

# THE CRAIG GROUP

Lisa Craig, Principal  
[lcraiggroup@gmail.com](mailto:lcraiggroup@gmail.com)



# CLIMATE & DISASTER RESILIENCE PLANNING & POLICY



Disaster Terminology

Climate / Disaster Planning

National Framework

State Planning

Local Planning & Plan Integration

Case Studies: Climate / Disaster Resilience Planning



# CLIMATE & DISASTER RESILIENCE PLANNING & POLICY

**What types of climate-related disasters are you analyzing for community resilience?**

- Extreme Storm Events (Hurricanes, Extreme Precipitation)
- Nuisance Flooding
- Sea Level Rise
- Subsidence
- Tornadoes
- Other?



# CLIMATE & DISASTER RESILIENCE DEFINED

## Climate Resilience

- “The capacity of social, economic, and environmental systems to cope with a hazardous event or trend or disturbance, responding or reorganizing in ways that maintain their essential function, identity, and structure, while also maintaining the capacity of adaptation learning and transformation.” (Intergovernmental Panel on Climate Change)

## Disaster Resilience

- “The ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions.” (United Nations International Strategy for Disaster Reduction Secretariat)

# HAZARD OR DISASTER TERMINOLOGY: GENERAL

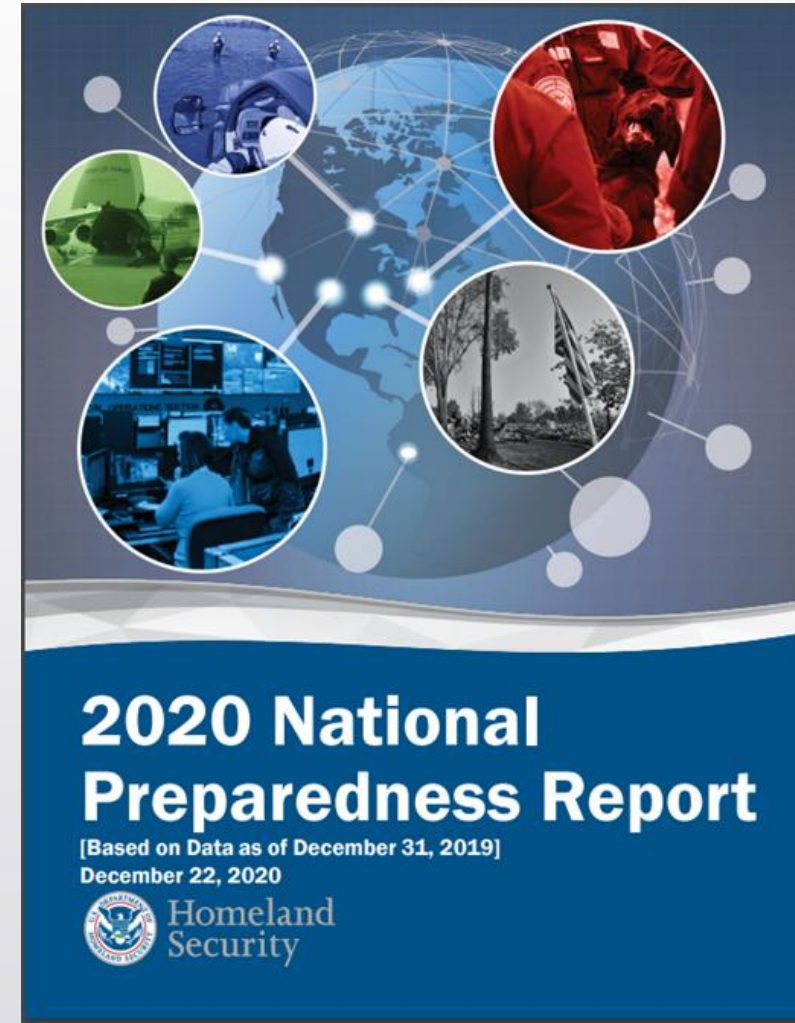
- **Adaptation:** adjustments in ecological, social, or economic systems in response to actual or expected climatic impacts and to changes in processes, practices, and structures to moderate potential damages or benefit from opportunities associated with climate change.
- **Hazard Mitigation:** Reduction or alleviation of the loss of life, personal injury, and property damage that could result from a disaster through long- and short-term strategies. **Hazard mitigation involves strategies such as planning, policy changes, programs, projects,** and other activities that could mitigate the impacts of hazards.



# CLIMATE AND DISASTER RESILIENCE: WHY PLAN?

National preparedness relies on the contributions of individuals and communities, the private and nonprofit sectors, faith-based organizations, and all levels of government. Together, stakeholders work to achieve the National Preparedness Goal:

*“A secure and resilient Nation with the capabilities required across the **whole community** to prevent, protect against, mitigate, respond to, and recover from the threats and hazards that pose the greatest risk.”*

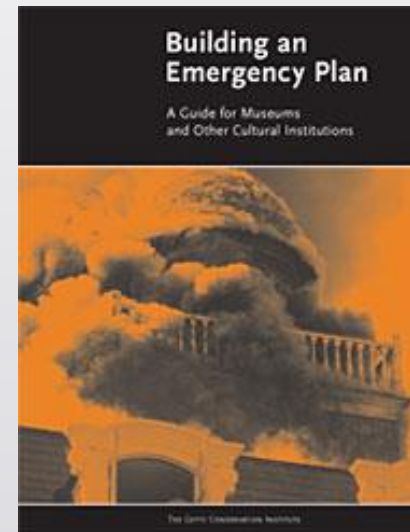


# CLIMATE AND DISASTER RESILIENCE: WHY PLAN?

**For Business:** According to the Insurance Information Institute, up to 40% of businesses affected by a disaster never reopen.

**For Cultural Institutions:** With a written disaster plan, libraries, archives, museums, historical societies, and other collection-holding institutions can reduce the risk of disaster and minimize losses.

Getty Conservation Institute  
[https://www.getty.edu/conservation/publications\\_resources/pdf\\_publications/pdf/emergency\\_plan.pdf](https://www.getty.edu/conservation/publications_resources/pdf_publications/pdf/emergency_plan.pdf)  
American Institute for Conservation  
<https://www.culturalheritage.org/home>



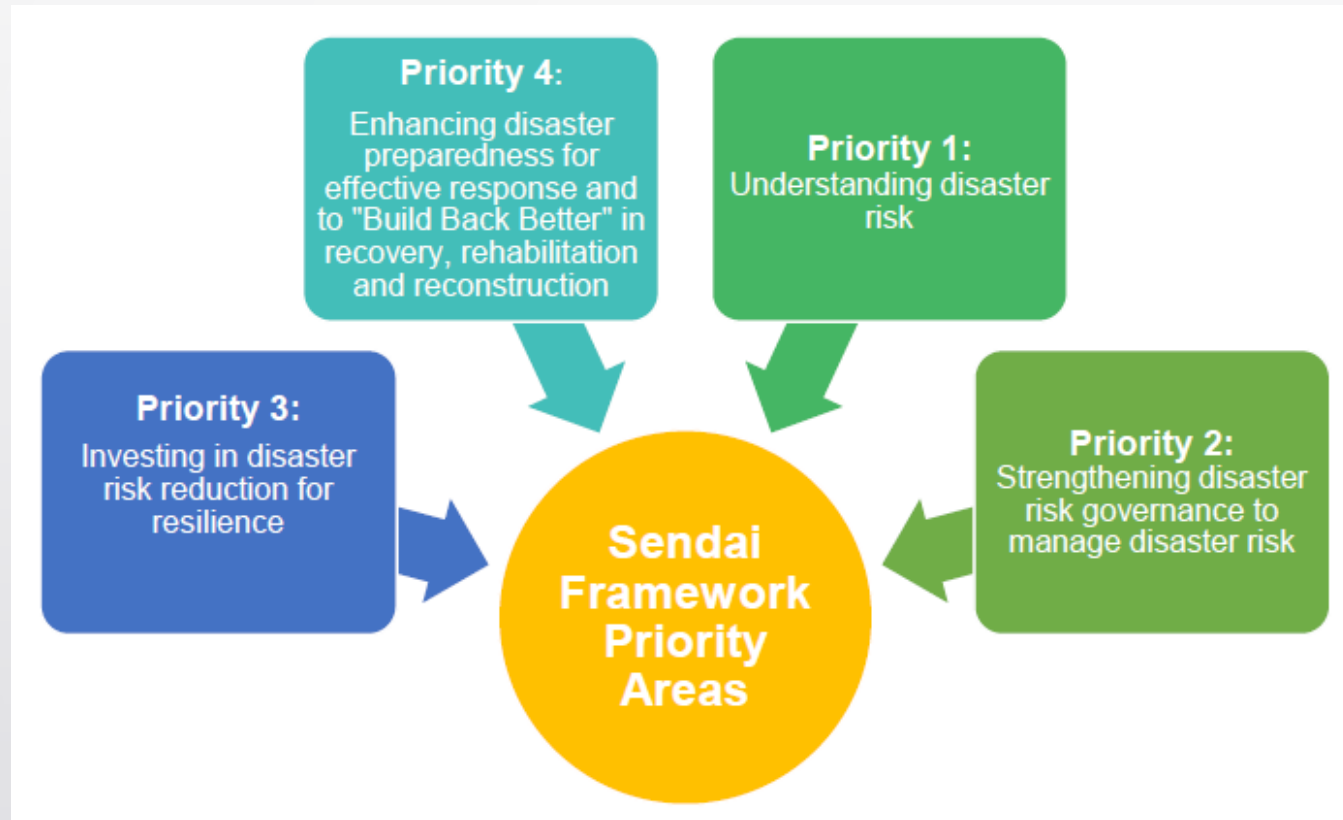
# CLIMATE AND DISASTER RESILIENCE PLAN TYPES

- Local Preservation Plan
- Comprehensive or General Plan
- Resilience or Adaptation Plan
- Sustainability Plan
- Floodplain Management Plan
- Hazard Mitigation Plan / Local Mitigation Strategy
- Economic Development Plan
- Disaster Recovery Plan
- Capital Improvement Plan





# CULTURAL RESOURCES IN CLIMATE & DISASTER PLANNING

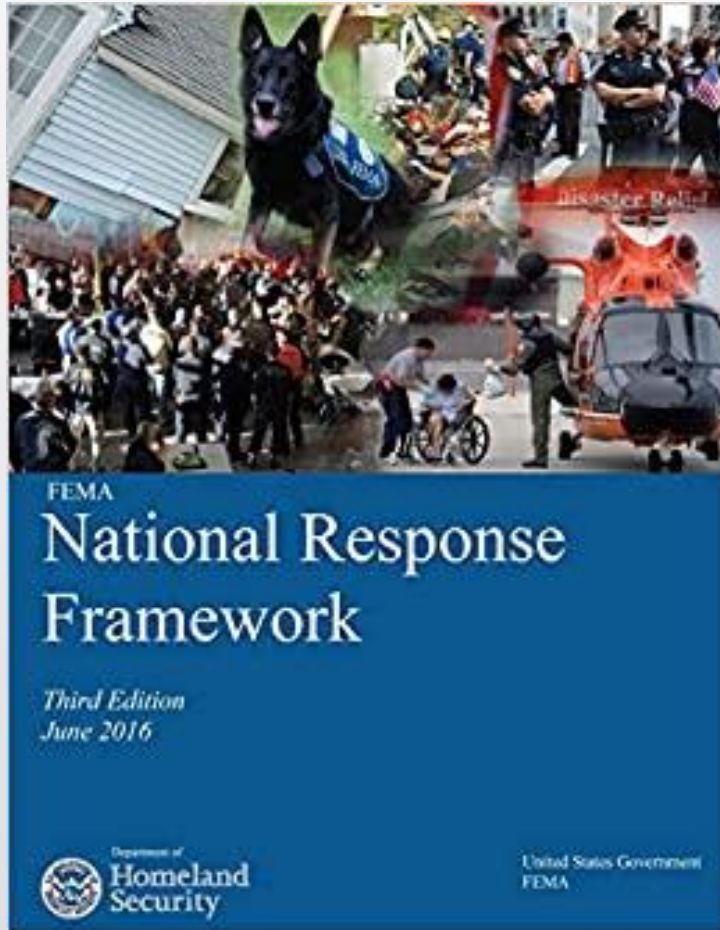


*"The Sendai Framework is breaking new ground in recognizing the role of culture and cultural heritage as components of disaster risk management. Now the question is implementation."*

Giovanni Boccardi – UNESCO World Heritage Center head of disaster risk and sustainable development

# DISASTER PLANNING & RECOVERY

## A NATIONAL FRAMEWORK FOR DISASTER RESPONSE



- Federal Emergency Management Agency, Department of Homeland Security, tasked with organizing this guide to help National Preparedness.
- Provides for a unified national response to disasters and emergencies.
- Structure and procedures address incidents where Federal support is coordinated under the Robert T. Stafford Disaster Relief and Emergency Assistance Act
- A basic premise of the **National Response Framework** is that incidents are generally handled at the lowest jurisdictional level possible.

# DISASTER PLANNING IN THE NATIONAL FRAMEWORK

## CULTURAL RESOURCES AND HISTORIC PROPERTIES



**National Response Framework** provides for that incidents to be handled at the lowest jurisdictional level possible. This is done through Emergency Support Functions (ESFs) which:

- Coordinate Federal interagency support in disaster response to states and other Federal agencies.
- ESF #11 - Protecting Natural, Cultural Resources, and Historical Properties (NCH) resources by providing:
  - Response actions to preserve, conserve, rehabilitate, and inform long-term recovery of resources
  - Post event assessments of damages
  - Technical assistance for assessing impacts of response activities on resources.



# DISASTER PLANNING IN THE NATIONAL FRAMEWORK

## CULTURAL RESOURCES AND HISTORIC PROPERTIES





“Federal Agencies must conduct EHP reviews of disaster recovery projects... and carry out their responsibilities as stewards of the environment.”  
- Unified Federal Review Guidance for Environmental and Historic Preservation Practitioners (FEMA)

**National Mitigation Framework**  
*Second Edition*  
*June 2016*




**National Disaster Recovery Framework**  
*Second Edition*  
*June 2016*



**Pre-Disaster Recovery Planning Guide for Tribal Governments**

FP 104-008-02 | September 2019



**Unified Federal Review**  
Guidance for Environmental and Historic Preservation Practitioners

July 29, 2014



# DISASTER RESILIENCE PLANNING


## PEOPLE FIRST!



“Preparedness is a shared effort in which everyone—community-wide—plays a key role. Ensuring community members understand how they can contribute to building a culture of preparedness increases the nation’s readiness and resilience....”  
- 2019 National Preparedness Report

**Family Emergency Plan** Page 18

- Objective:
  - Employees and their families are safe
  - Employees are able to come back to work
- Section 8 - Information on Creating a Plan
- Encourage Employees to Put a Plan in Place at Home
- Each Household Should Have an Emergency Kit



F.T.I.

**2021**

**National Preparedness Month**  
Prepare to Protect



Ready 

# DISASTER RESILIENCE PLANNING & POLICY

## FEMA GUIDANCE FOR STATE PLANNING

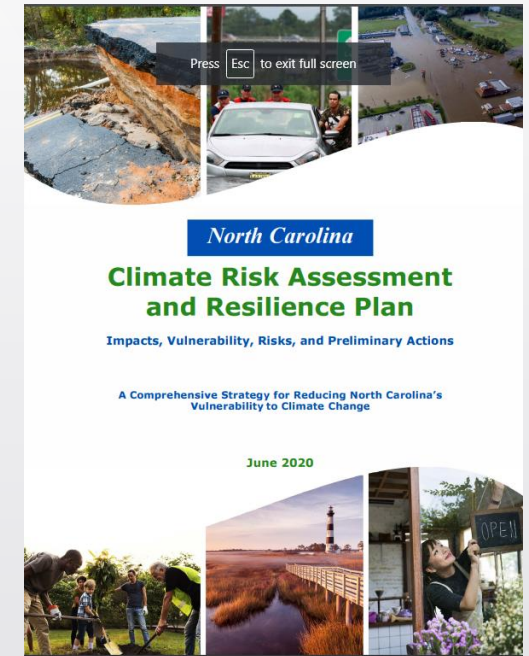
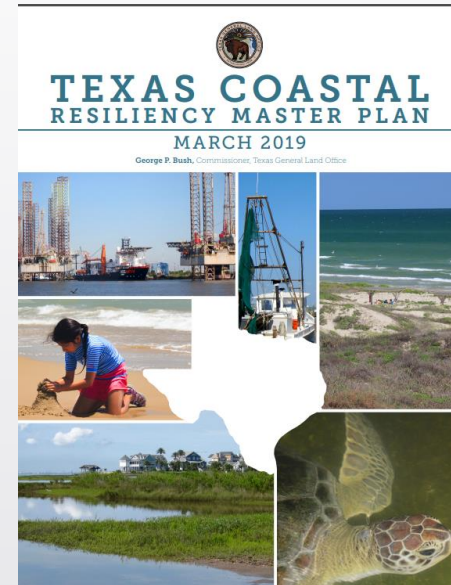
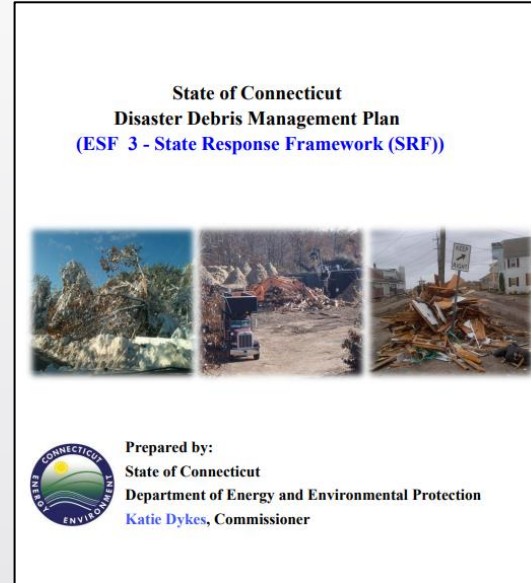
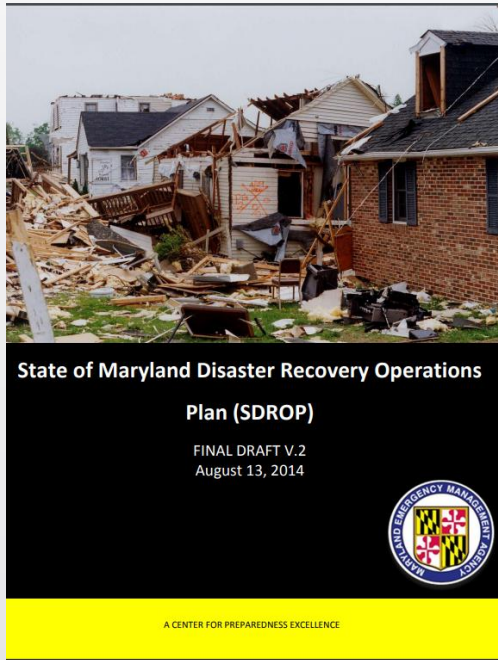


“Recovery offers a unique opportunity to reduce future risk... to implement solutions that will increase community resilience in the economic, housing, natural and cultural resources, infrastructure, and health and social services and government sectors.”

-Effective Coordination of Recovery Resources for State, Tribal, Territorial and Local Incidents.

# CLIMATE & DISASTER RESILIENCE PLANNING & POLICY

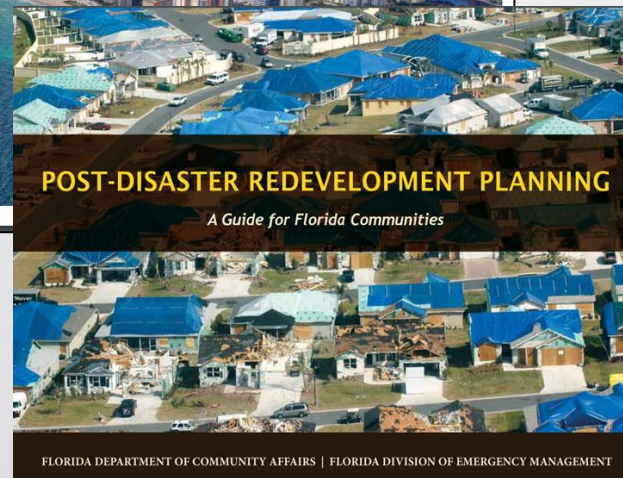
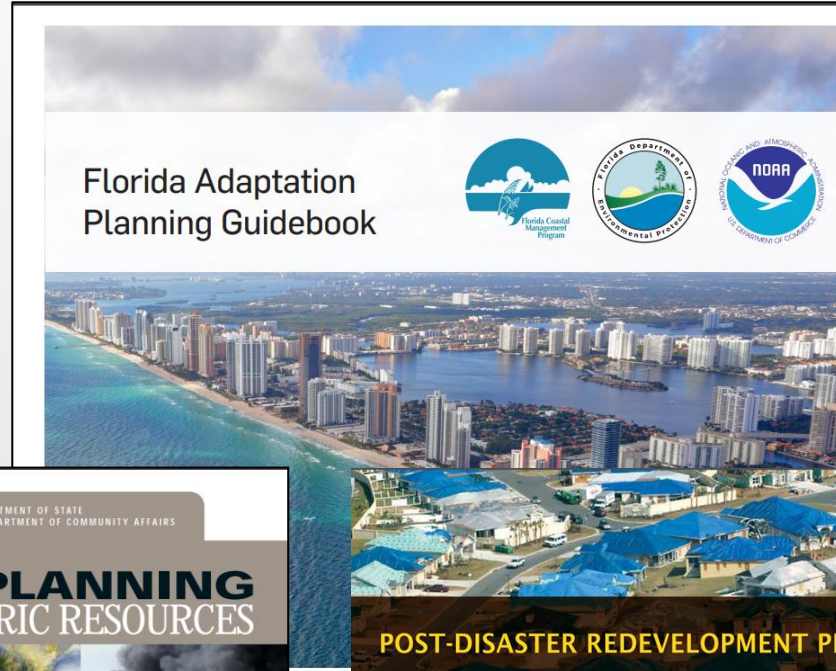
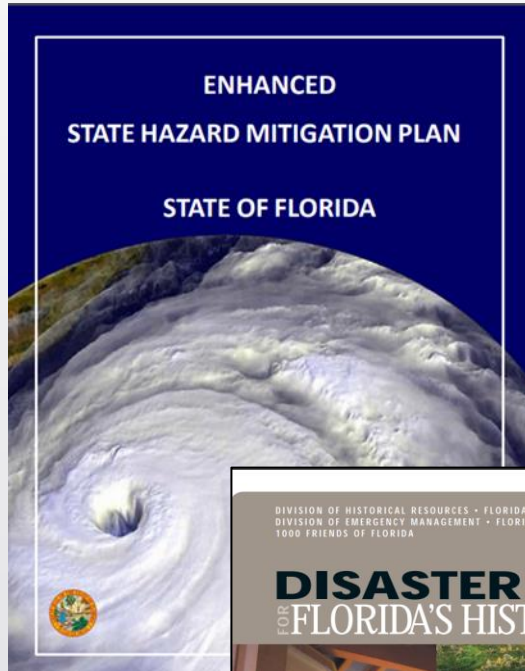
## STATE PLANNING DOCUMENTS FOR INCORPORATING CULTURAL RESOURCES



- Disaster Recovery Operations (Maryland)
- Disaster Debris Management Plan (Connecticut)
- Coastal Resilience Master Plan (Texas)
- Climate Risk Assessment and Resilience Plan (North Carolina)

# CLIMATE & DISASTER RESILIENCE PLANNING & POLICY

## FLORIDA PLANNING DOCUMENTS



- State Hazard Mitigation Plan
- Florida Adaptation Planning Guidebook
- Disaster Planning for Florida's Historic Resources
- Post-Disaster Development Plan
- **Resilient Florida**
  - Comp plan amendments
  - Vulnerability assessments
  - Adaptation/resilience plans
  - Projects to adapt **critical assets** including natural, cultural, and historical resources



# CLIMATE & DISASTER RESILIENCE PLANNING

## LOCAL PLANNING DOCUMENTS



### Local Mitigation Planning Handbook

March 2013



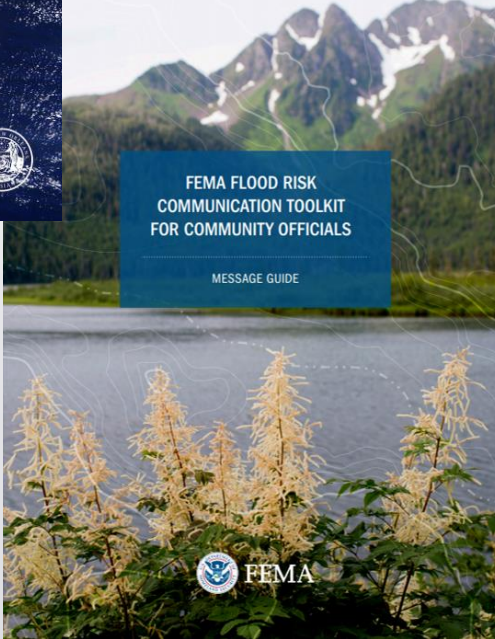
### Climate Action for a Resilient New Orleans



### Chapter 9 – Resilience and Sustainability



Washington  
County  
WASHINGTON COUNTY 2040 COMPREHENSIVE PLAN



### FEMA FLOOD RISK COMMUNICATION TOOLKIT FOR COMMUNITY OFFICIALS

MESSAGE GUIDE



## Disaster-Related Plans

- Local Mitigation Strategy
- Resilience Plan
- Climate Action Plan
- Communication Plan
- Stormwater Master Plan
- Floodplain Management Plan

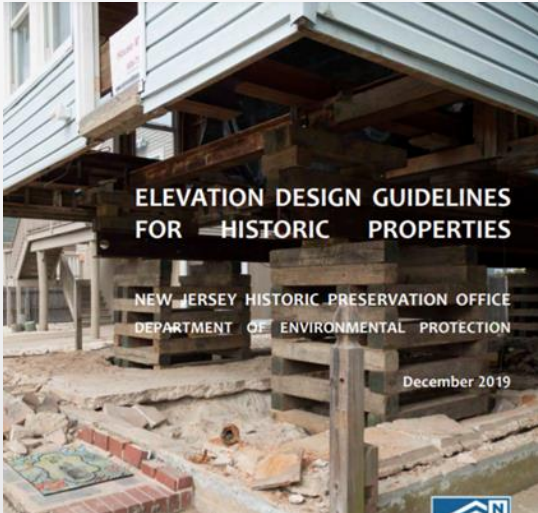
## Comprehensive Planning

- Master Plan
- Neighborhood Plans
- Historic Preservation Plan
  - Vulnerability Assessment
- Economic Development Plan

## Capital Improvement Plan

# CLIMATE & DISASTER RESILIENCE PLANNING & POLICY

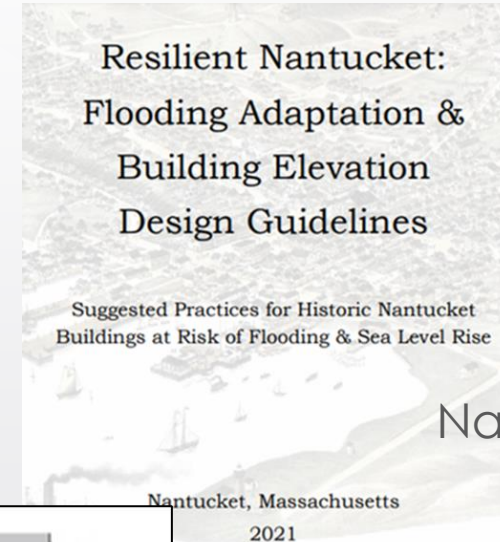
## STATE & LOCAL GUIDELINES FOR ADAPTATION



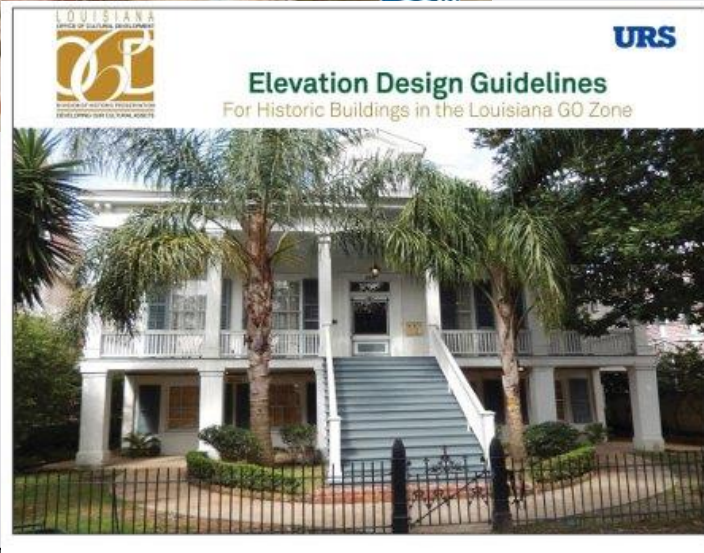
New Jersey & Louisiana



Stockade Historic District  
Schenectady NY



Nantucket, MA



Georgetown, SC



encouraged to construct or retrofit flood-proofing measures visual and physical impact to a historic building. The following are appropriate to preserve historically significant features and overall

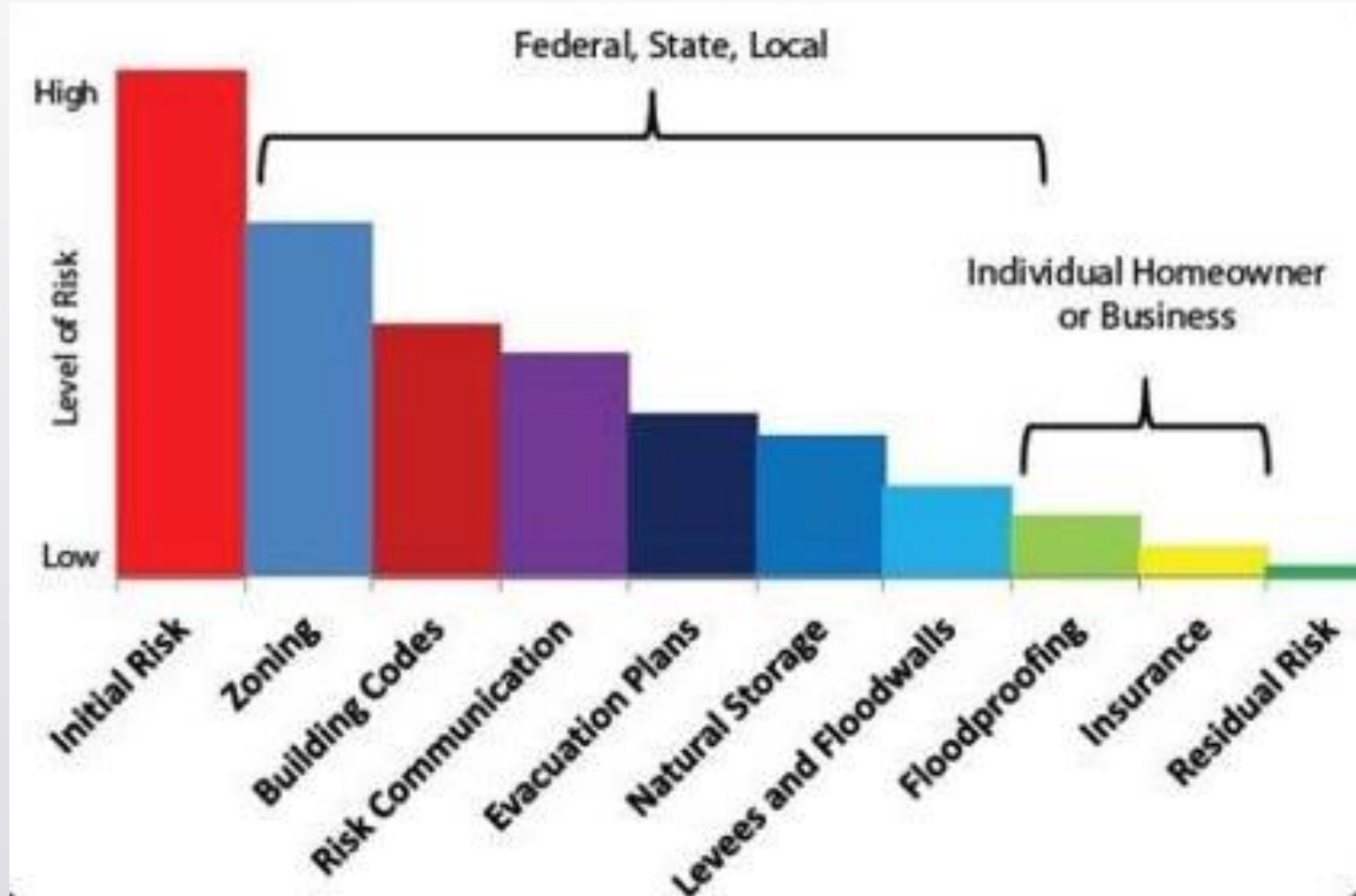
- ☐ Elevating electrical and mechanical systems and utilities—these can be placed in an upper floor or non-readily visible rooftop location.
- ☐ Relocating building contents to upper floors.
- ☐ Creating positive drainage, where the grade allows water to drain away from the building.
- ☐ Using flood damage-resistant materials.
- ☐ Filling in basements or wet flood-proofing basements.
- ☐ Installing small floodwalls to protect openings such as window wells or other low earth berms at rear elevations.



An example of flood proofing is the addition of pumps into the basement of the building at 901-903 Front Street as well as adding water-resistant flooring on the ground floor.

# CLIMATE & DISASTER RESILIENCE PLANNING

## RISK REDUCTION THROUGH PLAN INTEGRATION



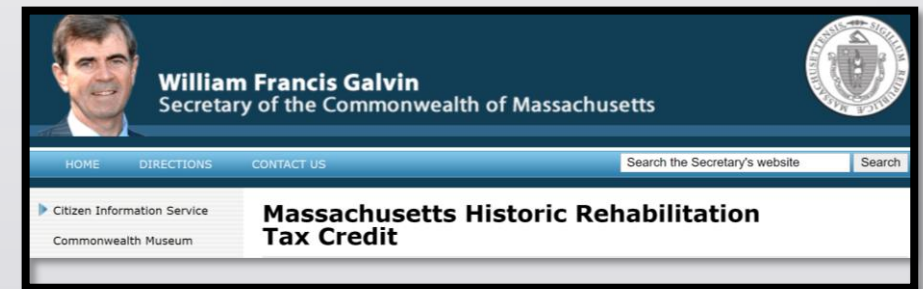
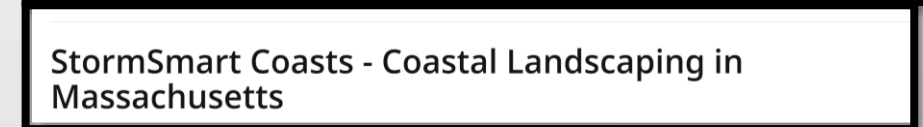
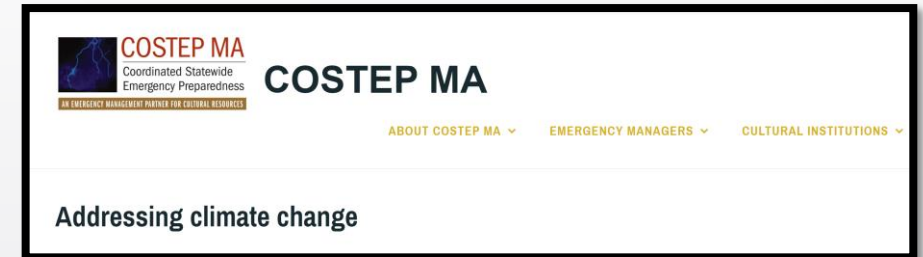
Reducing Risk and Being Ready leads to Faster Recovery

By integrating planning efforts, communities can recognize opportunities to better understand threats and hazards, assess risks, build and sustain capabilities, reduce vulnerability, identify ways to increase resilience, and avoid duplication of effort.

# CLIMATE & DISASTER RESILIENCE PLANNING

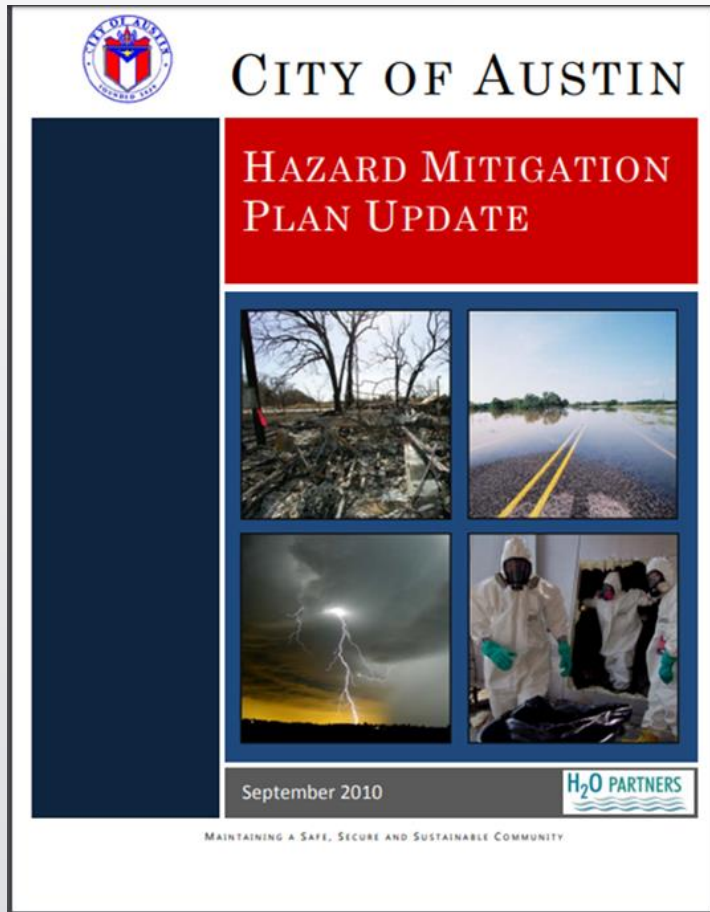
## RISK REDUCTION THROUGH PLAN INTEGRATION (STATE OF MASSACHUSETTS)

- **Coordinated Statewide Emergency Preparedness**
  - Addressing Climate Change
- **Massachusetts Department of Transportation**
  - Statewide Climate Change Adaptation Plan
- **Massachusetts Office of Coastal Zone Management**
  - Interpreting FEMA Flood Maps in Coastal Zones
- **Massachusetts Historical Commission**
  - Cultural Resource Inf. System
  - Historic Rehab Tax Credit
  - Projects Fund
  - State Preservation Plan



# CLIMATE & DISASTER RESILIENCE PLANNING & POLICY

## HAZARD MITIGATION PLAN RE: PRESERVATION PLAN (AUSTIN, TX)



The City of Austin has a historic preservation plan overseen by the City of Austin Historic Preservation Office (CHPO)

- “An overlooked aspect of the historic preservation plan is the assessment of buildings and sites located in areas subject to natural hazards to identify the most effective way to reduce future damages.”
- “This may involve retrofitting or relocation techniques that account for the need to protect buildings that do not meet current building standards...”

# CLIMATE & DISASTER RESILIENCE PLANNING & POLICY

## PRESERVATION PLAN RE: HAZARD MITIGATION PLAN (ST. AUGUSTINE, FL)

- Engage in Hazard Mitigation Planning
- Document Potential Hazards
- Prepare Design Guidelines for Flood Mitigation
- Create Expedited Review for Disaster Response
- Identify Partners to Assist in Post-Flood Review
- Establish a Debris Management Plan
- Integrate Historic Preservation into Local Response
- Develop Information for Property Owners



# CLIMATE & DISASTER RESILIENCE PLANNING & POLICY

## PRESERVATION PLAN: RESILIENT HERITAGE (ST. AUGUSTINE)

- Balance Flood Mitigation & Historic Neighborhood Character
  - Limit Height of Floor Level of First Occupied Floor to Reduce Elevated Building Height
  - Require Screening for Elevated Foundations and Raised Equipment
- Revise Architectural Guidelines for Historic Preservation & Associated Ordinances
  - Incorporate Flood and Storm Mitigation Alternatives
  - Allow Broader Use of Staff Approval Following a Hazardous Event



# CLIMATE & DISASTER RESILIENCE PLANNING & POLICY

## COMPREHENSIVE PLAN HISTORIC PRESERVATION ELEMENT (FORT LAUDERDALE)

### Resilience

- Adjust historic preservation and archaeological resource programs according to changing environmental conditions
- Develop a climate and environment resiliency prioritization based on susceptibility to climate and environmental change
- Monitor changes in economy to identify impacts to historic resources
- Develop a resiliency prioritization of resources

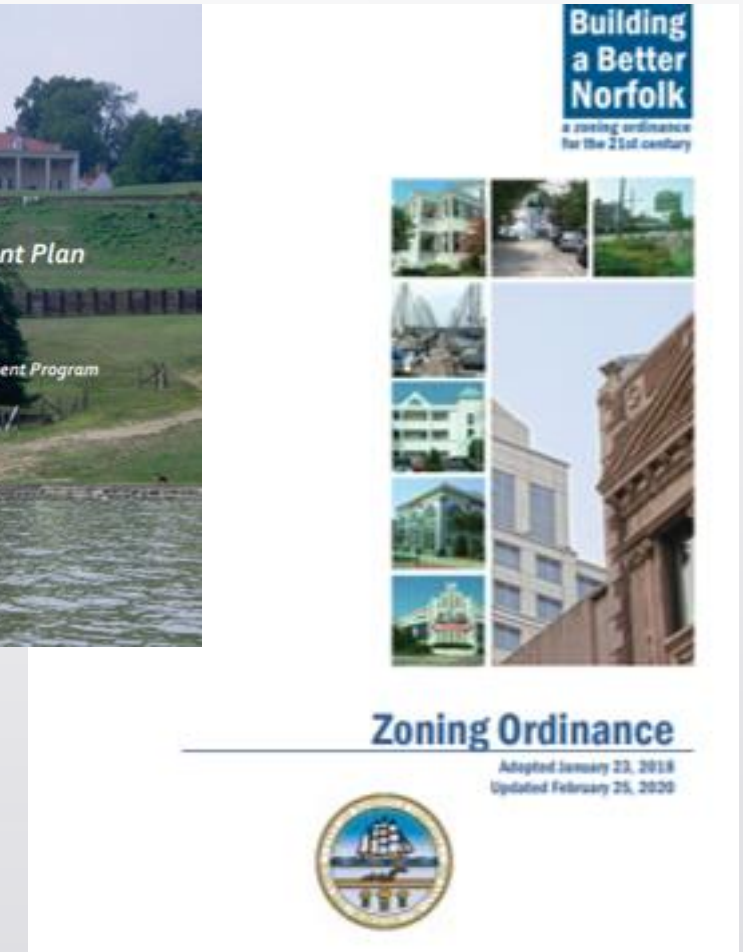
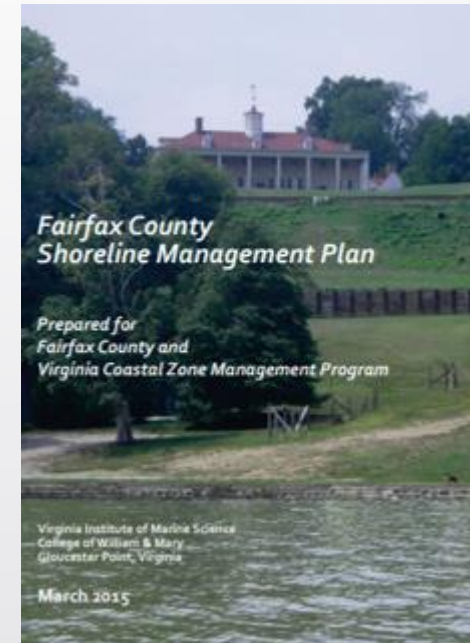
“Seek guidance from the National Park Service and the Florida Department of State, Division of Historical Resources in developing **a historic preservation disaster management plan and coordinate historic, archaeological and cultural resource planning with Broward County post-disaster redevelopment plans.**”



# CLIMATE & DISASTER RESILIENCE PLANNING & POLICY

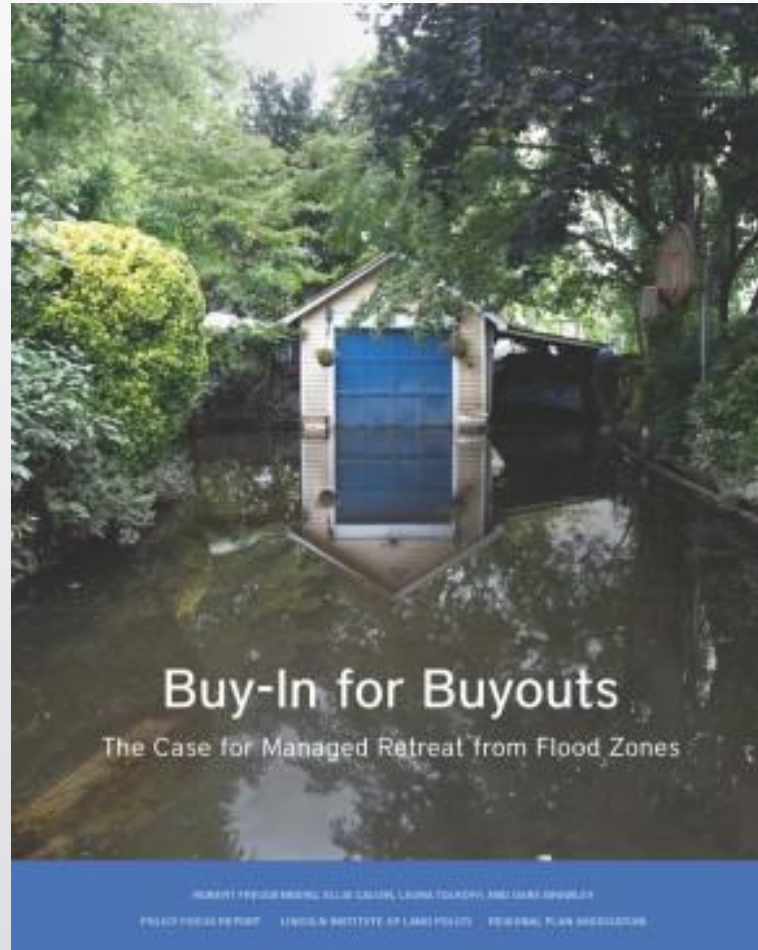
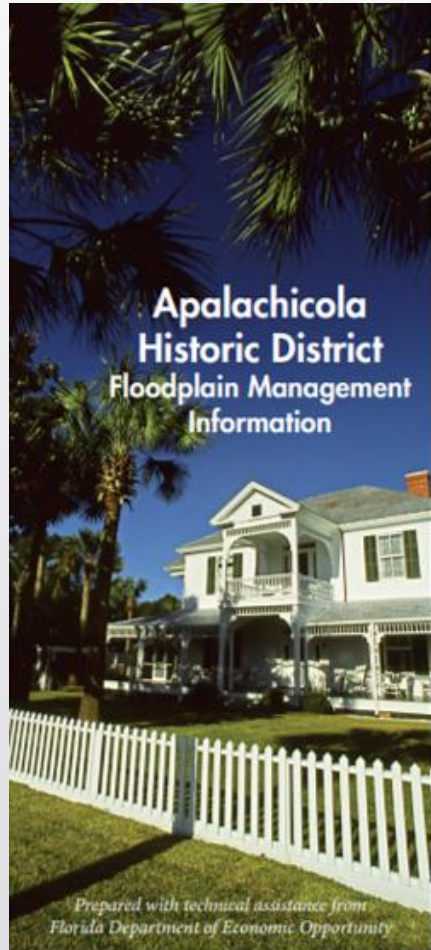
## COMPREHENSIVE PLANNING / ZONING / BUILDING CODES

- **Norfolk** updated its Zoning Ordinance designating a Coastal Resilience Overlay zone, Upland Resilience Overlay zone.
- **Baltimore's** Disaster Preparedness and Planning Project (DP3) recommends using new building code regulations to enhance the resilience of new development and redevelopment to sea-level rise.
- **San Francisco** adopted guidance for incorporating sea level rise into capital planning processes and design standards.
- **Fairfax County, VA** Wetlands Board has adopted a living-shorelines first policy.
- **Boston, MA** inserted a resiliency policy into their zoning ordinance that requires all projects to consider future climate conditions.
- **Virginia Beach** - Purchase of Development Rights (PDR) and Transferrable Development Rights program.



# CLIMATE & DISASTER RESILIENCE PLANNING & POLICY

## REGULATORY TOOLS



### Building Codes - Resilient Design

- Green infrastructure (GI) for new development
- Building Occupancy Resumption Program (pre-certification by licensed engineer)
- Future Conditions Checklist
- No-Adverse-Impact Certification (no increase in base flood level)

### Historic Rehabilitation – Adaptation

- Floodplain Management – Variance
- Excavation (archaeological impact)
- Elevation Procedures
- Elevation Design Guidelines

### Buyouts / Relocation / Easements

- Community-Driven Buyout Program
- Deed Restrictions

# CLIMATE & DISASTER RESILIENCE PLANNING & POLICY

## RESILIENCE PLAN (NEW BERN, NC)

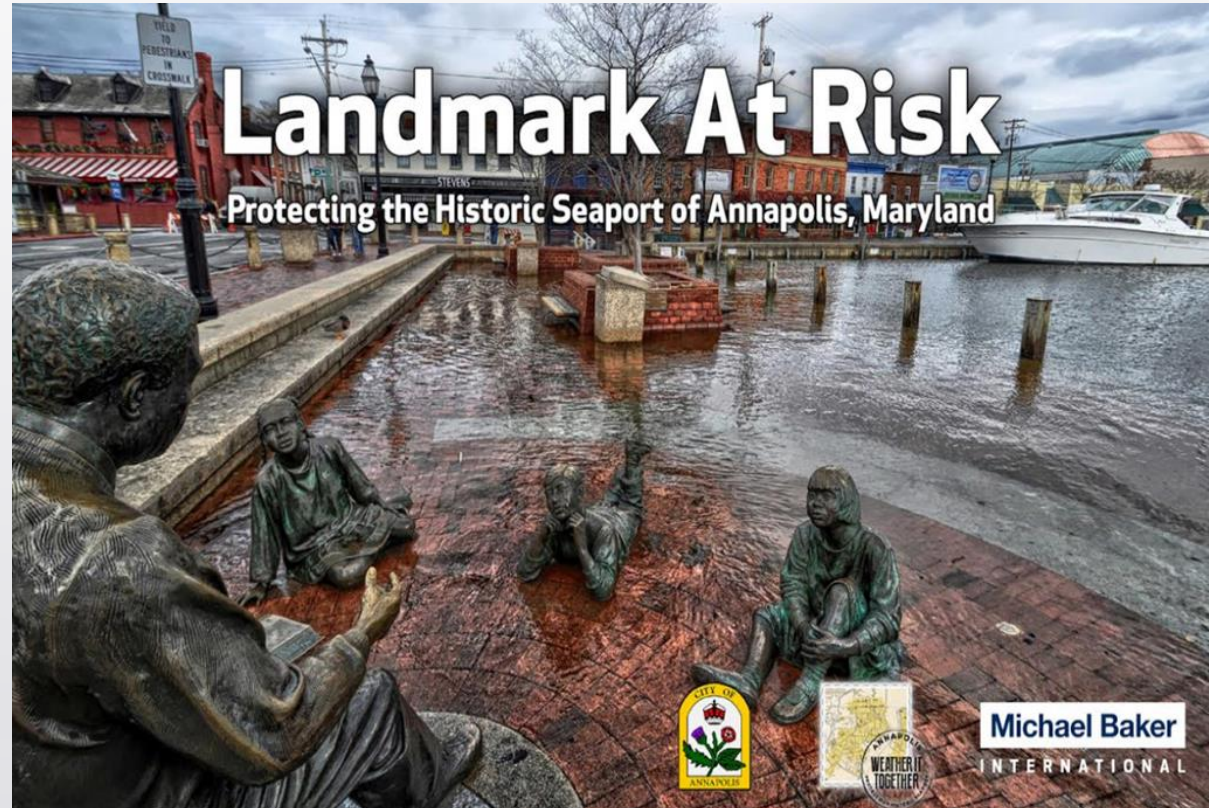
Resiliency planning can include updating land use codes, zoning development standards, incentive programs, and other plans or policies to better prepare for likely shocks and stresses while also developing measures that allow for action in the face of uncertainty or unexpected events.



# CLIMATE & DISASTER RESILIENCE PLANNING & POLICY

## CULTURAL RESOURCE HAZARD MITIGATION PLAN (ANNAPOLIS, MD)

The *Weather It Together* Plan identifies and mitigates potential loss to historic resources from natural disasters, nuisance flooding, subsidence and sea level rise. Model for historic coastal communities in preservation planning for disaster resilience. The only FEMA-approved Cultural Resource Hazard Mitigation Plan.



# CLIMATE & DISASTER RESILIENCE PLANNING & POLICY

## DETERMINE COMMUNITY PRIORITIES

- Vulnerability Assessment
- Community Values Assessment
  - Public Sentiment & Preservation Priorities
- Economic Assessment
- Public Engagement
  - Engage, educate and empower decision-makers



# COMMUNITY PRIORITIES IN CLIMATE & DISASTER PLANNING

## VULNERABILITY ASSESSMENT

### Resilient Heritage in the Nation's Oldest City

A Rich History and Rising Hazards: RESILIENT HERITAGE

The Value of History: ECONOMIC ANALYSIS

Protecting the Future of



#### A Rich History and Rising Hazards: RESILIENT HERITAGE

strategies and policy revisions.



St. Augustine's Coastal Location  
+ Low Elevation  
+ 2,059 Historic Properties  
= High Risk for Flooding + Storm Surge

City of St. Augustine's Response:  
*The Resilient Heritage Initiative*

# COMMUNITY PRIORITIES IN CLIMATE & DISASTER PLANNING

## COMMUNITY VALUES ASSESSMENT

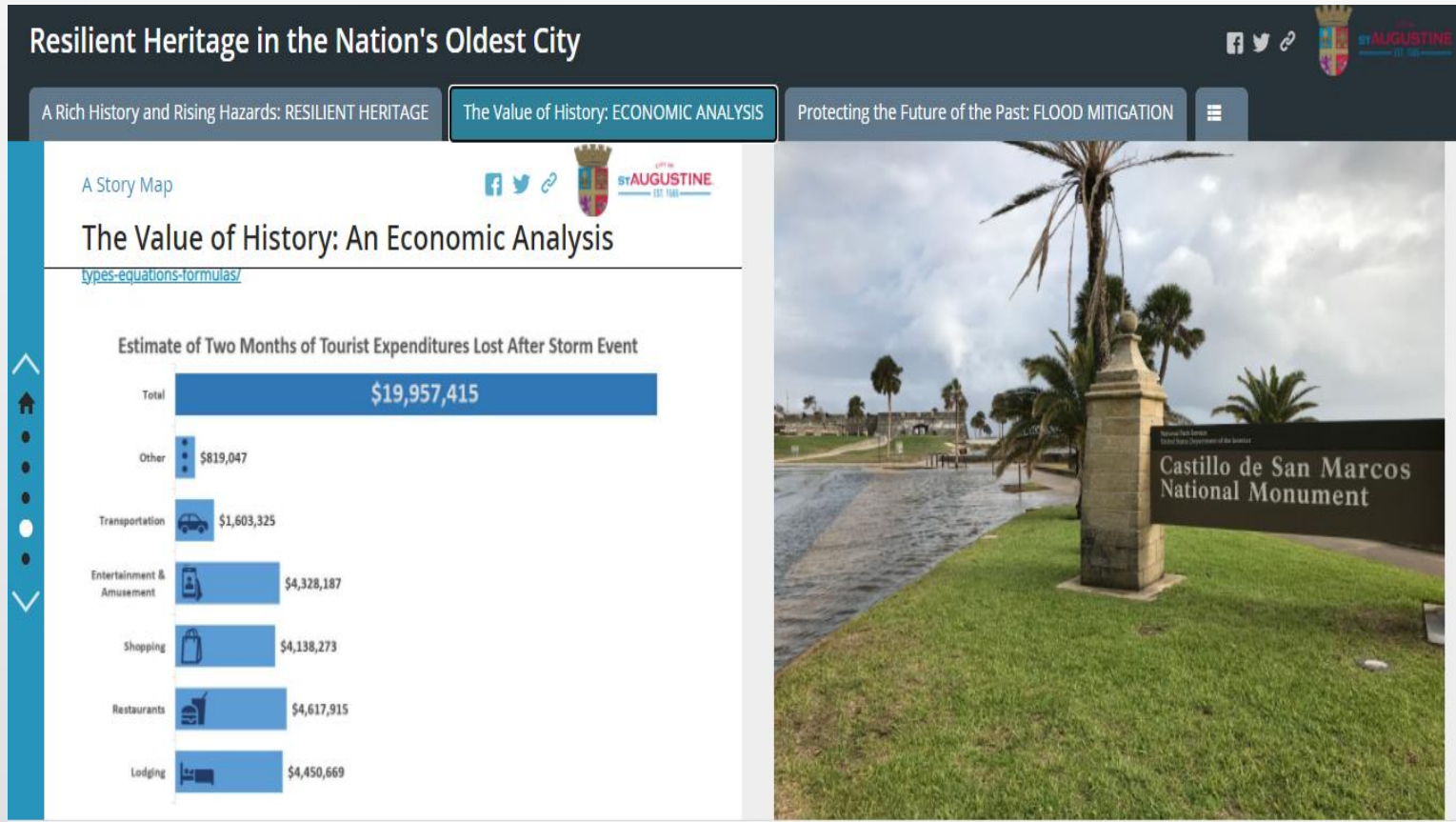


## Establishing Public Sentiment & Preservation Priorities

Through the *Community Values* assessment process, key decisionmakers work with residents, business owners and other agency partners to identify adaptation planning priorities.

# COMMUNITY PRIORITIES IN CLIMATE & DISASTER PLANNING

## ECONOMIC ASSESSMENT – PRE-DISASTER



What's the value of our community's heritage?  
What's at stake if we don't prepare our community?





# COMMUNITY PRIORITIES IN DISASTER PLANNING & POLICY

## ECONOMIC ASSESSMENT – POST DISASTER



### Cost to County

- \$12 million flood response/recovery
- \$2 million channel wall repairs
- \$1.75 million to acquire / raze 4 buildings

Ellicott City, Maryland - July 30, 2016

# COMMUNITY PRIORITIES IN DISASTER PLANNING & POLICY ECONOMIC ASSESSMENT – POST-DISASTER



## Loss to Community Revenues

- \$42.4 million reduced economic activity
- \$18.1 million reduced labor income
- \$700k reduced County revenues
- 151 lost jobs

# COMMUNITY PRIORITIES IN DISASTER PLANNING & POLICY

## PUBLIC ENGAGEMENT

Engage, educate and empower community decision-makers



# CLIMATE & DISASTER RESILIENCE PLANNING & POLICY

## PUBLIC ENGAGEMENT THROUGH PUBLIC ART



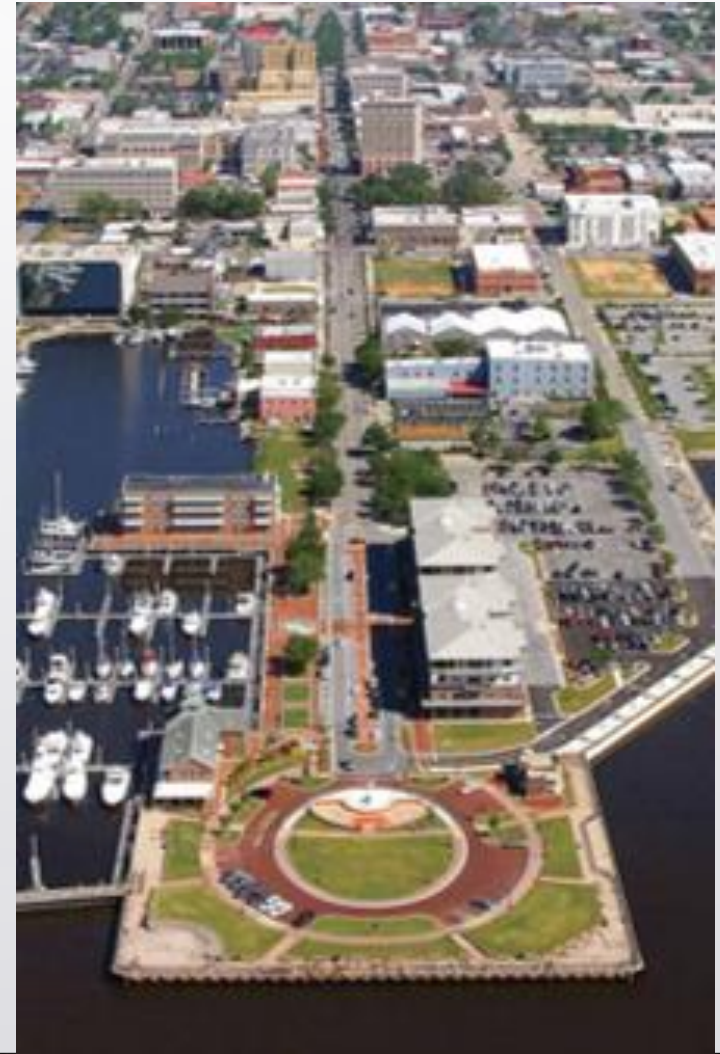
*Success in Resilience Planning and Policy begins with engaging decision-makers. Those who set policy must be:*

- *Engaged*
- *Educated*
- *Enabled*
- *Empowered*

# CLIMATE & DISASTER RESILIENCE PLANNING & POLICY

## CASE STUDY: ADAPTATION PLAN (PENSACOLA)

- Emergency management plans include climate change projections and adaptation
- Incorporate Better Site Design, Low Impact Development (LID) and green infrastructure principles (living shorelines) into local codes.
- Develop a rebate program or provide installation financing or tax credits to property owners.
- Promote an awards and recognition program.
- Partner with innovative construction projects to showcase changes that mitigate for flooding .



# CLIMATE & DISASTER RESILIENCE PLANNING & POLICY

## CASE STUDY: COMPREHENSIVE PLAN (NASSAU COUNTY, FL)

### 2. PLANNING PROCESS

#### If your community has historic sites and structures:

An analysis of a community's designated historic sites and structures can provide information to preservationists about the vulnerability of significant sites and structures that they could use to make damage estimates, develop specific procedures for ensuring debris clearance and repairs do not undermine historic resources, and prioritize mitigation projects. GIS can be used to identify which structures are within disaster scenario impact zones (e.g., flood or storm surge). For other hazards, such as wind damage, assessments of individual structures may need to be conducted. Your community can also coordinate with the State Historic Preservation Officer or the local historic preservation organization to address unique considerations for maintaining aesthetic historical integrity such as using in-kind materials for repairs and restoration. **Figure 8** presents vulnerable historic buildings in Fernandina Beach, Florida.



See **Resources** for further historic preservation information.



**Figure 8. Vulnerable Historic Buildings in Fernandina Beach, Florida.**

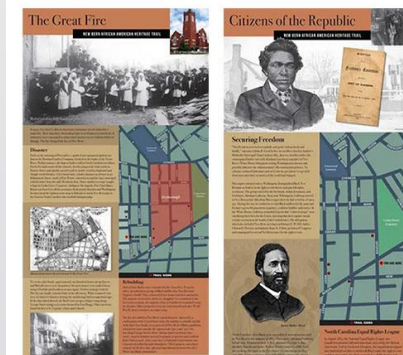
The Nassau County Plan includes an analysis of historic districts at risk from storm surge.

“An analysis of a community’s designated historic sites and structures can provide information to preservationists about the vulnerability of significant sites and structures that they could use to make damage estimates, develop specific procedures for ensuring debris clearance and repairs do not undermine historic resources, and prioritize mitigation projects. “

# CLIMATE & DISASTER RESILIENCE PLANNING & POLICY

## CASE STUDY: RESILIENCE & HAZARD MITIGATION PLAN (NEW BERN, NC)

*New Bern Resilience* is a combined resilience and hazard mitigation plan incorporating a whole community approach and cultural heritage into an adaptation planning strategy prioritizing vulnerable African-American neighborhoods.



African American  
Heritage Trail

NEW BERN / CRAVEN COUNTY



Image capture: Aug 2012 © 2018 C

# CLIMATE & DISASTER RESILIENCE PLANNING & POLICY

## PLANNING TOOLS

**Which of the following disaster tools would be of greatest interest to you in furthering your knowledge of disaster resilience for cultural heritage?**

- Disaster Adaptation Design Guidelines
- Hazard Mitigation Plan for Historic Districts
- Communications Plan for Disaster Resilience
- Disaster Planning Toolkit for Historic Property owners
- 3-D Visual Documentation of Historic District
- Public Policy Guidance for Disaster Adaptation in Historic Communities
- Public Education and Awareness Tools for Community Disaster Preparedness
- Resource List of Successful Adaptation Strategies for Historic Properties and Cultural Resources

