

# ForumJournal

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## High Water and High Stakes: Cultural Resources and Climate Change



National Trust *for* Historic Preservation

**Preservation  
Leadership Forum**

# Weather It Together: Annapolis' Model Planning Effort

LISA CRAIG

*While many other communities are planning for the impacts of climate change to infrastructure, Annapolis is breaking new ground by specifically accounting for the historic places that are such an important part of [the] your city's fabric, cultural identity, and economy. By naming Annapolis a National Treasure, we are raising awareness of the threats posed by climate change to historic places nationwide.*

*—Stephanie Meeks, President, National Trust for Historic Preservation, Oct. 23, 2014<sup>1</sup>*

While recognition of the historic city of Annapolis is usually welcome—certainly, the local economy is dependent on the heritage traveler—we would rather have visitors uploading digital images of our beautiful City Dock than shots of tidal flood waters circling the feet of the statue of Alex Haley as he reads to children at the Kunta Kinte Memorial. Yet Alex has become the high water mark for flooding events in Annapolis—events that have become an increasingly urgent call to action.

The Colonial Annapolis Historic District was designated one of 43 National Historic Landmark Districts in 1965 by the U.S. Department of the Interior. While Annapolis' collection of 18th-, 19th- and 20th-century architecture is important to the entire nation, the historic district is a major heritage tourism asset for the local economy.<sup>2</sup>

When Secretary of the Interior Stewart Udall visited Annapolis on July 7, 1965, to officially announce the designation, he warned, "Annapolis must work now to preserve its historic heritage... otherwise it will simply share the weakness of so many cities in America—sameness."<sup>3</sup>

Now in 2015 we are again heeding a warning, but it is not the prospect of unplanned, insensitive development that threatens destruction of our historic city, but the unpredictable, inescapable

effects of a more global concern: sea level rise. Natural forces are resulting in Annapolis experiencing the highest rate of sea level rise of any community on the Atlantic Coast. Meanwhile, tidal flooding threatens to erode the architectural integrity of our historic seaport.

Sea level at Annapolis has risen by more than a foot over the last century—more than twice the global average, according to a 2014 report by the Union of Concerned Scientists (UCS). Recent studies suggest that tidal flooding will not only continue, but increase exponentially. The UCS further estimates that by 2030—just 15 years from now—Annapolis can expect more than 180 tidal floods a year. By 2045 the frequency goes up again—to an average of more than 360 times a year.<sup>4</sup>

Between 1957 and 1963, Annapolis saw 3.8 days of nuisance flooding (i.e., occasional minor coastal flooding experienced during high tide) on average. Yet 50 years later, between 2007 and 2013, the city had an average of 39.3 days of nuisance flooding—a 925 percent increase.<sup>5</sup>

Sea level rise is a concern across the Chesapeake Bay region. With its expansive coastline, low-lying topography, and growing coastal population, this is among the most vulnerable places in the nation. The Chesapeake Bay has seen, on average, a one-foot increase in relative sea level rise during the 20th century, six inches due to global warming and another six inches due to naturally subsiding coastal lands. Already at least 13 islands in the bay have disappeared entirely, and many more are at risk of being lost

soon.<sup>6</sup> Sea level rise in the Chesapeake Bay region could reach 17–28 inches above 1990 levels by 2095.

The Governor’s Commission on Climate Change issued the

**The City of Annapolis has seen a dramatic increase in nuisance flooding. Pictured here is the Kunta Kinte-Alex Haley Memorial, located at the City Dock in Historic Annapolis.**

PHOTO BY AMY E. MCGOVERN



Maryland Climate Action Plan in 2008 to address sea level rise and coastal storms with the purpose of protecting the state's future economic well-being, environmental heritage and public safety through legislative and policy actions. Among those actions is promoting state- and local-level "programs and policies aimed at the avoidance and reduction of impact to the existing built environment, as well as to future growth and development in vulnerable coastal areas."

The Maryland Climate Action Plan evaluated three possible responses to sea level rise: protect, retreat/relocate, and abandon. Given the importance of the historic district and the waterfront, and the recreational and economic needs for waterfront access, the Annapolis response to sea level rise focuses on protecting existing structures and infrastructure.

So now, as Annapolis celebrates its 50th anniversary as a National Historic Landmark, our efforts are targeted toward the next 50 years, and a renewed commitment to implementing protective measures that will strengthen this National Treasure's response to climate change.

### **HAZARD MITIGATION PLANNING: WEATHER IT TOGETHER**

Like other cities, Annapolis is responding to the threats of natural and manmade disasters by updating its citywide Natural Hazard Mitigation Plan to address various risks prevalent in the region. In addition, the accelerating rate of sea level rise and the devastation seen in the aftermath of Hurricane Sandy has created a sense of urgency in Annapolis for amending the plan to include the protection of cultural resources. The Cultural Resource Hazard Mitigation Plan (CR HMP), now in development, will identify, assess and attempt to avoid or lessen potential loss to historic resources due to natural disasters, primarily threats from sea level rise, subsidence (i.e., the lowering of the land surface), flooding and storm events.

Branded by our CR HMP team as Weather It Together: Protecting Our Historic Seaport, this hazard mitigation planning effort is engaging a variety of stakeholders at the community, state and national level. The process began in 2013 when the City of



**Annapolis is experiencing the highest rate of sea level rise of any community on the Atlantic Coast, and frequent tidal flooding threatens the cultural resources of the historic seaport.**

PHOTO BY AMY E. MCGOVERN

Annapolis secured funding to develop the plan from the National Trust for Historic Preservation, Preservation Maryland (the state-wide preservation organization), the Maryland Historical Trust (the state historic preservation office) and the Maryland Department of Natural Resources. It follows the approach recommended by the Federal Emergency Management Agency’s (FEMA’s) “how-to guide” for state and local governments called [Integrating Cultural Resources into Hazard Mitigation Planning](#).<sup>7</sup>

In reviewing the FEMA guidance it became clear that our city government did not have the technical expertise to complete the plan; the City’s planning department had limited funding for outside consultants; with only 1.5 full-time-equivalent employees in our historic preservation division, we had insufficient staff resources to take on such an intensive planning program; and the City Council did not have climate change as a priority in its budget considerations. Nevertheless, we began.

Now, 18 months later, our historic city is successfully into the FEMA hazard mitigation planning process. As I speak with others around the country about this newly acknowledged threat to historic preservation, my purpose is clear—to protect the preservation gains of the past 50 years from the dangers now posed by climate change. So I always begin with the advice: Don’t worry about funding, staffing, politics or property owner pushback... Just start!

## **APPLYING THE FEMA GUIDELINES**

FEMA encourages communities to begin planning with the following guidance: “It is more cost-effective to assess potential effects from a disaster and to implement preventative measures than to wait for a disaster to strike and then assess actual impacts.”

FEMA defines hazard mitigation planning as “the process of determining how to reduce or eliminate the loss of life and property damage resulting from natural and manmade hazards.” The FEMA approach outlines four phases in the development of a comprehensive CR HMP:

1. Organize resources to develop an effective mitigation plan.
2. Identify hazards and assess losses to your community.
3. Set mitigation priorities and goals and write a mitigation plan.
4. Implement the mitigation plan and monitor progress.

While the FEMA process appears linear, in practice it requires repeated public and stakeholder engagement throughout the identification, assessment, prioritization and planning process. It starts with determining the level of awareness and support for protecting your community’s historic assets. If your community has designated landmarks or a historic district, you’ve already started the process. But likely you’ll need to survey those properties to determine their individual significance and engage the community to determine the level of public sentiment for safeguarding certain historic properties against the hazards that most make them at risk.

## **ORGANIZING—ESPECIALLY ENGAGING PARTNERS**

The first step in the FEMA “how-to” process calls for organizing your efforts. This begins with building your core team of experts and stakeholders. In Annapolis we engaged our emergency management, planning, public works and building inspections staff. Soon we brought on board the state historic preservation office, the statewide preservation organization, the state emergency management agency, the state natural resources staff, and the state humanities council. We next added the local historic preservation nonprofit, the Main Street program, the residents association and the alderman for our historic district. Our federal partners now include agencies providing both funding and in-kind technical

support, including the U.S. Naval Academy, National Park Service, FEMA, and the U.S. Army Corps of Engineers. Representatives from all these groups meet monthly, hearing presentations from experts and our survey team.

An important benefit of engaging so many stakeholders in the development of your hazard mitigation planning effort is the exposure your project receives, not only in your community but also with potential funders. The agencies that were invited to participate brought diverse financial or technical resources to the table. We received pass-through funding via the Maryland Department of Natural Resources from the National Oceanic and Atmospheric Administration (NOAA) to support our GIS database development, complete the risk assessment survey and develop mitigation design guidelines. The Army Corps of Engineers has provided and continues to provide cultural resource survey work, flood elevation surveys and hazard mitigation modeling.

It is also essential to engage your elected officials and community leaders from the beginning of your planning process. Invite members of your city council to participate in core team meetings (especially the council member who represents your historic district), the head of your local business association or Main Street program, and your funders. In Annapolis we've conducted a work session with the City Council, given two presentations to the Public Safety Committee, and hosted a National Trust media event where our mayor, state senator and house speaker applauded the announcement of the city's designation as a National Treasure by the National Trust, showcasing our battle with climate change. By engaging community decision makers and the media in your planning effort, you will be better positioned for the public involvement work ahead.

## **IDENTIFYING HAZARDS AND ASSESSING LOSSES**

There are four steps in the FEMA hazard inventory process:

1. Identify the hazards that can affect your community.
2. Profile hazards to determine hazard-prone areas and magnitude of each hazard.
3. Inventory historic/cultural resources to assess vulnerability and

establish preservation priorities.

4. Estimate the associated amount of potential losses.

The Hazard Impact Assessment begins with understanding which natural or manmade disaster events are most prevalent in your community. Determine what those events are (flood, earthquake, costal storm, fire, tornado) and then identify and assess the risk posed to resources by those specific hazards. FEMA provides worksheets for recording everything from building type, material, construction date, function and distance from the hazard zone to assessment of vulnerability and of potential economic loss (from loss of structure, contents, and use), displacement cost, economic importance, owner interest in mitigation, and public sentiment, for a total community value score.

In Annapolis we determined our first priority would be to complete a historic survey and risk assessment analysis on resources within the 100-year flood plain (i.e., the land that is predicted to flood during a 100-year storm, which has a 1 percent chance of occurring in any given year). Critical to this process was the development of a GIS database and risk mapping. With expertise from our information technology office and assistance from the Annapolis Historic Preservation Commission's consulting architect, we identified 184 properties for survey and assessment within the 100-year-flood plain.

Whether you use existing staff, preservation consultants or volunteers, ensure that you coordinate with your local preservation or planning agency or your state historic preservation office to conduct the survey so that it meets local, state or federal guidance for the appropriate documentation standards. While FEMA worksheets can be characterized as a "reconnaissance level" survey, this could be an opportunity to complete an intensive level survey in your community.

FEMA recommends reviewing your community's history of disasters, both to understand prior loss and disaster valuations, and also to make the case that an increase in numbers of events over the years makes it imperative to have a cultural resource disaster response plan in place. In Annapolis, documentation goes back to

1667, the “Year of the Hurricane,” when “A mighty wind destroyed four-fifths of (our) tobacco and corn and blew down in two hours fifteen thousand houses in Virginia and Maryland.”

## **SETTING MITIGATION PRIORITIES, WRITING A PLAN**

In drafting the hazard mitigation plan, you’ll need to consider how your priorities align with existing community planning documents. Begin with your city’s primary one—the comprehensive plan. In 2009 Annapolis incorporated into its comprehensive plan the following recommendations for responding to sea level rise:

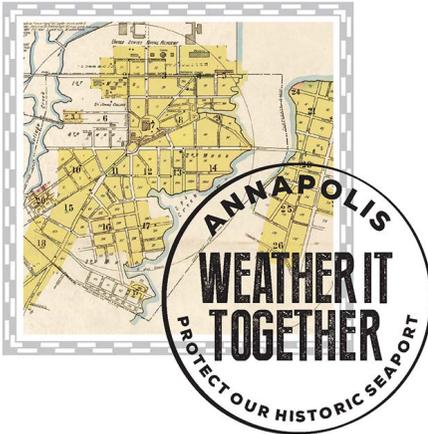
- Evaluate risks from sea level rise in decisions involving land use along the waterfront.
- Determine the costs and benefits of public decision-making in mitigating property damage.
- Evaluate the need and options for protecting historic structures and waterfront areas.
- Allow administrative review and approval or provide for an emergency meeting of the Historic Preservation Commission.
- Require floodproofing to the extent feasible while preserving the historic building exterior.

With that City Council-approved guidance in place, we began our work.

Likely, you’ll need to incorporate amendments to related and established plans, including any area plans, master plans, comprehensive plans or natural hazard mitigation plans. To efficiently incorporate your cultural resource hazard mitigation strategies into existing plans, respond to the following FEMA steps in your planning document:

- Develop mitigation goals and objectives for your preservation hierarchy.
- Identify, evaluate, and prioritize actions.
- Prepare an implementation strategy.
- Document the mitigation planning process.

The development of the final Cultural Resource Hazard Mitigation Plan requires that you start the drafting amendments to the comprehensive plan,<sup>8</sup> revising your historic preservation ordinance,



and developing design guidelines.

Design guidelines will identify preventive mitigation actions that can be taken by property owners to reduce hazard impacts. Prevention and protection strategies include retrofitting measures that do not compromise character-defining features of the historic property.

The design guidelines will also establish City procedures for immediate, short-term and long-term salvage and recovery operations. Emergency demolition procedures can be incorporated to streamline the review process. The CR HMP will establish the community-based need for investment in public improvements via the City's Capital Improvement Plan. Landmark properties that use the retrofitting strategies described in the Design Guidelines will qualify for a City Historic Property Tax Credit.

Annapolis is fortunate to have had the expertise of the U.S. Army Corps of Engineers Flood Management Team as part of our planning team. The Corps issued a report<sup>9</sup> providing property owners with guidance on basic minimal actions (repointing masonry foundations, creating positive drainage, and improving ventilation), dry floodproofing options (door, window and perimeter barriers; window wells; backflow preventers), wet floodproofing options (using concrete floors, placing electrical and mechanical systems placed above the base flood elevation), and more aggressive actions (such as creating berms, elevating buildings, relocating buildings) that might be appropriate for individual buildings. The report presents the pros and cons of each measure, including a cost-benefit analysis, considering such matters as the level of expertise needed, potential for addressing nuisance flooding, effect on insurance rates, and whether the work will qualify for a property tax credit.

## **IMPLEMENTING THE PLAN**

Even before the draft plan is developed, begin the implementation process. After the first official town hall meeting, property owners in Annapolis began consulting with the historic preservation office to determine what mitigation strategies were most appropriate for their buildings. The City's Department of Public Works and the U.S. Naval Academy, two key core team participants, have begun discussions on joint storm water infrastructure replacement work with the U.S. Army Corps of Engineers, and the National Trust and the Maryland Historical Trust have brought the City of Annapolis into discussions with other communities to share the hazard mitigation planning methodology.

The Maryland Historical Trust will serve as the ultimate review authority for the CR HMP, thus providing for the State of Maryland a historic preservation-based hazard mitigation plan that can serve as a model for other communities.

## **SHARING WHAT WE'VE LEARNED**

Two of the project's key funders—the Maryland DNR and the Maryland SHPO—both indicated that their reason for funding Weather It Together was to use the project as a model for other communities. The MDNR in its written comments evaluating the City of Annapolis' grant request, stated that it “sees the project as having potential transferability to other vulnerable, historic communities,” particularly the GIS capability to assist “first responders in the field with immediate updates and damage assessment capabilities.”

Responding to interest in the Annapolis model, members of our core planning team have made presentations at various state and national gatherings, including regional American Planning Association and Public Works conferences, state and national preservation conferences, the Pocantico summit on climate change and the National Adaptation Forum both held this past May. More importantly, our assessment team has conducted technical assistance site visits to communities such as Crisfield,

Maryland, which is still recovering from the damage inflicted by Hurricane Sandy. By providing to our peer communities technical assistance, a sharing of lessons learned, and an introduction to our methodology and outcomes so far, we hope to see our resiliency efforts expand into other historic coastal communities. **FJ**

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LISA CRAIG is chief of historic preservation for the City of Annapolis and director of the Main-Streets Annapolis Partnership.

- <sup>1</sup> Remarks from Stephanie Meeks, Annapolis National Treasure Press Event, Annapolis City Dock, October 23, 2014.
- <sup>2</sup> News Release, United States Department of the Interior, Thirty-Three Sites Recommended for National Historic Landmark Status, June 23, 1965.
- <sup>3</sup> *Evening Capital*, "Preservation Goals Gain Zoning Victory" July 7, 1965.
- <sup>4</sup> *Encroaching Tides: How Sea Level Rise and Tidal Flooding Threaten U.S. East and Gulf Coast Communities over the Next 30 Years*, Union of Concerned Scientists, 2014
- <sup>5</sup> Ibid, UCS
- <sup>6</sup> *Maryland At Risk: Sea Level Rise Adaptation & Response*, Maryland Department of Natural Resources, September 2008.
- <sup>7</sup> *Integrating History Property and Cultural Resource Considerations into Hazard Mitigation Planning: State and Local Mitigation Planning How-To Guide*, FEMA 386-66, May, 2005.
- <sup>8</sup> Annapolis Comprehensive Plan, City of Annapolis, Maryland October 2009. Our's states: "...the historic built environment of City Dock [is] threatened by sea level rise. In conjunction with the development of a Hazard Mitigation Plan to protect historic resources within the 100year flood plain that is currently underway, the City will explore and present to the City Council for consideration several strategies for addressing the 100-year flood and sea level rise..."
- <sup>9</sup> Nonstructural Mitigation Assessment for the City of Annapolis Historic District, Annapolis Maryland, U.S. Army Corps of Engineers, Baltimore District, December 2014.



## TAKEAWAY

[Click here to see Story Map showing the impact of sea level rise on cultural resources in Annapolis.](#)