

Maryland Historical Trust  
Cultural Resources and Hazard Mitigation Planning Program

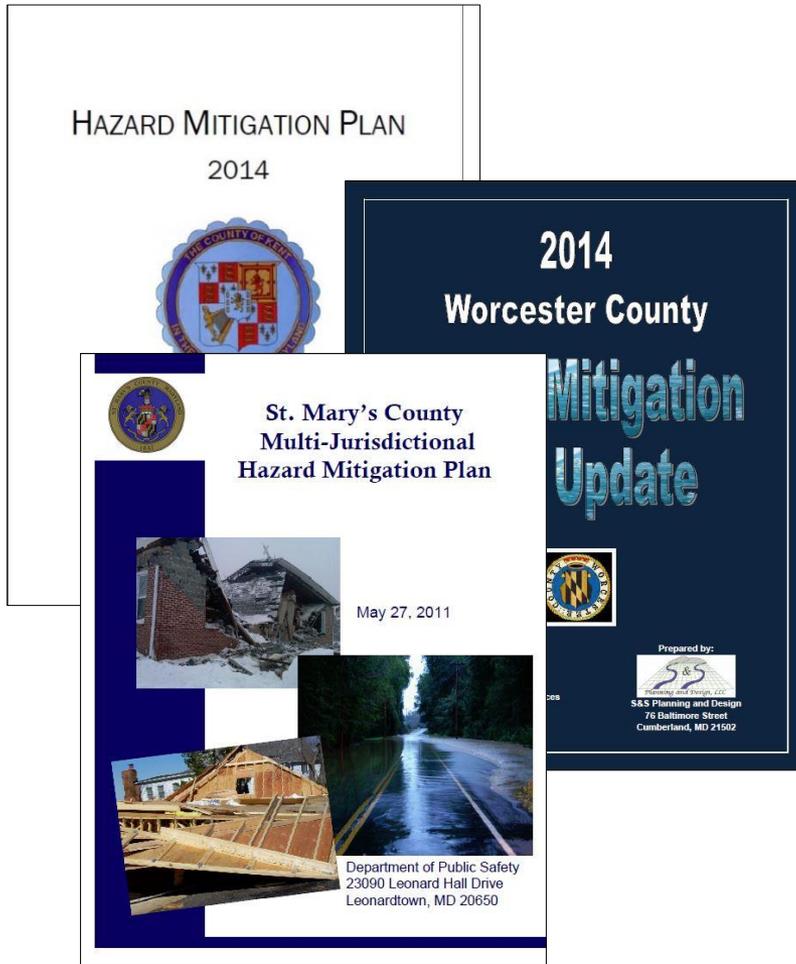


# Module 1: Introduction to Protecting Historic Places from Flooding and Other Hazards

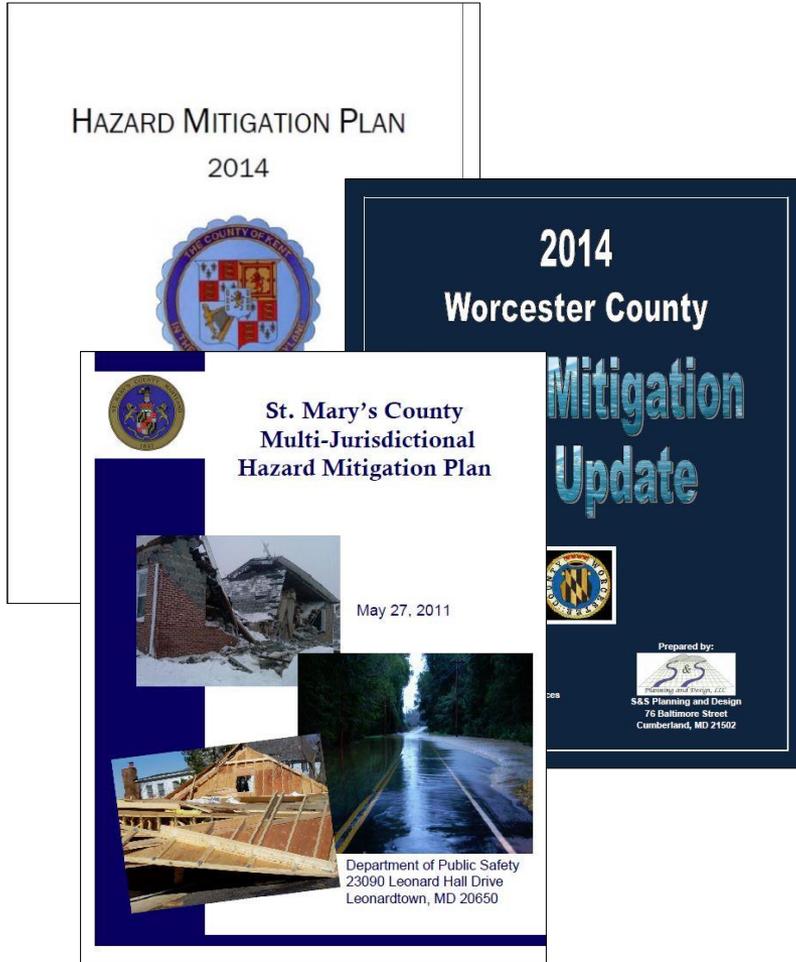
Cove Point Lighthouse  
after Hurricane Isabel

# HAZARD MITIGATION PLANNING

- Disaster Mitigation Act of 2000
  - Requires local governments to develop a natural hazard mitigation plan and update it every 5 years
  - Plan establishes eligibility for Hazard Mitigation Assistance grant funding



# HAZARD MITIGATION PLANNING



**Hazard Mitigation:**  
Any sustained action taken to reduce or eliminate the long-term risk to life and property from hazards

Note the use of the words “sustained” and “long-term.”

Mitigation must be an ongoing process and the action must have a real, lasting effect and not be merely a short term fix.

# HAZARD MITIGATION PLANNING

A step-by-step process for integrating historic places into an existing hazard mitigation plan or creating a historic places-specific plan

- Organize resources
  - Building the planning team
  - Engaging the public
- Assess Risk
  - Identify and profile hazards
  - Identify historic places at risk
  - Estimate potential losses
- Develop the plan
  - Mitigation goals and actions
  - Prioritize actions
  - Prepare implementation strategy



## Integrating Historic Property and Cultural Resource Considerations Into Hazard Mitigation Planning

State and Local Mitigation Planning How-To Guide

FEMA 386-6 / May 2005



# HAZARD MITIGATION PLANNING



**Nonstructural Mitigation Assessment  
for the City of Annapolis Historic District  
Annapolis, Maryland**

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DECEMBER 2014

The City of Annapolis is the first community to use FEMA's process to create a hazard mitigation plan for their historic structures.

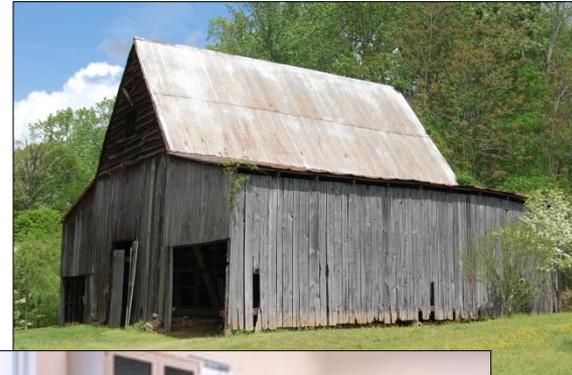
They have established partnerships with MEMA, DNR, MDE, the U.S. Navy, the USACE, and the NPS to help with creating their plan

MHT's Cultural Resources Hazard Mitigation Planning Program is based on the work being conducted by the City of Annapolis.

We will share lessons learned and develop best practices based on the City's work.

# HISTORIC PLACES

- Buildings, structures, objects, sites, and archaeological sites
  - Traditional cultural properties
  - Museums, archives
- All of these are  
“cultural resources”



# HISTORIC PLACES ARE ASSETS



# HISTORIC PLACES ARE ASSETS

When planners think about assets we think about critical facilities, infrastructure, and economic assets.

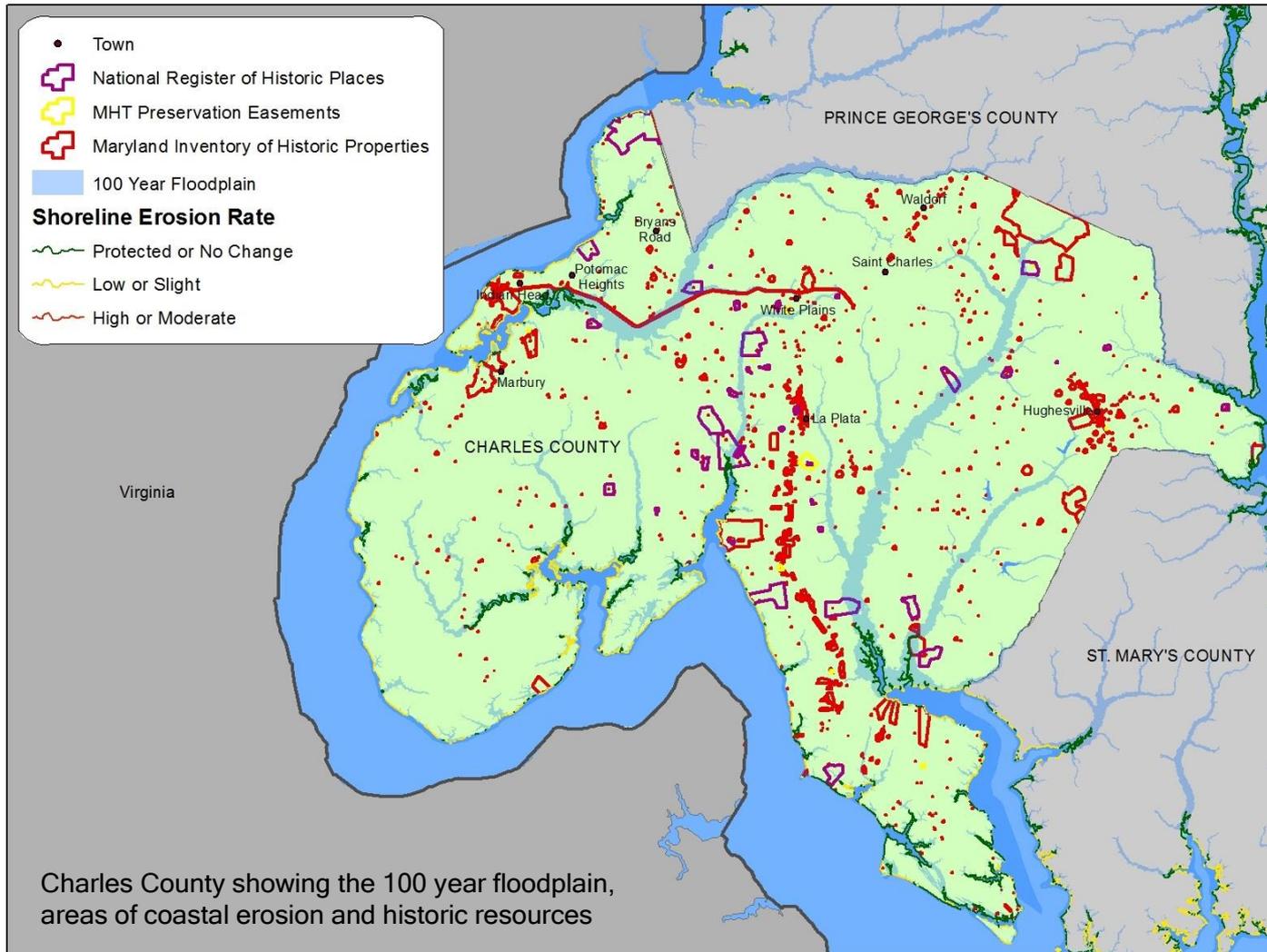
So why plan to protect historic places from flooding and other hazards?

*Historic places are assets too.*

Historic Places are:

- Non-renewable assets - when lost, they're gone forever
- Social assets - tangible evidence of shared heritage
- Economic assets - tourism, restoration/rehabilitation if work performed by local firms using locally sourced supplies

# HISTORIC PLACES AT RISK



Charles County showing the 100 year floodplain, areas of coastal erosion and historic resources

# HISTORIC PLACES AT RISK

Be sure to plan for impacts to archeological sites too. Above-ground cultural resources are not the only ones at risk.

## Anne Arundel County's Archaeological Sites Threatened by Increased Flooding

Cultural Affiliation	0-2 ft Inundation	0-5 ft Inundation
Prehistoric	192	215
Historic	80	91
Prehistoric & Historic	43	52
Unknown time period	56	64
<b>Total</b>	<b>371</b>	<b>422</b>

Source: Anne Arundel County Sea Level Rise Strategic Plan, November 2011

# HISTORIC PLACES AT RISK



Prehistoric burials eroding out of river bank (below)



Prehistoric shell midden eroding out of a river bank (above)

# HISTORIC PLACES AT RISK

## Anne Arundel County's Historic Properties Threatened by Increased Flooding

Recorded Historic Site*	0-2 ft Inundation	0-5 ft Inundation
Structures/Dwellings	12	26
Bridges	8	11
Lighthouses	4	4
Historic Roads	1	2
Historic Districts	12**	12**
Federal – US Coast Guard & US Navy resources	10	19
<b>Total</b>	<b>47</b>	<b>74</b>

\*Properties are listed in the Maryland Inventory of Historic Places

\*\*There are hundreds of properties at risk in these 12 historic districts.

Source: Anne Arundel County Sea Level Rise Strategic Plan, November 2011

# HISTORIC PLACES AT RISK



Photograph (above) by Blake Sell, Reuters

Left: The roof of the B&O Railroad Museum in Baltimore collapsed due to the weight of snow from winter storms.

Right: Flooding at the Annapolis City Dock after Hurricane Isabel in 2003.

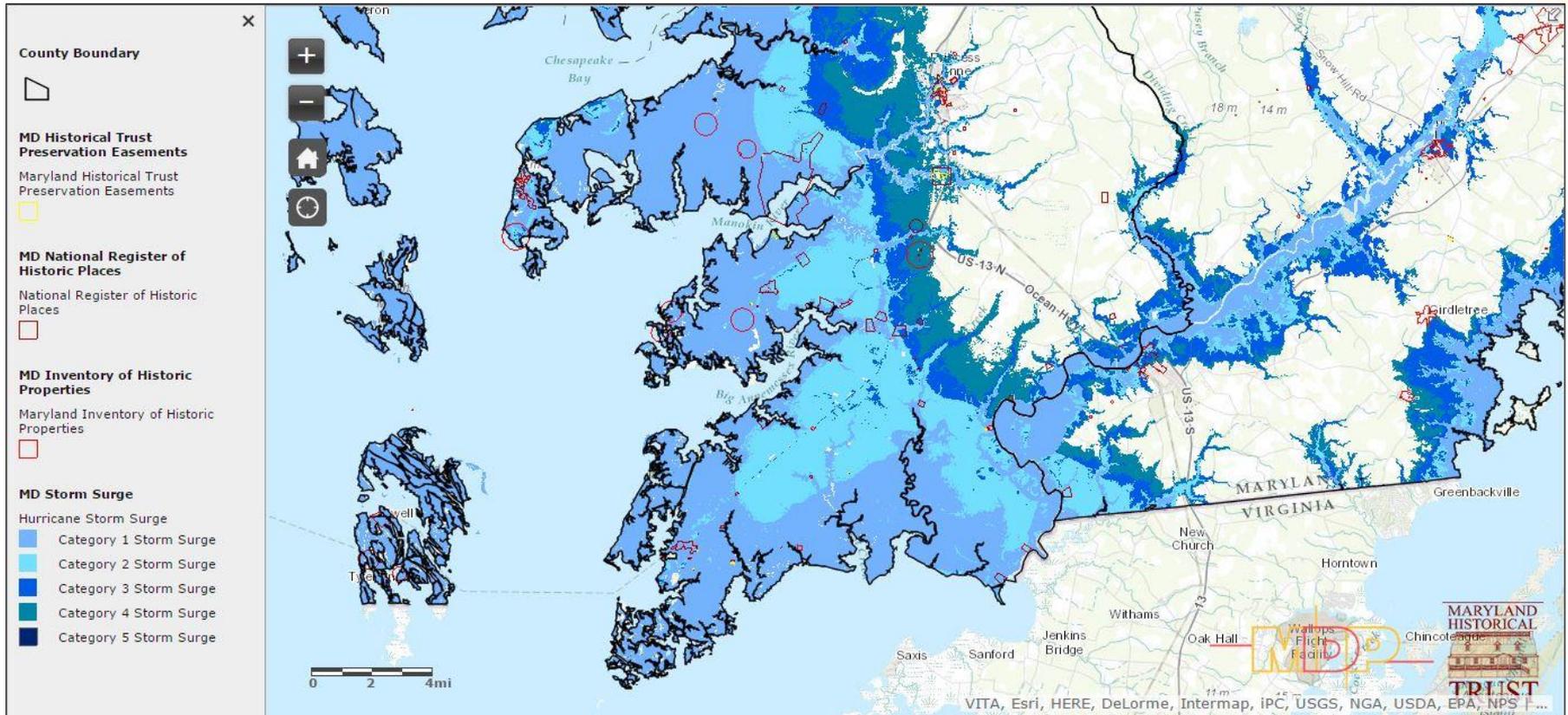
# THE PLANNING PROCESS



# SURVEY HISTORIC PLACES

- Create an inventory of historic places - start with information obtained from MHT
- Identify hazards and hazard areas from your local hazard mitigation plan
- Overlay a map of historic places with the hazards
- Determine study areas and scope of work
- Conduct hazard mitigation cultural resources survey
- Conduct risk assessment

# SURVEY HISTORIC PLACES



Somerset County map depicting the estimated limits of category 1 through 5 storm surge. By adding the historic places to the storm surge map, you can quantify the risk storm surge poses to historic places.



# SURVEY HISTORIC PLACES

- The 100-year floodplain is the regulatory floodplain
- Flooding does occur beyond the boundary of the 100-year floodplain
- Consider expanding the scope of your survey to:
  - The 500-year floodplain
  - The estimated Category 1, 2, 3, 4, or 5 storm surge
  - Areas vulnerable to erosion or subsidence (esp. coastal erosion)

# PRIORITIZE HISTORIC PLACES

- Identifying the most important historic places of the community is a process that should be undertaken by the planning team in conjunction with the public.
- The “value” of a historic property is a combination of social, cultural, and economic factors.
- Historic place that are meaningful places to the public might not be obvious to the planning team.
- Public sentiment is as valid a factor in determining priorities as are economic importance, level of significance, and integrity.

# PUBLIC ENGAGEMENT

- A voice for everyone to decide what is significant in their community
- “Significance” is relative
- Local knowledge may not be common knowledge
- Promotes understanding about historic resources

# ESTIMATING ECONOMIC IMPACT

**Estimate Total Losses for Historic Properties and Cultural Resources**

Worksheet #5 phase **2**

Hazard: \_\_\_\_\_ Date: \_\_\_\_\_ step 4

*Make a copy of this worksheet for each hazard of concern. Note the date and the hazard at the top of the worksheet. List each historic property or cultural resource asset. For each asset (row) calculate the structure, contents, function, and displacement losses. Enter each loss and total loss on Worksheet #3, as indicated.*

Name/Description of Structure	Structure Loss			Contents Loss		
	Structure Replacement Value (\$) X	Percent Damage (%) =	Loss to Structure (Worksheet 3, Column 11)	Replacement Value of Contents (Professionally Appraised for Historic Contents) X	Percent Damage (%) =	Loss of Contents (\$) (Worksheet 3, Column 12)
	X	=		X	=	
	X	=		X	=	
	X	=		X	=	
	X	=		X	=	
	X	=		X	=	
	X	=		X	=	
Total Loss to Structures				Total Loss of Contents		

Name/Description of Structure	Loss of Function Cost			Displacement Cost			Structure Loss + Content Loss + Function Loss + Displacement Cost (Worksheet 3, Column 15)
	Average Daily Operating Budget (\$) X	Functional Downtime (# of days) =	Total Function Loss (\$) (Worksheet 3, Column 13)	Displacement Cost per Day (\$) X	Displacement Time =	Total Displacement Cost (\$) (Worksheet 3, Column 14)	
	X	=		X	=		
	X	=		X	=		
	X	=		X	=		
	X	=		X	=		
	X	=		X	=		
	X	=		X	=		
Total Loss of Function				Total Displacement Cost			
							Total Loss for Hazard Event

- Extent of damages (losses) to structure and contents
- Loss of function
- Displacement time

Source: Integrating Cultural Resources into Hazard Mitigation Planning (FEMA, 2005)



# ESTIMATING ECONOMIC IMPACT

- The cost of the impact on a historic resource is important because it is used to show how much money could be saved (losses avoided) if a project protected the resource from that hazard.
- FEMA will only fund mitigation projects that are cost-effective.
- To be cost-effective, the benefits of a project (losses avoided - avoided damages, loss of function and displacement) must exceed the cost of the project.

# ESTIMATE REPLACEMENT VALUE

- Replacement value is the cost to completely rebuild/recreate the cultural resource
- Problematic because:
  - Uniqueness
  - Level of craftsmanship
  - Materials no longer available
- MHT will develop training to help communities develop a formula for estimating the replacement value of historic places

# HAZARD MITIGATION ACTIONS

- Address the problems identified during risk analysis
- Are long-term solutions
- Are cost effective
- Must not cause secondary impacts to surrounding properties

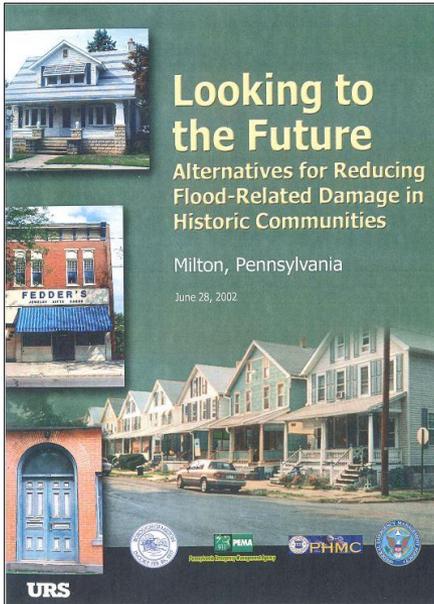


The photo above is an example of how building elevation is performed, although the building was raised to repair its foundation, not to protect it from flooding.

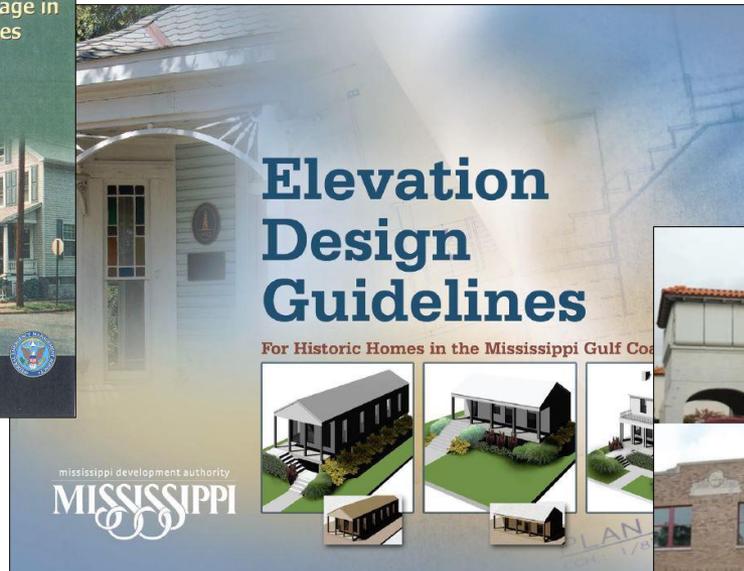
# MITIGATION ACTIONS - THE PRESERVATION POINT OF VIEW

- Must not be an adverse impact to the historic integrity structure
- Should consider the effect on the structure and its surroundings
- Should be conducted in consultation with the SHPO and MEMA

# MITIGATION GUIDELINES



Riverine Flooding



Coastal Flooding

High Winds



# FUNDING SOURCES

- MHT Hazard Mitigation Planning Grant
- Flood Mitigation Assistance Grant  
(FEMA/MEMA)
- Pre-Disaster Mitigation Grant  
(FEMA/MEMA)
- Certified Local Government Grant  
(NPS/MHT Certified Local Governments)
- CoastSmart Communities  
(Maryland Coast Zone Communities)
- Bartus Trew Providence Preservation Fund  
(Eastern Shore)

# MHT'S HISTORIC PLACES AND HAZARD MITIGATION PLANNING PROGRAM

- MHT Hazard Mitigation Planning Grant Program
- Technical Assistance
- Training
- Best Practices

[http://mht.maryland.gov/grants\\_hazard\\_mitigation.shtml](http://mht.maryland.gov/grants_hazard_mitigation.shtml)

# MHT'S HISTORIC PLACES AND HAZARD MITIGATION PLANNING PROGRAM

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