PROTECTING LIFE, PROPERTY, AND PLACE: INTEGRATING HAZARD MITIGATION & HISTORIC PRESERVATION PLANNING

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DISASTER PLANNING FOR HISTORIC PROPERTIES INITIATIVE
PENNSYLVANIA STATE HISTORIC PRESERVATION OFFICE
hazard mitigation [haz-erd mit-i-gey-suhn]
noun
1. Any sustained action taken to reduce or eliminate long-term risk to *people* and *property* from natural hazards and their effects.
By integrating historic preservation considerations into the hazard mitigation planning process and prioritizing important historic buildings for mitigation, local and state officials and hazard mitigation planners may help to ensure that communities’ historic built environment—and unique sense of place—are also protected.
Disaster Planning for Historic Properties Initiative:
INTEGRATING HAZARD MITIGATION & HISTORIC PRESERVATION
“60 percent of all states lack specific preservation strategies in their hazard-mitigation plans. And only 13 states included specific goals and strategies that mentioned protecting historic resources.”
Disaster Mitigation Act of 2000

- Federal legislation amended the Robert T. Stafford Relief and Emergency Assistance Act
- Requires local jurisdictions to have hazard mitigation plans to be eligible for federal assistance following a disaster event
- Emphasizes public participation and coordination among state and local agencies
- Encourages communities to continuously strive to improve their plans and resulting mitigation actions
  - The integration of historic properties into comprehensive mitigation planning is critical to the spirit and intent of DMA 2000
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- Requires local jurisdictions to have hazard mitigation plans to be eligible for federal assistance following a disaster event
- Emphasizes public participation and coordination among state and local agencies
- Encourages communities to continuously strive to improve their plans and resulting mitigation actions

- The integration of historic properties into comprehensive mitigation planning is critical to the spirit and intent of DMA 2000
Hazard Mitigation Plans are a funding mechanism.

Only risk reduction projects that are consistent with goals/objectives in both the State and Local hazard mitigation plans are eligible for pre-disaster and post-disaster federal funding assistance.

- By including historic preservation goals/objectives/action items in these plans, communities thereby open the door to a variety of FEMA Hazard Mitigation Assistance (HMA) funding for historic building mitigation projects.
Effective community plans interface with and complement other existing community plans, goals, and objectives, to ensure harmony and avoid contradiction.
“To maintain our sense of place and quality of life, we must commit ourselves to making historic and cultural preservation an integral, indispensable part of living and working here. Lancaster County’s greatest assets are its historic buildings, landscapes, and cultural traditions – without them, the county loses its identity, and a part of America’s heritage goes with it.”
“Cultural and historical resources are an integral part of the overall quality of life in the county.”
“Historic preservation is an important element in the planning process because it ensures the legacy of not only the county’s—but the nation’s—history for present and future generations. Preserving our historic resources is crucial to sustaining the quality of life that county residents enjoy.”
“Historic resources are a vital part of the county’s character, contribute to the county’s appeal as a tourism destination, and thus play an important role in the economy.”
“Lehigh and Northampton counties have a wealth of historic buildings, structures, sites and districts that … add to the beauty and attractiveness of the region, increase understanding and appreciation of our heritage, and improve the quality of life. Many significant historical features are of value to the local economy because they are tourist attractions.”
Historic Properties: Common Threats

- Encroaching Development
- Alteration
- Neglect/Lack of Maintenance
- **Natural Disasters!**
  - Floods
  - Tornadoes
  - Hurricanes
  - Earthquakes
  - Wildfires
Acquisition/Demolition: Most Utilized Flood Mitigation Strategy in Pennsylvania
Objective

To produce model guidance for Pennsylvania communities on the integration of historic property information (inventories, vulnerability assessments, and mitigation strategies) into local hazard mitigation plans through demonstrative pilot projects.

- To ensure that historic resources are not neglected in the hazard mitigation planning process, and treated sensitively
- To facilitate funding opportunities for historic building mitigation projects
Prioritizing Communities’ Historic and Older Properties within the Disaster Cycle
Update to the PEMA
All-Hazard Mitigation Planning
Standard Operating Guide

- PA SHPO working with PEMA to update SOG to include historic preservation checklist for future Local Hazard Mitigation Plan updates

- As a result, will require all 67 Pennsylvania counties to integrate historic resource information beginning in 2018
Disaster Planning for Historic Properties Initiative:
INTEGRATING HAZARD MITIGATION & HISTORIC PRESERVATION
Disaster Planning for Historic Properties, PHASE 1: FLOOD-PRONE HISTORIC RESOURCE DOCUMENTATION & HISTORIC BUILDING ELEVATION SURVEYS

Monroe County Historic Preservation/Hazard Mitigation Planning Integration Pilot Project
Disaster Planning for Historic Properties Initiative
INTERAGENCY COLLABORATION AND NONTRADITIONAL PARTNERSHIPS: FEDERAL EMERGENCY MANAGEMENT AGENCY
Disaster Planning for Historic Properties Initiative
INTERAGENCY COLLABORATION AND NONTRADITIONAL PARTNERSHIPS:
Pennsylvania Emergency Management Agency

City of Philadelphia Historic Preservation/Hazard Mitigation Planning Integration Pilot Project
Disaster Planning for Historic Properties Initiative

INTERAGENCY COLLABORATION AND NONTRADITIONAL PARTNERSHIPS:
PHILADELPHIA OFFICE OF EMERGENCY MANAGEMENT
Disaster Planning for Historic Properties Initiative

INTERAGENCY COLLABORATION AND NONTRADITIONAL PARTNERSHIPS:
U.S. ARMY CORPS OF ENGINEERS | FLOOD PLAIN MANAGEMENT SERVICES

City of Philadelphia Historic Preservation/Hazard Mitigation Planning Integration Pilot Project
Disaster Planning for Historic Properties, PHASE 1:
INITIAL FLOOD VULNERABILITY ANALYSIS & SURVEY PRIORITIZATION
FEMA DIGITAL FLOOD INSURANCE RATE MAPS (DFIRMs)
Disaster Planning for Historic Properties, PHASE 1:
INITIAL FLOOD VULNERABILITY ANALYSIS & SURVEY PRIORITIZATION
NOAA SEA, LAKE, & OVERLAND SURGE FROM HURRICANES (SLOSH) MODEL
Disaster Planning for Historic Properties, PHASE 1:
INITIAL FLOOD VULNERABILITY ANALYSIS & SURVEY PRIORITIZATION
NOAA SEA LEVEL RISE AND COASTAL FLOODING IMPACTS MODEL
Recovery from Hurricane Sandy

Disaster Planning for Historic Properties, PHASE 1:
INITIAL FLOOD VULNERABILITY ANALYSIS & SURVEY PRIORITIZATION
GEOGRAPHIC INFORMATION SYSTEMS (GIS) OVERLAY ANALYSIS

City of Philadelphia Historic Preservation/Hazard Mitigation Planning Integration Pilot Project
Disaster Planning for Historic Properties, PHASE 1:
INITIAL FLOOD VULNERABILITY ANALYSIS & SURVEY PRIORITIZATION
GEOGRAPHIC INFORMATION SYSTEMS (GIS) OVERLAY ANALYSIS

TAX PARCELS:
(Listed in National and/or Philadelphia Register of Historic Places)
Disaster Planning for Historic Properties, PHASE 1:
INITIAL FLOOD VULNERABILITY ANALYSIS & SURVEY PRIORITIZATION
GEOGRAPHIC INFORMATION SYSTEMS (GIS) OVERLAY ANALYSIS

Schuylkill River

Delaware River

HISTORIC TAX PARCELS WITH BUILDING FOOTPRINT OVERLAY
Disaster Planning for Historic Properties, PHASE 1:
INITIAL FLOOD VULNERABILITY ANALYSIS & SURVEY PRIORITIZATION
GEOGRAPHIC INFORMATION SYSTEMS (GIS) OVERLAY ANALYSIS

DESIGNATED HISTORIC BUILDINGS
(Listed in National and/or Philadelphia Register of Historic Places)
Designation of historic buildings with flood inundation area overlay.

Disaster Planning for Historic Properties, Phase 1:
Initial Flood Vulnerability Analysis & Survey Prioritization
Geographic Information Systems (GIS) Overlay Analysis
Disaster Planning for Historic Properties, PHASE 1:
INITIAL FLOOD VULNERABILITY ANALYSIS & SURVEY PRIORITIZATION
GEOGRAPHIC INFORMATION SYSTEMS (GIS) OVERLAY ANALYSIS

FLOODPRONE DESIGNATED HISTORIC BUILDINGS
(Listed in National and/or Philadelphia Register of Historic Places)
Disaster Planning for Historic Properties, PHASE 1:
INITIAL FLOOD VULNERABILITY ANALYSIS & SURVEY PRIORITIZATION
NATIONAL REGISTER AND LOCALLY DESIGNATED HISTORIC BUILDINGS

City of Philadelphia Historic Preservation/Hazard Mitigation Planning Integration Pilot Project
Disaster Planning for Historic Properties, PHASE 1:
INITIAL FLOOD VULNERABILITY ANALYSIS & SURVEY PRIORITIZATION
NATIONAL REGISTER AND LOCALLY DESIGNATED HISTORIC BUILDINGS

City of Philadelphia Historic Preservation/Hazard Mitigation Planning Integration Pilot Project
At Risk: Fort Mifflin (National Historic Landmark)
Disaster Planning for Historic Properties, PHASE 1:
INITIAL FLOOD VULNERABILITY ANALYSIS & SURVEY PRIORITIZATION
NOAA SEA LEVEL RISE AND COASTAL FLOODING IMPACTS MODEL
At Risk: Main Street Manayunk Historic District (National Register of Historic Places)
At Risk: Boathouse Row (National Historic Landmark)
At Risk: Fairmount Waterworks (National Historic Landmark)
At Risk: Ramcat/Schuylkill Historic District (National Register of Historic Places)
At Risk: Philadelphia Naval Shipyard (National Register of Historic Places)
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At Risk: Philadelphia Naval Shipyard (National Register of Historic Places)
Disaster Planning for Historic Properties, PHASE 1:
FLOOD-PRONE HISTORIC RESOURCE DOCUMENTATION
& HISTORIC BUILDING ELEVATION SURVEYS
Flood-prone Historic Resource Data Collection: Fulcrum Data Collection App (AECOM Technical Services, Inc.)
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Disaster Planning for Historic Properties, PHASE 1:
FLOOD-PRONE HISTORIC RESOURCE DOCUMENTATION
& HISTORIC BUILDING ELEVATION SURVEYS

<table>
<thead>
<tr>
<th>Resource Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Stories:</td>
</tr>
<tr>
<td>OPA_YRBLT:</td>
</tr>
<tr>
<td>Year Built (AECOM):</td>
</tr>
<tr>
<td>Physical Condition:</td>
</tr>
<tr>
<td>Integrity:</td>
</tr>
<tr>
<td>Year Built Circa:</td>
</tr>
<tr>
<td>Basement Present:</td>
</tr>
<tr>
<td>Primary Exterior Material:</td>
</tr>
<tr>
<td>Building Type (read only):</td>
</tr>
<tr>
<td>Building Type Needs Update?:</td>
</tr>
<tr>
<td>Structural System:</td>
</tr>
<tr>
<td>Rowhouse Type:</td>
</tr>
<tr>
<td>Architectural Style:</td>
</tr>
</tbody>
</table>

2411 Spruce Street
Disaster Planning for Historic Properties, PHASE 1:
FLOOD-PRONE HISTORIC RESOURCE DOCUMENTATION & HISTORIC BUILDING ELEVATION SURVEYS

2411 Spruce Street

<table>
<thead>
<tr>
<th>Character Defining Features</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Roof Features</td>
<td>Yes</td>
</tr>
<tr>
<td>Roof Features Notes</td>
<td>Incised wood cornice flanked by decorative finials.</td>
</tr>
<tr>
<td>Openings</td>
<td>Yes</td>
</tr>
<tr>
<td>Openings Notes</td>
<td>1-over-1 wood windows with original carved wood trim. Flat brownstone lintels and canted brownstone sills. Double-leaf wood and glass panel entry door with decorative wood jamb. 6-light paired casement windows at basement. Basement entry under stairs.</td>
</tr>
<tr>
<td>Projections</td>
<td>Yes</td>
</tr>
<tr>
<td>Projections Notes</td>
<td>Brownstone steps at both basement and main entry. High, scored brownstone wainscote.</td>
</tr>
<tr>
<td>Decorative Trim and Secondary Features</td>
<td>Yes</td>
</tr>
<tr>
<td>Decorative Trim Notes</td>
<td>Wide brownstone beltcourse above first floor. Integral brownstone canted aprons under first floor window openings. Corbelled brick colonettes. Decorative brickwork at window openings.</td>
</tr>
<tr>
<td>Craft Details</td>
<td>Yes</td>
</tr>
<tr>
<td>Craft Detail Notes</td>
<td>Decorative, milled window trim.</td>
</tr>
<tr>
<td>Resource Notes</td>
<td>One of few properties in the survey area with a basement entrance at the front.</td>
</tr>
<tr>
<td>Ancillary Features Present?</td>
<td>No</td>
</tr>
</tbody>
</table>
BASE FLOOD ELEVATION* (ft.)
(100-Year Flood Water Surface)

FIRST FLOOR ELEVATION (ft.)

LOW OPENING ELEVATION (ft.)

LOWEST ADJACENT GRADE (ft.)

Schuylkill River (600 ft.)

*For illustrative purposes only. Base flood elevation not to scale.

At Risk: Ramcat/Schuylkill Historic District (Center City)
Disaster Planning for Historic Properties, PHASE 1: FLOOD-PRONE HISTORIC RESOURCE DOCUMENTATION & HISTORIC BUILDING ELEVATION SURVEYS
Disaster Planning for Historic Properties, PHASE 1:
FLOOD-PRONE HISTORIC RESOURCE DOCUMENTATION
& HISTORIC BUILDING ELEVATION SURVEYS
ANNEPOLIS, MARYLAND - HISTORIC DISTRICT - NONSTRUCTURAL ASSESSMENT SAMPLING

4.0 STRUCTURE DATA/ASSESSMENT SHEETS
STRUCTURE #8: 99 MAIN STREET

Structure Information / Data
Name/Description: Historic Annapolis Museum
Location: 99 Main Street
Occupancy type: Retail Store (Mercantile)
No of Stories: 3½
Building Construction:
Exterior Walls: Masonry
First Floor: Concrete
Foundation Wall: Masonry
Grade/Crawlspace/Basement: Grade

Structure/Flood Elevations Table

<table>
<thead>
<tr>
<th>FG</th>
<th>LO</th>
<th>FF</th>
<th>Δ FF-FG</th>
<th>1%</th>
<th>DFE</th>
<th>Δ 1%-FF</th>
<th>Δ DFE-FF</th>
<th>Δ 1%-FG</th>
<th>Δ DFE-FG</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.28'</td>
<td>5.11'</td>
<td>5.11</td>
<td>0.83'</td>
<td>4.50'</td>
<td>8.20'</td>
<td>-0.61'</td>
<td>3.09'</td>
<td>0.22'</td>
<td>3.92'</td>
</tr>
</tbody>
</table>

Abbreviations: FG – Finish Grade [low point]; LO – Low Opening; FF – First Floor; 1% – One Percent Exceedance Flood [100 yr]; DFE – Design Flood Elevation; Δ-Delta/Difference

Structure Photographs
North Elevation
Front - Looking East
Alley
Detail
Recommendations
The following recommendations are basic/generic descriptions of actions and/or mitigation measures to be taken to mitigate the structure to reduce flood risk. Each recommendation has its limits and reduces risk to a specific flood elevation. As a general rule, all structures should be evacuated during a flood event. In all cases, purchase of flood insurance is recommended. Some of the recommended mitigation measures may reduce flood insurance rates.

Dry floodproof to 3’ above finished grade floor
- Maintance/repair/rehab/renovate masonry foundation and exterior wall up to 3’ above finished grade/floor. Repair/modify as required.
- Modify all window openings to include shields/closures.
- Provide closures/shields at doors.
  - Pros: Highest level of flood risk reduction.
  - Cons: Active system. May be difficult to implement (many variables/unknowns)
  - Cost Magnitude: Medium to High (dependent on actions taken).
Development of Sensitive Mitigation Alternatives: Common Philadelphia Historic Building Typologies

<table>
<thead>
<tr>
<th>Use</th>
<th>Typology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>Freestanding Dwelling</td>
</tr>
<tr>
<td></td>
<td>Residential Tower</td>
</tr>
<tr>
<td></td>
<td>Trinity/Bandbox</td>
</tr>
<tr>
<td></td>
<td>Double Trinity, London House</td>
</tr>
<tr>
<td></td>
<td>Federal/Georgian Townhouse</td>
</tr>
<tr>
<td></td>
<td>Workingman’s House</td>
</tr>
<tr>
<td></td>
<td>Porchfront Rowhouse</td>
</tr>
<tr>
<td>Commercial / Mixed-Use</td>
<td>Warehouse / Offices / Showroom</td>
</tr>
<tr>
<td></td>
<td>Storefront Rowhouse</td>
</tr>
<tr>
<td></td>
<td>Corner Storefront Rowhouse</td>
</tr>
</tbody>
</table>
Goal 1: Preserve the city’s unique heritage and sense-of-place, and protect the city’s historic, architectural, cultural, and scenic character from natural and man-made hazards through sensitive mitigation measures.

Objective 1.1: Retrofit important community landmarks/historically significant buildings or structures to reduce risk, in a way that minimizes changes to their character and integrity and does not preclude their historical designation.

Objective 1.2: Promote and encourage property maintenance and rehabilitation to enhance the ability of historic properties to withstand the impacts of hazards and reduce risk.
Goal 1: Preserve the city’s unique heritage and sense-of-place, and protect the city’s historic, architectural, cultural, and scenic character from natural and man-made hazards through sensitive mitigation measures.

Objective 1.3: Identify effective alternatives to acquisition and demolition to reduce risk for repetitive loss (RL) and severe repetitive loss (SRL) properties that may be historically significant or contribute to community character.

Objective 1.4: Promote and encourage property maintenance and rehabilitation to enhance the ability of historic properties to withstand the impacts of hazards and reduce risk.
Goal 1: Preserve the city’s unique heritage and sense-of-place, and protect the city’s historic, architectural, cultural, and scenic character from natural and man-made hazards through sensitive mitigation measures.

Objective 1.5: Provide hazard mitigation education and training to historical organizations and local preservation professionals.

Objective 1.6: Nominate historically significant properties to be listed in the National and/or Philadelphia Register of Historic Places to make such properties eligible for a variety of federal and state grants that may facilitate rehabilitation and mitigation measures to reduce risk.
Ensure newly developed historic preservation strategy in the Local HMP is **consistent with** goals & objectives in the State HMP.

- Add new/additional language to the State HMP as necessary to ensure local-state consistency and project funding probability.

(Remember: Only risk reduction projects that are consistent with goals/objectives in both the State **and** Local hazard mitigation plans are eligible for pre-disaster or post-disaster federal funding assistance!)
FUNDING SOURCES FOR MITIGATION PROJECTS

- FEMA Hazard Mitigation Assistance (HMA) Programs
  - Pre-Disaster Mitigation (PDM) Grant Program
  - Flood Mitigation Assistance (FMA) Program
  - Hazard Mitigation Grant Program (HMGP)

- State Programs
  - Keystone Historic Preservation Grant Program (Pennsylvania)
    - Grants for Planning/Survey and Construction
Disaster Planning for Historic Properties, PHASE 2: HISTORIC PRESERVATION / “COMMUNITY CHARACTER” HAZARD MITIGATION STRATEGY DEVELOPMENT

Eligible Projects: FEMA HMA (Non-Disaster) Funding

- Property Acquisition and Structure Demolition
- Structure Elevation
- Structure Relocation
- Dry Floodproofing of Historic Residential Structures
- Dry Floodproofing of Non-residential Structures
- Minor Localized Flood Reduction Projects
- Structural Retrofitting of Existing Buildings
- Non-structural Retrofitting of Existing Buildings and Facilities
- Infrastructure Retrofit
- State Technical Assistance
- Flood/Hazard Mitigation Planning
Key Takeaways:

- Hazard Mitigation Plans open the door to **funding** for historic building risk reduction projects
- **Integrate** – Make sure your community’s plans and goals are talking to one another!
- Take advantage of GIS and new **data tools**
- **Document** your community’s flood-prone historic buildings and their vulnerable character-defining features
- Build **new partnerships**, nontraditional alliances, and engage new audiences!
Register Today!

Symposium on Flooding and Pennsylvania’s Historic River Towns
The Final Day of the 2016 Pennsylvania Statewide Conference on Heritage

Wednesday, June 8, 2016
9:00am – 4:00pm
The Campus Theatre, 413 Market Street, Lewisburg, PA
Register Online at paheritageconference.org

Photograph courtesy of the Union County Historical Society.
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Pennsylvania's early settlement patterns have led the state to become one of the most flood vulnerable and flood-damaged states in the nation. The Pennsylvania Emergency Management Agency has identified flooding as the single greatest natural threat to life and property in each of the state's 67 counties; a threat which is only expected to become more severe in future years as a result of more intense and frequent heavy rainfall events. Since 1978, Pennsylvania communities have received nearly $1.2 billion in payments from the National Flood Insurance Program, covering damages from flood events. Now, drastic increases in flood insurance premiums are making it infeasible for many residents and business owners in historic river towns—where property values and incomes are modest—to remain in their homes. This change threatens the building stock and community fabric of historic districts throughout the Keystone State.

Join us in beautiful Lewisburg, where nearly 40% of the borough's charming historic district is in the floodplain of the Susquehanna River. We'll explore not only the implications of recent federal flood insurance reform on towns like Lewisburg and their historic districts, but also the complex issue of how to sensitively retrofit these towns' historic buildings for flood mitigation in a manner that preserves their character and integrity and will not preclude their historical designation.

The Symposium on Flooding and Pennsylvania's Historic River Towns is intended for preservationists, emergency managers, engineers, architects, floodplain managers, planners, concerned citizens and property owners, and elected officials, and seeks to foster a common understanding of this critical issue and its challenges, as well as facilitate the development of new interdisciplinary alliances to address them.

This program has been made possible by a grant from the U.S. Department of the Interior, National Park Service. Any opinions, findings, or recommendations expressed herein are those of the Pennsylvania Historical and Museum Commission and do not necessarily reflect the views of the U.S. Department of the Interior. For questions about this program, please contact Jeremy Young (jeremyyoung@pa.gov), Project Manager for the Disaster Planning for Historic Properties Initiative at the Pennsylvania State Historic Preservation Office.