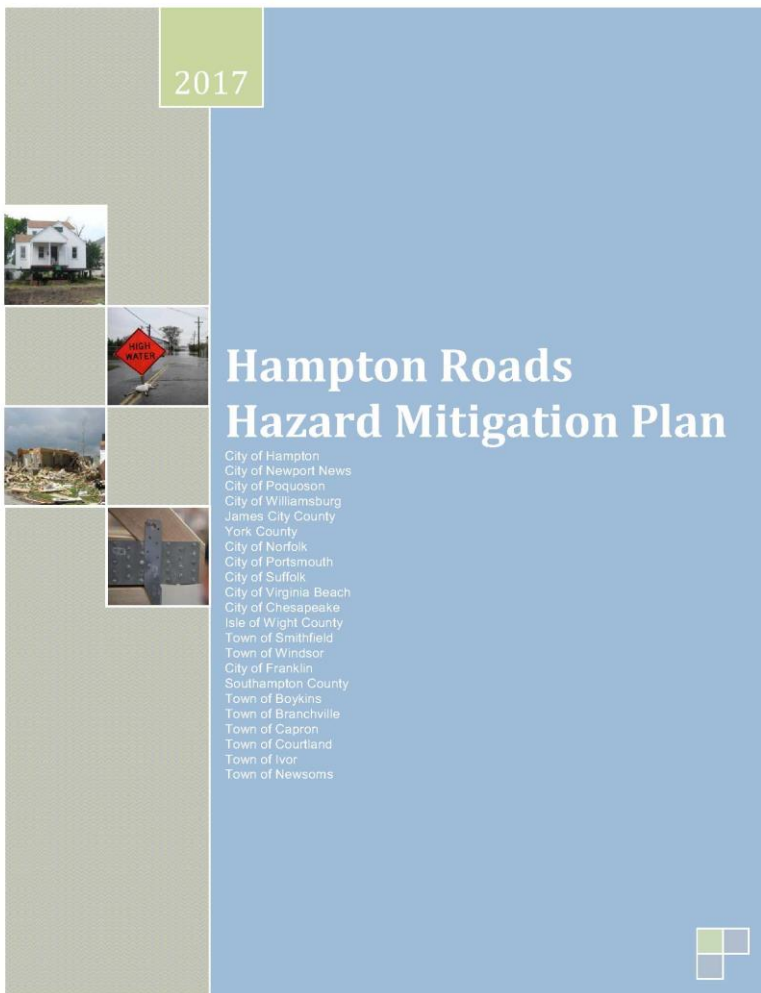


2020

# Hampton Roads Hazard Mitigation Plan City of Norfolk Annual Report



Department of City Planning

City of Norfolk

10/23/2020

## Summary

In 2017, the Hampton Roads Planning District Commission updated the Hampton Roads Hazard Mitigation Plan. The City of Norfolk worked with the communities of Virginia Beach, Suffolk, Chesapeake, and Portsmouth in the Southside; the communities of Hampton, Newport News, Poquoson, Williamsburg, James City County, and York County on the Peninsula; and the communities of Isle of Wight County, Smithfield, Windsor, Franklin, Southampton County, Boykins, Branchville, Capron, Courtland, Ivor, and Newsoms in Western Tidewater to develop this plan.

This plan addresses goals and mitigation measures for hazards that Hampton Roads faces and serves as the Flood Mitigation Plan for the City of Norfolk. The region is vulnerable to a wide range of hazards that threaten the safety of residents, and have the potential to damage or destroy both public and private property and disrupt the local economy and overall quality of life. While the threat from hazards may never be fully eliminated, the Hampton Roads Hazard Mitigation Plan recommends specific actions designed to protect residents, business owners, and the built environment.

As part of our continued participation in the Community Rating System (CRS) program, a report of this plan and the progress the City of Norfolk has made in implementing the actions is required annually. It is to be provided to City Council as well as the National Flood Insurance Program, and will be published on the City of Norfolk flood awareness webpage for citizen review. This report will list the goals and objectives of the 2017 Hampton Roads Hazard Mitigation Plan and detail the actions that the City of Norfolk has taken to achieve these goals.

## 2017 Hampton Roads Hazard Mitigation Plan

### *Purpose:*

- Protect life and property by reducing the potential for future damages and economic losses that result from natural hazards;
- Qualify for additional grant funding, in both the pre-disaster and post-disaster environment;
- Speed recovery and redevelopment following future disasters;
- Integrate existing flood mitigation documents;
- Demonstrate a firm local commitment to hazard mitigation principles; and
- Comply with state and federal legislative requirements tied to local hazard mitigation planning.

### *Goals and Objectives:*

**Goal 1:** Increase community resiliency by reducing vulnerability to hazards.

- Objective 1.1: Reduce damage to repetitively flooded properties
- Objective 1.2: Protect existing and future development
- Objective 1.3: Protect critical facilities/infrastructure
- Objective 1.4: Maintain government services throughout hazard events
- Objective 1.5: Reduce hazard-related impacts on daily routines
- Objective 1.6: Preserve and enhance benefits of natural areas

**Goal 2:** Educate the public about hazard vulnerabilities and ways to reduce risk

- Objective 2.1: Encourage property owners to assume responsibility for reducing vulnerability

**Goal 3:** Strengthen and develop partnerships for mitigating hazard impacts

- Objective 3.1: Integrate mitigation concepts into local and regional government plans, policies and actions
- Objective 3.2: Improve and standardize hazard data collection and mapping
- Objective 3.3: Leverage shared resources in pursuit of funding for hazard mitigation projects
- Objective 3.4: Develop partnerships among local, regional, national, and international organizations

## Mitigation Action 1

*Maintain and protect the City's beaches and shorelines using structural means.*

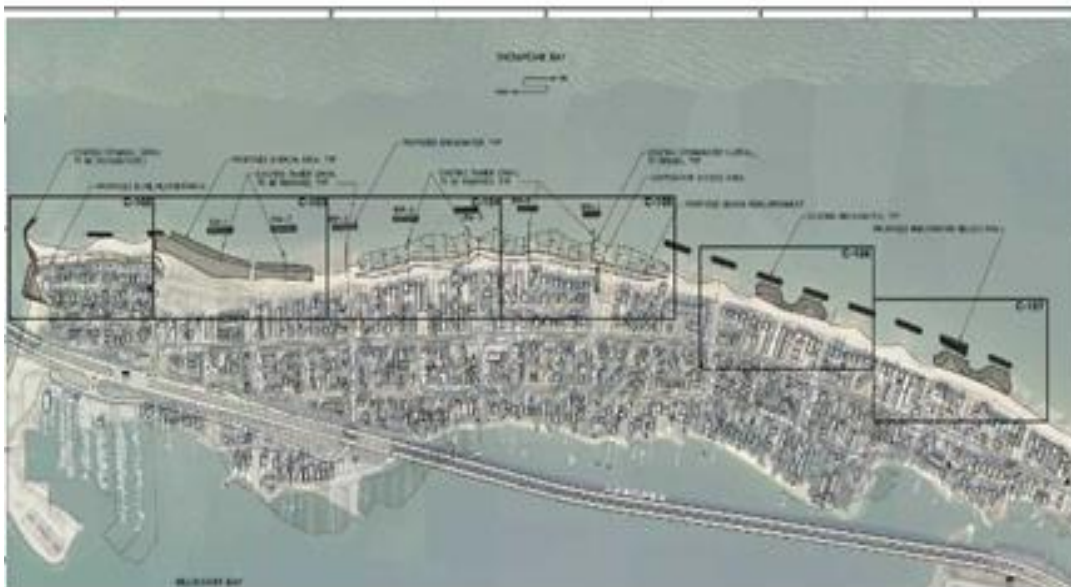
**Progress:** *Ongoing*

Objective/Goal meet or advanced:

- **Objective 1.2;**
- **Goal 1**

### **Report:**

Multiple projects have been approved, are under construction, or are under design for shoreline protection throughout the city. Projects range from breakwaters, beach nourishment, channel modification, diversions/retention, dams/levees/floodwalls/seawalls, shoreline improvements, and improvements to stormwater management systems/outfalls. Projects of this nature are continuously being reviewed to ensure that the shores and beaches of the city are properly protected. The City has engaged in multiple studies of structural measures to maintain and protect the approximately 144 miles of shoreline and 7.3 miles of beaches. The latest of these measures is construction of a \$1.4 million modification of the breakwater field located off Toler Place at 11th View St. This effort involved construction of a new offshore breakwater as well as lengthening of an existing one, and extension of the storm water outfall past the breakwater field. The project was completed in July 2020.



*Breakwaters at Willoughby Spit*

## Mitigation Action 2

*Maintain and protect the City's beaches and shorelines using natural shoreline protection measures. This action may include Climate Resilient Mitigation Activities (CRMA).*

**Progress:** *Ongoing*

Objective/Goal meet or advanced:

- **Objectives 1.2 & 1.6;**
- **Goal 1**

### **Report:**

This action supports the process of constructing green flood prevention structures. Recognizing that natural protection measures help the shoreline adjust to sea level rise with less intervention, projects have been implemented to restore natural protective functions. These projects include living shorelines and dune planting and stabilization and environmental permitting. Currently, approximately 4,700 feet of shoreline is under construction, with an additional 1,000 feet under design. An example of a recently completed project is the North Shore Road / Hermitage Museum Living Shoreline. The scope of work included restoring approximately 3.02 acres of wetlands and 1.44 acres of oyster reef. It was finalized in the summer of 2019 and added over 2600 linear feet of new living shoreline around the Lochaven community.



*The scope of work for the North Shore Road/Hermitage Museum Living Shoreline Project.*



*Green shoreline flood prevention example.*

### Mitigation Action 3

*Provide educational outreach and improve communications to residents to increase awareness of vulnerability to multiple hazards. Focus on hurricanes, sea level rise, flooding, nuisance flooding and severe repetitive flood losses.*

**Progress:** *Ongoing*

Objective/Goal meet or advanced:

- **Objectives 2.1; 1.1 & 1.2;**
- **Goals 2 & 1**

#### **Report:**

The City Manager’s Office, Office of Emergency Preparedness and Response, Office of Communications and the Department of Information Technology have greatly expanded the ability to provide notice to the public by using multiple media sources. These sources include real time updates to the City’s webpage, email distribution lists, Facebook, Twitter and Nextdoor. The City utilizes the emergency notification system Norfolk Alert. This system allows for those who have signed up for the service to be notified by landline and cell phone calls, email, text message, and social media during a time of emergency by the Office of Emergency Preparedness and Response.

The City of Norfolk has finalized the development of a Program for Public Information (PPI), Flood Insurance coverage Assessment (FIA), and flood insurance Coverage improvement Plan (CP) as a proactive outreach strategy for flooding. The PPI, FIA, and CP projects were developed within the framework recommended by the Community Rating System (CRS) of the National Flood Insurance Program (NFIP), and includes multiple public outreach projects aimed at targeted areas and audiences for various hazard mitigation messages.

*A HRUBS bill insert publicizing Norfolk Alert.*

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## Mitigation Action 4

*Provide outreach that increases citizens' ability to take mitigative actions prior to disaster event. Focus on hurricane preparedness and flood mitigation.*

**Progress:** *Ongoing*

Objective/Goal meet or advanced:

- **Objectives 1.1, 1.2 & 2.1;**
- **Goals 1 & 2**

**Report:**

The goal of the Program for Public Information outreach projects is to inform residents of the hazards of flooding and promote mitigation prior to flood events. The committee was required to use 6 CRS topics and adopted 4 more topics pertinent to the City. The 10 outreach topics are as follows:

- Know Your Flood Hazard
- Insure Your Property
- Protect Yourself and Your Family
- Protect Your Property
- Build Responsibly
- Protect Natural Floodplain Functions
- Drive Safe Park Safe
- Hurricane Preparedness
- Financial Benefits of Mitigation
- Reduce Stormwater Runoff

The Department of City Planning has created a 10-topic brochure providing guidance for each subject. The information will be distributed during related events such as “Retain Your Rain” workshops. Each year the Department mails citizens letters and additional information within the Repetitive Flood Loss areas to remind them of the importance of flood insurance and safety.



## Mitigation Action 5

*Purchase and install generators or other continuous power sources for critical facilities and infrastructure. This action may include, but is not limited to pump stations, EOC (Emergency Operations Center), shelters, underpasses and important traffic signals.*

*Include critical public facility generator requirements and required connection materials in the USACE Emergency Power Facility Assessment Tool (EPFAT).*

**Progress:** *Ongoing*

Objective/Goal meet or advanced:

- **Objectives 1.2, 1.3, 1.4, 1.5 & 3.3;**
- **Goals 1 & 3**

### **Report:**

The Department of Utilities has continued its practice of installing fixed sewage bypass pumps at new wastewater pump stations; one new pump station with a standby bypass pump was completed in 2020. The fixed sewage bypass pumps will help maintain critical storm water and wastewater pumping operations during storm events where power may be lost. The Department of Utilities has also upgraded its SCADA controls at wastewater pump stations to improve reliability of electronic communications.

Norfolk's Stormwater Program may be able to obtain funding from HMGP grants for some of these site actions.



## Mitigation Action 6

*Continue to implement capital improvements that improve storm water management and control flooding, especially for undersized and out-of-date drainage systems and patterns. This action may include Climate Resilient Mitigation Activities (CRMA).*

**Progress:** *Ongoing*

Objective/Goal meet or advanced:

- **Objectives 1.1, 1.2, 1.3, 1.4, 1.5, 3.1 & 3.3;**
- **Goals 1 & 3**

**Report:**

Public Works is continuously reviewing their systems and they are being improved as part of capital improvements. These are examples of the projects completed within the last year:

- Brambleton Avenue Pump Station 5 rehabilitation
- E. Virginia Beach Boulevard Pump Station 9 rehabilitation
- 12<sup>th</sup> View Street stormwater outfall extension
- 13<sup>th</sup> View Street stormwater outfall extension

## Mitigation Action 7

*Identify and improve critical facilities and infrastructure to minimize flood and wind damage, specifically targeting schools, EOC (Emergency Operations Center) and emergency shelters. Action may also include placing utility lines underground or preemptive traffic systems for emergency vehicles.*

**Progress:** *Ongoing*

Objective/Goal meet or advanced:

- **Objectives 1.3, 1.4, 1.5 & 3.3;**
- **Goals 1 & 3**

### **Report:**

A new Lake Smith weir was installed to allow the lowering Lake Smith during possible flooding events such as Hurricanes or Nor'easters. The new weir can be adjusted by a single person versus four people to maneuver prior to large storm events. It also protects the Lake Smith Dam, properties adjacent to the lake, and a major traffic arterial whereby a critical workforce of over 18,000 will have more resilient access to the Joint Expeditionary Base at Little Creek following flood events. EOC operations have also been moved from its previous location in flood zone X (shaded) to higher ground in the more centrally located Central Business Park. EOC personnel have also shifted many capabilities into a remote-work setting during the COVID-19 pandemic, which provides for increased continuity of operations following storm events where roads may not be passable, yet power may still be available for some EOC staff.

## Mitigation Action 8

*Protect flood-prone structures through the following ongoing actions:*

- 1. Gather data on individual repetitive flood losses, including improved damage assessments (past and future), insurance claims data, structural features, first floor elevations;*
- 2. Give highest priority to protection of “severe repetitive losses” as defined by the National Flood Insurance Program (NFIP);*
- 3. Target potential properties or clusters of properties for purchase and conversion to public open space; and,*
- 4. Elevate, acquire, relocate or otherwise retrofit structures. This action includes Mitigation Reconstruction projects.*

**Progress:** *Ongoing*

Objective/Goal meet or advanced:

- **Objectives 1.1, 1.2, 2.1, 3.1, 3.2 & 3.3;**
- **Goals 1, 2 & 3**

### **Report:**

The Office of Emergency Preparedness and Response and the Department of City Planning currently help property owners apply for grants to mitigate structures with a history of flood loss located within the floodplain using federal Hazard Mitigation Assistance (HMA) funds.

Last year the City oversaw the elevation of one (1) Severe Repetitive Loss (SRL) and seven (7) Repetitive Loss (RL) structures. Another strategy to mitigate flood losses is property acquisition. Three (3) properties were acquired: one (1) SRL and three (3) RL properties.

Staff are also working with the HRPDC on a project to measure first floor elevations of structures. This work has involved translating over 1,000 Norfolk elevation certificates to assist with machine learning capabilities for the project. The elevation certificate data will be made available to the public this year.

Structures insured through the NFIP are often eligible for more grant funds than uninsured structures. The repetitive flood loss data will inform mitigation strategies in these areas. Measures should include parcel-scale, neighborhood-scale, and watershed-scale protection measures.

## Mitigation Action 9

*Improve post-event damage assessment procedures so that damages, event frequencies, and other data are more readily available for mitigation planning.*

*Identify, train and use volunteers to capture and submit high-water marks to use for flood event mapping and damage assessment.*

**Progress:** *Ongoing*

Objective/Goal meet or advanced:

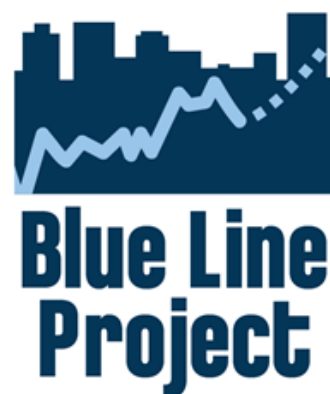
- **Objectives 3.2 & 3.4;**
- **Goal 3**

### **Report:**

After a storm or flooding event occurs, properties that have received damage are mapped using GIS as part of the damage assessment reporting. Damage assessment training is provided annually to staff that has been identified as a member of the Damage Response Team. The team inspects properties after events for damage. This past year, five staff members were trained through assistance of the State’s NFIP Coordinator on how to use FEMA’s Substantial Damage Estimator tool, which is used to streamline reviews of major structural damage following storm events.

Every year since 2017, The City of Norfolk assists in the “Catch the King” event relies on data captured by volunteers to document a king tide, an exceptionally high tide. The goal of this event is record high water measurements in various locations. The collected data is invaluable to the City as it will be used for modeling for future flooding scenarios.

In 2019, the City’s Office of Resilience partnered with Old Dominion University to produce the *Blue Line Project*. The highly publicized event coincided with the “Catch the King” event to produce a visible demonstration of projected sea level rise in the years 2050, 2080, and 2100.



## Mitigation Action 10

*Implement actions to improve Community Rating System (CRS) classification to at least a Class 8 with a 10 percent discount on most flood insurance policies.*

**Progress:** *Completed*

Objective/Goal meet or advanced:

- **Objectives 1.2, 1.6, 2.1 & 3.1;**
- **Goals 1, 2 & 3**

### **Report:**

Although this goal has been completed by the City of Norfolk, Team Norfolk continues to strive for further improvements within the CRS program. Since the adoption of the Hampton Roads Hazard Mitigation Plan in 2017, the City has implemented new activities which translates to points. The increase in points allows the locality to request a modification to their class score. In 2017, Norfolk completed Mitigation Action 10 by improving to a Class 8. Norfolk continues to prioritize reducing the risk of flood hazards to residents and businesses. In 2018, the City surpassed its goal by achieving a Class 7 rating. A Class 7 rating affords flood insurance policy holders in the SFHA a 15% reduction of insurance premiums. This amounted to a total savings of \$1,208,846 for NFIP policyholders.

In 2020, more significant changes to the CRS program have been underway. In January, Norfolk strengthened its commitment to CRS by creating and hiring a CRS Coordinator. As mentioned in Mitigation Action 3, the creation of the Program for Public Information, Flood Insurance Assessment, and Flood Insurance Coverage Improvement Plan has improved the overall outreach efforts for the City. In 2020, the City Council adopted *Action Plans for Threatened and Endangered Species* as an appendix to the *Green Infrastructure Plan for Norfolk*. The Action Plan appendix identifies critical floodplain habitats and actions that Norfolk will perform to demonstrate the natural floodplain protection co-benefits of projects that restore shorelines and buffers and remove non-native and invasive plant species.

Due to the increased participation in CRS activities, during the 2020 CRS cycle verification meeting, the City of Norfolk has requested a CRS class modification from Class 7 to a Class 5. This would amount to a total savings of \$2,030,541 for NFIP policyholders, providing most policyholders in the Special Flood Hazard Area (SFHA) a 25% reduction in premiums, and a 10% premium reduction for properties outside the SFHA.

## Mitigation Action 11

Verify the geographic location of each NFIP (National Flood Insurance Program) repetitive loss property, determine if that property has been mitigated and, if so:

- Record what methods were used to mitigate; and
- Collect evidence and submit completed AW-501 (NFIP Repetitive Loss Update Worksheet) to request removal of the property from the repetitive loss database.

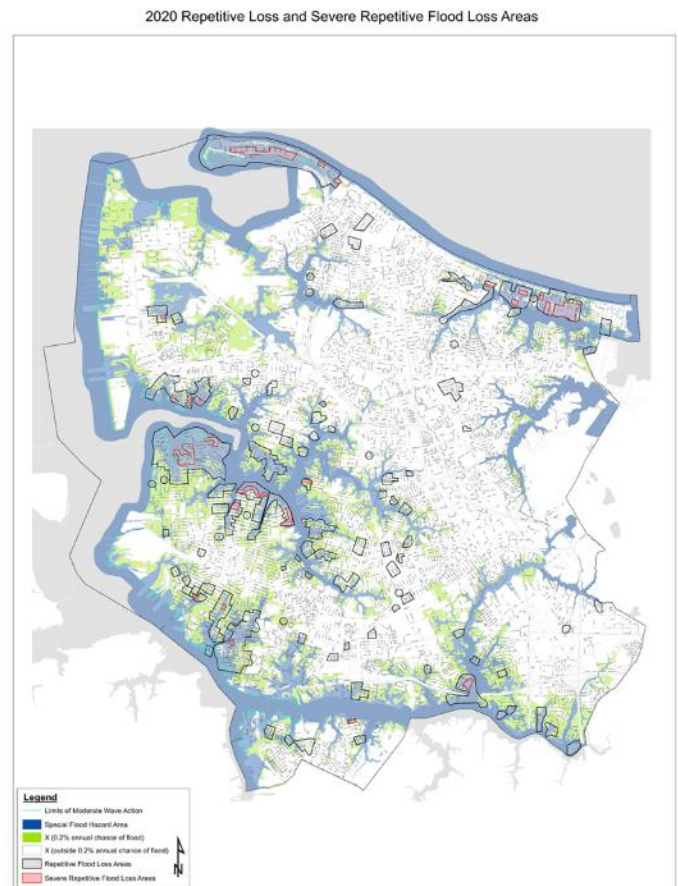
**Progress:** Ongoing

Objective/Goal meet or advanced:

- Objectives 1.1, 1.2, 2.1, 3.1 & 3.2;
- Goals 1, 2 & 3

City staff has been mapping the repetitive loss properties and has been reviewing their current status. Planning staff have begun an analysis of properties that have been mitigated or replaced under the current floodplain regulations to assure that the data on RL properties is up-to-date and accurate. The data is being submitted to FEMA and the NFIP to remove many properties from the NFIP repetitive loss list, providing major cost savings to these policyholders.

Staff procedures have been implemented to annually track and monitor repetitive loss properties. As part of the CRS class modification, the City has submitted AW-501's for 69 properties to be removed from the NFIP repetitive loss list.



Repetitive Loss Map for 2020

## Mitigation Action 12

*Implement approved project through the National Disaster Resilience Competition (NDRC) HUD grant. This action may include Climate Resilient Mitigation Activities (CRMA) and Mitigation Reconstruction projects.*

**Progress:** *Ongoing*

Objective/Goal meet or advanced:

- **Objectives 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 3.3 & 3.4;**
- **Goals 1 & 3**

The City of Norfolk was awarded a \$112 million dollar grant through the National Disaster Resilience Competition in 2016. The historic neighborhoods of Chesterfield Heights and Grandy Village will undergo major improvements to address flooding in the neighborhoods. The official groundbreaking for construction occurred in February 2020. The project utilizes structural and nonstructural flood protection. The project involves several CRMA, including green infrastructure, floodplain restoration, flood diversion, storage, as well as upgrades to water and sewer in the neighborhood. The construction for the Haynes Creek and Ballentine Pump Stations has made significant progress. The project will utilize wetlands for storage and attenuation of runoff, green infrastructure for storage and infiltration, and flood diversion.



*Chesterfield Heights  
construction taken by drone  
on 8/21/2020*



## Mitigation Action 13

*Protect historic resources and structures from flooding and sea level rise. Measures should include short-, medium- and long-term solutions. This action may include Climate Resilient Mitigation Activities (CRMA) and Mitigation Reconstruction projects.*

**Progress:** *Ongoing*

Objective/Goal meet or advanced:

- **Objectives 1.1, 1.2, 2.1, 3.1, 3.3 & 3.4;**
- **Goals 1, 2 & 3**

The City of Norfolk is in the planning stage of a multi-year, citywide survey of historic resources with an emphasis to capture mid-century modern architecture, African American Heritage, the Civil Rights Movement, Military/Defense, transportation, etc. This survey is important to Norfolk for updating of the *Hampton Roads Hazard Mitigation Plan* and *plaNorfolk2050*. Without an updated inventory, in the event of a major flood event, Norfolk is in jeopardy of permanently losing pieces of our built environment that has not been properly inventoried because FEMA would not help fund the restoration.

Throughout the citywide historic survey, City staff will also re-survey portions of existing designated historic districts to bring them up to date with current survey methods, technology, and photography. This re-survey effort includes local, landmark, state, and nationally designated districts.

Short-term goals of the historic survey effort include updating the design guidelines to include guidance on flood mitigation options for property owners who desire to take measures to protect their properties in storm events, new construction and renovations related to repetitive flood loss. All phases will include public participation and input. The NDRC (Ohio Creek Watershed) project is intended to be a pilot project for other coastal communities. The project location was chosen in part due to the presence of historic structures.

## Mitigation Action 14

*Identify and implement resilient strategies throughout the city to provide better watershed, neighborhood and parcel specific flood protection and mitigation. This action may include Climate Resilient Mitigation Activities (CRMA) and Mitigation Reconstruction projects.*

**Progress:** *Ongoing*

Objective/Goal meet or advanced:

- **Objectives 1.1, 1.2, 1.3, 1.5, 1.6, 2.1 & 3.1;**
- **Goals 1, 2 & 3**

The City of Norfolk’s commitment to identifying and employing resilient strategies requires innovative measures is necessary to protect the entire city. Mitigation Action 14 focuses on watershed, neighborhood and parcel-specific mitigation. Living shoreline projects mentioned in Mitigation Action 2 implements resilience strategies at a watershed level and benefit the neighborhoods surrounding these projects. The “Retain Your Rain” program utilizes parcel level mitigation efforts to reduce the amount of stormwater entering the drainage system. The City has developed a GIS-based application which identifies whether parcels are better suited for infiltration or storage of stormwater. The application also advises the property owner which mitigation methods are appropriate. The City also hosts “Retain Your Rain” workshops to educate individual homeowners on the benefits of capturing rainwater through method such as rain barrels or rain gardens. Currently, the Office of Resilience is drafting a pattern book for mitigation projects.

Norfolk awards “Retain Your Rain” mini grants in the spring and fall to non-profit organizations and civic leagues. Projects under this program concentrate on mitigating flood efforts on a neighborhood level. The Little Theatre of Norfolk received the Spring 2020 mini grant to install rain barrels, dry wells, and conservation landscaping.

The City has instituted several policies that incorporate resilience strategies and green infrastructure measures into a comprehensive plan for protecting the City. Norfolk has implemented a Resilience Strategy, a Green Infrastructure Plan, Vision 2100, and new Zoning Ordinance. The recently adopted Zoning Ordinance requires resilient design either by additional stormwater management and design or by innovative and green construction design.