

# Historic Coastal Communities and Flood Hazard:

## A Preliminary Evaluation of Impacts to Historic Properties



Browning's Beach Historic District after Hurricane Sandy, South Kingstown, R.I., photo credit: G. Alderwick 2013

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## Introduction

This report is the result of initial research on the potential impacts of flood regulations to historic properties in coastal Rhode Island, undertaken during the spring and summer of 2015 by Youngken Associates under a consulting services contract with the City of Newport. The project was funded with a Certified Local Government grant to the City from the Rhode Island Historical Preservation and Heritage Commission (RIHPHC). The project included the following twenty-one communities:

Barrington	Little Compton	Portsmouth
Bristol	Middletown	Providence
Charlestown	Narragansett	South Kingstown
Cranston	New Shoreham	Tiverton
East Greenwich	Newport	Warren
East Providence	North Kingstown	Warwick
Jamestown	Pawtucket	Westerly

The project was intended to address a number of key questions:

- 1) How many Rhode Island coastal historic properties are affected by flood regulations?
- 2) What is the value of property that may be impacted by flood regulations in Newport?
- 3) Are there key coastal historic properties and districts that may be impacted by flood regulations?
- 4) What is the current regulatory climate for coastal flood hazards?
- 5) Is there useful information from case study review?
- 6) Are there examples of cities and towns in Rhode Island with flood regulation programs, and what has their experience been?
- 7) What resources are available for further study?

To this end, Youngken Associates assessed the number and nature of the historic properties within coastal flood hazard areas in Rhode Island, as mapped by the Federal Emergency Management Agency (FEMA). Research also delved into the current regulatory climate of building code requirements for flood hazard areas as well as floodplain management, as prescribed by FEMA and the National Flood

Insurance Program (NFIP), with a particular focus on Rhode Island. Case studies from several locations within Rhode Island and other coastal states were identified, to illustrate the complex issues facing historic resources in flood zones and to present a range of approaches to improving flood resiliency. The research did not address future sea level rise or current or future riverine flooding in non-tidal areas. Some preliminary recommendations for future action are provided in the executive summary of this report.

The authors would like to thank Ted Sanderson and Joanna Doherty of the RIHPHC and Sarah Atkins of the City of Newport for their review of these materials. Melissa Barker of the City of Newport compiled the data used to calculate the number of historic properties by coastal community that are affected by flood hazard regulations.

In addition, Jack Evans, of NewPort Architecture, LLC, provided valuable insight. Helen Johnson and Bill Hanley of the City of Newport; Diane Williamson and Richard Pimenta of the Town of Bristol; and Jay Parker and Marilyn Shellman of the Town of Westerly were extremely helpful in providing local municipal perspectives. Jessica Stimson of the Rhode Island Emergency Management Agency (RIEMA) and Douglas Platt of Selective Insurance answered key questions about credits for the Community Rating System (CRS) and the future of flood insurance rate impacts.

## Executive Summary

The following is a list of findings and recommendations based upon the scope of this study:

- 1) The regulatory climate for diminishing the risk (and cost) of property damage and related personal liability from coastal flooding has become increasingly complex since the National Flood Insurance Program (NFIP) was enacted by Congress in 1968. Initially, the program sought to ensure that affected property owners could be compensated (insured) for losses and were able to rebuild following catastrophic events. The alternative would have been business failures and abandonment of extremely valuable and lucrative coastal property, causing community economic distress and failure, from which many communities would be unable to recover. Congress sought to create a balanced system that would provide federal insurance backing, while at the same time stimulating corrective floodplain management, flood-resilient new construction, and flood hazard mitigation, both post- and pre-disaster. The Federal Emergency Management Agency (FEMA) was set up to undertake program implementation. State affiliate offices were established to undertake the program objectives at the state and local community level; the Rhode Island Emergency Management Agency (RIEMA) is Rhode Island's affiliated program. In cities and towns that have implemented FEMA approved floodplain management programs, property owners qualify for federal flood insurance and reduced rates.
- 2) On the heels of huge flood-related catastrophic losses across the country, members of Congress and their constituents have become increasingly concerned that the program has not functioned as originally envisioned. Development has continued in flood-prone areas, particularly scenic coastal areas. Such property has become increasingly valuable and development is difficult to redirect to less desirable locations. Insurance payouts are ever-increasing due to increasingly expensive storm and flood damage repair costs. Significantly, the courts have not allowed communities to "take" legal lots of record without just compensation for their value as building lots, although some communities have successfully argued that loss of a coastal building site for a dwelling or commercial use does not mean loss of all beneficial use. Still, communities, for the most part, have not been able to redirect development away from dangerous floodplains, if already platted into building lots. However, new subdivisions or newly-created lots can be governed by floodplain zoning and hence can be regulated so that new buildings are located out

of danger. These land development-related regulations should also consider future sea level rise caused by climate change.

- 3) Federal flood legislation affects state and local zoning and building activities. The goal of such legislation is to construct new buildings and retrofit old building stock to be more resilient to flooding to cut down on damage costs.
- 4) Under the newest federal legislation and current building and zoning codes in Rhode Island cities and towns, historic buildings are essentially exempt from the strict application of flood-related construction codes. However, the exemption applies only if the building or structure retains its historical and architectural integrity and its National Register or historical designation status is not jeopardized. Owners of historic buildings in harm's way should endeavor to make their properties more flood resilient to the degree that the historical and architectural integrity is not compromised. In this way, property owners may be able to stabilize their flood insurance rates and may realize a reduction over what they would be paying if they did nothing to reduce flood-related damage risk. There are many examples of how historic buildings can be made to be more resilient without losing their historical integrity.
- 5) This report does not evaluate future flood-related risks posed by sea level rise. It does, however, provide insight into issues connected with the current (2015) level of flooding experienced by coastal towns in Rhode Island. Sea level rise will add to the geographic area and number of resources affected over time. It is anticipated that for those areas already affected by coastal flood hazard zones as mapped by FEMA (known as Flood Insurance Rate Maps [FIRM]), base flood elevations will increase in height and the boundaries of the various mapped flood hazard zones will move inland, affecting additional historic properties as a result. (Barrett)
- 6) In the future, despite recent (2014) federal legislation to curb rate increases for flood insurance, owners and investors of pre-FIRM (pre-1968) buildings, including National Register-listed or eligible historic buildings, are likely to face some degree of flood insurance cost escalation if they make no attempt to make their buildings more resilient to flood damage. How much stabilization of rates and what degree of increase in premiums remains unclear. However, it appears that retrofitting for flood resilience would likely offer some protection from escalating

insurance costs and should be pursued. Obtaining an insurance certificate of compliance with the flood codes would be the goal. (Platt)

- 7) Based upon an inventory compiled by Melissa Barker, the Geographic Information System (GIS) Coordinator for the City of Newport, it is estimated that just under 2,000 National Register of Historic Places-listed or potentially eligible historic resources in Rhode Island's coastal towns are currently in harm's way of coastal flood damage. Significant concentrations of National Register-listed or eligible, coastal resources are located in Bristol, Cranston, East Greenwich, Newport, North Kingstown, Warren, Warwick, and Westerly. (Barker)
- 8) Overall, flood regulations provide a degree of protection for National Register-listed or eligible properties, however there are several areas of concern:
  - The specter of rising insurance rates for historic properties will undoubtedly spur property owners to either upgrade their buildings and structures to be more flood-resilient, or they could conceivably cause buildings to be demolished and replaced with new construction that fully meets the rigorous flood code requirements for a substantially reduced insurance rate. It is unclear at this time how future rates will be calculated for historic buildings that meet only some of the flood code requirements. There is little doubt, however, that those buildings that fully meet flood code requirements will have lower premiums than those that do not. If property owners choose to retain their historic buildings and fully meet flood code requirements, they may subject their buildings to upgrades that will compromise their historical and architectural integrity and diminish their community economic value.
  - Community officials, including planners, floodplain managers, building officials, and other review bodies, such as historic district commissions, will need more training on the application of the Secretary of the Interior's *Standards and Guidelines for the Treatment of Historic Properties* in gaining flood resiliency for historic properties without jeopardizing integrity. They will also need a deeper understanding of the historic resources within their communities in flood hazard areas in order to provide the appropriate level of assistance to property owners seeking guidance. Interviews with selected town staff in Bristol, Newport, and Westerly confirmed that training remains a

constant need in implementing a good program. Although there is a program for certification of floodplain managers, there currently is no training program addressing the protection of historic resources. Such training, if developed, should address the protection of individual resources as well as historic districts.

- In communities with local historical district zoning, local historic district commissions may be tasked with the review of flood resiliency upgrade projects undertaken within or outside of their overlay districts. Knowledge of how such projects can be undertaken without altering historical or architectural integrity would be beneficial. Rhode Island Historical Preservation and Heritage Commission (RIHPHC) training sessions in anticipation of such activity should be considered.
- The creation of flood-resiliency historic preservation standards and guidelines would serve two purposes: to assist local officials and boards in Rhode Island's flood-prone coastal areas and to educate owners and reviewers on best practices. Standards and guidelines could provide a menu of flood-resiliency treatments, such as elevating buildings, installation of flood (smart) vents, and the use of flood resilient building materials, and an evaluation of how such measures can either benefit or harm historic resources. There are models for such a publication, including the Mississippi Development Authority's *Elevation Design Guidelines for Historic Homes in the Mississippi Gulf Coast Region*. (Mississippi Development Authority)
- Coastal cities and towns should also embark on comprehensive floodplain management plans and implementation strategies, if they have not already done so. These plans should include historic preservation initiatives where appropriate and list goals and policies and implementation tasks and responsibilities. They should be integrated with community hazard mitigation plans and community comprehensive plans to be effective. Participation in the FEMA-sponsored Community Rating System (CRS) should be strongly encouraged. Under this program, these plans and historic preservation initiatives will provide additional credit points to reduce insurance rates. (FEMA FIA/15 2013)



Of the coastal communities reviewed in this report, Bristol, Charlestown, East Providence, Middletown, Narragansett, North Kingstown, Pawtucket, and Westerly are participating in the CRS program.

## Chapter 1

### An Overview of Historic Resources in Rhode Island's Coastal Communities

The following is a summary of the number of National Register-listed or eligible resources located in coastal and estuarine flood zones, as mapped by FEMA, in each of the municipalities included in this study. (Barker)

<b>Municipality</b>	<b>NR-listed or Eligible Resources</b>
Barrington	55
Bristol	194
Charlestown	9
Cranston	69
East Greenwich	35
East Providence	5
Jamestown	24
Little Compton	12
Middletown	4
Narragansett	23
New Shoreham	27
Newport	548
North Kingstown	294
Pawtucket	11
Portsmouth	6
Providence	40
South Kingstown	100
Tiverton	16
Warren	223
Warwick	98
Westerly	178
<b>TOTAL</b>	<b>1971</b>

Note: This table does not necessarily include resources designated as historic by a Certified Local Government (CLG), which may then be exempt from the flood code requirements. Because of the nature of the GIS data upon which this table is based, it may include non-historic buildings and structures that are present within listed archaeological districts (for example South Kingstown).

### ***Newport, Rhode Island: Value of Historic Resources Affected by Flood Regulations***

As an exercise to approximate the value of historic properties that are located within FEMA flood zones and therefore could be affected by flood regulations, the assessed value of such properties in Newport was analyzed. The total value of historic properties in Newport located within FEMA flood zones is \$432,406,310. (Barker) A similar analysis could be performed for other coastal communities in Rhode Island.

### ***Key Historic Resources Affected by Flood Regulations***

The resources in the previous table include historic buildings and sites that are of particular significance to the local community and/or the state. These include the following (grouped by municipality):

**Bristol:** Thames Street waterfront area. Key buildings include the Namquit Mill, Usher's Warehouse/Potter's Wharf area and the DeWolf warehouse buildings, the Naval Reserve Armory, and Cranston Worsted Mills, the Pokanoket Mill and a number of 18<sup>th</sup>- and 19<sup>th</sup>-century residential buildings.

**Cranston:** Pawtuxet Village, Edgewood

**East Greenwich:** The Harbor District including King Street environs, east of the Railroad Bridge.

**Newport:** Middle and Lower Thames Street, the Bowen's Wharf area, Seaman's Church Institute, the Point district. Key buildings within these areas include the Brick Market, Perry Mill, the R.I. National Guard Armory, Hunter House, John Dennis House, Villa Edna/King Covell House, Thomas Robinson House, the Francis Malbone House and restored 18<sup>th</sup>-and 19<sup>th</sup>-century properties owned by the Newport Restoration Foundation, including the Samuel Whitehorse House.

**North Kingstown:** Wickford Village: Main Street, Brown Street

**Warren:** Harbor front, Water Street area

**Warwick:** Pawtuxet Village, Apponaug Village, Buttonwoods

**Westerly:** Watch Hill Historic District harbor front, including Bay Street; Weekapaug, Weekapaug Inn

## Chapter 2

### Current Federal Flood Regulations and Historic Properties

#### *The National Flood Insurance Program*

The National Flood Insurance Program (NFIP) was established in 1968 in reaction to severe losses caused by storm damage and flooding. The NFIP attempts to 1) provide flood insurance to property owners in flood prone areas who would otherwise not be insurable and hence would not rebuild economically valuable assets, and 2) guide future development away from flood prone areas. This bifurcated approach has proved, however, inadequate to deal with the problem. Development has continued in flood-prone areas, especially in desirable coastal areas, regardless of disincentives and progressive planning. As climate change progresses, more severe weather patterns continue to develop, and the costs associated with flood damage escalate, the program teeters on insolvency.

Also in 1968, Congress established the Federal Emergency Management Agency (FEMA) to administer the NFIP and to provide assistance and guidance to communities on flood hazard mitigation. A responsibility of FEMA is the detailed mapping of flood hazard areas in each community. The maps of flood hazard areas, also known by the acronym "FIRM" for Flood Insurance Rate Maps, delineate several categories of flood hazard superimposed upon aerial photographs. The categories include coastal velocity (VE) zones exposed to the open ocean and storm surf, and coastal flood (A) zones, which are generally in more protected harbors, embayments, and tidal rivers. FEMA is required to periodically supply updated FIRMs for communities participating in the NFIP. FIRMs have been generated for all Rhode Island communities and are usually available on town and city websites. The FIRMs are used to determine insurance eligibility and rates. They are also used to determine which properties are subject to the flood building code.

Participation in the NFIP is voluntary. By choosing to participate, communities are able to provide flood insurance for constituents who might otherwise be unable to secure insurance. In exchange, the community must undertake floodplain management and planning, including the adoption of strict building codes (see discussion, below). Recently a number of Rhode Island coastal communities have sought inclusion in a higher level of participation in the NFIP, the Community-Rated-System or CRS. CRS communities must take on more rigorous floodplain management, including extensive and specific master planning for flood prone areas; strict adherence to flood codes with elimination of virtually all

variances, waivers, and exceptions for new construction and non-historic buildings; the employment of certified floodplain managers; educational programs to inform property owners of flood hazards; and annual reporting on the effectiveness of their programs. (FEMA #573) In exchange, property owners in CRS communities can receive substantial additional discounts in flood insurance. For example, the Town of Bristol is currently a CRS program member achieving a 10% reduction in flood insurance premiums for Bristol property owners. There are CRS communities in other states receiving up to 45% reductions. (Stimson) (FEMA #573)

Due to the cost of the program, the NFIP has recently been targeted for reform. In 2012 Congress passed legislation known as the Biggert-Waters Flood Insurance Reform Act of 2012 (Biggert-Waters) in an attempt to correct deficiencies in the NFIP. This legislation created substantial phased-in increases in flood insurance rates across the board, eliminating “subsidies” or preferred (reduced) rates for all pre-FIRM buildings and structures, including historic structures. New rates could be substantially higher than previous. (Gray)

The potential for such substantial rate increases created a backlash, however, and in 2014 Congress passed legislation known as “Grimm-Waters,” or the Homeowner Flood Insurance Affordability Act, which essentially rolled back insurance rate increases deleting many of the onerous and dramatic insurance rate increase provisions of the 2012 law. Grimm-Waters did not, however, roll back insurance rate increases for second homes or businesses. These are subject to rate increases of 25% annually to full actuarial rates based upon risk of flood damage as well as an additional \$250 annual surcharge. Under Grimm-Waters primary homes will have to come up to full risk rates, but at a more gradual annual rate increase than in Biggert-Waters. Significantly all policy holders must be advised of their future full actuarial rate obligation. This will cause many property owners to seriously consider actions they could take to reduce their annual flood insurance premiums. (Gray)

Most experts in the field advise that substantial rate increases are inevitable considering the plight of the NFIP. The NFIP must be made solvent and operational. This means that for affected historic buildings and structures, while Grimm-Waters may have eased the immediate concern for affordable flood insurance premiums, the future will likely bring increased premiums to match flood damage risk and these may or may not be affordable for properties that do not meet full flood code requirements. Consequently, owners of historic properties in flood zones may choose to implement more extensive

flood-mitigation measures that could threaten the resource's integrity or may even choose to demolish historic buildings rather than pay the flood insurance premium.

### ***The NFIP and the Building Code***

As noted above, communities that participate in the NFIP must undertake floodplain management and planning activities, including adopting strict building code requirements (usually based upon state and international building code models). Such building codes address 1) the flood-proofing of buildings and structures located within designated floodplains and built prior to the 1968 law (known as pre-FIRM), 2) buildings and development constructed since 1968, and 3) new construction and development. Such regulation comes in the form of floodplain zoning overlay districts conforming to the FIRMs, which require code compliance and set standards for site plan and development design, including setbacks, buffer/exclusion zones, appropriate use, and density. Cities and towns that do not adhere to the NFIP program requirements risk being excluded from participation in the program, in which case the preferred flood insurance would no longer be available to residents within the community.

The requirement to meet flood code requirements is triggered by the "substantial improvement" threshold, also known as the "50% rule." The following scenarios qualify as "substantial improvement:"

- An owner or developer seeks to rehabilitate an existing property that has sustained damage valued at greater than 50% of its market value,
- An owner or developer seeks to rehabilitate an existing property at a cost greater than 50% of its market value (not including the value of the land),
- An owner or developer seeks to change the use of a property, or build a new building.

The NFIP specifies that communities adopt minimum flood-related building codes requiring that new residential development and substantially improved dwellings and housing structures be elevated so that the lowest occupied (residential) floor is at or above the base flood elevation (BFE) determined for the site. The BFE is generally determined by FEMA, but can also be refined by a qualified engineer and certified with an "elevation certificate."

New or "substantial improvement" projects involving commercial buildings in AE flood zones can face substantial flood code requirements. A building with a commercial ground floor that opens to pedestrian sidewalks is prohibited from having commercial use below the BFE, unless the space is dry

flood-proofed, a costly renovation. The space can be used for parking, access to the upper floors, or for limited storage without dry flood-proofing.

Significantly, the NFIP provides an exclusion or variance from meeting flood code requirements for historic properties. The NFIP defines historic properties as follows:

- 1) “Listed individually in the National Register of Historic Places (a listing maintained by the Department of the Interior) or preliminarily determined by the Secretary of the Interior as meeting the requirements for individual listing on the National Register;
- 2) Certified or preliminarily determined by the Secretary of the Interior as contributing to the historical significance of a (National Register) registered historic district or a district preliminarily determined by the Secretary to qualify as a registered historic district;
- 3) Individually listed on a state inventory of historic places in states with historic preservation programs which have been approved by the Secretary of the Interior; or
- 4) Individually listed on a local inventory of historic places in communities with historic preservation programs that have been certified either
  - (a) By an approved state program as determined by the Secretary of the Interior (e.g. Certified Local Governments [CLGs]), or
  - (b) Directly by the Secretary of the Interior in States without approved programs.”

(FEMA P-467-2)

Under the NFIP, communities have the option of addressing the flood code at historic properties in one of two ways: by excluding historic properties through definition – i.e., the substantial improvement threshold does not apply to such properties as defined – or by granting variances. (FEMA P-467-2) Most communities in Rhode Island have adopted the variance provision, which may require owners of historic properties to undertake some flood damage control or flood-resiliency measures. In obtaining a variance, a project at a commercial building, for example, might be required to include wet flood-proofing measures, such as utilizing smart vents to equalize hydrostatic pressure and/or using flood-resilient floor and wall materials. However, if a property owner proceeds with changes so damaging to the historical and architectural integrity of the property that it will no longer meet the National Register listing criteria, he/she risks being forced to meet the full requirements of the flood code, at considerable expense. Fortunately the variance procedure and approvals are designed to prevent such an event from happening. (FEMA P-467-2)

The variance procedure involves a review of the project by the local Building Board of Appeals to determine if the owner/applicant is making a bona fide attempt to provide flood proofing or resiliency to the degree possible, without jeopardizing the property's historical and architectural integrity. In Rhode Island, Certified Local Governments (CLGs) may use their professional preservation staff or their historic district commissions to determine the project's impact on the property's integrity. Communities without CLG status may consult with the Rhode Island Historical Preservation and Heritage Commission (the state historic preservation office). CLG communities may also designate local historic resources and districts, which in turn may then be exempt from the flood code requirements through a variance process.

For now, historic properties in Rhode Island are generally not required to meet stringent flood code requirements, usually through the issuance of a variance from the local Building Board of Appeals. This may change in the future. Significantly, the 2008 guidance published in *FEMA P-467-2* states:

“Although the NFIP provides relief to historic structures from having to comply with NFIP floodplain management requirements for new construction, communities and owners of historic structures should give consideration to mitigation measures that can reduce the impacts of flooding on historic structures located in Special Flood Hazard Areas. Mitigation measures to minimize future flood damages should be considered when historic structures are rehabilitated or are repaired following a flood or other hazard event...” (page 2 of *FEMA P-467-2*)

The implementation of such measures at historic properties presents challenges, but, if done sensitively, may help to protect the property and may drive down the cost of insurance premiums for property owners.



## Chapter 3

### Flood-Proofing and Flood Resiliency at Historic Properties

The NFIP promotes a variety of flood-proofing measures that, when implemented at historic properties, may be designed to meet the *Secretary of the Interior's Standards and Guidelines for the Treatment of Historic Properties*. The *Secretary's Standards* are widely accepted as the benchmark for the preservation, rehabilitation and restoration of historic properties. They are regularly employed by the RIHPHC in reviewing projects, and are often adopted by local historic district commissions, as well.

So-called “wet” flood-proofing measures promoted by the NFIP, which may be successfully implemented at historic properties, include the following:

- repairs to foundations
- elevation of first-floor level heights, as long as doing so does not detract from the property's historical or architectural integrity
- allowing water to pass through the lower floor(s) of the building, by installing “smart” vents in the building's exterior and interior walls and doors, at the basement and/or first-floor levels, to equalize hydrostatic pressure during flooding; this may involve the creation of new crawl spaces and the installation of back-flow valves on sewer, septic, and drainage pipes
- filling of cellars to the ground level with soil to prevent substantial accumulation and pooling of water within the foundation walls. Such filling would result in the creation of a crawl space, instead of a cellar. Smart vents would be installed in the above ground cellar walls.
- installation of flood-resilient interior materials in areas below the BFE
- relocation of all utilities (HVAC, electrical, plumbing) above the BFE (FEMA P-467-2)

Many of these adaptations can be accomplished while retaining historical and architectural integrity, through review by the RIHPHC, or by local preservation staff and historic district commissions through the variance process with the local Building Board of Appeals.

Research conducted for this study suggests that in Rhode Island, flood impacts will be felt particularly keenly in harbor front commercial districts. Significant examples of such districts are found in Bristol, East Greenwich, Pawtuxet Village in Cranston and Warwick, Newport, Warren, and Watch Hill in Westerly. In such areas, there is potential for new infill construction and “substantial improvements” to

non-historic buildings that would interrupt the pedestrian streetscape with non-commercial ground floors and ramps to higher floor levels. Dry flood-proofing methods might also be employed, which can result in significant alteration, particularly in non-masonry buildings. (Tomassini, Evans). Districts without adequate design review regulatory controls are most at-risk for these sorts of unsympathetic alterations. With the exception of Newport's lower Thames Street and Warren's harbor front, the districts reviewed in this study have design controls in place. They may not, however, have specific standards and guidelines for wet and dry flood-proofing options.

### ***Case Studies***

Two recent projects in Westerly – which does not have a local historic district commission – illustrate one coastal community's struggle to understand the relationship between historic buildings and flood regulations. A third project in Newport, which does have a local historic district commission, illustrates that City's approach. All three projects required review at the local level by the communities' Building Boards of Appeals. Examples from Annapolis and Mississippi demonstrate measures being adopted elsewhere to address the flood resiliency of historic properties.

#### *Ram Point Carriage House, Westerly*

Ram Point Carriage House on Watch Hill Road in Westerly sits on a 6-acre peninsula of land jutting northward into the tidal Pawcatuck River. Nearby is the mouth of the river at Little Narragansett Bay and Fisher's Island Sound. An early 20<sup>th</sup> century, 2-story, gambrel-roofed, Colonial Revival structure, the carriage house originally provided living quarters for staff as well as carriage storage space and a horse stall/tack room. The carriage storage space was in the ground floor not far above current sea level. The building lies within an AE special coastal flood hazard zone. The town building and zoning officials advised that since the carriage storage space had never been used as inhabitable space, a reuse for living area, which the owner desired, would require meeting the flood code requirements. The owner asked whether or not the carriage house could possibly be eligible for listing in the National Register of Historic Places and thus exempt from having to meet stringent flood codes. The carriage house is part of a larger estate that includes a residence, boat house, playhouse, potting shed, well house and other outbuildings, all connected by shoreline paths and a tree-lined entry driveway.



Ram Point Carriage House, before renovations, RCY 2013



Ram Point Carriage House, after renovations, RCY 2015

In this case, before granting town approval, the building official and zoning officer determined that a letter from the state historic preservation office (the Rhode Island Historical Preservation and Heritage Commission [RIHPHC]) regarding the property's National Register status would be required before proceeding with a hearing. The owner hired a preservation planner to initiate the nomination process, RIHPHC staff were consulted, and Ram Point was presented to the State Review Board for a preliminary review of its National Register eligibility. The State Review Board determined that the property is a good candidate for National Register listing. RIHPHC staff prepared a letter for the property owner indicating Ram Point's potential eligibility for listing, with the carriage house as a contributing component.

The RIHPHC staff architect was then able to review architectural plans and specifications to determine whether or not the project would meet the *Secretary of the Interior's Standards and Guidelines for the Treatment of Historic Properties*. Flood resiliency was enhanced by elevating the interior space of the carriage storage area by approximately 2 feet within the structure, and locating electrical utilities above the BFE. A letter was issued by the RIHPHC to the Town and owner stating that the project would not have an adverse impact upon the National Register eligibility of the property. Based upon the preliminary determination of eligibility and the staff architect's review comments, the Town's Building Board of Appeals was able to grant a variance (with conditions) for the project.

In this case, the Town relied heavily upon the RIHPHC to provide expert testimony (via letter) that 1) the property was eligible for the National Register of Historic Place and thus exempt from the flood code requirements and 2) the project, which involved some flood resiliency measures, met the *Secretary's Standards* and would not jeopardize the historic integrity of the building. The owner is obtaining National Register listing of the property.

### ***Lanphear Livery Stable, Westerly***

The restoration and rehabilitation of the Lanphear Livery Stable in the village of Watch Hill, a Westerly shoreline community, is a much larger and more complex project than the Ram Point Carriage House. Here a non-profit owner is bringing back to life a condemned but rare, early-20<sup>th</sup>-century, historic service building for mixed use, including retail commercial use on the ground level, with residential

apartments and an office space on the second and third floors. The building has a foot print of nearly 7,000 sq. ft. and was built in close proximity to the harbor shoreline in a coastal flood hazard AE zone. The base flood elevation is 9 feet with one foot of freeboard. Freeboard is usually provided in local ordinances as a 1-3 feet margin or hedge against future inundation conditions, either caused by a specific storm or sea level rise over time. Rhode Island communities require at least 1 foot of freeboard to be added to the BFE requirement. Many communities allow for up to 3 feet to be added as an exclusion to overall building height limits required by zoning. The building is listed in the National Register of Historic Places as a contributing resource in the Watch Hill Historic District.



Bay Street waterfront, looking east, RCY 2010

In this case, the Town of Westerly once again employed its Building Board of Appeals to grant a conditional variance for the project design, allowing commercial use of the ground floor and waivers of strict flood code requirements. The design includes several flood-resiliency measures known as wet flood-proofing, including flood (smart) vents and resilient floor and wall materials at the ground floor. In

addition, all utilities will be located above the BFE. The building foundation, badly deteriorated, is being replaced and the building elevation will be two feet above the current ground level (the maximum feasible given site constraints and the need to maintain the original footprint).



Lanphear Livery Stable, looking west, RCY 2015

RIHPHC architectural staff were consulted to determine whether the proposed alterations met the *Secretary's Standards*, in part because the project is receiving Hurricane Sandy relief funds for damage repair as well as state historic preservation tax credits. The RIHPHC therefore holds a historic preservation easement on the property. Given the scrutiny of the project by the RIHPHC and the level of work proposed for flood resiliency, the Town Building Board of Appeals readily granted a variance for the project, allowing ground level commercial use to once again be located in the building, while providing a degree of flood resiliency that is acceptable under historic preservation standards and guidelines.

### ***70 Bridge Street, Newport***

The property at 70 Bridge Street is located on a corner lot in Newport's historic Point District, a waterfront neighborhood within an AE flood zone. It is a densely-packed residential neighborhood of 18<sup>th</sup> and 19<sup>th</sup> century houses, many of which have been restored to a very high standard. Initially the owner of the house at 70 Bridge Street wanted to elevate the 18<sup>th</sup>-century, 2-story, wood-framed, clapboard-clad dwelling to 5 ft, in an effort to protect the property, attain some degree of flood resiliency, and lower flood insurance rates.



70 Bridge Street after rehabilitation with new raised foundation, looking west, RCY 2015

The five foot elevation request was well under the nine foot elevation that would have been required for a non-historic building to meet the flood code and the 12 foot BFE required for the area. Because the property is located within a local historic district, such a change required a (zoning) certificate of appropriateness from the Newport Historic District Commission (NHDC). The NHDC determined that elevating the building, which is directly on the street, to such a height (5 ft.) would be an adverse impact and would not be appropriate. They did indicate that a lesser degree of elevation might be considered, provided that nearby properties were researched to determine if the streetscape features generally uniform foundation heights, or if there was some variability. After determining that nearby foundations range from 2 ft to 4 ft in height, the NHDC approved raising the building to a new elevation of 3.9 ft and issued a certificate of appropriateness. In addition, 70 Bridge Street was not an original building on the street; it had been moved to its present location by Operation Clapboard in 1975 from the site of the Newport Marriot Hotel along with two other houses, which were combined to form the present structure. (Shevlin) The City of Newport Building Board of Appeals then granted a variance for the project. Because The City of Newport has local historic district zoning and has a local historic district commission, the RIHPHC was not consulted to review the project and determine whether it meets the *Secretary's Standards* (unlike in Westerly, which does not have local historic district zoning).



Bridge Street house, with existing raised foundation, looking west, RCY 2015



### *Annapolis, Maryland*

Annapolis, Maryland, has taken the proactive step to develop a comprehensive flood management plan for the City's Dock and East Harbor waterfronts. Recognizing that projected sea level rise will have a significant adverse impact upon these vital areas of the local economy (based upon abundant historic resources and tourism), the city contracted with consultants to provide a reasonable estimate of sea level rise, review the current regulatory climate to ascertain how the City could accommodate such change, and produce recommendations for action. Included are the obvious, such as increasing the BFE elevation and recommendations for wet flood-proofing historic buildings. Also included, however, are specific recommendations for dry flood-proofing non-historic commercial buildings that are the subject of projects of *less than* substantial improvement value, or below the 50% rule threshold. In so doing, Annapolis is taking a more rigorous approach with a higher standard than the NFIP. In setting a higher bar, the community may be setting the stage for a higher CRS rating and greater reductions in insurance rate premiums for its property owners. (FEMA 573, FEMA FIA 15/2013) In recognition of its wealth of historic resources and their value to the local economy, Annapolis further acknowledges its sensitivity to meeting strict flood code requirements. The clear message is that communities should recognize the impact of sea level rise and immediately begin planning for accommodation and resiliency.

### *Mississippi*

In the wake of catastrophic Hurricanes Katrina and Rita in 2005, the State of Mississippi Development Authority (MDA), the leading state economic development agency, published design guidelines for the elevation of historic properties in flood hazard zones. The MDA undertakes financial programs and assistance in the Gulf Coast Region to renovate historic dwellings for greater flood resiliency. "Design Guidelines for Historic Homes in the Mississippi Gulf Coast Region" (2006), is a step-by-step illustrated lesson plan on elevating historic dwellings in such a way as to not lose architectural or historical integrity and thereby satisfy FEMA requirements, including building code requirements. The manual also includes suggestions on filling larger lots to partially accommodate elevation change, a solution that may also be appropriate for unique coastal locations where there is not a concern about flood water displacement

and where historic buildings predominate. Such measures as filling are not advisable in riverine settings due to the displacement of flood waters onto adjoining properties.

The guidelines represent a broad aide program designed to assist property owners with necessary and costly home improvements for flood resiliency. Such programs may be necessary to achieve aggressive goals in a short time, goals that otherwise could not be achieved.

The guidelines were prepared in collaboration with other stakeholders including the Mississippi Department of Archives and History (the Mississippi SHPO) and local historic preservation commissions representing historic preservation interests in coastal Mississippi. Also participating were local building, zoning, and planning officials.

## Chapter 4

### Flood Management Programs: A Look at Three Rhode Island Municipalities

Flood management programs in the City of Newport and the towns of Bristol and Westerly were examined to compare how the three municipalities, each with important historic resources in coastal flood zones, address the requirements of the NFIP and building codes. Each municipality has a staff person well-versed in coastal flood issues who is responsible for implementation of the program. The municipalities' planning staffs are in the process of upgrading their respective Comprehensive Plans and wish to include appropriate language supporting the continuation and expansion of work in flood plain management. Each government wishes to fully participate in the NFIP's Community Rating System (CRS); Westerly and Bristol have succeeded and Bristol, as a result, has earned a substantial insurance rate reduction (10%) for its property owners. All three governments grant variances from the strict flood code requirements for historic buildings within their coastal zones. All three governments have a time frame for calculating the 50% rule threshold; both Newport and Westerly consider 12 months the appropriate base time frame for projects, while Bristol has set a much higher standard at 10 years by ordinance. In other words, in Bristol work undertaken within a 10 year time frame is additive toward the 50% rule, whereas in Newport and Westerly the additive time frame is merely 12 months. While the building and zoning officials have some discretion in calculating how a project ranks against the 50% rule, conceivably a project in Newport or Westerly could be cleverly phased in 12 month increments to avoid reaching the 50% rule threshold and thereby be exempt from meeting flood code requirements; not in Bristol.



Bristol, R.I. waterfront, looking south, RCY 2015



Bristol, R.I., Thames Street, looking southeast, RCY 2015



Bristol, R.I., Thames Street, looking northeast, RCY 2015

Newport has a record with the Rhode Island Emergency Management Agency (RIEMA) and FEMA of granting too many variances overall, while Bristol and Westerly do not. The Newport Building Board of Appeals has granted variances for non-historic building projects and also for new construction, much to the consternation of RIEMA and FEMA officials, thus jeopardizing its application for CRS status.

Recognizing that Lower Thames Street should be a pedestrian, main street experience, with commercial use of ground floor spaces, Newport has granted elevation and ground floor space variances for non-historic and new construction projects along Thames Street. The projects that have been developed have retained their ground floor spaces within the BFE. Variances have also been granted to exempt dry flood-proofing. In an attempt to bring the program into better alignment with the voluntary CRS standards, Newport is removing its local Building Board of Appeals from hearing flood code-related variances and is now scheduling such applications for the State Building Board of Appeals. This action significantly removes knowledgeable local decision-makers from the approval process. Luckily for Lower Thames Street a number of important infill buildings have been recently built and renovations of non-historic buildings have taken place. There are, however, several large undeveloped or underdeveloped parcels which will likely be built to meet strict flood code requirements. These new buildings will likely be elevated above the street level to meet BFE requirements. Local concern is that the desire for CRS status, coupled with review of variance applications by the State Board, may cause unsympathetic redevelopment, negating any CRS benefit in the long term, especially in a physical environment heavily patronized by tourists on foot. (Hanley)



Newport, R.I. Point District,  
Bridge Street, looking west,  
RCY 2015

Within Newport's Point District, with residential buildings and structures that date back to the early 18<sup>th</sup> century, there has been sporadic anxiety about potential flood insurance rate increases. Passage of the Biggert-Waters Act in 2012, along with other considerations, caused the owner of the house at 70 Bridge Street to seek to elevate the house five feet. Fortunately the Newport Historic District Commission had design review jurisdiction over the project and specified that only an elevation of 3.9 feet could be allowed, based upon other nearby properties and their raised basements. An elevation of building to the 12 ft. BFE would have been incongruous with the historic setting and would have adversely affected the building's architectural and historical integrity. Here the building owner achieved a degree of flood resiliency within the variance process while maintaining the building's historic status. This project could become a precedent for other Point district dwellings seeking to adapt to flood hazards. (Hanley)

Westerly's code enforcement and planning staff have been gradually implementing the review of projects affecting historic properties within the town's coastal zones. To date there have been a few projects over the last six years, but not many. The Building Board of Appeals has met several times to review requested variances. Unlike Bristol and Newport, Westerly does not have local historic district zoning nor a local historic district commission. Hence technical reviews and recommendations are coordinated with the RIHPHC. The RIHPHC has been asked to provide advisory opinions regarding the National Register status of buildings and to review projects for their adherence to the *Secretary's Standards*. This sort of consultation with the RIHPHC could be implemented by other Rhode Island communities.

## Annotated Bibliography

Braid, Julie and Brian Knowles, editors. *Flood Resiliency in Newport's Point Neighborhood: An Historic Urban Landscape Approach*. A student led project for class credit (HP 302/502: Principles in Preservation Planning, Jeremy Wells, Prof. Bristol, R.I.: Roger Williams University, Spring 2015.

A major finding of this student report is that historic home owners and neighborhood residents claim that poor drainage from small amounts of rainfall can cause street and cellar flooding. This condition is affecting nearly all of the historic properties in the Point neighborhood and is perhaps more serious than inundation or flooding caused by coastal (sea) flood events: "water comes up through the storm drain flapper valves flooding the streets and homes.... It is destroying the foundations of these 18<sup>th</sup> century homes." The report provides several good illustrations of how historic buildings may be elevated in the district, including illustrations of various levels of elevation – raising stone foundations to 4 feet, or elevating buildings to the BFE on concrete piers. The report recommends a number of near term and long term solutions to future flooding and historic property damage:

Near term,

- 1) Fix the existing sea wall, which is deteriorated in places.
- 2) Install a rain garden (likely large) for clearings (sic) or open spaces of the neighborhood. (to infiltrate and treat storm water runoff).
- 3) Elevate structures (to BFE plus freeboard), following documentation for the historical record. While this may dramatically change the aesthetic of the neighborhood, historic fabric (including interiors) has a better chance of survival, than if it is not elevated.

Long term,

- 1) Install a sea (salt) marsh (along the coast, to buffer storm surge).
- 2) Raise the topography throughout the district to be level (infill).
- 3) Fix the (storm) drainage system.

Barrett, Christopher. "The Precarious Position," in *41 N: Rhode Island's Ocean and Coastal Magazine, Vo 8, No 2, Winter 2015*. Kingston, RI: University of Rhode Island Coastal Institute, 2015.

A report on the costs of recovery after a storm, the effects of Biggert-Waters (2012), the backlash on insurance rate hikes, and the passage of the Grimm-Waters Home Owner Flood Insurance Affordability Act (2014). Notes that second homes are not subject to insurance rate increase caps.

Environment Resources Management and Whitney, Bailey Cox & Magnani, LLC. *Regulatory Response to Sea Level Rise and Storm Surge Inundation*. Annapolis, Maryland: City of Annapolis, October 2011.

This technical and planning report provides a conservative estimate of sea level rise for Annapolis over the projected planning horizon of 50 years. Significantly (as a model) the report describes policies that would be important to include within the City's comprehensive plan. It also suggests capital improvements deemed necessary to curb coastal flooding and inundation

such as temporary flood walls, dams, and drainage system improvements. These are suggestions that Rhode Island coastal communities such as Bristol, Warren, Newport, North Kingstown, and Westerly may wish to consider. The report recommendations are in line with CRS planning and implementation.

Federal Emergency Management Agency (FEMA). *Coastal Construction Manual: Principles and Practices of Planning, Siting, Designing, Constructing, and Maintaining Residential Buildings in Coastal Areas (Fourth Edition) FEMA P-55, Volume 1*, August 2011.

This guide has been published in 2 volumes, which provide comprehensive guidance on the named factors for new construction. The manual is informative in providing a information about new construction materials and their use, in contrast to the known construction materials and methods for historic buildings over time. Page 5-18 of Volume 1 provides a helpful list of best practices exceeding NFIP regulatory requirements:

- The building foundation is intact and functional (following an event)
- The envelope (lowest floor level, walls, openings, and roof) is structurally sound and capable of minimizing penetration of wind, rain, and debris.
- The lowest floor elevation is high enough to prevent floodwaters from entering the building envelope.
- The utility connections (electricity, water, sewer, gas) remain intact or can easily be restored.
- The building is accessible and habitable (after an event).
- Any damage to enclosures below the lowest floor level does not result in damage to the foundation, utility connections, or elevated portion of the building or nearby structures.

Federal Emergency Management Agency (FEMA). *Protecting Building Utilities from Flood Damage: Principles and Practices for the Design and Construction of Flood Resistant Building Utility Systems FEMA P-348*. Buckeystown, Maryland: FEMA, 1999.

Includes information on building infrastructure requirements above the base flood elevation (BFE), including electrical systems, sewage management systems, potable water systems.

Federal Emergency Management Agency (FEMA). *National Flood Insurance Program Community Rating System Coordinator's Manual FIA 15/2013*, August 1, 2013, updated January 15, 2014.

A complete guide to the CRS program including calculation of credits. Under the CRS program, communities gain credit points for the degree to which they implement programs to reduce flood damage risk. The manual provides detailed guidance on the calculation of such credits. The more credit points accumulated through various programs, the greater the reduction in flood insurance rates for the community.



Federal Emergency Management Agency (FEMA). *Substantial Improvement/Substantial Damage Desk Reference FEMA P-758*. FEMA, 2010.

This guide has an emphasis on how to implement compliance with the “substantial improvement” – 50% rule. The desk reference provides guidance on minimum NFIP requirements. It specifically says that state or locally adopted regulations can be more restrictive in exceeding NFIP minimums or “higher standards.” The reference describes the desirability of local communities adopting a definition for “cumulative substantial improvement” (see section 5.7.3 or pg 5-19 of the publication). Recommendations are also made to improve flood resistance or resiliency, some of which can be successfully incorporated into historic buildings without losing architectural and historical integrity (see pages 5-19-20). CRS credits have been awarded to communities that are able to adopt more restrictive substantial improvement definitions, both “cumulative” and “lower threshold” (such as 30% market value).

Federal Emergency Management Agency. *Wet Flood-proofing Requirements for Structures Located in Special Flood Hazard Zones in Accordance with the National Flood Insurance Program FIA-TB-7, 12/93*.

A comprehensive guide to FEMA accepted wet flood-proofing techniques, some of which may be applicable to historic buildings without jeopardizing historical or architectural integrity.

Gray, Jordan, Esq. “Biggert-Waters and the Affordability Act: Making Flood Insurance Reform Affordable,” in *Compliance Matters: News from WNC’s Compliance Department*. Pasadena, California: WNC Insurance Services, Inc., April 25, 2014.

A concise look at the two recent federal laws enacted to regulate flood insurance and how they interact.

Mississippi Development Authority. *Elevation Design Guidelines for Historic Homes in the Mississippi Gulf Coast Region*, Jackson, Mississippi, no date (post 2005).

Excellent reference for flood elevation change options appropriate for specific architectural styles; includes guidance on site considerations and landscape screening as well as architectural treatments. Also includes an extensive annotated bibliography.

National Flood Insurance Program. *Community Rating System: A Local Official’s Guide to Saving Lives, Preventing Property Damage, Reducing the Cost of Flood Insurance. FEMA Publication #573*.

A how-to manual for communities desiring to participate in the Community Rating System (CRS) to obtain further reductions in flood insurance rates community-wide.

*National Flood Insurance Program Floodplain Management Bulletin: Historic Structures FEMA P-467-2.* May 2008.

This technical bulletin explains in detail how the National Flood Insurance Program (NFIP) treats historic properties. Significantly the overall direction is in accord with the Secretary of the Interior's *Standards and Guidelines for the Treatment of Historic Properties* and the document carries an underlying message that the NFIP provides significant relief to historic resources and that the exclusion of historic resources from strict adherence to the flood code requirements actually is an incentive for property owners to maintain and preserve their historic buildings. The exclusion may also serve as an incentive for an owner to obtain historic designation (National Register status) of a structure.

R.C. Quinn Consulting, Inc. *Floodplain Management in Rhode Island: Quick Guide.* Rhode Island National Flood Insurance Program, Rhode Island Emergency Management Agency, Rhode Island Flood Mitigation Association, no date.

A guide to management of floodplains includes many statistics about Rhode Island floodplains. For example 14,000 buildings and structures are located in floodplains in Rhode Island. Only three percent (3%) of the state's flood prone property owners have flood insurance. The guide includes information about how insurance rates are affected by the degree of improvements undertaken to diminish flood damage risk such as elevating buildings, flood (smart) vents, etc. The guide also describes elevation certificates, their content and value in determining insurance rates.

Sewell, James. *Treatment of Flood-Damaged Older and Historic Properties.* Adapted by the National Trust for Historic Preservation for *Preservation Books.* Washington, D.C.: National Trust for Historic Preservation, no date.

This publication adapted from that of similar title from the State Historical Society of Wisconsin provides an excellent summary of materials in historic buildings that may become damaged in the event of flood. The guide provides how-to information on treatment and remediation of flood damaged historic exterior and interior building materials. It is informative to contrast these materials and their treatment with the modern construction materials described within the publication and in *FEMA P-55.*

Shevlin, Tom. "HDC Approves Uplifting Proposal," in *Newport This Week, Vol. 42, No.8.* Newport, R.I., February 20, 2014.

Detailed local newspaper description of the 70 Bridge Street project in the historic Point District.

University of Rhode Island Coastal Institute Shoreline Change SAMP. *Rhode Island Coastal Property Guide: what coastal property owners, renters, builders, and buyers should know about Rhode Island's shoreline*. Kingston, R.I., University of Rhode Island, 2014.

A complete home owner's guide to the regulatory environment and potential impact of coastal flooding including a section on FEMA flood zones and flood insurance.

[www.beachsamp.org](http://www.beachsamp.org). Catalogue of Adaptation Techniques for Coastal and Waterfront Businesses: Options to help deal with the impacts of storm and sea level rise.

A guide for retrofits and new construction. Some of the concepts may be suitable for historic buildings, provided that integrity is not compromised and character-defining features are not removed or substantially altered.

## Appendix

1. GIS Maps of 21 Coastal Communities in Rhode Island Showing Historic Sites and Historic Districts in Flood Zones (2015)
2. Interview Notes: Town Officials, RIEMA Staff, Insurance Professionals, Architects (2015)
3. The National Flood Insurance Act of 1968, as amended, and the Flood Disaster Protection Act of 1973, as amended, 42 U.S.C. 4001 et seq.
4. FEMA, *Integrating Historic Property and Cultural Resource Considerations into Hazard Mitigation Planning* – Foreword (May 2005)  
Full document available at <http://www.fema.gov/media-library/assets/documents/4317>
5. FEMA, Federal Insurance and Mitigation Administration, *FEMA Fact Sheet: Historic Structures and the Biggert-Waters Flood Insurance Reform Act of 2012* (n.d.)
6. FEMA, National Flood Insurance Program, *Floodplain Management Bulletin: Historic Structures, FEMA P-467-2* (May 2008)
7. WNC Insurance Services, Inc., *Biggert-Waters and the Affordability Act: Making Flood Insurance Reform Affordable* (April 25, 2014)
8. Indiana Department of Natural Resources, Floodplain Management Section, *State of Indiana Model Ordinance for Flood Hazard Areas* (n.d.)
9. Mississippi Development Authority, *Elevation Design Guidelines for Historic Homes in the Mississippi Gulf Coast Region* – Introduction (n.d.)  
Full document available at [http://www.nj.gov/dep/hpo/hrrcn\\_sandy\\_pdf%20files/mississippi.pdf](http://www.nj.gov/dep/hpo/hrrcn_sandy_pdf%20files/mississippi.pdf)
10. City of Annapolis, MD, *Regulatory Response to Sea Level Rise and Storm Surge Inundation* (October 2011)

1. GIS Maps of 21 Coastal Communities in Rhode Island Showing Historic Sites and Historic Districts in Flood Zones (2015)



Mr. Youngken,

- 1) *Does the GIS mapping include all of the historic resources mapped individually - even if they are within historic districts for all of the towns and cities listed in the RFP (there are 21). Are these historic resources those that are listed in the National Register of Historic Places only, or are resources that are eligible for listing or otherwise inventoried shown as well? Does the mapping show archeological sites (I doubt that it does)?*

The initial determination of what areas to investigate in terms of the location of historic resources came from GIS layers produced by the RI Historic Preservation and Heritage Commission. There were three data sets used:

- **Historic Sites** – a point feature class that identifies the specific sites in RI that are National Register listed;
- **Historic Districts** – a polygon feature class that identifies specific Historic Districts that are National Register listed;
- **Historic Candidates** – a polygon feature class that identifies areas that contain historic resources that are not currently National Register listed, but have significance.

Once the above historic resource areas were mapped, I then limited the area of investigation to those historic features that fall within the designated flood plain area as delineated in the current adopted FEMA flood maps. Seeing how the only specific sites that were identified were those in the National Register database, I used the e911 address dataset to identify all other structures that fell both within Historic Districts or Candidate areas, AND flood plains. This listing then gave me the basis to investigate what other structures within those polygon zones could be of historic significance. Using the tax assessor and GIS data (if available) from each town, I reduced the number of subject properties by creating a construction date cut off of 1949. I chose this number because it falls within the 50 year range of eligibility for Register nomination, and it also reflects the WWII period of significance that some of the structures at Quonset Point have. I eliminated structures built 1950 and after.

In the cities of Newport and Bristol, I have a greater local knowledge of the building structures and therefor did a more comprehensive listing of historic resources in those cities. As part of Newport's Hazard Mitigation Plan Update, I had identified all structures within the flood plain in Newport, regardless of historic status. I applied the same 1949 cutoff date to this list and generated a listing of historic resources that are in the flood plain, but not necessarily in a Historic District or Candidate Area. I did a similar process in Bristol, knowing that many historic resources were not within the Historic District or Candidate Area. I used tax assessor data to find historic resources in the flood plain, but not in designated historic areas. This sort of higher level investigation could be done for the other communities, but it would take a lot more time, and a bit more on-the-ground knowledge of the areas. I completed the more in-depth analysis in Bristol and Newport because of my own familiarity with the locations.



## City of Newport GIS Program

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As for archaeological sites, the only ones that were included were those identified by the RI HPHC in their GIS data sets. The same sort of analysis could be done for archaeological sites if GIS data sets providing their locations were made available.

- 2) Does the GIS information include the latest projections of flooding based upon climate change that the Coastal Resources Center has been distributing and can two layers (historic and future climate change flooding) be shown together to evaluate impacts to historic resources as a result of projected sea level rise due to climate change?*

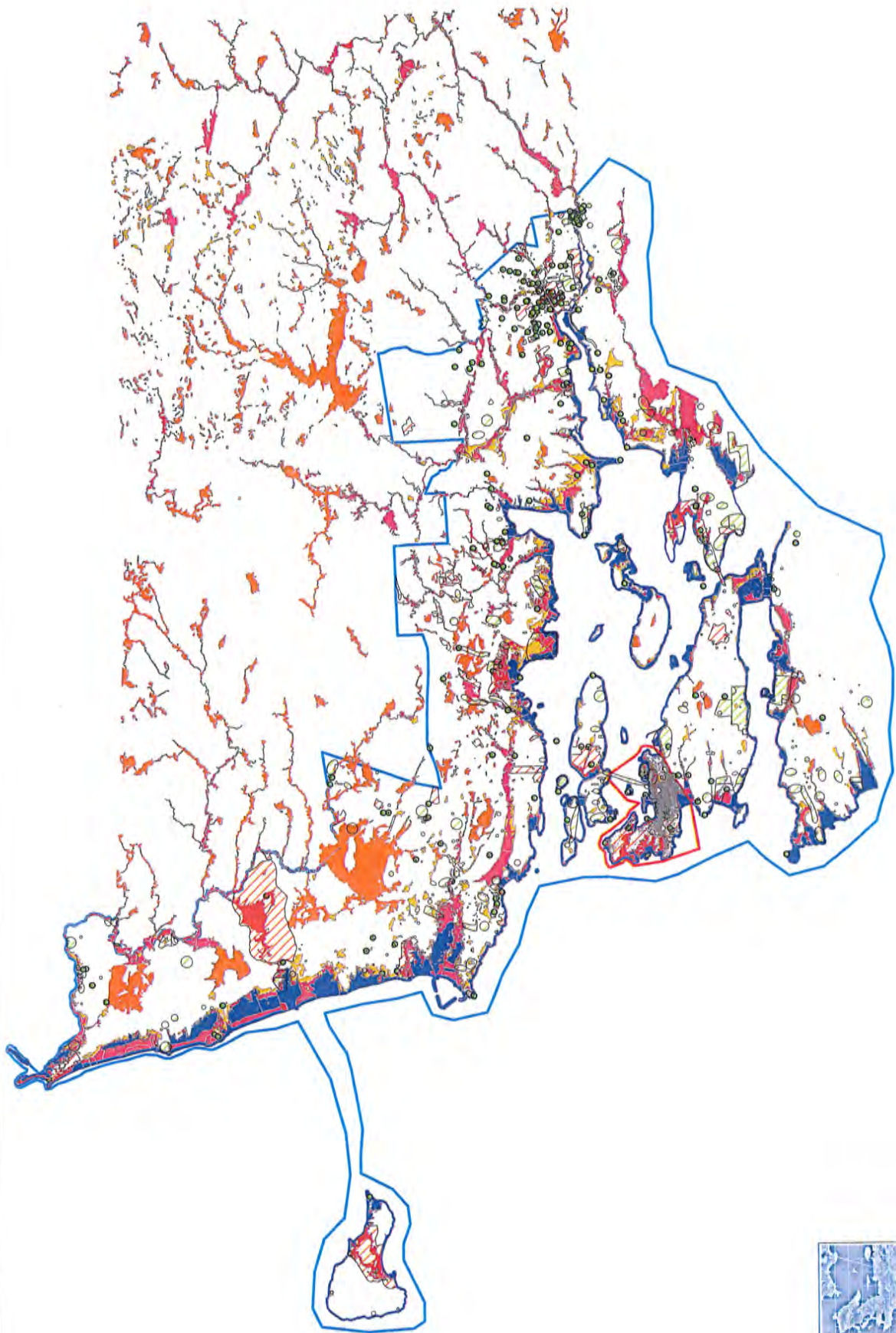
The current level of analysis is limited to the adopted FEMA flood plain maps for each of the RI counties. I do have access to the Sea Level Rise data sets from URI, but that was not spelled out in the scope of work. At present, only the current flood plain determinations were factored in, further analysis would be required if sea level rise is to be considered.

- 3) Does the climate change mapping show changes in non-coastal riverine flooding based upon increases in rain, runoff, and increased frequency of storm events and severity? In other words is the climate change data consistent between coastal to non-coastal flooding event probabilities?*

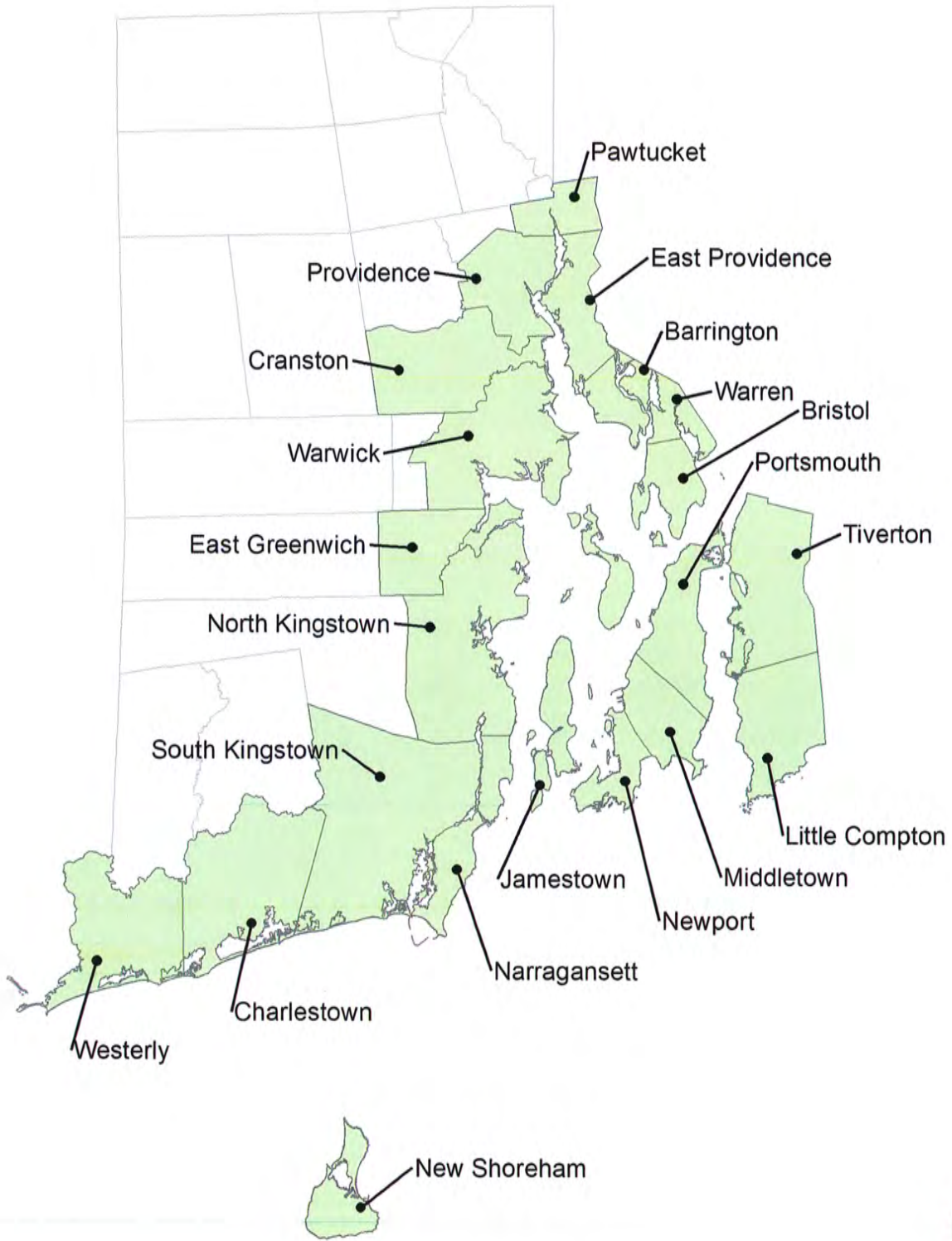
In the identified historic resource data set I produced, I have identified which flood zone the site is located, and what the nature of the flooding would be (i.e. tidal or riverine). The data from URI only addresses tidal flood changes due to sea level rise, they are working on data models to incorporate rain and riverine events, but it is not available yet.

- 4) Can the mapped resources be viewed on a standard software equipped laptop PC or does the consultant either need ARC INFO GIS software (trained) capabilities to use the data or is this capability available on a flexible basis (with an operator) in Newport? If the Newport option is the way to go - will there be any fee for this? Will there be extensive availability on the part of the equipment and operator? Does Newport have all of the specific data sets in their GIS data bank?*



The data requires ArcGIS software (or the like) to view and manipulate. It exists in a shapefile format. The City will transfer the data to the consultant for their use in further analysis.







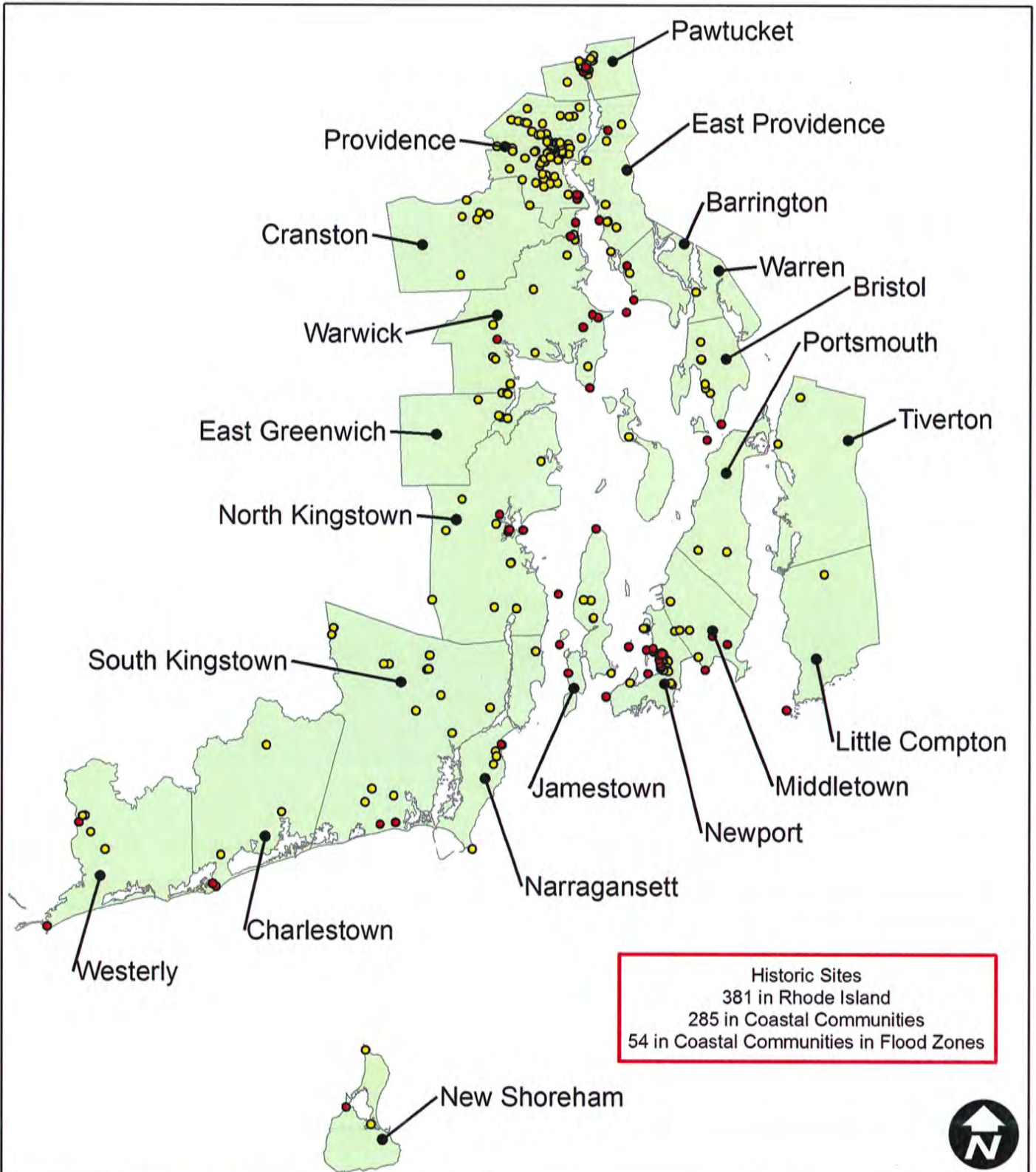
**Certified Local Government Grant 2014**

-  Rhode Island Coastal Communities
-  Communities not included in study area

City of Newport  
Rhode Island

September  
2014





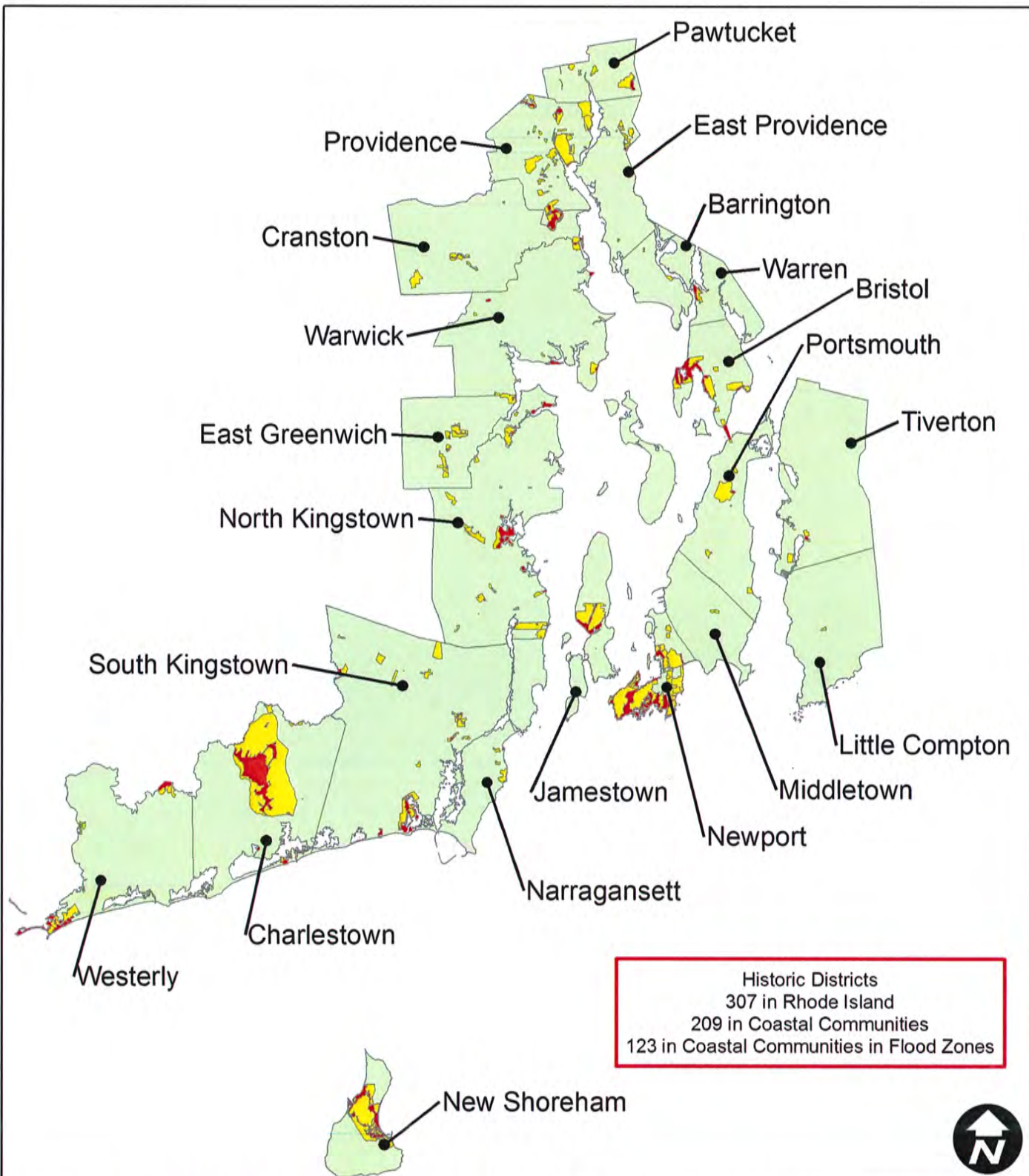
**Certified Local Government Grant 2014**

- Historic Sites in Coastal Communities in Flood Zones
- Historic Sites in Coastal Communities



City of Newport  
Rhode Island



November  
2014



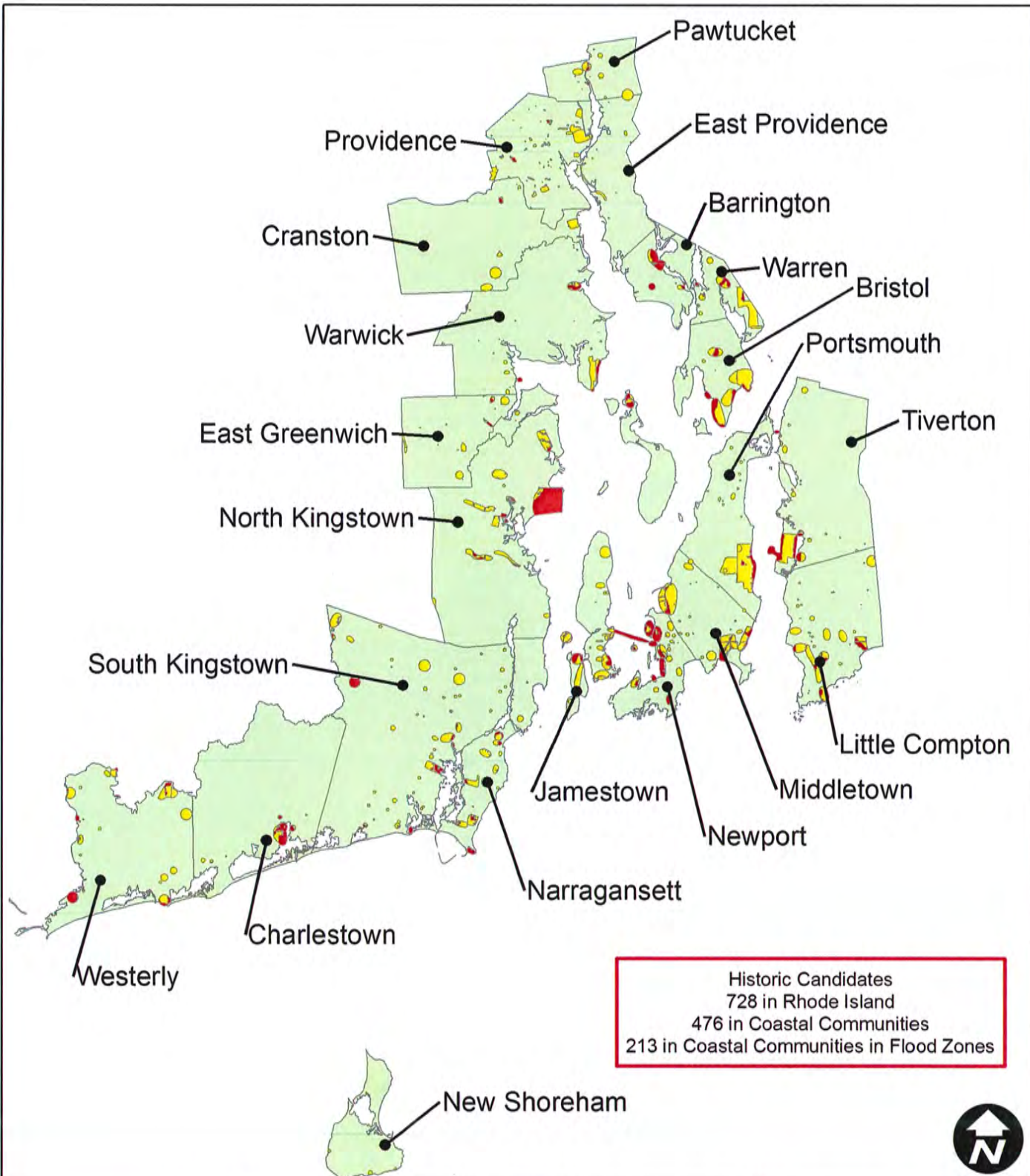
**Certified Local Government Grant 2014**

-  Historic Districts in Coastal Communities in Flood Zones
-  Historic Districts in Coastal Communities



City of Newport  
 Rhode Island

November  
 2014





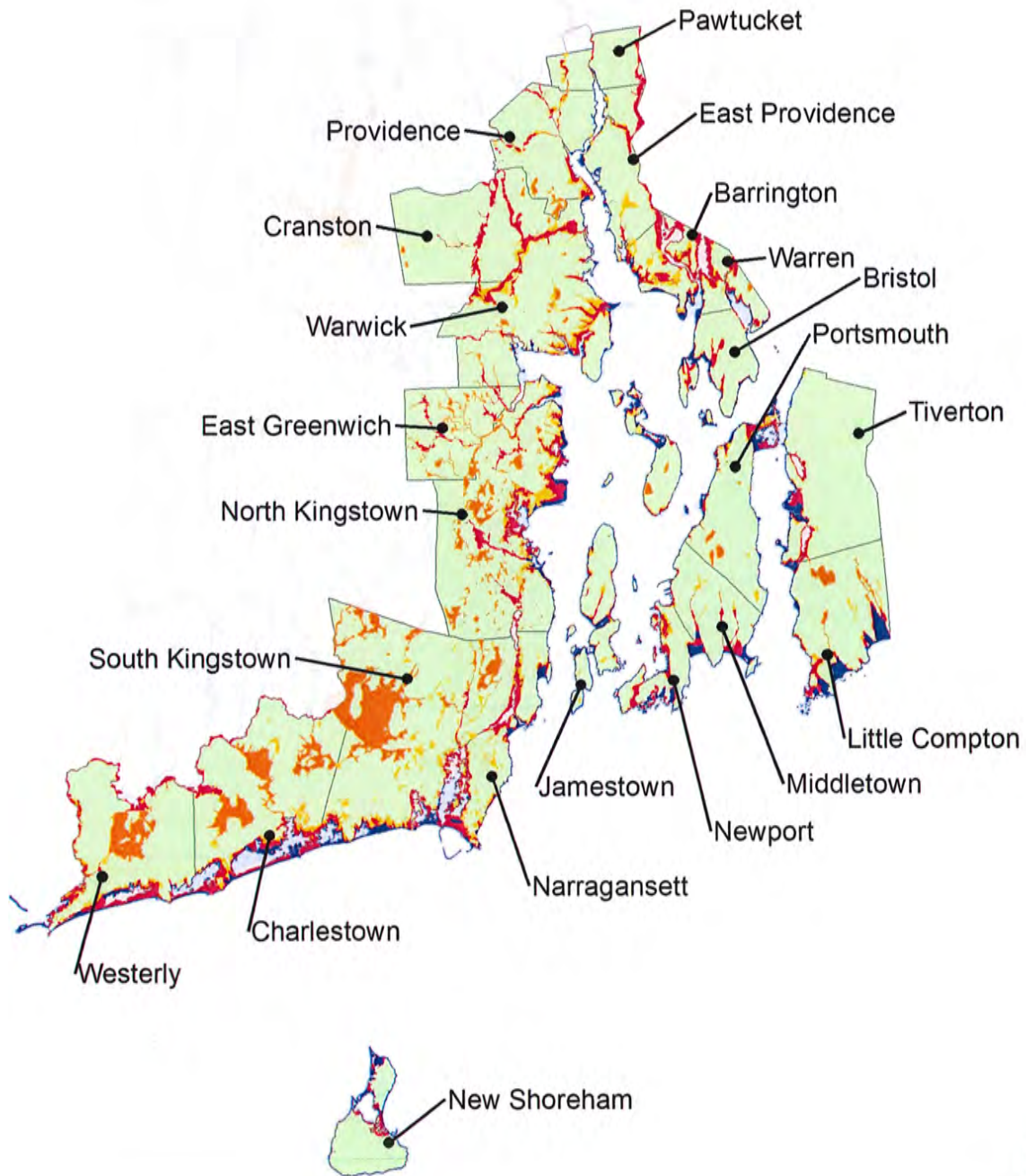
**Certified Local Government Grant 2014**

-  Historic Candidates in Coastal Communities in Flood Zones
-  Historic Candidates in Coastal Communities

City of Newport  
 Rhode Island

November  
 2014





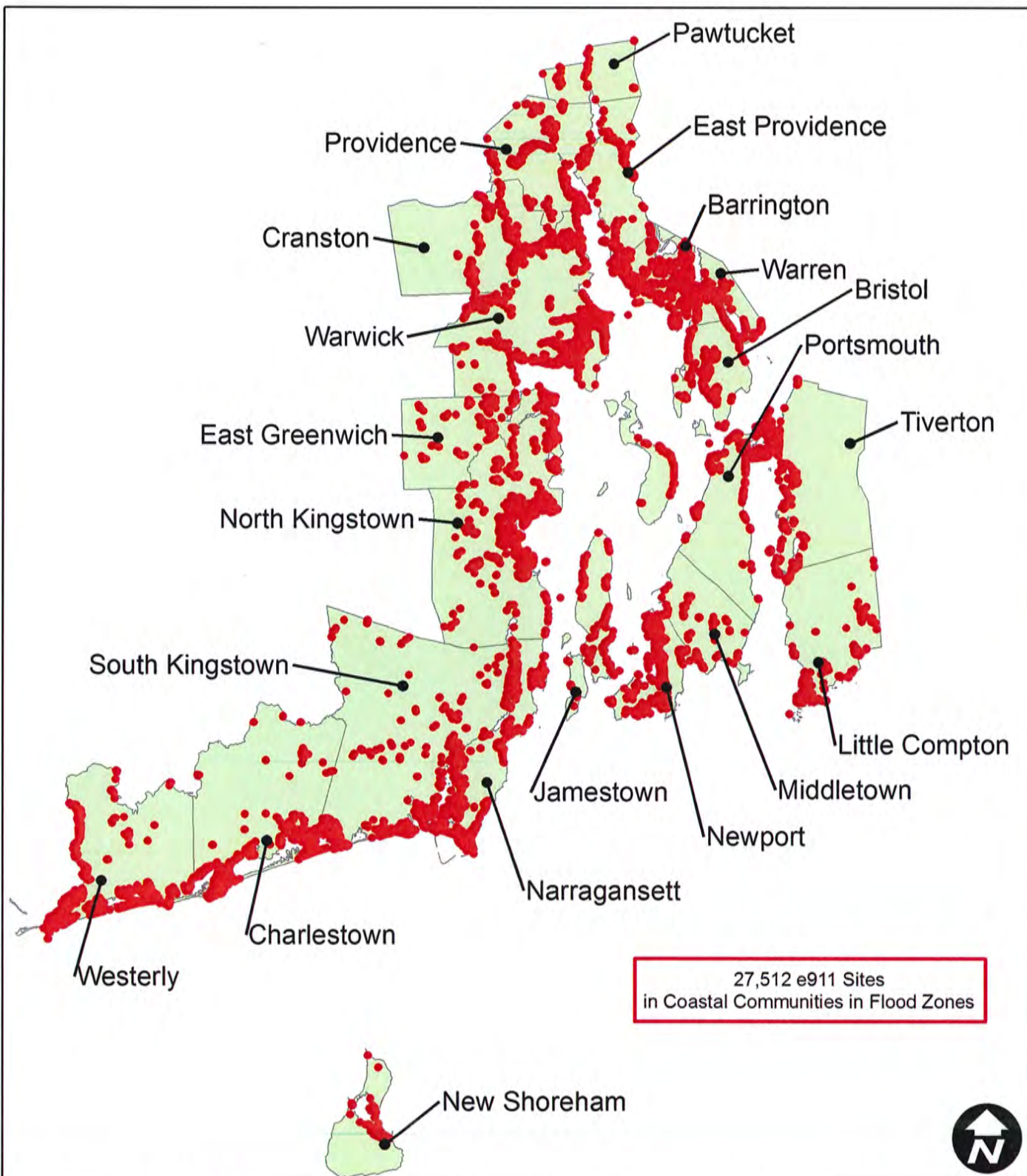
**Certified Local Government Grant 2014**

- Flood Zones**
- 0.2 % ANNUAL CHANCE
  - A
  - AE
  - AH
  - AO
  - VE

City of Newport  
Rhode Island



November  
2014



**Certified Local Government Grant 2014**

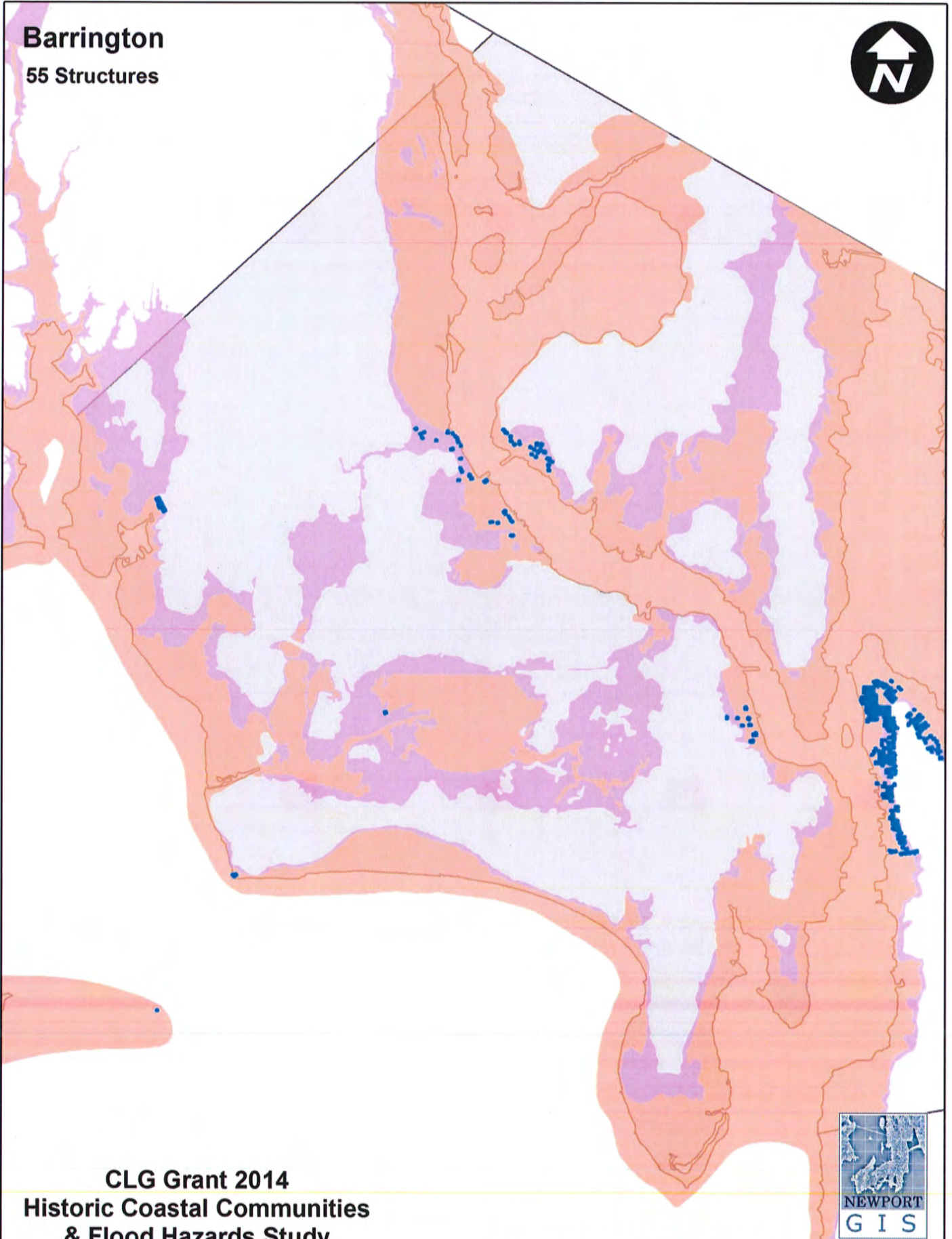
• e911 Sites in Coastal Communities in Flood Zones

City of Newport  
Rhode Island

November  
2014



**Barrington**  
55 Structures

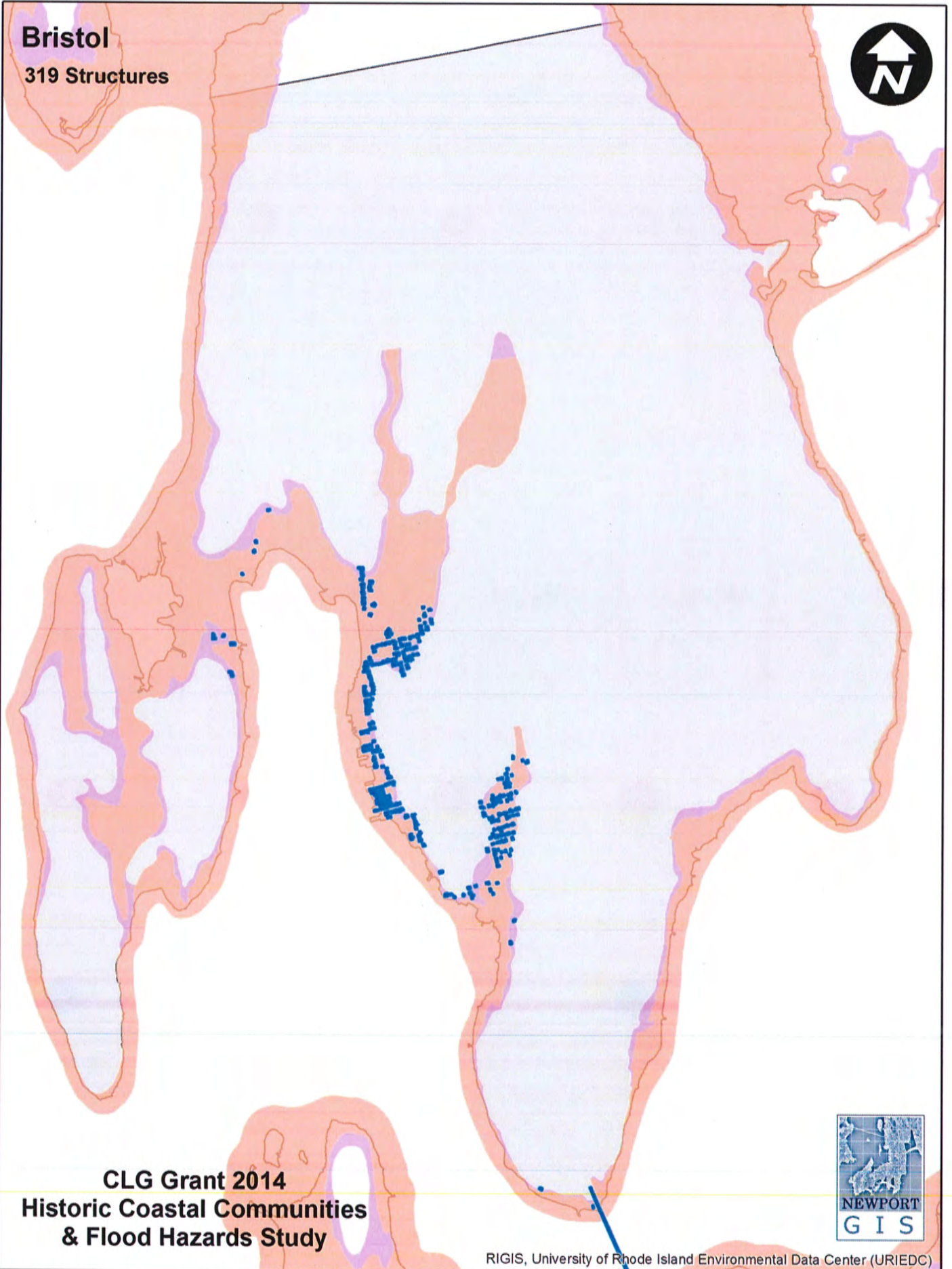


**CLG Grant 2014**  
**Historic Coastal Communities**  
**& Flood Hazards Study**



**Bristol**

**319 Structures**



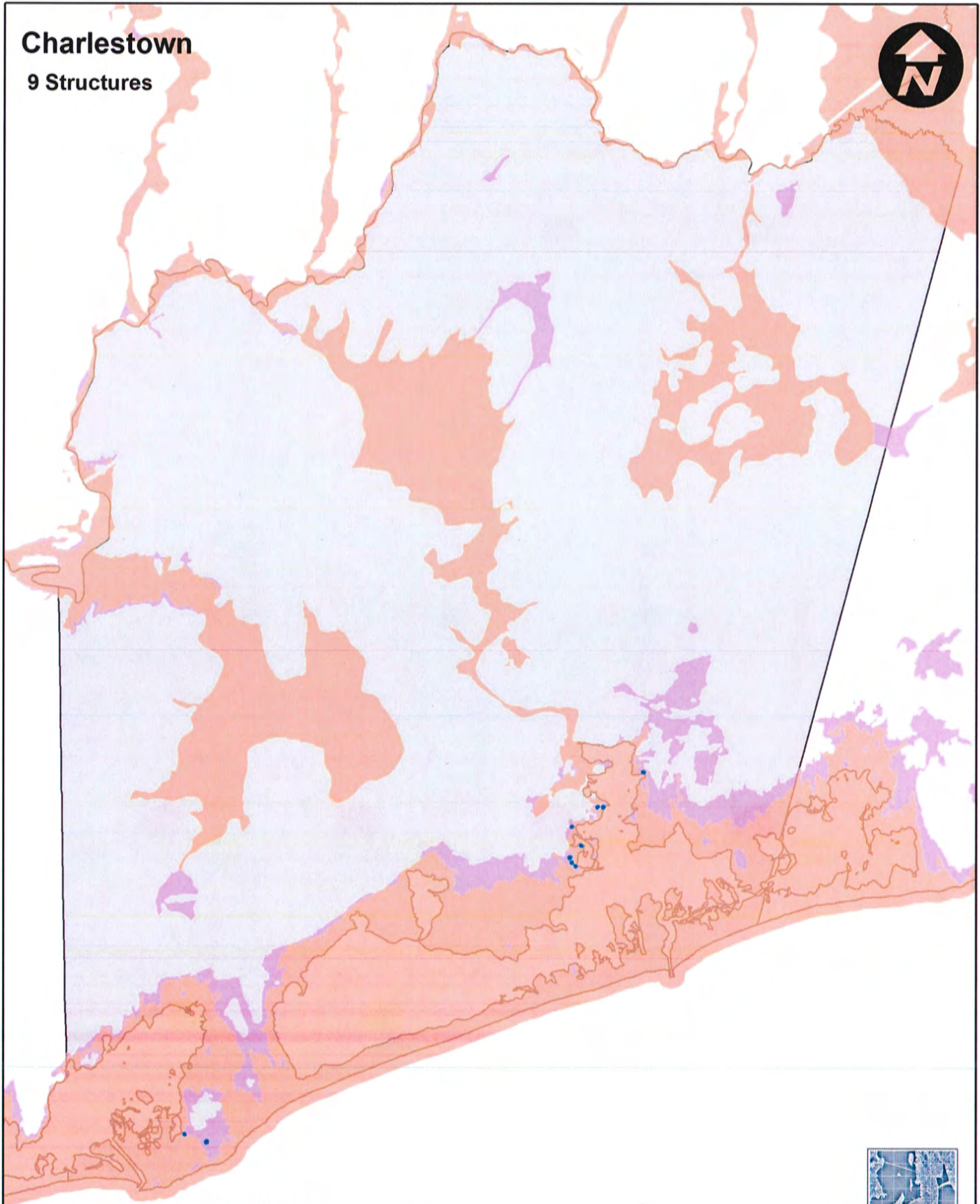
**CLG Grant 2014  
Historic Coastal Communities  
& Flood Hazards Study**





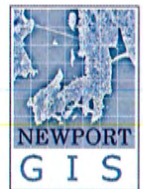
# Charlestown

9 Structures

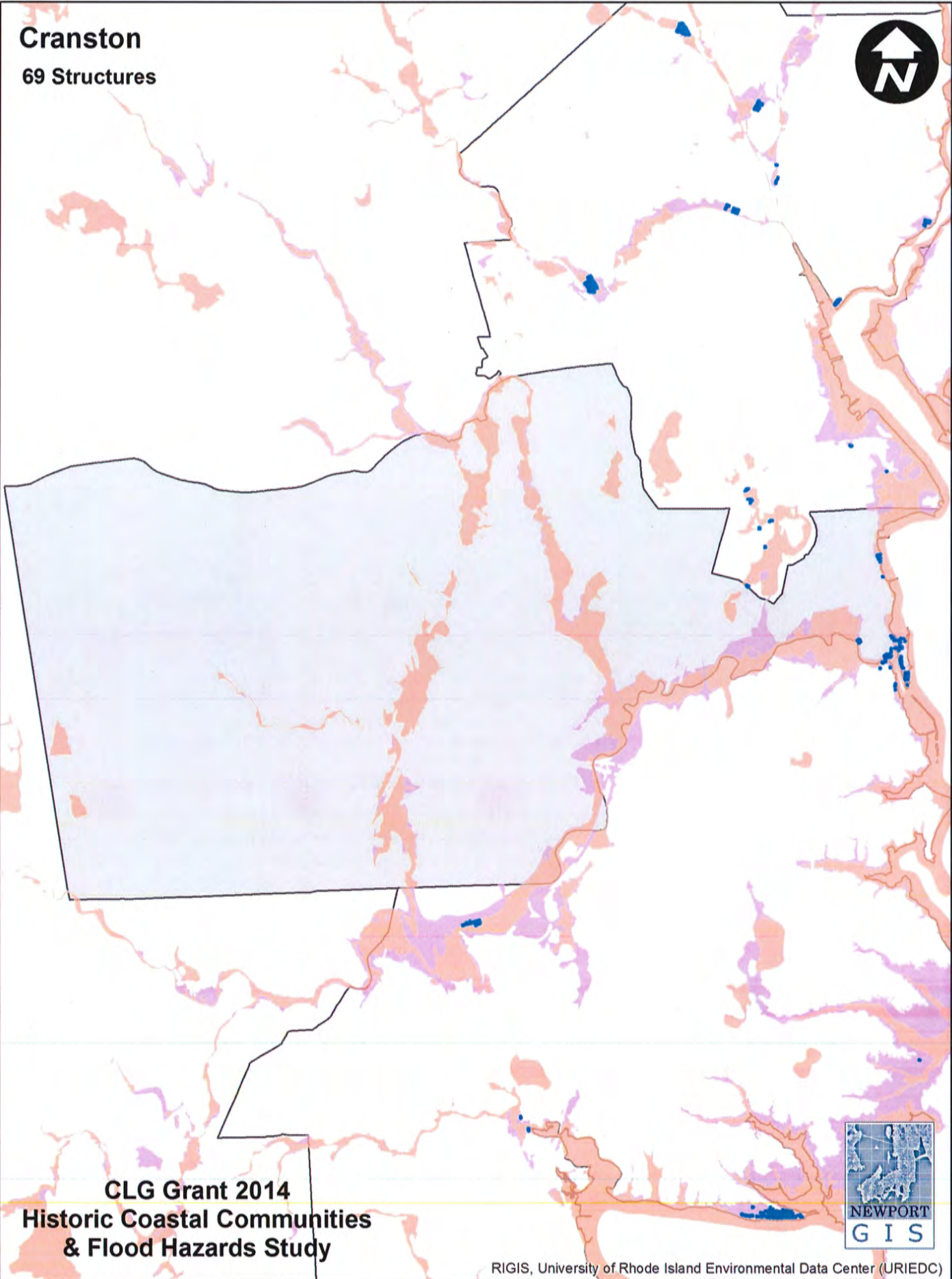


CLG Grant 2014

Historic Coastal Communities  
& Flood Hazards Study



**Cranston**  
69 Structures

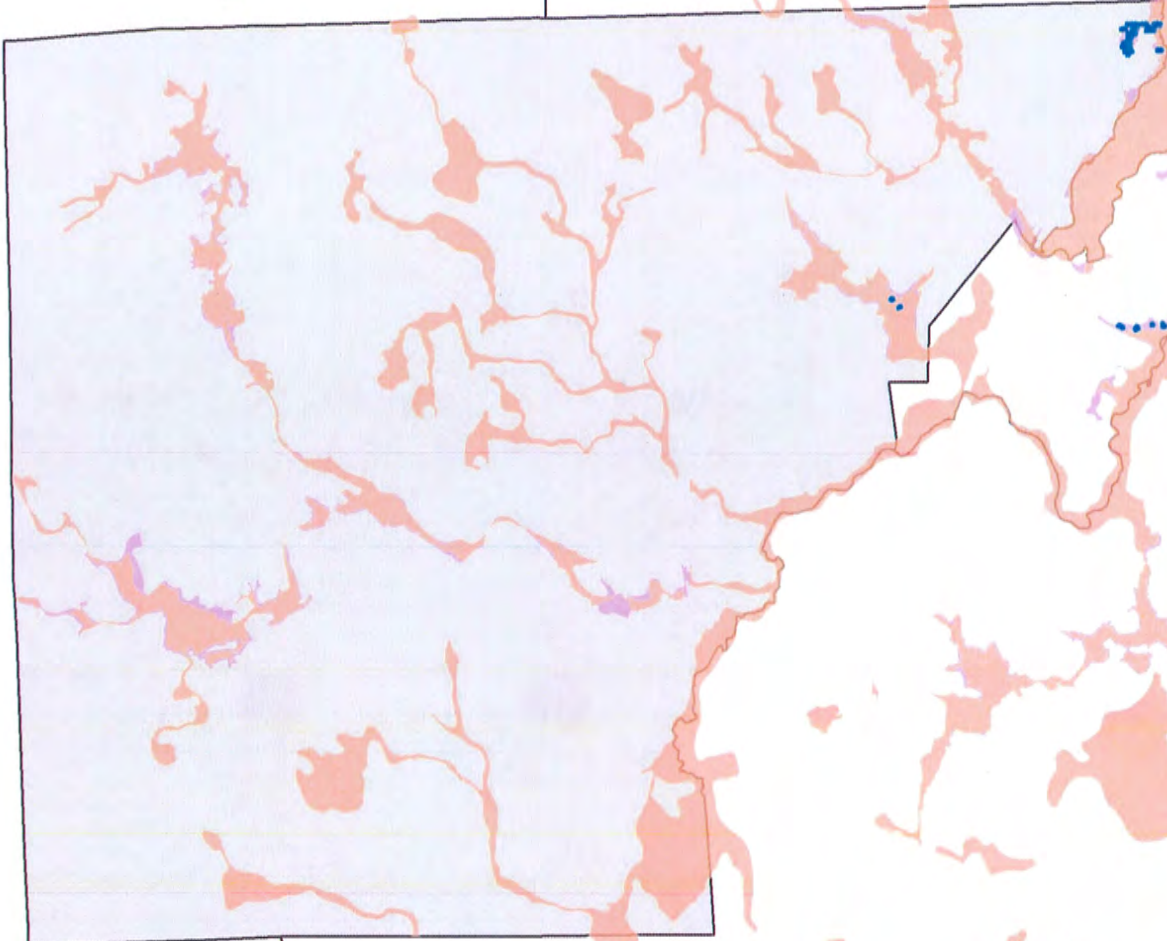


**CLG Grant 2014**  
**Historic Coastal Communities**  
**& Flood Hazards Study**

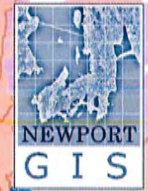


# East Greenwich

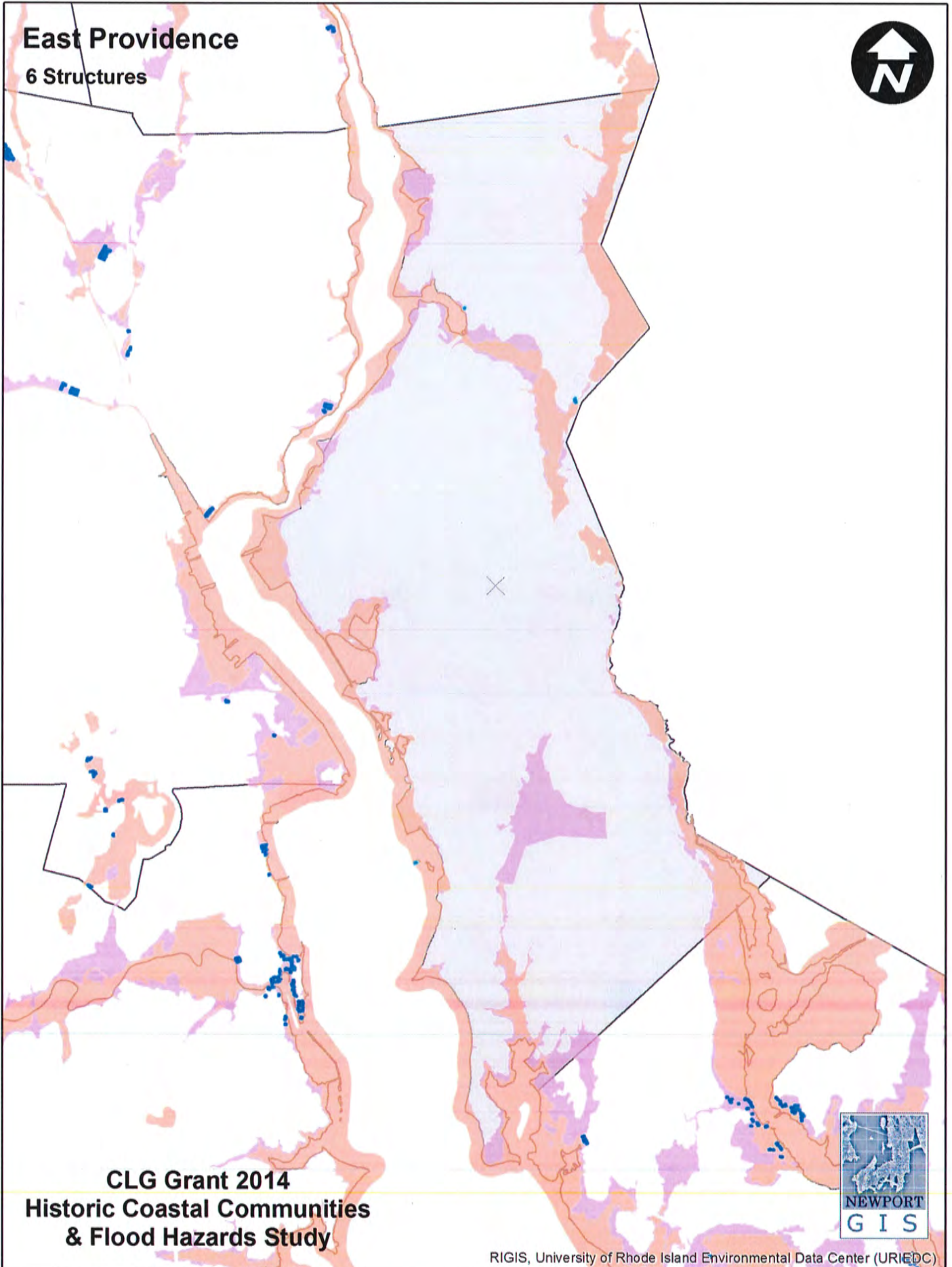
35 Structures



**CLG Grant 2014  
Historic Coastal Communities  
& Flood Hazards Study**



**East Providence**  
6 Structures

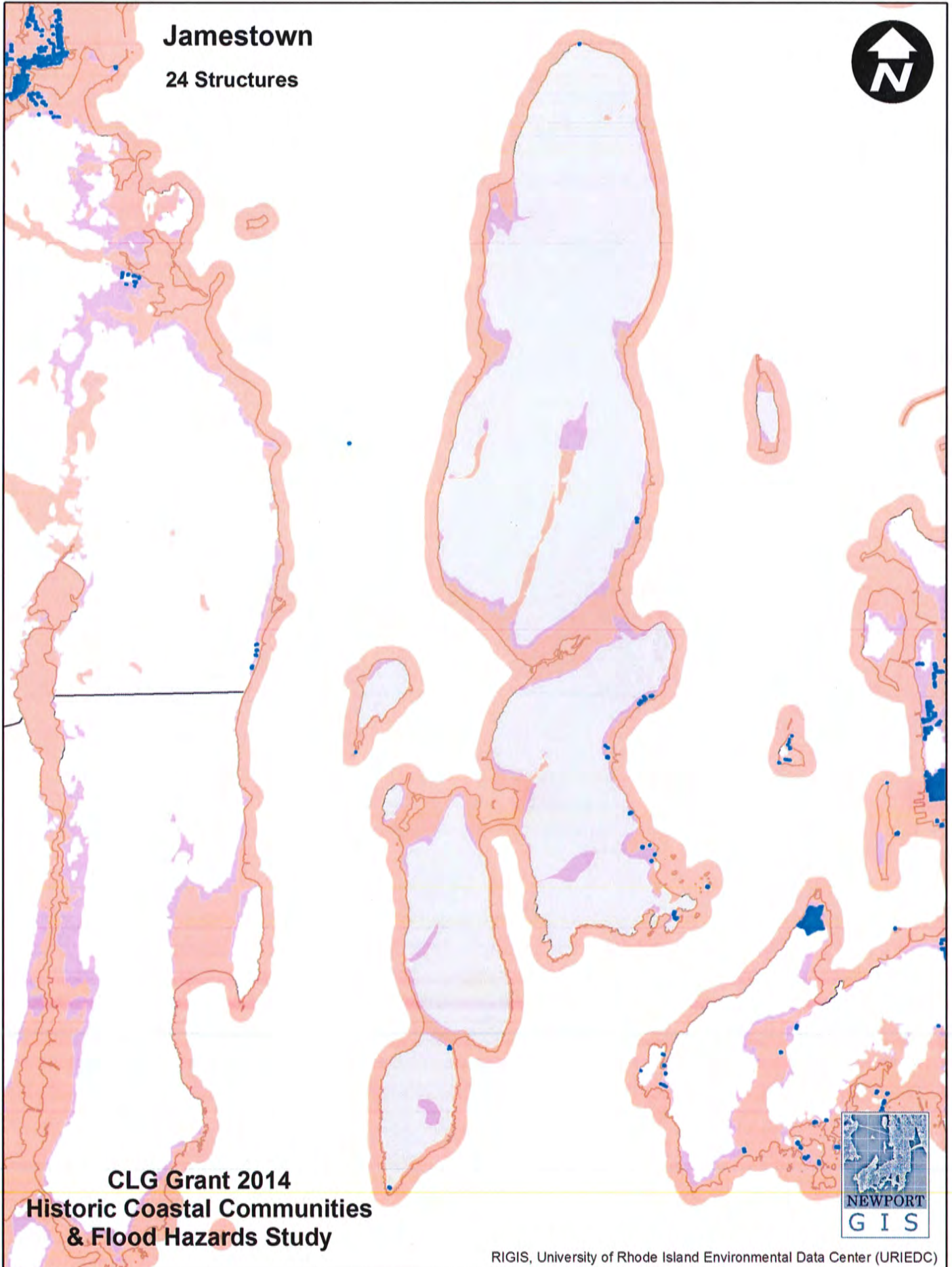


**CLG Grant 2014**  
**Historic Coastal Communities**  
**& Flood Hazards Study**



# Jamestown

24 Structures



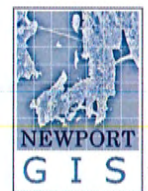
**CLG Grant 2014  
Historic Coastal Communities  
& Flood Hazards Study**



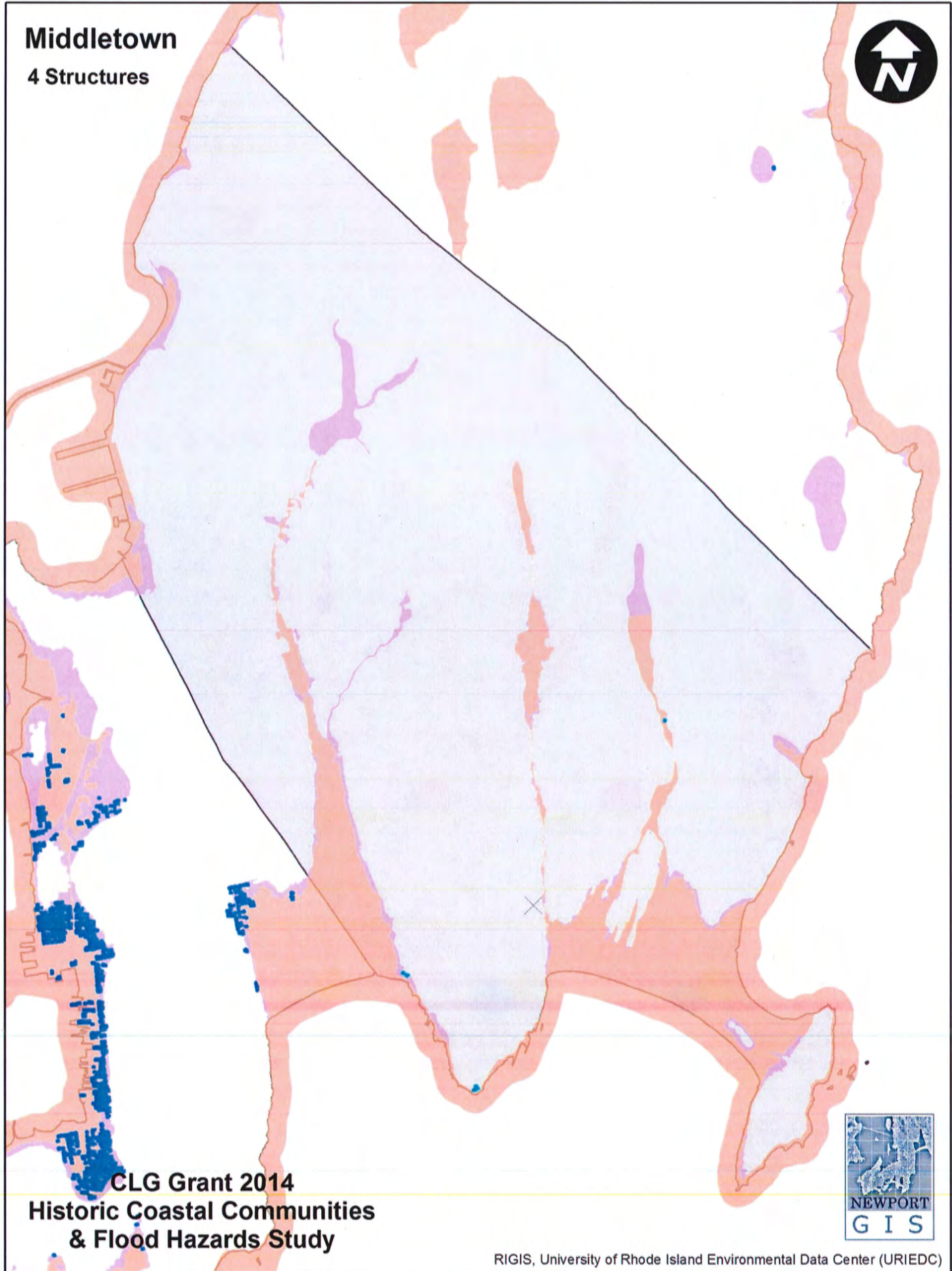
**Little Compton**  
12 Structures



**CLG Grant 2014**  
**Historic Coastal Communities**  
**& Flood Hazards Study**



**Middletown**  
**4 Structures**

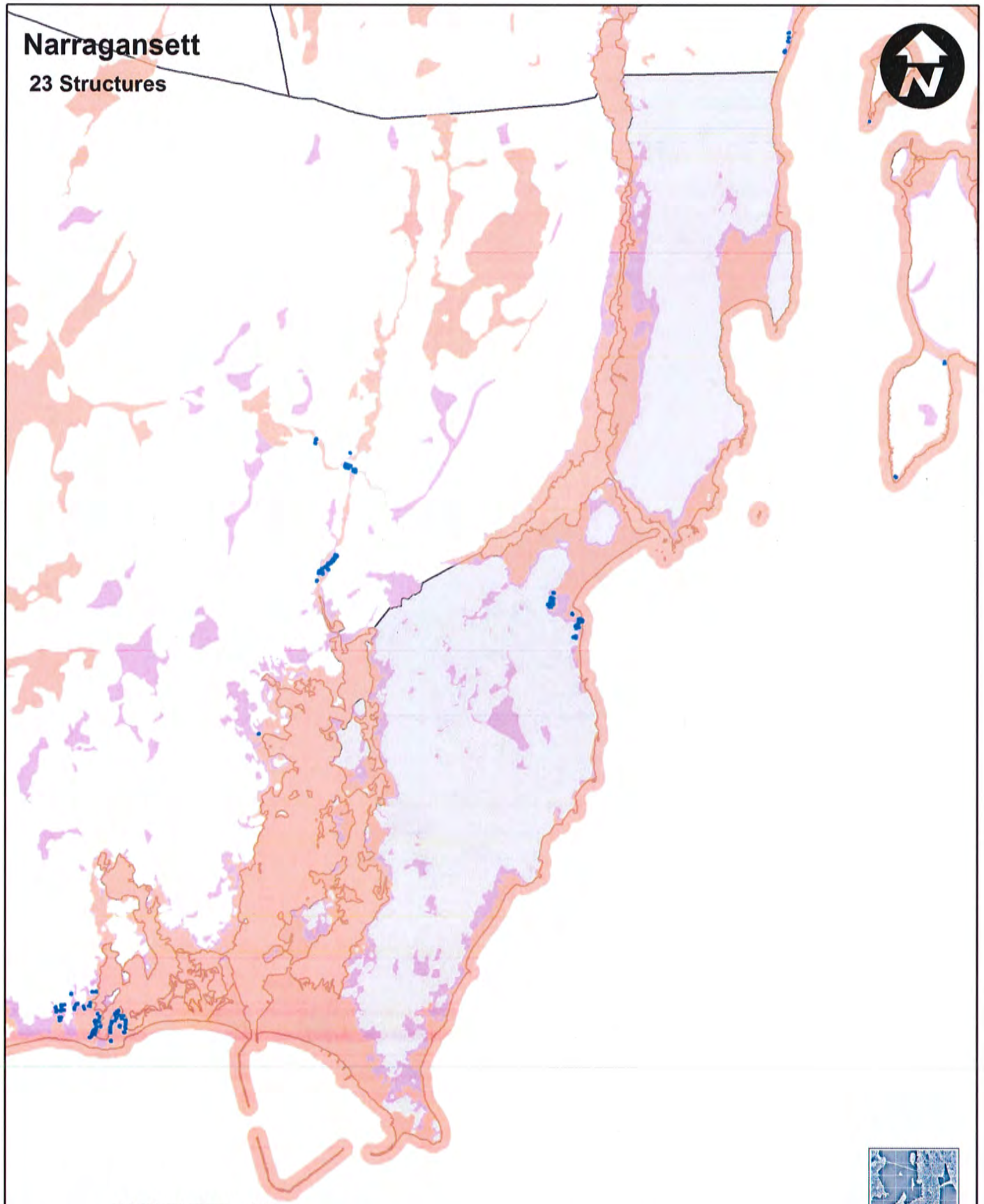


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**& Flood Hazards Study**

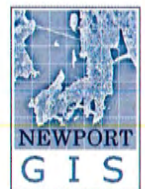


# Narragansett

23 Structures



**CLG Grant 2014**  
**Historic Coastal Communities**  
**& Flood Hazards Study**





# New Shoreham

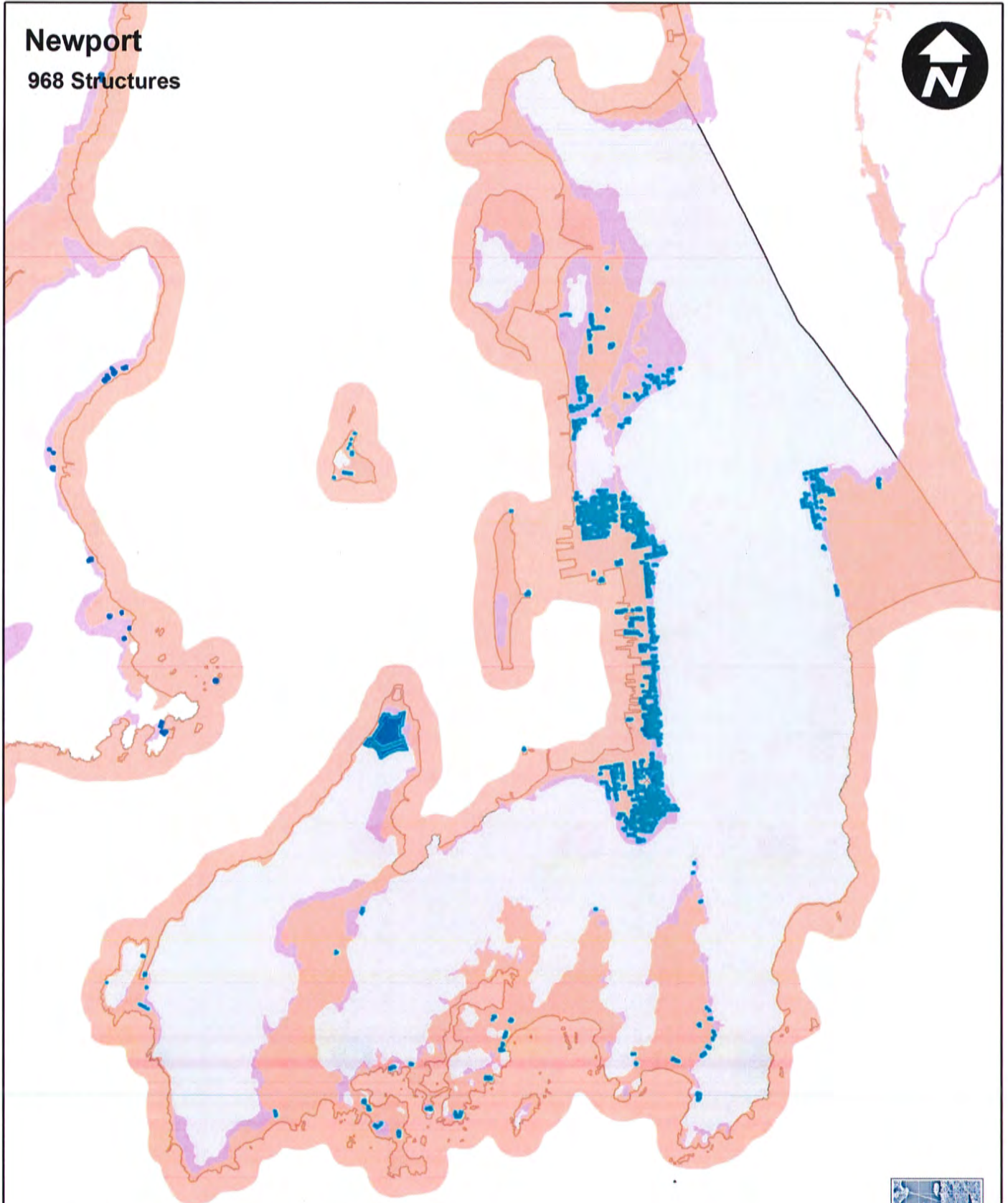
27 Structures



**CLG Grant 2014**  
**Historic Coastal Communities**  
**& Flood Hazards Study**



**Newport**  
968 Structures

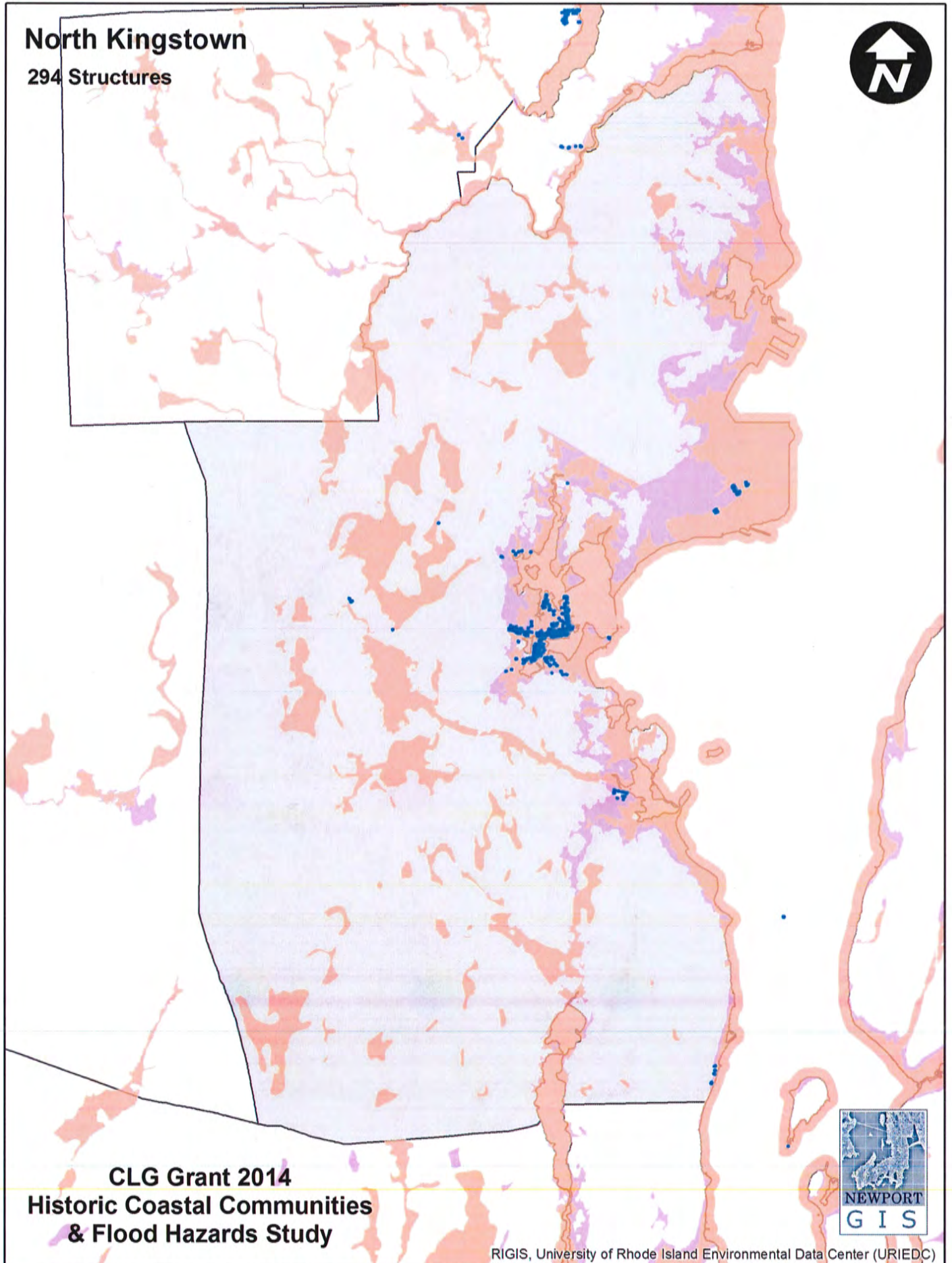


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**Historic Coastal Communities**  
**& Flood Hazards Study**

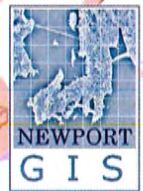


# North Kingstown

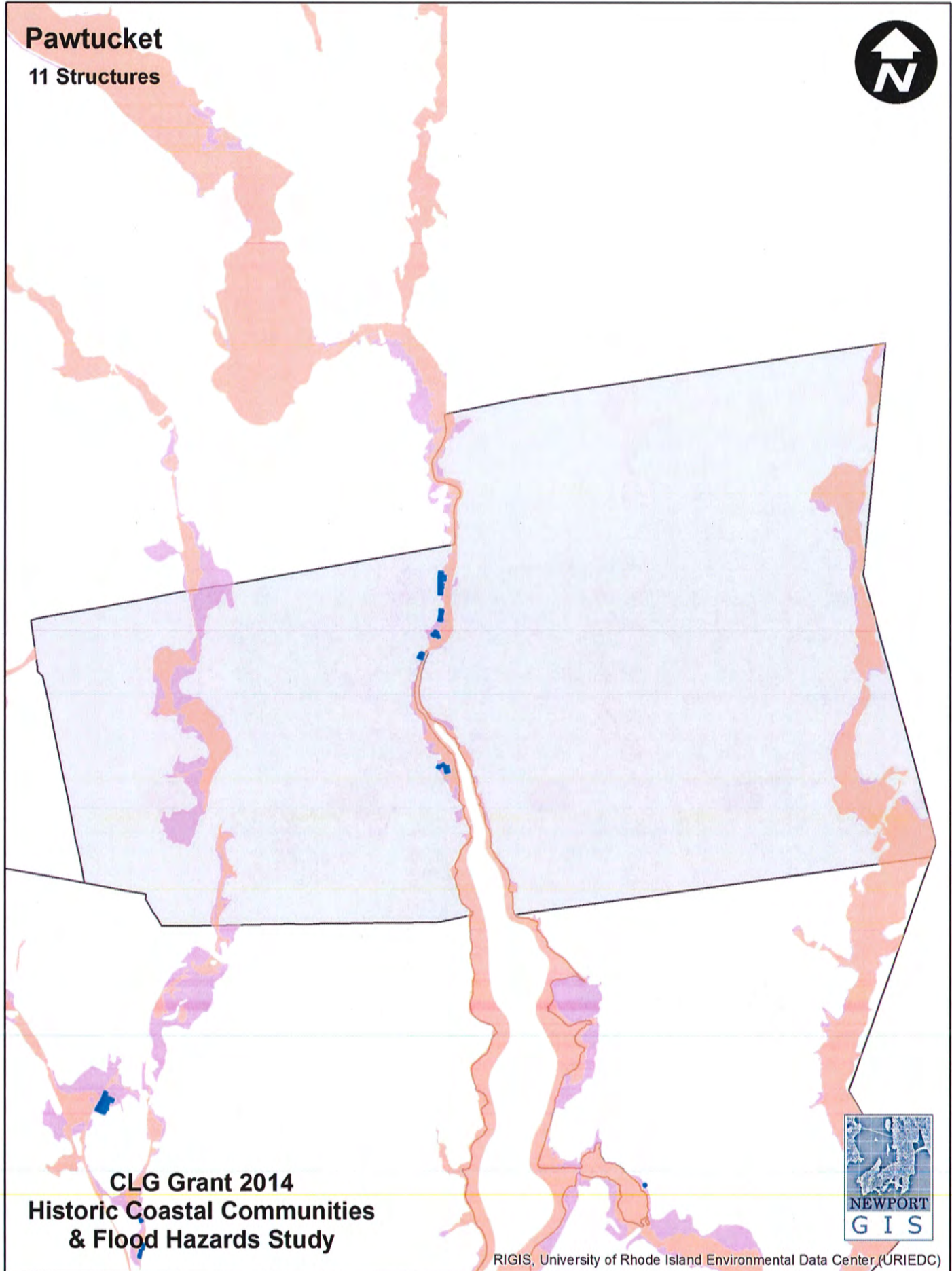
294 Structures



**CLG Grant 2014  
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& Flood Hazards Study**



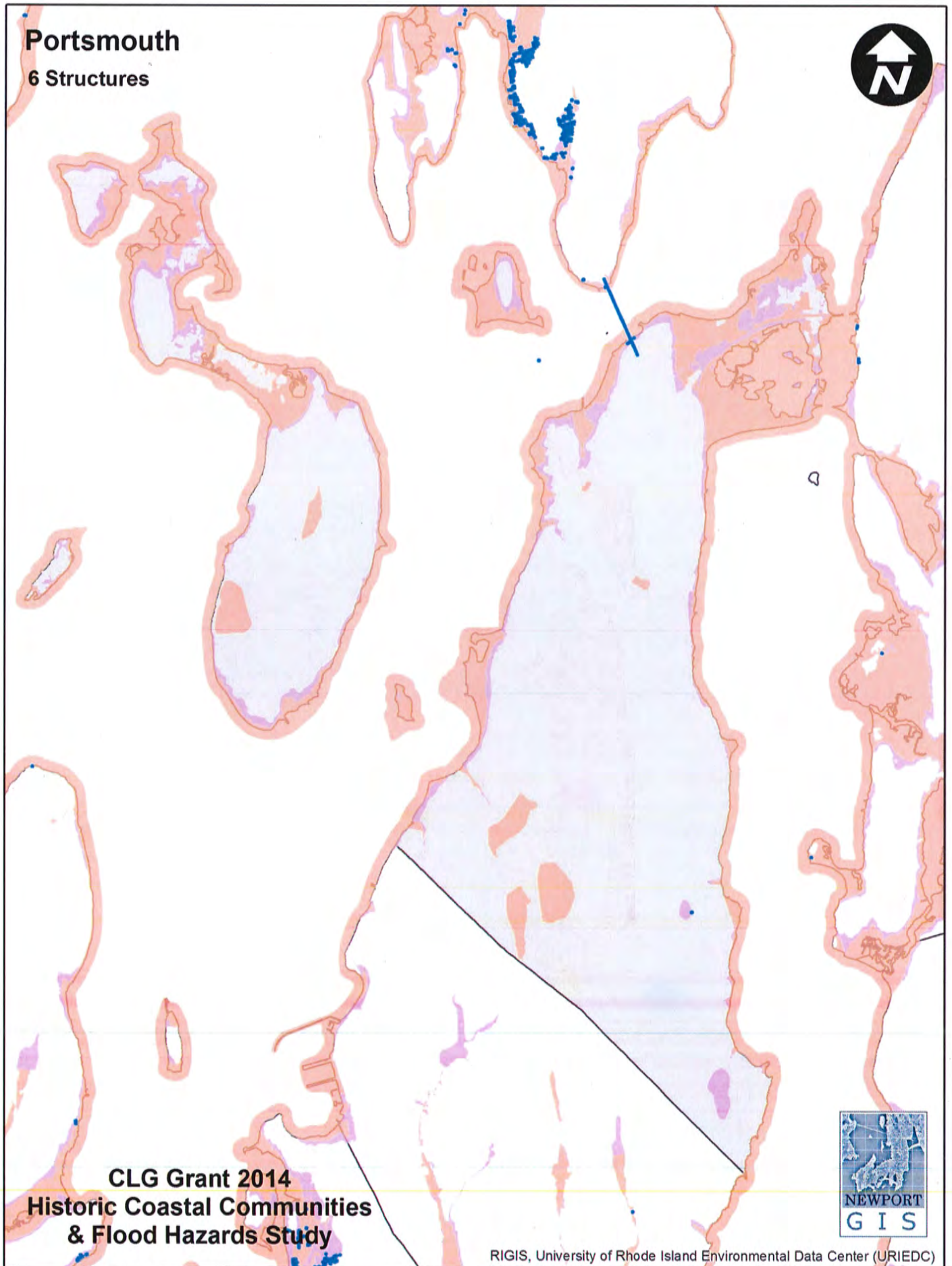
**Pawtucket**  
11 Structures



**CLG Grant 2014**  
**Historic Coastal Communities**  
**& Flood Hazards Study**



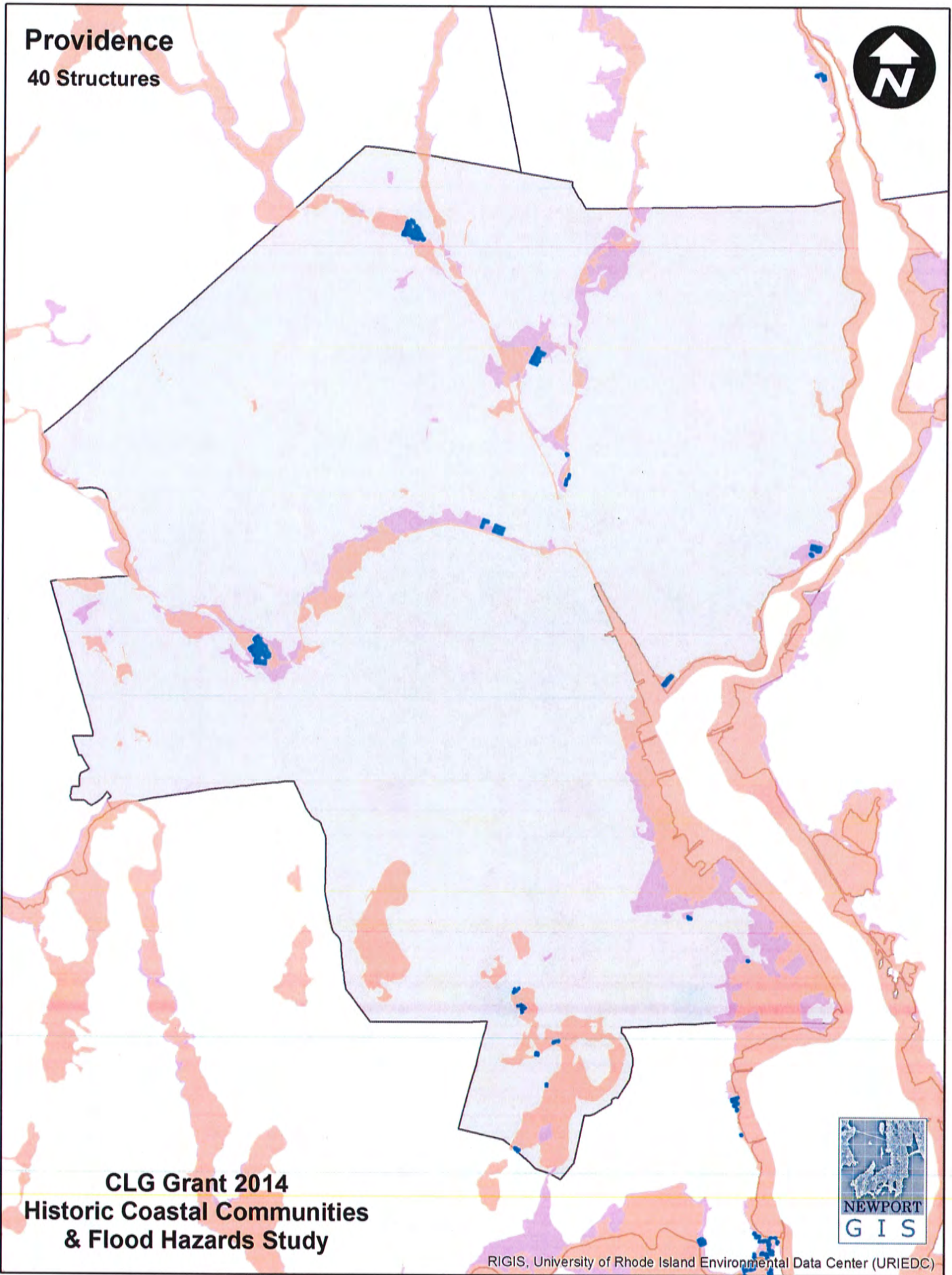
**Portsmouth**  
**6 Structures**



**CLG Grant 2014**  
**Historic Coastal Communities**  
**& Flood Hazards Study**



**Providence**  
40 Structures

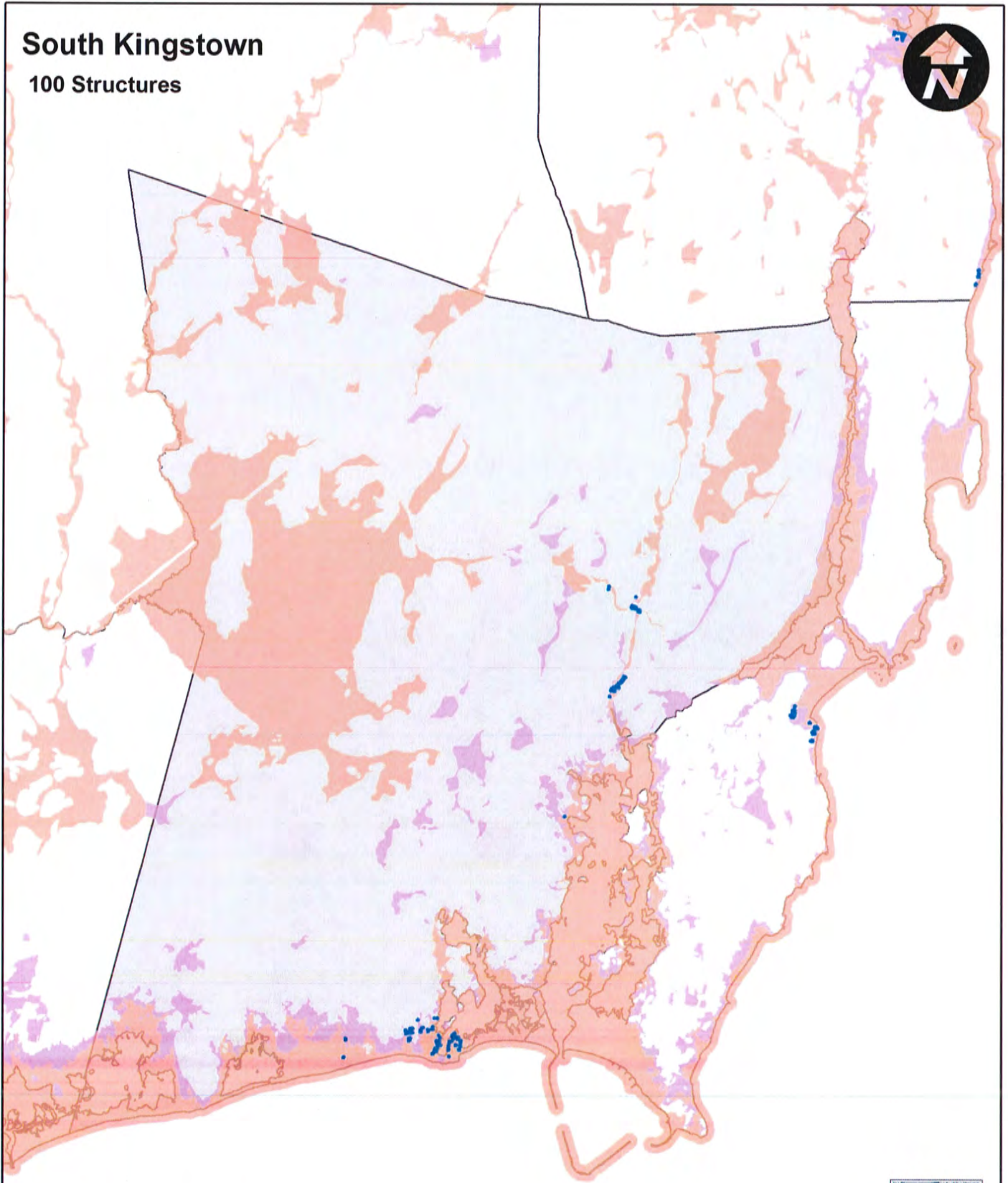


**CLG Grant 2014**  
**Historic Coastal Communities**  
**& Flood Hazards Study**



# South Kingstown

100 Structures



**CLG Grant 2014**  
**Historic Coastal Communities**  
**& Flood Hazards Study**



**Tiverton**  
**16 Structures**

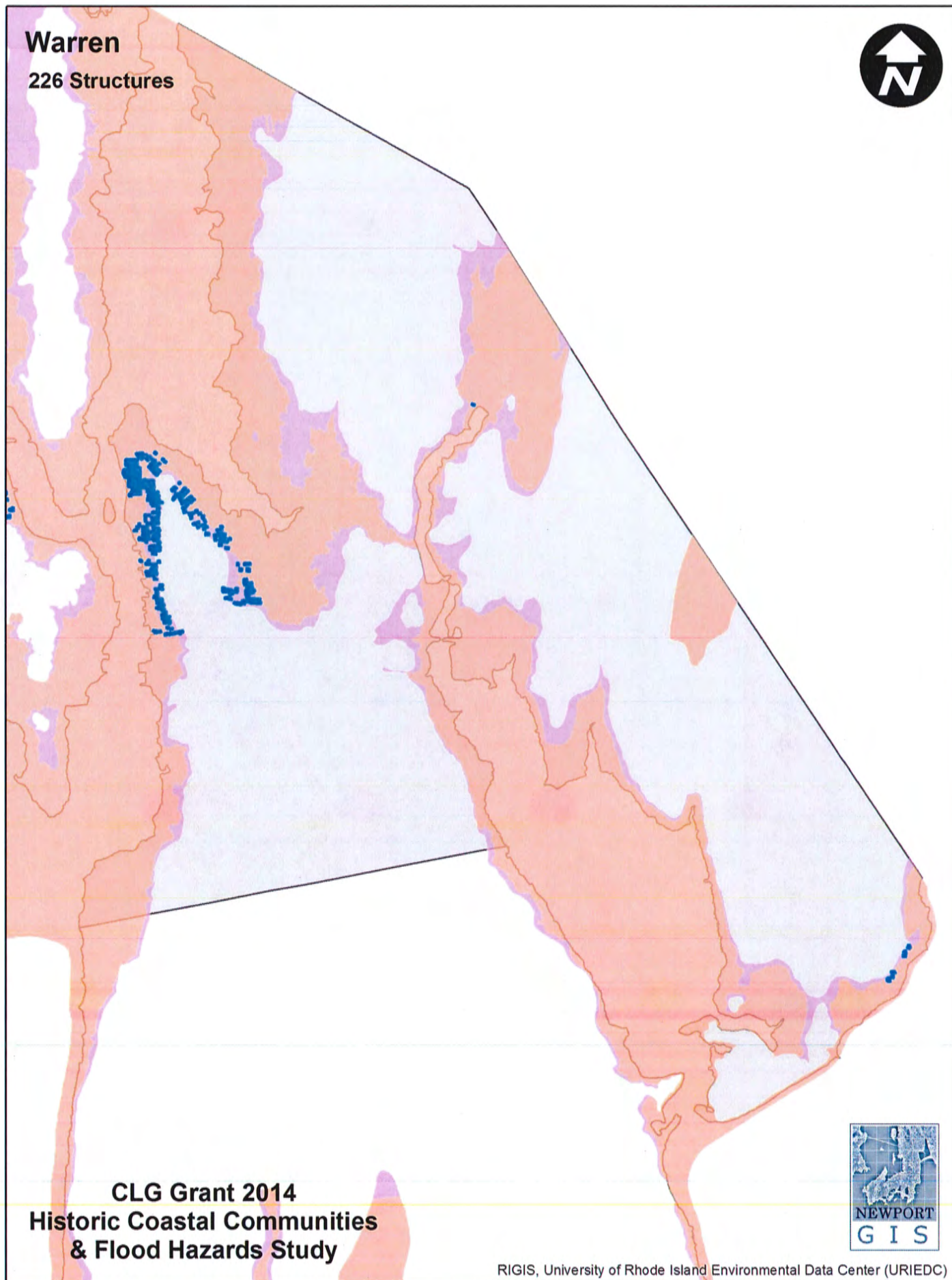


**CLG Grant 2014**  
**Historic Coastal Communities**  
**& Flood Hazards Study**





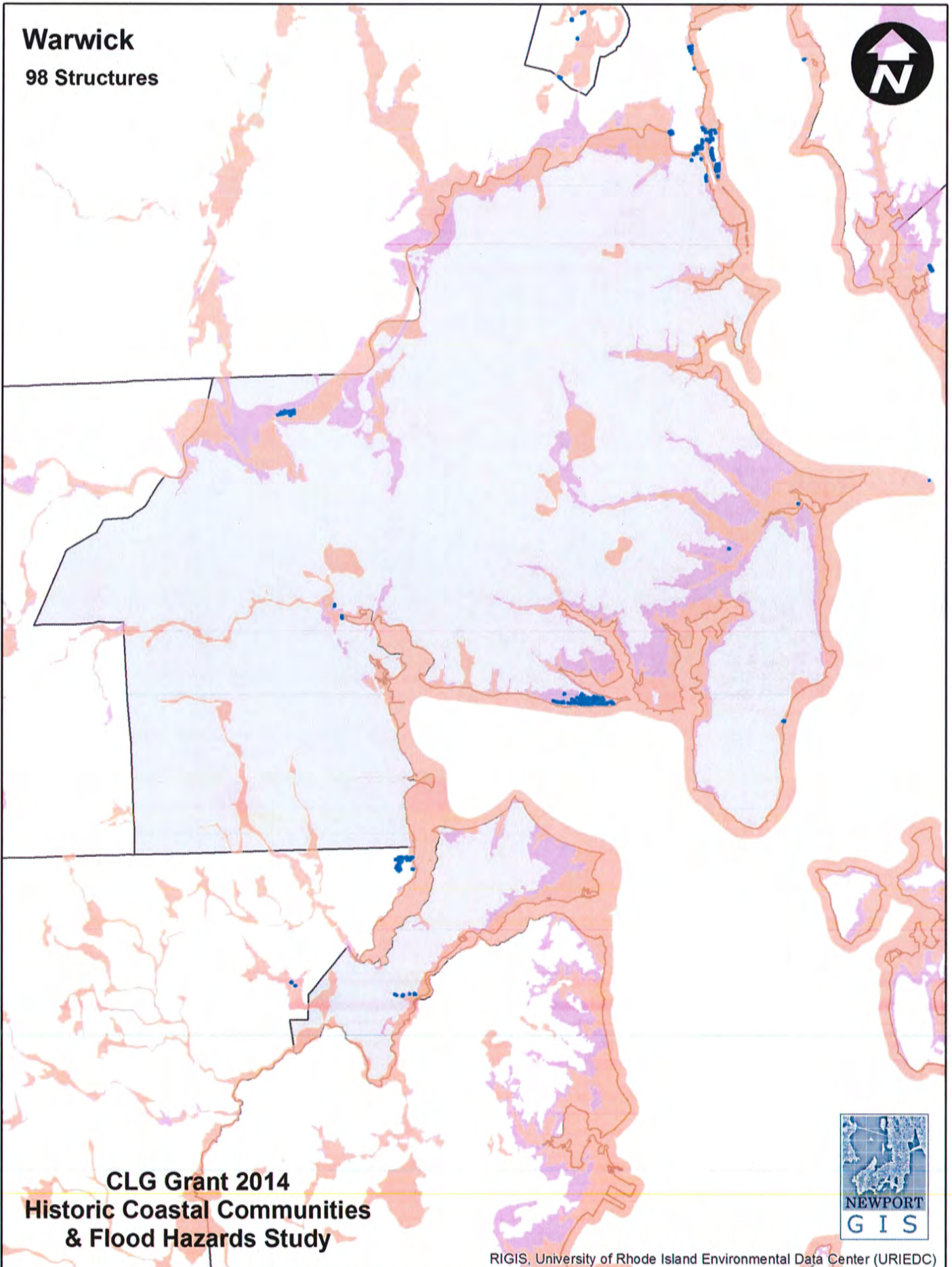
**Warren**  
226 Structures



**CLG Grant 2014**  
**Historic Coastal Communities**  
**& Flood Hazards Study**



**Warwick**  
98 Structures

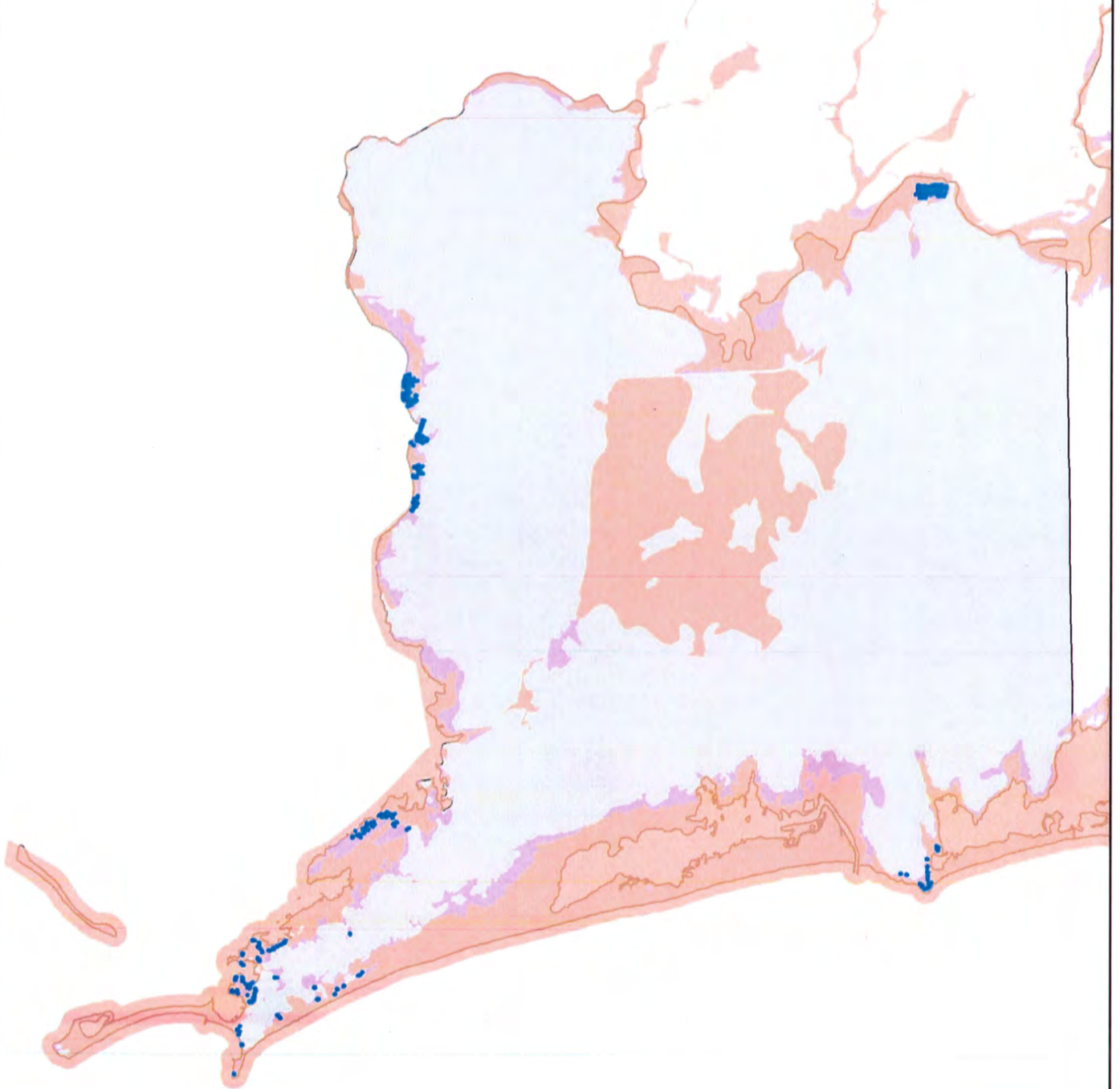


**CLG Grant 2014**  
**Historic Coastal Communities**  
**& Flood Hazards Study**



# Westerly

185 Structures

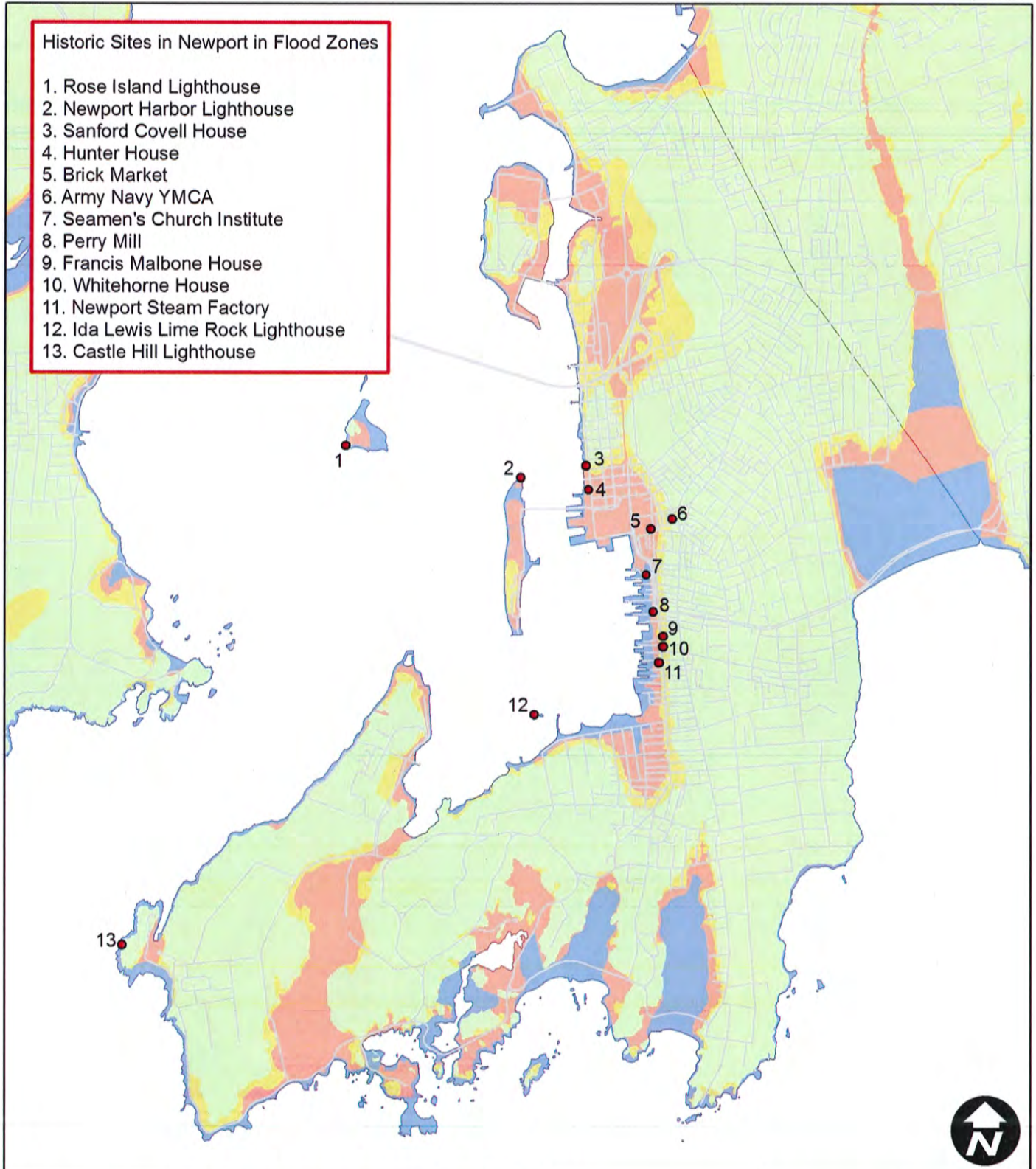


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**Historic Coastal Communities**  
**& Flood Hazards Study**



Historic Sites in Newport in Flood Zones

1. Rose Island Lighthouse
2. Newport Harbor Lighthouse
3. Sanford Covell House
4. Hunter House
5. Brick Market
6. Army Navy YMCA
7. Seamen's Church Institute
8. Perry Mill
9. Francis Malbone House
10. Whitehorse House
11. Newport Steam Factory
12. Ida Lewis Lime Rock Lighthouse
13. Castle Hill Lighthouse



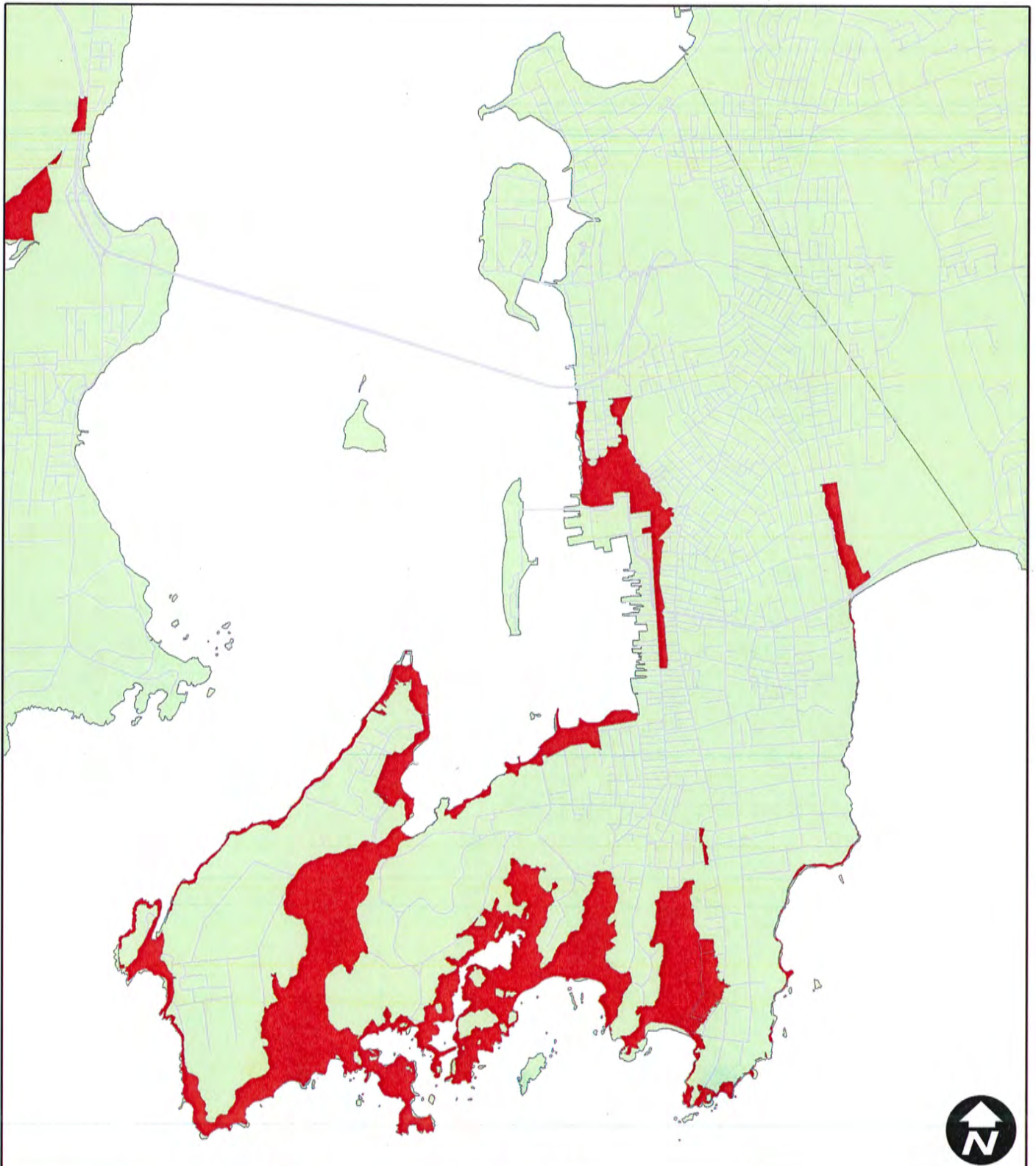
Certified Local Government Grant 2014

● Historic Sites in Coastal Communities in Flood Zones

City of Newport  
Rhode Island

November  
2014



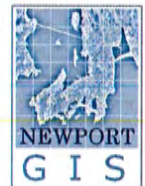


**Certified Local Government Grant 2014**

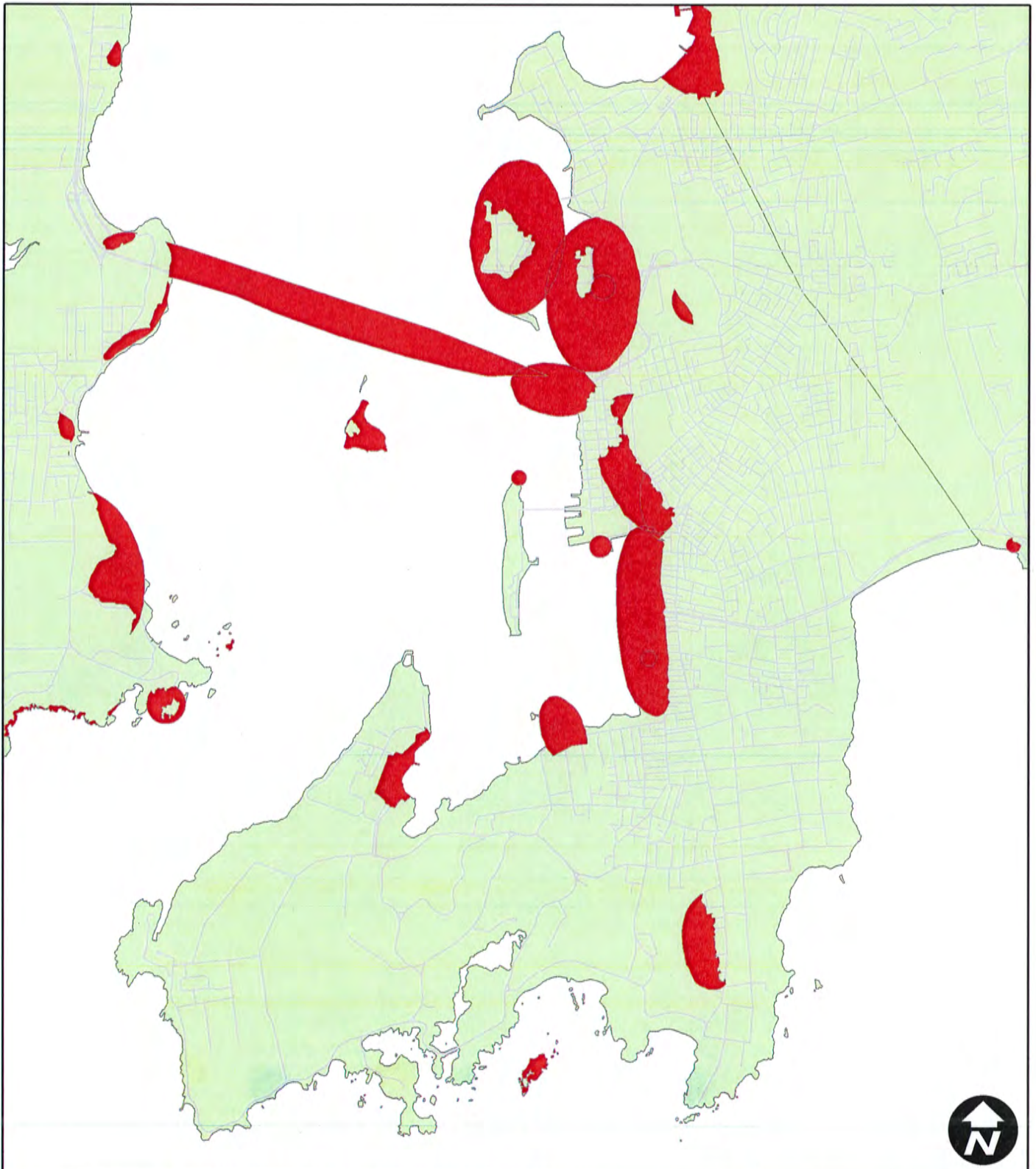


Historic Districts in Coastal Communities in Flood Zones

City of Newport  
Rhode Island



November  
2014



**Certified Local Government Grant 2014**

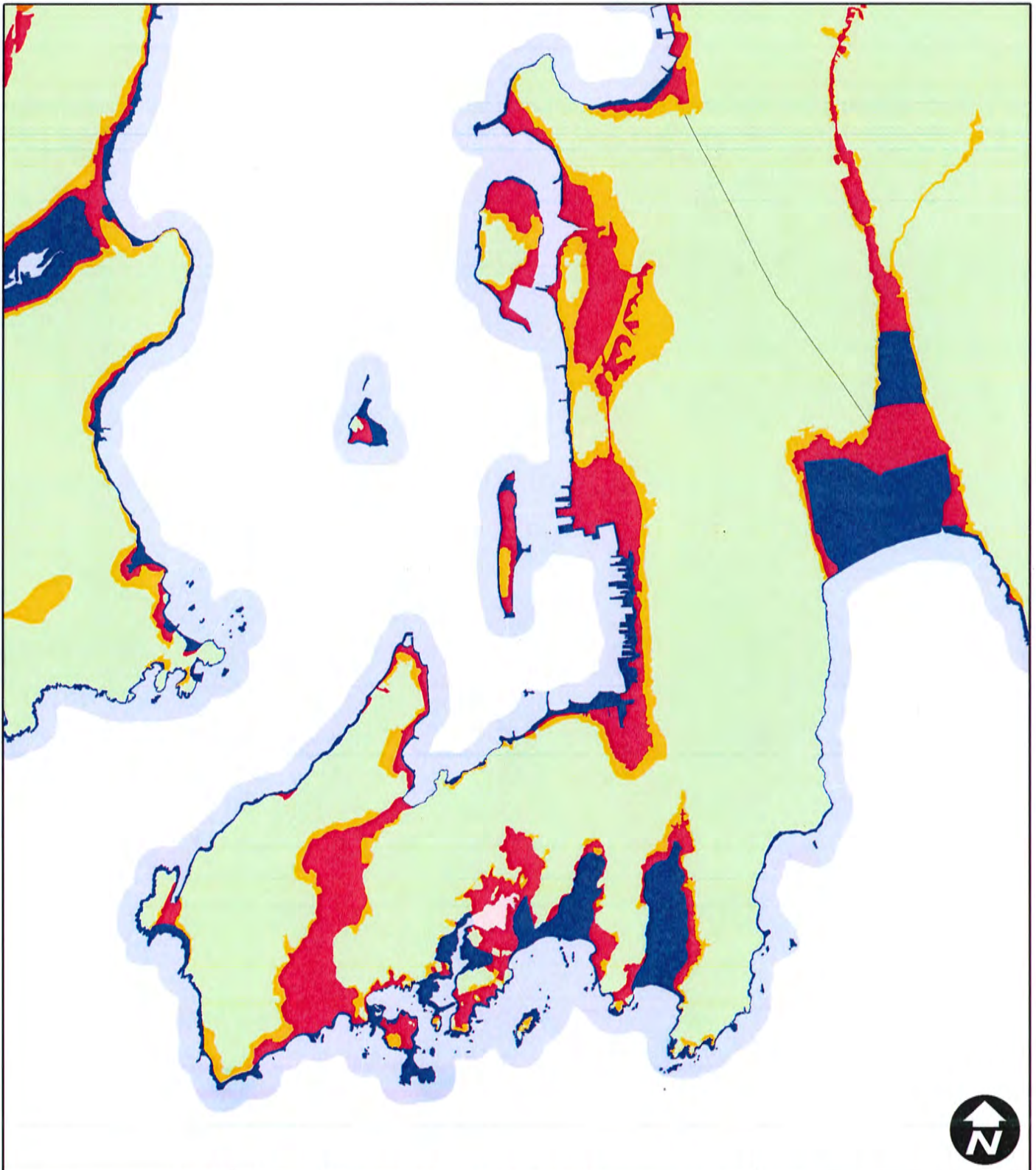


Historic Candidates in Coastal Communities in Flood Zones







City of Newport  
Rhode Island



November  
2014



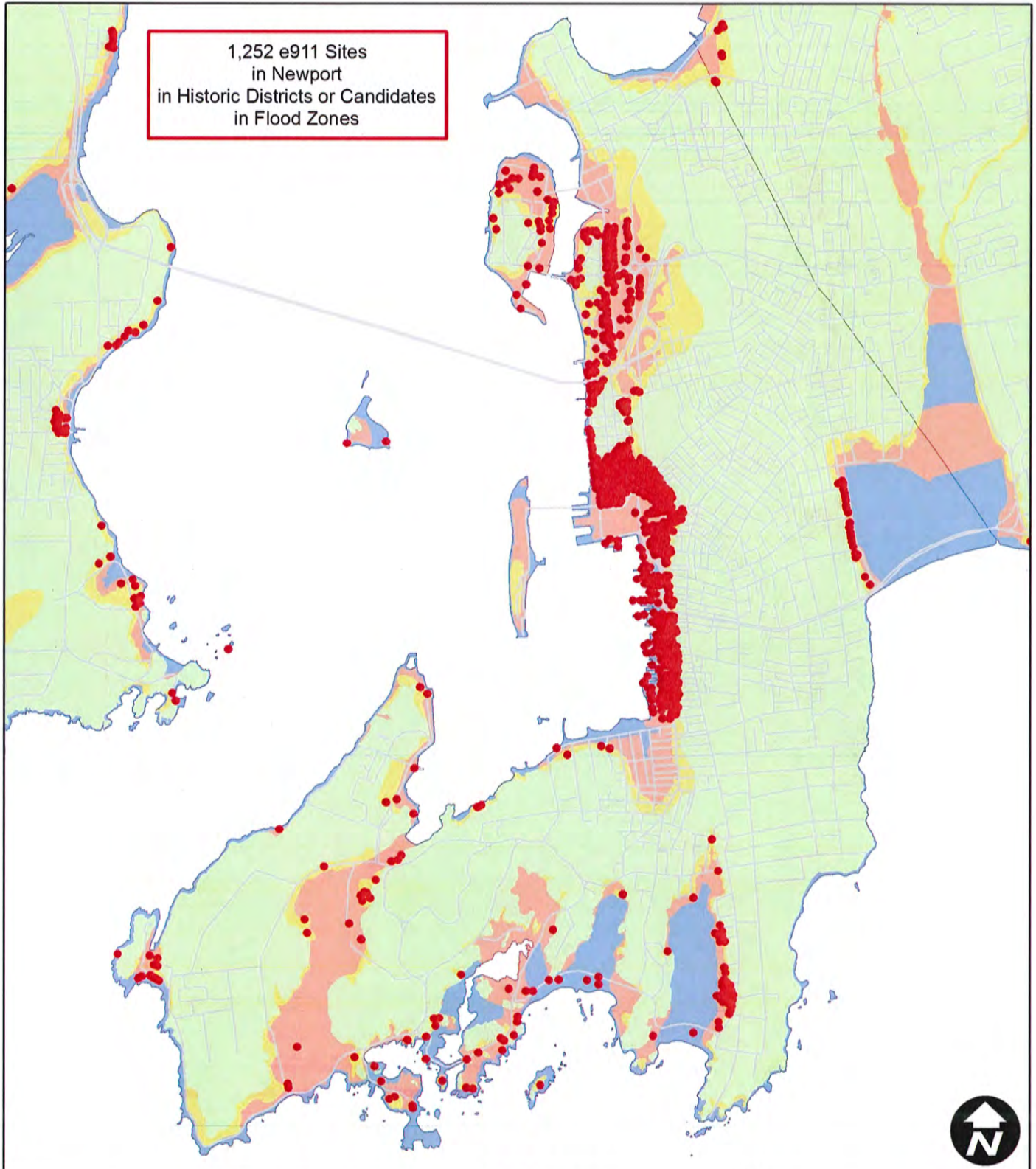
**Certified Local Government Grant 2014**

- Flood Zones**
-  0.2 % ANNUAL CHANCE
  -  A
  -  AE
  -  AH
  -  AO
  -  VE

City of Newport  
Rhode Island

November  
2014





1,252 e911 Sites  
in Newport  
in Historic Districts or Candidates  
in Flood Zones



**Certified Local Government Grant 2014**

• e911 Sites in Coastal Communities in Historic Areas in Flood Zones

City of Newport  
Rhode Island



November  
2014



2. Interview Notes: Town Officials, RIEMA Staff, Insurance Professionals, Architects (2015)

## Historic Coastal Communities and Flood Hazard: An Evolution of Impacts to Historic Properties

### INTERVIEW NOTES: TOWN OFFICIALS, RIEMA STAFF, INSURANCE PROFESSIONAL, ARCHITECTS

The following notes represent key interviews with local town and state officials working with the flood regulations, as well as insurance representatives and design professionals. Questions posed to Building Officials/Zoning Officers were:

- 1) How do you work with 50% rule for non-historic properties?
- 2) How do you work with the non-residential properties – dry flood proofing?
- 3) What is the procedure for the historic properties – do they need to go through a building board of appeals application process for a variance/waiver?
- 4) What do you see as the long term impact with historic and non-historic buildings within a commercial area listed in the National Register?
- 5) Do you routinely involve the historic district commission or the RIHPHC in certifying that the historic building will not lose its historical integrity – the qualifying action?
- 6) How do you see the insurance question? – is the prospect of increased insurance premiums having an impact upon the historic buildings? – will the owners be able to get some stabilization in rate increase if the rehab their buildings for flood resiliency (without jeopardizing historical/architectural integrity)? or
- 7) Will this matter –will the historic buildings be jeopardized?

*Interview with Jay Parker, Zoning Officer, Town of Westerly (June 24, 2015)*

- 1) 50% rule –Jay works with a 12 month rule –if the project does not get a certificate of occupancy for use of the property – then when the building permitted is requested Jay will total the cost/value with the last. However, if the owner has moved back in and the house or property is occupied and serviceable, then perhaps the project is legit – however, there seems to be some discretion on the part of the Building official and/or the Zoning officer.
- 2) Non-residential, non-historical over 50% in the A zones or V zones is problematic due to the dry flood-proofing option – dry flood-proofing is very expensive and hard to accomplish, otherwise the ground level may have to be left open or screened with lattice, etc. Dry flood-proofing is more appropriate for an industrial neighborhood/district and operation.
- 3) Jay recommends a process to include the SHPO's office (Westerly does not have a CLG HDC) for review and approval of projects before any Building Board of Appeals meeting. Historic buildings/structures are exempt, but at the discretion of a variance from the Building Board of Appeals – the Board looks to see how much flood resiliency is being built into the project to make a case by case determination on variances. Jay says that he needs a sign-off on the

## Historic Coastal Communities and Flood Hazard: An Evolution of Impacts to Historic Properties

drawings before the variance presentation so that he knows that the work will meet the requirement that the building will not lose its integrity. A letter from the SHPO that is not specific will not work. (Who else would have authority on integrity issues?)

*Interview with Helen Johnson City of Newport Historic Preservation Planner and William Hanley, Building Official (June 26, 2015)*

- 1) William Hanley uses a 12 month cumulative period for the 50% rule.
- 2) Newport has been criticized by RIEMA and FEMA for granting too many waivers/variances over the years – perhaps as many as 2 variances a year and some for non-historic new construction on Thames Street. Because the City Council wants CRS status and a substantial rate decrease, they have chosen to use the State Appeals board as the local appeals board for variances in the future – in the hope that they may be able to reign in variances in accord with RIEMA and FEMA concerns. Newport is not qualifying for the CRS preferred status due to the number of variances granted. Why have they been granting variances? The building official and the Building Board of Appeals have been sensitive to the requirements that new construction (or over 50% rehab, or change of use) not have commercial within the ground floor below the BFE, unless costly dry flood-proofing is part of the project. Obviously this creates problems for a historic commercial main street such as Lower Thames. Hence the board has been granting variances to allow for ground floor commercial uses on Lower Thames – particularly the west side ground floor units, without costly or inappropriate architectural modifications or dry flood-proofing. Recent examples include the IRYS buildings, the former Salas Restaurant building (345 Thames Street), and others (the Armory), where the buildings have been substantially rebuilt or rehabbed, or are completely new construction and still retain their ground floor uses. The IRYS buildings are historic, and thereby subject to variances more readily than the former Salas building. The reduction for the CRS rating is in the range of 5-7%. Hanley feels that the loss of ground floor commercial space certainly offsets any gain by a rate reduction. Another example of a variance is the “House of Scrimshaw Building” at 132 Thames Street near Washington Square. Here variances were given to allow the new building to blend in with the streetscape, but dry flood-proofing was not required.
- 3) Helen suggested contacting the Advisory Council on Historic Preservation, GSA Center for Historic Buildings and the National Trust about the issues to get feedback from them.
- 4) Both Helen and William spoke about the success of the 70 Bridge Street “elevation,” which could become a precedent. The owner-applicant to the HDC wanted a 6-7 foot elevation on a new foundation. The HDC compromised with a 3.9 foot elevation instead. Based upon a walking survey of the neighborhood this seems more in keeping with some other buildings which are raised on high foundations. These foundations seem to be historical foundations as well, or

## Historic Coastal Communities and Flood Hazard: An Evolution of Impacts to Historic Properties

were built many years ago after past major storms. Overall this could be a precedent as Helen and William described.

- 5) William brought up the fact that change of use also triggers the 50% rule.
- 6) Newport has been issuing elevation certificates – there have been surges of requests at particular times – one such was when 70 Bridge Street was proposed. Another following the updating Newport’s FIRM, which also coincided with the passing of Biggert-Waters. These events triggered new interest in flood insurance premiums.
- 7) William pointed out that the value of the real estate in Newport – coastal real estate is very high in value. Hence it is hard to bump up against the 50% rule if simple upgrades are proposed. However a whole-building restoration project could reach the threshold – particularly if the building needs a lot of work. Most of the building stock is in good condition with recent upgrades – at least that is what a superficial exterior street tour reveals..
- 8) Jack Evans (architect with local firm NewPort Architecture) verified that there are different opinions from FEMA and RIEMA as to what constitutes an adequate holding period for the 50% rule. It is easy to see that cities and towns have made their own determination.
- 9) The Newport Building Board of Appeals has attempted to accommodate the Main Street ground/street level commercial and pedestrian feel of Thames Street by granting variances to historic and non-historic buildings alike. Although dry flood-proofing is allowable for ground level commercial use in A zones, some of the new buildings built on Lower Thames Street do not have dry flood-proofed ground floors. These variances are not fully acceptable to FEMA and RIEMA, such that Newport will not currently qualify for the CRS (Community Rating System) deductions. To get into a more favorable position Newport is opting to forfeit their local Building Board of Appeals and rely upon a non-local State Building Board of Appeals. This will take the decision-making on variances out of local control.

*Interview with Diane Williamson (Planning Director) and Richard Pimenta (Building Official) Town of Bristol, June 30, 2015*

- 1) Bristol has a flood management plan within their Hazard Mitigation Plan – and they are planning to develop a recommendation/objective within their comprehensive plan Natural and Cultural Resources Section, which would dictate that they do an in-depth plan for the flood-prone areas for resiliency and mitigation. There has not been much damage or loss of late along Thames Street in the coastal flood zone; there is no real impetus to do the planning work or for implementation of innovative plans.

## Historic Coastal Communities and Flood Hazard: An Evolution of Impacts to Historic Properties

- 2) The Town Engineer, Building Official, and Planning Director are certified as floodplain managers – they have received certificates after passing a test sponsored by the Association of State Floodplain Managers and the Floodplain Managers Association ([www.floodplain.org](http://www.floodplain.org)).
- 3) The current 50% rule is codified to accumulate under 10 year time frame.
- 4) Bristol has a CRS standing which offers discounts in flood insurance at 10%. Bristol is seeking another 5% discount with some updates. They have to report annually on activities and progress. It is important that they not grant variances. They were unsure if this means all variances or just those associated with new construction and non-historic buildings. Jessica Stimson of RIEMA confirmed that variances for historic properties are allowed and not counted against a community. In fact there are credits associated with programs to preserve and protect historic and environmental resources.
- 5) They spoke about the Bristol harbor front (Thames Street), which is within the local historical zoning district and the Bristol Waterfront Historic District, listed in the National Register of Historic Places. For these projects the Town staff could certify the work as not having an adverse impact to integrity – the projects would be reviewed by the Bristol Historic District Commission, a local CLG.
- 6) They said it would be helpful to have design standards or case examples pertaining to resiliency for the HDC and the public to use. There are no local case examples and very few projects have come forward recently. We spoke about the Usher Warehouse/Potter's Wharf/ DeWolf Warehouse (Thames Street Landing) which was approved and built a number of years ago – this project did get a variance because it is historic. (A walk by concluded that the ground floor is used for commercial retail and is not dry flood-proofed) This project has some mitigation and resiliency measures such as off-site upland storage, prohibition on heavy, bulky, hard-to-move items being sold. Richard and Diane wanted to know more about what dry flood-proofing is.
- 7) We spoke about other buildings in the Thames Street area, undeveloped land, underdeveloped property and threats – there is actually a lot of opportunity on the street for upgrades and improvements. There are several dilapidated historic buildings that would take a lot of costly renovation, including two Greek Revival buildings right next to the Fire Station.

*Perhaps the conclusion from these interviews is that communities are concerned about the projected flood insurance increases and are willing to strive for inclusion in the Community Rated System to reduce rates. The CRS qualifies activities that help reduce flood damages. It is unclear whether or not the upgrade of historic properties under FEMA guidelines will stabilize or even reduce flood insurance*

## Historic Coastal Communities and Flood Hazard: An Evolution of Impacts to Historic Properties

*rates; however communities are willing to proceed in the hope that such will be the case. More expertise in dry flood-proofing alternatives would be helpful.*

*Interview with Jessica Stimson of the Rhode Island Emergency Management Agency (RIEMA) (July 8, 2015) with regard to Rhode Island coastal communities and the Community Rating System incentive approach to decreasing flood insurance rates.*

- 1) With regard to variances being issued by communities for historic properties, these variances are viewed by RIEMA (and the CRS program) as favorable or approvable, and not as negative factors for the CRS program that would hurt a favorable rating. In fact, such variances, if properly conditioned to encourage some flood resiliency without damaging historical or architectural integrity, may improve ratings due to added credits for historic preservation and environmental protection.
- 2) With regard to non-historic (non-contributing) commercial buildings within a historic district such as Newport's Lower Thames Street, Westerly's Bay Street in Watch Hill, or Bristol's Thames Street, variances would not be considered favorable due to the fact that the buildings are not historic, even though such variances were issued in Newport in an attempt to retain the association and feel of a pedestrian streetscape. For example, in one variance situation a historic contributing building was demolished to enable a new building to be built in its place. In this example, the new building received a variance from the City of Newport Building Board of Appeals for a street level storefront compatible with other historic storefronts nearby. However, it is not a dry flood-proofed store front. In RIEMA's view, in granting the variance, the Board of Appeals sanctioned the demolition of a historic building contrary to the intent of the National Flood Insurance Program (NFIP), which seeks to preserve historic buildings (under the National Historic Preservation Act), while providing for an appropriate non-threatening level of flood resiliency through the variance process. In addition, new commercial buildings within an A zone can have an operational ground level only if the space is dry flood-proofed. Newport has granted other similar variances for new construction contrary to the intent of the NFIP.
- 3) While the "Grimm-Waters" Homeowner Flood Insurance Affordability Act of 2104 rolled back provisions in Biggert-Waters to erase flood insurance subsidies and bring rates up to bona fide risk levels, these provisions may only be temporary. The future of the flood insurance program will have to be one of sustainability, whereby insurance rates eventually will reflect flood damage risk. Communities and homeowners need to be making flood-prone properties more resilient, otherwise they will be faced in the future with insurance rates that they will not be able to afford, no flood insurance at all, or properties that they cannot easily sell if bank-lending is involved requiring flood insurance.

## Historic Coastal Communities and Flood Hazard: An Evolution of Impacts to Historic Properties

- 4) The 50% rule is at the discretion of the local officials. Generally the State Building Code does not allow for an extended period, such as Bristol has. RIEMA's recommendation to Bristol is to rescind their 10 year rule in favor of a 12 month rule. RIEMA feels that local building officials can judge whether or not an applicant is trying to circumvent the 50% requirement by pulling building permits to complete a project in phases, each one of which is under 50% market value for the building.

*Interview with Douglas Platt of Selective Insurance Company, an authority on flood insurance in the Northeast (July 6, 2015), with regard to flood insurance rates for historic properties.*

- 1) Seventy percent (70%) of the Northeast building stock is pre-FIRM (built before 1968).
- 2) Elevation certificates for all pre-FIRM properties will become increasingly more important to obtain in the future. Flood insurance based upon information not including an elevation certificate is really an estimate not based upon reality – all pre-FIRM buildings (built before 1968) have been treated this way. Elevation certificates, which are completed by certified engineers, verify how the building stands in relation to the base flood elevation and they may also be used to inventory flood resiliency measures that have been installed or implemented.
- 3) Adjusters will evaluate on a case-by-case basis if they can. Modifications done to try to meet flood code requirements will be taken into consideration if they appear to be successful in reducing risk.
- 4) Normally an adjuster might not discover if an owner has done improvements until a claim is filed. If the improvement was not successful, then the rate may be adjusted. Should the rate go up, there is a grace period, however, to balance out the premium.

*Interviews with Jack Evans, architect with NewPort Architecture, LLC during June 2015*

- 1) There is a real concern that owners of historic buildings in flood hazard areas will demolish historic buildings and structures rather than pay high flood insurance rates. There is a likelihood that flood insurance rates will increase for pre-FIRM buildings and structures – particularly if they cannot meet the full code requirements, which most historic buildings cannot meet while retaining their historical and architectural integrity. Therefore Jack

## Historic Coastal Communities and Flood Hazard: An Evolution of Impacts to Historic Properties

predicts that higher rates for historic properties (higher than new construction) will generate demolitions.

- 2) The 50% rule will also be abused by owners who wish to maintain the status quo without upgrading their properties. Projects will be undertaken incrementally – in phases – to skirt the substantial improvement definition – the 50% rule, particularly if Rhode Island communities retain the 12-month cumulative holding period, instead of several years, which would be more appropriate.

*Interview with Marco Tomassini, architect with Tecton Architects, Inc., June 2015*

- 1) Dry flood-proofing options include the installation of perimeter concrete foundation walls to the BFE plus freeboard. This can be done with new commercial buildings at considerable extra cost. However, retrofitting existing commercial buildings (whether historic or not) is extremely expensive and would likely require a whole new foundation system for the building to be effective. There may be an opportunity for historic buildings to receive dry flood-proofing if their existing foundations need to be completely rebuilt. However, the cost of such an undertaking would be much greater than usual. Installing dry flood-proofing while elevating a building is an option to be explored.
- 2) The foundations and ground level built for the new building at the southeast end of Bay Street in Watch Hill (known locally as the Waldo-Hennessey Building) are dry flood-proofed to provide for commercial space at street level. This building is beneficial to Bay Street in that it retains the ground level commercial activity that is the source of the local business retail economy.



3. The National Flood Insurance Act of 1968, as amended, and the Flood Disaster Protection Act of 1973, as amended, 42 U.S.C. 4001 et seq.

ALL-HAZARD AUTHORITIES OF THE  
FEDERAL EMERGENCY MANAGEMENT AGENCY

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THE NATIONAL FLOOD INSURANCE ACT  
OF 1968, AS AMENDED, AND

THE FLOOD DISASTER PROTECTION ACT  
OF 1973, AS AMENDED

42 U.S.C. 4001 *et seq.*

OFFICE OF THE GENERAL COUNSEL

AUGUST, 1997

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THE NATIONAL FLOOD INSURANCE ACT OF 1968, AS AMENDED, AND  
THE FLOOD DISASTER PROTECTION ACT OF 1973, AS AMENDED,  
42 U.S.C. 4001 *et. seq.*

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\* Enacted as part of the Urban Property Protection and Reinsurance Act of 1968 and also as part of the Housing and Urban Development Act of 1968, and not as part of the National Flood Insurance Act of 1968.

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**UNITED STATES CODE**  
**TITLE 42--THE PUBLIC HEALTH AND WELFARE**  
**CHAPTER 50--NATIONAL FLOOD INSURANCE**

{Sec. 1301<sup>1</sup>}

**§ 4001. Congressional findings and declaration of purpose**

**(a) Necessity and reasons for flood insurance program**

The Congress finds that (1) from time to time flood disasters have created personal hardships and economic distress which have required unforeseen disaster relief measures and have placed an increasing burden on the Nation's resources; (2) despite the installation of preventive and protective works and the adoption of other public programs designed to reduce losses caused by flood damage, these methods have not been sufficient to protect adequately against growing exposure to future flood losses; (3) as a matter of national policy, a reasonable method of sharing the risk of flood losses is through a program of flood insurance which can complement and encourage preventive and protective measures; and (4) if such a program is initiated and carried out gradually, it can be expanded as knowledge is gained and experience is appraised, thus eventually making flood insurance coverage available on reasonable terms and conditions to persons who have need for such protection.

**(b) Participation of Federal Government in flood insurance program carried out by private insurance industry**

The Congress also finds that (1) many factors have made it uneconomic for the private insurance industry alone to make flood insurance available to those in need of such protection on reasonable terms and conditions; but (2) a program of flood insurance with large-scale participation of the Federal Government and carried out to the maximum extent practicable by the private insurance industry is feasible and can be initiated.

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<sup>1</sup> Exact as noted otherwise, marginal section numbers are references to title XIII of Pub. L. 90-448, Aug. 1, 1968, 82 Stat. 572, as amended, known as the National Flood Insurance Act of 1968,

**(c) Unified national program for flood plain management**

The Congress further finds that (1) a program of flood insurance can promote the public interest by providing appropriate protection against the perils of flood losses and encouraging sound land use by minimizing exposure of property to flood losses; and (2) the objectives of a flood insurance program should be integrally related to a unified national program for flood plain management and, to this end, it is the sense of Congress that within two years following the effective date of this chapter the President should transmit to the Congress for its consideration any further proposals necessary for such a unified program, including proposals for the allocation of costs among beneficiaries of flood protection.

**(d) Authorization of flood insurance program; flexibility in program**

It is therefore the purpose of this chapter to (1) authorize a flood insurance program by means of which flood insurance, over a period of time, can be made available on a nationwide basis through the cooperative efforts of the Federal Government and the private insurance industry, and (2) provide flexibility in the program so that such flood insurance may be based on workable methods of pooling risks, minimizing costs, and distributing burdens equitably among those who will be protected by flood insurance and the general public.

**(e) Land use adjustments by State and local governments; development of proposed future construction; assistance of lending and credit institutions; relation of Federal assistance to all flood-related programs; continuing studies**

It is the further purpose of this chapter to (1) encourage State and local governments to make appropriate land use adjustments to constrict the development of land which is exposed to flood damage and minimize damage caused by flood losses, (2) guide the development of proposed future construction, where practicable, away from locations which are threatened by flood hazards, (3) encourage lending and credit institutions, as a matter of national policy, to assist in furthering the objectives of the flood insurance program, (4) assure that any Federal assistance provided under the program will be related closely to all flood-related programs and activities of the Federal Government, and (5) authorize continuing studies of flood hazards in order to provide for a constant reappraisal of the flood insurance program and its effect on land use requirements.

**(f) Mudslides**

The Congress also finds that (1) the damage and loss which results from mudslides is related in cause and similar in effect to that which results directly from storms, deluges, overflowing waters, and other forms of flooding, and (2) the problems involved in providing protection against this damage and loss, and the possibilities for making such protection available through a Federal or federally sponsored program, are similar to those which exist in connection with efforts to provide protection against damage and loss caused by such other forms of flooding. It is therefore the further purpose of this chapter to make available, by means of the methods, procedures, and instrumentalities which are otherwise established or available under this chapter for purposes of the flood insurance program, protection against damage and loss resulting from mudslides that are caused by accumulations of water on or under the ground.

{Sec. 2<sup>2</sup>}

**§ 4002. Additional Congressional findings and declaration of purpose**

(a) The Congress finds that--

(1) annual losses throughout the Nation from floods and mudslides are increasing at an alarming rate, largely as a result of the accelerating development of, and concentration of population in, areas of flood and mudslide hazards;

(2) the availability of Federal loans, grants, guaranties, insurance, and other forms of financial assistance are often determining factors in the utilization of land and the location and construction of public and of private industrial, commercial, and residential facilities;

(3) property acquired or constructed with grants or other Federal assistance may be exposed to risk of loss through floods, thus frustrating the purpose for which such assistance was extended;

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<sup>2</sup> Sec. 2 of the Flood Disaster Protection Act of 1973, as amended, Pub. L. 93-234, Dec. 31, 1973, 87 Stat. 975, as amended.

ALL-HAZARD AUTHORITIES of the  
Federal Emergency Management Agency

Section 2  
[42 U.S.C. § 4002]

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(4) Federal instrumentalities insure or otherwise provide financial protection to banking and credit institutions whose assets include a substantial number of mortgage loans and other indebtedness secured by property exposed to loss and damage from floods and mudslides;

(5) the Nation cannot afford the tragic losses of life caused annually by flood occurrences, nor the increasing losses of property suffered by flood victims, most of whom are still inadequately compensated despite the provision of costly disaster relief benefits; and

(6) it is in the public interest for persons already living in flood-prone areas to have both an opportunity to purchase flood insurance and access to more adequate limits of coverage, so that they will be indemnified, for their losses in the event of future flood disasters.

(b) The purpose of this Act, therefore, is to--

(1) substantially increase the limits of coverage authorized under the national flood insurance program;

(2) provide for the expeditious identification of, and the dissemination of information concerning, flood-prone areas;

(3) require States or local communities, as a condition of future Federal financial assistance, to participate in the flood insurance program and to adopt adequate flood plain ordinances with effective enforcement provisions consistent with Federal standards to reduce or avoid future flood losses; and

(4) require the purchase of flood insurance by property owners who are being assisted by Federal programs or by federally supervised, regulated, or insured agencies or institutions in the acquisition or improvement of land or facilities located or to be located in identified areas having special flood hazards.

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{Sec. 3<sup>3</sup>}

**§ 4003. Additional definitions**

(a) As used in this Act, unless the context otherwise requires, the term--

(1) "community" means a State or a political subdivision thereof which has zoning and building code jurisdiction over a particular area having special flood hazards

(2) "Federal agency" means any department, agency, corporation, or other entity or instrumentality of the executive branch of the Federal Government, and includes the Federal National Mortgage Association and the Federal Home Loan Mortgage Corporation;

(3) "financial assistance" means any form of loan, grant, guaranty, insurance, payment, rebate, subsidy, disaster assistance loan or grant, or any other form of direct or indirect Federal assistance, other than general or special revenue sharing or formula grants made to States;

(4) "financial assistance for acquisition or construction purposes" means any form of financial assistance which is intended in whole or in part for the acquisition, construction, reconstruction, repair, or improvement of any publicly or privately owned building or mobile home, and for any machinery, equipment, fixtures, and furnishings contained or to be contained therein, and shall include the purchase or subsidization of mortgages or mortgage loans but shall exclude assistance pursuant to the Disaster Relief and Emergency Assistance Act [42 U.S.C. 5121 *et seq.*] (other than assistance under such Act in connection with a flood);

(5) "Federal entity for lending regulation" means the Board of Governors of the Federal Reserve System, the Federal Deposit Insurance Corporation, the Comptroller of the Currency, the Office of Thrift Supervision, the National Credit Union Administration, and the Farm Credit Administration, and with respect to a particular regulated lending institution means the entity primarily responsible for the supervision of the institution;

(6) "Director" means the Director of the Federal Emergency Management Agency

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<sup>3</sup> Of the Flood Disaster Protection Act of 1973, as amended.

ALL-HAZARD AUTHORITIES of the  
Federal Emergency Management Agency

Section 3  
[42 U.S.C. § 4003]

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(7) "Federal agency lender" means a Federal agency that makes direct loans secured by improved real estate or a mobile home, to the extent such agency acts in such capacity;

(8) the term "improved real estate" means real estate upon which a building is located;

(9) "lender" means a regulated lending institution or Federal agency lender;

(10) "regulated lending institution" means any bank, savings and loan association, credit union, farm credit bank, Federal land bank association, production credit association, or similar institution subject to the supervision of a Federal entity for lending regulation; and

(11) "servicer" means the person responsible for receiving any scheduled periodic payments from a borrower pursuant to the terms of a loan, including amounts for taxes, insurance premiums, and other charges with respect to the property securing the loan, and making the payments of principal and interest and such other payments with respect to the amounts received from the borrower as may be required pursuant to the terms of the loan.

(b) The Director is authorized to define or redefine, by rules and regulations, any scientific or technical term used in this Act, insofar as such definition is not inconsistent with the purposes of this Act.



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**UNITED STATES CODE**  
**TITLE 42--THE PUBLIC HEALTH AND WELFARE**  
**CHAPTER 50--NATIONAL FLOOD INSURANCE**

**SUBCHAPTER I--THE NATIONAL FLOOD INSURANCE PROGRAM**

{Sec. 1304}

**§ 4011. Authorization to establish and carry out program**

**(a) Authorization and establishment**

To carry out the purposes of this chapter, the Director of the Federal Emergency Management Agency is authorized to establish and carry out a national flood insurance program which will enable interested persons to purchase insurance against loss resulting from physical damage to or loss of real property or personal property related thereto arising from any flood occurring in the United States.

**(b) Additional coverage for compliance with land use and control measures**

The national flood insurance program established pursuant to subsection (a) of this section shall enable the purchase of insurance to cover the cost of compliance with land use and control measures established under section 4102 of this title for--

- (1) properties that are repetitive loss structures;
- (2) properties that have flood damage in which the cost of repairs equals or exceeds 50 percent of the value of the structure at the time of the flood event; and
- (3) properties that have sustained flood damage on multiple occasions, if the Director determines that it is cost-effective and in the best interests of the National Flood Insurance Fund to require compliance with the land use and control measures.

ALL-HAZARD AUTHORITIES of the  
Federal Emergency Management Agency

Section 1304  
[42 U.S.C. § 4011]

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The Director shall impose a surcharge on each insured of not more than \$75 per policy to provide cost of compliance coverage in accordance with the provisions of this subsection.

**(c) Participation and risk sharing by insurers**

In carrying out the flood insurance program the Director shall, to the maximum extent practicable, encourage and arrange for--

(1) appropriate financial participation and risk sharing in the program by insurance companies and other insurers, and

(2) other appropriate participation, on other than a risk-sharing basis, by insurance companies and other insurers, insurance agents and brokers, and insurance adjustment organizations, in accordance with the provisions of subchapter II of this chapter [42 U.S.C. § 4041 *et seq.*].

{Sec. 1305}

**§ 4012. Scope of program and priorities**

**(a) Priority for insurance for certain residential and church properties and business concerns**

In carrying out the flood insurance program the Director shall afford a priority to making flood insurance available to cover residential properties which are designed for the occupancy of from one to four families, church properties, and business properties which are owned or leased and operated by small business concerns.

**(b) Availability of insurance for other properties**

If on the basis of--

(1) studies and investigations undertaken and carried out and information received or exchanged under section 4014 of this title, and

(2) such other information as may be necessary,

the Director determines that it would be feasible to extend the flood insurance program to cover other properties, he may take such action under this chapter as from time to time may be necessary in order to make flood insurance available to cover, on such basis as may be feasible, any types and classes of--

- (A) other residential properties,
- (B) other business properties,
- (C) agricultural properties
- (D) properties occupied by private nonprofit organizations, and
- (E) properties owned by State and local governments and agencies thereof,

and any such extensions of the program to any types and classes of these properties shall from time to time be prescribed in regulations.

**(c) Availability of insurance in States or areas evidencing positive interest in securing insurance and assuring adoption of adequate land use and control measures**

The Director shall make flood insurance available in only those States or areas (or subdivisions thereof) which he has determined have--

- (1) evidenced a positive interest in securing flood insurance coverage under the flood insurance program, and
- (2) given satisfactory assurance that by December 31, 1971, adequate land use and control measures will have been adopted for the State or area (or subdivision) which are consistent with the comprehensive criteria for land management and use developed under section 4102 of this title, and that the application and enforcement of such measures will commence as soon as technical information on floodways and on controlling flood elevations is available.

**§ 4012a. Flood insurance purchase and compliance requirements and escrow accounts**

**(a) Amount and term of coverage**

After the expiration of sixty days following December 31, 1973, no Federal officer or agency shall approve any financial assistance for acquisition or construction purposes for use in any area that has been identified by the Director as an area having special flood hazards and in which the sale of flood insurance has been made available under the National Flood Insurance Act of 1968 [42 U.S.C. § 4001 *et seq.*], unless the building or mobile home and any personal property to which such financial assistance relates is covered by flood insurance in an amount at least equal to its development or project cost (less estimated land cost) or to the maximum limit of coverage made available with respect to the particular type of property under the National Flood Insurance Act of 1968, whichever is less: Provided, That if the financial assistance provided is in the form of a loan or an insurance or guaranty of a loan, the amount of flood insurance required need not exceed the outstanding principal balance of the loan and need not be required beyond the term of the loan. The requirement of maintaining flood insurance shall apply during the life of the property, regardless of transfer of ownership of such property.

**(b) Requirement for mortgage loans**

**(1) Regulated lending institutions**

Each Federal entity for lending regulation (after consultation and coordination with the Financial Institutions Examination Council established under the Federal Financial Institutions Examination Council Act of 1974 [12 U.S.C. § 3301 *et seq.*]) shall by regulation direct regulated lending institutions not to make, increase, extend, or renew any loan secured by improved real estate or a mobile home located or to be located in an area that has been identified by the Director as an area having special flood hazards and in which flood insurance has been made available under the National Flood Insurance Act of 1968 [42 U.S.C. 4001 *et seq.*], unless the building or mobile home and any personal property securing such loan

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<sup>4</sup> Of the Flood Disaster Protection Act of 1973, as amended.

is covered for the term of the loan by flood insurance in an amount at least equal to the outstanding principal balance of the loan or the maximum limit of coverage made available under the Act with respect to the particular type of property, whichever is less.

**(2) Federal agency lenders**

A Federal agency lender may not make, increase, extend, or renew any loan secured by improved real estate or a mobile home located or to be located in an area that has been identified by the Director as an area having special flood hazards and in which flood insurance has been made available under the National Flood Insurance Act of 1968, unless the building or mobile home and any personal property securing such loan is covered for the term of the loan by flood insurance in the amount provided in paragraph (1). Each Federal agency lender shall issue any regulations necessary to carry out this paragraph. Such regulations shall be consistent with and substantially identical to the regulations issued under paragraph (1).

**(3) Government-sponsored enterprises for housing**

The Federal National Mortgage Association\* and the Federal Home Loan Mortgage Corporation shall implement procedures reasonably designed to ensure that, for any loan that is--

(A) secured by improved real estate or a mobile home located in an area that has been identified, at the time of the origination of the loan or at any time during the term of the loan, by the Director as an area having special flood hazards and in which flood insurance is available under the National Flood Insurance Act of 1968, and

(B) purchased by such entity,

the building or mobile home and any personal property securing the loan is covered for the term of the loan by flood insurance in the amount provided in paragraph (1).

**(4) Applicability**

**(A) Existing coverage**

Except as provided in subparagraph (B), paragraph (1) shall apply on September 23, 1994.

**(B) New coverage**

Paragraphs (2) and (3) shall apply only with respect to any loan made, increased, extended, or renewed after the expiration of the 1-year period beginning on September 23, 1994. Paragraph (1) shall apply with respect to any loan made, increased, extended, or renewed by any lender supervised by the Farm Credit Administration only after the expiration of the period under this subparagraph.

**(C) Continued effect of regulations**

Notwithstanding any other provision of this subsection, the regulations to carry out paragraph (1), as in effect immediately before September 23, 1994, shall continue to apply until the regulations issued to carry out paragraph (1) as amended by section 522(a) of Public Law 103-325<sup>5</sup> take effect.

**(c) Exceptions to purchase requirements**

**(1) State-owned property**

Notwithstanding the other provisions of this section, flood insurance shall not be required on any State-owned property that is covered under an adequate State policy of self-insurance satisfactory to the Director. The Director shall publish and periodically revise the list of States to which this subsection applies.

**(2) Small loans**

Notwithstanding any other provision of this section, subsections (a) and (b) of this section shall not apply to any loan having--

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<sup>5</sup> The Reigle Community Development and Regulatory Improvement Act of 1994, enacted September 23, 1994, of which Title V is the National Flood Insurance Reform Act of 1994.

(A) an original outstanding principal balance of \$5,000 or less; and

(B) a repayment term of 1 year or less.

**(d) Escrow of flood insurance payments**

**(1) Regulated lending institutions**

Each Federal entity for lending regulation (after consultation and coordination with the Financial Institutions Examination Council) shall by regulation require that, if a regulated lending institution requires the escrowing of taxes, insurance premiums, fees, or any other charges for a loan secured by residential improved real estate or a mobile home, then all premiums and fees for flood insurance under the National Flood Insurance Act of 1968 [42 U.S.C. § 4001 *et seq.*] for the real estate or mobile home shall be paid to the regulated lending institution or other servicer for the loan in a manner sufficient to make payments as due for the duration of the loan. Upon receipt of the premiums, the regulated lending institution or servicer of the loan shall deposit the premiums in an escrow account on behalf of the borrower. Upon receipt of a notice from the Director or the provider of the insurance that insurance premiums are due, the regulated lending institution or servicer shall pay from the escrow account to the provider of the insurance the amount of insurance premiums owed.

**(2) Federal agency lenders**

Each Federal agency lender shall by regulation require and provide for escrow and payment of any flood insurance premiums and fees relating to residential improved real estate and mobile homes securing loans made by the Federal agency lender under the circumstances and in the manner provided under paragraph (1). Any regulations issued under this paragraph shall be consistent with and substantially identical to the regulations issued under paragraph (1).

**(3) Applicability of RESPA**

Escrow accounts established pursuant to this subsection shall be subject to the provisions of section 10 of the Real Estate Settlement Procedures Act of 1974 [12 U.S.C. § 2609].

**(4) "Residential improved real estate" defined**

For purposes of this subsection, the term "residential improved real estate" means improved real estate for which the improvement is a residential building.

**(5) Applicability**

This subsection shall apply only with respect to any loan made, increased, extended, or renewed after the expiration of the 1-year period beginning on September 23, 1994.

**(e) Placement of flood insurance by lender**

**(1) Notification to borrower of lack of coverage**

If, at the time of origination or at any time during the term of a loan secured by improved real estate or by a mobile home located in an area that has been identified by the Director (at the time of the origination of the loan or at any time during the term of the loan) as an area having special flood hazards and in which flood insurance is available under the National Flood Insurance Act of 1968 [42 U.S.C. § 4001 *et seq.*], the lender or servicer for the loan determines that the building or mobile home and any personal property securing the loan is not covered by flood insurance or is covered by such insurance in an amount less than the amount required for the property pursuant to paragraph (1), (2), or (3) of subsection (b) of this section, the lender or servicer shall notify the borrower under the loan that the borrower should obtain, at the borrower's expense, an amount of flood insurance for the building or mobile home and such personal property that is not less than the amount under subsection (b)(1) of this section, for the term of the loan.

**(2) Purchase of coverage on behalf of borrower**

If the borrower fails to purchase such flood insurance within 45 days after notification under paragraph (1), the lender or servicer for the loan shall purchase the insurance on behalf of the borrower and may charge the borrower for the cost of premiums and fees incurred by the lender or servicer for the loan in purchasing the insurance.



### **(3) Review of determination regarding required purchase**

#### **(A) In general**

The borrower and lender for a loan secured by improved real estate or a mobile home may jointly request the Director to review a determination of whether the building or mobile home is located in an area having special flood hazards. Such request shall be supported by technical information relating to the improved real estate or mobile home. Not later than 45 days after the Director receives the request, the Director shall review the determination and provide to the borrower and the lender with a letter stating whether or not the building or mobile home is in an area having special flood hazards. The determination of the Director shall be final.

#### **(B) Effect of determination**

Any person to whom a borrower provides a letter issued by the Director pursuant to subparagraph (A), stating that the building or mobile home securing the loan of the borrower is not in an area having special flood hazards, shall have no obligation under this title to require the purchase of flood insurance for such building or mobile home during the period determined by the Director, which shall be specified in the letter and shall begin on the date on which such letter is provided.

#### **(C) Effect of failure to respond**

If a request under subparagraph (A) is made in connection with the origination of a loan and the Director fails to provide a letter under subparagraph (A) before the later of (i) the expiration of the 45-day period under such subparagraph, or (ii) the closing of the loan, no person shall have an obligation under this title to require the purchase of flood insurance for the building or mobile home securing the loan until such letter is provided.

### **(4) Applicability**

This subsection shall apply to all loans outstanding on or after September 23, 1994.

**(f) Civil monetary penalties for failure to require flood insurance or notify**

**(1) Civil monetary penalties against regulated lenders**

Any regulated lending institution that is found to have a pattern or practice of committing violations under paragraph (2) shall be assessed a civil penalty by the appropriate Federal entity for lending regulation in the amount provided under paragraph (5).

**(2) Lender violations**

The violations referred to in paragraph (1) shall include--

(A) making, increasing, extending, or renewing loans in violation of--

(i) the regulations issued pursuant to subsection (b) of this section;

(ii) the escrow requirements under subsection (d) of this section; or

(iii) the notice requirements under section 1364 of the National Flood Insurance Act of 1968 [42 U.S.C. § 4104a]; or

(B) failure to provide notice or purchase flood insurance coverage in violation of subsection (e) of this section.

**(3) Civil monetary penalties against GSE's**

**(A) In general**

If the Federal National Mortgage Association or the Federal Home Loan Mortgage Corporation is found by the Director of the Office of Federal Housing Enterprise Oversight of the Department of Housing and Urban Development to have a pattern or practice of purchasing loans in violation of the procedures established pursuant to subsection (b)(3) of this section, the Director of such Office shall assess a civil penalty against such enterprise in the amount provided under paragraph (5) of this subsection.

**(B) "Enterprise" defined**

For purposes of this subsection, the term "enterprise" means the Federal National Mortgage Association or the Federal Home Loan Mortgage Corporation.

**(4) Notice and hearing**

A penalty under this subsection may be issued only after notice and an opportunity for a hearing on the record.

**(5) Amount**

A civil monetary penalty under this subsection may not exceed \$350 for each violation under paragraph (2) or paragraph (3). The total amount of penalties assessed under this subsection against any single regulated lending institution or enterprise during any calendar year may not exceed \$100,000.

**(6) Lender compliance**

Notwithstanding any State or local law, for purposes of this subsection, any regulated lending institution that purchases flood insurance or renews a contract for flood insurance on behalf of or as an agent of a borrower of a loan for which flood insurance is required shall be considered to have complied with the regulations issued under subsection (b) of this section.

**(7) Effect of transfer on liability**

Any sale or other transfer of a loan by a regulated lending institution that has committed a violation under paragraph (1), that occurs subsequent to the violation, shall not affect the liability of the transferring lender with respect to any penalty under this subsection. A lender shall not be liable for any violations relating to a loan committed by another regulated lending institution that previously held the loan.

**(8) Deposit of penalties**

Any penalties collected under this subsection shall be paid into the National Flood Mitigation Fund under section 1367 of the National Flood Insurance Act of 1968 [42 U.S.C. § 4104d].

**(9) Additional penalties**

Any penalty under this subsection shall be in addition to any civil remedy or criminal penalty otherwise available.

**(10) Statute of limitations**

No penalty may be imposed under this subsection after the expiration of the 4-year period beginning on the date of the occurrence of the violation for which the penalty is authorized under this subsection.

**(g) Other actions to remedy pattern of noncompliance**

**(1) Authority of Federal entities for lending regulation**

A Federal entity for lending regulation may require a regulated lending institution to take such remedial actions as are necessary to ensure that the regulated lending institution complies with the requirements of the national flood insurance program if the Federal agency for lending regulation makes a determination under paragraph (2) regarding the regulated lending institution.

**(2) Determination of violations**

A determination under this paragraph shall be a finding that--

(A) the regulated lending institution has engaged in a pattern and practice of noncompliance in violation of the regulations issued pursuant to subsection (b), (d), or (e) of this section or the notice requirements under section 1364 of the National Flood Insurance Act of 1968 [42 U.S.C. § 4104a]; and

(B) the regulated lending institution has not demonstrated measurable improvement in compliance despite the assessment of civil monetary penalties under subsection (f) of this section.

**(h) Fee for determining location**

Notwithstanding any other Federal or State law, any person who makes a loan secured by improved real estate or a mobile home or any servicer for such a loan may charge a reasonable fee for the costs of determining whether the building or mobile home securing the loan is located in an area having special flood hazards, but only in accordance with the following requirements:

**(1) Borrower fee**

The borrower under such a loan may be charged the fee, but only if the determination--

(A) is made pursuant to the making, increasing, extending, or renewing of the loan that is initiated by the borrower;

(B) is made pursuant to a revision or updating under section 1360(f)<sup>6</sup> [42 U.S.C. § 4101(f)] of the floodplain areas and flood-risk zones or publication of a notice or compendia under subsection (h) or (i) of section 1360 [42 U.S.C. § 4101(h), (i)] that affects the area in which the improved real estate or mobile home securing the loan is located or that, in the determination of the Director, may reasonably be considered to require a determination under this subsection; or

(C) results in the purchase of flood insurance coverage pursuant to the requirement under subsection (e)(2) of this section.

**(2) Purchaser or transferee fee**

The purchaser or transferee of such a loan may be charged the fee in the case of sale or transfer of the loan.

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<sup>6</sup> So in original. Probably should be followed by "of the National Flood Insurance Act of 1968".

**§ 4013. Nature and limitation of insurance coverage**

**(a) Regulations respecting general terms and conditions of insurability**

The Director shall from time to time, after consultation with the advisory committee authorized under section 4025 of this title, appropriate representatives of the pool formed or otherwise created under section 4051 of this title, and appropriate representatives of the insurance authorities of the respective States, provide by regulation for general terms and conditions of insurability which shall be applicable to properties eligible for flood insurance coverage under section 4012 of this title, including--

- (1) the types, classes, and locations of any such properties which shall be eligible for flood insurance;
- (2) the nature and limits of loss or damage in any areas (or subdivisions thereof) which may be covered by such insurance;
- (3) the classification, limitation, and rejection of any risks which may be advisable;
- (4) appropriate minimum premiums;
- (5) appropriate loss-deductibles; and
- (6) any other terms and conditions relating to insurance coverage or exclusion which may be necessary to carry out the purposes of this chapter.

**(b) Regulations respecting amount of coverage**

In addition to any other terms and conditions under subsection (a) of this section, such regulations shall provide that--

- (1) any flood insurance coverage based on chargeable premium rates under section 4015 of this title which are less than the estimated premium rates under section 4014(a)(1) of this title shall not exceed--

- (A) in the case of residential properties--

(i) \$35,000 aggregate liability for any single-family dwelling, and \$100,000 for any residential structure containing more than one dwelling unit,

(ii) \$10,000 aggregate liability per dwelling unit for any contents related to such unit, and

(iii) in the States of Alaska and Hawaii, and in the Virgin Islands and Guam; the limits provided in clause (i) of this sentence shall be: \$50,000 aggregate liability for any single-family dwelling, and \$150,000 for any residential structure containing more than one dwelling unit;

(B) in the case of business properties which are owned or leased and operated by small business concerns, an aggregate liability with respect to any single structure, including any contents thereof related to premises of small business occupants (as that term is defined by the Director), which shall be equal to (i) \$100,000 plus (ii) \$100,000 multiplied by the number of such occupants and shall be allocated among such occupants (or among the occupant or occupants and the owner) under regulations prescribed by the Director; except that the aggregate liability for the structure itself may in no case exceed \$100,000; and

(C) in the case of church properties and any other properties which may become eligible for flood insurance under section 4012 of this title--

(i) \$100,000 aggregate liability for any single structure, and

(ii) \$100,000 aggregate liability per unit for any contents related to such unit; and

(2) in the case of any residential property for which the risk premium rate is determined in accordance with the provisions of section 4014(a)(1) of this title, additional flood insurance in excess of the limits specified in clause (i) of subparagraph (A) of paragraph (1) shall be made available to every insured upon renewal and every applicant for insurance so as to enable such insured or applicant to receive coverage up to a total amount (including such limits specified in paragraph (1)(A)(i)) of \$250,000;

(3) in the case of any residential property for which the risk premium rate is determined in accordance with the provisions of section 4014(a)(1) of this title, additional flood insurance in excess of the limits specified in clause (ii) of subparagraph (A) of paragraph (1) shall be made available to

every insured upon renewal and every applicant for insurance so as to enable any such insured or applicant to receive coverage up to a total amount (including such limits specified in paragraph (1)(A)(ii)) of \$100,000;

(4) in the case of any nonresidential property, including churches, for which the risk premium rate is determined in accordance with the provisions of section 4014(a)(1) of this title, additional flood insurance in excess of the limits specified in subparagraphs (B) and (C) of paragraph (1) shall be made available to every insured upon renewal and every applicant for insurance, in respect to any single structure, up to a total amount (including such limit specified in subparagraph (B) or (C) of paragraph (1), as applicable) of \$500,000 for each structure and \$500,000 for any contents related to each structure; and

(5) any flood insurance coverage which may be made available in excess of the limits specified in subparagraph (A), (B), or (C) of paragraph (1), shall be based only on chargeable premium rates under section 4015 of this title, which are not less than the estimated premium rates under section 4014(a)(1) of this title, and the amount of such excess coverage shall not in any case exceed an amount equal to the applicable limit so specified (or allocated) under paragraph (1)(C), (2), (3), or (4), as applicable.

**(c) Effective date of policies**

**(1) Waiting period**

Except as provided in paragraph (2), coverage under a new contract for flood insurance coverage under this chapter entered into after September 23, 1994, and any modification to coverage under an existing flood insurance contract made after September 23, 1994, shall become effective upon the expiration of the 30-day period beginning on the date that all obligations for such coverage (including completion of the application and payment of any initial premiums owed) are satisfactorily completed.

**(2) Exception**

The provisions of paragraph (1) shall not apply to--

(A) the initial purchase of flood insurance coverage under this chapter when the purchase of insurance is in connection with the making, increasing, extension, or renewal of a loan; or



(B) the initial purchase of flood insurance coverage pursuant to a revision or updating of floodplain areas or flood-risk zones under section 4101(f) of this title, if such purchase occurs during the 1-year period beginning upon publication of notice of the revision or updating under section 4101(h) of this title.

{Sec. 1307}

#### **§ 4014. Estimates of premium rates**

##### **(a) Studies and investigations**

The Director is authorized to undertake and carry out such studies and investigations and receive or exchange such information as may be necessary to estimate, and shall from time to time estimate, on an area, subdivision, or other appropriate basis--

(1) the risk premium rates for flood insurance which--

(A) based on consideration of the risk involved and accepted actuarial principles, and

(B) including--

(i) the applicable operating costs and allowances set forth in the schedules prescribed under section 4018 of this title and reflected in such rates,

(ii) any administrative expenses (or portion of such expenses) of carrying out the flood insurance program which, in his discretion, should properly be reflected in such rates, and

(iii) any remaining administrative expenses incurred in carrying out the flood insurance and floodplain management programs (including the costs of mapping activities under section 4101 of this title) not included under clause (ii), which shall be recovered by a fee charged to policyholders and such fee shall not be subject to any agents' commissions, company expense allowances, or State or local premium taxes,

would be required in order to make such insurance available on an actuarial basis for any types and classes of properties for which insurance coverage is available under section 4012(a) of this title (or is recommended to the Congress under section 4012(b) of this title);

(2) the rates, if less than the rates estimated under paragraph (1), which would be reasonable, would encourage prospective insureds to purchase flood insurance, and would be consistent with the purposes of this chapter, and which, together with a fee charged to policyholders that shall not be subject to any agents' commission, company expenses allowances, or State or local premium taxes, shall include any administrative expenses incurred in carrying out the flood insurance and floodplain management programs (including the costs of mapping activities under section 4101 of this title); and

(3) the extent, if any, to which federally assisted or other flood protection measures initiated after August 1, 1968, affect such rates.

**(b) Utilization of services of other Departments and agencies**

In carrying out subsection (a) of this section, the Director shall, to the maximum extent feasible and on a reimbursement basis, utilize the services of the Department of the Army, the Department of the Interior, the Department of Agriculture, the Department of Commerce, and the Tennessee Valley Authority, and, as appropriate, other Federal departments or agencies, and for such purposes may enter into agreements or other appropriate arrangements with any persons.

**(c) Priority to studies and investigations in States or areas evidencing positive interest in securing insurance under program**

The Director shall give priority to conducting studies and investigations and making estimates under this section in those States or areas (or subdivisions thereof) which he has determined have evidenced a positive interest in securing flood insurance coverage under the flood insurance program.

**(d) Parishes of Louisiana; premium rates**

Notwithstanding any other provision of law, any structure existing on December 31, 1973, and located within Avoyelles, Evangeline, Rapides, or Saint Landry Parish in the State of Louisiana, which the Director determines is subject to additional flood hazards as a result of the construction or operation of the Atchafalaya Basin Levee System, shall be eligible for flood insurance under this chapter (if and to the extent it is eligible for such insurance under the other provisions of this chapter) at premium rates that shall not exceed those which would be applicable if such additional hazards did not exist.

**(e) Eligibility of community making adequate progress on construction of flood protection system for rates not exceeding those applicable to completed flood protection system; determination of adequate progress**

Notwithstanding any other provision of law, any community that has made adequate progress, acceptable to the Director, on the construction of a flood protection system which will afford flood protection for the one-hundred year frequency flood as determined by the Director, shall be eligible for flood insurance under this chapter (if and to the extent it is eligible for such insurance under the other provisions of this chapter) at premium rates not exceeding those which would be applicable under this section if such flood protection system had been completed. The Director shall find that adequate progress on the construction of a flood protection system as required herein has been only if (1) 100 percent of the project cost of the system has been authorized, (2) at least 60 percent of the project cost of the system has been appropriated, (3) at least 50 percent of the project cost of the system has been expended, and (4) the system is at least 50 percent completed.

**(f) Availability of flood insurance in communities restoring discredited flood protection systems; criteria; rates**

Notwithstanding any other provision of law, this subsection shall only apply in a community which has been determined by the Director of the Federal Emergency Management Agency to be in the process of restoring flood protection afforded by a flood protection system that had been previously accredited on a Flood Insurance Rate Map as providing 100-year frequency flood protection but no longer does so. Except as provided in this subsection, in such a community, flood insurance shall be made available to those properties impacted by the discreditation of the flood protection system at premium rates that do not exceed those which would

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be applicable to any property located in an area of special flood hazard, the construction of which was started prior to the effective date of the initial Flood Insurance Rate Map published by the Director for the community in which such property is located. A revised Flood Insurance Rate Map shall be prepared for the community to delineate as Zone AR the areas of special flood hazard that result from the disaccreditation of the flood protection system. A community will be considered to be in the process of restoration if--

- (1) the flood protection system has been deemed restorable by a Federal agency in consultation with the local project sponsor;
- (2) a minimum level of flood protection is still provided to the community by the disaccredited system; and
- (3) restoration of the flood protection system is scheduled to occur within a designated time period and in accordance with a progress plan negotiated between the community and the Federal Emergency Management Agency.

Communities that the Director of the Federal Emergency Management Agency determines to meet the criteria set forth in paragraphs (1) and (2) as of January 1, 1992, shall not be subject to revised Flood Insurance Rate Maps that contravene the intent of this subsection. Such communities shall remain eligible for C zone rates for properties located in zone AR for any policy written prior to promulgation of final regulations for this section. Floodplain management criteria for such communities shall not require the elevation of improvements to existing structures and shall not exceed 3 feet above existing grade for new construction, provided the base flood elevation based on the disaccredited flood control system does not exceed five feet above existing grade, or the remaining new construction in such communities is limited to infill sites, rehabilitation of existing structures, or redevelopment of previously developed areas. The Director of the Federal Emergency Management Agency shall develop and promulgate regulations to implement this subsection, including minimum floodplain management criteria, within 24 months after October 28, 1992.

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{Sec. 1308}

**§ 4015. Chargeable premium rates**

**(a) Establishment; terms and conditions**

On the basis of estimates made under section 4014 of this title, and such other information as may be necessary, the Director shall from time to time, after consultation with the advisory committee authorized under section 4025 of this title, appropriate representatives of the pool formed or otherwise created under section 4051 of this title, and appropriate representatives of the insurance authorities of the respective States, prescribe by regulation--

(1) chargeable premium rates for any types and classes of properties for which insurance coverage shall be available under section 4012 of this title (at less than the estimated risk premium rates under section 4014(a)(1) of this title, where necessary), and

(2) the terms and conditions under which, and the areas (including subdivisions thereof) within which, such rates shall apply.

**(b) Considerations for rates**

Such rates shall, insofar as practicable, be--

(1) based on a consideration of the respective risks involved, including differences in risks due to land use measures, flood-proofing, flood forecasting, and similar measures.

(2) adequate, on the basis of accepted actuarial principles, to provide reserves for anticipated losses, or, if less than such amount, consistent with the objective of making flood insurance available where necessary at reasonable rates so as to encourage prospective insureds to purchase such insurance and with the purposes of this chapter,

(3) adequate, together with the fee under paragraph (1)(B)(iii) or (2) of section 4014(a) of this title, to provide for any administrative expenses of the flood insurance and floodplain management programs (including the costs of mapping activities under section 4101 of this title), and

(4) stated so as to reflect the basis for such rates, including the differences (if any) between the estimated risk premium rates under section 4014(a)(1) of this title and the estimated rates under section 4014(a)(2) of this title.

**(c) Rate with respect to property the construction or substantial improvement of which has been started after December 31, 1974, or effective date of initial rate map published for area in which property is located, whichever is later**

Subject only to the limitation under subsection (e) of this section, the chargeable rate with respect to any property, the construction or substantial improvements of which the Director determines has been started after December 31, 1974, or the effective date of the initial rate map published by the Director under paragraph (2) of section 4101 of this title for the area in which such property is located, whichever is later, shall not be less than the applicable estimated risk premium rate for such area (or subdivision thereof) under section 4014(a)(1) of this title.

**(d) Payment of certain sums to Director; deposits in Fund**

With respect to any chargeable premium rate prescribed under this section, a sum equal to the portion of the rate that covers any administrative expenses of carrying out the flood insurance and floodplain management programs which have been estimated under paragraphs (1)(B)(ii) and (1)(B)(iii) of section 4014(a) of this title or paragraph (2) of such section (including the fees under such paragraphs), shall be paid to the Director. The Director shall deposit the sum in the National Flood Insurance Fund established under section 4017 of this title.

**(e) Annual limitation on premium increases**

Notwithstanding any other provision of this chapter, the chargeable risk premium rates for flood insurance under this chapter for any properties within any single risk classification may not be increased by an amount that would result in the average of such rate increases for properties within the risk classification during any 12-month period exceeding 10 percent of the average of the risk premium rates for properties within the risk classification upon the commencement of such 12-month period.

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{Sec. 1309}

**§ 4016. Financing provisions; issuance of notes or other obligations; limitation; report to Congressional committees; deposits in Fund**

(a) All authority which was vested in the Housing and Home Finance Administrator by virtue of section 2414(e) of this title (pertaining to the issue of notes or other obligations to the Secretary of the Treasury), as amended by subsections (a) and (b) of section 1303 of this Act, shall be available to the Director for the purpose of carrying out the flood insurance program under this chapter; except that the total amount of notes and obligations which may be issued by the Director pursuant to such authority (1) without the approval of the President, may not exceed \$500,000,000, and (2) with the approval of the President, may not exceed \$1,000,000,000. The Director shall report to the Committee on Banking, Finance and Urban Affairs of the House of Representatives and the Committee on Banking, Housing, and Urban Affairs of the Senate at any time when he requests the approval of the President in accordance with the preceding sentence.

(b) Any funds borrowed by the Director under this authority shall, from time to time, be deposited in the National Flood Insurance Fund established under section 4017 of this title.

{Sec. 1310}

**§ 4017. National Flood Insurance Fund**

**(a) Establishment; availability**

To carry out the flood insurance program authorized by this chapter, the Director shall establish in the Treasury of the United States a National Flood Insurance Fund (hereinafter referred to as the "fund") which shall be an account separate from any other accounts or funds available to the Director and shall be available as described in subsection (f) of this section, without fiscal year limitation (except as otherwise provided in this section)-

(1) for making such payments as may, from time to time, be required under section 4054 of this title;

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(2) to pay reinsurance claims under the excess loss reinsurance coverage provided under section 4055 of this title;

(3) to repay to the Secretary of the Treasury such sums as may be borrowed from him (together with interest) in accordance with the authority provided in section 4016 of this title; and

(4) to the extent approved in appropriations Acts, to pay any administrative expenses of the flood insurance and floodplain management programs (including the costs of mapping activities under section 4101 of this title);

(5) for the purposes specified in subsection (d) of this section under the conditions provided therein;

(6) for carrying out the program under section 4022(b) of this title;

(7) for transfers to the National Flood Mitigation Fund, but only to the extent provided in section 4104d(b)(1) of this title; and

(8) for costs of preparing the report under section 577 of the Riegle Community Development and Regulatory Improvement Act of 1994, except that the fund shall be available for the purpose under this paragraph in an amount not to exceed an aggregate of \$5,000,000 over the 2-year period beginning on September 23, 1994.

**(b) Credits to Fund**

The fund shall be credited with--

(1) such funds borrowed in accordance with the authority provided in section 4016 of this title as may from time to time be deposited in the fund;

(2) premiums, fees, or other charges which may be paid or collected in connection with the excess loss reinsurance coverage provided under section 4055 of this title;

(3) such amounts as may be advanced to the fund from appropriations in order to maintain the fund in an operative condition adequate to meet its liabilities;



(4) interest which may be earned on investments of the fund pursuant to subsection (c) of this section;

(5) such sums as are required to be paid to the Director under section 4015(d) of this title; and

(6) receipts from any other operations under this chapter (including premiums under the conditions specified in subsection (d) of this section, and salvage proceeds, if any, resulting from reinsurance coverage).

**(c) Investment of moneys in obligations issued or guaranteed by United States**

If, after--

(1) all outstanding obligations of the fund have been liquidated, and

(2) any outstanding amounts which may have been advanced to the fund from appropriations authorized under section 4127(a)(2)(B) of this title have been credited to the appropriation from which advanced, with interest accrued at the rate prescribed under section 2414(e) of this title, as in effect immediately prior to August 1, 1968,

the Director determines that the moneys of the fund are in excess of current needs, he may request the investment of such amounts as he deems advisable by the Secretary of the Treasury in obligations issued or guaranteed by the United States.

**(d) Availability of Fund if operation of program is carried out through facilities of Federal Government**

In the event the Director makes a determination in accordance with the provisions of section 4071 of this title that operation of the flood insurance program, in whole or in part, should be carried out through the facilities of the Federal Government, the fund shall be available for all purposes incident thereto, including--

(1) cost incurred in the adjustment and payment of any claims for losses, and

(2) payment of applicable operating costs set forth in the schedules prescribed under section 4018 of this title,

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for so long as the program is so carried out, and in such event any premiums paid shall be deposited by the Director to the credit of the fund.

**(e) Annual budget**

An annual business-type budget for the fund shall be prepared, transmitted to the Congress, considered, and enacted in the manner prescribed by sections 9103 and 9104 of title 31, United States Code, for wholly-owned Government corporations.

**(f) Availability of funds dependent on future appropriations acts**

The fund shall be available, with respect to any fiscal year beginning on or after October 1, 1981, only to the extent approved in appropriation Acts; except that the fund shall be available for the purpose described in subsection (d)(1) of this section without such approval.

{Sec. 1311}

**§ 4018. Operating costs and allowances; definitions**

(a) The Director shall from time to time negotiate with appropriate representatives of the insurance industry for the purpose of establishing--

(1) a current schedule of operating costs applicable both to risk-sharing insurance companies and other insurers and to insurance companies and other insurers, insurance agents and brokers, and insurance adjustment organizations participating on other than a risk-sharing basis, and

(2) a current schedule of operating allowances applicable to risk-sharing insurance companies and other insurers,

which may be payable in accordance with the provisions of subchapter II of this chapter [42 U.S.C. § 4041 *et seq.*], and such schedules shall from time to time be prescribed in regulations.

(b) For purposes of subsection (a) of this section--

(1) the term "operating costs" shall (without limiting such term) include--

(A) expense reimbursements covering the direct, actual, and necessary expenses incurred in connection with selling and servicing flood insurance coverage;

(B) reasonable compensation payable for selling and servicing flood insurance coverage, or commissions or service fees paid to producers;

(C) loss adjustment expenses; and

(D) other direct, actual, and necessary expenses which the Director finds are incurred in connection with selling or servicing flood insurance coverage; and

(2) the term "operating allowances" shall (without limiting such term) include amounts for profit and contingencies which the Director finds reasonable and necessary to carry out the purposes of this chapter.

{Sec. 1312}

#### **§ 4019. Payment of claims**

The Director is authorized to prescribe regulations establishing the general method or methods by which proved and approved claims for losses may be adjusted and paid for any damage to or loss of property which is covered by flood insurance made available under the provisions of this chapter.

{Sec. 1313}

#### **§ 4020. Dissemination of flood insurance information**

The Director shall from time to time take such action as may be necessary in order to make information and data available to the public, and to any State or local agency or official, with regard to--

(1) the flood insurance program, its coverage and objectives, and

(2) estimated and chargeable flood insurance premium rates, including the basis for and differences between such rates in accordance with the provisions of section 4015 of this title.

**§ 4021. Repealed**

Act of Dec. 31, 1973, P. L. 93-234, Title II, §203, 87 Stat. 982.

{Sec. 1315}

**§ 4022. State and local land use controls**

**(a) Requirement for participation in flood insurance program**

**(1) In general**

After December 31, 1971, no new flood insurance coverage shall be provided under this chapter in any area (or subdivision thereof) unless an appropriate public body shall have adopted adequate land use and control measures (with effective enforcement provisions) which the Director finds are consistent with the comprehensive criteria for land management and use under section 4102 of this title.

**(2) Agricultural structures**

**(A) Activity restrictions**

Notwithstanding any other provision of law, the adequate land use and control measures required to be adopted in an area (or subdivision thereof) pursuant to paragraph (1) may provide, at the discretion of the appropriate State or local authority, for the repair and restoration to predamaged conditions of an agricultural structure that--

(i) is a repetitive loss structure; or

(ii) has incurred flood-related damage to the extent that the cost of restoring the structure to its predamaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred.

**(B) Premium rates and coverage**

To the extent applicable, an agricultural structure repaired or restored pursuant to subparagraph (A) shall pay chargeable premium rates established under section 4015 of this title at the estimated risk premium rates under section 4014(a)(1) of this title. If resources are available, the Director shall provide technical assistance and counseling, upon request of the owner of the structure, regarding wet flood-proofing and other flood damage reduction measures for agricultural structures. The Director shall not be required to make flood insurance coverage available for such an agricultural structure unless the structure is wet flood-proofed through permanent or contingent measures applied to the structure or its contents that prevent or provide resistance to damage from flooding by allowing flood waters to pass through the structure, as determined by the Director.

**(C) Prohibition on disaster relief**

Notwithstanding any other provision of law, any agricultural structure repaired or restored pursuant to subparagraph (A) shall not be eligible for disaster relief assistance under any program administered by the Director or any other Federal agency.

**(D) Definitions**

For purposes of this paragraph--

(i) the term "agricultural structure" means any structure used exclusively in connection with the production, harvesting, storage, raising, or drying of agricultural commodities; and

(ii) the term "agricultural commodities" means agricultural commodities and livestock.

**(b) Community rating system and incentives for community floodplain management**

**(1) Authority and goals**

The Director shall carry out a community rating system program, under which communities participate voluntarily--

(A) to provide incentives for measures that reduce the risk of flood or erosion damage that exceed the criteria set forth in section 4102 of this title and evaluate such measures;

(B) to encourage adoption of more effective measures that protect natural and beneficial floodplain functions;

(C) to encourage floodplain and erosion management; and

(D) to promote the reduction of Federal flood insurance losses.

**(2) Incentives**

The program shall provide incentives in the form of credits on premium rates for flood insurance coverage in communities that the Director determines have adopted and enforced measures that reduce the risk of flood and erosion damage that exceed the criteria set forth in section 4102 of this title. In providing incentives under this paragraph, the Director may provide for credits to flood insurance premium rates in communities that the Director determines have implemented measures that protect natural and beneficial floodplain functions.

**(3) Credits**

The credits on premium rates for flood insurance coverage shall be based on the estimated reduction in flood and erosion damage risks resulting from the measures adopted by the community under this program. If a community has received mitigation assistance under section 4104c of this title, the credits shall be phased in a manner, determined by the Director, to recover the amount of such assistance provided for the community.

**(4) Reports**

Not later than 2 years after September 23, 1994, and not less than every 2 years thereafter, the Director shall submit a report to the Congress regarding the program under this subsection. Each report shall include an analysis of the cost-effectiveness of the program, any other accomplishments or shortcomings of the program, and any recommendations of the Director for legislation regarding the program.

{Sec. 1316}

**§ 4023. Properties in violation of State and local law**

No new flood insurance coverage shall be provided under this chapter for any property which the Director finds has been declared by a duly constituted State or local zoning authority, or other authorized public body, to be in violation of State or local laws, regulations, or ordinances which are intended to discourage or otherwise restrict land development or occupancy in flood-prone areas.

{Sec. 1317}

**§ 4024. Coordination with other programs**

In carrying out this chapter, the Director shall consult with other departments and agencies of the Federal Government, and with interstate, State, and local agencies having responsibilities for flood control, flood forecasting, or flood damage prevention, in order to assure that the programs of such agencies and the flood insurance program authorized under this chapter are mutually consistent.

{Sec. 1318}

**§ 4025. Flood insurance advisory committee**

**(a) Appointment; duties**

The Director shall appoint a flood insurance advisory committee without regard to the provisions of title 5, United States Code, governing appointments in the competitive service, and such committee shall advise the Director in the preparation of any regulations prescribed in accordance with this chapter and with respect to policy matters arising in the administration of this chapter, and shall perform such other responsibilities as the Director may, from time to time, assign to such committee.

**(b) Membership**

Such committee shall consist of not more than fifteen persons and such persons shall be selected from among representatives of--

- (1) the insurance industry,
- (2) State and local governments,
- (3) lending institutions,
- (4) the homebuilding industry, and
- (5) the general public.

**(c) Compensation and travel expenses**

Members of the committee shall, while attending conferences or meetings thereof, be entitled to receive compensation at a rate fixed by the Director but not exceeding \$100 per day, including traveltime, and while so serving away from their homes or regular places of business they may be allowed travel expenses, including per diem in lieu of subsistence, as is authorized under section 5703 of title 5, United States Code, for persons in the Government service employed intermittently.

{Sec. 1319}

**§ 4026. Expiration of program**

No new contract for flood insurance under this chapter shall be entered into after September 30, 1997.

{Sec. 1320}

**§ 4027. Biennial report to President**

**(a) In general**

The Director shall biennially submit a report of operations under this chapter to the President for submission to the Congress.

**(b) Effects of flood insurance program**

The Director shall include, as part of the biennial report submitted under subsection (a) of this section, a chapter reporting on the effects on the



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flood insurance program observed through implementation of requirements under the Riegle Community Development and Regulatory Improvement Act of 1994.

{Sec. 1321}

**§ 4028. Coastal Barrier Resources System**

(a) No new flood insurance coverage may be provided under this chapter on or after October 1, 1983, for any new construction or substantial improvements of structures located on any coastal barrier within the Coastal Barrier Resources System established by section 3503 of title 16. A federally insured financial institution may make loans secured by structures which are not eligible for flood insurance by reason of this section.

(b) No new flood insurance coverage may be provided under this chapter after the expiration of the 1-year period beginning on November 16, 1990, for any new construction or substantial improvements of structures located in any area identified and depicted on the maps referred to in section 3503(a) of title 16 as an area that is (1) not within the Coastal Barrier Resources System and (2) is in an otherwise protected area. Notwithstanding the preceding sentence, new flood insurance coverage may be provided for structures in such protected areas that are used in a manner consistent with the purpose for which the area is protected.

{Sec. 1322}

**§ 4029. Colorado River Floodway**

**(a) Renewal and transfer of policies; acquisition of policies after filing of maps**

Owners of existing National Flood Insurance Act policies with respect to structures located within the Floodway established under section 1600c of title 43, United States Code, shall have the right to renew and transfer such policies. Owners of existing structures located within said Floodway on October 8, 1986, who have not acquired National Flood Insurance Act policies shall have the right to acquire policies with respect to such structures for six months after the Secretary of the Interior files the

Floodway maps required by section 1600c(b)(2) of title 43 and to renew and transfer such policies.

**(b) New coverage for new construction or substantial improvements**

No new flood insurance coverage may be provided under this chapter on or after a date six months after October 8, 1986, for any new construction or substantial improvements of structures located within the Colorado River Floodway established by section 1600c of title 43, United States Code. New construction includes all structures that are not insurable prior to that date.

**(c) Establishment of temporary boundaries**

The Secretary of the Interior may by rule after notice and comment pursuant to section 553 of title 5 establish temporary Floodway boundaries to be in effect until the maps required by section 1600c(b)(2) of title 43 are filed, for the purpose of enforcing subsections (b) and (d) of this section.

**(d) Loans by federally supervised, approved, regulated, or insured financial institutions**

A regulated lending institution or Federal agency lender may make loans secured by structures which are not eligible for flood insurance by reason of this section: Provided, That prior to making such a loan, such institution determines that the loans or structures securing the loan are within the Floodway.

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**UNITED STATES CODE**  
**TITLE 42--THE PUBLIC HEALTH AND WELFARE**  
**CHAPTER 50--NATIONAL FLOOD INSURANCE**

**SUBCHAPTER II--ORGANIZATION AND ADMINISTRATION OF  
FLOOD INSURANCE PROGRAM**

{Sec. 1330}

**§ 4041. Implementation of program**

Following such consultation with representatives of the insurance industry as may be necessary, the Director shall implement the flood insurance program authorized under subchapter I of this chapter [42 U.S.C. § 4011 *et seq.*] in accordance with the provisions of part A of this subchapter [42 U.S.C. § 4051 *et seq.*] and, if a determination is made by him under section 4071 of this title, under part B of this subchapter [42 U.S.C. § 4071 *et seq.*].

**PART A--INDUSTRY PROGRAM WITH FEDERAL FINANCIAL  
ASSISTANCE**

{Sec. 1331}

**§ 4051. Industry flood insurance pool; requirements for participation**

(a) The Director is authorized to encourage and otherwise assist any insurance companies and other insurers which meet the requirements prescribed under subsection (b) to form, associate, or otherwise join together in a pool--

(1) in order to provide the flood insurance coverage authorized under chapter I [42 U.S.C. § 4011 *et seq.*], and

(2) for the purpose of assuming, on such terms and conditions as may be agreed upon, such financial responsibility as will enable such companies and other insurers, with the Federal financial and other assistance available

under this title, to assume a reasonable proportion of responsibility for the adjustment and payment of claims for losses under the flood insurance program.

(b) In order to promote the effective administration of the flood insurance program under this part [42 USCS §4051 et seq.], and to assure that the objectives of this title are furthered, the Director is authorized to prescribe appropriate requirements for insurance companies and other insurers participating in such pool including, but not limited to, minimum requirements for capital or surplus or assets.

{Sec. 1332}

**§ 4052. Agreements with flood insurance pool**

**(a) Authorization**

The Director is authorized to enter into such agreements with the pool formed or otherwise created under this part [42 U.S.C. § 4051 *et seq.*] as he deems necessary to carry out the purposes of this chapter [42 U.S.C. § 4001 *et seq.*].

**(b) Terms and conditions**

Such agreements shall specify--

- (1) the terms and conditions under which risk capital will be available for the adjustment and payment of claims,
- (2) the terms and conditions under which the pool (and the companies and other insurers participating therein) shall participate in premiums received and profits or losses realized or sustained,
- (3) the maximum amount of profit, established by the Director and set forth in the schedules prescribed under section 4018 of this title, which may be realized by such pool (and the companies and other insurers participating therein),

(4) the terms and conditions under which operating costs and allowances set forth in the schedules prescribed under section 4018 of this title may be paid, and

(5) the terms and conditions under which premium equalization payments under section 4054 of this title will be made and reinsurance claims under section 4055 of this title will be paid.

**(c) Additional provisions**

In addition, such agreements shall contain such provisions as the Director finds necessary to assure that--

(1) no insurance company or other insurer which meets the requirements prescribed under section 4051(b) of this title, and which has indicated an intention to participate in the flood insurance program on a risk-sharing basis, will be excluded from participating in the pool,

(2) the insurance companies and other insurers participating in the pool will take whatever action may be necessary to provide continuity of flood insurance coverage by the pool, and

(3) any insurance companies and other insurers, insurance agents and brokers, and insurance adjustment organizations will be permitted to cooperate with the pool as fiscal agents or otherwise, on other than a risk-sharing basis, to the maximum extent practicable.

{Sec. 1333}

**§ 4053. Adjustment and payment of claims; judicial review; limitations; jurisdiction**

The insurance companies and other insurers which form, associate, or otherwise join together in the pool under this part may adjust and pay all claims for proved and approved losses covered by flood insurance in accordance with the provisions of this chapter and, upon the disallowance by any such company or other insurer of any such claim, or upon the refusal of the claimant to accept the amount allowed upon any such claim, the claimant, within one year after the date of mailing of notice of disallowance or partial disallowance of the claim, may institute an action on

such claim against such company or other insurer in the United States district court for the district in which the insured property or the major part thereof shall have been situated, and original exclusive jurisdiction is hereby conferred upon such court to hear and determine such action without regard to the amount in controversy.

{Sec. 1334}

**§ 4054. Premium equalization payments; basis; aggregate amount; establishment of designated periods**

(a) The Director, on such terms and conditions as he may from time to time prescribe, shall make periodic payments to the pool formed or otherwise created under section 4051 of this title, in recognition of such reductions in chargeable premium rates under section 4015 of this title below estimated premium rates under section 4014(a)(1) of this title as are required in order to make flood insurance available on reasonable terms and conditions.

(b) Designated periods under this section and the methods for determining the sum of premiums paid or payable during such periods shall be established by the Director.

{Sec. 1335}

**§ 4055. Reinsurance coverage**

**(a) Availability for excess losses**

The Director is authorized to take such action as may be necessary in order to make available, to the pool formed or otherwise created under section 4051 of this title, reinsurance for losses (due to claims for proved and approved losses covered by flood insurance) which are in excess of losses assumed by such pool in accordance with the excess loss agreement entered into under subsection (c) of this section.

**(b) Availability pursuant to contract, agreement, or other arrangement; payment of premium, fee, or other charge**

Such reinsurance shall be made available pursuant to contract, agreement, or any other arrangement, in consideration of such payment of a premium, fee, or other charge as the Director finds necessary to cover anticipated losses and other costs of providing such reinsurance.

**(c) Excess loss agreement; negotiation**

The Director is authorized to negotiate an excess loss agreement, from time to time, under which the amount of flood insurance retained by the pool, after ceding reinsurance, shall be adequate to further the purposes of this chapter, consistent with the objective of maintaining appropriate financial participation and risk sharing to the maximum extent practicable on the part of participating insurance companies and other insurers.

**(d) Submission of excess losses on portfolio basis**

All reinsurance claims for losses in excess of losses assumed by the pool shall be submitted on a portfolio basis by such pool in accordance with terms and conditions established by the Director.

{Sec. 1336}

**§ 4056. Emergency implementation of flood insurance program; applicability of other provisions of law**

(a) Notwithstanding any other provisions of this chapter, for the purpose of providing flood insurance coverage at the earliest possible time, the Director shall carry out the flood insurance program authorized under subchapter I of this chapter [42 U.S.C. § 4011 *et seq.*], during the period ending September 30, 1996, in accordance with the provisions of this part and the other provisions of this chapter insofar as they relate to this part but subject to the modifications made by or under subsection (b) of this section.

(b) In carrying out the flood insurance program pursuant to subsection (a) of this section, the Director--

(1) shall provide insurance coverage without regard to any estimated risk premium rates which would otherwise be determined under section 4014 of this title; and

(2) shall utilize the provisions and procedures contained in or prescribed by this part (other than section 4054 of this title) and sections 4081 and 4082 of this title to such extent and in such manner as he may consider necessary or appropriate to carry out the purpose of this section.

### **Part B--Government Program With Industry Assistance**

{Sec. 1340}

#### **§ 4071. Federal operation of program; determination by Director; fiscal agents; report to Congress**

(a) If at any time, after consultation with representatives of the insurance industry, the Director determines that operation of the flood insurance program as provided under part A [42 U.S.C. § 4051 *et seq.*] cannot be carried out, or that such operation, in itself, would be assisted materially by the Federal Government's assumption, in whole or in part, of the operational responsibility for flood insurance under this chapter (on a temporary or other basis) he shall promptly undertake any necessary arrangements to carry out the program of flood insurance authorized under subchapter I of this chapter [42 U.S.C. § 4011 *et seq.*] through the facilities of the Federal Government, utilizing, for purposes of providing flood insurance coverage, either--

(1) insurance companies and other insurers, insurance agents and brokers, and insurance adjustment organizations, as fiscal agents of the United States,

(2) such other officers and employees of any executive agency (as defined in section 105 of title 5 of the United States Code) as the Director and the head of any such agency may from time to time, agree upon, on a reimbursement or other basis, or

(3) both the alternatives specified in paragraphs (1) and (2).



(b) Upon making the determination referred to in subsection (a) of this section, the Director shall make a report to the Congress and, at the same time, to the private insurance companies participating in the National Flood Insurance Program pursuant to section 4017 of this title. Such report shall-

- (1) state the reason for such determinations,
- (2) be supported by pertinent findings,
- (3) indicate the extent to which it is anticipated that the insurance industry will be utilized in providing flood insurance coverage under the program, and
- (4) contain such recommendations as the Director deems advisable.

The Director shall not implement the program of flood insurance authorized under subchapter I of this chapter through the facilities of the Federal Government until 9 months after the date of submission of the report under this subsection unless it would be impossible to continue to effectively carry out the National Flood Insurance Program operations during this time.

{Sec. 1341}

**§ 4072. Adjustment and payment of claims; judicial review; limitations; jurisdiction**

In the event the program is carried out as provided in section 4071 of this title, the Director shall be authorized to adjust and make payment of any claims for proved and approved losses covered by flood insurance, and upon the disallowance by the Director of any such claim, or upon the refusal of the claimant to accept the amount allowed upon any such claim, the claimant, within one year after the date of mailing of notice of disallowance or partial disallowance by the Director, may institute an action against the Director on such claim in the United States district court for the district in which the insured property or the major part thereof shall have been situated, and original exclusive jurisdiction is hereby conferred upon such court to hear and determine such action without regard to the amount in the controversy.

### Part C--General Provisions

{Sec. 1345}

#### **§ 4081. Services by insurance industry; contracts, agreements, or other arrangements**

(a) In administering the flood insurance program under this subchapter [42 U.S.C. § 4041 *et seq.*], the Director is authorized to enter into any contracts, agreements, or other appropriate arrangements which may, from time to time, be necessary for the purpose of utilizing, on such terms and conditions as may be agreed upon, the facilities and services of any insurance companies or other insurers, insurance agents and brokers, or insurance adjustment organizations; and such contracts, agreements, or arrangements may include provision for payment of applicable operating costs and allowances for such facilities and services as set forth in the schedules prescribed under section 4018 of this title.

(b) Any such contracts, agreements, or other arrangements may be entered into without regard to the provisions of section 5 of title 41, United States Code, or any other provision of law requiring competitive bidding and without regard to the provisions of the Federal Advisory Committee Act (5 U.S.C. App.).

(c) The Director of the Federal Emergency Management Agency shall hold any agent or broker selling or undertaking to sell flood insurance under this chapter harmless from any judgment for damages against such agent or broker as a result of any court action by a policyholder or applicant arising out of an error or omission on the part of the Federal Emergency Management Agency, and shall provide any such agent or broker with indemnification, including court costs and reasonable attorney fees, arising out of and caused by an error or omission on the part of the Federal Emergency Management Agency and its contractors. The Director of the Federal Emergency Management Agency may not hold harmless or indemnify an agent or broker for his or her error or omission.

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{Sec. 1346}

**§ 4082. Use of insurance pool, companies, or other private organizations for certain payments**

**(a) Authorization to enter into contracts for certain responsibilities**

In order to provide for maximum efficiency in the administration of the flood insurance program and in order to facilitate the expeditious payment of any Federal funds under such program, the Director may enter into contracts with pool formed or otherwise created under section 4051 of this title, or any insurance company or other private organizations, for the purpose of securing performance by such pool, company, or organization of any or all of the following responsibilities:

- (1) estimating and later determining any amounts of payments to be made;
- (2) receiving from the Director, disbursing, and accounting for funds in making such payments;
- (3) making such audits of the records of any insurance company or other insurer, insurance agent or broker, or insurance adjustment organization as may be necessary to assure that proper payments are made; and
- (4) otherwise assisting in such manner as the contract may provide to further the purposes of this chapter.

**(b) Terms and conditions of contract**

Any contract with the pool or an insurance company or other private organization under this section may contain such terms and conditions as the Director finds necessary or appropriate for carrying out responsibilities under subsection (a) of this section, and may provide for payment of any costs which the Director determines are incidental to carrying out such responsibilities which are covered by the contract.

**(c) Competitive bidding**

Any contract entered into under subsection (a) of this section may be entered into without regard to section 5 of title 41, United States Code, or any other provision of law requiring competitive bidding.

**(d) Findings of Director**

No contract may be entered into under this section unless the Director finds that the pool, company, or organization will perform its obligations under the contract efficiently and effectively, and will meet such requirements as to financial responsibility, legal authority, and other matters as he finds pertinent.

**(e) Bond; liability of certifying officers and disbursing officers**

(1) Any such contract may require the pool, company, or organization or any of its officers or employees certifying payments or disbursing funds pursuant to the contract, or otherwise participating in carrying out the contract, to give surety bond to the United States in such amount as the Director may deem appropriate.

(2) No individual designated pursuant to a contract under this section to certify payments shall, in the absence of gross negligence or intent to defraud the United States, be liable with respect to any payment certified by him under this section.

(3) No officer disbursing funds shall in the absence of gross negligence or intent to defraud the United States, be liable with respect to any payment by him under this section if it was based upon a voucher signed by an individual designated to certify payments as provided in paragraph (2) of this subsection.

**(f) Term of contract; renewals; termination**

Any contract entered into under this section shall be for a term of one year, and may be made automatically renewable from term to term in the absence of notice by either party of an intention to terminate at the end of the current term; except that the Director may terminate any such contract at any time (after reasonable notice to the pool, company, or organization involved) if he finds that the pool, company, or organization has failed substantially to carry out the contract, or is carrying out the contract in a manner inconsistent with the efficient and effective administration of the flood insurance program authorized under this chapter.

{Sec. 1347}

**§ 4083. Settlement of claims; arbitration**

(a) The Director is authorized to make final settlement of any claims or demands which may arise as a result of any financial transactions which he is authorized to carry out under this subchapter [42 U.S.C. § 4011 *et seq.*], and may, to assist him in making any such settlement, refer any disputes relating to such claims or demands to arbitration, with the consent of the parties concerned.

(b) Such arbitration shall be advisory in nature, and any award, decision, or recommendation which may be made shall become final only upon the approval of the Director.

{Sec. 1348}

**§ 4084. Records and audits**

(a) The flood insurance pool formed or otherwise created under part A of this subchapter [42 U.S.C. § 4051 *et seq.*], and any insurance company or other private organization executing any contract, agreement, or other appropriate arrangement with the Director under part B of this subchapter [42 U.S.C. § 4071 *et seq.*] or this part, shall keep such records as the Director shall prescribe, including records which fully disclose the total costs of the program undertaken or the services being rendered, and such other records as will facilitate an effective audit.

(b) The Director and the Comptroller General of the United States, or any of their duly authorized representatives, shall have access for the purpose of audit and examination to any books, documents, papers, and records of the pool and any such insurance company or other private organization that are pertinent to the costs of the program undertaken or the services being rendered.

**UNITED STATES CODE**  
**TITLE 42--THE PUBLIC HEALTH AND WELFARE**  
**CHAPTER 50--NATIONAL FLOOD INSURANCE**

**SUBCHAPTER III--COORDINATION OF FLOOD INSURANCE**  
**WITH LAND-MANAGEMENT PROGRAMS IN FLOOD-PRONE**  
**AREAS**

{Sec. 1360}

**§ 4101. Identification of flood-prone areas**

**(a) Publication of information; establishment of flood-risk zones;  
estimates of flood-caused loss**

The Director is authorized to consult with, receive information from, and enter into any agreements or other arrangements with the Secretaries of the Army, the Interior, Agriculture, and Commerce, the Tennessee Valley Authority, and the heads of other Federal departments or agencies, on a reimbursement basis, or with the head of any State or local agency, or enter into contracts with any persons or private firms, in order that he may--

(1) identify and publish information with respect to all flood plain areas, including coastal areas located in the United States, which has special flood hazards, within five years following August 1, 1968, and

(2) establish or update flood-risk zone data in all such areas, and make estimates with respect to the rates of probable flood caused loss for the various flood risk zones for each of these areas until the date specified in section 4026 of this title.

**(b) Accelerated identification of flood-risk zones; authority of  
Director: grants, technical assistance, transactions, and  
payments**

The Director is directed to accelerate the identification of risk zones within flood-prone and mudslide-prone areas, as provided by subsection (a)(2) of this section, in order to make known the degree of hazard within each such zone at the earliest possible date. To accomplish this objective,

the Director is authorized, without regard to subsections (a) and (b) of section 3324 of title 31, United States Code, and section 5 of title 41, United States Code, to make grants, provide technical assistance, and enter into contracts, cooperative agreements, or other transactions, on such terms as he may deem appropriate, or consent to modifications thereof, and to make advance or progress payments in connection therewith.

**(c) Priority in allocation of manpower and other available resources for identification and mapping of flood hazard areas and flood-risk zones**

The Secretary of Defense (through the Army Corps of Engineers), the Secretary of the Interior (through the United States Geological Survey), the Secretary of Agriculture (through the Soil Conservation Service), the Secretary of Commerce (through the National Oceanic and Atmospheric Administration), the head of the Tennessee Valley Authority, and the heads of all other Federal agencies engaged in the identification or delineation of flood-risk zones within the several States shall, in consultation with the Director, give the highest practicable priority in the allocation of available manpower and other available resources to the identification and mapping of flood hazard areas and flood-risk zones, in order to assist the Director to meet the deadline established by this section.

**(d) Plan for bringing communities with flood-risk zones into full program status**

The Director shall, not later than September 30, 1984, submit to the Congress a plan for bringing all communities containing flood-risk zones into full program status by September 30, 1987.

**(e) Review of flood maps**

Once during each 5-year period (the 1st such period beginning on September 23, 1994) or more often as the Director determines necessary, the Director shall assess the need to revise and update all floodplain areas and flood risk zones identified, delineated, or established under this section, based on an analysis of all natural hazards affecting flood risks.

**(f) Updating flood maps**

The Director shall revise and update any floodplain areas and flood-risk zones--

(1) upon the determination of the Director, according to the assessment under subsection (e) of this section, that revision and updating are necessary for the areas and zones; or

(2) upon the request from any State or local government stating that specific floodplain areas or flood-risk zones in the State or locality need revision or updating, if sufficient technical data justifying the request is submitted and the unit of government making the request agrees to provide funds in an amount determined by the Director, but which may not exceed 50 percent of the cost of carrying out the requested revision or update.

**(g) Availability of flood maps**

To promote compliance with the requirements of this chapter [42 U.S.C. § 4001 *et seq.*], the Director shall make flood insurance rate maps and related information available free of charge to the Federal entities for lending regulation, Federal agency lenders, State agencies directly responsible for coordinating the national flood insurance program, and appropriate representatives of communities participating in the national flood insurance program, and at a reasonable cost to all other persons. Any receipts resulting from this subsection shall be deposited in the National Flood Insurance Fund, pursuant to section 4017(b)(6) of this title.

**(h) Notification of flood map changes**

The Director shall cause notice to be published in the Federal Register (or shall provide notice by another comparable method) of any change to flood insurance map panels and any change to flood insurance map panels issued in the form of a letter of map amendment or a letter of map revision. Such notice shall be published or otherwise provided not later than 30 days after the map change or revision becomes effective. Notice by any method other than publication in the Federal Register shall include all pertinent information, provide for regular and frequent distribution, and be at least as accessible to map users as notice in the Federal Register. All notices under this subsection shall include information on how to obtain copies of the changes or revisions.

**(i) Compendia of flood map changes**

Every 6 months, the Director shall publish separately in their entirety within a compendium, all changes and revisions to flood insurance map



panels and all letters of map amendment and letters of map revision for which notice was published in the Federal Register or otherwise provided during the preceding 6 months. The Director shall make such compendia available, free of charge, to Federal entities for lending regulation, Federal agency lenders, and States and communities participating in the national flood insurance program pursuant to section 4017 of this title and at cost to all other parties. Any receipts resulting from this subsection shall be deposited in the National Flood Insurance Fund, pursuant to section 4017(b)(6) of this title.

**(j) Provision of information**

In the implementation of revisions to and updates of flood insurance rate maps, the Director shall share information, to the extent appropriate, with the Under Secretary of Commerce for Oceans and Atmosphere and representatives from State coastal zone management programs.

{Sec. 1361}

**§ 4102. Criteria for land management and use**

**(a) Studies and investigations**

The Director is authorized to carry out studies and investigations, utilizing to the maximum extent practicable the existing facilities and services of other Federal departments or agencies, and State and local governmental agencies, and any other organizations, with respect to the adequacy of State and local measures in flood-prone areas, as to land management and use, flood control, flood zoning, and flood damage prevention, and may enter into any contracts, agreements, or other appropriate arrangements to carry out such authority.

**(b) Extent of studies and investigations**

Such studies and investigations shall include, but not be limited to, laws, regulations, or ordinances relating to encroachments and obstructions on stream channels and floodways, the orderly development and use of flood plains of rivers or streams, floodway encroachment lines, and flood plain zoning, building codes, building permits, and subdivision or other building restrictions.

**(c) Development of comprehensive criteria designed to encourage adoption of adequate State and local measures.**

On the basis of such studies and investigations, and such other information as he deems necessary, the Director shall from time to time develop comprehensive criteria designed to encourage, where necessary, the adoption of adequate State and local measures which, to the maximum extent feasible, will--

- (1) constrict the development of land which is exposed to flood damage where appropriate,
- (2) guide the development of proposed construction away from locations which are threatened by flood hazards,
- (3) assist in reducing damage caused by floods, and
- (4) otherwise improve the long-range land management and use of flood-prone areas,

and he shall work closely with and provide any necessary technical assistance to State, interstate, and local governmental agencies, to encourage the application of such criteria and the adoption and enforcement of such measures.

**§ 4103. Repealed**

{Sec. 1363}

**§ 4104. Flood elevation determinations**

**(a) Publication or notification of proposed flood elevation determinations**

In establishing projected flood elevations for land use purposes with respect to any community pursuant to section 4102 of this title, the

Director shall first propose such determinations by publication for comment in the Federal Register, by direct notification to the chief executive officer of the community, and by publication in a prominent local newspaper.

**(b) Publication of flood elevation determinations; appeal of owner or lessee to local government; scientific or technical knowledge or information as basis for appeal; modification of proposed determinations**

The Director shall publish notification of flood elevation determinations in a prominent local newspaper at least twice during the ten-day period following notification to the local government. During the ninety-day period following the second publication, any owner or lessee of real property within the community who believes his property rights to be adversely affected by the Director's proposed determination may appeal such determination to the local government. The sole basis for such appeal shall be the possession of knowledge or information indicating that the elevations being proposed by the Director with respect to an identified area having special flood hazards are scientifically or technically incorrect, and the sole relief which shall be granted under the authority of this section in the event that such appeal is sustained in accordance with subsection (e) or (f) of this section is a modification of the Director's proposed determination accordingly.

**(c) Appeals by private persons; submission of negating or contradicting data to community; opinion of community respecting justification for appeal by community; transmission of individual appeals to Director; filing of community action with Director**

Appeals by private persons shall be made to the chief executive officer of the community, or to such agency as he shall publicly designate, and shall set forth the data that tend to negate or contradict the Director's finding in such form as the chief executive officer may specify. The community shall review and consolidate all such appeals and issue a written opinion stating whether the evidence presented is sufficient to justify an appeal on behalf of such persons by the community in its own name. Whether or not the community decides to appeal the Director's determination, copies of individual appeals shall be sent to the Director as they are received by the community, and the community's appeal or a copy of its decision not to appeal shall be filed with the Director not later than ninety days after the date of the second newspaper publication of the Director's notification.

**(d) Administrative review of appeals by private persons; modification of proposed determinations; decision of Director: form and distribution**

In the event the Director does not receive an appeal from the community within the ninety days provided, he shall consolidate and review on their own merits, in accordance with the procedures set forth in subsection (e) of this section, the appeals filed within the community by private persons and shall make such modifications of his proposed determinations as may be appropriate, taking into account the written opinion, if any, issued by the community in not supporting such appeals. The Director's decision shall be in written form, and copies thereof shall be sent both to the chief executive officer of the community and to each individual appellant.

**(e) Administrative review of appeals by community; agencies for resolution of conflicting data; availability of flood insurance pending such resolution; time for determination of Director; community adoption of local land use and control measures within reasonable time of final determination; public inspection and admissibility in evidence of reports and other administrative information**

Upon appeal by any community, as provided by this section, the Director shall review and take fully into account any technical or scientific data submitted by the community that tend to negate or contradict the information upon which his proposed determination is based. The Director shall resolve such appeal by consultation with officials of the local government involved, by administrative hearing, or by submission of the conflicting data to an independent scientific body or appropriate Federal agency for advice. Until the conflict in data is resolved, and the Director makes a final determination on the basis of his findings in the Federal Register, and so notifies the governing body of the community, flood insurance previously available within the community shall continue to be available, and no person shall be denied the right to purchase such insurance at chargeable rates. The Director shall make his determination within a reasonable time. The community shall be given a reasonable time after the Director's final determination in which to adopt local land use and control measures consistent with the Director's determination. The reports and other information used by the Director in making his final determination shall be made available for public inspection and shall be

admissible in a court of law in the event the community seeks judicial review as provided by this section.

**(f) Reimbursement of certain expenses; appropriation authorization**

When, incident to any appeal under subsection (b) or (c) of this section, the owner or lessee of real property or the community, as the case may be, incurs expense in connection with the services of surveyors, engineers, or similar services, but not including legal services, in the effecting of an appeal which is successful in whole or part, the Director shall reimburse such individual or community to an extent measured by the ratio of the successful portion of the appeal as compared to the entire appeal and applying such ratio to the reasonable value of all such services, but no reimbursement shall be made by the Director in respect to any fee or expense payment, the payment of which was agreed to be contingent upon the result of the appeal. There is authorized to be appropriated for purposes of implementing this subsection, not to exceed \$250,000.

**(g) Judicial review of final administrative determinations; venue; time for appeal; scope of review; good cause for stay of final determinations**

Any appellant aggrieved by any final determination of the Director upon administrative appeal, as provided by this section, may appeal such determination to the United States district court for the district within which the community is located not more than sixty days after receipt of notice of such determination. The scope of review by the court shall be as provided by chapter 7 of title 5, United States Code. During the pendency of any such litigation, all final determinations of the Director shall be effective for the purposes of this chapter [42 U.S.C. § 4001 *et seq.*] unless stayed by the court for good cause shown.

## **§ 4104a. Notice requirements**

### **(a) Notification of special flood hazards**

#### **(1) Regulated lending institutions**

Each Federal entity for lending regulation (after consultation and coordination with the Financial Institutions Examination Council) shall by regulation require regulated lending institutions, as a condition of making, increasing, extending, or renewing any loan secured by improved real estate or a mobile home that the regulated lending institution determines is located or is to be located in an area that has been identified by the Director under this chapter [42 U.S.C. § 4001 *et seq.*] or the Flood Disaster Protection Act of 1973 as an area having special flood hazards, to notify the purchaser or lessee (or obtain satisfactory assurances that the seller or lessor has notified the purchaser or lessee) and the servicer of the loan of such special flood hazards, in writing, a reasonable period in advance of the signing of the purchase agreement, lease, or other documents involved in the transaction. The regulations shall also require that the regulated lending institution retain a record of the receipt of the notices by the purchaser or lessee and the servicer.

#### **(2) Federal agency lenders**

Each Federal agency lender shall by regulation require notification in the manner provided under paragraph (1) with respect to any loan that is made by the Federal agency lender and secured by improved real estate or a mobile home located or to be located in an area that has been identified by the Director under this chapter [42 U.S.C. § 4001 *et seq.*] or the Flood Disaster Protection Act of 1973 as an area having special flood hazards. Any regulations issued under this paragraph shall be consistent with and substantially identical to the regulations issued under paragraph (1).

#### **(3) Contents of notice**

Written notification required under this subsection shall include--

(A) a warning, in a form to be established by the Director, stating that the building on the improved real estate securing the loan is located, or the

mobile home securing the loan is or is to be located, in an area having special flood hazards;

(B) a description of the flood insurance purchase requirements under section 102(b) of the Flood Disaster Protection Act of 1973 [42 U.S.C. § 4012a(b)];

(C) a statement that flood insurance coverage may be purchased under the national flood insurance program and is also available from private insurers; and

(D) any other information that the Director considers necessary to carry out the purposes of the national flood insurance program.

**(b) Notification of change of servicer**

**(1) Lending institutions**

Each Federal entity for lending regulation (after consultation and coordination with the Financial Institutions Examination Council) shall by regulation require regulated lending institutions, in connection with the making, increasing, extending, renewing, selling, or transferring any loan described in subsection (a)(1) of this section, to notify the Director (or the designee of the Director) in writing during the term of the loan of the servicer of the loan. Such institutions shall also notify the Director (or such designee) of any change in the servicer of the loan, not later than 60 days after the effective date of such change. The regulations under this subsection shall provide that upon any change in the servicing of a loan, the duty to provide notification under this subsection shall transfer to the transferee servicer of the loan.

**(2) Federal agency lenders**

Each Federal agency lender shall by regulation provide for notification in the manner provided under paragraph (1) with respect to any loan described in subsection (a)(1) of this section that is made by the Federal agency lender. Any regulations issued under this paragraph shall be consistent with and substantially identical to the regulations issued under paragraph (1) of this subsection.

**(c) Notification of expiration of insurance**

The Director (or the designee of the Director) shall, not less than 45 days before the expiration of any contract for flood insurance under this chapter [42 U.S.C. § 4001 *et seq.*], issue notice of such expiration by first class mail to the owner of the property covered by the contract, the servicer of any loan secured by the property covered by the contract, and (if known to the Director) the owner of the loan.

{Sec. 1365}

**§ 4104b. Standard hazard determination forms**

**(a) Development**

The Director, in consultation with representatives of the mortgage and lending industry, the Federal entities for lending regulation, the Federal agency lenders, and any other appropriate individuals, shall develop a standard form for determining, in the case of a loan secured by improved real estate or a mobile home, whether the building or mobile home is located in an area identified by the Director as an area having special flood hazards and in which flood insurance under this chapter [42 U.S.C. § 4001 *et seq.*] is available. The form shall be established by regulations issued not later than 270 days after September 23, 1994.

**(b) Design and contents**

**(1) Purpose**

The form under subsection (a) of this section shall be designed to facilitate compliance with the flood insurance purchase requirements of this chapter [42 U.S.C. § 4001 *et seq.*].

**(2) Contents**

The form shall require identification of the type of flood-risk zone in which the building or mobile home is located, the complete map and panel numbers for the improved real estate or property on which the mobile home is located, the community identification number and community participation status (for purposes of the national flood insurance program)



of the community in which the improved real estate or such property is located, and the date of the map used for the determination, with respect to flood hazard information on file with the Director. If the building or mobile home is not located in an area having special flood hazards the form shall require a statement to such effect and shall indicate the complete map and panel numbers of the improved real estate or property on which the mobile home is located. If the complete map and panel numbers are not available because the building or mobile home is not located in a community that is participating in the national flood insurance program or because no map exists for the relevant area, the form shall require a statement to such effect. The form shall provide for inclusion or attachment of any relevant documents indicating revisions or amendments to maps.

**(c) Required use**

The Federal entities for lending regulation shall by regulation require the use of the form under this section by regulated lending institutions. Each Federal agency lender shall by regulation provide for the use of the form with respect to any loan made by such Federal agency lender. The Federal National Mortgage Association and the Federal Home Loan Mortgage Corporation and the Government National Mortgage Association shall require the use of the form with respect to any loan purchased by such entities. A lender or other person may comply with the requirement under this subsection by using the form in a printed, computerized, or electronic manner.

**(d) Guarantees regarding information**

In providing information regarding special flood hazards on the form developed under this section, any lender (or other person required to use the form) who makes, increases, extends, or renews a loan secured by improved real estate or a mobile home may provide for the acquisition or determination of such information to be made by a person other than such lender (or other person), only to the extent such person guarantees the accuracy of the information.

**(e) Reliance on previous determination**

Any person increasing, extending, renewing, or purchasing a loan secured by improved real estate or a mobile home may rely on a previous determination of whether the building or mobile home is located in an area having special flood hazards (and shall not be liable for any error in such

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Section 1365  
[42 U.S.C. § 4104b]

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previous determination), if the previous determination was made not more than 7 years before the date of the transaction and the basis for the previous determination has been set forth on a form under this section, unless--

(1) map revisions or updates pursuant to section 4101(f) of this title after such previous determination have resulted in the building or mobile home being located in an area having special flood hazards; or

(2) the person contacts the Director to determine when the most recent map revisions or updates affecting such property occurred and such revisions and updates have occurred after such previous determination.

**(f) Effective date**

The regulations under this section requiring use of the form established pursuant to this section shall be issued together with the regulations required under subsection (a) of this section and shall take effect upon the expiration of the 180-day period beginning on such issuance.

{Sec. 1366}

**§ 4104c. Mitigation assistance**

**(a) Authority**

The Director shall carry out a program to provide financial assistance to States and communities, using amounts made available from the National Flood Mitigation Fund under section 4104d of this title, for planning and carrying out activities designed to reduce the risk of flood damage to structures covered under contracts for flood insurance under this chapter [42 U.S.C. § 4001 *et seq.*]. Such financial assistance shall be made available to States and communities in the form of grants under subsection (b) of this section for planning assistance and in the form of grants under this section for carrying out mitigation activities.

**(b) Planning assistance grants**

**(1) In general**

The Director may make grants under this subsection to States and communities to assist in developing mitigation plans under subsection (c) of this section.

**(2) Funding**

Of any amounts made available from the National Flood Mitigation Fund for use under this section in any fiscal year, the Director may use not more than \$1,500,000 to provide planning assistance grants under this subsection.

**(3) Limitations**

**(A) Timing**

A grant under this subsection may be awarded to a State or community not more than once every 5 years and each grant may cover a period of 1 to 3 years.

**(B) Single grantee amount**

A grant for planning assistance may not exceed--

- (i) \$150,000, to any State; or
- (ii) \$50,000, to any community.

**(C) Cumulative State grant amount**

The sum of the amounts of grants made under this subsection in any fiscal year to any one State and all communities located in such State may not exceed \$300,000.

**(c) Eligibility for mitigation assistance**

To be eligible to receive financial assistance under this section for mitigation activities, a State or community shall develop, and have approved by the Director, a flood risk mitigation plan (in this section

referred to as a “mitigation plan”), that describes the mitigation activities to be carried out with assistance provided under this section, is consistent with the criteria established by the Director under section 4102 of this title, and provides protection against flood losses to structures for which contracts for flood insurance are available under this chapter [42 U.S.C. § 4001 *et seq.*]. The mitigation plan shall be consistent with a comprehensive strategy for mitigation activities for the area affected by the mitigation plan, that has been adopted by the State or community following a public hearing.

**(d) Notification of approval and grant award**

**(1) In general**

The Director shall notify a State or community submitting a mitigation plan of the approval or disapproval of the plan not later than 120 days after submission of the plan.

**(2) Notification of disapproval**

If the Director does not approve a mitigation plan submitted under this subsection, the Director shall notify, in writing, the State or community submitting the plan of the reasons for such disapproval.

**(e) Eligible mitigation activities**

**(1) Use of amounts**

Amounts provided under this section (other than under subsection (b) of this section) may be used only for mitigation activities specified in a mitigation plan approved by the Director under subsection (d) of this section. The Director shall provide assistance under this section to the extent amounts are available in the National Flood Mitigation Fund pursuant to appropriation Acts, subject only to the absence of approvable mitigation plans.

**(2) Determination of eligible plans**

The Director may approve only mitigation plans that specify mitigation activities that the Director determines are technically feasible and cost-effective and only such plans that propose activities that are cost-beneficial to the National Flood Mitigation Fund.

**(3) Standard for approval**

The Director shall approve mitigation plans meeting the requirements for approval under paragraph (1) that will be most cost-beneficial to the National Flood Mitigation Fund.

**(4) Priority**

The Director shall make every effort to provide mitigation assistance under this section for mitigation plans proposing activities for repetitive loss structures and structures that have incurred substantial damage.

**(5) Eligible activities**

The Director shall determine whether mitigation activities described in a mitigation plan submitted under subsection (d) of this section comply with the requirements under paragraph (1). Such activities may include--

(A) demolition or relocation of any structure located on land that is along the shore of a lake or other body of water and is certified by an appropriate State or local land use authority to be subject to imminent collapse or subsidence as a result of erosion or flooding;

(B) elevation, relocation, demolition, or floodproofing of structures (including public structures) located in areas having special flood hazards or other areas of flood risk;

(C) acquisition by States and communities of properties (including public properties) located in areas having special flood hazards or other areas of flood risk and properties substantially damaged by flood, for public use, as the Director determines is consistent with sound land management and use in such area;

(D) minor physical mitigation efforts that do not duplicate the flood prevention activities of other Federal agencies and that lessen the frequency or severity of flooding and decrease predicted flood damages, which shall not include major flood control projects such as dikes, levees, seawalls, groins, and jetties unless the Director specifically determines in approving a mitigation plan that such activities are the most cost-effective mitigation activities for the National Flood Mitigation Fund;

(E) beach nourishment activities;

(F) the provision of technical assistance by States to communities and individuals to conduct eligible mitigation activities;

(G) other activities that the Director considers appropriate and specifies in regulation; and

(H) other mitigation activities not described in subparagraphs (A) through (F) or the regulations issued under subparagraph (G), that are described in the mitigation plan of a State or community.

**(f) Limitations on amount of assistance**

**(1) Amount**

The sum of the amounts of mitigation assistance provided under this section during any 5-year period may not exceed--

(A) \$10,000,000, to any State; or

(B) \$3,300,000, to any community.

**(2) Geographic**

The sum of the amounts of mitigation assistance provided under this section during any 5-year period to any one State and all communities located in such State may not exceed \$20,000,000.

**(3) Waiver**

The Director may waive the dollar amount limitations under paragraphs (1) and (2) for any State or community for any 5-year period during which a major disaster or emergency declared by the President (pursuant to the Robert T. Stafford Disaster Relief and Emergency Assistance Act [42 U.S.C. 5121 et seq.]) as a result of flood conditions is in effect with respect to areas in the State or community.

**(g) Matching requirement**

**(1) In general**

The Director may not provide mitigation assistance under this section to a State or community in an amount exceeding 3 times the amount that the State or community certifies, as the Director shall require, that the State or community will contribute from non-Federal funds to develop a mitigation plan under subsection (c) of this section and to carry out mitigation activities under the approved mitigation plan. In no case shall any in-kind contribution by any State or community exceed one-half of the amount of non-Federal funds contributed by the State or community.

**(2) Non-Federal funds**

For purposes of this subsection, the term “non-Federal funds” includes State or local agency funds, in-kind contributions, any salary paid to staff to carry out the mitigation activities of the recipient, the value of the time and services contributed by volunteers to carry out such activities (at a rate determined by the Director), and the value of any donated material or building and the value of any lease on a building.

**(h) Oversight of mitigation plans**

The Director shall conduct oversight of recipients of mitigation assistance under this section to ensure that the assistance is used in compliance with the approved mitigation plans of the recipients and that matching funds certified under subsection (g) of this section are used in accordance with such certification.

**(i) Recapture**

**(1) Noncompliance with plan**

If the Director determines that a State or community that has received mitigation assistance under this section has not carried out the mitigation activities as set forth in the mitigation plan, the Director shall recapture any unexpended amounts and deposit the amounts in the National Flood Mitigation Fund under section 4104d of this title.

**(2) Failure to provide matching funds**

If the Director determines that a State or community that has received mitigation assistance under this section has not provided matching funds in the amount certified under subsection (g) of this section, the Director shall recapture any unexpended amounts of mitigation assistance exceeding 3 times the amount of such matching funds actually provided and deposit the amounts in the National Flood Mitigation Fund under section 4104d of this title.

**(j) Reports**

Not later than 1 year after September 23, 1994, and biennially thereafter, the Director shall submit a report to the Congress describing the status of mitigation activities carried out with assistance provided under this section.

**(k) "Community" defined**

For purposes of this section, the term "community" means--

(1) a political subdivision that (A) has zoning and building code jurisdiction over a particular area having special flood hazards, and (B) is participating in the national flood insurance program; or

(2) a political subdivision of a State, or other authority, that is designated to develop and administer a mitigation plan by political subdivisions, all of which meet the requirements of paragraph (1).

{Sec. 1367}

**§ 4104d. National Flood Mitigation Fund**

**(a) Establishment and availability**

The Director shall establish in the Treasury of the United States a fund to be known as the National Flood Mitigation Fund, which shall be credited with amounts described in subsection (b) of this section and shall be available, to the extent provided in appropriation Acts, for providing assistance under section 4104c of this title.



**(b) Credits**

The National Flood Mitigation Fund shall be credited with--

(1) amounts from the National Flood Insurance Fund, in amounts not exceeding--

(A) \$10,000,000 in the fiscal year ending September 30, 1994;

(B) \$15,000,000 in the fiscal year ending September 30, 1995;

(C) \$20,000,000 in the fiscal year ending September 30, 1996; and

(D) \$20,000,000 in each fiscal year thereafter;

(2) any penalties collected under section 4012a(f) of this title; and

(3) any amounts recaptured under section 4104c(i) of this title.

**(c) Investment**

If the Director determines that the amounts in the National Flood Mitigation Fund are in excess of amounts needed under subsection (a) of this section, the Director may invest any excess amounts the Director determines advisable in interest-bearing obligations issued or guaranteed by the United States.

**(d) Report**

The Director shall submit a report to the Congress not later than the expiration of the 1-year period beginning on September 23, 1994, and not less than once during each successive 2-year period thereafter. The report shall describe the status of the Fund and any activities carried out with amounts from the Fund.

**§ 4105. Disaster mitigation requirements; notification to flood-prone areas**

**(a) Initial notification**

Not later than six months following December 31, 1973, the Director shall publish information in accordance with section 4101(1) of this title, and shall notify the chief executive officer of each known flood-prone community not already participating in the national flood insurance program of its tentative identification as a community containing one or more areas having special flood hazards.

**(b) Alternative actions of tentatively identified communities; public hearing; opportunity for submission of evidence; finality of administrative determination of existence or extent of flood hazard area**

After such notification, each tentatively identified community shall either (1) promptly make proper application to participate in the national flood insurance program or (2) within six months submit technical data sufficient to establish to the satisfaction of the Director that the community either is not seriously flood prone or that such flood hazards as may have existed have been corrected by flood-works or other flood control methods. The Director may, in his discretion, grant a public hearing to any community with respect to which conflicting data exist as to the nature and extent of a flood hazard. If the Director decides not to hold a hearing, the community shall be given an opportunity to submit written and documentary evidence. Whether or not such hearing is granted, the Director's final determination as to the existence or extent of a flood hazard area in a particular community shall be deemed conclusive for the purposes of this Act if supported by substantial evidence in the record considered as a whole.

**(c) Subsequent notification to additional communities known to be flood prone areas**

As information becomes available to the Director concerning the existence of flood hazards in communities not known to be flood prone at

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<sup>7</sup> Of the Flood Disaster Protection Act of 1973, as amended.

the time of the initial notification provided for by subsection (a) of this section he shall provide similar notifications to the chief executive officers of such additional communities, which shall then be subject to the requirements of subsection (b) of this section.

**(d) Provisions of section 4106 applicable to flood-prone communities disqualified for flood insurance program**

Formally identified flood-prone communities that do not qualify for the national flood insurance program within one year after such notification or by the date specified in section 4106 of this title, whichever is later, shall thereafter be subject to the provisions of that section relating to flood-prone communities which are not participating in the program.

**(e) Administrative procedures; establishment; reimbursement of certain expenses; appropriation authorization**

The Director is authorized to establish administrative procedures whereby the identification under this section of one or more areas in the community as having special flood hazards may be appealed to the Director by the community or any owner or lessee of real property within the community who believes his property has been inadvertently included in a special flood hazard area by the identification. When, incident to any appeal under this subsection, the owner or lessee of real property or the community, as the case may be, incurs expense in connection with the services of surveyors, engineers, or similar services, but not including legal services, in the effecting of an appeal which is successful in whole or part, the Director shall reimburse such individual or community to an extent measured by the ratio of the successful portion of the appeal as compared to the entire appeal and applying such ratio to the reasonable value of all such services, but no reimbursement shall be made by the Director in respect to any fee or expense payment, the payment of which was agreed to be contingent upon the result of the appeal. There is authorized to be appropriated for purposes of implementing this subsection not to exceed \$250,000.

{Sec. 202<sup>8</sup>}

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<sup>8</sup> Of the Flood Disaster Protection Act of 1973, as amended.

**§ 4106. Nonparticipation in flood insurance program**

**(a) Prohibition against Federal approval of financial assistance**

No Federal officer or agency shall approve any financial assistance for acquisition or construction purposes on and after July 1, 1975, for use in any area that has been identified by the Director as an area having special flood hazards unless the community in which such area is situated is then participating in the national flood insurance program.

**(b) Notification of purchaser or lessee of property in flood hazard area of availability of Federal disaster relief assistance in event of a flood disaster**

In addition to the requirements of section 4104a of this title, each Federal entity for lending regulation shall by regulation require the regulated lending institutions described in such section, and each Federal agency lender shall issue regulations requiring the Federal agency lender, described in such section to notify (as a condition of making, increasing, extending, or renewing any loan secured by property described in such section) the purchaser or lessee of such property of whether, in the event of a disaster caused by flood to such property, Federal disaster relief assistance will be available to such property.

{Sec. 207<sup>9</sup>}

**§ 4107. Consultation with local officials; scope**

In carrying out his responsibilities under the provisions of this title and the National Flood Insurance Act of 1968 which relate to notification to and identification of flood-prone areas and the application of criteria for land management and use, including criteria derived from data reflecting new developments that may indicate the desirability of modifying elevations based on previous flood studies, the Director shall establish procedures assuring adequate consultation with the appropriate elected officials of general purpose local governments, including but not limited to those local governments whose prior eligibility under the program has been suspended. Such consultation shall include, but not be limited to, fully informing local officials at the commencement of any flood elevation study or investigation

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<sup>9</sup> Of the Flood Disaster Protection Act of 1973, as amended.

undertaken by any agency on behalf of the Director concerning the nature and purpose of the study, the areas involved, the manner in which the study is to be undertaken, the general principles to be applied, and the use to be made of the data obtained. The Director shall encourage local officials to disseminate information concerning such study widely within the community, so that interested persons will have an opportunity to bring all relevant facts and technical data concerning the local flood hazard to the attention of the agency during the course of the study.

**UNITED STATES CODE**  
**TITLE 42--THE PUBLIC HEALTH AND WELFARE**  
**CHAPTER 50--NATIONAL FLOOD INSURANCE**  
**SUBCHAPTER IV--GENERAL PROVISIONS**

{Sec. 1370}

**§ 4121. Definitions**

(a) As used in this chapter [42 U.S.C. § 4001 *et seq.*] --

(1) the term “flood” shall have such meaning as may be prescribed in regulations of the Director, and may include inundation from rising waters or from the overflow of streams, rivers, or other bodies of water, or from tidal surges, abnormally high tidal water, tidal waves, tsunamis, hurricanes, or other severe storms or deluge;

(2) the terms “United States” (when used in a geographic sense) and “State” includes the several States, the District of Columbia, the territories and possessions, the Commonwealth of Puerto Rico, and the Trust Territory of the Pacific Islands;

(3) the terms “Insurance company”, “other insurer” and “insurance agent or broker” include any organizations and persons authorized to engage in the insurance business under the laws of any State;

(4) the term “insurance adjustment organization” includes any organizations and persons engaged in the business of adjusting loss claims arising under insurance policies issued by any insurance company or other insurer;

(5) the term “person” includes any individual or group of individuals, corporation, partnership, association, or any other organized group of persons, including State and local governments and agencies thereof;

(6) the term “Director” means the Director of the Federal Emergency Management Agency;

(7) the term “repetitive loss structure” means a structure covered by a contract for flood insurance under this chapter [42 U.S.C. § 4001 *et seq.*] that has incurred flood-related damage on 2 occasions during a 10-year period ending on the date of the event for which a second claim is made, in which the cost of repair, on the average, equaled or exceeded 25 percent of the value of the structure at the time of each such flood event;

(8) the term “Federal agency lender” means a Federal agency that makes direct loans secured by improved real estate or a mobile home, to the extent such agency acts in such capacity;

(9) the term “Federal entity for lending regulation” means the Board of Governors of the Federal Reserve System, the Federal Deposit Insurance Corporation, the Comptroller of the Currency, the Office of Thrift Supervision, the National Credit Union Administration, and the Farm Credit Administration, and with respect to a particular regulated lending institution means the entity primarily responsible for the supervision of the institution;

(10) the term “improved real estate” means real estate upon which a building is located;

(11) the term “lender” means a regulated lending institution or Federal agency lender;

(12) the term “natural and beneficial floodplain functions” means--

(A) the functions associated with the natural or relatively undisturbed floodplain that (i) moderate flooding, retain flood waters, reduce erosion and sedimentation, and mitigate the effect of waves and storm surge from storms, and (ii) reduce flood related damage; and

(B) ancillary beneficial functions, including maintenance of water quality and recharge of ground water, that reduce flood related damage;

(13) the term “regulated lending institution” means any bank, savings and loan association, credit union, farm credit bank, Federal land bank association, production credit association, or similar institution subject to the supervision of a Federal entity for lending regulation; and

(14) the term “servicer” means the person responsible for receiving any scheduled periodic payments from a borrower pursuant to the terms of a

loan, including amounts for taxes, insurance premiums, and other charges with respect to the property securing the loan, and making the payments of principal and interest and such other payments with respect to the amounts received from the borrower as may be required pursuant to the terms of the loan.

(b) The term "flood" shall also include inundation from mudslides which are proximately caused by accumulations of water on or under the ground; and all of the provisions of this chapter [42 U.S.C. § 4001 *et seq.*] shall apply with respect to such mudslides in the same manner and to the same extent as with respect to floods described in subsection (a)(1) of this section, subject to and in accordance with such regulations, modifying the provisions of this chapter (including the provisions relating to land management and use) to the extent necessary to insure that they can be effectively so applied, as the Director may prescribe to achieve (with respect to such mudslides) the purposes of this chapter and the objectives of the program.

(c) The term "flood" shall also include the collapse or subsidence of land along the shore of a lake or other body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels, and all of the provisions of this chapter [42 U.S.C. § 4001 *et seq.*] shall apply with respect to such collapse or subsidence in the same manner and to the same extent as with respect to floods described in subsection (a)(1) of this section, subject to and in accordance with such regulations, modifying the provisions of this chapter (including the provisions relating to land management and use) to the extent necessary to insure that they can be effectively so applied, as the Director may prescribe to achieve (with respect to such collapse or subsidence) the purposes of this chapter and the objectives of the program.

{Sec. 1371}

**§ 4122. Studies of other natural disasters; cooperation and  
consultation with other departments and agencies**

(a) The Director is authorized to undertake such studies as may be necessary for the purpose of determining the extent to which insurance protection against earthquakes or any other natural disaster perils, other



than flood, is not available from public or private sources, and the feasibility of such insurance protection being made available.

(b) Studies under this section shall be carried out, to the maximum extent practicable, with the cooperation of other Federal departments and agencies and State and local agencies, and the Director is authorized to consult with, receive information from, and enter into any necessary agreements or other arrangements with such other Federal departments and agencies (on a reimbursement basis) and such State and local agencies.

{Sec. 1372}

**§ 4123. Advance payments**

Any payments under this title may be made (after necessary adjustment on account of previously made underpayments or overpayments) in advance or by way of reimbursement, and in such installments and on such conditions, as the Director may determine.

{Sec. 1373}

**§ 4124. Applicability of fiscal controls**

The provisions of chapter 91 of title 31, United States Code, shall apply to the program authorized under this chapter [42 U.S.C. § 4001 *et seq.*] to the same extent as they apply to wholly owned Government corporations.

{Sec. 1374}

**§ 4125. Finality of certain financial transactions**

Notwithstanding the provisions of any other law--

(1) any financial transaction authorized to be carried out under this chapter [42 U.S.C. § 4001 *et seq.*], and

(2) any payment authorized to be made or to be received in connection with any such financial transaction,

shall be final and conclusive upon all officers of the Government.

{Sec. 1375}

**§ 4126. Administrative expenses**

Any administrative expenses which may be sustained by the Federal Government in carrying out the flood insurance and floodplain management programs authorized under this chapter [42 U.S.C. § 4001 *et seq.*] may be paid with amounts from the National Flood Insurance Fund (as provided under section 4017(a)(4) of this title), subject to approval in appropriations Acts.

{Sec. 1376}

**§ 4127. Authorization of appropriations; availability**

(a) There are hereby authorized to be appropriated such sums as may from time to time be necessary to carry out this chapter [42 U.S.C. § 4001 *et seq.*], including sums--

(1) to cover administrative expenses authorized under section 4126 of this title;

(2) to reimburse the National Flood Insurance Fund established under section 4017 of this title for--

(A) premium equalization payments under section 4054 of this title which have been made from such fund; and

(B) reinsurance claims paid under the excess loss reinsurance coverage provided under section 4055 of this title; and

(3) to make such other payments as may be necessary to carry out the purposes of this chapter.

(b) All such funds shall be available without fiscal year limitation.

(c) There are authorized to be appropriated for studies under this chapter not to exceed \$36,283,000 for fiscal year 1990, and such sums as may be necessary for fiscal year 1991. Any amount appropriated under this subsection shall remain available until expended.

{Sec. 205<sup>10</sup>}

**§ 4128. Rules and regulations**

(a) The Director is authorized to issue such regulations as may be necessary to carry out the purpose of this Act.

(b) The head of each Federal agency that administers a program of financial assistance relating to the acquisition, construction, reconstruction, repair, or improvement of publicly or privately owned land or facilities, and each Federal instrumentality responsible for the supervision, approval, regulation, or insuring of banks, savings and loan associations, or similar institutions, shall, in cooperation with the Director, issue appropriate rules and regulations to govern the carrying out of the agency's responsibilities under this Act.

---

<sup>10</sup> Of the Flood Disaster Protection Act of 1973, as amended.

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Federal Emergency Management Agency

Section 1105  
[42 U.S.C. § 4129]

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{Sec. 1105<sup>11</sup>}

**§ 4129. Federal Insurance Administrator; establishment of position**

There is hereby established in the Federal Emergency Management Agency the position of Federal Insurance Administrator.

---

<sup>11</sup> Enacted as part of the Urban Property Protection and Reinsurance Act of 1968 and also as part of the Housing and Urban Development Act of 1968, and not as part of the National Flood Insurance Act of 1968.

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4. FEMA, *Integrating Historic Property and Cultural Resource Considerations into Hazard Mitigation Planning* – Foreword (May 2005)

Full document available at <http://www.fema.gov/media-library/assets/documents/4317>



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

State and Local Mitigation Planning How-To Guide

FEMA 386-6 / May 2005



FEMA

*COVER PHOTO: View looking north along Broadway during the 1975 flood in Milton, Pennsylvania. The flood crest reached 29.8 feet, and began a large scale urban renewal project to demolish hundreds of flood-prone buildings in the area.*

Source: Milton Standard, September 1975 Commemorate Issue



**STATE AND LOCAL MITIGATION PLANNING**  
**how-to guide**

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

FEMA 386-6 / May 2005



**FEMA**



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# the hazard mitigation planning process

Hazard mitigation planning is the process of determining how to reduce or eliminate the loss of life and property damage resulting from natural and manmade hazards. As shown in this diagram, the hazard mitigation planning process consists of four basic phases.

For illustration purposes, this diagram portrays a process that appears to proceed sequentially. However, the mitigation planning process is rarely a linear process. It is not unusual that ideas developed while assessing risks should need revision and additional information while developing the mitigation plan, or that implementing the plan may result in new goals or additional risk assessment.

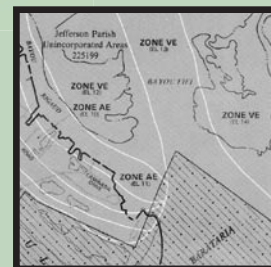
## organize resources

From the start, communities should focus on the resources needed for a successful mitigation planning process. Essential steps include identifying and organizing interested members of the community as well as the technical expertise required during the planning process.



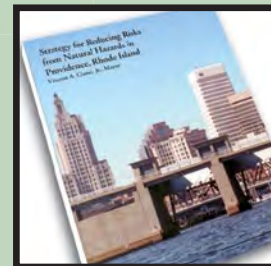
## assess risks

Next, communities need to identify the characteristics and potential consequences of hazards. It is important to understand how much of the community can be affected by specific hazards and what the impacts would be on important community assets.



## develop a mitigation plan

Armed with an understanding of the risks posed by hazards, communities need to determine what their priorities should be and then look at possible ways to avoid or minimize the undesired effects. The result is a hazard mitigation plan and strategy for implementation.



## implement the plan and monitor progress

Communities can bring the plan to life in a variety of ways ranging from implementing specific mitigation projects to changes in the day-to-day operation of the local government. To ensure the success of an ongoing program, it is critical that the plan remains relevant. Thus, it is important to conduct periodic evaluations and make revisions as needed.



# foreword

# foreword

The Federal Emergency Management Agency (FEMA) has developed a series of mitigation planning “how-to” guides for the purpose of assisting Tribes, States, and local governments in developing effective hazard mitigation planning processes. The material presented in these guides is intended to address the needs of both large and small communities with varying degrees of technical expertise and financial reserves.

The topic area for this guide is “Integrating Historic Property and Cultural Resource Considerations into Hazard Mitigation Planning.”

Other guides that have been developed by FEMA as part of the “how-to” series include:

- Getting started with the mitigation planning process, including important considerations for how you can organize your efforts to develop an effective mitigation plan (FEMA 386-1);
- Identifying hazards and assessing losses to your community, State, or Tribe (FEMA 386-2);
- Setting mitigation priorities and goals for your community, State, or Tribe and writing the plan (FEMA 386-3); and
- Implementing the mitigation plan, including project funding and maintaining a dynamic plan that changes to meet new developments (FEMA 386-4).

These four guides are commonly referred to as the “core four” as they provide a broad overview of the core elements associated with hazard mitigation planning. In addition to these “core four,” FEMA has developed a series of supplementary “how-to” guides that are to be used in conjunction with the “core four” and address the following special topic areas:

- Evaluating potential mitigation actions through the use of benefit-cost review (FEMA 386-5);



**mit-i-gate\ 1:** to cause to become less harsh or hostile; **2:** to make less severe or painful.

**plan-ning\ :** the act or process of making or carrying out plans; *specif:* the establishment of goals, policies and procedures for a social or economic unit.



**DMA****Focus on Preparedness**

Because of the increasingly devastating effects of natural disasters and the growing threats of manmade damages associated with terrorism, emergency personnel across the United States have increased their efforts to better protect their communities. This increased emphasis on pre-disaster planning and preparedness is a direct outgrowth of the Disaster Mitigation Act of 2000 (P.L. 106-390 [DMA 2000]), which amended the Robert T. Stafford Relief and Emergency Assistance Act.

DMA 2000 continues the requirement for a State mitigation plan as a condition of disaster assistance, while new language requires that Tribes and local jurisdictions now have a plan to be eligible for disaster assistance. Tribes can choose to follow the State planning requirements if they wish to be grantees for FEMA funding programs or the local planning requirements if they wish to apply for disaster funds through the State as subgrantees. Additionally, the new language emphasizes the need for Tribal, State, and local jurisdictions to closely coordinate mitigation planning and implementation efforts. Incentives to assist in the development of plans are also provided.

DMA also emphasizes coordination among agencies and public participation, important components of the hazard mitigation planning process. To this end, collaboration among Federal, Tribal, State, regional, and local agencies is critical to reducing disaster-related damage to historic properties and cultural resources and ensuring that communities can not only survive, but also thrive.

The integration of historic properties and cultural resources into comprehensive mitigation planning is critical to the spirit and intent of DMA 2000. Planning for historic properties and cultural resources within existing programs and policies can enhance a jurisdiction's ability to understand and document its vulnerability to natural and manmade hazards.

- Incorporating special considerations into hazard mitigation planning for historic properties and cultural resources, the topic of this how-to guide (FEMA 386-6);
- Incorporating mitigation considerations for manmade hazards into hazard mitigation planning (FEMA 386-7);
- Using multi-jurisdictional approaches to mitigation planning (FEMA 386-8); and
- Finding and securing technical and financial resources for mitigation planning (FEMA 386-9).

## Why should you take the time to read these guides?

- 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;
- State and Federal aid is usually insufficient to cover the full extent of physical and economic damages resulting from disasters;
- A surprising amount of disaster damage can be prevented if you understand where and how these phenomena occur; and
- The impacts of both natural and manmade hazards can be reduced; response and recovery rates can be increased.

In addition, Tribes, States, and local communities are required to have FEMA-approved hazard mitigation plans in place to qualify for various FEMA grant programs, including the Hazard Mitigation Grant Program (HMGP) and the Pre-Disaster Mitigation Competitive Grant Program (PDM-C).

## Who is the audience for this how-to guide?

This guide is designed for all practitioners involved in creating a hazard mitigation plan (e.g., planners and emergency managers). Why should planners and emergency managers consider historic properties and cultural resources? Because after a disaster, these



resources' special status as designated landmarks may complicate recovery efforts. However, these resources may also be assets that can help in creating mitigation plans with multiple community benefits.

This guide will be of value to citizens who love their communities and want to protect their historic and cultural assets. The guide will outline specific steps for how communities can harness their knowledge, talent, and energy to create a secure future for historic resources.

## What are the benefits of hazard mitigation planning?

The goal of the “how-to” guides is not only to teach the mechanics of mitigation planning but also to demonstrate the real-world benefits of mitigation planning:

- Your community can become more *sustainable and disaster-resistant* through selecting the most appropriate mitigation actions, based on the knowledge you gain in the hazard identification and risk assessment process;
- You will be able to *focus your efforts on the hazard areas most important to you* by determining and setting priorities for mitigation planning efforts; and
- You can *save money* by providing a forum for engaging in partnerships that could provide technical, financial, and/or staff resources in your effort to reduce the effects, and hence the costs, of natural and manmade hazards.

These guides provide a range of approaches to preparing a hazard mitigation plan. While there is no one right planning process, there are several elements that are common to all successful planning endeavors, such as engaging citizens, developing goals and objectives, and monitoring progress. Select the approach that works best in your Tribe, State, or community.



### The Goals of This Guide

This special-topic guide, *Incorporating Historic Property and Cultural Resource Considerations Into Hazard Mitigation Planning*, will provide information and assistance to Tribes, States, and local governments on how to integrate historic preservation planning considerations into the hazard mitigation planning process to protect important historic properties and cultural resources from natural and manmade hazards. *This guide* will help your jurisdiction accomplish the following:

- Identify and pull together resources that enhance the planning team's capability for incorporating historic property and cultural resource considerations into the hazard mitigation plan;
- Determine which historic properties and cultural resources are likely to be damaged in a disaster and prioritize those most important for protection;
- Evaluate potential hazard mitigation actions for historic properties and cultural resources through the use of benefit-cost analysis and other decision-making tools; and
- Develop and implement a hazard mitigation plan that addresses historic properties and cultural resources.

Because each of the four mitigation planning phases is covered comprehensively in its own how-to guide, references to other publications in the series are often used in lieu of full explanations of a process or activity. Furthermore, this guide is intended as a general guidance tool for the broad audiences that are likely to comprise Tribal, State, and local mitigation planning teams, including government agencies, community interest groups, and cultural organizations.



5. FEMA, Federal Insurance and Mitigation Administration, *FEMA Fact Sheet: Historic Structures and the Biggert-Waters Flood Insurance Reform Act of 2012* (n.d.)





## Federal Insurance and Mitigation Administration

### Historic Structures and the Biggert-Waters Flood Insurance Reform Act of 2012

*In 2012, the U.S. Congress passed the Biggert Waters Flood Insurance Reform Act of 2012 (BW 12) which calls on the Federal Emergency Management Agency (FEMA) and other agencies to make a number of changes to the way the NFIP is run. Some of these changes have already been put in place, and others will be implemented in the coming months. Key provisions of the legislation will require the NFIP to raise rates to reflect true flood risk, make the program more financially stable, and change how Flood Insurance Rate Map (FIRM) updates impact policyholders. The changes will mean premium rate increases for some – but not all -- policyholders over time.*

*Below are some of the Frequently Asked Questions (FAQs) associated with BW 12 and its impact on historic structures.*

#### **1. What does BW12 say about historic buildings?**

BW 12 makes no special provisions or exceptions for historic buildings. For rating purposes, historic buildings are to be treated the same as any other Pre-FIRM properties.

#### **2. How does BW12 impact the premiums for flood insurance policies for historic structures?**

Section 100205 requires the phase-in of full risk rates for the following types of property: non-primary residences, business properties, severe repetitive loss (SRL) properties, properties for which claims payments exceed the fair market value, and substantially damaged or improved properties. Additionally, Section 100205 requires the immediate application of full risk rates to new policies, lapsed policies, and policies for property that has been sold to a new owner since the enactment of BW 12.

Any currently subsidized policies for historic buildings meeting the criteria established in Section 100205 will see premium rate increases. Those structures will have rate increase at a rate of 25% per year until full actuarial rates are achieved.

#### **3. If a historic structure is a primary residence, what impact will this have on its flood policy premium?**

All primary residences – including those that are historic buildings – that were built before the initial Flood Insurance Rate Map (Pre-FIRM), and that are located in special flood hazard areas (flood zones A, AE, AH, AO, A1-A30, V, VE, V1-V30) and D zones will see a 16 to 17 percent increase effective on or after October 1, 2013, in order to reduce the amount of subsidy provided to these policyholders.

This percentage increase is based on actuarial analysis and includes the 5 percent Reserve Fund assessment for all policies, excluding Preferred Risk Policies. The Reserve Fund assessment is mandated under Section 100205.

#### **4. Is it possible to get an exemption for a historic building from the mandated rate increases?**

No. The wording of Section 100205 does not allow FEMA any discretion in implementing it. FEMA does not have the statutory authority to exempt historic buildings from the mandated rate increases of Section 100205.

#### **5. Did BW12 modify or address any specific aspect of the National Flood Insurance Program's floodplain management provisions pertaining to historic structures?**

No. BW 12 did not modify or address any aspect of the NFIP floodplain management provisions pertaining to historic structures.

#### **6. What are the NFIP floodplain management provisions that pertain to historic structures?**

The NFIP contains two provisions that provide relief for “historic structures” in Special Flood Hazard Areas from the NFIP floodplain management regulations for new construction and substantial improvements/substantial damage. The two provisions include:

(1) The definition of “substantial improvement” at 44 CFR 59.1, states, “alteration to an ‘historic structure’ does not constitute a “substantial improvement”, provided that the alteration will not preclude the structure’s continued

designation as an “historic structure”. The same also applies to “historic structures” that have been “substantially damaged”.

(2) The other provision of the NFIP floodplain management regulations that provides relief for “historic structures” is 44 CFR 60.6(a). This provision states that “Variances may be granted for the repair or rehabilitation of historic structures upon a determination that the proposed repair or rehabilitation will not preclude the structure’s continued designation as a historic structure and the variance is the minimum necessary to preserve the historic character and design of the structure.”

## 7. How does the NFIP define historic structures?

Under the Definition section of the NFIP [44 Code of Federal Regulations (CFR) Part 59], “historic structure” is defined as “any structure that is:

(a) Listed individually in the National Register of Historic Places (a listing maintained by the Department of Interior) or preliminarily determined by the Secretary of the Interior as meeting the requirements for individual listing on the National Register;

(b) Certified or preliminarily determined by the Secretary of the Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined by the Secretary to qualify as a registered historic district;

(c) Individually listed on a State inventory of historic places in states with historic preservation programs which have been approved by the Secretary of the Interior; or

(d) Individually listed on a local inventory of historic places in communities with historic preservation programs that have been certified either:

(1) By an approved State program as determined by the Secretary of the Interior, or

(2) Directly by the Secretary of the Interior in States without approved programs.”

## 8. How can NFIP communities provide relief for historic structures?

Communities have the option of using either the substantial improvement definition or variance provision for addressing the unique needs of “historic structures”. Communities

should adopt only one of the options. In either case, “historic structures” can be excluded from the NFIP elevation and floodproofing requirements. However, if plans to substantially improve or repair a substantially damaged “historic structure” would result in loss of its designation as an “historic structure”, the structure would be required to meet the NFIP floodplain management regulations.

While historic structures can still be exempt for floodplain management purposes, under BW 12 there is no flood insurance exemption, and they will be rated accordingly.

FEMA has published the National Flood Insurance Program Floodplain Management Bulletin, Historic Structures, FEMA P-467-2, May 2008. This Bulletin addresses the NFIP floodplain management provisions related to historic structures, subsidized flood insurance, and mitigation measures that can be taken to minimize damages to designated historic structures. This Bulletin will be updated to reflect the changes in BW 12

### For more information:

For additional information on BW 12, and additional FAQs, please visit our BW 12 website.

<http://www.fema.gov/flood-insurance-reform-act-2012>

6. FEMA, National Flood Insurance Program, *Floodplain Management Bulletin: Historic Structures*, FEMA P-467-2 (May 2008)



*National Flood Insurance Program (NFIP)*

# Floodplain Management Bulletin **Historic Structures**

FEMA P-467-2

*May 2008*



**FEMA**

# Floodplain Management Bulletin

## Historic Structures

This Floodplain Management Bulletin addresses how the National Flood Insurance Program (NFIP) treats historic structures. This bulletin also identifies mitigation measures that can be taken to protect historic structures from floods. The bulletin addresses the following topics:

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## Introduction

The National Flood Insurance Program (NFIP) gives special consideration to the unique value of one of our Nation's most significant resources – its historic buildings, landmarks, and sites. It does so in two ways.

First, the NFIP floodplain management regulations provide significant relief to historic structures. Historic structures do not have to meet the floodplain management requirements of the program as long as they maintain their historic structure designation. They do not have to meet the new construction, substantial improvement, or substantial damage requirements of the program. This exclusion from these requirements serves as an incentive for property owners to maintain the historic character of the designated structure (44 CFR §60.3). It may also serve as an incentive for an owner to obtain historic designation of a structure.

Secondly, a designated historic structure can obtain the benefit of subsidized flood insurance through the NFIP even if it has been substantially improved or substantially damaged so long as the building maintains its historic designation. The amount of insurance premium charged the historic structure may be considerably less than what the NFIP would charge a new non-elevated structure built at the same level. Congress requires that the NFIP charge actuarial rates for all new construction and substantially improved structures (National Flood Insurance Act of 1968, 42 U.S.C. 4015).

Although the NFIP provides relief to historic structures from having to comply with NFIP floodplain management requirements for new construction, communities and owners of historic structures should give consideration to mitigation measures that can reduce the impacts of flooding on historic structures located in Special Flood Hazard Areas (44 CFR §60.3). Mitigation measures to minimize future flood damages should be considered when historic structures are rehabilitated or are repaired following a flood or other hazard event. Qualified professionals such as architects, historic architects, and engineers who have experience in flood mitigation techniques can help identify measures that can be taken to minimize the impacts of flooding on a historic structure while maintaining the structure's historic designation.

The purpose of this floodplain management bulletin is to explain how the NFIP defines historic structure and how it gives relief to historic structures from NFIP floodplain management requirements (44 CFR §60.3). This bulletin also provides guidance on mitigation measures that can be taken to minimize the devastating effects of flooding to historic structures.

## Background on the NFIP

Congress created the NFIP in 1968 to provide federally supported flood insurance coverage, which generally was not available from private companies. The NFIP is based on a mutual agreement with communities that have been identified as having Special Flood Hazard Areas. The Federal Emergency Management Agency (FEMA) will make flood insurance coverage available in a

community provided that it adopts and enforces floodplain management regulations that meet or exceed the minimum requirements of the NFIP (44 CFR §60.3). This is accomplished through local floodplain management regulations.

The NFIP minimum building and development regulations that communities must adopt require that new and substantially improved and substantially damaged residential buildings be elevated so that the lowest floor is at or above the Base Flood Elevation (BFE) determined for the site. Non-residential buildings have the option of elevation or dry floodproofing to the BFE [44 CFR §60.3(c)(2), (c)(3), and (e)(4)]. Dry floodproofing means making a building watertight, substantially impermeable to floodwaters to the BFE.

Substantial improvement means *“any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the “start of construction” of the improvement. This term includes structures which have incurred substantial damage regardless of the actual repair work performed.”*

Substantial improvement also includes the repair of buildings that have been substantially damaged. Substantial damage means *“damage of any origin sustained by a structure whereby the cost of restoring the structure to its before damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred.”*

In summary, structures that are “substantially improved” and “substantially damaged” must be brought into compliance with the community’s floodplain management requirements [44 CFR §60.3(c)(2), (c)(3), and (e)(4)].

## The NFIP and Historic Structures

This section provides information on the NFIP definition of “historic structure” and the floodplain management requirements that will be included in community floodplain management ordinances.

### Definition of “Historic Structures”

The definition section of the NFIP [Code of Federal Regulations (CFR) 44 Part 59], defines “historic structure” as *“any structure that is:*

- (1) Listed individually in the National Register of Historic Places (a listing maintained by the Department of Interior) or preliminarily determined by the Secretary of the Interior as meeting the requirements for individual listing on the National Register; (This includes structures that are determined to be eligible for listing by the Secretary of the Interior as a historic structure. A determination of “eligibility” is a decision by the Department of the Interior that a district, site, building, structure or object meets the National Register criteria for evaluation although the property is not formally listed in the National Register.)*

- (2) *Certified or preliminarily determined by the Secretary of the Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined by the Secretary to qualify as a registered historic district;*
- (3) *Individually listed on a state inventory of historic places in states with historic preservation programs which have been approved by the Secretary of the Interior; or*
- (4) *Individually listed on a local inventory of historic places in communities with historic preservation programs that have been certified either:*
  - (a) *By an approved state program as determined by the Secretary of the Interior or*
  - (b) *Directly by the Secretary of the Interior in States without approved programs.”*

This definition was coordinated with the Department of Interior when it was added to the NFIP Regulations in 1989.

The purpose of this definition is to provide NFIP communities with criteria to distinguish between “historic structures” and the other existing buildings which remain subject to NFIP floodplain management requirements (44 CFR §60.3). While it is important to preserve historic structures and other cultural resources, it is also critical to ensure that other existing flood-prone structures are protected from flood damage when they are substantially improved or substantially damaged.

## **Floodplain Management Requirements that Provide Relief for Historic Structures**

The NFIP floodplain management requirements contain two provisions that are intended to provide relief for “historic structures” located in Special Flood Hazard Areas:

- (1) The definition of “substantial improvement” at 44 CFR 59.1 includes the following exclusion for historic structures,
  - “Any alteration of a “historic structure”, provided that the alteration will not preclude the structure’s continued designation as an “historic structure”.*
  - The same exemption also applies to “historic structures” that have been “substantially damaged”.

This provision exempts historic structures from the substantial improvement and substantial damage requirements of the NFIP.

- (2) The other provision of the NFIP floodplain management regulations that provides relief for “historic structures” is the variance criteria at 44 CFR 60.6(a). This provision states:
  - “Variances may be issued for the repair or rehabilitation of historic structures upon a determination that the proposed repair or rehabilitation will not preclude the structure’s continued designation as a historic structure and the variance is the minimum necessary to preserve the historic character and design of the structure.”*

Under the variance criteria, communities can place conditions to make the building more flood resistant and minimize flood damages, but such conditions should not affect the historic



character and design of the building. *See* the section on Minimizing the Impacts of Flooding on Historic Structures for ideas on conditions that could be established to make the building more flood resistant and to minimize flood damages.

Communities have the option of using either provision for addressing the unique needs of “historic structures”. Communities should adopt only one option to address “historic structures.” Some communities have chosen to adopt an ordinance that requires variances for improvements or repairs to “historic structures” and do not exclude such improvements from the substantial improvement definition in their ordinance. Other communities include the “historic structures” exemption as part of their “substantial improvement” definition. In either case, “historic structures” can be excluded from the NFIP elevation and floodproofing requirements. Whether a community exempts a “historic structure” under the substantial improvement definition or through the variance process, the exemption of the “historic structure” from the NFIP floodplain management requirements should be documented and maintained in the community permit files.

However, if plans to substantially improve a “historic structure” or repair a substantially damaged “historic structure” would result in loss of its designation as an “historic structure”, the structure no longer qualifies for the exemption and would be required to meet the NFIP floodplain management regulations (44 CFR §60.3). This determination needs to be made in advance of issuing a permit. This provides an incentive to the property owner to maintain the structure’s historic designation rather than altering the structure in such a way that it loses its designation as a “historic structure”.

Even if a “historic structure” is exempted from the substantial improvement and substantial damage requirements, consideration should be given to mitigation measures that can reduce the impacts of future flooding. There are mitigation measures that can reduce flood damages to historic structures without affecting the structure’s historic designation. *See* the section on Minimizing the Impacts of Flooding on Historic Structures.

Historic buildings may also be subject to the local building codes. Many States and communities use the International Codes as the basis for their buildings codes. The International Codes contain provisions for addressing historic buildings in a manner consistent with the NFIP.

## Historic Structures in the Floodway

The NFIP floodplain management requirements could apply to an addition to a “historic structure”, if the structure or addition is located in a floodway. The floodway includes the channel of the river and the adjacent floodplain that must be reserved in an unobstructed condition in order to discharge the base flood without increasing flood levels by more than one foot (44 CFR § 59.1, “regulatory floodway”). All structures and improvements to structures, including additions to “historic structures”, must comply with the floodway encroachment provisions of 44 CFR § 60.3(c)(10) and (d)(3) of the NFIP Regulations.

44 CFR § 60.3(c)(10) applies to rivers and streams where FEMA has established BFEs, but has not provided the community with the data necessary to designate a floodway:

*Require until a regulatory floodway is designated, that no new construction, substantial improvements, or other development (including fill) shall be permitted within Zones A1-30 and AE on the community's FIRM [Flood Insurance Rate Map], unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than one foot at any point within the community.*

§ 60.3(d)(3) applies to rivers and streams where FEMA has provided both established BFEs and provided the community with the data necessary to designate a floodway:

*Prohibit encroachments, including fill, new construction, substantial improvements, and other development within the adopted regulatory floodway unless it has been demonstrated through hydrologic and hydraulic analyses performed in accordance with standard engineering practice that the proposed encroachment would not result in any increase in flood levels within the community during the occurrence of the base flood discharge.*

As an example, an addition, or any portion thereof, to a “historic structure” that expands the square footage of the structure beyond its footprint into the floodway must comply with the regulatory floodway criteria [44 CFR §60.3(c)(10) and (d)(3)]. These additions can obstruct flood flows and increase flood stages. Under 44 CFR § 60.3(d)(3), such an addition would be prohibited if any rise in the flood level would result from the addition. FEMA defines “any” as meaning a zero increase.

## **New Construction and Non-contributing Structures in Historic Districts**

Generally, registered historic districts contain a mix of buildings. In addition to structures that contribute to the historic significance of the district, there will generally be structures in historic districts that have no historical significance and which do not contribute to the historic significance of a registered historic district (called “non-contributing” structures). In addition, there may be sites in these districts that are undeveloped or vacant land. Whole districts cannot be exempt from floodplain management regulations and a blanket variance cannot be issued for all land within these districts. The non-contributing structures and vacant lots in historic districts remain subject to all of the floodplain management requirements that apply to new construction and substantial improvements (44 CFR §60.3).

Some communities have argued that they should be allowed to grant variances for new buildings or for substantial improvements to non-contributing buildings in historic districts. They claim that requiring that the new structures or substantially improved structures be elevated to BFE could be harmful to the historic significance of the district. FEMA maintains that this would be contrary to the purposes of the NFIP and could result in greatly increased flood damages and, in some instance,

even result in loss of life. There are ways to elevate or floodproof new structures and substantially improve non-contributing structures so that they comply with the NFIP regulations, but that are still in harmony with the historic nature of the district. While the NFIP requires protection to the BFE, it does not specify the means (44 CFR §60.3). An architect should be able to design a new building that is both compliant with NFIP floodplain management requirements and compatible with the historic nature of the district. For example, the protection does not have to be achieved by unsightly mounds of dirt or bare pilings or other elevated foundations. The structure could be elevated on pilings or other foundation elements and the lower area then covered by an architecturally pleasing façade that will not impair the aesthetics of a historic district. The foundation could be camouflaged with landscaping, porches, or staircases (*See* the examples in latter sections of this bulletin).

The NFIP was specifically established by Congress to reduce threats to lives and the potential for damages to new construction in flood hazard areas in exchange for providing flood insurance. Exempting new construction from the NFIP elevation requirements in historic districts would be contrary to the National Flood Insurance Act of 1968, as amended, and it would create a significant flood risk to structures and to the health and safety of the population. Potentially thousands of buildings would be placed in harms way, if new or non-contributing structures are not protected.

## Substantial Improvements to Existing Structures in Historic Districts

Some property owners have wanted to substantially improve a non-contributing structure in a historic district, so that it can become a contributing structure to the historical significance of the registered historic district. For example, this type of improvement could involve removal of modern additions to the building, replacement of modern siding or roofing materials with historic materials, and other actions to restore the historic nature of the structure. If the improvement is a substantial improvement to a non-contributing structure, the structure still could qualify for relief from the NFIP floodplain management requirements in the following ways (44 CFR §60.3):

- The property owner could apply through their State Historic Preservation Officer or Tribal Historic Preservation Officer for contributing status for the structure as is, prior to any improvements. If the building qualifies as “contributing to the historical significance of a registered historic district”, the community can grant a variance or exclude the improvements from the NFIP substantial improvement requirement depending on which provision the community has adopted [44 CFR §60.3(c)(2), (c)(3), and (e)(4)].
- The property owner could undertake the minimum work necessary to make the building a contributing structure, as long as the work is less than a substantial improvement. Once the structure is designated as “contributing”, any additional improvements including a substantial improvement could qualify for relief from the NFIP floodplain management requirements, so long as those improvements do not interfere with the designation as “contributing to the historical significance of a registered historic district” (44 CFR §60.3).
- If the property owner chooses to undertake a substantial improvement of the building all at once or the owner needs to undertake the substantial improvement in order for the building

to qualify as “contributing to the historical significance of a registered historic district”, the owner should contact the community for guidance on how they might qualify for relief from the NFIP substantial improvement requirement [44 CFR §60.3(c)(2), (c)(3), and (e)(4)]. In this situation, the community would have to issue a variance from the floodplain management ordinance. The community should obtain documentation for assurance that the improvements being proposed would qualify the building for “contributing” status before signing off on permits that would grant them relief under the NFIP. The owner should seek guidance from their State Historic Preservation Officer or Tribal Historic Preservation Officer on proposed improvements and on what documentation is needed to obtain preliminary approval. This information should be shared with the community.

In all cases, the property owner should discuss their proposed plans with the community and seek guidance from the State Historic Preservation Officer or Tribal Historic Preservation Officer before undertaking any improvements to make sure the proposed work would qualify the building for the designation as a contributing structure. For any of the options described above, the community should also encourage the property owner to undertake flood damage reduction measures as part of the improvement, as long as measures do not interfere with its designation as a “historic structure”.

## Flood Insurance for Historic Structures

In addition to the relief from the NFIP floodplain management requirements described above, owners of “historic structures” can obtain and maintain flood insurance at subsidized rates. Flood insurance coverage is required for most mortgage loans and for obtaining Federal grants and other financial assistance. The ability to obtain flood insurance coverage is also important to ensuring that historic structures can be repaired and restored after a flood event.

The National Flood Insurance Act of 1968, as amended, requires that FEMA charge actuarial rates reflecting the flood risk to buildings built or substantially improved on or after the effective date of the initial Flood Insurance Rate Map (FIRM) for the community or after December 31, 1974, whichever is later. Actuarial rating assures that the risks associated with buildings in flood prone areas are borne by those located in such areas and not by the taxpayers at large. These buildings are referred to as Post-FIRM. The NFIP flood insurance rates are based on the degree of the flood risk. The flood insurance premium calculations take into account a number of factors including the flood risk zone shown on the FIRM, elevation of the lowest floor above or below the BFE, the type of building, the number of floors, and the existence of a basement or an enclosure. The NFIP floodplain management requirements not only are designed to protect buildings constructed in floodplains from flood damages; they also help keep flood insurance premiums affordable (44 CFR §60.3). Buildings not properly elevated will be charged a much higher flood insurance premium due to the increased flood risk. If substantially improved historic structures were not elevated and made subject to these rates, the annual insurance premiums could be many thousands of dollars a year. Allowing historic structures to continue to be insured at subsidized rates, even when they are substantially improved or substantially damaged, represents a significant financial benefit to these building owners.

Flood insurance at subsidized rates is available whether the “historic structure” is exempt from the NFIP substantial improvement requirement or is granted a variance under the variance provision. “Historic structures” are considered Pre-FIRM under the NFIP and are charged subsidized rates similar to existing structures. As long as a historic structure meets the definition of “historic structure” under the NFIP, it will not be actuarially rated (44 CFR §59.1).

If a “historic structure” is substantially improved such that it loses its historic designation without meeting the elevation requirements of the NFIP, it will be actuarially rated as a Post-FIRM structure. This can be significantly higher than the subsidized rate on a “historic structure.” Thus, the subsidized flood insurance rate on “historic structures” also serves as an incentive to maintain the historic designation of the structure.

Property owners of historic structures are encouraged to purchase NFIP flood insurance. Flood losses are not covered by homeowner’s insurance. Disaster assistance will not take care of all the financial needs, if the historic structure is damaged by flood. Even if disaster assistance is available, it is often in the form of a low-interest loan which has to be repaid, and it is only available if the President formally declares a disaster. Flood insurance compensates for all covered losses and is the best form of financial protection against the devastating effects of floods. Flood insurance policies purchased by individual property owners help them recover from flooding more quickly.

Increased Cost of Compliance (ICC) coverage is not available to a historic structure that is exempt from the floodplain management requirements if a historic structure is substantially damaged (44 CFR §60.3). ICC coverage provides for the payment of a claim for the cost to comply with State or community floodplain management laws or ordinances after a direct physical loss by floods. When a building covered by a State or community declares the building to be substantially or repetitively damaged, ICC will help pay up to \$30,000 for the cost to elevate, floodproof, demolish, or relocate the building. However, if an exemption is granted administratively through the community’s variance process, and conditions are placed in the variance requiring one of the mitigation measures that meet the local floodplain management criteria, ICC will be available if the structure is declared substantially damaged or repetitively damaged.

## **Minimizing the Impacts of Flooding on Historic Structures**

### **Protection Measures for Historic Structures**

The primary damage to historic buildings in a flood disaster is from immersion of building materials in floodwaters and the moving force of floodwaters that can cause structural collapse. Storm and sanitary sewer backup during flooding is also a major cause of flood damage to buildings. In addition, floods may cause a fire due to ruptured utility lines; result in the growth of mold and mildew; and lead to swelling, warping, and disintegration of materials due to prolonged presence of moisture.

Although “historic structures” are exempt from the NFIP floodplain management requirements for new and substantially improved construction, flood mitigation measures should be a consideration to minimize flood damages when rehabilitating a historic structure or repairing a damaged historic structure (44 CFR §60.3).

Rehabilitating or repairing a historic structure provides an opportunity to incorporate measures to reduce future flood damages. In addressing multiple historic structures in a historic district or a single historic structure, one of the first steps to undertake is to assess the flood risk and estimate the amount of potential flood losses. The “how-to” guides described in the Hazard Mitigation Planning Can Benefit Historic Structures section of this Bulletin can help in assessing the flood risk and the potential flood losses to historic structures. The “how-to” guides can also help in identifying, evaluating, and prioritizing possible mitigation measures that reduce flood damages.

Mitigation measures can take a variety of forms from simple low-cost improvements such as elevating utilities and mechanical equipment to structural measures such as elevation, dry floodproofing, or relocating the building to a site outside the Special Flood Hazard Area. Even the more costly measures such as elevation, dry-floodproofing, or relocation can have significant benefits relative to their cost including:

- Reduction of flood damages. The buildings may not sustain flood damages or at least those damages will be significantly less than if no mitigation measures were implemented.
- Reduction in flood insurance premiums. Buildings that are elevated to or above the BFE or relocated out of the floodplain can qualify for flood insurance at actuarial rates that are generally less expensive than even the subsidized flood insurance rates charged to existing structures.
- Long-term preservation of the building. Historic structures that are repeatedly flooded will deteriorate and eventually may have to be demolished unless they are protected from flooding. Mitigation measures can help preserve the building for future generations.

One of the challenges in mitigating the flood risk to a “historic structure” is the need to incorporate mitigation measures in such a way that the structure does not lose its historic designation. When evaluating mitigation measures for historic structures, care should be taken so that new designs and new materials do not obscure existing significant historic features. Retrofitting a historic structure to reduce flood damages can be done that it has minimal impact on the structure’s historic integrity and so that it maintains its historic designation.

A range of mitigation measures may be available for a particular historic structure. By adhering to the *Secretary of the Interior’s Standards for the Treatment of Historic Properties* and by seeking the help of an architect or engineering professional experienced in rehabilitating historic structures, a structure’s original historic setting, scale, and distinctive features can be preserved. You may want to also refer to the *Preservation Briefs* published by the National Park Service, which provide guidance on preserving, rehabilitating, and restoring historic buildings. You may also want to seek guidance from your State Historic Preservation Officer or Tribal Historic Preservation Officer.

There is a variety of relatively simple measures that can be implemented to minimize the effects of flooding. Although these measures are designed to reduce flood damages, they may not eliminate flooding altogether. Many of the techniques described below may have minimal impact on the character-defining design features of the historic structure and some are relatively inexpensive to implement. Several of these will require a design professional and licensed contractor to implement.

- Relocate contents to a safer location. For example, heirlooms and other cultural resources should be located above the BFE. At a minimum, valuable contents should be removed from flood-prone basements.
- Create positive drainage around the building. In places where ground slope against the building facade is either flat or toward the building, increase the grade immediately adjacent to the façade to achieve positive drainage away from the building. In some situations, existing masonry and concrete window wells around basement windows may need to be built up to retain the extra height of the fill.
- Protect mechanical and utility equipment. Elevating mechanical and utility equipment (including electrical, heating, ventilation, plumbing and air conditioning equipment) above the BFE can protect them from flood damage. Guidance for protecting mechanical and utility equipment from flooding can be found in the FEMA publication, *Protecting Building Utilities from Flood Damage, Principles and Practices for the Design and Construction of Flood Resistant Building Utility Systems* (FEMA 348/November 1999).
- Remove modern finished materials from basements or other areas that are floodprone. Often historic structures are constructed from materials that are relatively flood-resistant. For example, basements often had stone or rubble walls and dirt floors. These buildings often were repeatedly flooded with minimal flood damages except to building contents. In more recent years many of these areas have been finished off using modern materials that are less resistant to flood damage and building utilities added. It may be possible to wet-floodproof the building merely by removing these modern materials and restoring these areas to their original configuration.
- Use flood resistant materials below the BFE. When rehabilitating or repairing a damaged historic structure, use flood resistant materials below the BFE to improve the structure's ability to withstand flooding. Guidance for using flood resistant materials can be found in Technical Bulletin 2-93, *Flood-Resistant Materials Requirements for Buildings Located in Special Flood Hazard Area in accordance with the National Flood Insurance Programs*.
- Fill in the basement. For historic structures with basements, a simple solution to minimize flood damage and reduce the potential for structural damage is to abandon the basement, raise any mechanical and utility equipment, and fill in the basement with sand or gravel.
- Wet floodproofing the basement. This measure allows the internal flooding of a basement. Flooding of a structure's interior is intended to counteract hydrostatic pressure on the walls, surfaces, and supports of the structure by equalizing interior and exterior water levels during a flood. Inundation also reduces the danger of buoyancy from hydrostatic uplift forces. Such measures may require alteration of a basement's design and construction, use of flood-

resistant materials, adjustment of the basement's maintenance, relocation of equipment and contents, and emergency preparedness. Guidance for wet floodproofing a basement can be found in Technical Bulletin 7-93 *Wet Floodproofing Requirements for Structures Located in Special Flood Hazard Areas in accordance with the National Flood Insurance Program*.

- Install “mini”-floodwalls to protect openings, such as a window well. For low level flooding, a type of “mini”-floodwall can be used to permanently protect various types of openings. Possible materials for this use include brick, concrete block and poured concrete. They should be supported by and securely tied into a footing so that they will not be undercut by scouring and the soil under these walls should be fairly impervious to control seepage. Some form of sealant may be needed on the outside to control seepage.
- Temporary measures. Where it is not possible to use the above measures to protect a building from flooding, it may be possible to use temporary measures to reduce flood damages. Examples include sand-bagging openings, installing temporary barriers or flood shields in openings, and evacuating building contents to floors above the flood level. In order for this approach to work, one must develop an emergency plan and stock-pile the required materials ahead of time. The amount of flood warning time available for the site is critical and it must be ensured that adequate personnel are available to install the measures. Do not try to keep water out of buildings unless an engineering analysis is conducted to ensure that the walls are strong enough to withstand flood forces (hydrostatic, hydrodynamic, debris, and buoyancy).

Property owners may want to undertake more extensive mitigation measures, if there is a likelihood of significant or more frequent flood damage to the historic structure. These mitigation measures could include elevating, floodproofing, or relocating the structure to a site that is outside of the Special Flood Hazard Area. These mitigation measures are described below.

## Elevation

One of the common methods of protecting flood-prone buildings is to elevate the lowest floor of a structure above the BFE (elevation of the one-percent-annual chance flood). Elevation is an effective mitigation measure, if designed and constructed appropriately to withstand flood forces. Although elevation is a practical solution for flooding problems, the flooding conditions and other hazards at the site must be carefully examined so that the most suitable technique and foundation type can be determined. There are two types of elevation to consider: (1) The entire building is lifted and placed on a new elevated foundation (columns, piers, posts, or raised foundation walls such as a crawl space). (2) In situations where it is possible to leave the exterior of the building the same, raise the interior floor of the building above the BFE. This may be an alternative for older stone buildings with high ceilings and elevated window sills.



Essentially, the steps required for elevating a building are largely the same in all cases. A cradle of steel beams is inserted under the structure; jacks are used to raise both the beams and structure to the desired height; a new elevated foundation for the house is constructed; and the structure is then lowered back onto the new foundation and reconnected. At a minimum, the foundation



*Elevation of a historic residence in Mandeville, Louisiana*

of the elevated structure must be able to withstand the expected loads at a site which may include hydrostatic pressure, hydrodynamic loads from velocity water and wave impacts, debris impact resulting from the flood, and buoyancy. The foundation must also be able to resist undermining by any expected erosion or scour. Therefore, the flooding characteristics and building type and condition will need to be examined to determine which type of foundation will be the most suitable.

While elevating a structure above the BFE will provide the structure the most protection, a less intrusive elevation may be desired or more feasible for a historic structure. Other protection measures, such as elevating utilities and equipment above the BFE, should be considered if elevating a historic structure to the BFE is not practicable.



*Elevation of a historic residence in Mandeville, Louisiana*

Elevation of a historic structure does not have to be achieved by unsightly pilings or other foundation that would impair the aesthetics of a historic district. The structure could be elevated on pilings or foundation walls and the foundation area could then be covered by an architecturally pleasing facade that is consistent with materials from the historic structure. The lower area can also be camouflaged with landscaping.

***Elevation in South Carolina.*** 113

Calhoun Street is a 125-year old, three-story house that stands in the heart of the downtown historic district of Charleston, South Carolina. Already abandoned for several years by the time Hurricane Hugo struck in 1989, 113 Calhoun Street was in serious danger of collapse by 1997. Instead of demolishing the building, the City of Charleston donated it to the 113 Calhoun Street Foundation, a non-profit partnership formed between the South Carolina Sea Grant Consortium, Clemson University, and the City of Charleston.

Using creative design solutions the 113 Calhoun Street Foundation transformed the derelict building into an educational center. Primary funding for the initial construction was provided by FEMA, while additional support, including the donation of products and services, came from the private sector. It was determined that an elevation above the BFE would not have been appropriate for 113 Calhoun Street. Such an elevation would have raised the building more than 5 feet, which would not have been in keeping with the surrounding streetscape and character of the historic district. Instead, the organization elevated the house only one foot, undertaking a variety of other types of interior and exterior improvements to protect against hazards.

Even though it was elevated to below the BFE, the house is still protected from minor flooding events and suffers less damage in major flooding events. Improvements to the house included the following:

- Placing HVAC ductwork at ceiling level and returns above the BFE.
- Placing electrical, telephone, and computer outlets above the BFE, with no splices or connections below the BFE.



*113 Calhoun at inception of project*

Photo courtesy of 113 Calhoun Street Foundation.



*113 Calhoun today*

Photo courtesy of 113 Calhoun Street Foundation.

- Installing interior decorative wainscoting to the BFE. This wainscoting consisted of water-resistant material, and could be removed to dry after a flood event.
- Designing interior structural elements so that a continuous load path was created that minimized weak links in the building's structural system.
- Replacing the building's deteriorated original foundation of unreinforced masonry brick with a new foundation consisting of concrete footings with steel ties. This new system allowed new timbers members to be bolted to the foundation, protecting against the twisting movements and other movements caused by seismic and wind forces. Brick from the original foundation was re-used as a veneer on the new foundation.

***Elevation in Belhaven, North Carolina.*** The Town of Belhaven, North Carolina, along the Pungo River, is subject to repeated flooding. In its last flood event, over 60 percent of the town's buildings were damaged, including most of the buildings in the National Register-listed Belhaven Historic District. In an effort to retain the town's historic and economic link to the waterfront, the decision was made to elevate the 379 buildings in place rather than relocate them to higher ground or demolish and rebuild them.

With assistance from the North Carolina State Historic Preservation Officer, plans were developed for an elevation project that would best preserve the historic character of the district. In the plan, frame buildings were raised onto concrete block foundations faced with brick veneer. Brick buildings were elevated onto



*Frame building elevated on concrete block foundation faced with brick veneer. Belhaven, North Carolina.*

continuous concrete block foundations, which were also faced with brick veneer. A projecting brick course was used to demarcate where the original house ended and the new foundation began. Additional guidance was drafted for preserving porches, railings, balusters, and steps, and for replacing old materials with appropriate new materials where necessary.

To prepare for the elevation project, large-format archival photographs were taken of each building that would be included in the project. These photographs provided a permanent record of the historic appearance of the district. Due to all these extra planning efforts for preserving its historic properties, the Belhaven Historic District was able to maintain its National Register status.

By the time the next flood struck Belhaven, 32 of the planned 379 houses were elevated. It is estimated that elevation of these 32 properties alone saved the town over \$1.3 million in direct and indirect damages.

## **Floodproofing**

Another alternative is to “floodproof” the building, so that it will not sustain damage or so that damages are minimized. There are two types of floodproofing commonly called “dry-floodproofing” and “wet-floodproofing.” Dry floodproofing means making a building watertight, substantially impermeable to floodwaters. This form of floodproofing requires that the building be properly anchored to resist flotation, collapse, and lateral movement. It also may require the reinforcement of walls to withstand flood forces and impact forces generated by floating debris; the use of membranes and other sealants to reduce seepage of floodwater through walls and wall penetrations; the installation of pumps to control interior water levels; the installation of check valves to prevent entrance of floodwater or sewage flows through utilities; and the location of electrical, mechanical, utility, and other valuable vulnerable equipment and contents above the expected flood level. Dry-floodproofing must be implemented with an appropriate design by a registered professional engineer or architect. Additional guidance on dry floodproofing can be found in Technical Bulletin 3-93 *Non-Residential Floodproofing – Requirements and Certification for Buildings Located in Special Flood Hazard Areas in accordance with the National Flood Insurance Program* and in *Floodproofing Non-Residential Structures* (FEMA 102/May 1986).

Wet-floodproofing allows for the flooding of a structure’s interior to equalize hydrostatic pressure on exterior walls, surfaces, and supports of the structure during a flood. Application of wet-floodproofing as a flood protection technique should be limited to specific situations in A Zones (including A, AE, A1-30, AH, AO, and AR zones).

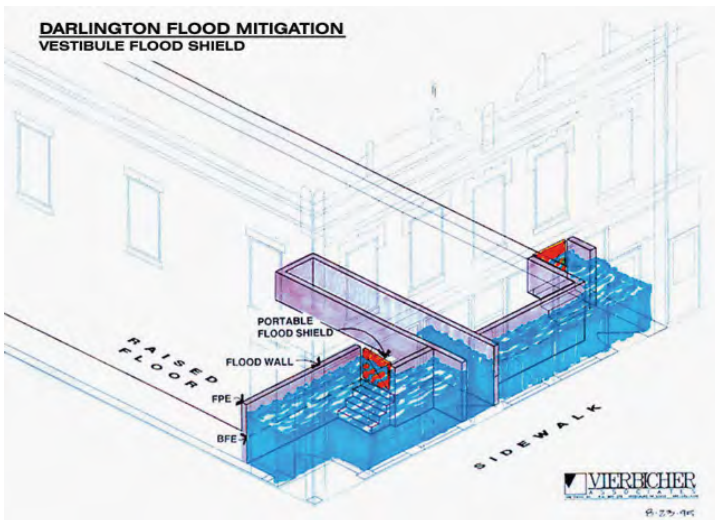
Flooding of a structure’s interior is intended to counteract hydrostatic flood forces on the exterior walls, surfaces, and supports of the structure during a flood. Inundation also reduces the danger of buoyancy from uplift forces. Use of wet floodproofing for historic structures requires careful consideration of protection techniques.

Building materials for the area that is to be wet-floodproofed should be replaced with flood resistant materials. Valuable contents should be relocated to or above the BFE. Light, portable furnishings should be able to be moved quickly and easily before a flood. Utilities and equipment should be elevated to or above the BFE or located on a platform that is above the BFE. Consideration must be given to flood duration, frequency, and depth to determine if wet-floodproofing is a viable option. For example, flood-prone basements may be modified, so that they can be flooded without damage to the building or foundation. Additional guidance on wet floodproofing can be found in Technical Bulletin 7-93 *Wet Floodproofing Requirements for Structures Located in Special Flood Hazard Areas in accordance with the National Flood Insurance Program*.

***Floodproofing in Wisconsin.*** Flooding is an ongoing part of life in the rural riverside town of Darlington, Wisconsin, having caused millions of dollars in property damage over the past decade. Following the devastating damage from the 1993 floods, the town could follow one of the three routes: do nothing and continue to suffer the periodic floods; move the central business district out of the floodplain and upset the local economy and sense of community; or do something innovative.



*Restored and retrofitted buildings in Downtown Darlington, Wisconsin*



*To provide additional protection against floodwater, removable watertight floodgates were incorporated into the buildings*

Darlington chose innovation. It found creative solutions to retain the historic charm of its nineteenth century business district, while eliminating the threat of future flood devastation.

The town took advantage of the very high ceilings common to many of the older buildings in Darlington; their height allowed first floors to be elevated out of flood danger with minimal impact to other historic features. Basements were filled with sand and gravel, floodproofing that portion of the

building most vulnerable to flooding, and all utilities were upgraded and raised. All these measures were implemented without altering the exteriors or disrupting the historic integrity of these older buildings.

These mitigation measures resulted in the successful floodproofing of the historic central business district against the 100-year flood event, as well as the revitalization of Darlington's economy.

The successful integration of historic preservation and hazard mitigation earned Darlington a Preservation Achievement Award from the State Historical Society of Wisconsin.



*Floodproofing the vestibule of a storefront*

## Relocation

Relocation is the mitigation measure that can offer the greatest security from future flooding. Relocation involves moving the entire structure out of the floodplain or it may involve dismantling a structure and rebuilding it elsewhere. It may be possible to relocate a building to a higher part of the same parcel or lot, but often it will be necessary to move the building to another site. In either case, it is the most reliable of all mitigation measures. In addition to relieving the property owner from future anxiety about flooding, this method can offer the opportunity to significantly reduce or



*Built by John Holm in 1847, the Magnolia Hotel, badly damaged from Hurricane Camille in 1969, was moved 100 yards north and restored by the City of Biloxi in 1972. As a result, the hotel experienced only minimal flooding during Hurricane Katrina.*

even eliminate the need for flood insurance. Relocation may be the best option in cases where the building site is subject to repeat flooding or severe flooding, where flood depths and velocities can have significant impact on the building. Obviously, moving a structure is a complex operation and will have to be done by a professional with experience in relocating structures. Relocation generally involves raising the building and placing it on a wheeled vehicle, usually a large flatbed trailer. The building is then transported to the new site and lowered onto a new foundation. In general, structures over a crawl space or basement are the easiest to relocate, while structures that are slab-on-grade or multi-story are more difficult. Masonry buildings, buildings with stone or brick veneer, and buildings with chimneys may require extensive bracing to prevent cracking or structural failure. As structures become larger, moving them may become more complicated and more expensive.

Relocation may, in some cases, be an appropriate option for historic structures by moving them out of harm's way. However, historic structures often share important features to the site, such as landscaping, outbuildings, alleyways, orientation, setback from the street, or other historical context. These contributing features often help to define a neighborhood's historic significance. If this option is being considered for a historic structure, consult with a historic preservation professional. The State Historic Preservation Officer or Tribal Historic Preservation Officer can also offer guidance. An example of a historic structure, which was relocated out of harm's way, follows.

***Relocation in Fulton, New York.*** On January 19, 1996, floodwaters of the Schoharie Creek rose nearly 18 feet damaging many properties in the Town of Fulton, in Schoharie County, New York. The Town of Fulton submitted a Hazard Mitigation Grant Program application to FEMA for the acquisition and demolition of 12 properties. In reviewing the Town of Fulton’s application, FEMA initiated consultation under section 106 of the National Historic Preservation Act. As a result, FEMA determined and the New York State Historic Preservation Officer concurred that one of the buildings in the application – known as the “Bruchmann residence” – was eligible for inclusion on the National Register of Historic Places and that its demolition would result in an “adverse effect.” The residence is significant as a notable and substantially intact example of a mid-19th century vernacular design and construction.



*Dismantling of Bruchmann residence, May 2000*

Based on the “adverse effect” determination, a Memorandum of Agreement (MOA) was negotiated between the State Historic Preservation Officer, FEMA, and the Town of Fulton wherein the town would explore alternatives to demolition. The town implemented an advertising campaign in an attempt to identify a party willing and able to relocate the structure to another site. After more than 2 years, an interested party submitted a statement of interest to the applicant and a deal was struck.

The house was re-erected on its new site in Delaware County.

## **Hazard Mitigation Planning Can Benefit Historic Structures**

Historic properties and cultural resources are valuable, economic assets in communities throughout the United States. For many communities, historic and cultural resources are a catalyst for economic development. Often not considered are the potentially devastating effects that flooding can have on historic properties. When disaster strikes and a community’s historic resources are damaged, the economic and social vitality of the community can be severely impacted. Communities can take steps to minimize the impacts of flooding on the community’s historic resources by integrating historic property and cultural resource protection into hazard mitigation planning.

FEMA has developed a series of mitigation planning “how-to” guides for the purpose of assisting communities, States, and Tribes in developing an effective hazard mitigation plan. These guides have been developed by FEMA to provide an overview of the core elements associated with hazard mitigation planning. The four core elements include – organizing resources, assessing risks, developing a mitigation plan, and implementing the plan and monitoring progress. These “how-to series” include:

- Getting started with the mitigation planning process, including important considerations for how one can organize efforts to develop an effective mitigation plan (FEMA 386-1);
- Identifying hazards and assessing losses to community, State, or Tribe (FEMA 386-2);
- Setting mitigation priorities and goals for community, State, or Tribe, and writing the plan (FEMA 386-3); and
- Implementing the mitigation plan, including project funding and maintaining a dynamic plan that changes to meet new developments (FEMA 386-4).

One particular guide developed specifically to address historic properties and cultural resources is the FEMA publication titled *Integrating Historic Property and Cultural Resource Considerations Into Hazard Mitigation Planning* (FEMA 386-6 / May 2005). This guide should be used in conjunction with the four guides described above. This guide will help communities accomplish the following with respect to historic structures and historic districts:

- Identify and pull together resources for incorporating historic property and cultural resource considerations into a hazard mitigation plan;
- Determine which historic properties and cultural resources are likely to be damaged in a disaster and prioritize them for protection;
- Evaluate potential hazard mitigation actions for historic properties and cultural resources through the use of benefit-cost analysis and other decision-making tools; and
- Develop and implement a hazard mitigation plan that addresses historic properties and cultural resources.

To obtain copies of these publications, refer to Further Information section and Order Information section.

## Further Information

### State and Local Mitigation Planning “How-To” Guides

*Getting Started – building support for mitigation planning*, FEMA 386-1, September 2002.

*Understanding Your Flood Risk – identifying hazards and estimating losses*, FEMA 386-2, August 2001.

*Developing the Mitigation Plan – identifying mitigation actions and implementation strategies*, FEMA 386-3, April 2003.

*Bringing the Plan to Life – implementing the hazard mitigation plan*, FEMA 386-4, August 2003.

*Integrating Historic Property and Cultural Resource Considerations Into Hazard Mitigation Planning*, FEMA 386-6, May 2005.



## Other Mitigation Documents

*Homeowner's Guide to Retrofitting, Six Ways to Protect Your House from Flooding*, FEMA 312, June 1998.

*Floodproofing Non-Residential Structures*, FEMA 102, May 1986.

*Flood-Resistant Materials Requirements for Buildings Located in Special Flood Hazard Areas in Accordance with the National Flood Insurance Program*, FEMA Technical Bulletin 2-93, FIA-TB-2. 4/93.

*Hurricane Katrina in the Gulf Coast, Mitigation Assessment Team Report, Building Performance Observations, Recommendations, and Technical Guidance*, FEMA 549, July 2006. Chapter 6 and Appendix J.

*Openings in Foundation Walls for Buildings Located in Special Flood Hazard Areas in accordance with the National Flood Insurance Program*, FEMA Technical Bulletin 1-93, FIA-TB-1 4/93.

*Non-Residential Floodproofing-Requirements and Certification for Buildings Located in Special Flood Hazard Areas in accordance with the National Flood Insurance Program*, FEMA Technical Bulletin 3-93, FIA-TB-3. 4/93.

*Protecting Building Utilities From Flood Damage, Principles and Practices for the Design and Construction of Flood Resistant Building Utility Systems*, FEMA 348, November 1999.

*Recommended Residential Construction for the Gulf Coast, Building on Strong and Safe Foundations*, FEMA 550, July 2006.

*Repairing Your Flood Home, Federal Emergency Management Agency and the American Red Cross*, ARC 4477 or FEMA 234, 1992.

*Wet Floodproofing Requirements for Structures Located in Special Flood Hazard Areas in accordance with the National Flood Insurance Program*, Technical Bulletin 7-93, FIA-TB-7 12/93.

To obtain a copy of these publications, see the section on Ordering Information. They are also available to view and download from <http://www.fema.gov/library/index.jsp>.

## Comments

Any comments on the Floodplain Management Bulletin should be directed to:

DHS/FEMA  
Mitigation Directorate  
500 C St., SW  
Crystal City  
Washington, D.C. 20472

## Ordering Information

This document can be downloaded from the following website:

<http://www.fema.gov/library/index.jsp>.

Copies of this bulletin and the above listed publications are available from:

FEMA Distribution Facility  
P.O. Box 2012  
Jessup, MD 20794-2012.

FEMA's Distribution Facility also accepts telephone requests (1-800-480-2520) and facsimile requests (301-362-5335).

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This Bulletin represents FEMA's interpretation of a statutory or regulatory requirement. The Bulletin itself does not impose legally enforceable rights and obligations, but sets forth a standard operating procedure or agency practice that FEMA employees follow to be consistent, fair, and equitable in the implementation of the agency's authorities.

7. WNC Insurance Services, Inc., *Biggert-Waters and the Affordability Act: Making Flood Insurance Reform Affordable* (April 25, 2014)



**WNC**  
Insurance Services, Inc.

# Compliance Matters

News from WNC's Compliance Department

April 25, 2014

899 El Centro Street, South Pasadena, California 91030 / 800-423-2497 / www.WNCInsuranceServices.com

## **BIGGERT-WATERS AND THE AFFORDABILITY ACT: Making Flood Insurance Reform Affordable**

By now, everyone has experienced the “blow-back” resulting from the provisions of the Biggert-Waters Flood Insurance Reform Act of 2012 (“Biggert-Waters”). Borrowers concerned with the effect of rate increases on their budgets and the value of their homes; lenders concerned with collateral values and compliance challenges presented by a handful of new regulations affecting the mandatory purchase of flood insurance requirements under the National Flood Insurance Program (“NFIP”). This was the “perfect storm” for reforming a reform bill.



NATIONAL FLOOD  
INSURANCE PROGRAM

Meanwhile, the Federal Emergency Management Agency (“FEMA”) and the Interagency Working Group (representing the federal lending regulators — Federal Reserve System, Federal Deposit Insurance Corporation, Farm Credit Administration, National Credit Union Administration [collectively, “Agencies”]), have each been working on, and struggling with, their own compliance rules for implementing Biggert-Waters.



As a result, on March 21, 2014, the President signed the Homeowner Flood Insurance Affordability Act of 2014 into law (“Affordability Act”). This law repeals and modifies certain provisions of Biggert-Waters creating the above-noted turmoil. The Affordability Act was introduced by Rep. Michael Grimm (R-Staten Island NY) and co-sponsored by 238 Reps, including Maxine Waters. Some gave it the nick-name “Grimm-Waters”. In any event, the goal of the Affordability Act is to make flood insurance reform affordable.



The Affordability Act has 31 sections. However, there are four key sections affecting lender-placed flood insurance.

- ⇒ **Section 4:** Restoration of the “grandfathered” rates.
- ⇒ **Section 12:** Optional high-deductible (\$10,000) policies for residential properties.
- ⇒ **Section 13:** Exclusion of detached structures from the mandatory purchase law.
- ⇒ **Section 25:** Exceptions to the escrow requirement for flood insurance payments.

These Affordability Act provisions are addressed in the Discussion below, along with the remaining Biggert-Waters provisions. Remember, the Affordability Act is a modification of Biggert-Waters — a reform of the reform bill. Biggert-Waters reforms must still be implemented.

### **DISCUSSION OF BIGGERT-WATERS AND THE AFFORDABILITY ACT REFORMS**

**Sec. 100204. Availability of insurance for multifamily properties; and Sec. 100228. Clarification of residential and commercial coverage limits.**

Together, these provisions allow commercial coverage limits of \$500,000 to apply to multi-family properties (buildings with 5 or more single-family units). Under the old law, the maximum coverage limit available under the NFIP was the residential limit of \$250,000 per building, because such buildings were classified as residential. This brings the NFIP in line with insurance industry practice, which is to classify such buildings as commercial structures, for insurance purposes and provides a little more protection as well.

Lenders will need to use this increased number when

calculating the mandatory purchase requirement. Remember, a lender must require a borrower to purchase *at least* the minimum mandatory coverage amount, which means the flood coverage limits must be *at least equal to the lesser* of the loan balance or the NFIP limit (now \$500,000). As a practical matter, the mandatory amount should avoid exceeding the replacement cost of the structure. The last known coverage limits of the borrower's hazard policy is a good indicator of the correct replacement cost value of the structure.

It is important to note that until now FEMA has not made available the new multi-family limit, so there was no requirement (or ability) to enforce this new requirement. However, in a memorandum dated December 16, 2013, and in subsequent memos, FEMA announced that the new multi-family limit will be available on June 1, 2014.

Depending upon the loan balance, the replacement cost of the structure, and the limits of the current policy, some or all of a lender's loans may still be compliant after June 1, 2014. Thus, we recommend that beginning June 1, 2014, compliance be verified at renewal of coverage, whether voluntary or lender-placed. This would be the least disruptive, most orderly transition for all stakeholders within the industry. Moreover, unless there is a tripwire event (making, increasing, renewing or extending a loan) there is no affirmative duty to look for coverage deficiencies within a loan portfolio. However, when a lender learns of a coverage deficiency, the lender must act. The obvious place for a lender to learn of a coverage deficiency would be at the time of coverage renewal.

### Sec. 100208. Enforcement.

Lender penalties were increased from \$350 to \$2000 and \$100,000 penalty cap was removed. Over the last two years, everyone has been scrambling to determine the most appropriate path to compliance, including FEMA and the Agencies. Accordingly, on March 29, 2013, the FDIC on behalf of the Agencies issued a Financial Institution Letter (FIL-14-2013) addressing the need for further regulations before certain provisions of Biggert-Waters are enforceable. The FDIC affirmed that



further regulation would be needed for implementing the law regarding private flood insurance and escrowing of flood insurance payments. Certainly, the Agencies will recognize any good faith effort to comply with the law, given the difficulties that all stakeholders have experienced thus far.

### Sec. 100209. Escrow of flood insurance payments.

Under Biggert-Waters, lenders must establish escrow accounts for flood insurance premiums on loans secured by residential real estate or a mobile home whether outstanding or entered into, after July 6, 2014. Such lenders are exempt from the escrow requirement if: (1) the lender has less than \$1 billion in assets; and (2) as of July 6, 2012, the lender was not required by federal law, state law, or its own internal policy, to require escrow of taxes and insurance.

Section 25 of the Affordability Act modified this new requirement in some positive ways for lenders.

**First**, the size requirement remains intact -- small lenders without a general escrow obligation are still exempt from the flood escrow requirement.

**Second**, the compliance date for the flood escrow requirement has been moved from July 6, 2014 to January 1, 2016. Lenders now have an additional 18 months to comply.

**Third**, the escrow requirement no longer applies to all outstanding loans; only those loans that are originated, refinanced, increased, extended or renewed on or after January 1, 2016, are subject to the mandatory escrow requirement. All other loans that would otherwise be subject to mandatory escrow must be offered a voluntary escrow.

**Fourth**, the following loans are now expressly exempt from any escrow requirement:

- (1) Junior or subordinate liens (second liens);
- (2) Condominium, cooperative or other project development loans covered by an Association flood policy that meets the lender's flood insurance requirements and is paid for as a common expense

of the unit owners;

- (3) Commercial loans secured by residential property;
- (4) Home equity lines of credit;
- (5) Nonperforming loans; and
- (6) Loans with a term of not longer than 12 months.

These Affordability Act revisions are a welcomed relief from the initial ambiguity and burden of the escrow requirements under Biggert-Waters. These exemptions make sense given the nature of the loan or the collateral.

**Sec. 100210. Minimum deductibles under the National Flood Insurance Program.**

Biggert-Waters changed the minimum deductibles available under the NFIP for Pre-FIRM and Post-FIRM residential properties. The new deductibles are as follows:

- **Pre-FIRM Deductibles:**
  - \$1,500 for coverage under \$100,000;
  - \$2,000 for those over \$100,000
- **Post-FIRM Deductibles:**
  - \$1,000 for coverage under \$100,000;
  - \$1,250 for those over \$100,000

Section 12 of the Affordability Act added an optional high-deductible policy for residential properties. The new maximum deductible for residential properties is \$10,000. Before the Affordability Act, the highest deductible available was \$5,000.

Lenders will need to choose an acceptable deductible requirement, but should be cautioned before requiring or allowing a borrower to provide a deductible that is lower or higher than the deductibles available under the NFIP.

**Sec. 100222. Notice of flood insurance availability under RESPA.**

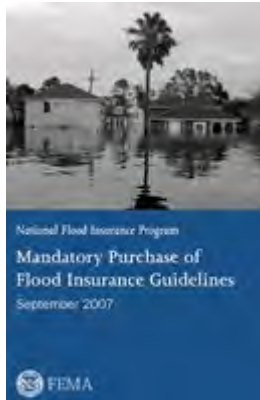
Under the Real Estate Settlement Procedures Act (RESPA) a disclosure is required to be given at application explaining flood insurance. The Consumer Financial Protection Bureau ("CFPB") has been directed to revise the current Special Information Booklet to include the



required flood disclosure. Once the applicable revisions are made, the CFPB will announce the availability of the revised disclosure booklet.

**Sec. 100239. Use of private insurance to satisfy mandatory purchase requirement.**

This section of Biggert-Waters mandates the acceptance of private flood insurance to satisfy the mandatory purchase requirements. According to the above-mentioned March 29, 2013, Financial Institution Letter (FIL-14-2013), this Section was specifically noted as unenforceable until further regulations are issued by the Agencies.



The difficulty raised by Biggert-Waters for lenders, and thus, the reason for the needed regulation, is that law now incorporates the "FEMA-6 Criteria" into the definition of Private Flood Insurance (see FEMA, Mandatory Purchase of Flood Insurance Guidelines, page 58 ["Guidelines"]). Without clarifying regulations, this provision would appear to require a lender to read every private flood insurance policy form provided to determine whether it favorably compared to the standard flood policy form.

On October 30, 2013, the Agencies proposed regulations implementing Biggert-Waters, including a "safe harbor" when a private policy is certified by a state insurance department to provide coverage that is "at least as broad" as the coverage under the FEMA Standard Flood Insurance Policy form. In response, industry stakeholders suggested to the Agencies that the carrier providing the coverage should be allowed to certify that its policy satisfies this requirement, and that the lenders should be allowed to rely upon such certifications. The proposed rules are pending and will either be re-issued or finalized in response to the Affordability Act.

Meanwhile, Congressional members of both houses and both parties have supported an amendment to Biggert-Waters to simplify the definition of private flood insurance, thus eliminating this problem. The amendment narrowly failed, but may be reintroduced again at a later date. If the Agencies fix the problem by issuing an appropriate regulation, an amendment to the law would be unnecessary.

**Sec. 100244. Termination of force-placed insurance.**

Provides explicit authority to charge the borrower for coverage in force as of the lapse (i.e. coverage during the 45 day notice period) and requires cancellation refunds within 30 days. This is the one provision of Biggert-Waters that was the most productive for lenders. It recognized and clarified the permissibility of a well-established and well needed rule. The requirement and goal of the law is continuous coverage.

**SUMMARY OF THE AFFORDABILITY ACT**

Although the Affordability Act summary below is not exhaustive, it should provide a good basis for further exploration of the new law.

**Section 1: Short title and table of contents.**

Official title: "To delay the implementation of certain provisions of the Biggert-Waters Flood Insurance Reform Act of 2012, and for other purposes." Short Title: "The Homeowner Flood Insurance Affordability Act of 2014." TOC shows 31 Sections.

**Section 2: Definitions.**

Two definitions are provided: (1) Administrator, meaning the Administrator of Federal Emergency Management Agency, and (2) National Flood Insurance Program, meaning the program established under the National Flood Insurance Act of 1968 (42 U.S.C. 4001 et seq.)

**Section 3: Repeal of certain rate increases.**

Eliminates prohibition against rate subsidies for properties purchased or newly insured after enactment of Biggert-Waters (July 6, 2012).

Replaces "deliberate choice of the policy holder" with the phrase "unless the decision of the policy holder to permit a lapse in flood insurance coverage was a result of the property covered by the policy no longer being required to retain such coverage".

Thus, rate subsidies are now prohibited for only two classes of properties:

- (1) lapsed coverage, "unless the decision of the policy holder to permit a lapse in flood insurance coverage was a result of the property covered by the policy no longer being required to retain such coverage"; or
- (2) any insured who refuses mitigation following a major disaster in connection with (i) a repetitive loss property or (ii) a severe repetitive loss property, as defined.

Six to eight month timelines established for FEMA to provide updated guidance and rate tables for use by the insurance industry.

Excess premium charges will be refunded based upon these changes.

**Section 4: Restoration of grandfathered rates.**

The entire subsection (h) (that eliminated "grandfathered" rates) is removed from, and effective with, Biggert-Waters (i.e. as if subsection (h) was never enacted).

**Section 5: Requirements regarding annual rate increases.**

Sets a cap 18% each year for annual rate increases, except under specific circumstances; requires an average increase in rates of at least 5% annually.

**Section 6: Clarification of rates for properties newly mapped into SFHAs.**

Properties located in an area not previously designated as SFHA in a newly mapped area will be rated as a Preferred Risk Policy for the first year and upon renewal will be calculated using an annual premium rate increase of 15% each year until the rate reaches the calculated rate required.

**Section 7: Premiums and reports.**

Requires a report from FEMA to the Committee on Financial Services of the House of Representatives and the Committee on Banking, Housing and Urban Affairs of the Senate for all policies where the premiums exceed 1% of the total coverage provided by the policy (i.e.



premium charge greater than \$2,500 for a policy with \$250,000 limits).

### **Section 8: Annual premium surcharge.**

Assessment of \$25 surcharge on all policies, except when \$250 surcharge is assessed on non-residential and non-primary residence, to be deposited in a Reserve Fund.

### **Section 9: Draft affordability framework.**

Framework that proposes to address the issues of affordability must be completed and delivered to Congress within 18 months of the completion of the Affordability Study requested under Biggert-Waters.

Criteria: (1) Accurate communication to consumers of the flood risks, (2) Targeted assistance to policy holders based on financial ability, (3) Individual or community actions to mitigate flood risks, (4) Impact of rate increases on participation in the NFIP, (5) Impact of map updates on the affordability of flood insurance.

### **Section 10: Risk transfer.**

Authority given to FEMA to secure reinsurance from private reinsurance and capital markets to obtain sufficient coverage reasonable and appropriate to pay claims.

### **Section 11: Monthly installment payment for premiums.**

Requires FEMA to establish an optional monthly payment schedule, which must be in place within 18 months of enactment of this Act.

### **Section 12: Optional high-deductible policies for residential properties.**

Requires FEMA to conspicuously include on the application a high-deductible option of up to \$10,000 for residential coverage.

### **Section 13: Exclusion of detached structures from mandatory purchase requirement.**

Detached structures on residential property, which are not

used as a residence, are exempt from the mandatory purchase requirement. Although not required under the mandatory purchase law, lenders may still require such coverage under the loan agreement.

### **Section 14: Accounting for flood mitigation activities in estimates of premium rates.**

Rates will be calculated to reflect the flood mitigation activities that an owner or lessee has undertaken on a property, including differences in the risk involved due to land use measures, flood-proofing, flood forecasting, and similar measures.

### **Section 15: Home improvement fairness.**

Changes from 30% to 50% for substantially improved property.

### **Section 16: Affordability study and report.**

Three topics added to the Affordability Study:

- (1) Options for maintaining affordability if rates increased to an amount greater than 2% of the coverage limit, including options for enhanced mitigation assistance and means-tested assistance;
- (2) The effects that the establishment of a catastrophe savings account would have on long-term affordability; and
- (3) Options for modifying the surcharge (Sec. 8), including based on homeowner income, property value or risk of loss

Extends the timeframe for the study to be completed to a date 18 months following the enactment of this Act.

Increases funding for the Affordability Study from \$750K to \$2.5M.

### **Section 17: Flood insurance rate map certification.**

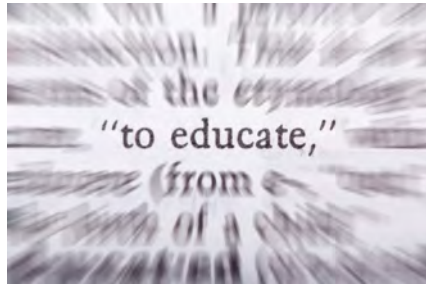
Requires Administrator to certify to Congress the implementation of an NFIP mapping program, only after review by the Technical Mapping Advisory Council ("TMAC"), that, when applied, results in technically credible flood hazard data, and shall provide the TMAC report to Congress.





**Section 18: Funds to reimburse homeowners for successful map appeals.**

When an appeal of a FEMA map is resolved in favor of the homeowner, FEMA shall reimburse the homeowner's expenses from the National Flood Insurance Fund.

**Section 19: Flood protection systems.**

Adequate progress on the construction or reconstruction of a flood protection system, based on the present value of the completed flood protection system, has been made only if: (a) 100% of the cost has been authorized, (b) at least 60% of the cost of the system has been appropriated, (c) at least 50% of the cost of the system has been expended, and (d) the system is at least 50% complete. This applies to both river and coastal levees.

**Section 20: Quarterly reports regarding Reserve Fund ratio.**

Reports are now required to be submitted quarterly.

**Section 21: Treatment of flood-proofed residential basements.**

FEMA is required to continue extending exceptions and variances for flood-proofed basements under 44 CFR 60.3 and 60.6.

**Section 22: Exemption from fees for certain map change requests.**

Elimination of fees for LOMC when the change is based on a habitat restoration projects funded in whole or in part with Federal or State funds; on projects, including: dam removal, culvert redesign, culvert installation, or installation of fish passage.

**Section 23: Study of voluntary community-based flood insurance options.**

Requires FEMA to report back to Congress within 18 months on the best way to incorporate voluntary community-based flood insurance policies and also a strategy to implement these policies in a way that would encourage mitigation activities; this study must be closely coordinated with the Comptroller General.

**Section 24: Designation of flood insurance advocate.**

FEMA shall designate a "Flood Insurance Advocate" for fair treatment of policyholders; duties include:

- (1) Educate property owners and policyholders under the NFIP on— (A) flood risks; (B) flood mitigation; (C) reducing rates through effective mitigation; (D) the rate map review and amendment process; and (E) changes in the flood insurance program;
- (2) Assist policyholders and property owners to understand the procedural requirements for appealing preliminary rate maps and implementing measures to mitigate evolving flood risks;
- (3) Assist in the development of regional capacity to respond to individual constituent concerns about rate map amendments and revisions;
- (4) Coordinate outreach and education with local officials and community leaders in areas impacted by proposed rate map amendments and revisions; and
- (5) Aid potential policyholders in obtaining and verifying accurate and reliable flood insurance rate information when purchasing or renewing a policy.

**Section 25: Exceptions to escrow requirement for flood insurance payments.**

For any loan that is originated, refinanced, increased, extended, or renewed on or after January 1, 2016, flood insurance premiums must be escrowed, except for the following:

- (1) Junior or subordinate liens (Second Liens);
- (2) Condominium, cooperative or other project development loans covered by an Association flood policy that meets the lender's flood insurance requirements and is paid for as a common expense of the unit owners;
- (3) Commercial loans secured by residential property;
- (4) Home equity lines of credit;
- (5) Nonperforming loans; or
- (6) Loans with a term of not longer than 12 months.

Outstanding loans that would otherwise be subject to the mandatory escrow above, except that the loan was not originated, refinanced, increased, extended or renewed on or after January 1, 2016, shall be offered a voluntary escrow.

### **Section 26: Flood mitigation methods for buildings.**

FEMA shall establish guidelines within one year of enactment of this Act for alternate mitigation methods, other than elevation, for buildings that cannot be elevated due to their structural characteristics; FEMA shall inform property owners how the mitigation methods, if implemented, may affect premium rates.

### **Section 27: Mapping of non-structural flood mitigation features.**

FEMA must now work with states, local communities and property owners to identify areas protected by non-structure flood mitigation features.

### **Section 28: Clear communications.**

FEMA shall clearly communicate full flood risk determinations to individual property owners regardless of whether their premium rates are full actuarial rates.

### **Section 29: Protection of small businesses, non-profits, houses of worship, and residences.**

FEMA shall report to the Congress no later than 18 months after the enactment of this Act on the affordability of flood insurance rates and surcharges for small businesses, non-profits, houses of worship and residences with a value of 25% or less than the median home value in the State where located.

If rate increases result in lapsed policies, late payments, etc. of small businesses, non-profits, houses of worship, or residences with a value of 25% or less than the median home value, FEMA must make recommendations within 3 months to the Congress to improve affordability.

### **Section 30: Mapping.**

FEMA must now notify each community, before any mapping or map updates begin, of the model or models that FEMA plans to use along with an explanation of why the model is appropriate.

Provide 30 days to the community to coordinate with FEMA on the selection of model(s) without waiving the right to appeal the subsequent study.

Provide interim data to the community along with a 30 day comment period to allow for the community to provide supplemental or modified data consistent with prevailing engineering principles.

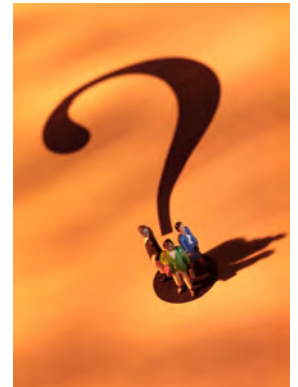
Provide 30 days advance notice, in writing, to each Senator and the member of the House of Representatives for the affected community with estimated schedule for community meetings, publication dates of notices, beginning of the appeals process, and the estimated number of homes and businesses affected by the map changes.

### **Section 31: Disclosure**

Resulting rate changes will be provided no later than 6 months following enactment. Policy and claims data will be provided no later than 90 days following enactment.

## **FURTHER QUESTIONS**

If you have questions regarding this article, please contact your WNC representative, or you may contact the author, Jordan N. Gray, Esq., SVP, Legal Affairs, and General Counsel, WNC Insurance Services, Inc., at 626-463-6472 or at [JGray@WNCFirst.com](mailto:JGray@WNCFirst.com). Copies of the Affordability Act and Biggert-Waters are available on our website at <http://www.wncfirst.com/wncinsserv/downloads.asp>.



8. Indiana Department of Natural Resources, Floodplain Management Section, *State of Indiana Model Ordinance for Flood Hazard Areas* (n.d.)

***State of Indiana  
Model Ordinance  
for  
Flood Hazard Areas***



## INSTRUCTIONS FOR USING THE INDIANA MODEL ORDINANCE FOR FLOOD HAZARD AREAS

The Model Ordinance for Flood Hazard Areas is provided to assist your community in developing an ordinance that will comply with the minimum participating criteria of the National Flood Insurance Program (NFIP). It is recommended that a Community's attorney(s) consider necessary additions and include all required information and delegations to the model. It is not intended that this model, if adopted, will serve all of a Community's needs as related to floodplain management, land use, or zoning. Any Community may adopt standards that are more restrictive than the minimum NFIP participating standards. This model ordinance incorporates the minimum federal regulations governing community participation in the NFIP and state floodplain regulations regarding development in Special Flood Hazard Areas (SFHA). Additionally, it includes some generally accepted construction practices regarding fill and provides some suggested enhancements for consideration.

1. Note in the document those text/information that require completion by the local community are set up with a MACRO BUTTON that appear like this: **[Community]**  
When completing the ordinance for your community, simply click on the macro button text and type the appropriate information as indicated. Make certain that the appropriate information has been inserted for each MACRO BUTTON within the ordinance.
2. Particular attention should be given to all flood insurance study and flood map **dates within the ordinance** to ensure that the information is correct.
3. If the ordinance document is renumbered or reformatted, including changes such as "Article" to "Chapter", be certain to be thorough in making those changes as appropriate throughout, PARTICULARLY THE VARIOUS CROSS REFERENCES/CITATIONS WITHIN THE DOCUMENT. Make certain they reflect the accurate information.
4. *Optional enhancements are shown in the document in italics font as shown here. Any optional language should be reviewed carefully, removing the language that is not desired. Careful attention to be given to the document to include desired language and to remove that not desired. Be certain to convert all text into the same font when all changes have been completed.*
5. **Guidance information shown within the document in black underlined text should be removed prior to submitting a draft for review by DNR.**

While the most current version of the model floodplain ordinance is typically posted on the Division of Water Web site, [www.in.gov/dnr/water](http://www.in.gov/dnr/water), communities interested in adopting new or updated floodplain regulations should always coordinate these efforts with the Floodplain Management Section of the IDNR Division of Water to ensure they are using the most up-to-date version tailored for their community. **Prior to adoption, communities should submit a draft of a proposed floodplain ordinance to the Floodplain Management Section of the IDNR Division of Water for review.**

Contact Info:

Floodplain Management Section, IDNR Division of Water, 402 W. Washington Street,  
Indianapolis, IN 46204  
317-232-4160  
800-928-3755 (toll free)

**ORDINANCE FOR FLOOD HAZARD AREAS  
FOR  
[Name of Community]**

Ordinance No. **[Ordinance Number]**

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# **Article 1. Statutory Authorization, Findings of Fact, Purpose, and Objectives.**

## **Section A. Statutory Authorization.**

The Indiana Legislature has in [ IC 36-7-4 if community has zoning; IC 36-1-4-11 if no zoning] granted the power to local government units to control land use within their jurisdictions. Therefore, the [Governing body] of [Community name] does hereby adopt the following floodplain management regulations.

## **Section B. Findings of Fact.**

- (1) The flood hazard areas of [Community name] are subject to periodic inundation which results in loss of life and property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood protection and relief, and impairment of the tax base, all of which adversely affect the public health, safety, and general welfare.
- (2) These flood losses are caused by the cumulative effect of obstructions in floodplains causing increases in flood heights and velocities, and by the occupancy in flood hazard areas by uses vulnerable to floods or hazardous to other lands which are inadequately elevated, inadequately flood-proofed, or otherwise unprotected from flood damages.

## **Section C. Statement of Purpose.**

It is the purpose of this ordinance to promote the public health, safety, and general welfare and to minimize public and private losses due to flood conditions in specific areas by provisions designed to:

- (1) Restrict or prohibit uses which are dangerous to health, safety, and property due to water or erosion hazards, which result in damaging increases in erosion or in flood heights or velocities.
- (2) Require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction.
- (3) Control the alteration of natural floodplains, stream channels, and natural protective barriers which are involved in the accommodation of flood waters.
- (4) Control filling, grading, dredging, and other development which may increase erosion or flood damage.
- (5) Prevent or regulate the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards to other lands.
- (6) Make federal flood insurance available for structures and their contents in the [Town, City, or County] by fulfilling the requirements of the National Flood Insurance Program.

## **Section D. Objectives.**

The objectives of this ordinance are:

- (1) To protect human life and health.
- (2) To minimize expenditure of public money for costly flood control projects.
- (3) To minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public.

- (4) To minimize prolonged business interruptions.
- (5) To minimize damage to public facilities and utilities such as water and gas mains, electric, telephone, and sewer lines, streets, and bridges located in floodplains.
- (6) To help maintain a stable tax base by providing for the sound use and development of flood prone areas in such a manner as to minimize flood blight areas.

## Article 2. Definitions.

Unless specifically defined below, words or phrases used in this ordinance shall be interpreted so as to give them the meaning they have in common usage and to give this ordinance its most reasonable application.

**A zone** means portions of the SFHA in which the principal source of flooding is runoff from rainfall, snowmelt, or a combination of both. In A zones, floodwaters may move slowly or rapidly, but waves are usually not a significant threat to buildings. These areas are labeled as Zone A, Zone AE, Zones A1-A30, Zone AO, Zone AH, Zone AR and Zone A99 on a FIRM. The definitions are presented below:

Zone A: Areas subject to inundation by the one-percent annual chance flood event. Because detailed hydraulic analyses have not been performed, no base flood elevation or depths are shown.

Zone AE and A1-A30: Areas subject to inundation by the one-percent annual chance flood event determined by detailed methods. Base flood elevations are shown within these zones. (Zone AE is on new and revised maps in place of Zones A1-A30.)

Zone AO: Areas subject to inundation by one-percent annual chance shallow flooding (usually sheet flow on sloping terrain) where average depths are between one and three feet. Average flood depths derived from detailed hydraulic analyses are shown within this zone.

Zone AH: Areas subject to inundation by one-percent annual chance shallow flooding (usually areas of ponding) where average depths are between one and three feet. Average flood depths derived from detailed hydraulic analyses are shown within this zone.

Zone AR: Areas that result from the decertification of a previously accredited flood protection system that is determined to be in the process of being restored to provide base flood protection.

Zone A99: Areas subject to inundation by the one-percent annual chance flood event, but which will ultimately be protected upon completion of an under-construction Federal flood protection system. These are areas of special flood hazard where enough progress has been made on the construction of a protection system, such as dikes, dams, and levees, to consider it complete for insurance rating purposes. Zone A99 may only be used when the flood protection system has reached specified statutory progress toward completion. No base flood elevations or depths are shown.

**Accessory structure** (appurtenant structure) means a structure with a floor area 400 square feet or less that is located on the same parcel of property as the principal structure and the use of which is incidental to the use of the principal structure. Accessory structures should constitute a minimal initial investment, may not be used for human habitation, and be designed to have minimal flood damage potential. Examples of accessory structures are detached garages, carports, storage sheds, pole barns, and hay sheds.

**Addition** (to an existing structure) means any walled and roofed expansion to the perimeter of a structure in which the addition is connected by a common load-bearing wall other than a firewall. Any walled and roofed addition, which is connected by a firewall or is separated by independent perimeter load-bearing walls, is new construction.



**Appeal** means a request for a review of the floodplain administrator's interpretation of any provision of this ordinance.

**Area of shallow flooding** means a designated AO or AH Zone on the community's Flood Insurance Rate Map (FIRM) with base flood depths from one to three feet where a clearly defined channel does not exist, where the path of flooding is unpredictable and indeterminate, and where velocity flow may be evident. Such flooding is characterized by ponding or sheet flow.

**Base Flood** means the flood having a one percent chance of being equaled or exceeded in any given year.

**Base Flood Elevation (BFE)** means the elevation of the one-percent annual chance flood.

**Basement** means that portion of a structure having its floor sub-grade (below ground level) on all sides.

**Boundary River** means the part of the Ohio River that forms the boundary between Kentucky and Indiana.

**Boundary River Floodway** means the floodway of a boundary river.

**Building** - see "Structure."

**Community** means a political entity that has the authority to adopt and enforce floodplain ordinances for the area under its jurisdiction.

**Community Rating System (CRS)** means a program developed by the Federal Insurance Administration to provide incentives for those communities in the Regular Program that have gone beyond the minimum floodplain management requirements to develop extra measures to provide protection from flooding.

**Critical facility** means a facility for which even a slight chance of flooding might be too great. Critical facilities include, but are not limited to, schools, nursing homes, hospitals, police, fire, and emergency response installations, installations which produce, use or store hazardous materials or hazardous waste.

**D Zone** means unstudied areas where flood hazards are undetermined, but flooding is possible. Flood insurance is available in participating communities but is not required by regulation in this zone.

**Development** means any man-made change to improved or unimproved real estate including but not limited to:

- (1) construction, reconstruction, or placement of a structure or any addition to a structure;
- (2) installing a manufactured home on a site, preparing a site for a manufactured home or installing a recreational vehicle on a site for more than 180 days;
- (3) installing utilities, erection of walls and fences, construction of roads, or similar projects;
- (4) construction of flood control structures such as levees, dikes, dams, channel improvements, etc.;
- (5) mining, dredging, filling, grading, excavation, or drilling operations;
- (6) construction and/or reconstruction of bridges or culverts;
- (7) storage of materials; or
- (8) any other activity that might change the direction, height, or velocity of flood or surface waters.

"Development" does not include activities such as the maintenance of existing structures and facilities such as painting, re-roofing; resurfacing roads; or gardening, plowing, and similar agricultural practices that do not involve filling, grading, excavation, or the construction of permanent structures.

**Elevated structure** means a non-basement structure built to have the lowest floor elevated above the ground level by means of fill, solid foundation perimeter walls, filled stem wall foundations (also called chain walls), pilings, or columns (posts and piers).

**Elevation Certificate** is a certified statement that verifies a structure's elevation information.

**Emergency Program** means the first phase under which a community participates in the NFIP. It is intended to provide a first layer amount of insurance at subsidized rates on all insurable structures in that community before the effective date of the initial FIRM.

**Existing manufactured home park or subdivision** means a manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including, at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed before the effective date of the community's first floodplain ordinance.

**Expansion to an existing manufactured home park or subdivision** means the preparation of additional sites by the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads).

**FEMA** means the Federal Emergency Management Agency.

**Flood** means a general and temporary condition of partial or complete inundation of normally dry land areas from the overflow, the unusual and rapid accumulation, or the runoff of surface waters from any source.

**Flood Boundary and Floodway Map (FBFM)** means an official map on which the Federal Emergency Management Agency (FEMA) or Federal Insurance Administration (FIA) has delineated the areas of flood hazards and regulatory floodway.

**Flood Insurance Rate Map (FIRM)** means an official map of a community, on which FEMA has delineated both the areas of special flood hazard and the risk premium zones applicable to the community.

**Flood Insurance Study (FIS)** is the official hydraulic and hydrologic report provided by FEMA. The report contains flood profiles, as well as the FIRM, FBFM (where applicable), and the water surface elevation of the base flood.

**Flood Prone Area** means any land area acknowledged by a community as being susceptible to inundation by water from any source. (See "Flood")

**Flood Protection Grade (FPG)** is the elevation of the regulatory flood plus two feet at any given location in the SFHA. (see "Freeboard")

**Floodplain** means the channel proper and the areas adjoining any wetland, lake, or watercourse which have been or hereafter may be covered by the regulatory flood. The floodplain includes both the floodway and the fringe districts.

**Floodplain management** means the operation of an overall program of corrective and preventive measures for reducing flood damage and preserving and enhancing, where possible, natural resources in the floodplain, including but not limited to emergency preparedness plans, flood control works, floodplain management regulations, and open space plans.

**Floodplain management regulations** means this ordinance and other zoning ordinances, subdivision regulations, building codes, health regulations, special purpose ordinances, and other applications of police power which control development in flood-prone areas. This term describes federal, state, or local regulations in any combination thereof, which provide standards for preventing and reducing flood loss and damage. Floodplain

management regulations are also referred to as floodplain regulations, floodplain ordinance, flood damage prevention ordinance, and floodplain management requirements.

**Floodproofing (dry floodproofing)** is a method of protecting a structure that ensures that the structure, together with attendant utilities and sanitary facilities, is watertight to the floodproofed design elevation with walls that are substantially impermeable to the passage of water. All structural components of these walls are capable of resisting hydrostatic and hydrodynamic flood forces, including the effects of buoyancy, and anticipated debris impact forces.

**Floodproofing certificate** is a form used to certify compliance for non-residential structures as an alternative to elevating structures to or above the FPG. This certification must be by a Registered Professional Engineer or Architect.

**Floodway** is the channel of a river or stream and those portions of the floodplains adjoining the channel which are reasonably required to efficiently carry and discharge the peak flood flow of the regulatory flood of any river or stream.

**Freeboard** means a factor of safety, usually expressed in feet above the BFE, which is applied for the purposes of floodplain management. It is used to compensate for the many unknown factors that could contribute to flood heights greater than those calculated for the base flood.

**Fringe** is those portions of the floodplain lying outside the floodway.

**Hardship** (as related to variances of this ordinance) means the exceptional hardship that would result from a failure to grant the requested variance. The **[Community name]** **[BZA or governing body, as designated in Article 6 Section B]** requires that the variance is exceptional, unusual, and peculiar to the property involved. Mere economic or financial hardship alone is NOT exceptional. Inconvenience, aesthetic considerations, physical handicaps, personal preferences, or the disapproval of one's neighbors likewise cannot, as a rule, qualify as an exceptional hardship. All of these problems can be resolved through other means without granting a variance, even if the alternative is more expensive, or requires the property owner to build elsewhere or put the parcel to a different use than originally intended.

**Highest adjacent grade** means the highest natural elevation of the ground surface, prior to the start of construction, next to the proposed walls of a structure.

**Historic structures** means any structures individually listed on the National Register of Historic Places or the Indiana State Register of Historic Sites and Structures.

*Increased Cost of Compliance (ICC) means the cost to repair a substantially damaged structure that exceeds the minimal repair cost and that is required to bring a substantially damaged structure into compliance with the local flood damage prevention ordinance. Acceptable mitigation measures are elevation, relocation, demolition, or any combination thereof. All renewal and new business flood insurance policies with effective dates on or after June 1, 1997, will include ICC coverage.*

**Letter of Final Determination (LFD)** means a letter issued by FEMA during the mapping update process which establishes final elevations and provides the new flood map and flood study to the community. The LFD initiates the six-month adoption period. The community must adopt or amend its floodplain management regulations during this six-month period unless the community has previously incorporated an automatic adoption clause.

**Letter of Map Change (LOMC)** is a general term used to refer to the several types of revisions and amendments to FEMA maps that can be accomplished by letter. They include Letter of Map Amendment (LOMA), Letter of Map Revision (LOMR), and Letter of Map Revision based on Fill (LOMR-F). The definitions are presented below:

**Letter of Map Amendment (LOMA)** means an amendment by letter to the currently effective FEMA map that establishes that a property is not located in a SFHA through the submittal of property specific elevation data. A LOMA is only issued by FEMA.

**Letter of Map Revision (LOMR)** means an official revision to the currently effective FEMA map. It is issued by FEMA and changes flood zones, delineations, and elevations.

**Letter of Map Revision Based on Fill (LOMR-F)** means an official revision by letter to an effective NFIP map. A LOMR-F provides FEMA's determination concerning whether a structure or parcel has been elevated on fill above the BFE and excluded from the SFHA.

**Lowest adjacent grade** means the lowest elevation, after completion of construction, of the ground, sidewalk, patio, deck support, or basement entryway immediately next to the structure.

**Lowest floor** means the lowest elevation described among the following:

- (1) The top of the lowest level of the structure.
- (2) The top of the basement floor.
- (3) The top of the garage floor, if the garage is the lowest level of the structure.
- (4) The top of the first floor of a structure elevated on pilings or pillars.
- (5) The top of the floor level of any enclosure, other than a basement, below an elevated structure where the walls of the enclosure provide any resistance to the flow of flood waters unless:
  - a) the walls are designed to automatically equalize the hydrostatic flood forces on the walls by allowing for the entry and exit of flood waters by providing a minimum of two openings (in addition to doorways and windows) in a minimum of two exterior walls; if a structure has more than one enclosed area, each shall have openings on exterior walls;
  - b) the total net area of all openings shall be at least one (1) square inch for every one square foot of enclosed area; the bottom of all such openings shall be no higher than one (1) foot above the exterior grade or the interior grade immediately beneath each opening, whichever is higher; and,
  - c) such enclosed space shall be usable solely for the parking of vehicles and building access.

**Manufactured home** means a structure, transportable in one or more sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when attached to the required utilities. The term "manufactured home" does not include a "recreational vehicle."

**Manufactured home park or subdivision** means a parcel (or contiguous parcels) of land divided into two or more manufactured home lots for rent or sale.

**Market value** means the building value, excluding the land (as agreed to between a willing buyer and seller), as established by what the local real estate market will bear. Market value can be established by independent certified appraisal, replacement cost depreciated by age of building (actual cash value), or adjusted assessed values.

**Mitigation** means sustained actions taken to reduce or eliminate long-term risk to people and property from hazards and their effects. The purpose of mitigation is twofold: to protect people and structures, and to minimize the cost of disaster response and recovery.

**National Flood Insurance Program (NFIP)** is the federal program that makes flood insurance available to owners of property in participating communities nationwide through the cooperative efforts of the Federal Government and the private insurance industry.

**National Geodetic Vertical Datum (NGVD) of 1929** as corrected in 1929 is a vertical control used as a reference for establishing varying elevations within the floodplain.

**New construction** means any structure for which the “start of construction” commenced after the effective date of the community’s first floodplain ordinance.

**New manufactured home park or subdivision** means a manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed on or after the effective date of the community’s first floodplain ordinance.

**Non-boundary river floodway** means the floodway of any river or stream other than a boundary river.

**North American Vertical Datum of 1988 (NAVD 88)** as adopted in 1993 is a vertical control datum used as a reference for establishing varying elevations within the floodplain.

**Obstruction** includes, but is not limited to, any dam, wall, wharf, embankment, levee, dike, pile, abutment, protection, excavation, canalization, bridge, conduit, culvert, building, wire, fence, rock, gravel, refuse, fill, structure, vegetation, or other material in, along, across or projecting into any watercourse which may alter, impede, retard or change the direction and/or velocity of the flow of water; or due to its location, its propensity to snare or collect debris carried by the flow of water, or its likelihood of being carried downstream.

**One-percent annual chance flood** is the flood that has a one percent (1%) chance of being equaled or exceeded in any given year. Any flood zone that begins with the letter A is subject to the one-percent annual chance flood. See “Regulatory Flood”.

**Physical Map Revision (PMR)** is an official republication of a community’s FEMA map to effect changes to base (1-percent annual chance) flood elevations, floodplain boundary delineations, regulatory floodways, and planimetric features. These changes typically occur as a result of structural works or improvements, annexations resulting in additional flood hazard areas, or correction to base flood elevations or SFHAs.

**Public safety and nuisance** means anything which is injurious to the safety or health of an entire community, neighborhood or any considerable number of persons, or unlawfully obstructs the free passage or use, in the customary manner, of any navigable lake, or river, bay, stream, canal, or basin.

**Recreational vehicle** means a vehicle which is (1) built on a single chassis; (2) 400 square feet or less when measured at the largest horizontal projections; (3) designed to be self-propelled or permanently towable by a light duty truck; and (4) designed primarily not for use as a permanent dwelling, but as quarters for recreational camping, travel, or seasonal use.

**Regular program** means the phase of the community’s participation in the NFIP where more comprehensive floodplain management requirements are imposed and higher amounts of insurance are available based upon risk zones and elevations determined in a FIS.

**Regulatory flood** means the flood having a one percent (1%) chance of being equaled or exceeded in any given year, as calculated by a method and procedure that is acceptable to and approved by the Indiana Department of Natural Resources and the Federal Emergency Management Agency. The regulatory flood elevation at any location is as defined in Article 3 (B) of this ordinance. The “Regulatory Flood” is also known by the term “Base Flood”, “One-Percent Annual Chance Flood”, and “100-Year Flood”.

*Repetitive loss means flood-related damages sustained by a structure on two separate occasions during a 10-year period for which the cost of repairs at the time of each such flood event, on the average, equaled or exceeded 25% of the market value of the structure before the damage occurred.*

**Section 1316** is that section of the National Flood Insurance Act of 1968, as amended, which states that no new flood insurance coverage shall be provided for any property that the Administrator finds has been declared by a

duly constituted state or local zoning authority or other authorized public body to be in violation of state or local laws, regulations, or ordinances that intended to discourage or otherwise restrict land development or occupancy in flood-prone areas.

**Only use one definition of Special Flood Hazard Area. Delete the one not chosen.**

**Special Flood Hazard Area (SFHA)** means those lands within the jurisdiction of the [Town, City, or County] subject to inundation by the regulatory flood. The SFHAs of [Community name] are generally identified as such on [Name/title of FIRM(s) as they appear on the Title Block] [Panel # from FIRM(s) as they appear on the Title Block] Flood Insurance Rate Map dated [Date of each respective FIRM Panel]. (These areas are shown on a FIRM as Zone A, AE, A1- A30, AH, AR, A99, or AO).

**Only use one definition of Special Flood Hazard Area. Delete the one not chosen.**

*Special Flood Hazard Area (SFHA) means those lands within the jurisdiction of the [Town, City, or County] subject to inundation by the regulatory flood. The SFHAs of [Community Name] are generally identified as such on the [Name/title from FIRM as it appears on the Title Block] Flood Insurance Rate Map dated [Date of FIRM] as well as any future updates, amendments, or revisions, prepared by the Federal Emergency Management Agency with the most recent date. (These areas are shown on a FIRM as Zone A, AE, A1- A30, AH, AR, A99, or AO).*

**Start of construction** includes substantial improvement, and means the date the building permit was issued, provided the actual start of construction, repair, reconstruction, or improvement was within 180 days of the permit date. The actual start means either the first placement of permanent construction of a structure on a site, such as the pouring of a slab or footings, the installation of piles, the construction of columns, or any work beyond the stage of excavation; or the placement of a manufactured home on a foundation. Permanent construction does not include land preparation, such as clearing, grading and filling; nor does it include the installation of streets and/or walkways; nor does it include excavation for a basement, footings, piers, foundations, or the erection of temporary forms; nor does it include the installation on the property of accessory buildings, such as garages or sheds not occupied as dwelling units or not part of the main structure. For a substantial improvement, the actual start of construction means the first alteration of any wall, ceiling, floor, or other structural part of a building, whether or not that alteration affects the external dimensions of the building.

**Structure** means a structure that is principally above ground and is enclosed by walls and a roof. The term includes a gas or liquid storage tank, a manufactured home, or a prefabricated building. The term also includes recreational vehicles to be installed on a site for more than 180 days.

**Substantial damage** means damage of any origin sustained by a structure whereby the cost of restoring the structure to its before damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred.

**Substantial improvement** means any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the "start of construction" of the improvement. This term includes structures that have incurred "repetitive loss" or "substantial damage" regardless of the actual repair work performed. The term does not include improvements of structures to correct existing violations of state or local health, sanitary, or safety code requirements or any alteration of a "historic structure", provided that the alteration will not preclude the structures continued designation as a "historic structure".

**Suspension** means the removal of a participating community from the NFIP because the community has not enacted and/or enforced the proper floodplain management regulations required for participation in the NFIP.

**Variance** is a grant of relief from the requirements of this ordinance, which permits construction in a manner otherwise prohibited by this ordinance where specific enforcement would result in unnecessary hardship.

**Violation** means the failure of a structure or other development to be fully compliant with this ordinance. A structure or other development without the elevation, other certification, or other evidence of compliance required in this ordinance is presumed to be in violation until such time as that documentation is provided.

**Watercourse** means a lake, river, creek, stream, wash, channel or other topographic feature on or over which waters flow at least periodically. Watercourse includes specifically designated areas in which substantial flood damage may occur.

**X zone** means the area where the flood hazard is less than that in the SFHA. Shaded X zones shown on recent FIRMs (B zones on older FIRMs) designate areas subject to inundation by the flood with a 0.2 percent chance of being equaled or exceeded (the 500-year flood). Unshaded X zones (C zones on older FIRMs) designate areas where the annual exceedance probability of flooding is less than 0.2 percent.

**Zone** means a geographical area shown on a FIRM that reflects the severity or type of flooding in the area.

**Zone A** (see definition for A zone)

**Zone B, C, and X** means areas identified in the community as areas of moderate or minimal hazard from the principal source of flood in the area. However, buildings in these zones could be flooded by severe, concentrated rainfall coupled with inadequate local drainage systems. Flood insurance is available in participating communities but is not required by regulation in these zones. (Zone X is used on new and revised maps in place of Zones B and C.)

## **Article 3. General Provisions.**

### **Section A. Lands to Which This Ordinance Applies.**

This ordinance shall apply to all SFHAs and known flood prone areas within the jurisdiction of [Community name].

### **Section B. Basis for Establishing Regulatory Flood Data.**

This ordinance's protection standard is the regulatory flood. The best available regulatory flood data is listed below.

(1) **(Include (1) only if the community has a Flood Insurance Study)**

**Use this paragraph if the community does not wish to use the optional automatic adoption language.**

The regulatory flood elevation, floodway, and fringe limits for the studied SFHAs within the jurisdiction of [Community name] shall be as delineated on the one-percent annual chance flood profiles in the Flood Insurance Study of [Name/title of FIS as it appears on FIS cover] dated [Date of FIS] and the corresponding Flood Insurance Rate Map [Listing of all corresponding FIRM panels/dates].

**Use this paragraph instead of the one immediately above only if the community wishes to use the optional automatic adoption language.**

*The regulatory flood elevation, floodway, and fringe limits for the studied SFHAs within the jurisdiction of [Community name] shall be as delineated on the one-percent annual chance flood profiles in the Flood Insurance Study of [Name/title of FIS as it appears on FIS cover] dated [Date of FIS] and the corresponding Flood Insurance Rate Map dated [Corresponding FIRM Index date] as well as any future updates, amendments, or revisions, prepared by the Federal Emergency Management Agency with the most recent date.*

**(2) (Include (2) only if the community’s mapping also contains areas identified as “AO Zone”)**

**Use this paragraph if the community does not wish to use the optional automatic adoption language.**

The regulatory flood elevation for each SFHA within the jurisdiction of [Community name] delineated as an "AO Zone" (in fringe) shall be that elevation (or depth) delineated on the Flood Insurance Rate Map of [Name/title of FIRM as it appears in the title block] dated [All appropriate FIRM panels/dates] prepared by the Federal Emergency Management Agency.

**Use this paragraph instead of the one immediately above only if the community wishes to use the optional automatic adoption language.**

*The regulatory flood elevation for each SFHA within the jurisdiction of [Community name] delineated as an "AO Zone" (in fringe) shall be that elevation (or depth) delineated on the Flood Insurance Rate Map of [Name/title of FIRM as it appears in the title block] dated as well as any future updates, amendments, or revisions, prepared by the Federal Emergency Management Agency with the most recent date.*

**(3) (Include (3) only if the county’s mapping also contains areas identified as “A Zone”)**

**Use this paragraph if the community does not wish to use the optional automatic adoption language.**

The regulatory flood elevation, floodway, and fringe limits for each of the SFHAs within the jurisdiction of [Community name], delineated as an "A Zone" on the [Name/title of FIRM as it appears in the title block] Flood Insurance Rate Map dated [All appropriate FIRM panels/dates] shall be according to the best data available as provided by the Indiana Department of Natural Resources; provided the upstream drainage area from the subject site is greater than one square mile. Whenever a party disagrees with the best available data, the party needs to replace existing data with better data that meets current engineering standards. To be considered, this data must be submitted to the Indiana Department of Natural Resources for review and subsequently approved.

**Use this paragraph instead of the one immediately above only if the community wishes to use the optional automatic adoption language.**

*The regulatory flood elevation, floodway, and fringe limits for each of the SFHAs within the jurisdiction of [Community name], delineated as an "A Zone" on the [Name/title of FIRM as it appears in the title block] Flood Insurance Rate Map dated [Date of FIRM] as well as any future updates, amendments, or revisions, prepared by the Federal Emergency Management Agency with the most recent date, shall be according to the best data available as provided by the Indiana Department of Natural Resources; provided the upstream drainage area from the subject site is greater than one square mile. Whenever a party disagrees with the best available data, the party needs to replace existing data with better data that meets current engineering standards. To be considered, this data must be submitted to the Indiana Department of Natural Resources for review and subsequently approved.*

**(4) (Use (4) only for a community where the mapping contains only SFHAs identified as “A Zone”)**

**Use this paragraph if the community does not wish to use the optional automatic adoption language.**

The regulatory flood elevation, floodway, and fringe limits for the SFHAs within the jurisdiction of [Community name] delineated as an "A Zone" on the [Name/title of FIRM as it appears in the title block] Flood Insurance Rate Map dated [All appropriate FIRM panels/dates] shall be according to the best data available as provided by the Indiana Department of Natural Resources; provided the upstream drainage area from the subject site is greater than one square mile. Whenever a party disagrees with the best available data, the party needs to replace existing data with better data that meets current engineering standards. To be considered, this



data must be submitted to the Indiana Department of Natural Resources for review and subsequently approved.

**Use this paragraph instead of the one immediate above only if the community wishes to use the optional automatic adoption language.**

*The regulatory flood elevation, floodway, and fringe limits for the SFHAs within the jurisdiction of [Community name] delineated as an "A Zone" on the [Name/title of FIRM as it appears on FIRM] Flood Insurance Rate Map dated [Date of FIRM] as well as any future updates, amendments, or revisions, prepared by the Federal Emergency Management Agency with the most recent date, shall be according to the best data available as provided by the Indiana Department of Natural Resources; provided the upstream drainage area from the subject site is greater than one square mile. Whenever a party disagrees with the best available data, the party needs to replace existing data with better data that meets current engineering standards. To be considered, this data must be submitted to the Indiana Department of Natural Resources for review and subsequently approved.*

- (5) In the absence of a published FEMA map, or absence of identification on a FEMA map, the regulatory flood elevation, floodway, and fringe limits of any watercourse in the community's known flood prone areas shall be according to the best data available as provided by the Indiana Department of Natural Resources; provided the upstream drainage area from the subject site is greater than one square mile.
- (6) Upon issuance of a Letter of Final Determination (LFD), any more restrictive data in the new (not yet effective) mapping/study shall be utilized for permitting and construction (development) purposes, replacing all previously effective less restrictive flood hazard data provided by FEMA.

### **Section C. Establishment of Floodplain Development Permit.**

A Floodplain Development Permit shall be required in conformance with the provisions of this ordinance prior to the commencement of any development activities in areas of special flood hazard.

### **Section D. Compliance.**

No structure shall hereafter be located, extended, converted or structurally altered within the SFHA without full compliance with the terms of this ordinance and other applicable regulations. No land or stream within the SFHA shall hereafter be altered without full compliance with the terms of this ordinance and other applicable regulations.

### **Section E. Abrogation and Greater Restrictions.**

This ordinance is not intended to repeal, abrogate, or impair any existing easements, covenants, or deed restrictions. However, where this ordinance and another conflict or overlap, whichever imposes the more stringent restrictions shall prevail.

### **Section F. Discrepancy between Mapped Floodplain and Actual Ground Elevations.**

- (1) In cases where there is a discrepancy between the mapped floodplain (SFHA) on the FIRM and the actual ground elevations, the elevation provided on the profiles shall govern.
- (2) If the elevation of the site in question is below the base flood elevation, that site shall be included in the SFHA and regulated accordingly.
- (3) If the elevation (natural grade) of the site in question is above the base flood elevation and not located within the floodway, that site shall be considered outside the SFHA and the floodplain regulations will not be applied. The property owner shall be advised to apply for a LOMA.

## **Section G. Interpretation.**

In the interpretation and application of this ordinance all provisions shall be:

- (1) Considered as minimum requirements.
- (2) Liberally construed in favor of the governing body.
- (3) Deemed neither to limit nor repeal any other powers granted under state statutes.

## **Section H. Warning and Disclaimer of Liability.**

The degree of flood protection required by this ordinance is considered reasonable for regulatory purposes and is based on available information derived from engineering and scientific methods of study. Larger floods can and will occur on rare occasions. Therefore, this ordinance does not create any liability on the part of **[Community name]**, the Indiana Department of Natural Resources, or the State of Indiana, for any flood damage that results from reliance on this ordinance or any administrative decision made lawfully thereunder.

## **Section I. Penalties for Violation.**

Failure to obtain a Floodplain Development Permit in the SFHA or failure to comply with the requirements of a Floodplain Development Permit or conditions of a variance shall be deemed to be a violation of this ordinance. All violations shall be considered a common nuisance and be treated as such in accordance with the provisions of the Zoning Code for **[Community name]**. All violations shall be punishable by a fine not exceeding **[\$Amount of fine]**.

- (1) A separate offense shall be deemed to occur for each day the violation continues to exist.
- (2) The **[Community name] [Plan Commission or other authority as appropriate]** shall inform the owner that any such violation is considered a willful act to increase flood damages and therefore may cause coverage by a Standard Flood Insurance Policy to be suspended.
- (3) Nothing herein shall prevent the **[Town, City, or County]** from taking such other lawful action to prevent or remedy any violations. All costs connected therewith shall accrue to the person or persons responsible.

## **Article 4. Administration.**

### **Section A. Designation of Administrator.**

The **[Governing body]** of **[Community name]** hereby appoints the **[Community official's title]** to administer and implement the provisions of this ordinance and is herein referred to as the Floodplain Administrator.

### **Section B. Permit Procedures.**

Application for a Floodplain Development Permit shall be made to the Floodplain Administrator on forms furnished by him or her prior to any development activities, and may include, but not be limited to, the following: plans in duplicate drawn to scale showing the nature, location, dimensions, and elevations of the area in question; existing or proposed structures, earthen fill, storage of materials or equipment, drainage facilities, and the location of the foregoing. Specifically the following information is required:

(1) Application Stage.

- a) A description of the proposed development.
- b) Location of the proposed development sufficient to accurately locate property and structure(s) in relation to existing roads and streams.
- c) A legal description of the property site.
- d) A site development plan showing existing and proposed development locations and existing and proposed land grades.
- e) Elevation of the top of the planned lowest floor (including basement) of all proposed buildings. Elevation should be in NAVD 88 or NGVD.
- f) Elevation (in NAVD 88 or NGVD) to which any non-residential structure will be floodproofed.
- g) Description of the extent to which any watercourse will be altered or relocated as a result of proposed development. A hydrologic and hydraulic engineering study is required and any watercourse changes submitted to DNR for approval and then to FEMA as a Letter of Map Revision. (See Article 4, Section C. (6) for additional information.)

(2) *Construction Stage.*

*Upon establishment of the lowest floor of an elevated structure or structure constructed on fill, it shall be the duty of the applicant to submit to the Floodplain Administrator a certification of the NAVD 88 or NGVD elevation of the lowest floor, as built. Said certification shall be prepared by or under the direct supervision of a registered land surveyor or professional engineer and certified by the same. The Floodplain Administrator shall review the lowest floor elevation survey data submitted. The applicant shall correct deficiencies detected by such review before any further work is allowed to proceed. Failure to submit the survey or failure to make said corrections required hereby shall be cause to issue a stop-work order for the project. Any work undertaken prior to submission of the elevation certification shall be at the applicant's risk.*

*Upon establishment of the floodproofed elevation of a floodproofed structure, it shall be the duty of the applicant to submit to the Floodplain Administrator a floodproofing certificate. Certification shall be prepared by or under the direct supervision of a registered professional engineer and certified by same. (The Floodplain Administrator shall review the floodproofing certification submitted.) The applicant shall correct any deficiencies detected by such review before any further work is allowed to proceed. Failure to submit the floodproofing certification or failure to make correction required shall be cause to issue a stop-work order for the project.*

(3) Finished Construction.

Upon completion of construction, an elevation certification (*FEMA Elevation Certificate Form 81-31 or any future updates*) which depicts the "as-built" lowest floor elevation is required to be submitted to the Floodplain Administrator. If the project includes a floodproofing measure, floodproofing certification (*FEMA Floodproofing Certificate Form 81-65 or any future updates*) is required to be submitted by the applicant to the Floodplain Administrator.

## **Section C. Duties and Responsibilities of the Floodplain Administrator.**

The Floodplain Administrator and/or designated staff is hereby authorized and directed to enforce the provisions of this ordinance. The administrator is further authorized to render interpretations of this ordinance, which are consistent with its spirit and purpose.

Duties and Responsibilities of the Floodplain Administrator shall include, but are not limited to:

- (1) Review all floodplain development permits to assure that the permit requirements of this ordinance have been satisfied.
- (2) Inspect and inventory damaged structures in the SFHA and complete substantial damage determinations.
- (3) Ensure that construction authorization has been granted by the Indiana Department of Natural Resources for all development projects subject to Article 5, Section E and G (1) of this ordinance, and maintain a record of such authorization (either copy of actual permit/authorization or floodplain analysis/regulatory assessment).
- (4) Ensure that all necessary federal or state permits have been received prior to issuance of the local floodplain development permit. Copies of such permits/authorizations are to be maintained on file with the floodplain development permit.
- (5) Maintain and track permit records involving additions and improvements to residences located in the floodway.
- (6) Notify adjacent communities and the State Floodplain Coordinator prior to any alteration or relocation of a watercourse, and submit copies of such notifications to FEMA.
- (7) Maintain for public inspection and furnish upon request local permit documents, damaged structure inventories, substantial damage determinations, regulatory flood data, SFHA maps, Letters of Map Change (LOMC), copies of DNR permits, letters of authorization, and floodplain analysis and regulatory assessments (letters of recommendation), federal permit documents, and "as-built" elevation and floodproofing data for all buildings constructed subject to this ordinance.
- (8) Utilize and enforce all Letters of Map Change (LOMC) or Physical Map Revisions (PMR) issued by FEMA for the currently effective SFHA maps of the community.
- (9) Assure that maintenance is provided within the altered or relocated portion of said watercourse so that the flood-carrying capacity is not diminished.
- (10) Review certified plans and specifications for compliance.
- (11) Verify and record the actual elevation of the lowest floor (including basement) of all new or substantially improved structures, in accordance with Article 4 Section B.
- (12) Verify and record the actual elevation to which any new or substantially improved structures have been floodproofed in accordance with Article 4, Section B.
- (13) *Perform a minimum of three inspections to ensure that all applicable ordinance and floodplain development requirements have been satisfied. The first upon the establishment of the Flood Protection Grade reference mark at the development site; the second upon the establishment of the structure's footprint/establishment of the lowest floor; and the final inspection upon completion and submission of the required finished construction elevation certificate. Authorized [Town, City, or County] officials shall have the right to enter and inspect properties located in the SFHA.*
- (14) *Stop Work Orders*
  - a) *Upon notice from the floodplain administrator, work on any building, structure or premises that is being done contrary to the provisions of this ordinance shall immediately cease.*

- b) Such notice shall be in writing and shall be given to the owner of the property, or to his agent, or to the person doing the work, and shall state the conditions under which work may be resumed.*

**(15) Revocation of Permits**

- a) The floodplain administrator may revoke a permit or approval, issued under the provisions of the ordinance, in cases where there has been any false statement or misrepresentation as to the material fact in the application or plans on which the permit or approval was based.*
- b) The floodplain administrator may revoke a permit upon determination by the floodplain administrator that the construction, erection, alteration, repair, moving, demolition, installation, or replacement of the structure for which the permit was issued is in violation of, or not in conformity with, the provisions of this ordinance.*

## **Article 5. Provisions for Flood Hazard Reduction.**

### **Section A. General Standards.**

In all SFHAs and known flood prone areas the following provisions are required:

- (1) New construction and substantial improvements shall be anchored to prevent flotation, collapse or lateral movement of the structure.
- (2) Manufactured homes shall be anchored to prevent flotation, collapse, or lateral movement. Methods of anchoring may include, but are not limited to, use of over-the-top or frame ties to ground anchors. This standard shall be in addition to and consistent with applicable state requirements for resisting wind forces.
- (3) New construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage below the FPG.
- (4) New construction and substantial improvements shall be constructed by methods and practices that minimize flood damage.
- (5) Electrical, heating, ventilation, plumbing, air conditioning equipment, utility meters, and other service facilities shall be located at/above the FPG or designed so as to prevent water from entering or accumulating within the components below the FPG. Water and sewer pipes, electrical and telephone lines, submersible pumps, and other waterproofed service facilities may be located below the FPG.
- (6) New and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the system.
- (7) New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the system.
- (8) On-site waste disposal systems shall be located and constructed to avoid impairment to them or contamination from them during flooding.
- (9) Any alteration, repair, reconstruction or improvements to a structure that is in compliance with the provisions of this ordinance shall meet the requirements of "new construction" as contained in this ordinance.

***(10) Parking lots, driveways, and sidewalks within the SFHA shall be constructed with permeable materials.***

*(11) Whenever any portion of the SFHA is authorized for use, the volume of space which will be occupied by the authorized fill or structure below the BFE shall be compensated for and balanced by an equivalent volume of excavation taken below the BFE. The excavation volume shall be at least equal to the volume of storage lost (replacement ratio of 1 to 1) due to the fill or structure.*

- a) The excavation shall take place in the floodplain and in the same property in which the authorized fill or structure is located.*
- b) Under certain circumstances, the excavation may be allowed to take place outside of but adjacent to the floodplain provided that the excavated volume will be below the regulatory flood elevation, will be in the same property in which the authorized fill or structure is located, will be accessible to the regulatory flood water, will not be subject to ponding when not inundated by flood water, and that it shall not be refilled.*
- c) The excavation shall provide for true storage of floodwater but shall not be subject to ponding when not inundated by flood water.*
- d) The fill or structure shall not obstruct a drainage way leading to the floodplain.*
- e) The grading around the excavation shall be such that the excavated area is accessible to the regulatory flood water.*
- f) The fill or structure shall be of a material deemed stable enough to remain firm and in place during periods of flooding and shall include provisions to protect adjacent property owners against any increased runoff or drainage resulting from its placement.*
- g) Plans depicting the areas to be excavated and filled shall be submitted prior to the actual start of construction or any site work; once site work is complete, but before the actual start of construction, the applicant shall provide to the Floodplain Administrator a certified survey of the excavation and fill sites demonstrating the fill and excavation comply with this article.*

## **Section B. Specific Standards.**

In all SFHAs, the following provisions are required:

- (1) In addition to the requirements of Article 5, Section A, all structures to be located in the SFHA shall be protected from flood damage below the FPG. This building protection requirement applies to the following situations:
  - a) Construction or placement of any structure having a floor area greater than 400 square feet.
  - b) Addition or improvement made to any existing structure where the cost of the addition or improvement equals or exceeds 50% of the value of the existing structure (excluding the value of the land).
  - c) Reconstruction or repairs made to a damaged structure where the costs of restoring the structure to it's before damaged condition equals or exceeds 50% of the market value of the structure (excluding the value of the land) before damage occurred.
  - d) Installing a travel trailer or recreational vehicle on a site for more than 180 days.
  - e) Installing a manufactured home on a new site or a new manufactured home on an existing site. This ordinance does not apply to returning the existing manufactured home to the same site it lawfully occupied before it was removed to avoid flood damage.
  - f) Reconstruction or repairs made to a repetitive loss structure.*

*g) Addition or improvement made to any existing structure with a previous addition or improvement constructed since the community's first floodplain ordinance.*

- (2) **Residential Structures.** New construction or substantial improvement of any residential structure (or manufactured home) shall have the lowest floor; including basement, at or above the FPG (two feet above the base flood elevation). Should solid foundation perimeter walls be used to elevate a structure, openings sufficient to facilitate the unimpeded movements of floodwaters shall be provided in accordance with the standards of Article 5, Section B (4).
- (3) **Non-Residential Structures.** New construction or substantial improvement of any commercial, industrial, or non-residential structure (or manufactured home) shall either have the lowest floor, including basement, elevated to or above the FPG (two feet above the base flood elevation) or be floodproofed to or above the FPG. Should solid foundation perimeter walls be used to elevate a structure, openings sufficient to facilitate the unimpeded movements of floodwaters shall be provided in accordance with the standards of Article 5, Section B (4). Structures located in all "A Zones" may be floodproofed in lieu of being elevated if done in accordance with the following:
- a) A Registered Professional Engineer or Architect shall certify that the structure has been designed so that below the FPG, the structure and attendant utility facilities are watertight and capable of resisting the effects of the regulatory flood. The structure design shall take into account flood velocities, duration, rate of rise, hydrostatic pressures, and impacts from debris or ice. Such certification shall be provided to the floodplain administrator as set forth in Article 4, Section C (12).
  - b) Floodproofing measures shall be operable without human intervention and without an outside source of electricity.
- (4) **Elevated Structures.** New construction or substantial improvements of elevated structures shall have the lowest floor at or above the FPG.

Elevated structures with fully enclosed areas formed by foundation and other exterior walls below the flood protection grade shall be designed to preclude finished living space and designed to allow for the entry and exit of floodwaters to automatically equalize hydrostatic flood forces on exterior walls. Designs must meet the following minimum criteria:

- a) Provide a minimum of two openings located in a minimum of two exterior walls (having a total net area of not less than one square inch for every one square foot of enclosed area).
- b) The bottom of all openings shall be no more than one foot above the exterior grade or the interior grade immediately beneath each opening, whichever is higher.
- c) Openings may be equipped with screens, louvers, valves or other coverings or devices provided they permit the automatic flow of floodwaters in both directions.
- d) Access to the enclosed area shall be the minimum necessary to allow for parking for vehicles (garage door) or limited storage of maintenance equipment used in connection with the premises (standard exterior door) or entry to the living area (stairway or elevator).
- e) The interior portion of such enclosed area shall not be partitioned or finished into separate rooms.
- f) The interior grade of such enclosed area shall be at an elevation at or higher than the exterior grade.
- g) Openings are to be not less than 3 inches in any direction in the plane of the wall. This requirement applies to the hole in the wall, excluding any device that may be inserted such as typical foundation air vent device.*

*h) Property owners shall be required to execute a flood openings/venting affidavit acknowledging that all openings will be maintained as flood vents, and that the elimination or alteration of the openings in any way will violate the requirements of Article 5, B. (4). Periodic inspections will be conducted by the Floodplain Administrator to ensure compliance. The affidavit shall be recorded in the office of the [County Name] County Recorder.*

*i) Property owners shall be required to execute and record with the structure's deed a non-conversion agreement declaring that the area below the lowest floor (where the interior height of the enclosure exceeds 6 feet) shall not be improved, finished or otherwise converted; the community will have the right to inspect the enclosed area. The non-conversion agreement shall be recorded in the office of the [Click here and type County Name] County Recorder.*

**(5) Structures Constructed on Fill.** A residential or nonresidential structure may be constructed on a permanent land fill in accordance with the following:

a) The fill shall be placed in layers no greater than 1 foot deep before compacting to 95% of the maximum density obtainable with either the Standard or Modified Proctor Test method. The results of the test showing compliance shall be retained in the permit file.

b) The fill shall extend **[Select a distance between 5 and 15]** feet beyond the foundation of the structure before sloping below the BFE.

c) The fill shall be protected against erosion and scour during flooding by vegetative cover, riprap, or bulkheading. If vegetative cover is used, the slopes shall be no steeper than 3 horizontal to 1 vertical.

d) The fill shall not adversely affect the flow of surface drainage from or onto neighboring properties.

e) The top of the lowest floor including basements shall be at or above the FPG.

*f) Fill shall be composed of clean granular or earthen material.*

**(6) Standards for Manufactured Homes and Recreational Vehicles.** Manufactured homes and recreational vehicles to be installed or substantially improved on a site for more than 180 days must meet one of the following requirements:

a) These requirements apply to all manufactured homes to be placed on a site outside a manufactured home park or subdivision; in a new manufactured home park or subdivision; in an expansion to an existing manufactured home park or subdivision; or in an existing manufactured home park or subdivision on which a manufactured home has incurred "substantial damage" as a result of a flood:

(i) The manufactured home shall be elevated on a permanent foundation such that the lowest floor shall be at or above the FPG and securely anchored to an adequately anchored foundation system to resist flotation, collapse, and lateral movement.

(ii) Fully enclosed areas formed by foundation and other exterior walls below the FPG shall be designed to preclude finished living space and designed to allow for the entry and exit of floodwaters to automatically equalize hydrostatic flood forces on exterior walls as required for elevated structures in Article 5, Section B. 4.

*(iii) Flexible skirting and rigid skirting not attached to the frame or foundation of a manufactured home are not required to have openings.*

b) These requirements apply to all manufactured homes to be placed on a site in an existing manufactured home park or subdivision that has not been substantially damaged by a flood:



- (i) The manufactured home shall be elevated so that the lowest floor of the manufactured home chassis is supported by reinforced piers or other foundation elevations that are no less than 36 inches in height above grade and be securely anchored to an adequately anchored foundation system to resist flotation, collapse, and lateral movement.
  - (ii) Fully enclosed areas formed by foundation and other exterior walls below the FPG shall be designed to preclude finished living space and designed to allow for the entry and exit of floodwaters to automatically equalize hydrostatic flood forces on exterior walls as required for elevated structures in Article 5, Section B. 4.
  - (iii) Flexible skirting and rigid skirting not attached to the frame or foundation of a manufactured home are not required to have openings.*
- c) Recreational vehicles placed on a site shall either:
- (i) be on site for less than 180 days;
  - (ii) be fully licensed and ready for highway use (defined as being on its wheels or jacking system, is attached to the site only by quick disconnect type utilities and security devices, and has no permanently attached additions); or
  - (iii) meet the requirements for “manufactured homes” as stated earlier in this section.
- (7) **Accessory Structures.** Relief to the elevation or dry floodproofing standards may be granted for accessory structures. Such structures must meet the following standards:
- a) Shall not be used for human habitation.
  - b) Shall be constructed of flood resistant materials.
  - c) Shall be constructed and placed on the lot to offer the minimum resistance to the flow of floodwaters.
  - d) Shall be firmly anchored to prevent flotation.
  - e) Service facilities such as electrical and heating equipment shall be elevated or floodproofed to or above the FPG.
  - f) Shall be designed to allow for the entry and exit of floodwaters to automatically equalize hydrostatic flood forces on exterior walls as required for elevated structures in Article 5, Section B. 4.
- (8) **Above Ground Gas or Liquid Storage Tanks.** All above ground gas or liquid storage tanks shall be anchored to prevent flotation or lateral movement.

### **Section C. Standards for Subdivision Proposals.**

- (1) All subdivision proposals shall be consistent with the need to minimize flood damage.
- (2) All subdivision proposals shall have public utilities and facilities such as sewer, gas, electrical, and water systems located and constructed to minimize flood damage.
- (3) All subdivision proposals shall have adequate drainage provided to reduce exposure to flood hazards.
- (4) Base flood elevation data shall be provided for subdivision proposals and other proposed development (including manufactured home parks and subdivisions), which is greater than the lesser of fifty (50) lots or five (5) acres.

*(5) All subdivision proposals shall minimize development in the SFHA and/or limit density of development permitted in the SFHA.*

*(6) All subdivision proposals shall ensure safe access into/out of SFHA for pedestrians and vehicles (especially emergency responders).*

## **Section D. Critical Facility.**

Construction of new critical facilities shall be, to the extent possible, located outside the limits of the SFHA. Construction of new critical facilities shall be permissible within the SFHA if no feasible alternative site is available. Critical facilities constructed within the SFHA shall have the lowest floor elevated to or above the FPG at the site. Floodproofing and sealing measures must be taken to ensure that toxic substances will not be displaced by or released into floodwaters. Access routes elevated to or above the FPG shall be provided to all critical facilities to the extent possible.

## **Section E. Standards for Identified Floodways.**

Located within SFHAs, established in Article 3, Section B, are areas designated as floodways. The floodway is an extremely hazardous area due to the velocity of floodwaters, which carry debris, potential projectiles, and has erosion potential. If the site is in an identified floodway, the Floodplain Administrator shall require the applicant to forward the application, along with all pertinent plans and specifications, to the Indiana Department of Natural Resources and apply for a permit for construction in a floodway. Under the provisions of IC 14-28-1 a permit for construction in a floodway from the Indiana Department of Natural Resources is required prior to the issuance of a local building permit for any excavation, deposit, construction, or obstruction activity located in the floodway. This includes land preparation activities such as filling, grading, clearing and paving etc. undertaken before the actual start of construction of the structure. However, it does exclude non-substantial additions/improvements to existing (lawful) residences in a non-boundary river floodway. (IC 14-28-1-26 allows construction of a non-substantial addition/ improvement to a residence in a non-boundary river floodway without obtaining a permit for construction in the floodway from the Indiana Department of Natural Resources. Please note that if fill is needed to elevate an addition above the existing grade, prior approval for the fill is required from the Indiana Department of Natural Resources.)

No action shall be taken by the Floodplain Administrator until a permit or letter of authorization (when applicable) has been issued by the Indiana Department of Natural Resources granting approval for construction in the floodway. Once a permit for construction in a floodway or letter of authorization has been issued by the Indiana Department of Natural Resources, the Floodplain Administrator may issue the local Floodplain Development Permit, provided the provisions contained in Article 5 of this ordinance have been met. The Floodplain Development Permit cannot be less restrictive than the permit for construction in a floodway issued by the Indiana Department of Natural Resources. However, a community's more restrictive regulations (if any) shall take precedence.

No development shall be allowed, which acting alone or in combination with existing or future development, that will adversely affect the efficiency of, or unduly restrict the capacity of the floodway. This adverse affect is defined as an increase in the elevation of the regulatory flood of at least fifteen-hundredths (0.15) of a foot as determined by comparing the regulatory flood elevation under the project condition to that under the natural or pre-floodway condition as proven with hydraulic analyses.

For all projects involving channel modifications or fill (including levees) the **[Town, city, or county]** shall submit the data and request that the Federal Emergency Management Agency revise the regulatory flood data per mapping standard regulations found at 44 CFR § 65.12.

## **Section F. Standards for Identified Fringe.**

If the site is located in an identified fringe, then the Floodplain Administrator may issue the local Floodplain Development Permit provided the provisions contained in Article 5 of this ordinance have been met. The key

provision is that the top of the lowest floor of any new or substantially improved structure shall be at or above the FPG.

### **Section G. Standards for SFHAs without Established Base Flood Elevation and/or Floodways/Fringes.**

- (1) Drainage area upstream of the site is greater than one square mile:

If the site is in an identified floodplain where the limits of the floodway and fringe have not yet been determined, and the drainage area upstream of the site is greater than one square mile, the Floodplain Administrator shall require the applicant to forward the application, along with all pertinent plans and specifications, to the Indiana Department of Natural Resources for review and comment.

No action shall be taken by the Floodplain Administrator until either a permit for construction in a floodway (including letters of authorization) or a floodplain analysis/regulatory assessment citing the one-percent annual chance flood elevation and the recommended Flood Protection Grade has been received from the Indiana Department of Natural Resources.

Once the Floodplain Administrator has received the proper permit for construction in a floodway (including letters of authorization) or floodplain analysis/regulatory assessment approving the proposed development, a Floodplain Development Permit may be issued provided the conditions of the Floodplain Development Permit are not less restrictive than the conditions received from the Indiana Department of Natural Resources and the provisions contained in Article 5 of this ordinance have been met.

- (2) Drainage area upstream of the site is less than one square mile:

If the site is in an identified floodplain where the limits of the floodway and fringe have not yet been determined and the drainage area upstream of the site is less than one square mile, the Floodplain Administrator shall require the applicant to provide an engineering analysis showing the limits of the floodplain and one-percent annual chance flood elevation for the site.

Upon receipt, the Floodplain Administrator may issue the local Floodplain Development Permit, provided the provisions contained in Article 5 of this ordinance have been met.

- (3) The total cumulative effect of the proposed development, when combined with all other existing and anticipated development, shall not increase the regulatory flood more than 0.14 of one foot and shall not increase flood damages or potential flood damages.

### **Section H. Standards for Flood Prone Areas.**

All development in known flood prone areas not identified on FEMA maps, or where no FEMA published map is available, shall meet applicable standards as required per Article 5.

**Include Section I. only if the community's FIRM has AO zones.**

### **Section I. Standards for AO Zones.**

Located within the SFHAs established in Article 3, Section B, are areas designated as shallow flooding areas. These areas have flood hazards associated with base flood depths of one to three feet (1-3'), where a clearly defined channel does not exist and the water path of flooding is unpredictable and indeterminate; therefore the following provisions shall apply:

- (1) All new construction and substantial improvements of residential and non-residential structures shall have the lowest floor, including basement, elevated two feet (2') greater than the flood depth number specified on the Flood Insurance Rate Map above the highest adjacent grade.

- (2) Drainage paths must be provided to guide floodwaters around and away from proposed structures to be constructed on slopes.
- (3) All new construction and substantial improvements of non-residential structures shall:
  - a) Have the lowest floor, including basement, elevated two feet (2') greater than the flood depth number specified on the Flood Insurance Rate Map above the highest adjacent grade; or,
  - b) Together with attendant utility and sanitary facilities be completely floodproofed to the specified flood level so that any space below that level is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy. Certification is required as per Article 5, Section B (3).

## **Article 6. Variance Procedures.**

### **Section A. Designation of Variance and Appeals Board.**

The **[Appointed board]** shall hear and decide appeals and requests for variances from requirements of this ordinance.

### **Section B. Duties of Variance and Appeals Board.**

The board shall hear and decide appeals when it is alleged an error in any requirement, decision, or determination is made by the Floodplain Administrator in the enforcement or administration of this ordinance. Any person aggrieved by the decision of the board may appeal such decision to the **[Name of appropriate court]**.

### **Section C. Variance Procedures.**

In passing upon such applications, the board shall consider all technical evaluations, all relevant factors, all standards specified in other sections of this ordinance, and;

- (1) The danger of life and property due to flooding or erosion damage.
- (2) The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner.
- (3) The importance of the services provided by the proposed facility to the community.
- (4) The necessity of the facility to a waterfront location, where applicable.
- (5) The availability of alternative locations for the proposed use which are not subject to flooding or erosion damage.
- (6) The compatibility of the proposed use with existing and anticipated development,
- (7) The relationship of the proposed use to the comprehensive plan and floodplain management program for that area.
- (8) The safety of access to the property in times of flood for ordinary and emergency vehicles.
- (9) The expected height, velocity, duration, rate of rise, and sediment of transport of the floodwaters at the site.

- (10) The costs of providing governmental services during and after flood conditions, including maintenance and repair of public utilities and facilities such as sewer, gas, electrical, and water systems, and streets and bridges.

#### **Section D. Conditions for Variances.**

- (1) Variances shall only be issued when there is:
  - a) A showing of good and sufficient cause.
  - b) A determination that failure to grant the variance would result in exceptional hardship.
  - c) A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, create nuisances, cause fraud or victimization of the public, or conflict with existing laws or ordinances.
- (2) No variance for a residential use within a floodway subject to Article 5, Section E or Section G (1) of this ordinance may be granted.
- (3) Any variance granted in a floodway subject to Article 5, Section E or Section G (1) of this ordinance will require a permit from the Indiana Department of Natural Resources.
- (4) Variances to the Provisions for Flood Hazard Reduction of Article 5, Section B, may be granted only when a new structure is to be located on a lot of one-half acre or less in size, contiguous to and surrounded by lots with existing structures constructed below the flood protection grade.
- (5) Variances shall only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.
- (6) Variances may be granted for the reconstruction or restoration of any structure individually listed on the National Register of Historic Places or the Indiana State Register of Historic Sites and Structures.
- (7) Any applicant to whom a variance is granted shall be given written notice specifying the difference between the Flood Protection Grade and the elevation to which the lowest floor is to be built and stating that the cost of the flood insurance will be commensurate with the increased risk resulting from the reduced lowest floor elevation (See Article 6, Section E).
- (8) The Floodplain Administrator shall maintain the records of appeal actions and report any variances to the Federal Emergency Management Agency or the Indiana Department of Natural Resources upon request (See Article 6, Section E).

#### **Section E. Variance Notification.**

Any applicant to whom a variance is granted that allows the lowest floor of a structure to be built below the flood protection grade shall be given written notice over the signature of a community official that:

- (1) The issuance of a variance to construct a structure below the flood protection grade will result in increased premium rates for flood insurance up to amounts as high as \$25 for \$100 of insurance coverage; and;
- (2) Such construction below the flood protection grade increases risks to life and property. *A copy of the notice shall be recorded by the Floodplain Administrator in the Office of the County Recorder and shall be recorded in a manner so that it appears in the chain of title of the affected parcel of land.*

The Floodplain Administrator shall maintain a record of all variance actions, including justification for their issuance.

**Section F. Historic Structure.**

Variances may be issued for the repair or rehabilitation of “historic structures” upon a determination that the proposed repair or rehabilitation will not preclude the structure’s continued designation as an “historic structure” and the variance is the minimum to preserve the historic character and design of the structure.

**Section G. Special Conditions.**

Upon the consideration of the factors listed in Article 6, and the purposes of this ordinance, the **[Appointed board]** may attach such conditions to the granting of variances as it deems necessary to further the purposes of this ordinance.

**Article 7. Severability.**

If any section, clause, sentence, or phrase of the Ordinance is held to be invalid or unconstitutional by any court of competent jurisdiction, then said holding shall in no way effect the validity of the remaining portions of this Ordinance.

**Article 8. Effective Date.**

This ordinance shall be in full force and effect on **[Effective FIRM date if new FIRMs; date of ordinance adoption; or date based on community need]**.

Passed by the**[Governing body]**, Indiana on the **[Day of month]** day of**[Month]**,**[Year]**.

**[Governing body]**  
**[Community name]**, Indiana

\_\_\_\_\_  
**[Individual approving]**

\_\_\_\_\_  
**[Individual approving]**

\_\_\_\_\_  
**[Individual approving]**

Attest: \_\_\_\_\_  
**[Individual attesting]**

9. Mississippi Development Authority, *Elevation Design Guidelines for Historic Homes in the Mississippi Gulf Coast Region* – Introduction (n.d.)

Full document available at [http://www.nj.gov/dep/hpo/hrrcn\\_sandy\\_pdf%20files/mississippi.pdf](http://www.nj.gov/dep/hpo/hrrcn_sandy_pdf%20files/mississippi.pdf)



# Elevation Design Guidelines

For Historic Homes in the Mississippi Gulf Coast Region



mississippi development authority  
**MISSISSIPPI**

PLAN  
1/8"



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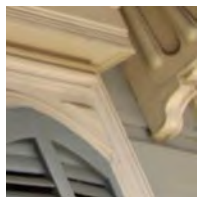
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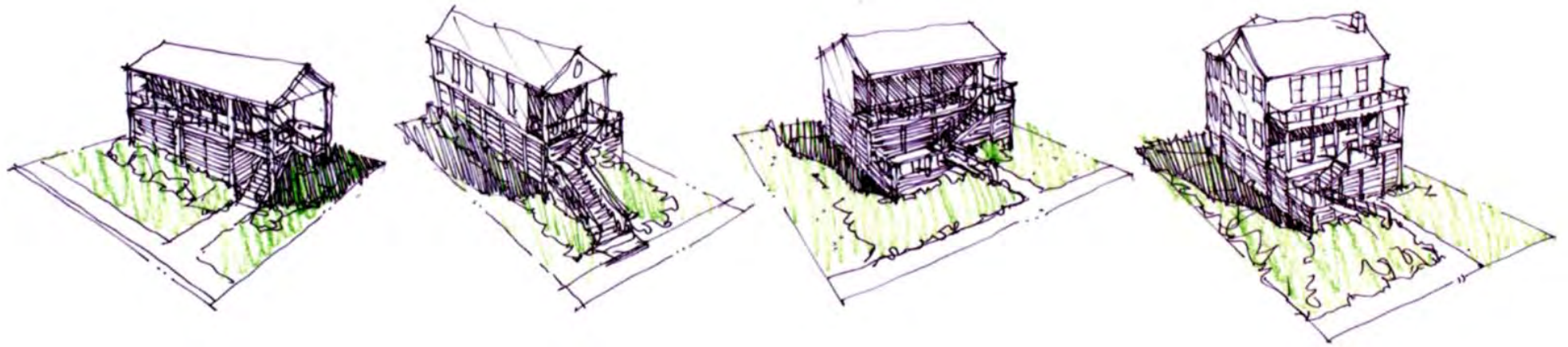


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The Mississippi Development Authority (MDA) has prepared these Elevation Design Guidelines in collaboration with the Mississippi Department of Archives and History, and historic preservation commissions representing historic preservation interests in Coastal Mississippi. In addition, MDA invited participation by local building officials and planning and zoning representatives so that the Guidelines accurately reflect the process for owners of historic residential properties to access grant and forgivable loan monies that have been made available by U.S. Department of Housing and Urban Development (HUD). MDA expressly thanks those who have actively participated in this important process to help preserve the unique character of our Mississippi coastal communities.

# Introduction

## Hurricane Katrina and Historic Properties in Coastal Mississippi

Hurricane Katrina's effects on the people and places of Mississippi are well known. When this powerful hurricane made landfall in late August of 2005, the impacts of one of the nation's largest natural disasters were immediately seen and felt in Mississippi and by all Americans across the nation. The devastating combined effects of wind and water destroyed tens of thousands of homes in Mississippi, and heavily damaged scores of other properties along the Gulf of Mexico. While Mississippi has accomplished significant rebuilding, there is much more to be done.

Although the vast majority of properties affected by Hurricane Katrina were not historic, the hurricane's effects on the region's historic properties were significant, and without precedent nationally. In many communities, scores of historically significant properties were literally washed away, and others were so heavily affected that they could not be saved. Because of health and safety concerns, many of these properties were subsequently demolished. Within locally designated historic districts on the Mississippi Coast, preservation professionals

identified significant numbers of historic buildings that were destroyed. Within these communities, the number of historic properties lost forever varies from 6 to 95 percent of the total number of historic buildings present before Hurricane Katrina.

Because of this unprecedented level of loss, the historic properties that still exist in Coastal Mississippi are rare survivors. They have become even more important because of their limited numbers. These buildings represent special places that must—now more than ever—be protected as community resources. These structures also have unique architectural and design characteristics that communities strive to maintain and enhance. Within the framework of the Mississippi Development Authority (MDA) financial assistance programs available to property



**The MDA Grant Program can help historic property owners reduce their risk from future floods.**

owners, this principle is of utmost importance. These Guidelines have been developed to ensure that both individual historic buildings, and historic buildings within historic districts, are preserved for future generations.

The purpose of this design manual is to provide recommended elevation design guidance for the rehabilitation of historic buildings funded through MDA programs. The goal of this effort is to reduce risk from future flood events through elevation, and to preserve the physical integrity and character of historic buildings. Specifically, one of the most important outcomes of this effort is to limit the total height of elevation for historic buildings so they maintain their historic character in relation to other historic buildings within each local historic district, thus protecting the architectural qualities of each historic district as a whole.

## MDA Financial Assistance Programs

To assist in the rebuilding process, the State of Mississippi has received funding through the Community Development Block Grant (CDBG) Program of the U.S. Department of Housing and Community Development. These funds are administered by the MDA, based in Jackson, Mississippi. This funding, in the form of grants and forgivable loans, is available to homeowners and other applicants whose properties in Hancock, Harrison, Jackson, and Pearl River Counties were damaged by Hurricane Katrina. Financial assistance is being provided for principal residence and rental property improvements that meet MDA's program requirements.

The two MDA programs that provide the basis for these Elevation Design Guidelines are:

### **Homeowner Elevation Grant Program (EGP).**

MDA will provide up to \$30,000 in grant assistance to homeowners whose homes were subjected to flood damage as a result of Hurricane Katrina to defray the cost to elevate their single-family residences. Three types of activities are allowed under this program: 1) elevation of an existing single-family residential structure or reconstruction of the existing residential building on the same building "footprint"; 2) elevation of an existing single-family residential building or reconstruction of the existing residential building on an expanded or changed "footprint"; and 3) replacement of an existing single-family residence with a newly constructed and elevated residence on an existing parcel at another location.

### **Small Rental Assistance Program (SRAP).**

Because over 70,000 affordable rental housing units were lost as the result of Hurricane Katrina, the State of Mississippi initiated SRAP to provide financial incentives to owners of property containing between one and four rental units to repair or rebuild. The maximum award under this program is \$30,000 per unit. The purpose of SRAP is to provide forgivable loans to owners of small rental properties that were either substantially damaged or destroyed by Hurricane Katrina, so that these small-scale units can again serve as affordable rental housing. Applicants may seek funding under one of four program options: 1) rental income subsidy assistance; 2) repair or reconstruction reimbursement of Hurricane Katrina-damaged property; 3) reconstruction or conversion reimbursement for existing property to rental property; and 4) new construction reimbursement.

## Relationship of MDA Financial Assistance Programs to Section 106 of the National Historic Preservation Act

Because MDA's financial assistance programs use Federal funding provided through the U.S. Department of Housing and Urban Development (HUD), MDA must comply with a variety of environmental and historic preservation laws and regulations. The most important historic preservation regulation is outlined in Section 106 of the National Historic Preservation Act of 1966 (NHPA). Under this regulatory review program, administering agencies must determine whether proposed projects have the potential to affect historic properties. Each MDA funding application is reviewed to determine whether historic properties—defined as buildings, structures, historic districts, objects, and archaeological sites listed, or eligible for listing, in the National Register of Historic Places—will be affected through use of HUD funding.

MDA has retained URS Corporation (URS) to assist with all required environmental and historic preservation review associated with applications funded under the EGP and SRAP programs. URS employs trained architectural historians and archaeologists to survey and evaluate potentially historic properties, and to determine the effect of planned elevation and rehabilitation projects. To qualify for funding, applicants whose historic buildings are located within the boundaries of locally designated historic districts, and individually significant historic buildings outside such districts, must closely coordinate their elevation and rehabilitation plans with appropriate Historic Preservation Commissions (HPCs) and the State Historic Preservation Office (SHPO).

In order for applicants whose projects involve historic buildings to achieve a No Adverse Effect determination

(refer to Section 6, Resources and Publications) under the Section 106 consultation process for their projects, they are required under the Programmatic Agreement (PA) described below to develop individual elevation design plans. The use of the *Secretary of the Interior's Standards for Rehabilitation* (see *Standards for Rehabilitation*, Section 6, Resources and Publications) is generally considered good preservation practice, and the *Standards for Rehabilitation* must be incorporated into individual elevation design and rehabilitation plans.

**Programmatic Agreement (PA).** In January 2008, the MDA, the SHPO, the Advisory Council on Historic Preservation, other local governments in Coastal Mississippi, and the Mississippi Band of Choctaw Indians developed and signed a special agreement called a PA, with which the National Trust for Historic Preservation and the Choctaw Nation of Oklahoma also concurred. Because of the size and scale of the two MDA financial assistance programs, their implementation over the course of a number of years, and the range of effects that could not be precisely identified at the outset of the program, this agreement document was developed to record the terms and conditions agreed upon to resolve potential adverse effects on multiple historic properties. In essence, this PA functions as a blueprint to help guide Federal and State agencies, local governments, and other signatories in working together to protecting historic preservation interests while rebuilding.

A key component of this agreement called upon MDA to request a program modification from HUD that would allow MDA to negotiate with the SHPO on the elevation height of historic buildings. This variance granted owners of historic properties, especially those in historic districts, the ability to elevate homes to a level lower than the standard Advisory Base Flood Elevation level (ABFE; refer to Section 4, Foundation Design Guidelines, and Section 6, Resources and Publications). This modification ensures

the characteristics of individual historic homes and concentrations of historic residences within local historic districts are preserved and that these buildings continue to be recognized as historic properties.

An important aspect of the PA is the integration of existing local HPCs into the elevation and rehabilitation design review process for historic buildings. Because these commissions know the historic buildings in their communities extremely well, they are able to offer positive, constructive advice to applicants who will be submitting individual property elevation design plans for local review. Another key component of the PA is the provision of funding to the SHPO to hire new preservation professionals, including an historic architect, who will work with MDA to provide general advice to applicants in the early phases of the elevation design process.

## Purpose of Elevation Design Guidelines

Generally, architectural design guidelines are created by communities concerned with the appearance of their buildings as well as how their appearance contributes to economic health and civic pride. Throughout the United States, over 2,200 cities, towns, and counties have adopted design guidelines as part of their historic preservation efforts. Such guidelines are developed to enhance the quality of buildings, landscapes, and public spaces and to protect these resources for the public good.

These Elevation Design Guidelines have been developed by MDA to ensure that the EGP and SRAP programs are implemented in the most architecturally sensitive manner possible. Their goal is to achieve a balancing of two very different public policy goals—risk reduction through more modest elevation than required for modern buildings or new construction, and protection and



**These Guidelines illustrate principles to help preserve the historic elements of homes located in historic districts. Shown here is a Pascagoula streetscape.**

enhancement of existing historic buildings and historic districts. Based upon the historic preservation and flood protection requirements established respectively by the U.S. Department of Interior and the Federal Emergency Management Agency (FEMA), these Elevation Design Guidelines are intended to inform program applicants and local HPCs of the process to best ensure MDA requirements are met. The Guidelines represent a framework in which a range of potential elevation actions, each with a range of planning considerations, including neighborhood context, treatment of elevation and historic fabric interface, and vacant parcels, may be evaluated to produce the best, individualized approach for a given historic building and historic district.

The information contained in these Guidelines is presented for the applicant's use in planning changes to historic buildings within a historic district, or to an individual historic building outside the boundaries of these districts. Building upon nationally recognized historic preservation principles described in the *Standards for Rehabilitation* (see Section 6, Resources and Publications), these Guidelines have been designed to assist and remind members of local HPCs and the SHPO of the issues they should consider when reviewing an MDA-assisted project. Because the architectural character may be

different among communities, information contained in *Coastal Mississippi Historic Building Types and Important Architectural Features* and *A Pattern Book for Gulf Coast Neighborhoods*, prepared by the Mississippi Renewal Forum (refer to Section 6, Resources and Publications), have also been incorporated into the Guidelines, so that applicants can integrate this information into the individual elevation plans they produce.

**These Guidelines are intended to be used as an aid for appropriate design and not as a checklist of items for compliance.** These Guidelines illustrate principles and practices in residential elevation design that will identify, retain, and preserve the historic elements of homes and their residential districts. This publication will assist property owners who are considering the MDA financial assistance programs and the elevation design requirements of local building codes and HPCs. The Guidelines provide direction for historic property owners to complete a successful elevation design project.

## Roles and Responsibilities

Understanding the various entities that play a part in the EGP and SRAP financial assistance programs is important; particularly for the applicant who will need to navigate through the grant application and approval process.

### The Mississippi Development Authority

(MDA) has been authorized by HUD to administer the EGP and SRAP programs. MDA will review and approve grant applications and disburse funds to historic-property owners who meet the grant requirements.

### The Mississippi Department of Archives and History (MDAH)

functions as the **State Historic Preservation Office (SHPO)** and is responsible for ensuring that all requirements of Section 106 of the National Historic Preservation Act have been adhered to. Because the MDA grants involve Federal funding, applicants who are deemed to have historically significant homes must demonstrate that their actions (in this case, elevation) do not adversely affect the characteristics and integrity of the historic property. Specifically, the SHPO reviews grant applications for historic buildings in the 4-county project region and issues a determination of project effect. Where preservation planning is required to avoid Adverse Effects, MDA contacts the applicant and requires them to generate an elevation design plan for their historic property, noting that this Adverse Effect can be eliminated by developing a successful individualized elevation design and a reduction in total elevation height. For historic buildings located in locally designated historic districts, applicants will submit elevation plans to

the appropriate HPC for review and approval. Once submitted, the SHPO also reviews and comments on the elevation plan. Final approval by the SHPO is required before MDA can disburse grant monies to eligible applicants.

### The Historic Preservation Commissions

(HPCs) undertake project review within historic districts that have been officially designated by local governments within the 4-county coastal region. The HPCs serve as the approving authority for Section 106 compliance for historic residential properties within their historic districts. Working with the local building officials, HPCs will issue a Certificate of Appropriateness that will accompany the building permit and document that the proposed elevation does not adversely affect historic residential properties.

**Local Building Officials** play an important role in the process through the issuance of building permits, which will be required for disbursement of MDA grant monies. In communities with designated historic districts, local building officials will work with HPCs to ensure that a Certificate of Appropriateness for historic structures accompanies the building permit as part of the approval process.

A thorough understanding of key words and phrases commonly used in elevation design plan development and in the local and State historic preservation review processes is important for successful projects. Each applicant is encouraged to review the detailed glossary included in Section 6 of these Guidelines, Resources and Publications.



Low Elevation Action Alternative (Pascagoula)



Medium Elevation Action Alternative (Pascagoula)



High Elevation Action Alternative (Pascagoula)

## Elevation Action Alternatives

In considering the opportunities of MDA's SRAP and EGP programs, each property owner should understand the range of alternative elevation scenarios available to them. Once MDA determines that a property is historic and the SHPO concurs, the homeowner should review the Elevation Design Guidelines to evaluate appropriate alternatives for elevation changes.

Taking no action is one alternative in which the owner of a historic home elects not to raise the building above its present elevation. An applicant might consider this alternative if the difference between the existing height of your property and the recommended ABFE is not great enough to justify the expense of elevation, or there is not enough room on the lot to accommodate an elevated property without loss of historic integrity and significance. As described in a variety of FEMA publications (see Section 6, Resources and Publications), an owner may also elect to reinforce the existing foundation system for the house. **Property owners who choose not to elevate their homes are generally ineligible to receive funding from the SRAP or EGP programs.**

Other alternatives include raising the elevation of a historic residential structure in response to potential flood hazards. The extent of the elevation change needed to bring a building above the designated flood elevation will vary depending upon its location and the elevation changes may range from a few feet to an entire storey or more. In some cases, applicants may consider moving a building—although this is not generally considered acceptable from a historic preservation perspective—elsewhere within the property to provide improved setbacks and access to the elevated home from within its site. Minimal changes in elevation or location are the preferred actions.

Responses to the regulatory requirements of building codes and Federal historic preservation precedents must be balanced as proposals for elevation changes are made. Applicants must work closely with local building code and historic preservation representatives to determine an appropriate elevation change and related methods to mitigate associated project impacts to historic buildings.

In choosing an action to protect a historic property from potential future flood damage—whether elevation or another mitigation measure—the property owner must understand that their property needs to continue to retain its historic integrity after rehabilitation and elevation in order to meet the “historic structure” criteria of the National Flood Insurance Program (NFIP; refer to Section 4, Foundation Design Guidelines, and Section 6, Resources and Publications).

## Elevation Design Review Process

The elevation design process for a historic property begins with SHPO concurrence regarding MDA's finding regarding historic and architectural significance. Once an applicant property is determined to be historic, property owners will receive a copy of this determination, along with these Elevation Design Guidelines. Property owners should review these Guidelines, consult with MDA representatives and the SHPO historic architect, and consider formal retention of a professional building elevation practitioner trained to assist in determining elevation design strategies.

Once an applicant has initiated the local building permit application process, the local HPC will also consider the potential impact of elevation on historic properties. Proactively addressing the issues outlined in the

Guidelines will facilitate necessary approvals and efficient processing of the elevation grant application.

Early coordination with the SHPO, local officials, and design consultants will provide crucial site planning, architectural, and engineering assistance and information for use in developing the elevation proposal. If a property is in a jurisdiction with an HPC, the elevation plans will be referred to the local HPC for review and approval upon submission to the local building permit office. If there is no local HPC, property owners should concurrently submit elevation plans to the local building permit office and to MDA for transmittal to the SHPO.

Following a successful historic review, the building permit office will issue a building construction permit. The MDA grant award occurs following the issuance of a building permit for the elevation project.

Detailed information about the historic preservation review process, and about the local application and permit process, is located in a separate Applicant Guide.

## Working with an Elevation Design Consultant

Owners of historic residential properties are making an important decision when they proceed with plans for elevating their homes. As they move forward with their grant application, professional planning, design, and engineering advice is crucial. MDA can provide initial guidance to assist applicants in the application process through grant award. Applicants should also consider the services of professional building elevation consultants who can prepare elevation design plans and provide support through the building permit and historic preservation reviews and during the elevation construction process. As described in Sections 2–4 of these Guidelines, key aspects of preparing building elevation plans include:

- Historic status determination
- Flood zones and elevation requirements
- MDA programmatic requirements
- Parcel topography
- Boundary and setback delineation
- Adjoining use assessments
- Site circulation and access alternatives
- Architectural design elements
- Structural and foundation design elements
- Elevation mitigation and screening approaches

In order to provide sufficient design information for local building permit submissions and reviews, applicants must be able to prepare elevation design plans. By working with MDA and building elevation design consultants, applicants can benefit from the experience these professionals have with similar projects, submission requirements, and review procedures.

## How to Complete a Successful Elevation Project

MDA realizes that grant recipients are anxious to complete the repair and rehabilitation of their homes and rental properties so they can move forward with their lives.

One of the primary purposes of the Elevation Design Guidelines is to facilitate the decision-making process to successfully complete the required historic preservation review, allowing elevation projects to be funded in a manner that achieves both risk reduction and preservation of irreplaceable historic buildings and districts.

There are a few ground rules that the applicant *must* follow to receive funding for their project. Unlike other financial assistance programs administered by MDA, the EGP and SRAP programs provide funding through a series of disbursements. As described below, the applicant

must submit specified documents to receive payments at project milestones.

### Rule #1. Address All Historic Preservation Review Requirements

#### All Historic Properties

In order to protect the physical integrity of an historic house or rental unit and ensure that it will continue to maintain the characteristics for which it was designated as historic, the applicant(s) must have their project reviewed and approved by the SHPO. The SHPO's final approval will be issued once the following actions are verified:

- The applicant's participation in a Pre-design Meeting with SHPO staff in which key elements from the Elevation Design Guidelines and *Standards for Rehabilitation* are identified, for integration into your new individual design plan
- Submission of the applicant's Final Elevation Design Plan, for review and approval by the SHPO prior to application for local building and development review
- Submission of a Written Commitment by the applicant to the SHPO agreeing to comply with the plans as approved

Based on review of this information, the SHPO will issue a final determination of No Adverse Effect, which concludes the Section 106 historic preservation review process. The SHPO's No Adverse Effect finding will be provided to MDA and the applicant in a letter, which will also state that elevation of the building will not preclude the building's continued designation as a historic building.

Prior to construction, the applicant must also submit a copy of the building permit and the FEMA Elevation Certificate to the SHPO for its review.



Once construction is complete, the applicant must submit a copy of the Occupancy Permit and the final FEMA Elevation Certificate to the SHPO.

### **Historic Properties Also Located Within Local Historic Districts**

In addition to the review process described above, owners of property in a local historic district must have their project reviewed and approved by the local HPC. Based on the individual elevation plan for an historic building, the Commission will issue a Certificate of Appropriateness to the applicant and local building department as verification that the elevation project complies with these Elevation Design Guidelines and the *Standards for Rehabilitation*, as well as local historic district guidelines.

After the applicant has submitted an individual elevation plan and the local HPC has issued a Certificate of Appropriateness, the applicant must submit a copy of the certificate to the SHPO.

### **Rule #2. Adhere to MDA Grant Requirements**

According to MDA requirements, grant funding will be disbursed in two equal payments:

**First Payment:** Half the awarded grant funds will be paid upon the applicant submitting a building permit and a copy of a FEMA Elevation Certificate certified by a licensed engineer or surveyor to MDA.

**Second Payment:** The remaining grant funds will be paid upon completion of the construction project when the applicant submits an Occupancy Permit to MDA.

## **Organization and Use of these Elevation Design Guidelines**

Within these Guidelines are five main report sections and a final section of reference materials and a glossary of terms. MDA's intent is to provide essential information for the property owner to use to develop an individualized elevation design project that addresses the broad principles outlined in the Guidelines and in the *Standards for Rehabilitation*.

In addition to Section 1, Introduction, this document is organized around the following topic areas:

**Section 2: Site Design Guidelines:** Provides information about the site on which the historic building is located.

**Section 3: Architectural Design Guidelines:** Discusses considerations regarding neighborhood urban design context, evaluating elevation alternatives, historic building types and architectural features, data needed for designing elevation plans and evaluating their effects on the historic building, and goals for new screening and scale minimization.

**Section 4: Foundation Design Guidelines:** Identifies engineering factors for designing new foundations for elevated buildings and includes detailed illustrated approaches to foundation screening.

### **Section 5: Elevation Design – Next Steps:**

Summarizes the process for designing a new elevation plan and illustrates elevation approaches for some of the most common historic buildings on the coast.

**Section 6: Resources and Publications:** Includes National and State reference materials for use in designing an elevation plan and identifies the status of historic districts and locally designated landmarks within each jurisdiction. Pre-Katrina and post-Katrina aerial views, a detailed current map of each historic district, and information about local HPCs are also included.

To accompany these Guidelines, MDA has also produced two related tools—an Applicant Guide and a Historic Preservation Commission Guide. These will be made available to applicants, local HPCs, and the SHPO in both electronic and hard copy form, along with copies of the Elevation Design Guidelines.

Users of these Elevation Design Guidelines are strongly encouraged to read the document completely, and not simply selected sections. Although certain portions of this guide may contain information pertaining to a specific issue, all sections contain essential information that the user should become familiar with. As noted previously, the MDA encourages funding applicants to seek the services of a design professional (refer to the Applicant Guide) who can assist in developing customized elevation plans.

10. City of Annapolis, MD, *Regulatory Response to Sea Level Rise and Storm Surge Inundation*  
(October 2011)

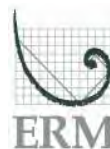
# Regulatory Response to Sea Level Rise and Storm Surge Inundation City of Annapolis, Maryland

October 2011



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# I. Background

## A. Project Description

In September 2011, the City of Annapolis contracted with ERM and WBCM to develop planning and regulatory responses to the impacts of sea level rise in the City. This report reviews sea level rise projections impacting Annapolis area, describes potential impacts of sea level rise, summarizes potential municipal responses to the increased flooding risks, and provides recommendations on revisions that should be considered to the City's code. This report does not include specific draft code language. The City would need to develop code language for those revisions that it wishes to implement.

The City will present the planning and regulatory response to sea level rise at a public meeting. A power point presentation summarizing and illustrating the key points of this report will be made and will be made available on the City's web site.

## B. Sea Level Rise Projections

This report considers projections of sea level rise for Annapolis and establishes a recommended level for the city to use in evaluating regulatory changes. Three sources of sea level rise projections are considered:

1. ***Sea Level Rise Studies, City Dock and Eastport Areas:*** WBCM June 2010 and March 2011. WBCM's studies of sea level rise for the City Dock and Eastport areas, completed June, 2010, used National Oceanic and Atmospheric Administration (NOAA) data specific to Annapolis collected on a daily basis since 1996. (The NOAA website provides verified data beginning in 1996.) This data, when projected through 2050, results in an expected sea level rise of 0.5 feet by 2050. WBCM's study maps the larger area expected to be impacted by a 100-year flood based on the projected 0.5-foot increase in sea level rise. Current Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps designate the areas with elevation 7.8 feet or below in the 100-year or base floodplain<sup>1</sup>. With a 0.5-foot increase in sea level, areas at elevation 8.3 feet or below will be in the base floodplain.

WBCM's study notes that the impacts from climate change and sea level rise will be more than only an increase in the area within the base floodplain. The frequency of storms that result in flooding is expected to increase as well as the frequency and extent of minor flooding from normal high tides. The study states that: "Minor nuisance flooding around the City Dock (currently) begins to occur when tides rise above elevation 1.9 feet. At that level, water begins to flow out of the existing storm drain system even during sunny days. Projecting to the year 2050, the occurrence of nuisance flooding is expected to more than double."

2. ***Climate Action Plan:*** State of Maryland 2008. Maryland is experiencing a greater rise in sea level than many other parts of the world due to naturally occurring regional land subsidence. The Maryland Commission on Climate Change, Scientific and Technical

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<sup>1</sup> See Glossary

Working Group (STWG), assessed the Intergovernmental Panel on Climate Change 4<sup>th</sup> Assessment Report (2007) and three scientific reports that incorporated acceleration of ice loss, along with regional land subsidence variables to provide a conservative estimate that by the end of this century, Maryland's coasts may experience an average relative sea-level rise of 2.7 feet under a lower-greenhouse gas emissions scenario, and as much as 3.4 feet under the higher-emissions scenario. The Climate Action Plan states that "Relative sea-level rise as little as 0.6 ft (probably unlikely because this is scarcely above the 20th century rate) to much as 1.3 ft could be experienced along Maryland's coast by the middle of the century. By the end of the century, accelerated melting could produce a relative sea-level rise of 2.7 ft under the lower emissions scenario to 3.4 ft under the higher emissions scenario."

3. ***Final Flood Damage Reduction Analysis For The United States Naval Academy***: U.S. Army Corps of Engineers Baltimore District, February 2006. The Naval Academy has chosen to base its flood protection measures on the current FEMA 500-year flood, which has an elevation of 9.98 feet.

For purposes of this report, the consultants have used WBCM's projected sea level rise of 0.5 feet by 2050. This projection was chosen because it is based on local sea level measurements, specific to Annapolis, captured daily over the past 15 years. This report uses the closer time frame of the next 40 years, rather than the Maryland DNR's 100-year projections, to reflect the time frame within which buildings are likely to be renovated, and to allow for the City's regulatory response to change over time.

Maryland Commission on Climate Change sea rise projections for Maryland's coastline are higher because they are based on models of global climate and ice melt trends. The models that predict greater sea level rise must be considered seriously, given the City's vulnerability to flooding. This report strongly recommends that the City of Annapolis frequently review actual sea level rise data and updated projections (at least every 6 years as part of the Comprehensive Plan update), and consider further revisions to codes and plans as appropriate.

If the City of Annapolis would prefer to base its response to sea level rise on the projected rise of 1.5 ft. by 2050, the new base flood elevations used in the recommended code changes in Section II of this report could be adjusted accordingly. Such a response would result in areas at elevation 9.3 feet or below being in the projected base floodplain.

## **C. Impacts of Sea Level Rise**

1. Maryland's 2008 Climate Action Plan notes several potential impacts of sea level rise, including shore erosion, inundation, coastal flooding, higher water tables, and salt water intrusion into fresh water sources. Increased coastal flooding will be of major importance to Annapolis, while the other impacts will affect the City less.
  - a. **Shore erosion** will impact Annapolis to a limited extent only. The city's less sheltered shores are protected by hardened shorelines such as riprap, jetties and seawalls (Annapolis Comprehensive Plan p.128).

- b. **Inundation**, the gradual submergence of land areas, is of most immediate concern in the lower Eastern Shore and bay islands that have a very gradual increase in elevation above sea level (Maryland Climate Action Plan, Chapter 5, pp. 5-7). Based on a projected sea level rise of 0.5 feet, inundation is less of a concern than flood damages. However, areas near the City Dock could experience inundation if greater sea level rise occurs, and Annapolis should periodically review projections based on new data.
- c. **Coastal flooding** will occur with greater frequency and severity. Sea level rise increases the height of storm waves, enabling them to reach further inland, and heightens the risk of damage to properties and infrastructure.
- d. **Higher water tables and salt water intrusion:** As sea level rises, the groundwater table may rise and salt-water will begin to intrude into fresh water aquifers. Annapolis land is served by the City's municipal water supply. The depth of the City's water supply wells (300 to 1000 feet) and the inland location of the municipal water supply in Waterworks Park will help to protect the water supply from salt water intrusion. As with other potential impacts of rising sea level, Annapolis should monitor impacts on groundwater and its municipal water supply. Section D.2 below notes the types of public improvements recommended by WBCM and used in other jurisdictions to protect city pump stations and improve storm drain effectiveness during flooding.

Of the potential impacts listed above, coastal flooding is the major concern for Annapolis at this time. The City's currently defined 100-year floodplain and adjacent areas can expect more frequent and more severe flood events.

- 2. Annapolis' response to sea level rise must take into account the city's built environment:
  - a. Annapolis has very little vacant buildable land. The Comprehensive Plan states that 97 percent of developable land has been built upon. Future development will be infill of scattered vacant lots and the redevelopment of small geographic areas.
  - b. The waterfront is particularly important to the character and economic vitality of Annapolis. While maritime uses occupy 1% of the city, the maritime industry is estimated to have a \$200 million economic impact on the city (Comprehensive Plan p. 16).
  - c. The city's historic core, which is partially located within the current 100-year floodplain, has great value. As noted in the Comprehensive Plan:

“The city's historic core, a largely intact pre-industrial colonial city, is designated a National Historic Landmark for possessing exceptional value in illustrating the heritage of the United States. Annapolis boasts the largest collection of 18<sup>th</sup> century buildings in America. Many are open to the public where their beauty and architectural style are major attractions.”

The Maryland Climate Action Plan and sea rise studies conducted for lower Eastern Shore counties evaluate 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 must focus on protecting existing structures and infrastructure. If sea level rise increases as projected in the Maryland Climate Action Plan over the next 100 years (up to

3.4 feet), Annapolis will need to evaluate structural flood protection methods such as floodwalls or address the possibility of retreating from some of its waterfront land (see illustrations in WBCM 2010, 2011).

## **D. Planning for Sea Level Rise**

### **1. Comprehensive Plan**

Two policies of the Annapolis Comprehensive Plan (2009) address sea level rise:

*Chapter 3: Land Use and Economic Development; Policy 10:*

Evaluate risks from sea level rise in decisions involving land use along the waterfront. The parts of the established downtown which are prone to severe flooding and may be expected to be impacted by sea level rise should be the subject of a study to determine the costs and benefits of public decision-making in mitigating property damage. Refer to Figure 7-7 and Policy 3 in Ch. 7 – Environment for further treatment of the City’s policy position on sea level rise. Notwithstanding this, land use in areas that are prone to flooding should be evaluated carefully when land use changes are proposed.

*Chapter 7: Environment; Policy 3.4:*

Develop a strategy for sea level rise as part of the City’s adaptation and response to threats from climate change. This planning effort should be coordinated with the City’s Hazard Mitigation Plan and be prepared in coordination with State efforts, as well as the Federal government, U.S. Naval Academy, and County Government. It should delineate impacted areas, inventory potentially affected populations, assets, and resources, and develop legislative and regulatory responses. It should also address such issues as a post-disaster plan, public education on the risks of sea level rise, and coordination with other government agencies on research needs related to sea level rise. See Policy 10 in Ch. 3 – Land Use & Economic Development for the City’s policy regarding waterfront land use.

### **2. Capital Projects and Management**

The recommendations in Part II of this study address revisions to the city floodplain and development codes to respond to the increased flooding expected from sea level rise. These code revisions, if implemented, would require private property owners seeking building permits or change-in-use permits to better protect their properties from flood damages. To place these recommendations in context, following are other components of preparing for sea level rise that the city should evaluate in its cycle of comprehensive plan, neighborhood plan, and capital program updates:

- a. Public flood protection projects. WBCM’s studies of the City Dock and Eastport areas describe potential public projects that would reduce the amount of flooding in the city floodplain areas. These include barriers to coastal floodwaters such as temporary flood walls, temporary dams, and improvements to the drainage system such as installation of backflow preventers on the city storm drain outflows into the bay. Annapolis has no current capital projects to implement such flood protection measures.
- b. Public projects to make infrastructure more resilient when flooding occurs. WBCM’s sea rise studies identified improvements within the two study areas to reduce the impact of



flooding on public roads, parking areas and utilities. These improvements include floodwalls around pump stations, flap or duckbill valves for storm drain outfalls and permanent or temporary pumps to discharge storm drainage systems over floodwalls. Similar studies of other parts of the city could result in similar recommendations. The City's infrastructure could be made more resilient during flooding by such means as using more durable base materials for roads to withstand periodic flooding; raising road elevations; implementing drainage improvement projects; flood-proofing city utilities; raising the elevation of low-lying utility equipment (such as pumping stations); providing backflow preventers for sewer and storm drain connections; and moving city facilities that would be important in emergency operations (fire, police) out of flood-prone areas.

- c. Education, management and planning. Preparation for more frequent flooding can include mapping streets that would be affected by flooding; establishing and publicizing evacuation routes; determining where emergency shelters will be located; providing educational materials on floodproofing buildings; mapping operations in the flood area that store hazardous materials; and other operational details. Many of these should be covered and periodically updated in the city's Hazard Management Plan and publicized broadly.
- d. Ongoing comprehensive and neighborhood planning. The impacts of sea level rise should be incorporated into city planning for areas that may be impacted by coastal flooding. Annapolis already has made progress in this area through the City Dock and Eastport studies and this report. Future planning efforts can continue to evaluate the need and options for protecting historic structures and waterfront areas; identify public utility structures and equipment that may be endangered by floods; review needs for drainage and road improvements to allow access to flooded areas; and revisit the code sections reviewed in this report.
- e. Periodic review of current and projected sea levels. These should be reviewed on the same cycle as the city's comprehensive plan; i.e., approximately every six years.

## II. Recommended Code Revisions

Code Chapter	Current Text	Issues	Options and recommendations
<p>Definitions Chapter 17.04</p>	<p><u>17.04.080 - Base flood elevation.</u> "Base flood elevation" means an elevation 7.2 feet above mean sea level</p> <p><u>17.04.340 - Elevation certificate.</u> "Elevation certificate" means the official form as prepared and distributed by the Federal Emergency Management Agency, using mean sea level as established by the National Geodetic Vertical Datum of 1929.</p> <p><u>17.04.570 - Mean sea level.</u> "Mean sea level" is as defined by the National Geodetic Vertical Datum of 1929.</p>	<p>These definitions differ from the base flood elevation (100-year flood elevation) shown on FIRM maps. Current base flood elevation is 7.78 feet.</p> <p>Elevations should be measured from the points established by the North American Vertical Datum of 1988 (NAVD 88) rather than the National Geodetic Vertical Datum 1929 (NGVD 29). Mean sea level under NGVD 29 is at elevation -0.08 feet. Current mean sea level based on NAVD 88 is at elevation 0.72 feet.</p> <p>See Appendix 2 of this report for a diagram illustrating the current elevations. Appendix 3 illustrates the result of updating these definitions while retaining the elevation requirements currently in this Floodplain Ordinance.</p> <p>The city enforces the floodplain ordinance using benchmarks that establish the elevation of 8 feet above mean sea level. These stations, if based on these definitions, may be using out-of-date sea level information.</p>	<p>Update definitions for base flood elevation, elevation certificate and mean sea level.</p> <p>Ensure that the benchmarks used by city staff to establish distance above mean sea level are accurate.</p>

Code Chapter	Current Text	Issues	Options and recommendations
Floodplain Ordinance Chapter 17.11	<p><u>17.11.120 - Construction below base flood level.</u>            If the construction, reconstruction or modification of any structure constitutes less than a substantial improvement, the elevation of the lowest floor shall be at or above eight feet above mean sea level. Those parts of the improvement below the elevation of eight feet above mean sea level shall be dry-floodproofed as specified by the U.S. Army Corps of Engineers in its publication EP1165 2 314 entitled "Flood-proofing Regulations." Routine maintenance and repairs shall be excepted.</p> <p><u>17.11.130 - Lowest floor elevation.</u>            The elevation of the lowest floor, as defined in this title, of all new or substantially improved structures within the one-hundred-year flood shall be at or above eight feet above mean sea level. Basements as defined in this title are prohibited in the floodplain.</p> <p><u>17.11.180 - Electric systems.</u>            A. All electric water heaters, electric furnaces, generators, heat pumps, air conditioners and other permanent electrical installations shall be permitted only at or above eight feet above mean sea level.            B. No electrical distribution panels shall be permitted at an elevation less than ten feet above mean sea level.</p> <p><u>17.11.190 - Plumbing.</u> Water heaters, furnaces and other permanent mechanical installations shall be permitted only at or above eight feet above mean sea level.</p> <p><u>17.11.200 - Storage.</u> No materials that are buoyant, flammable or explosive or which, in times of flooding, could be injurious to human, animal or plant life shall be stored below nine feet above mean sea level.</p>	<p>These provisions require elevation or floodproofing 8 to 10 feet above mean sea level.</p> <p>The current FEMA base flood elevation (BFE) for Annapolis is 7.8 feet; the projected flood elevation in 2050 is 8.3 feet.</p> <p>Mean sea level in Annapolis is at elevation 0.7 feet (based upon NAVD88).</p> <p>If the definitions are updated to reflect these figures, elevating up to "8 feet above mean sea level" will protect structures up to 8.7 feet (0.7 feet plus 8 feet.) This provides protection higher than the projected 2050 base flood elevation of 8.3 feet.</p> <p>Freeboard is an additional height requirement above the base flood elevation (BFE) that provides a margin of safety and makes the structure eligible for a lower flood insurance rate. While not required by the NFIP standards, FEMA encourages communities to adopt at least a one-foot freeboard.</p> <p>The Maryland Climate Change Plan recommends a minimum standard of a 2 -foot freeboard above the 100-year flood level for coastal communities (Maryland <i>Climate Action Plan</i>, EBEI-8).</p>	<p>Option 1: No revision. These requirements require elevation and floodproofing higher than the 8.3-foot base flood elevation projected through 2050.</p> <p>Option 2: Revise the current language to measure required height using elevation rather than sea level. This is familiar to surveyors and engineers and is a static measurement, unlike "mean sea level" which changes and needs to be re-evaluated periodically. Implement FEMA's freeboard recommendation, and build in greater elevation to account for expected sea level rise, by requiring the lowest floor elevation to be a minimum of 1.0 feet above the FEMA base flood elevation. Require electrical distribution panels and storage of hazardous materials at to be at least 3 feet above the BFE.</p> <p>Option 3: Adopt Maryland's recommended 2-foot freeboard standard by requiring elevation of 2 feet above the FEMA base flood elevation for the first floor and electrical/plumbing equipment currently required to be 8 feet above mean sea level. This would protect up to an elevation of 10 feet, sufficient to account for a base flood elevation of 9.8 feet that would result from a sea level rise of 1.5 feet by 2050 as projected by the Maryland Commission on Climate Change.</p>

Code Chapter	Current Text	Issues	Options and recommendations
Floodplain Ordinance Chapter 17.11	<p><u>17.11.280. Plans and Specifications</u></p> <p>D.4. If a variance is being applied for under the provisions of Article IV of this chapter, certification by a registered professional engineer or architect that the structure will be dry-floodproofed in accordance with the specifications of the U.S. Army Corps of Engineers in its publication EP1165-2-314 entitled "Flood-proofing Regulations" at or above nine feet above mean sea level.</p>	<p>This provision requires dry floodproofing for structures for which a variance is requested from the minimum first floor elevation. By requiring an extra foot of floodproofing, this provision complies with the National Flood Insurance Program (NFIP).</p> <p>The minimum National Flood Insurance Program (NFIP) requirement is to floodproof a building <i>to the BFE</i>. However, when it is rated for flood insurance, one foot is subtracted from the floodproofed elevation. Therefore, a building has to be floodproofed <i>to one foot above the BFE</i> to receive the same favorable insurance rates as a building elevated to the BFE. (From NFIP guidance document.)</p>	<p>These are parallel to options 1-3 in the row above and would consistently require dry floodproofing one foot higher than the first floor elevation requirement.</p> <p>Option 1: no revision</p> <p>Option 2: Require floodproofing at least 2 feet above the BFE.</p> <p>Option 3. Require floodproofing at least 3 feet above the BFE.</p>
Floodplain Ordinance Chapter 17.11	<p><u>17.11.370 Grounds for Variances</u></p> <p>A. Variances may be issued by the director for:</p> <ol style="list-style-type: none"> <li>1. New construction of or substantial improvements to nonresidential structures or any portions which will be floodproofed;</li> <li>2. Functionally dependent uses which cannot perform their intended purpose unless they are located or carried out in close proximity to water. A functionally dependent use includes only docking facilities that are necessary for the loading and unloading of cargo or passengers, and ship building and ship repair facilities, and does not include long-term storage or related manufacturing facilities; or</li> <li>3. Reconstruction, rehabilitation or restoration of structures listed in the National Register of Historic Places or State Inventory of Historic Places.</li> </ol>	<p>Retaining the integrity of historic structures is of key importance; thus, the broad variance provision for historic structures is necessary. However, with flooding expected to increase in frequency, protection of these structures to the extent possible is desirable.</p>	<p>Consider qualifying the variance provisions for historic structures:</p> <ul style="list-style-type: none"> <li>o Clarify that when interior alterations are made to historic structures, the electrical and plumbing systems should be relocated to the elevations required by sections 180 and 190 above.</li> <li>o Require floodproofing to the extent feasible while preserving the historic building exterior. Materials that can survive flooding should be used for interior renovations; when windows or doors are replaced, use floodproofing installation to the extent consistent with historic preservation goals.</li> </ul>

Code Chapter	Current Text	Issues	Options and recommendations
Zoning Code Chapter 21.50	Maritime zoning districts: bulk requirements and permitted uses Bulk Regulation Tables for the Waterfront Maritime Districts, including: <ul style="list-style-type: none"> <li>o 21.50.280.WMM</li> <li>o 21.50.290.WMC</li> <li>o 21.50.300.WMI</li> <li>o 21.50.310.WME.</li> </ul>	Periodic studies have been completed of the maritime industry in Annapolis, focusing on the industry’s economic contribution to the City. Some of the studies have recommended revisions to the Maritime zoning districts to allow more intensive development of structures. The benefits to the maritime industry will need to be balanced with the increased risk of substantial damage to buildings and infrastructure from flooding, since the maritime zoning districts are in the floodplain.	Reconsider the recommendations of maritime industry studies in light of the probability of increased frequency and severity of flooding in the Waterfront Maritime Districts.
Zoning Code Chapter Division IV Overlay District Regulation	21.54. Critical Area Overlay Zone	The area of Annapolis within the Critical Area Overlay Zone will increase if required by State legislation (as sea level rises the landward extent of tidal water will increase). Revisions to the state-mandated boundaries of the Critical Area are likely based on new surveys and sea level rise.	Evaluate the impact of any proposed expansions of the Critical Area on the Annapolis zoning map and regulations.
Zoning Code Division IV Overlay District Regulations	<u>Chapter 21.56 Historic Overlay District Article 1 Approval of Exterior Changes</u>  The code requires a certificate of approval from the Historic Preservation Commission for exterior alterations. Only “routine maintenance” is exempt from this requirement.	No timely process is provided for emergency approval of repair work if the repair work requires exterior alterations of a structure within the Historic District.	Consider providing a process for approval of emergency repairs following flooding, fire or other disaster. The process could allow administrative review and approval or provide for an emergency meeting of the Historic Preservation Commission.
Zoning Code Division IV Overlay District Regulations	<u>Issue not currently addressed</u>	Property owners in the historic district may wish to install storm protection measures such as temporary or permanent flood walls (especially if a comprehensive public flood wall project does not happen for many years). Such structures would not alter the exterior of a historic structure, but could be visible additions to the overlay district	Address the possibility of property owners using storm protection measures such as temporary or permanent flood walls. These would need to be approved by the Historic Preservation Commission if located in the Historic Overlay District.

<b>Code Chapter</b>	<b>Current Text</b>	<b>Issues</b>	<b>Options and recommendations</b>
Zoning Code various sections	Height standards for most zoning districts range from 30 to 48 feet. The historic overlay district requires a maximum cornice height of 22 to 35 feet.	If the first floor elevation is revised upwards due to sea level rise, the useable building height is reduced. However, the heights allowed by the Annapolis zoning ordinance are sufficiently high to allow adequate useable building area.	In future revisions to the Zoning Ordinance, evaluate height limits if problems are encountered due to the need for higher first floor elevations.

Code Chapter	Current Text	Issues	Options and recommendations
Zoning Code Chapter 21	Add a new overlay zoning district.	<p>Add a “Coastal Floodplain Overlay Zone” on zoning maps, covering an area that includes the City’s current base floodplain and areas projected to be within the base floodplain by 2050, using the 8.3-foot elevation projected in the WBCM study. Apply this overlay zone only to the current and projected base floodplain in areas affected by coastal tides and floods; not to the city’s inland floodplains along rivers and streams.</p> <p>The floodplain ordinance, being closely tied to FEMA regulations, cannot easily be revised to regulate the areas not currently in the base floodplain but expected to be by 2050. The zoning ordinance is the other ordinance that lends itself to requirements that apply to a mapped district. The Maryland Climate Change Plan recommends creation of districts that add to the FEMA-delineated base floodplain for areas anticipated to experience increased flooding by 2050 (Maryland <i>Climate Action Plan</i>, EBEI-8).</p> <p>Include requirements in this overlay zone that parallel those in the floodplain district. However, provide standards used by FEMA for coastal flooding areas, typically applied to areas of greater hazard due to wave action.</p> <p>FEMA designates all of the Annapolis floodplain as “AE” areas; FEMA uses the designation “VE” for coastal areas where floods are expected to have waves higher than 3 feet.</p> <p>NFIP guidance to local jurisdictions recommends the following:</p> <p style="padding-left: 40px;">NFIP regulations apply the same minimum requirements to both coastal AE zones and riverine AE zones. FEMA has concluded that these standards may not provide adequate protection in coastal AE zones subject to wave effects, velocity flows, erosion, scour, or combinations of these forces. Wave tank studies have shown that breaking waves considerably less than the 3-foot criteria used to designate VE zones can cause considerable damage. FEMA’s <i>Coastal Construction Manual</i>, FEMA-55 (May 2000) and other recent FEMA publications have introduced the concept of Coastal AE Zone to encourage use of V-zone construction methods and standards in these areas. For example, pile or column or other open foundations are more likely to withstand wave impacts than other types of foundations. If your community contains Coastal AE Zones, you are encouraged to revise your ordinances to apply all or some of the VE zone standards to these areas.</p>	<p>Apply “VE” area coastal floodproofing standards, as provided in FEMA regulations, within the Coastal Floodplain Overlay Zone. State that for lots within both the overlay zone and the floodplain district, the more stringent requirements apply.</p> <p>Review boundaries regularly to compare with flood history and new projections.</p>

<b>Code Chapter</b>	<b>Current Text</b>	<b>Issues</b>	<b>Options and recommendations</b>
Title 15, Harbors and Waterfront Areas.	<u>Issue not currently addressed</u>	Bulkheads and piers are installed at varying heights as determined by the property owner. There are no minimum height requirements.	Reduce storm damage by requiring that the top of bulkheads and piers generally have a minimum elevation of 8.3 feet. Allow flexibility where this elevation is not feasible given the elevation of the specific property.
Subdivision Ordinance 20.20.010 Required Improvements	B.Culverts, Storm Drains, and Drainage Structures—Erosion Control. Culverts, storm drains and drainage structures shall be constructed in, under or along streets and alleys, and bulkheads, groins or other erosion control features along streams, rivers and other watercourses and their embankments, as required by the director to prevent frequent and probable damage from stormwater, or to prevent frequent occurrence of a flow of stormwater on streets as to present a hazardous condition for moving vehicles and pedestrians, to maintain the flow of stormwater in its natural channels or to protect the shoreline from erosion. "Frequent," as used in this section, is intended to designate a probable frequency of not less than once in ten years when averaged over a long period. Protection against erosion of natural channels or watercourses on adjoining property and adequate shore erosion control is required.	During coastal flood events, water in storm drains can be forced backwards, flooding areas that they are intended to drain.	Require that for storm drains within the current or projected 100-year floodplain, backflow preventers be installed.



### **III. Summary of Recommended Actions in Other Jurisdictions**

Like Annapolis, other east coast jurisdictions are responding to projected sea level rise by evaluating possible courses of action. These courses of action include the need for additional analysis and planning as well as for capital projects and regulatory changes. Following is a summary of the recommended responses for selected jurisdictions, focusing on recommended revisions to regulations. For the jurisdictions reviewed for this report, the actions have not yet been implemented through code revisions.

#### **A. Maryland Jurisdictions**

##### **1. Sea Level Rise: Technical Guidance for Dorchester County, October, 2008**

Nearly 60% of Dorchester County lies in the current 100-year floodplain, with most of that area being tidal floodplain. The grave impacts of sea level rise in Dorchester County have resulted in strongly worded recommendations in its report. The report recommends that the Economic Development staff work with companies in sea level risk areas in relocation efforts. It also notes the potential of amending forest conservation requirements to address forest habitat that would manage the level of groundwater, serve as protective buffers to salt marshes and nontidal wetlands, and prohibition of forest harvest on areas with high water tables that lie adjacent to salt marsh.

Following are recommendations for a “Sea Level Risk Overlay Zoning District for Dorchester County:

- Prohibit new subdivisions
- Prohibit expansion of footprints on existing developed lots
- Restrict major renovations of structures to cosmetic repairs, re-roofing, and replacement of appliances
- Prohibit use of bermed infiltration ponds for development on unimproved lots
- Restrict septic disposal facilities to state of the art facilities whose integrity would not be compromised by storm surge
- Require well heads to be raised above the base flood elevation plus a height to accommodate wave action on storm surge
- Require a minimum two-foot freeboard above base flood elevation
- Until federal agencies can update their maps, assume the 100-year flood elevation to be equivalent to the Category Two storm surge elevation, which will vary depending on the waterway
- Provide for the closure of inundated roads where an alternate route exists
- Provide for the termination of maintenance for roads that serve only a few occupied residences
- Provide for the termination of maintenance on roads where the cost to maintain exceeds the Fair Market Value of the properties it serves
- Initiate participation in the National Flood Insurance Program (NFIP) Community Rating System; implement provisions for a buy-out program

- Identify properties for potential buy-out. Rank them in order of level of immediate risk.
- Assess forest loss and identify reforestation sites outside the sea level risk zone
- Assess wetland losses and identify suitable areas to accommodate sea level encroachment and conversion to new wetlands
- Strongly participate with Corps of Engineers projects to restore and/or create barrier islands which act as buffers to the wetlands and mainland behind them.
- Prohibit investment on new infrastructure in the SLR District
- Abandon, relocate, raise, or seal any infrastructure that will sustain damage by inundation

## 2. **Somerset County Rising Sea Level Guidance, March 2008**

Following is a summary of recommended code revisions for Somerset County:

- Re-delineate the landward boundary of Conservation Zone to coincide with the 2050 inundation area and reduce the allowed density (retain current zoning for existing villages).
- Require planning for certain roads to anticipate more frequent flooding.
- Regulate the areas projected to be within the 100 year flood plain as a “Floodplain Planning Zone.”
- Require structural use of perimeter wall foundations and piling/column foundations (avoids drainage problems, facilitates potential future relocation of buildings).
- Require the lowest floor of all new buildings and substantially-improved buildings to be at least 2 feet higher than the currently required Base Flood Elevation. This will result in NFIP flood insurance savings.
- Within the predicted 2050 inundation area, require proposed central package treatment systems to be designed and installed to recognize anticipated flooding and groundwater conditions.
- Require subdivision sketch, preliminary and final plats to show the “Floodplain Planning Zone.”
- Modify Sec. III.C.2(c)(11) to require that preliminary plats delineate the ‘floodplain planning zone’.
- For roads that will be frequently inundated, identify requirements for elevated roads or for low water crossings (i.e., design them to be low to avoid blocking drainage, but require owners to acknowledge access limitations). Also improve road bedding as groundwater levels rise; removal of more unsuitable material to bear the placement of thicker fill materials may be required. Require more underdrains/crossdrains to allow for drainage.

## 3. **Worcester County Sea Level Rise Guidance Document, 2008**

This document reports that Worcester County recently amended its Floodplain Law to require a 2-ft above base flood elevation requirement for the lowest horizontal structural member of the structure. This is the FEMA standard for V-type or higher hazard floodplains. Its guidance document contains the following concepts:

- An overlay zoning district requiring sea level rise-related elevation and flood proofing requirements.
- Public education to encourage retrofitting of structures that do not meet floodproofing or elevation, standards, based on continued remapping of flood probabilities, combined with financial assistance or incentives and stringent rebuild policies.
- A post-disaster redevelopment ordinance or plan with rebuild policies that require flood retrofits in areas projected for sea level rise inundation or surge from sea level rise.
- Designation in the overlay zoning district of areas where septic tanks and hazardous materials must be removed to prevent pollution of coastal waterbodies. A progression of this district based on sea level rise rates in conjunction with a grace period could be used to give property owners advance notice of the requirement. • Require removal of old tanks as a condition of property transfer or utility hook up.
- Down-zoning of flood-prone areas to encourage retreat, so that any redevelopment would be less dense. Non-conforming uses could be restricted from expanding or rebuilding.
- Prohibition on rebuilding in projected sea level rise inundation areas that have been designated for retreat. The zoning regulations could include a non-conforming structure rule that limits substantial improvements.
- Subdivision design standards requiring that the size and shape of subdivided parcels be based on projected sea level rise such that development can potentially be accommodated. Deep lots would be necessary to accommodate setbacks for coastal lots.
- Subdivision standards that add shoreline protection prohibitions or rolling easement requirements. (Rolling easements require retreat from eroding shorelines after a given period of time.)

#### 4. **Anne Arundel County Background Report on Sea Level Rise, General Development Plan 2008**

This background report found that the County's General Development Plan should recommend an integrated planning strategy that, at a minimum, addresses potential threats in at-risk areas and proposes a phased implementation response to achieve avoidance or reduction of impacts, under the following categories:

- Land use, zoning, and population density regulations to reduce population and investments at risk;
- Public and market-based incentives/disincentives to reduce property damage and threats to human health;
- Planning for community infrastructure such as roads, schools, public safety and medical facilities, water and wastewater systems, gas, electrical and communications utilities to ensure public safety; and
- Maintenance of existing and future natural resource lands, wildlife habitat, and agricultural lands to minimize impacts from storm surge.

Anne Arundel County is currently developing a more specific sea level rise strategy.

## **5. Town of Queenstown 2010 Community Plan**

This plan identifies the approximate area that would be affected by the storm surge from a Category III hurricane. Models indicate that the storm surge would be 9 to 12, feet, impacting an area larger than the FEMA flood maps, which identify areas with storm surges as high as 10 feet. The town has identified potential flood zones based on a 12-foot storm surge using fine-scale topography. Future development would be directed outside these areas.

## **B. Jurisdictions Outside Maryland**

### **1. Portsmouth Virginia Floodplain Management Plan and Repetitive Loss Plan: September, 2010**

This plan was produced for Portsmouth's participation in the Community Rating System, a voluntary program under the National Flood Insurance Program that encourages communities to complete an assessment of the local floodplain management program. In exchange for undertaking this process, the citizens will pay reduced flood insurance premiums and are also better prepared to take advantage of other federal and state funding and grant programs.

Although the report addresses sea level rise only in general terms, it does state that the City has, in the past 4 years, enacted Freeboard requirements, created a new definition for substantial damage to facilitate insurance claims and reduce future claims, and prohibited certain materials from being stored in flood hazard zones.

The report also provides a summary of actions, primarily non-regulatory, that are used by the City of Portsmouth to protect its infrastructure and citizens during flooding. The report includes:

- A list of streets that routinely flood
- A list of government facilities in flood-prone areas.
- Areas where flooded roads would hamper evacuation and emergency services to an area of the city.
- Lists of "Repetitive Loss" structures under the NFIP.
- A list of utility facilities that need to be raised to an elevation of 9.5 feet to protect water and sewer utility system from damage and interruption of services due to flood damages.

The report contains recommendations for city actions:

- Map commercial operations that store hazardous materials and that are in flood hazard areas.
- Prepare evacuation policies that include actions for disabled individuals; require all applications for nursing homes and similar facilities to have an emergency operations plan
- Increase the ability of the school system to provide shelters/temporary housing for flood victims
- Provide protection from surge flooding for certain areas.
- Continue with existing storm drainage evaluation and planning underway under the direction of the City Engineer.
- Implement measures that reduce street flooding during rain events.
- Identify and fund drainage improvement projects.
- On a five year basis determine the rate of sea level rise using the most accurate information available and amend plans accordingly.

- Prepare and adopt an overlay zoning district that addresses sea level rise.

## 2. The City of Lewes Hazard Mitigation and Climate Adaptation Action Plan: June, 2011

Key recommendations of this plan from Lewes, Delaware include:

### **Zoning Code**

Review, and when appropriate, adopt the following specific suggestion for regulations that exceed the National Flood Insurance Program (NFIP) minimums.

- Create a freeboard standard for homes in the floodplain.
- Create stricter flood regulations for critical facilities (hospitals, fire stations, hazardous materials storage sites, etc.).
- Create specific development prohibition in floodplain areas. Examples include the prohibition of new sheds in the floodplain and prohibiting the expansion of the footprint of existing homes.
- Create a floodplain setback – requiring that homes be built a minimum distance from the floodplain, river channels or shorelines.
- Protect of flood storage capacity – using land development criteria and low density zoning to reduce the damage potential within the floodplain and help maintain flood storage and conveyance capacity.

### **Planning Regulations**

- The 100 year flood standard for setting floor elevations is neither adequate nor is it sustainable. Regulate development to future risk level, not past. Update flood maps to include future flood risks
- All new construction and substantial improvements have lowest floor elevated at least 1 to 2 feet of freeboard above FEMA's 100 year flood elevation.
- New lots should not be created in the floodplain.
- Limit new development in the floodplain – no new subdividing, infilling existing lots allowed but to higher standards.
- New structures should be set back adequately from eroding shorelines to allow for dune and beach preservation over the lifetime of the structure, taking into account expected erosion rates.
- Adopt a No Adverse Impact approach to regulation to reduce or eliminate practices which increase flood risk to adjacent properties.

### **Risk Management and Flood Mapping –recommended changes**

- Utilize best available technology to map risk and plan development accordingly.
- Use new technologies to more easily visualize risk.
- Manage flood risk to future levels, not current or past. Stop using floodplain maps which depict current or past risk to design future construction.
- Evacuation and street flooding should be incorporated into subdivision design.
- Roads servicing new development should be located above the base flood elevation

## Appendix 1 Glossary

**Base Flood:** A flood that has a 1.0 percent chance of being reached or exceeded in any single year. Also called the “one-hundred year flood” or the “one-percent annual chance flood.”

**Base floodplain:** The land area covered by the floodwaters of the base flood floodplain. On NFIP maps, the base floodplain is called the Special Flood Hazard Area (SFHA).

**Base Flood Elevation (BFE):** The computed elevation to which floodwater is anticipated to rise during the base flood.

**Dry Floodproofing:** Use of materials and design that prevent water from entering the structure. Only effective where flood levels are low (i.e., below 3 ft) and there is little flow velocity (FEMA, 1998).

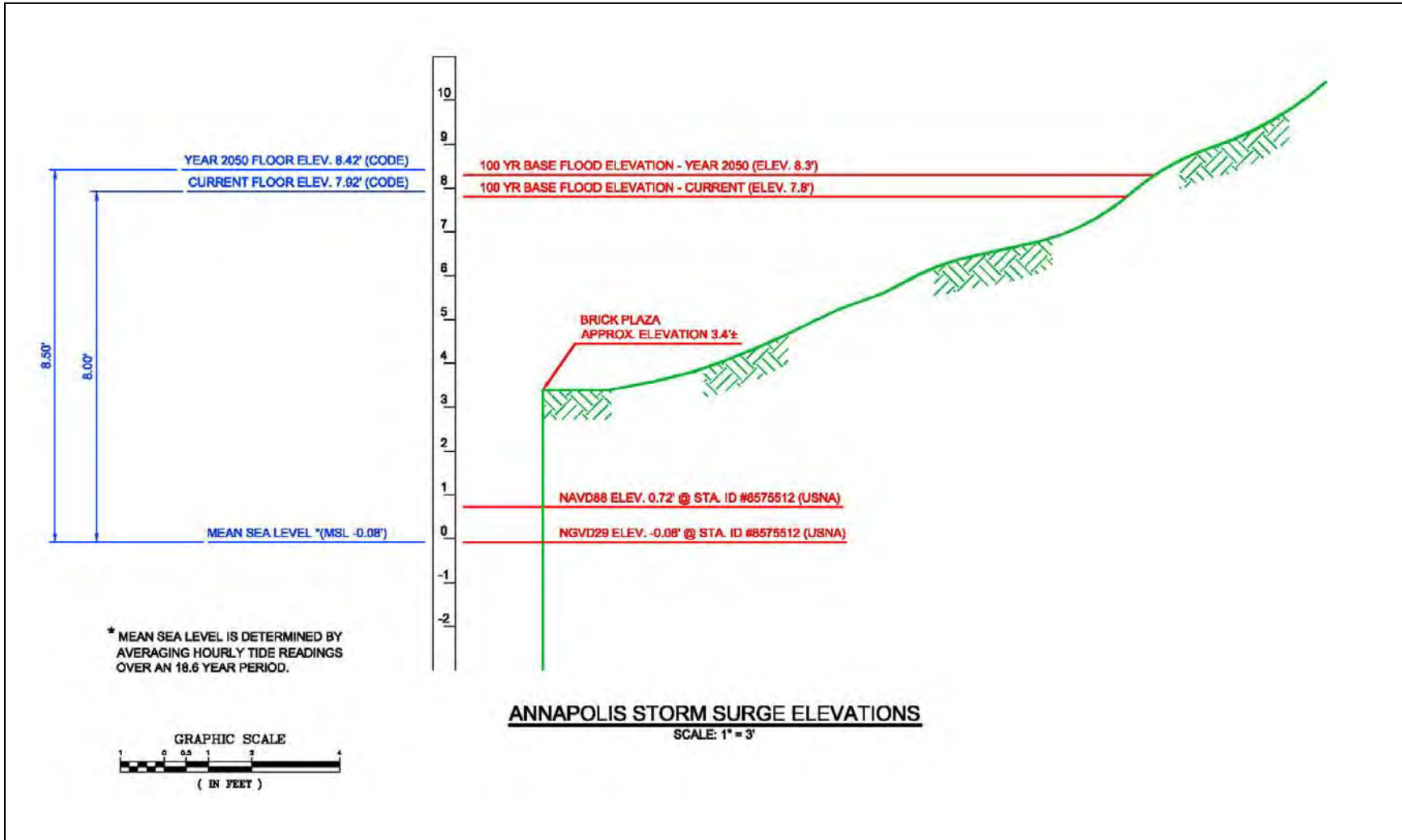
**Freeboard:** An additional height requirement above the base flood elevation (BFE) that provides a margin of safety against extraordinary or unknown risks. Freeboard elevations reduce the risk of flooding and make the structure eligible for a lower flood insurance rate.

**Storm Surge:** increased water levels that occur when storms bring air pressure changes and strong winds that “pile” water up against the shore.

**Wet Floodproofing:** Use of materials and design that allow water to enter the structure but not damage structural components or service equipment.

## Appendix 2 Floodplain Ordinance Requirements

This diagram shows the current Floodplain Ordinance requirement that the first floor be at least eight feet above sea level (§17.11.130) based on the NGVD 29 datum referred to in the Floodplain Ordinance definitions. This requirement places the first floor at an elevation of 7.92 feet, only just above the FEMA current base flood elevation of 7.8 feet, but below the projected 2050 base flood elevation of 8.3 feet.



### Appendix 3 Floodplain Ordinance Requirements with Updated Sea Level

This diagram shows application of the current Floodplain Ordinance if the definitions in the Ordinance are updated to refer to the current measurement of Mean Sea Level, using the NAVD 88 datum for measurement. A first floor placed 8 feet above mean sea level as required by §17.11.130 would be at elevation 8.72 feet, above FEMA’s current base flood elevation of 7.8 feet and slightly above the projected 2050 base flood elevation of 8.3 feet.

