilience Ordinance.
4.N.13	Draft Plans	Draft versions of the Stormwater Management Master Plan, Floodplain Management Plan, and Climate Change and Resiliency Master Plan. Upon completion of all tasks, the Consultant shall submit four (4) printed copies and 1 digital copy in PDF format of a draft plan reports to the City for review and comment. Consultant shall incorporate City review comments of the draft materials and resubmit for additional reviews until final City approval of the draft materials. At a minimum the each report shall include the following: a. An Executive Summary b. Colored maps that are clear, easy to understand, and of professional quality showing the City's existing infrastructure and watersheds, problem areas, and locations of recommended mitigation. c. Summary of existing stormwater system, existing buildings in SFHA, and areas of flooding due to climate change. Databases and GIS layers shall be included. d. Population projections, and future stormwater demand summary, SFHA impact, and climate change impact. e. Methodology and identification of sea level rise scenarios and projected areas impacted by increased frequency and duration storms. f. Summary of Documentation of methodologies and assumptions. g. Technical information, analysis, and discussion of results for each task making use of charts, graphs, and figures of professional quality to clearly and efficiently convey the information, findings and conclusions. h. Justification for recommended work to be accomplished. i. System condition assessment, proposed maintenance, and recommended replacement schedule. j. Analysis of City's current participation in the CRS program and items to improve rating and organize stormwater and floodplain management. k. Adaption plan, including mitigation strategies and detailed cost-benefit analysis for each strategy. l. Stormwater Capital Improvement Plan. m. Stormwater Rate Analysis. n. Other supporting documentation. o. Presentation materials.		
4.N.13.a	Stormwater Management Plan	See RFP item 4.N.13.	This task provides budget for assembling and editing the Stormwater Master Plan, creating content not produced under other tasks, preparing the first draft submittal, responding to one (1) set of consolidated comments, submitting the second draft, responding to one (1) more set of consolidated comments, and submitting the final Stormwater Master Plan.	1st and 2nd versions of the Draft Stormwater Management Plan, and the Final Stormwater Management Plan.
4.N.13.b	Floodplain Management Plan	See RFP item 4.N.13.	This task provides budget for assembling and editing the Floodplain Management Master Plan, creating content not produced under other tasks, preparing the first draft submittal, responding to one (1) set of consolidated comments, submitting the second draft, responding to one (1) more set of consolidated comments, and submitting the final Floodplain Management Master Plan.	1st and 2nd versions of the Draft Floodplain Management Plan, and the Final Floodplain Management Plan.
4.N.13.c	Climate Change and Resilience Plan	See RFP item 4.N.13.	This task provides budget for assembling and editing the Climate Change and Resilience Master Plan, creating content not produced under other tasks, preparing the first draft submittal, responding to one (1) set of consolidated comments, submitting the second draft, responding to one (1) more set of consolidated comments, and submitting the final Climate Change and Resilience Master Plan.	1st and 2nd versions of the Draft Climate Change and Resilience Plan, and the Final Climate and Resilience Plan.

Grant Application

**Master Plan Development for Citywide
Stormwater Management, Floodplain Management, and
Resilience & Climate Change Management**

**Attachment 7
Authorization to Apply for
CFPF Grant**



City of
Newport News
Office of the City Manager

October 26, 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

Re: Virginia CFPF Grant Application - Authorization to Request Funding
CID510103 -City of Newport News, Virginia

Dear CFPF:

This letter serves to provide certification that I, as the City Manager for the City of Newport News, Virginia, have provided authorization for submission of the Stormwater Master Planning CFPF grant funding application in accordance with the CFPF Grant Manual.

Furthermore, I certify that the City has dedicated sufficient funding to cover the required matching fund with the understanding that awards granted under the CFPF will be disbursed in accordance with the CFPF Grant Manual by the Virginia Resources Authority. The City will utilize Stormwater Utility Service Charge collections to fund the project. Stormwater Utility Services are authorized under Chapter 37.1, Article 2 of the City's Code of Ordinances.

Please direct any additional questions to Mr. Hai Tran, PE at (757) 926-8264 or tranhn@nnva.gov

Sincerely,



Cynthia D. Rolf
City Manager

CDR:HNT:mjd

Grant Application

**Master Plan Development for Citywide
Stormwater Management, Floodplain Management, and
Resilience & Climate Change Management**

Attachment 8
FY 2023 Recommended
Budget (Excerpt)

STORMWATER DRAINAGE

Recommended

Project Name	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	5 Year Total
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* New Project

CASH CAPITAL - OPERATING BUDGET						
Citywide Drainage	\$900,000	\$900,000	\$900,000	\$1,000,000	\$1,000,000	\$4,700,000
Citywide Mapping & Modeling	\$100,000	\$150,000	\$150,000	\$150,000	\$150,000	\$700,000
Citywide Pipe Lining Projects	\$500,000	\$600,000	\$600,000	\$600,000	\$600,000	\$2,900,000
Citywide Swale Projects	\$300,000	\$400,000	\$400,000	\$400,000	\$400,000	\$1,900,000
Facility Maintenance	\$100,000	\$100,000	\$100,000	\$150,000	\$150,000	\$600,000
Lake Maintenance and Dredging	\$350,000	\$350,000	\$350,000	\$350,000	\$350,000	\$1,750,000
Municipal Separate Storm Sewer System (MS4) Water Quality Monitoring	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$250,000
Resilience Projects & Programs	\$100,000	\$200,000	\$200,000	\$200,000	\$400,000	\$1,100,000
*Citywide Annual Stormwater Construction Projects	\$300,000	\$300,000	\$300,000	\$300,000	\$300,000	\$1,500,000
*Nottingham Channel Improvements	\$0	\$0	\$0	\$750,000	\$300,000	\$1,050,000
*Stoney Run Drainage Analysis and Improvements	\$200,000	\$1,050,000	\$1,050,000	\$850,000	\$1,100,000	\$4,250,000
*Stormwater Master Plans	\$500,000	\$0	\$0	\$0	\$0	\$500,000
TOTAL CASH CAPITAL - OPERATING BUDGET:	\$3,400,000	\$4,100,000	\$4,100,000	\$4,800,000	\$4,800,000	\$21,200,000

GEN OBLIGATION BOND (GOB)						
32nd Street Drainage Improvements	\$0	\$0	\$600,000	\$1,600,000	\$0	\$2,200,000
City Center at Oyster Point Drainage Infrastructure	\$0	\$0	\$600,000	\$800,000	\$1,000,000	\$2,400,000
CNI/Jefferson & Ivy	\$500,000	\$0	\$0	\$0	\$0	\$500,000
CNI/Marshall Ridley Drainage Infrastructure	\$400,000	\$800,000	\$300,000	\$0	\$0	\$1,500,000
CNI/Seafood Industrial Park Stormwater Outfall Trash Gate	\$500,000	\$550,000	\$0	\$0	\$0	\$1,050,000
Colberts Lane Drainage Improvements	\$500,000	\$0	\$0	\$0	\$0	\$500,000
Hilton South Drainage Improvements	\$0	\$250,000	\$750,000	\$1,000,000	\$1,000,000	\$3,000,000
Huxley Place Drainage Improvements	\$0	\$1,200,000	\$0	\$0	\$0	\$1,200,000
Newmarket Creek Drainage Analysis and Improvements	\$500,000	\$150,000	\$750,000	\$1,000,000	\$500,000	\$2,900,000
Nicewood Drainage Improvements	\$0	\$700,000	\$1,150,000	\$0	\$0	\$1,850,000
Raleigh Road Drainage Improvements	\$150,000	\$600,000	\$600,000	\$0	\$0	\$1,350,000
Warwick Landing Channel Improvements	\$450,000	\$0	\$0	\$0	\$0	\$450,000
*Jones Run Stormwater Management Facility Improvements	\$300,000	\$0	\$0	\$0	\$0	\$300,000
*Newmarket Village Drainage Improvements	\$0	\$0	\$0	\$0	\$1,400,000	\$1,400,000
*Nottingham Channel Improvements	\$0	\$0	\$0	\$200,000	\$0	\$200,000
*Salters Creek Drainage Improvements	\$0	\$700,000	\$750,000	\$1,100,000	\$1,400,000	\$3,950,000
*Stoney Run Drainage Analysis and Improvements	\$200,000	\$750,000	\$400,000	\$400,000	\$1,000,000	\$2,750,000
*Stormwater Master Plans	\$2,000,000	\$0	\$0	\$0	\$0	\$2,000,000
TOTAL GEN OBLIGATION BOND (GOB):	\$5,500,000	\$5,700,000	\$5,900,000	\$6,100,000	\$6,300,000	\$29,500,000

GRANT FUNDING						
Governor Dr Channel Stabilization	\$900,000	\$0	\$0	\$0	\$0	\$900,000
Newmarket Creek Drainage Analysis and Improvements	\$0	\$0	\$300,000	\$400,000	\$0	\$700,000
Warwick Landing Channel Improvements	\$550,000	\$0	\$0	\$0	\$0	\$550,000
*James River Shoreline Stabilization-River Rd	\$1,880,000	\$0	\$0	\$0	\$0	\$1,880,000
*Nottingham Channel Improvements	\$0	\$0	\$0	\$0	\$1,125,000	\$1,125,000
*Salters Creek Drainage Improvements	\$0	\$0	\$300,000	\$0	\$600,000	\$900,000
*Stoney Run Drainage Analysis and Improvements	\$0	\$400,000	\$400,000	\$0	\$500,000	\$1,300,000
*Stormwater Master Plans	\$4,000,000	\$0	\$0	\$0	\$0	\$4,000,000
TOTAL GRANT FUNDING:	\$7,330,000	\$400,000	\$1,000,000	\$400,000	\$2,225,000	\$11,355,000

STORMWATER DRAINAGE TOTAL:	\$16,230,000	\$10,200,000	\$11,000,000	\$11,300,000	\$13,325,000	\$62,055,000
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Master Plans Budget = \$6,500,000



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

CID510103_NewportNewsCity_CFPF-3 Grant Submission

1 message

Angle, Kathie K. <anglekk@nnva.gov>

Wed, Nov 3, 2021 at 7:57 AM

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

Cc: "Tran, Hai N." <tranhn@nnva.gov>, Doug Fritz <dfritz@gky.com>, John Paine <jpaine@gky.com>

Virginia Department of Conservation and Recreation

Division of Dam Safety and Floodplain Management

On behalf of the City of Newport News, please find attached a complete Community Flood Preparedness Fund grant application for the Master Plan Development for Citywide Stormwater Management, Floodplain Management, and Resilience & Climate Change Management. If you have any questions, please feel free to contact Kathie K. Angle, PE, CFM (757.926.8655; anglekk@nnva.gov).

Thanks,

*Kathie Angle, PE, CFM***Supervising Engineer–Civil Design Stormwater****City of Newport News**[2400 Washington Ave](#), Engineering (7th Floor)

Newport News, VA 23607

O-(757)926-8655

M-(757)274-7164

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