



# CITY OF SUFFOLK

P.O. BOX 1858, SUFFOLK, VIRGINIA 23439-1858 PHONE: (757) 514-4012

CITY MANAGER

April 6, 2022

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

Dear Sir or Ma'am:

Please accept this written correspondence as signed documentation authorizing the City of Suffolk's request for funding from Round 3 of the 2022 Virginia Community Flood Preparedness Fund (CFPF).

The CFPF funding would enable the City of Suffolk to conduct an updated study to the Kimberly Bridge Feasibility Study. The cost of the proposed study is \$298,747.16. Following the 90% Fund/10% Match requirements for this category, the City respectfully requests funding from the CFPF in the amount of \$268,872.44. Furthermore, the City will provide the 10% matching contribution from the Public Works Professional Services budget, in the amount of \$29,874.72

Thank you for your consideration of this grant proposal. If you have any questions about this proposal please contact Matt Fanghella at 757-514-7675 or [mfanghella@suffolkva.us](mailto:mfanghella@suffolkva.us) or Heather Baggett at 757-514-7627 or [hbaggett@suffolkva.us](mailto:hbaggett@suffolkva.us).

Sincerely,

Albert S. Moor, II P.E.  
City Manager

p.c. Robert Lewis, Director of Public Works

## Appendix A: Application Form for Grant Requests for All Categories

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

Name of Local Government: City of Suffolk

Category of Grant Being Applied for (check one):

☐ Capacity Building/Planning

☐ Project

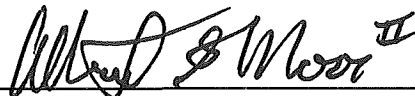
☒ Study

NFIP/DCR Community Identification Number (CID): 510156

If a state or federally recognized Indian tribe, Name of tribe: n/a

Name of Authorized Official: Albert S. Moor, II P.E.

Signature of Authorized Official: \_\_\_\_\_



Mailing Address (1): P.O. Box 1858

Mailing Address (2): City Manager's Office

City: Suffolk

State: VA

Zip: 23439

Telephone Number: (757) 514-7675

Cell Phone Number: (757) 266-7924

Email Address: amoor@suffolkva.us

**Contact Person (If different from authorized official):** Matt Fanghella, EIT

**Mailing Address (1):** P.O. Box 1858

**Mailing Address (2):** Public Works Engineering

**City:** Suffolk

**State:** VA

**Zip:** 23439

**Telephone Number:** (757) 514-7675

**Cell Phone Number:** (757) 266-7924

**Email Address:** mfanghella@suffolkva.us

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):** Suffolk, Virginia

**NFIP Community Identification Number (CID#):** (See appendix F 510156)

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

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

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

**Flood Insurance Rate Map Number(s) (If Applicable):** 5101560227E

**Total Cost of Project:** \$ 298,747.16

**Total Amount Requested:** \$ 268,872.44

## Appendix C: Scoring Criteria for Studies

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

<b>Applicant Name:</b>	City of Suffolk, Virginia	
<b>Eligibility Information</b>		
<b>Criterion</b>	<b>Description</b>	<b>Check One</b>
<b>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)?</b>		
Yes	Eligible for consideration	X
No	Not eligible for consideration	
<b>2. Does the local government have an approved resilience plan and has provided a copy or link to the plan with this application?</b>		
Yes	Eligible for consideration under all categories	
No	Eligible for consideration for studies, capacity building, and planning only	X
<b>3. If the applicant is <u>not</u> a town, city, or county, are letters of support from all affected local governments included in this application?</b>		
Yes	Eligible for consideration	N/A
No	Not eligible for consideration	
<b>4. Has this or any portion of this project been included in any application or program previously funded by the Department?</b>		
Yes	Not eligible for consideration	
No	Eligible for consideration	X
<b>5. Has the applicant provided evidence of an ability to provide the required matching funds?</b>		
Yes	Eligible for consideration	X
No	Not eligible for consideration	
N/A	Match not required	

<b>Studies Eligible for Consideration</b>		<input checked="checked" type="checkbox"/> <b>Yes</b> <input type="checkbox"/> <b>No</b>	
<b>Applicant Name:</b>	City of Suffolk, Virginia		
<b>Scoring Information</b>			
<b>Criterion</b>	<b>Point Value</b>	<b>Points Awarded</b>	
<b>6. Eligible Studies (Select all that apply)</b>			
Revising 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.	<b>30</b>		
Creating tools or applications to identify, aggregate, or display information on flood risk or creating a crowd-sourced mapping platform that gathers data points about real-time flooding. This could include a locally or regionally based web-based mapping product that allows local residents to better understand their flood risk.	<b>15</b>		
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).	<b>35</b>	<b>35</b>	
Studies and Data Collection of Statewide and Regional Significance. Funding of studies of statewide and regional significance and proposals will be considered for the following types of studies:			
<input type="checkbox"/> Updating precipitation data and IDF information (rain intensity, duration, frequency estimates) including such data at a sub-state or regional scale on a periodic basis.	<b>45</b>		
<input type="checkbox"/> Regional relative sea level rise projections for use in determining future impacts.	<b>45</b>		
<input type="checkbox"/> Vulnerability analysis either statewide or regionally to state transportation, water supply, water treatment, impounding structures, or other significant and vital infrastructure from flooding.	<b>45</b>	<b>45</b>	
<input type="checkbox"/> Flash flood studies and modeling in riverine regions of the state.	<b>45</b>		
<input type="checkbox"/> Statewide or regional stream gauge monitoring to include expansion of existing gauge networks.	<b>45</b>		

<input type="checkbox"/> New or updated delineations of areas of recurrent flooding, stormwater flooding, and storm surge vulnerability in coastal areas that include projections for future conditions based on sea level rise, more intense rainfall events, or other relevant flood risk factors.	45	
<input type="checkbox"/> Regional flood studies in riverine communities that may include watershed-scale evaluation, updated estimates of rainfall intensity, or other information.	50	
<input type="checkbox"/> Regional hydrologic and hydraulic studies of floodplains.	45	
<input type="checkbox"/> Studies of potential land use strategies that could be implemented by a local government to reduce or mitigate damage from coastal or riverine flooding.	40	40
<input type="checkbox"/> Other proposals that will significantly improve protection from flooding on a statewide or regional basis	35	35
<b>7. Is the study area socially vulnerable? (Based on <a href="#">ADAPT VA's Social Vulnerability Index Score.</a>)</b>		
Very High Social Vulnerability (More than 1.5)	15	
High Social Vulnerability (1.0 to 1.5)	12	12
Moderate Social Vulnerability (0.0 to 1.0)	8	
Low Social Vulnerability (-1.0 to 0.0)	0	
Very Low Social Vulnerability (Less than -1.0)	0	
<b>8. Is the proposed study part of an effort to join or remedy the community's probation or suspension from the NFIP?</b>		
Yes	10	
No	0	0
<b>9. Is the proposed study in a low-income geographic area as defined in this manual?</b>		
Yes	10	10
No	0	
<b>10. Projects eligible for funding may also reduce nutrient and sediment pollution to local waters and the Chesapeake Bay and assist the Commonwealth in achieving local and/or Chesapeake Bay TMDLs. Does the proposed project include implementation of one or more best management practices with a nitrogen, phosphorus, or sediment reduction efficiency established by the Virginia Department of Environmental Quality or the Chesapeake Bay Program Partnership in support of the Chesapeake Bay TMDL Phase III Watershed Implementation Plan?</b>		
Yes	5	
No	0	0
<b>Total Points</b>		<b>177</b>



## Appendix D: Checklist All Categories

Virginia Department of Conservation and Recreation

Community Flood Preparedness Fund Grant Program

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Scope of Work Narrative	
Supporting Documentation	Included
Detailed map of the project area(s) (Projects/Studies)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
FIRMette of the project area(s) (Projects/Studies)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Historic flood damage data and/or images (Projects/Studies)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input 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
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
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
Social vulnerability index score(s) for the project area from <a href="#">ADAPT VA's Virginia Vulnerability Viewer</a>	<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



# **City of Suffolk – Department of Public Works**

## **2022 Virginia Community Flood Preparedness Fund Grant Round 3**

### **Update to Kimberly Bridge Feasibility Study**

#### ***Part IV***

#### ***A. Scope of Work Narrative – Studies***

The City of Suffolk is submitting this grant application to the Virginia Community Flood Preparedness Fund in the Study category. Specifically, the City is requesting funding to partially fund an updated study of the Kimberly Bridge Feasibility Study.

#### ***1. Type of Study and Details of the Study***

For several decades, there has been a recurring flooding problem on North Main Street (U.S. Route 32/U.S. Route 460 Business) at the Kimberly Bridge that crosses the Nansemond River in the downtown area of Suffolk. This flooding occurs during large rain events, but flooding also occurs during dry weather as a result of wind-driven, high tides in the Nansemond River. Storm drains on the eastern and western sides of North Main St. north of the Kimberly Bridge discharge stormwater from the roadway to the river, via a network of underground drainage pipes. When tides are high enough, river water enters the pipes causing it to overtop the storm drains and flood the roadway on North Main Street. Often the water is high enough to flood the entire roadway, preventing passage of vehicle and pedestrian traffic. This is of great concern to many Suffolk citizens, as this is a major thoroughfare for vehicle traffic from southern Suffolk to the North Main Street area that is home to many integral businesses, such as grocery stores, gas stations, banks, restaurants, doctor's offices, and specifically Walmart and Lowes. Additionally, the Kimberly Bridge serves as a major route for emergency vehicles to Sentara Obici Hospital, which serves both Suffolk residents as well as residents from northeast North Carolina who rely on this critical infrastructure as their closest medical facility. When this part of North Main Street is impassable, the alternate routes along Portsmouth Blvd, Route 58, Pitchkettle Road, and Wilroy Road often see back-ups of several miles, which can be further exacerbated during peak travel times. Occasionally flooding of the Kimberly Bridge area results in flooding of adjacent properties and businesses. These include a gas station and an automotive service center, both of which have the potential to immediately contaminate the Nansemond River when flooded. The most recent large flooding event in this area occurred on January 3<sup>rd</sup>, 2022, as a result of a combination of heavy rain, high tides, and windy conditions (see attached photos). During this event there was a release of petroleum product from the automotive service center into the Nansemond River. See attached photos of flooding during the January 3, 2022 event, during Hurricane Matthew in October 2016, and during Hurricane Sandy in October 2012, which are just a few examples of severe and recurrent flooding in this area.

The City of Suffolk is seeking CFPF grant funding to develop a new and updated study of the Kimberly Bridge flooding issue and plans to contract with the engineering consultant Moffatt and Nichol to develop this study. In 2013, the City of Suffolk contracted the engineering firm, RK&K, to conduct a study to determine the cause of recurrent flooding in the Kimberly Bridge area and to develop recommendations for alleviating the flooding issues. The new study will focus more on resiliency by incorporating impacts associated with climate change and sea level rise that were not considered in the previous study. It will include conceptual design phase (10% design) engineering for raising the road and bridge along N. Main Street and the Kimberly Bridge for three (3) design alternatives. Field investigations will include planimetric and topographic mapping of the area, a bathymetric survey of the river, and a bridge survey to confirm existing conditions. Also, a drainage analysis of the area will be completed on the existing infrastructure, as well as a hydrologic and hydraulic analysis. The hydrologic and hydraulic analysis will include an analysis of the natural, existing, and proposed conditions of the project site. This will include an analysis of the impacts of each of three design scenarios, all of which will use a minimum finished grade elevation for the 100-year return period flood event with additional elevation to

account for sea level rise and additional freeboard. A hydraulic model will be developed to compare the hydraulic effects of each alternative design with the existing conditions of the river. Additionally, the study will provide updates to construction and property acquisition costs and a Phase I Environmental Site Assessment to determine potential sources of contamination.

## **2. Benefit of the Study to Community Resilience**

Several times per year, depending largely on wind-driven tides in the Nansemond River and also during large rain events, North Main Street immediately north of the Kimberly Bridge in Downtown Suffolk is completely inundated with water, to the point that it is impassable by vehicle traffic. This North Main Street route over the Kimberly Bridge is a major thoroughfare utilized by many residents of Suffolk, connecting southern Suffolk to North Main Street which is the location of many businesses and residences. Also, North Main Street serves as a primary route to Sentara Obici Hospital, for both Suffolk residents and residents of North Carolina who live near the North Carolina – Virginia state line. This portion of North Main Street is one of the most heavily traveled arterial roadways in the city, experiencing an Annual Average Daily Traffic Volume (AADT) of 26,000 vehicles per the 2020 Virginia Department of Transportation Daily Traffic Volume Estimates. This is also a popular route for Suffolk’s public transportation system, Suffolk Transit, which enables lower income and disabled residents to reach everyday destinations such as jobs, schools, healthcare, and grocery stores.

While a study of this flooding issue was conducted in 2013, it did not incorporate future impacts from sea level rise and climate change. It considered design alternatives for the 25 and 50-year flood elevations, and these design scenarios do not alleviate the current flooding nor do they mitigate the risk from future flooding. The new study will focus more on resiliency by incorporating future impacts from sea level rise and climate change. All three design alternatives will use a minimum finished grade elevation for the 100-year return period flood event with additional elevation to account for sea level rise and additional freeboard. Additionally, all design alternatives in the new study will increase the hydraulic opening beneath the Kimberly Bridge to prevent future flooding of the bridge and allow larger boats to travel beneath the bridge, which is especially important for emergency boat access, as well as recreational boating activity.

The new study will also include a Phase I Environmental Site Assessment to identify any potential environmental contamination in the area. The Nansemond River is immediately adjacent to the project area, and flood waters directly impact the river. In close proximity to the bridge is a gas station and an automotive service center, which both pose an immediate threat to the Nansemond River when this area floods. Preventing flooding of North Main Street could improve the water quality in the Nansemond River by minimizing potential contamination by receding floodwaters and minimizing the inundation of sewer infrastructure, sewer backups, and overflows. Residents of all income classes enjoy the aesthetic beauty of the river as well as the recreational aspects that include fishing, boating, and kayaking. Minimizing flooding in the area will help preserve the fish and wildlife that thrive in the Nansemond River.

The City plans to convert any properties acquired through the Kimberly Bridge project into green space and/or public outdoor recreational areas. Simultaneously, the Suffolk Parks and Recreation department has plans under development to turn the City-owned area immediately northeast of the Kimberly Bridge into a park with a living shoreline along the riverfront portion of the parcel. This is a nature-based solution that will mitigate flooding and provide a recreational area for Suffolk’s citizens, increasing access and enjoyment of the Nansemond River.

Furthermore, the median household income in the study area is \$63,386, which is less than 80% of the median household income for the City of Suffolk of \$79,899, as identified by Census.gov from 2016 – 2020 data. Hence, the study area meets the definition of a “low-income geographic area” as defined by the *2022 Virginia Community Flood*

*Preparedness Fund Round 3 Grant Manual.* The adaptation and protection efforts identified by this study will work to enhance equity throughout the project area, which is a key Commonwealth Resilience Planning Principle.

### **3. Qualifications**

The Kimberly Bridge Feasibility Study and grant award will be managed by the City of Suffolk Public Works Engineering Division. Public Works Engineering staff members have a strong knowledge of the City's stormwater system, work with flooding and drainage concerns within the city on a daily basis, and lead resiliency initiatives in the City. Furthermore, two staff members are in training to earn their Certified Floodplain Manager (CFM) Certifications. The City's consultant, Moffatt and Nichol, will conduct this study under the direction of the consultant's Project Manager who is a licensed Professional Engineer (P.E.) with over fourteen years of experience in municipal and state bridge inspection and engineering services. Moffatt and Nichol is a leading engineering-firm in bridge design and resiliency in the region.

### **4. Objectives of the Study and Regional Resilience**

The objectives of the Kimberly Bridge study include:

- Identifying the cause of flooding in this area
- Identifying potential flood protection and flood reduction projects within this area with the following goals:
  - Reduce flooding of the North Main Street and Kimberly Bridge area so that vehicle traffic will be inhibited less frequently, which also allows passage of critical emergency traffic and personnel to Sentara Obici Hospital.
  - Increase resiliency of Suffolk's roadways by incorporating impacts of sea level rise and climate change, raising the project area to the 100-year flood elevation, at a minimum.
  - Reduce flooding of critical infrastructure, ultimately reducing pollution to the Nansemond River.
  - Reduce flooding of properties that have the potential to contaminate the environment, protecting fish and wildlife habitat in the Nansemond River and preserving the recreational benefits of the river that include fishing, boating, and kayaking.
  - Increase the hydraulic opening beneath the Kimberly Bridge to prevent flooding of the bridge and allow larger boats to travel beneath the bridge (for emergency access and recreational use).

The City of Suffolk Public Works Department will vet the proposed design alternatives identified as part of this study. The results of this study will be incorporated into the City-wide Resilience Plan. The flooding issue at the North Main Street crossing of the Nansemond River is also described in the City of Suffolk's May 2004 Stormwater Master Plan (available upon request). Funding for further design and construction of identified design alternatives would be sought through the City's Capital Improvement Plan (CIP) as well as grant programs such as Virginia Department of Conservation and Recreation Community Flood Preparedness Fund, the Federal Emergency Management Building Resilient Infrastructure and Communities Grant, and Virginia Department of Transportation funding sources.

The City of Suffolk, with the assistance of Timmons Group, developed a survey with resilience-based questions that was made available to the public from March 1, 2022 through March 31, 2022. The purpose of the survey was to receive input from citizens to guide projects for the Resilience Plan that is currently under development. In the survey, a total of 84 of 123 survey respondents noted Main Street as a street they travel on that floods. In addition, there was an overwhelming response to the survey on social media, where many residents expressed their frustration with the flooding on N. Main Street.

Improvements to the Kimberly Bridge and the reduction of flooding on N. Main Street will positively impact many communities within Suffolk as well as neighboring communities in northeast North Carolina. This is a main thoroughfare for residents to reach necessities such as grocery stores, banks, gas stations, doctor's offices, schools, etc., and a main route to Sentara Obici Hospital, as well as a hurricane evacuation route. This portion of North Main Street is one of the most heavily traveled arterial roads in the city, experiencing an Annual Average Daily Traffic Volume (AADT) of 26,000 vehicles per the 2020 Virginia Department of Transportation Daily Traffic Volume Estimates. This study will also result in more resilient utility infrastructure and identify opportunities to reduce the impacts of flooding on utility infrastructure within the study corridor.

Throughout the rest of Hampton Roads and the Commonwealth of Virginia, many communities face challenges of infrastructure flooding and tidal influence coupled with sea level rise. The proposed study may provide best practices that could be used as case studies in other settings of this type, while also providing a framework for studies focused on targeted infrastructure flood resilience problems. The City is an active participant on several Hampton Roads Planning District Commission (HRPDC) Committees including The Coastal Resiliency Committee, The Regional Stormwater Workgroup, and The Regional Environmental Committee. The City is also an active participant in the Hampton Roads Transportation Planning Organization (HRTPO) and its sub-committees. City staff are willing to share the results and findings of this study with peers and colleagues from other localities to use as a template for studies in their communities, if they see a benefit and/or need.

## **5. Statewide Context**

The study funded by this grant will improve Virginia's flood protection and prevention capabilities, from a transferability and statewide context. Communities across the Commonwealth face the challenges of infrastructure flooding and tidal influence coupled with sea level rise. The proposed study may provide best practices that could be used as case studies in other settings of this type, while also providing a framework for studies focused on targeted infrastructure flood resilience problems.

### **D. Budget Narrative – All Grant Categories**

The median household income in the study area of zip code 23434 is \$63,386, which is less than 80% of the median household income for the City of Suffolk, as identified by Census.gov from 2016 – 2020 data. Hence, the study area meets the definition of a "low-income geographic area" as defined by the *2022 Virginia Community Flood Preparedness Fund Round 3 Grant Manual*. As a result, the City of Suffolk is seeking funding support for 90% of the proposed Finney Outfall to Nansemond River Drainage Study.

The total cost for the proposed study is \$298,747.16 According to the guidance outlined in the DCR 2022 Round 3 Grant Manual for the Virginia Community Flood Preparedness Fund, grant matching requirements for the Flood Prevention and Protection studies that are located in and serve a low-income geographic area are eligible for a Fund 90% / Match 10% ratio. Therefore, the City respectfully requests financial assistance from the Fund in the amount of \$268,872.44 and the City is committing to fund the remaining \$29,874.72 via the Stormwater Utility Fund from the Professional Services line of the annual operating budget for Public Works Engineering. Evidence of the City of Suffolk's ability to obtain these funds to partially fund the proposed study is found on Page 243 of the City of Suffolk FY 2021-2022 Adopted Operating and Capital Budget, which can be found on the City website at the following link:

<https://www.suffolkva.us/DocumentCenter/View/5717/FY-2021-2022-Adopted-Operating-and-Capital-Budget> A summary of the financial costs for the proposed study is shown in Table 1, below.

All match funding will be used towards consultant work to complete the study, along with the \$29,874.72 of contributed City funds. In addition to the direct funding included as a match, the City of Suffolk also commits to managing all aspects

of project management using existing qualified staff. A detailed breakdown of how the proposed funding for the Kimberly Bridge Feasibility Study will be used is shown in the Table included in the Moffatt and Nichol Scope of Work and Fee documents, attached to this application. Furthermore, signed documentation from the City Manager authorizing the request for funding is included with this application.

*Table 1. Costs for Kimberly Bridge Feasibility Study*

Flood Prevention and Protection Studies in Low-Income Geographic Areas - Fund 90% / Match 10%			
Item	Total	Request from Grant Fund	Match
Kimberly Bridge Feasibility Study	\$ 298,747.16	\$ 268,872.44	\$ 9,874.72
Total Project Cost:			\$ 298,747.16
Amount of funds requested from the Fund			\$ 268,872.44
Amount of contribution by City:			\$ 29,874.72

**Attachments:**

**Link to the current floodplain ordinance:**

Unified Development Ordinance Article 4- Sec. 31-416.2- Floodplain Overlay District

[https://library.municode.com/va/suffolk/codes/unified\\_development\\_ordinance?nodeId=SUFFOLK\\_UNIFIED\\_DEVELOPMENT\\_ORDINANCE\\_ART4ZO\\_S31-416.2FLOVDIF](https://library.municode.com/va/suffolk/codes/unified_development_ordinance?nodeId=SUFFOLK_UNIFIED_DEVELOPMENT_ORDINANCE_ART4ZO_S31-416.2FLOVDIF)

Unified Development Ordinance Appendix B- B-15- Flood Prevention Plan

[https://library.municode.com/va/suffolk/codes/unified\\_development\\_ordinance?nodeId=SUFFOLK\\_UNIFIED\\_DEVELOPMENT\\_ORDINANCE\\_APXBSURE\\_B-15FLPRPL](https://library.municode.com/va/suffolk/codes/unified_development_ordinance?nodeId=SUFFOLK_UNIFIED_DEVELOPMENT_ORDINANCE_APXBSURE_B-15FLPRPL)

**A link to the current hazard mitigation plan:**

2017 Hampton Roads Hazard Mitigation Plan and Appendices

<https://www.hrpdcva.gov/library/view/620/2017-hampton-roads-hazard-mitigation-plan-and-appendices/>

**A link to the current comprehensive plan:**

City of Suffolk, Virginia 2026 Comprehensive Plan

<https://www.suffolkva.us/DocumentCenter/View/890/2026-Comprehensive-Plan-PDF>

**Social vulnerability index score from ADAPT VBA's Virginia Vulnerability Viewer:**

According to ADAPT VA's Virginia Vulnerability Viewer, the focus area of this study received a score of High Social Vulnerability.





Flooding of North Main Street (U.S. Route 32/U.S. 460 Business) on Jan. 3, 2022; resulted in extended road closures and traffic detours for several hours. Photo is looking northward on North Main Street.



Floodwaters and Nansemond River Tides rise above the hydraulic opening of the Kimberly Bridge on Jan. 3, 2022, causing flooding of North Main Street (U.S. Route 32/U.S. 460 Business); resulted in extended road closures and traffic detours for several hours.



Flooding of North Main Street (U.S. Route 32/U.S. 460 Business) and Kimberly Bridge during Hurricane Matthew in October 2016.



Flooding of North Main Street (U.S. Route 32/U.S. 460 Business) and Kimberly Bridge during Hurricane Matthew in October 2016. This photo is looking northward and towards the upstream reaches of the Nansemond River.





Flooding of North Main Street (U.S. Route 32/U.S. 460 Business) during Hurricane Sandy in October 2012; resulted in extended road closures and traffic detours for several hours as well as impacts to local businesses. Photo is looking northward on North Main Street.

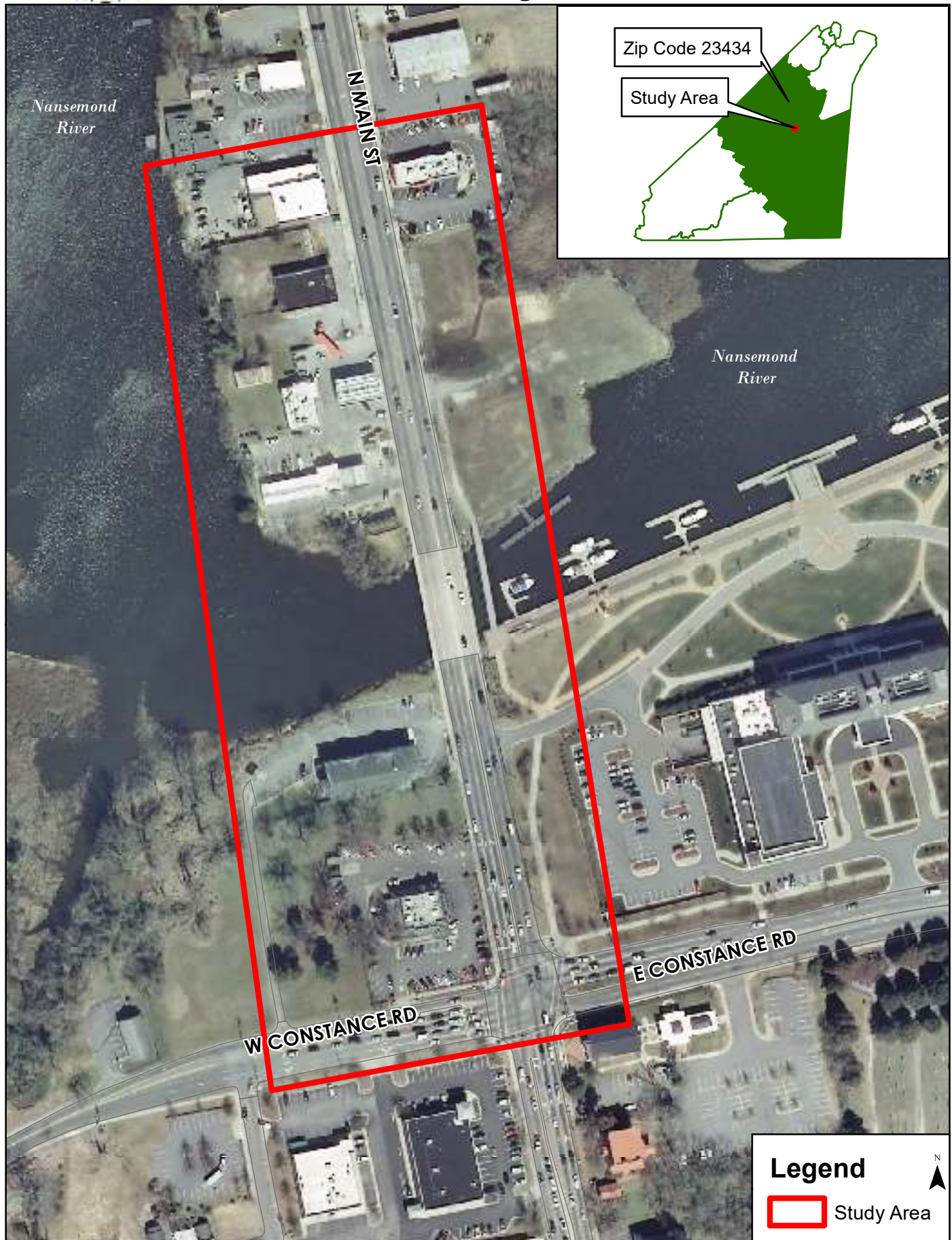


Floodwaters and Nansemond River Tides rise above the hydraulic opening of the Kimberly Bridge during Hurricane Sandy in October 2012 causing flooding of North Main Street (U.S. Route 32/U.S. 460 Business), resulting in extended road closures and traffic detours for several hours.

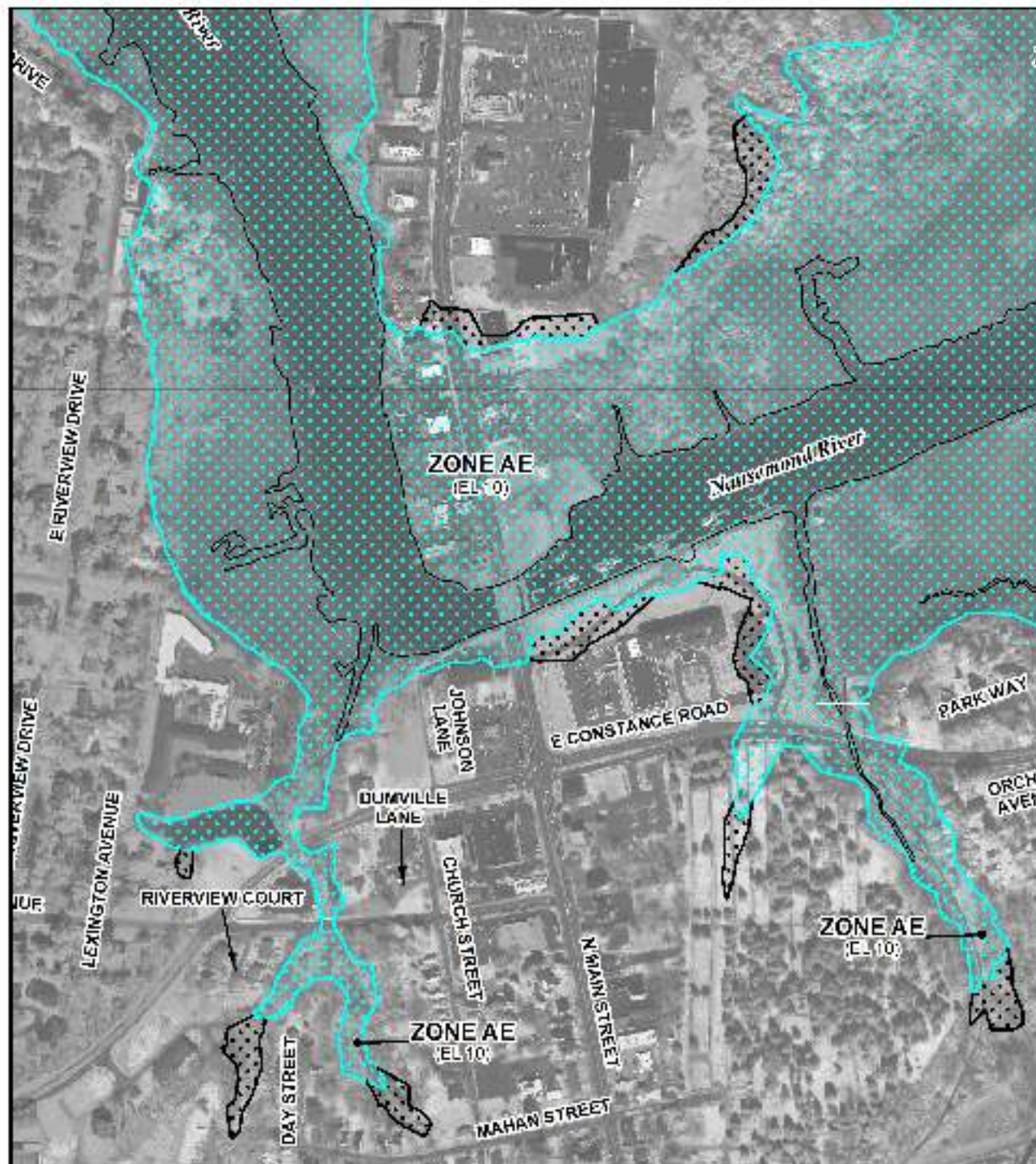




# Kimberly Bridge Feasibility Study Area



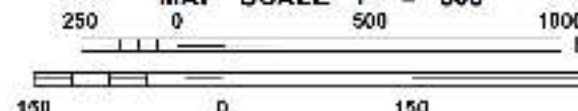




call the National Flood Insurance Program at 1-800-538-6520.



MAP SCALE 1" = 500'



NFIP

PANEL 0227E

## FIRM

### FLOOD INSURANCE RATE MAP

CITY OF  
SUFFOLK,  
VIRGINIA  
INDEPENDENT CITY

PANEL 227 OF 390

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

#### CONTAINS

COMMUNITY	ADDITIONAL	DATE	STATUS
1000000000	1000000000	1000000000	1000000000

This is an official FEMA map showing a portion of the above-referenced flood map covered from the NFIP Flood Map Web tool. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For additional information about how to make sure the map is current, please see the Flood Hazard Mapping Updates Overview Fact Sheet available on the NFIP Flood Map Web tool under page at <http://www.fema.gov>.



MAP NUMBER  
5101560227E

MAP REVISED  
AUGUST 3, 2015

Federal Emergency Management Agency

This is an official FEMA map showing a portion of the above-referenced flood map covered from the NFIP Flood Map Web tool. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For additional information about how to make sure the map is current, please see the Flood Hazard Mapping Updates Overview Fact Sheet available on the NFIP Flood Map Web tool under page at <http://www.fema.gov>.



101 West Main St., Suite 3000  
Norfolk, VA 23510  
(757) 628-8222  
www.moffattnichol.com

April 1, 2022

Mr. Matt Fanghella, EIT  
Civil Engineer II - Stormwater  
City of Suffolk – Public Works Engineering

RE: Work Order Proposal: North Main Street at Kimberly Bridge Feasibility Study

Dear Mr. Fanghella:

Pursuant to your request, Moffatt & Nichol (M&N) presents this proposal for evaluating alternatives to reduce impacts from current and future flooding of North Main Street in the vicinity of Kimberly Bridge. The primary purpose of this work order is to study the conditions at and around the bridge to determine the cause and extent of the flooding issues and to develop alternative recommendations for address these issues. This proposal will consider three water level events to aid in development of three structural/roadway design alternatives. In order to complete this conceptual work and analysis the M&N team will collect limited topographic and hydrographic survey data along the Kimberly Bridge corridor between US 58 Business Route and north of the Kimberly Bridge as detailed below. The survey data will provide documentation of existing conditions, and that data will continue to be utilized in future development (under future work orders) of more detailed engineering design and preparation of construction documents.

If you should have any questions or need additional information, please do not hesitate to contact Jousha Hill or myself at (757) 628-8222. We look forward to providing these services to the City and we thank you for the opportunity to assist.

Sincerely,  
**MOFFATT & NICHOL**

Ira Brotman, P.E.  
Vice President

Attachments:

- Scope of Work



## Background

North Main Street (US Route 32) is a primary route for residents of the southern portions of Suffolk and serves as a critical connector for all residents requiring access to Sentara OBIC Hospital. Currently, a segment of North Main Street between Constance Road and just north of the North Main Street Bridge (Kimberly Bridge) shown in Figure 1 is prone to significant flooding during rain and tidal events. **These conditions make it impossible to drive through safely, delaying commutes and slowing down emergency response times.**



Figure 1 – North Main Street Segment

With the continual increase in frequency and magnitude of rain events in addition to the increase in tidal flooding from sea level rise, M&N has been tasked to develop a sustainable flood mitigation strategy, improving the community's resiliency, for this roadway segment of North Main Street.

## Scope of Services

The scope of services included in this work order are organized into the following tasks :

- Task 1 – Meetings and Project Management
- Task 2 – Review Existing Documentation

- Task 3 – Field Investigations
- Task 4 – Basis for Feasibility Study
- Task 5 – Hydrologic, Hydraulic and Drainage Analyses
- Task 6 – Establish Alternatives
- Task 7 – Develop Conceptual Design of Alternatives
- Task 8 – Conceptual Design Technical Memorandum

### Task 1 – Meetings and Project Management

Task 1 includes the unifying coordination, engagement, project management, and quality management tasks necessary for successful development of conceptual designs and the required analysis and reporting necessary to support the City's various goals for this phase of project development.

### Task 2 – Review Existing Documentation

Task 2 includes reviewing the following documents:

- Original request for Kimberly Bridge Feasibility Study Reports
  - Phase I Report: Drainage & Bridge Analysis dated July 25, 2013
  - Phase 2 Report: August 13, 2013
  - Phase 3 Report: Property Acquisition
- Review existing roadway and bridge plans, inspection reports, etc.
- 2015 effective FEMA Flood Insurance Study (FIS) report and Flood Insurance Rate Map (FIRM) information

### Task 3 – Field Investigations

**Summary:** Task 3 includes gathering additional field data necessary to confirm existing conditions in the project area that may constrain the spatial limits, sizes or effective capacity of features included in the project design. As described below, field data collected within the limits of the project area will include survey of upland topography, river bed bathymetric survey, bridge structure geometry, surface feature and drainage infrastructure information, along with utility alignments marked by "VA811." Field data gathered will continue to be useful during more detailed design phases of project development that would occur under separate, future scopes of work. Depending on the selected project alternative, additional survey data and other field investigations may be needed in subsequent design phases.

**Topographic, Bathymetric, and Bridge Survey.** Precision Measurements Inc. (PMI) will provide a topographic survey file, in Microstation format and hard copy sheets, sealed, signed and dated by a licensed Professional Land Surveyor.

Planimetric and topographic mapping shall be captured throughout the project limits from the US Route 58 (Constance Road) / Main Street intersection to 1,500 linear feet (LF) north of the Kimberly



Bridge. The survey effort will include property research, establishing horizontal and vertical control and property ties, and survey and mapping of planimetric features such as buildings and paved surfaces; trees and other above-ground site features; storm drain structures, ditches and swales; utilities as marked by "VA811" Utility Designation; and topographic cross-sections and spot elevations.

Bathymetric survey (cross sections) shall include channel survey of a reach covering approximately 3000 LF upstream and 3000 LF downstream at predetermined locations appropriate for building the HEC-RAS hydraulic model described in Task 5.

Bridge survey shall include high chord, low chord, rail type/height/survey shots, pier type/size/location/spacing, abutments, and internal cross section on the upstream and downstream fascia.

A complete list of items included in the topographic survey is described in detail in PMI's scope and fee proposal, attached to this M&N work order proposal.

The horizontal datum for this project will be referenced to the Virginia State Plane Coordinate System, North American Datum of 1983 (NA2011). Measurements shall be based on the U.S. Survey foot. The vertical datum shall be referenced to the North American Vertical Datum of 1988 (NAVD 88).

#### **Task 4 – Basis of Feasibility Study**

Task 4 includes establishing a basis for the feasibility study. At a minimum this will consider the following:

- Water Level Events – (3 Events)  
The first two will be in accordance with the typical adopted VIMS and Hampton Roads Planning District events and include:

- 1) 100-year return period with 1.5' Sea Level Rise
- 2) 100-year return period with 3' Sea Level Rise.

The third water level event will be in accordance with the following:

- 3) VDOT Manual of The Structure and Bridge Division – Part 2 – Chapter 33 "Considerations of Climate Change and Coastal Storms" dated April 2021.

- Magnitude of Sea Level Rise to be accounted for in the design water levels and project elevations
- Roadway – roadway configuration (number of lanes). Roadway elevation will match recommended bottom chord elevations based on water level events.

- Bridge – bridge configuration (number of lanes), rehab vs. replacement; see Task 6 for additional information on the three design alternatives. Alternatives will take into consideration water level events for bottom chord elevation.
- Drainage – storm design size
- H&H – see Task 5 for additional breakdown
- Utilities – identify potential utility impacts for improvements
- Property Acquisition – high level cost summary of property acquisitions for alternative options
- Pollution Control – identify high level potential pollutants that are a concern
- Traffic Impacts / MOT – high level phasing plan based on recommended alternatives
- Environmental (Regulations and Phase I) -
- Resiliency considerations - sea level rise, event frequencies, etc.

For each of the above noted items, assumptions will be identified based on discussions with the City in addition to being defined by the data captured in Tasks 2 and 3. Once these have been established, this information will assist in developing the approaches for the remaining tasks of the feasibility study. The above will be summarized in the Design Technical Memorandum detailed below.

## Task 5 – Hydrologic, Hydraulic and Drainage Analyses

**5.1 Drainage Study/Analysis.** A drainage analysis of the area will be completed on the existing infrastructure. The focus will include:

1. Confirm the existing drainage areas and capacity of conveyance systems using City information (drainage area maps and GIS mapping).
2. Calculate the stormwater runoff for each drainage area to create runoff hydrographs, time of concentration and the acreage of each drainage area.
3. Route the existing conveyance systems for the 10-year storm event using the hydrodynamic method that takes tidal fluctuations into account. Routing results will be utilized in the evaluation of sustainable flood defense strategies and discussed further in Task 6.

**5.2 Hydrologic & Hydraulic (H&H) Analyses.** M&N Hydraulic Design staff will coordinate with M&N Roadway Design staff during the conceptual plan development for the water level events identified in Task 4 to verify decisions on the roadway grade made in this phase do not negatively impact the development of future design phases. Items of interest and input from the Hydraulic Design staff would be the need for bridge spread, hydraulic opening of the bridge, anticipated low chord, storm drainage, placement of cross pipes, and potential hydroplaning scenarios.

This also includes completing an H&H analysis of the natural, existing, and proposed conditions of the project site for the water level events identified in Task 4. The H&H analysis will investigate and document the impacts of the proposed crossing alternatives on flow velocities and water surface levels in the river from a coastal and riverine flooding control situation. The H&H analysis and results will be summarized in a technical memo.



Steps in the H&H for the bridge shall include:

1. M&N will obtain existing available information on the hydrology and hydraulics of the contributing drainage area to the project site. Currently, the Flood Insurance Study (FIS) dated for release August 3, 2015 shows the project is located in a FEMA AE Zone with a Stillwater elevation of 10.0'.
2. M&N will conduct a site visit, during which bank conditions, flow velocities, and normal creek water surface elevations will be investigated. Photographs of the site and overbank conditions will be taken for documentation.
3. M&N will develop a HEC-RAS hydraulic model of the natural and then the existing conditions of the river as a baseline with which to compare the hydraulic effects of the alternative bridge designs. The HEC-RAS model will be developed by M&N based on bridge and river survey data. The hydraulic model is expected to extend at least 3000 feet upstream and downstream of the project site. Riverine simulations will be run for water level events identified in Task 4. That same model will then be used and converted to an unsteady state model will be run to model the tidal fluctuations and storm surge for same water level events.
4. M&N will also simulate the proposed bridge alternatives in the HEC-RAS model. At the concept design phase, simulations will include bent spacing of the proposed crossings, to evaluate the hydraulic impacts. Long-term scour effects will be analyzed. Stream stability will also be studied and any necessary countermeasures will be designed. Model results, including water surface profile, flow velocities, and scour potential will be reported and compared with the results of the existing conditions model simulations.
5. Hydraulic impacts and scour calculations will be made with recommendations for scour protection at abutments.
6. Recommendations for the hydraulic opening of the bridge will also be provided which will be used to help in determining the bridge concepts identified in Task 6.
7. M&N will prepare a Conceptual (Preliminary) H&H analysis report, including data utilized, assumptions, computations, and recommendations. The report will include all necessary forms and supporting information, such as photographs, survey profiles, and comparison tables.

## Task 6 – Establish Alternatives

**Summary:** Task 6 includes utilizing the results of Tasks 4 and 5 and establishing sustainable and resilient flood defense alternatives to meet the City's needs for this segment of North Main Street. From these alternatives, a meeting will be held with the City to validate Task 5 and determine three (3) alternatives from this task to further develop in Task 7.

In addition, M&N will evaluate the existing bridge components and make recommendations on their use in future improvements to compliment above. The analysis will include considerations of the following concepts.

1. Evaluate raising existing bridge superstructure via phased construction to required minimum water level events identified in Task 4 in addition to including 1 foot of freeboard.

2. Evaluate phased construction bridge replacement in the same alignment as the existing bridge to meet the minimum water level events identified in Task 4 in addition to including 1 foot of freeboard.
3. Evaluate a bridge replacement on a new alignment then dismantle the existing bridge to meet minimum water level events identified in Task 4 in addition to including 1 foot of freeboard.
4. Prepare conceptual plan, elevation and section for each concept.

## Task 7 – Develop Conceptual Design of Alternatives

**Summary:** Task 7 includes conceptual design phase (10% design) engineering for raising of roadway corridor (including the bridge) along Main Street and Kimberly Bridge for the three selected alternatives based on the recommended water level events identified in Task 4 and included below.

**7.1 Design Alternative Preliminary Engineering.** Each alternative will review the proposed bridge concepts identified in Task 6 and incorporated into their design alternatives as needed.

Design Alternative #1 will be development of preliminary finished grade plans, roadway profiles, and cross sections using a minimum finished grade elevation for the 100-year return period flood event with a sea level rise of 1.5 feet. The concept plans will show major roadway design features and include finished grade typical section (with assumed pavement design) along with conceptual typical sections for staged construction. Conceptual design cross sections will be provided at 200-foot intervals along N Main Street.

Design Alternative #2 will be development of the same information as prepared for Design Alternative #1 using a minimum finished grade elevation for the 100-year return period flood event with a sea level rise of 3.0 feet. .

Design Alternative #3 will be development of the same information as prepared for Design Alternative #1 using a minimum finished grade elevation matching recommended bottom chord bridge elevation defined by the VDOT Manual of The Structure and Bridge Division – Part 2 – Chapter 33 “Considerations of Climate Change and Coastal Storms” dated April 2021.

A planning level opinion of probable construction cost analysis will be provided showing the comparative construction costs of the major design features for Design Alternative #1 thru Alternative #3 as it relates to roadway and bridge improvements. This is intended to just show relative costs between the three alternatives but not be a comprehensive estimate.

An alternatives analysis will be prepared with qualitative screening and ranking of the alternatives relative to: level of protection provided, flexibility, design complexity, land use considerations, construction costs magnitude, land required, and benefit costs related to overall construction costs. Based on this ranking a recommended design approach will be identified.



**Deliverables from Task 7 will include:**

- Conceptual design Alternative #1 plan drawing in PDF;
- Conceptual design Alternative #2 plan drawing in PDF;
- Conceptual design Alternative #3 plan drawing in PDF;
- Planning level opinion of probable construction cost analysis in PDF format;
- Existing condition H&H model files and stormwater volume capture evaluations documented in a technical note.

## **Task 8 – Conceptual Design Technical Memorandum**

The Conceptual Design Technical Memorandum and supporting data presented with it will provide the City with plan and section graphics and its benefits for resiliency. The report, along with the alternative design drawings, will also form the basis for scoping the remaining field work and detailed engineering and architectural design work that would be needed (under future scopes of work and budgets) to create the plans and specifications for bidding and construction of the projects.

**Deliverables:**

- Draft Conceptual Design Technical Memorandum
- Final Conceptual Design Technical Memorandum

## **Assumptions and Exclusions**

- This scope of work does not include any new field investigations except for that specifically included in Task 2 and further described in the attached subconsultant proposals.
- No detailed pavement design, geotechnical stability or seepage analysis is included in this scope of services.
- No wetland delineations, wetland impacts assessments, environmental or other permitting or engagement with permitting agencies is included in this scope of services.
- It is assumed that the City will coordinate any and all public outreach and public engagement efforts related to the project. This scope of services does not include significant involvement in coordinating or leading public outreach or public meetings or in crafting a public engagement strategy. The M&N Team will be available to provide interim work products in the form of graphics and slide content for the City's public engagement efforts, and members of the M&N Team will be available to attend up to two public meetings, if requested.
- It is assumed that the City will provide available GIS information, Record Drawings and electronic files pertaining to the work area, including any known utilities.

## M&N Team Fees

A breakdown of MN Team Fee is attached for each task in addition to a copy of the survey limits and fee being completed by PMI. The total fee is anticipated to be \$298,747.16.

## Schedule of Work

The M&N Project Team anticipates the following overall schedule for this effort, including assumed City reviews, with completion times given in weeks after Notice To Proceed (NTP).

M&N Team Deliverable / Milestone	Time from NTP
Task 1 – Meetings and Project Management	Continuous
Task 2 – Review Existing Documentation provide by City	2 weeks
Task 3 – Field Investigation	16 weeks
Task 4 – Basis for Feasibility Study	18 weeks
Task 5 - Hydrologic, Hydraulic and Drainage Analyses	24 weeks
Task 6 – Establish Alternatives	26 weeks
Task 7 – Develop Conceptual Design of Alternatives	30 weeks
Task 8 – Conceptual Design Technical Memorandum	32 weeks



**Precision Measurements, Incorporated**  
*Surveying • Mapping • GPS • Hydrographic Surveying • 3-D Scanning*

April 4, 2022  
File No. 22219

**Mr. Jousha Hill, PE**  
**Moffatt & Nichol**  
101 W. Main Street, Suite 3000  
Norfolk, VA 23510

**Re: Kimberly Bridge - Suffolk, VA**

Dear Mr. Hill:

The following is our understanding of the scope of services and related fixed fee for the above-mentioned project.

**SURVEYING SERVICES**

Precision Measurements Inc. (PMI) shall provide to Moffatt & Nichol a topographic survey file, in MicroStation (V8i) digital format and hard sheets, sealed, signed and dated by a Licensed Land Surveyor. The survey limits are from and including the intersection of U.S. Route 58 & Main Street north along Main St. to approximately 1,500'± passed the north side of Kimberly Bridge with a band width of 200' from the edge of pavement on both sides of Main St. and is roughly shown as the yellow line on attachment hereto.

**Topographic Survey**

The surveying procedure shall be as follows:

- **Property Research** - Immediately upon receipt of the notice to proceed, the Surveyor shall compile data on all properties affected by the project. Information to be obtained shall include current owner names, deed book and page of conveyance, property lines, right-of-ways, easements and tax parcel information.
- **Establish Horizontal Control** – The horizontal datum for this project shall be referenced to the Virginia State Plane Coordinate System, North American Datum of 1983 (1994HARN). Measurements shall be based on the U.S. Survey foot. Survey base lines shall be established throughout the project limits. Semi-permanent survey markers (P-K nails, pins, etc.) shall be set at all breakpoints along the survey base lines.
- **Establish Vertical Control** – The vertical datum shall be referenced to the North American Vertical Datum of 1988 (NAVD 88). Supplemental project benchmarks shall be set at each project site.
- **Property Ties** – Field ties shall be made to the boundaries of all affected properties. The boundaries of the properties shall be computed and related to the project meridian and coordinate system.
- **Topographic Mapping** – Planimetric and topographic mapping shall be captured throughout the project limits. Base mapping shall be provided in MicroStation (V8i) digital format at a scale of 1"=25' utilizing the current VDOT Cad Standards. The topographic survey shall include, but is not limited to:
- Existing buildings - type of structure, number of stories, house number

- Existing paved surfaces (excluding pavement markings)
- Curb and/or gutter
- Sidewalks and driveways
- Delineate gravel and dirt driveways and parking areas (excluding pavement markings)
- Pavement and Parking lot markings will be placed per google earth
- Ditches - top of bank, toe of slope, centerline
- \*Storm drain facilities (closed) - rims, inverts, and pipe sizes
- \*Storm drain facilities (open) - inverts and pipe sizes
- \*Gravity sanitary sewer – rims (no invert data required)
- Force mains - valves and any other above ground appurtenances
- Water mains - valves, meters, hydrants and any other above ground appurtenances
- Gas mains - valves and any other visible above ground appurtenances
- Above ground traffic control devices
- Above ground telephone and T.V. - pedestals and any other visible above ground appurtenances
- Above ground electric - any visible above ground appurtenances
- Utility poles - type of service and pole number
- Overhead wires - type of service
- Tree lines - large wooded areas
- Single trees – 8-inch caliper and larger (type and actual caliper), if not in wooded area
- Elevation cross-sections @ 50-foot intervals (all streets and outfalls)
- \*\*Rights-of ways
- \*\*Property lines
- \*\*Property owners - name, deed reference, map reference and GPIN
- Hydro Graphic survey at cross-sections per shape files from Moffatt & Nichol received on 3/31/2022.
- \*\*\*“VA811” for underground utility designations (PMI to Locate, Cad)
- Bridge detail (high cord, low cord, rail type/height, pier locations type/size/spacing, abutments)

3D DTM File (xml format) A separate 3D surface model shall be prepared for use in generating a digital terrain model. This drawing shall consist of break lines, contours, and points located at the proper X, Y and Z coordinates. This file shall be based on 1' contour intervals.

### Utility Survey

\*\*\*“VA811” Utility Designation – PMI shall coordinate with “VA811” utilizing the “dig ticket” process to designate utilities at 5 locations along the project. These locations will only be a 100' radius around a stake in the ground for them to designate the utilities. PMI cannot guarantee “VA811” will designate any utilities on private

property, public property and/or government property. PMI shall research utility information both public and franchise. Utilities that we have record information on and have not been designated shall be shown per record at quality level C/D. You may not have any utilities shown between the 5 dig ticket locations.

Every reasonable effort shall be made to locate all systems of interest whether indicated on records available to us or not. However, we do not guarantee that all existing utility systems can or shall be detected. Further, this service is not intended to detect non-utility structures such as, but not limited to: foundations, irrigation systems, septic systems, wells, tunnels, concrete or metal structures, or the true size and limits of subsurface utility vaults and manholes.

The designation results shall be collected with total station survey and referenced to project datum. The results shall be processed, annotated and merged into the final delivery file.

### **DELIVERABLES**

s(#).dgn – Survey Data File  
su(#).dgn – Utility Data File  
sctl(#).dgn – Survey Control Data File  
sbd(#).dgn – Survey Boundary Data File  
spo(#).dgn – Property Owner File  
scr(#).dgn – Contour File  
sdt(#).dgn – 3D Points & Break lines Data  
s(#).dat – XYZ File (GeoPak)  
s(#).tin – Triangle Irregular Network File (GeoPak)  
Sealed and dated Existing Conditions Sheets (22"x34") (.pdf)

### **FEE ESTIMATE**

<i>Topographic Survey</i>	\$76,894.00
<i>Hydrographic Survey</i>	\$ 6,702.00
<i>Underground Utilities</i>	
<i>"VA811" QL-C Designation, Location &amp; Cad</i>	<u>\$ 8,868.00</u>
<b>Total</b>	<b>\$92,464.00</b>

### **ASSUMPTIONS/EXCLUSIONS**

- Not all VDOT standards and requirements will be performed on this project, only VDOT Cad Standards
- \*Storm and Gravity Sewer (rim, inverts, size & material). Pipe system shall be traced and shown to next structure outside of the project limits. Pipe inverts, size & material are determined to the best of our ability and if accessible. No confined space entry is included in this scope and fee.
- Problem Manholes, Inspection, location, measurements or inverts of underground sanitary or storm structures if those structures are inaccessible because they are bolted, welded, buried, paved over, broken, under debris, fenced off, unsafe, too deep (over 25'), designated as non-accessible or confined space entry only. Working with Problem Manholes shall be considered beyond the scope of this proposal.
- \*\*Property lines, right-of-way, easements and owner information shall be based on available tax assessor and courthouse information. No title report or title research shall be performed with this scope and fee. All easements, restrictions or encumbrances that may affect the properties may not be reflected.
- PMI request owner notifications letters be sent to all properties adjacent to the survey limits area.
- Any items not listed on in this proposal is not included, such as test hole, wetland flags, soil borings, etc.



- Paint striping will be placed per google earth overlay.

### **DELIVERY SCHEDULE**

Final delivery will be within approximately 55 - 65 business days or sooner after commencing field work. Delivery schedule is subject to change based on current workload, weather conditions and unforeseen obstacles.

Thank you for allowing us the opportunity to provide you with this proposal, utilizing our Surveying services. If I can be of any additional assistance or you have any questions, comments or require additional information, please feel free to contact me. I look forward to working together on this very important project.

Respectfully,  
Precision Measurements, Inc.



Richard A. Thomas  
Newport News Branch Manager

“Attachment”





**Fee Proposal**  
**Kimberley Bridge Feasibility Study**



City of Suffolk  
Public Works Engineering

Proposal No:

Date: April 3, 2022

**I. MAN-HOUR BUDGET BY LABOR COSTS**

Task	Classification	Princ. Rate	Project Manager	Superv. Engineer	Engineer	Junior Engineer	ACAD TECH	Admin	Total Hours	Total Labor Cost
1 Meetings and Project Management		2	40	20	32	24	-	8	126	\$ 19,270.64
2 Review of Existing Documents		-	4	16	16	-	-	-	36	\$ 5,797.64
3 Field Investigation		-	8	-	12	8	-	-	28	\$ 3,906.68
4 Basis of Feasibility Study		2	4	16	8	-	-	-	30	\$ 5,308.28
5.1 Drainage Study / Analysis		4	8	40	180	-	24	-	256	\$ 35,694.36
5.2 Hydrologic & Hydraulic (H&H) Analyses		4	24	80	120	-	-	8	236	\$ 36,486.64
6.1 Establishing Alternatives		-	4	12	-	24	-	-	40	\$ 5,440.60
6.2 Bridge Concepts										
6.2.1 - Raising Existing Bridge		-	8	28	40	-	24	-	100	\$ 14,767.68
6.2.2 - Replace Bridge Within Existing Alignment via Phased Approach		-	8	28	40	-	24	-	100	\$ 14,767.68
6.2.3 - Replace Bridge Along New Alignment		-	8	32	56	-	32	-	128	\$ 18,500.96
7 Develop Conceptual Design of Alternatives		-	8	24	40	24	80	4	180	\$ 23,528.44
8 Conceptual Design Technical Memorandum		4	12	24	40	-	-	8	88	\$ 13,567.16
<hr/>										
Total Labor Budget		\$ 4,154	\$ 27,060	\$ 59,693	\$ 73,625	\$ 8,021	\$ 22,310	\$ 2,175	1348	\$ 197,036.76
Total Labor Hours		16	136	320	584	80	184	28		

**II. SUMMARY**

Task	Total Cost Labor	Total Cost Subconsultants	Total Cost
1 Meetings and Project Management	\$ 19,270.64	\$ -	\$ 19,270.64
2 Review of Existing Documents	\$ 5,797.64	\$ -	\$ 5,797.64
3 Field Investigation	\$ 3,906.68	\$ 101,710.40	\$ 105,617.08
4 Basis of Feasibility Study	\$ 5,308.28	\$ -	\$ 5,308.28
5.1 Drainage Study / Analysis	\$ 35,694.36	\$ -	\$ 35,694.36
5.2 Hydrologic & Hydraulic (H&H) Analyses	\$ 36,486.64	\$ -	\$ 36,486.64
6.1 Establishing Alternatives	\$ 5,440.60	\$ -	\$ 5,440.60
6.2 Bridge Concepts			
6.2.1 - Raising Existing Bridge	\$ 14,767.68	\$ -	\$ 14,767.68
6.2.2 - Replace Bridge Within Existing Alignment via Phased Approach	\$ 14,767.68	\$ -	\$ 14,767.68
6.2.3 - Replace Bridge Along New Alignment	\$ 18,500.96	\$ -	\$ 18,500.96
7 Develop Conceptual Design of Alternatives	\$ 23,528.44	\$ -	\$ 23,528.44
8 Conceptual Design Technical Memorandum	\$ 13,567.16	\$ -	\$ 13,567.16

\$ 197,036.76	\$ 101,710.40	\$ 298,747.16
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\*sub fee was \$92,464\*1.10 for MN Markup.



CFPF, rr &lt;cfpf@dcr.virginia.gov&gt;

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**2022 Round 3 CFPF Grant Application #2 City of Suffolk CID 510156**2 messages

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**Matthew M. Fanghella** <mfanghella@suffolkva.us>

Wed, Apr 6, 2022 at 4:59 PM

To: "cfpf@dcr.virginia.gov" &lt;cfpf@dcr.virginia.gov&gt;

Cc: "Heather W. Baggett" &lt;hbaggett@suffolkva.us&gt;, "Erin M. Rountree" &lt;erountree@suffolkva.us&gt;

Good afternoon,

Please find attached the second of 2 applications from the City of Suffolk for the Round 3 2022 CFPF Grant Funding, ahead of the 4/8 deadline.

The City is requesting funding for an updated study for the Kimberly Bridge Feasibility Study. Additionally, may you please confirm the receipt of this correspondence and this application?

Thank you,

Matt Fanghella, EIT

Civil Engineer II – Stormwater

City of Suffolk – Public Works Engineering

757-514-7675 office

757-266-7924 cell

[mfanghella@suffolkva.us](mailto:mfanghella@suffolkva.us)

**CID510156\_CityofSuffolk\_CFPF-2.pdf**  
12163K

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

Thu, Apr 7, 2022 at 12:01 PM

To: "Matthew M. Fanghella" &lt;mfanghella@suffolkva.us&gt;

Received

[Quoted text hidden]